

UNIVERSAL TESTING MACHINES WITH AUTO PACER

HLC-591 machine in construction are similar to HL-590 model series except for the automatic pace setting arrangement. In these series of machines the pace setting is achieved through a combination of advanced electronic and hydraulic system. Pacing speed is programmed through the key board which is directly displayed in engineering units on the digital indicator.

When the machine is given the command to start it immediately controls the signal passed on to the proportional valve.

Proportional valve has a drive card which corrects the error between the feed and the follower signal which makes the machine to run at a set speed irrespective of any specimen behavior. Processing is done in P.I.D controller at the speed of 10 KHz. Computer is dedicated component which has a high speed data acquisition and controlling card (DAQ). This keeps the pace rate within the limits of $\pm 2\%$ of the programmed value. On line graph of load vs.

displacement is shown on the screen where as in the offline it gives the total details on the listed specimen, like breaking. Load, elongation at breaking load, shear value, specimen identification detailed time of test.

All controlling is through the keyboard of the computer. It has a unique facility to show post failure behaviour and hold load at any position. Even it has a facility for negative ramping which is required in case of compression test. Middle and top cross head of the loading unit are fitted with hydraulic motors for clamping & declamping of the specimen under tensile test. To facilitate easy operation a portable module is provided with control switches. This module has an additional facility for controlling the movement of the middle cross head to suit the specimen size. In addition to this, it also has a facility to switch on or switch off the main pumping unit.

OPTIONAL ACCESSORIES FOR 590 & 591 SERIES:

- **Bend rebend attachment**
- **Computer complete with Monitor, Keyboard.**
- **Roller support for Leaf Spring Testing**
- **Shear Test Attachment**
Suitable for size 5 mm, 6mm, 10mm, 12mm, 16mm, 20mm diameter.
- **Load Stabilizer**
Suitable for stabilizing load at any particular point for about 10 minutes
- **Brinell Hardness Test Attachment**
Attachment suitable to carry out brinell Hardness Test complete with 5 mm or 10mm ball indenters
- **Wire Rope Test Attachment**
Suitable to carry out Tensile Test on wire ropes upto 10mm
- **Bolt Test Attachment**
Attachment to accommodate bushes to test threaded and collar type specimens : (i) Eight set of plain bushes for testing collar type specimens from 4mm to 20mm. (ii) Eight sets of threaded bushes for testing threaded specimens from 4mm to 20mm.
- **Electronic Extensometer**
Gauge length of 50mm and $\pm 50\%$ measuring range sensitivity of 1 micron. It can be used for round and flat specimens.



HLC - 591



Catalououe No.	HL590.05 HLC591.05	HL590.10 HLC591.10	HL590.15 HLC591.15	HL590.20 HLC591.20	HL590.25 HLC591.25	HL590.30 HLC591.30
Maximum Capacity (kN)	100	200	400	600	1000	2000
1st. Measuring Range (kN)	0-20	0-20	0-200	0-200	0-200	0-200
Least Count (N)	10	10	100	100	100	100
2nd. Measuring Range (kN)	20-100	20-200	200-400	200-600	200-1000	200-2000
Least Count (N)	100	100	1000	1000	1000	1000
Clearance for Tension test (mm)	50-750	50-750	50-750	50-800	50-850	50-900
Clearance for compression test	0-750	0-750	0-750	0-800	0-850	0-900
Ram Stroke (mm)	200	200	200	250	250	250
Piston speed at no load (mm/min)	0-300	0-150	0-150	0-100	0-80	0-40
Clearance between columns (mm)	500	500	500	600	750	750
Connected Load (K.W.)	2.1	2.1	2.1	2.5	3.5	4.5
Operating Voltage	400-440	400-440	400-440	400-440	400-440	400-440
Phase	3	3	3	3	3	3
STANDARD ACCESSORIES SUPPLIED WITH THE MACHINE FOR TENSION TEST						
Clamping Jaws for round specimens (mm)	10-20 20-30	10-20 20-30	10-25 25-40	10-25 25-40 40-55	10-25 25-40 45-55	10-25 25-40 45-55
Clamping Jaws for flat specimens (mm)	0-10 10-20	0-10 10-20	0-15 15-30	0-20 20-40	0-20 20-40 40-60	0-20 20-40 40-60
Width of speciment (Max.) (mm)	70	70	70	70	75	75
FOR COMPRESSION						
Diameter of platens (mm)	150	150	150	200	250	250
FOR TRANSVERSE TEST						
Diameter of rollers (mm)	30	30	30	30	50	50
Length of Rollers (mm)	170	170	170	170	170	170
Max. span between the rollers (adjustable) (mm)	600	600	600	600	800	1000