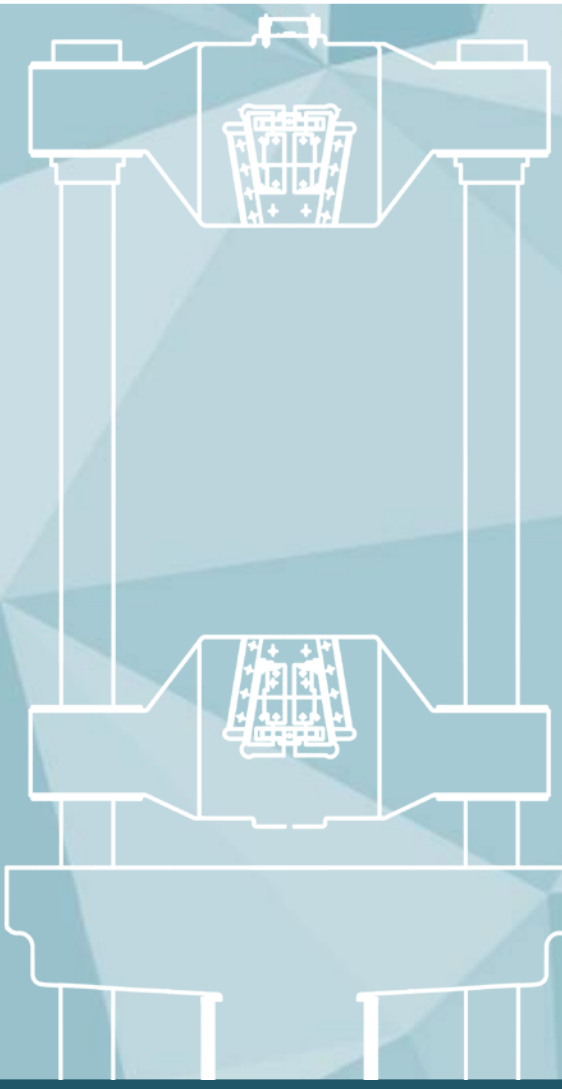
CHIR-AYU

CHIR-AYU CONTROLS PVT. LTD.



UTM SERIES

UNIVERSAL TESTING MACHINE

50 | 100 | 200 | 300 | 600 | 1000 | 1200 | 2000 Kn Capacity

Conforming to IS, ISO and ASTM Standards

STEEL

- Tensile tests on steel rebars and rounds
- Tensile test on steel flats
- Tensile tests on wire strands and electro-welded steel screen
- Transverse tests on steel specimens
- Bend and re-bend tests on steel specimens
- Brinnel with 10mm ball
- Shear tests on rounds

CONCRETE

- Compression tests on cubes and cylinders
- Flexural tests on concrete beams
- Indirect tensile on cylinders, cubes and paving blocks
- Determination of the Modulus of elasticity
- Pull out test

VARIOUS

- Compression tests on rock, masonry units, refractories, etc
- Wire rope tensile tests
- Nut bolt testing
- Tensile test on headed and shouldered specimens

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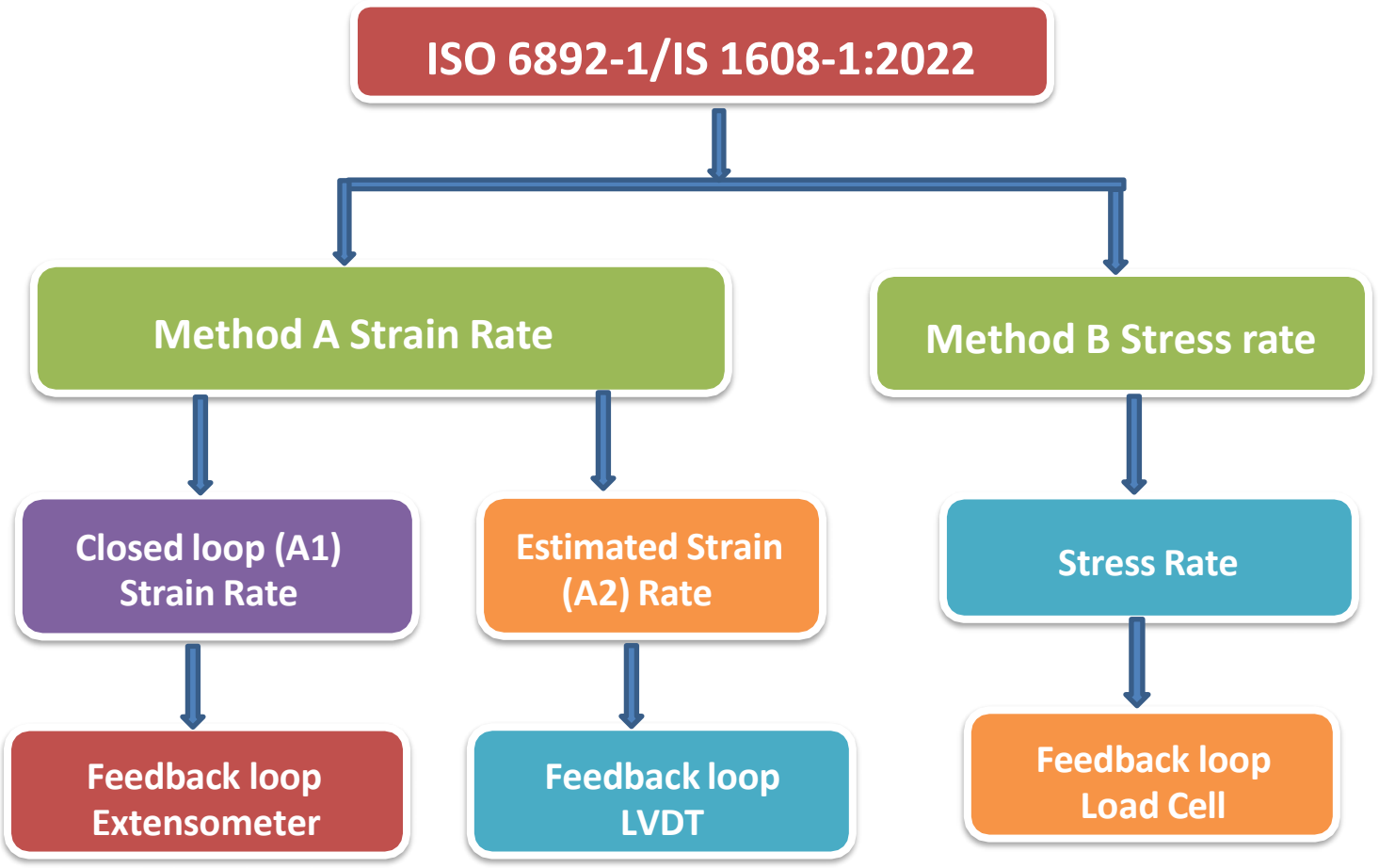


- **OBJECTIVE OF TENSILE TESTING:**
  1. To determine mechanical properties of metallic materials.
  2. To measure Yield Strength, Ultimate Tensile Strength, and Elongation.
  3. To evaluate material behavior under controlled strain or stress rate.

- **WORKING PRINCIPLE:**

  The machine applies tensile load gradually while maintaining the required strain or stress rate through a closed -loop feedback system. The feedback devices (Extensometer, LVDT, Load cell) ensure precision, repeatability, and compliance with testing standards.

- UTM – E SERIES

CHIR-AYU CONTROLS PVT. LTD.

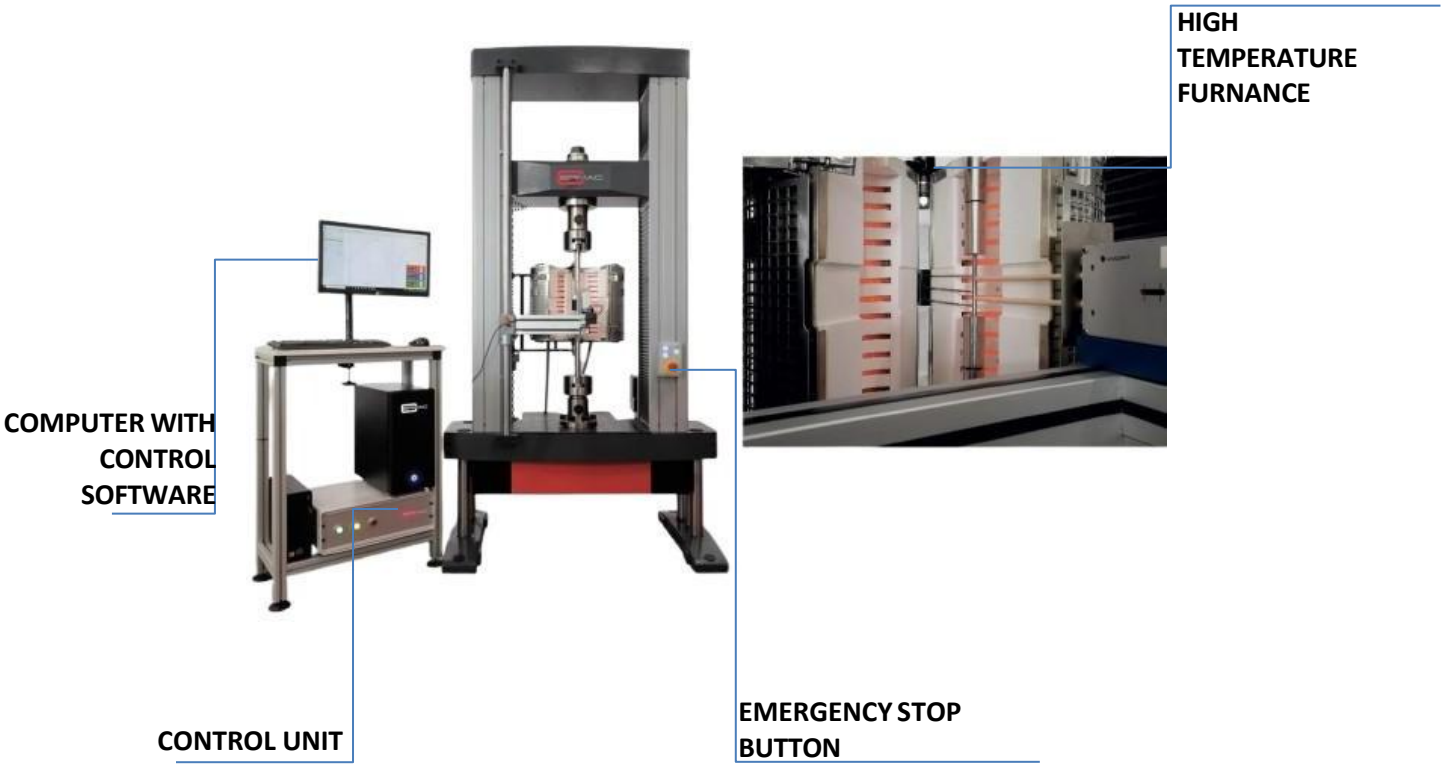
The computer-controlled testing machines designed to measure how materials behave under different forces. They can perform tension, compression, bending, and flexure tests using load, displacement, or strain control. They are suitable for testing medium- and low-strength materials in industries for quality control, accredited labs for material certification.

MODELS	UTM 50E /UTM100E	UT M200E	UTM300E
Load capacity	**50 kN - 100 kN**	**200kN**	**300kN**
Accuracy	Class 1 (or better) to 1 % of full-scale ISO-7500		
Speed range	from 0.001 to 250 mm/min		
Maximum stroke	800 mm	800 mm	800 mm
Vertical test area space	550 mm	650 mm	650 mm
Test area width	420 mm	650mm	650 mm
Frame dimensions	1050 x 620 x 2050	1250 x 720 x 2300	1250 x 720 x 2300
Weight of the frame	650 kg	1650 kg	1850 kg
Power supply	1.5 kW 230 V / 50 Hz / single phase	2.5 kW 400 V / 50 Hz / 3 phases (5 poles)	
ADC Converter	24 bit / 1 kHz		

UTM - E SERIES
HIGH TEMPERATURE TENSILE TESTING

CHIR-AYU CONTROLS PVT. LTD.

It's a versatile, computer-controlled testing machine that measures the strength of medium and low-strength materials under tension, compression, bending, or flexure. The machine can control tests by load, movement, or material strain and can be customized with various accessories. It's widely used for quality control, material certification, research, and educational purposes, helping industries, labs, and schools study material performance accurately.

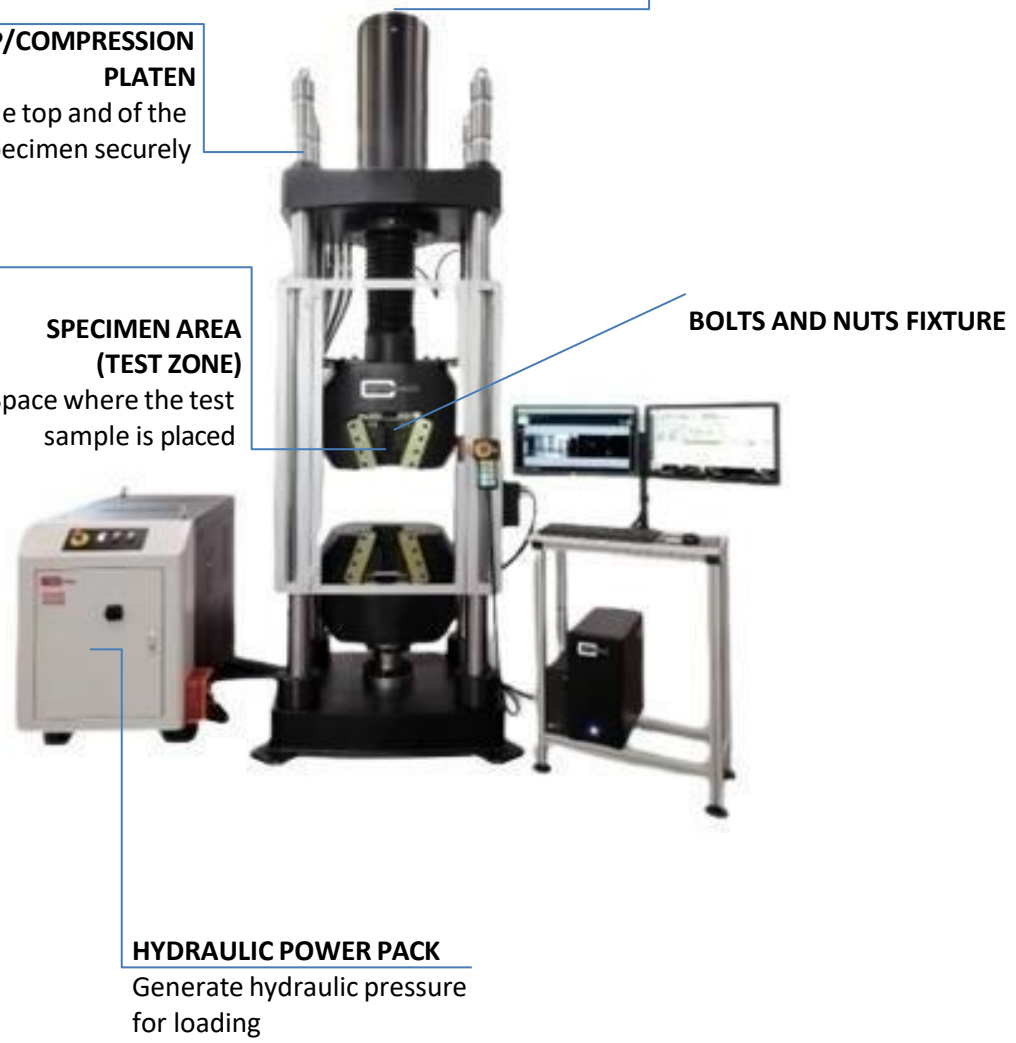


MODEL	UTM200E	UTM300E
Load capacity	**100 kN**	**200kN**
Accuracy	Class 1 (or better) to 1 % of full-scale ISO-7500	
Speed range	from 0.001 to 250 mm/min	
Maximum stroke	800 mm	800 mm
Vertical test area space	650 mm	650 mm
Test area width	650 mm	650mm
Frame dimensions	1050 x 620 x 2050	1250 x 720 x 2300
Weight of the frame	850 kg	1650 kg
Weight of Hydraulic jaws power pack	5.5 kW 400 VAC / 50 Hz / 3 phases (5 poles)	
Power supply	24 bit / 1 kHz	
ADC converter	1200 °C	
	No. 3 K type, S type on request	
	Tubular split tube with 3 independent heaters, 230V / 3.3 kW	

UTM - H SERIES

CHIR-AYU CONTROLS PVT. LTD.

Universal, servo-controlled hydraulic testing machines are advanced systems designed to test materials under **tension, compression, bending, and flexural loads**. They can operate in load, displacement, or strain control modes and come with a range of accessories and customization options to suit specific testing needs.



MODELS	UTM600H	UTM1000H	UTM2000H
Load capacity	600 kN	1000kN	2000kN
Accuracy	Class 1 (or better) from 1 % of full-scale ISO-7500		
Moving speed	from 0.1 to 200 mm/min		
Stroke of the actuator	580 mm	650 mm	700 mm
Vertical test area space	780 mm	850 mm	820 mm
Test area width	480 mm	550mm	700 mm
Frame dimensions	850x850x3500 mm	1050x1050x3500 mm	1200x1200x4100 mm
Hydraulic pack dimensions	680 x 1100x 930 mm		
Weight of the frame	3000 kg	4500 kg	9500 kg
Weight of the Hydraulic pack	400 kg	400 kg	400 kg
Power supply	6 kW 400 VAC / 50 Hz / 3 phases (5 poles)		
ADC Converter	24 bit / 1 kHz		

M – SERIES VIDEO EXTENSOMETER

CHIR-AYU CONTROLS PVT. LTD.

The M-Series video extensometer by X-Sight is a non-contact strain measurement system that uses advanced Digital Image Correlation (DIC) technology to accurately measure axial and radial strain during tensile testing. Fully integrated with Cermac testing machines and software, it requires no specimen markings or external hardware. It is suitable for a wide range of materials and applications, including high-temperature testing up to 1400°C (HT version), and includes video recording and playback capabilities.

MACHINE CONTROL SYSTEM – TESTING XE:

It's a smart control system for a testing machine.

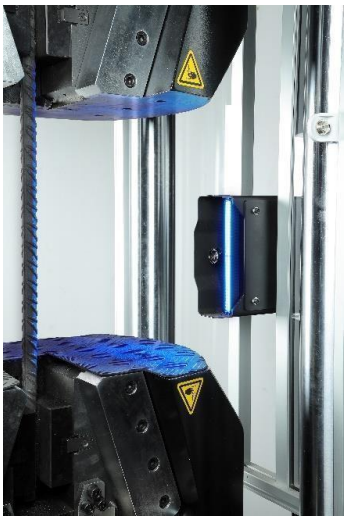
It collects data from sensors (like force, movement, and material deformation) in real time with very high accuracy. The software lets the operator set up tests easily, watch results live, and automatically save everything in a database.

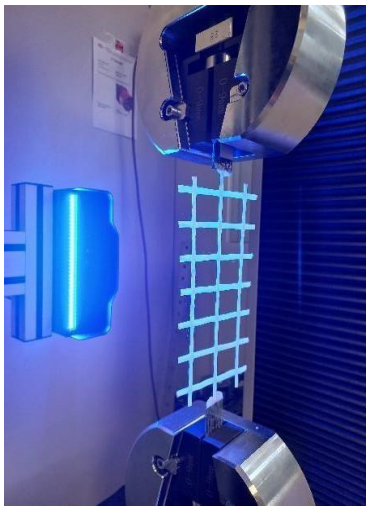
It also creates professional reports, allows multiple users to access the data over a network, and supports Industry 4.0 **integration.**

VIDEO EXTENSOMETER		
Model	M5	M9
Type of sensor	CMOSCMOS	
Resolution	5 M pixels	9 M pixels
Pixel dimension	0.00345 mm.	
Frame rate at maximum resolution	75 Hz	32 Hz
Digital interface	USB 3.0	
Working distance with 16 mm. lens focal length	Class 0.5: 213mm. Class 1: 459 mm. Class 2: 950 mm.	Class 0.5: 233 mm. Class 1: 494 mm. Class 2: 1017 mm.

-TEST ACCESSORIES

CHIR-AYU CONTROLS PVT. LTD.





HPU 200 SERIES

CHIR-AYU CONTROLS PVT. LTD.

The ideal solution for Central Laboratories. Powerful hydraulic system which offers high test throughput improving the efficiency of the laboratory. Also suitable for controlling a second frame for Concrete compression up to 5000 kN and flexural tests.

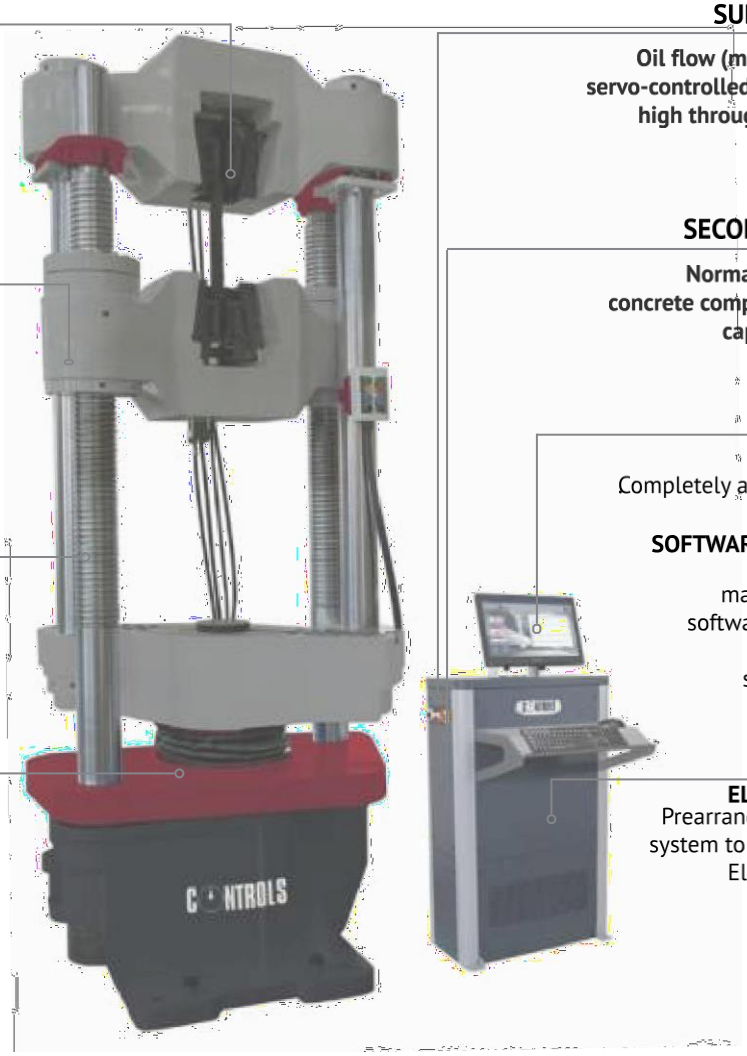
The range includes four models of 1000 kN, 1200 kN, 1500 kN and 2000 kN cap. All models are controlled by the new and sophisticated computerized HPU 200 control unit and are complete with PC, upper and lower hydraulically operated jaws, complete set of grips for rounds and flats, transverse test attachment and high precision load cell providing high accuracy from the very beginning of the load scale.

FRONT OPEN CROSSHEAD
For easy insertion of tensile specimens by just pulling from the front. Hydraulic gripping system operated by push button panel.

RUGGED FOUR COLUMN FRAME
Extremely rigid four column frame with large vertical clearance adjustable by using the dedicated push button panel.

RANGE
From 1000 kN up to 2000 kN capacity.

HIGH ACCURACY WITH LOAD CELL
Load measurement by high precision load cell providing high accuracy from 1% of the full scale.



SUPERIOR HYDRAULICS
Oil flow (max 3.2l/min) control by servo-controlled proportional valve for high throughput of accurate tests.

SECOND FRAME CONTROL*
Normally adopted to connect concrete compression up to 5000 kN cap or any flexural frame.

PC CONTROLLED
Completely automatic test execution

SOFTWARE PACKAGES INCLUDED
Supplied complete with management software and software packages concerning wide range of tests on steel, concrete and other construction material.

ELASTIC MODULUS TEST*
Prearrangement of the Hydraulic system to perform the Modulus of Elasticity test on concrete.

Tecnical specifications

Models	UT100-HPT-HG	UT120-HPT-HG	UT150-HPT-HG	UT200-HPT-HG
Capacity kN	1000	1200	1500	2000
Max round specimen, dia mm	60	60	60	78
Max flat specimen, wxt mm	60x90	60x100	60x100	72x100
Max vertical clearance for compression/tension mm	850	850	850	850
Load resolution kN	0.01	0.02	0.02	0.02
Crosshead displacement resolution mm	0.01	0.01	0.01	0.01
Machine class 1 range (EN ISO 7500-1) kN	10-1000	12-1200	15-1500	20-2000

AUTOMAX - T

CHIR-AYU CONTROLS PVT. LTD.

The ideal solution for Commercial laboratories and Educational purposes. Featuring almost the same performances of the HPU 200 Series at a more affordable price thanks to the application of the AUTOMAX T technology.

This model is controlled by the new AUTOMAX T Control Con sole and is complete with PC, upper and lower hydraulical ly operated jaws, complete set of grips for rounds and flats, transverse test attachment and high precision load cell pro viding high accuracy from the very beginning of the load scale

FRONT OPEN CROSSHEAD
For easy insertion of tensile specimens by just pulling from the front.
Hydraulic gripping system operated by push button panel.

RUGGED FOUR COLUMN FRAME
Extremely rigid four column frame with large vertical clearance adjustable by using the dedicated push button panel.

HIGH ACCURACY WITH LOAD CELL
Load measurement by high precision load cell providing high accuracy from 1% of the full scale.

PC CONTROLLED
Completely automatic test execution.

SOFTWARE PACKAGES INCLUDED
Supplied complete with management software and software packages concerning wide range of tests on steel, concrete and other construction material.

ENERGY SAVING TECHNOLOGY
ES Energy saving technology to control the oil flow (max 0.9 l/min) by regulating the DC motor speed.

ELASTIC MODULUS TEST
Suitable to perform the Modulus of Elasticity test on concrete.

Tecnical specifications

Models	UT100-AUTOMAX-HG
Capacity kN	1000
Max round specimen, dia mm	60
Max flat specimen, wxt mm	60x90
Max vertical clearance mm	850
Load resolution kN	0.01
Crosshead displacement resolution mm	0.01
Machine class 1 range (EN ISO 7500-1) kN	10-1000

UTM-AUTO SERIES

CHIR-AYU CONTROLS PVT. LTD.

The most simple and convenient solution for Construction laboratories.

These models are controlled by the UTM-AUTO Control Console and are complete with upper and lower manu - ally operated jaws, complete set of grips for rounds and flats, transverse test attachment and high precision pres - sure transducer.

RUGGED FOUR COLUMN FRAME
Extremely rigid four column frame with large vertical clearance adjustable by using the dedicated push button panel.

TENSILE GRIPS
Complete set of grips for rounds and flats.

SOFTWARE PACKAGE
Data acquisition and test results elaboration by intuitive and very comprehensive software (included).

AUTOMATIC SYSTEM
Completely automatic test execution of tension and compression tests.

HYDRAULIC UNIT
DC motor with dual stage pump: centrifugal low pressure for fast approach (max. flow rate 2.5 l/min) automatically switching to radial multi- piston high pressure (max. flow rate 0.9 l/min) for loading.

Tecnical specifications

Models	UT60-AUTO-HG	UT100-AUTO-MG
Capacity kN	700	1000
Max round specimen, dia mm	70	70
Max flat specimen, wxt mm	65x70	65x70
Max vertical clearance mm	850	850
Load resolution kN	0.01	0.01
Crosshead displacement resolution mm	0.01	0.01
Machine class 1 range (EN ISO 7500-1) kN	50-700	50-1000

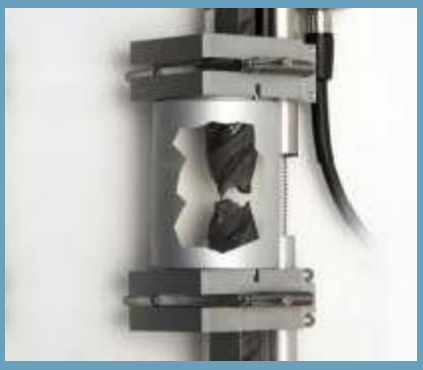
Test accessories

CHIR-AYU CONTROLS PVT. LTD.

STEEL

Extensometer for strands

Universal extensometer



Coaxial extensometer

Bend and rebend on steel

Grips for strands testing

Double shear test device

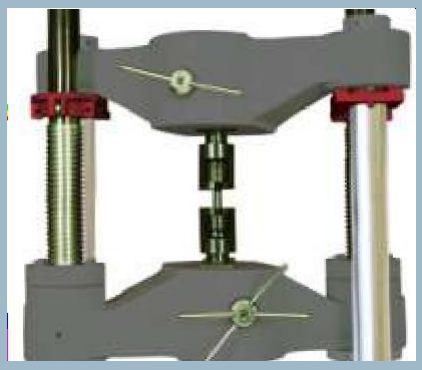
CONCRETE

Splitting on concrete

Flexure on concrete

Elastic modulus on concrete

VARIOUS



Tension on threaded and shouldered head samples

Wire rope test accessories

Nut and bolt test accessory