



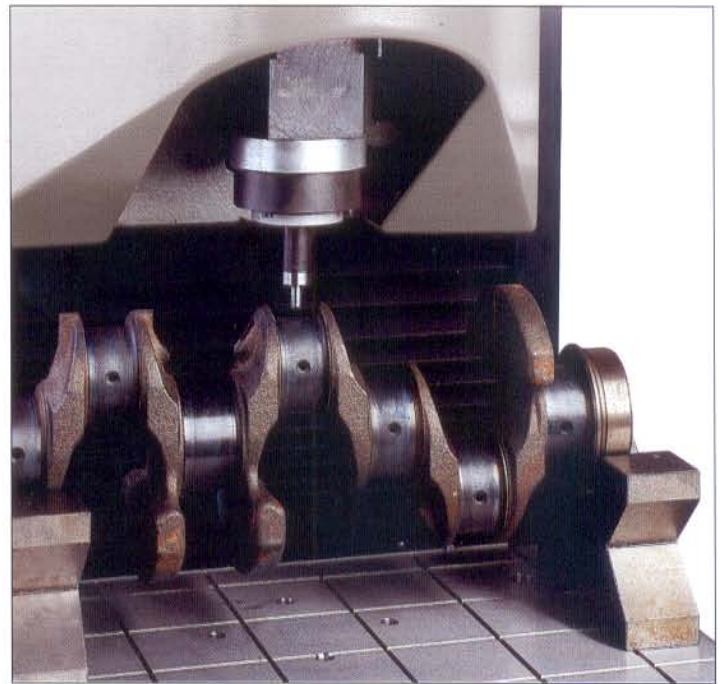
INTEGRAL

Full automatic
test cycle
HBW/HV

UNIVERSAL
- ROCKWELL
- VICKERS
- BRINELL



Universal support for small parts



Special support

CARACTERISTICS

- The load precision is controlled via closed loop load cells
- Universal machine for testing different hardness procedure.
- Machine management through a built-in computer.
- Selection of loads and automatic test scales from menus; full automatic test cycle.
- The structure is protected against dust and any atmospheric agent as well as against shocks.
- It can be installed also in casting and forging houses.
- Brinell and Vickers **readings through camera** and monitor integrated with high-definition and high-precision electronic measurement.
- Automatic focus with piece presser.
- Print out of the impression image and of the specimen surface; printed on the inspection report with statistic analysis.
- Large data and test storage with file management.
- Built according to the requirements for certification by calibration institutes.
- Perfect and effective measure even at the first test
- Load cell reading at 1000Hz
- Full automatic measurements Brinell and HV, without manual intervention
- Repetibility: 0, 1 HBW

SOFTWARE

Integral® is managed by a powerful computer installed on the machine equipped with a real hard disk, a high-resolution color display with touch screen unit and a menu-based management program that allows the operator to follow the various automatic test phases: test selection, Rockwell depth measurement, quick and high-precision Brinell and Vickers measurements, filing of the piece images and impressions, dimensional measurements. The complete statistics in Excel program supplies charts and histograms as well as a large data storage. The software is Windows® XP based and it is easy to learn.

CAMERA MEASUREMENTS

An high-definition camera is implemented to record Vickers and Brinell impressions. A wide range of magnifications - from 20x to 400x and many others upon request - are provided for. This new method offers a number of advantages compared with the common optical instrument, i.e. high resolution, electronic image management, fast and precise, image storage, image printing together with the surface of the tested material for metallographic tests; control and dimensional measurements of the material surfaces can be carried out for other purposes.

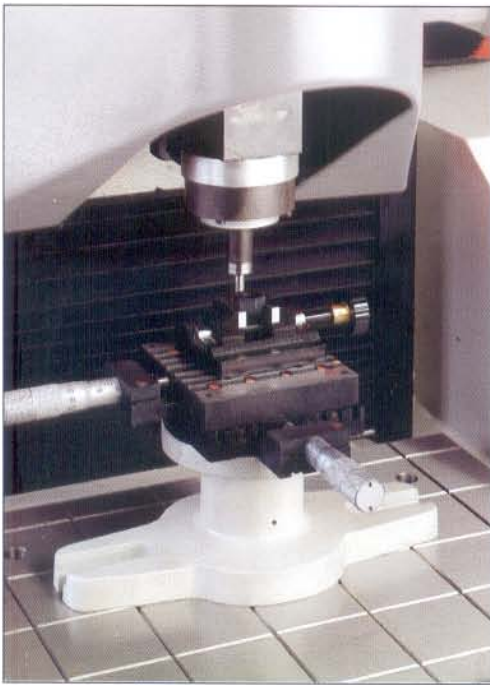
INTEGRAL

ALL OPERATIONS ARE MANAGED BY A SINGLE DRIVE INCLUDING AUTOMATIC RESEARCH OF TEST PIECE ①

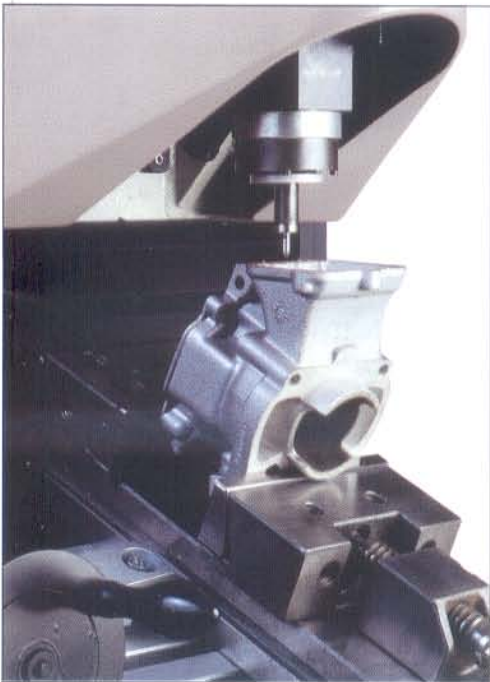
- Pushing Start button, head moves to reach the test surface and automatically starts the hardness test cycle in automatic succession without a brake:
 - approach to the piece;
 - activation of reference surface;
 - whole test cycle performance and piece releasing.

APPLICATIONS

Integral® is an universal hardness tester programmed for multiple types of hardnesses according to EN-ISO ASTM DIN standards on any type of metal and alloys, synthetic materials, ceramics, abrasive stones, plastics, rubbers, aggregates and many other materials. Upon request load forces for additional tests can be added. The methods adopted are: Brinell based on EN-ISO 6506; Vickers based on EN-ISO 6507; Rockwell based on EN-ISO 6508; Plastic materials based on DIN 53456; Knoop. Metallographic controls can be carried out on metal structures and measurements of the depth of the hardness surface treatment can be performed. It can be utilised in the laboratory for quality control purposes, in manufacturing for fast measurements, in research institutes, technical schools and universities.



X-Y table



Inclining support



① Automatic research of test piece



Applicable accessories

- Table 400x400 mm
- Penetrators and test blocks for the various hardness tests
- Camera with lenses to be combined with the various hardness tests
- X-Y table for HV 100x100 mm - 25x25 displacement - 0,01 mm division
- Printing for charts, images and statistics
- Tests of depth of surface hardening treatments
- Piece table with round plate, diameter 60 mm
- "V" shaped piece table for rods of up to 200 mm diameter
- Statistics programs and database
- Measure of depth of hardness treatment

Other accessories on request

Available models

4201 - INTEGRAL 1

Loads from 250 to 3000 Kgf (from 2452 to 29430 N) for Brinell

4202 - INTEGRAL 2

Loads from 1 to 250 Kgf (from 9,81 to 2452 N) for Brinell Vickers Rockwell

4203 - INTEGRAL 3

Loads from 3 to 150 Kgf (from 29,4 to 1471 N) for Brinell Rockwell Vickers

4204 - INTEGRAL 4

Loads from 1 to 50 Kgf (from 9,81 to 490 N) for Vickers Brinell

4205 - INTEGRAL 5

Loads from 10 to 3000 Kgf (from 98,1 to 29430 N) for Brinell Vickers Rockwell

Other at request

Range of tests

Brinell	Vickers	Knoop	Rockwell
HBW 1/1	HV 1	HK 1	HR 15N
HBW 1/ 2,5	HV 2	HK 2	HR 30N
HBW 1/5	HV 3	HK 3	HR 45N
HBW 1/10	HV 5	HK 5	HR 15T W
HBW 1/30	HV 10	HK 10	HR 30T W
HBW 2,5/6,25	HV 20	HK 20	HR 45T W
HBW 2,5/15,625	HV 30	HK 30	HR A
HBW 2,5/31,25	HV 50	HK 50	HR B
HBW 2,5/62,5	HV 100	HK 100	HR C
HBW 2,5/187,5			HR D
HBW 5/25			HR E
HBW 5/62,5			HR F
HBW 5/125			HR G
HBW 5/250			HR H
HBW 5/750			HR K
HBW 10/100			HR L
HBW 10/250			HR M
HBW 10/500			HR alfa
HBW 10/1000			
HBW 10/1500			
HBW 10/3000			

Technical characteristics

Resolution	0.1 HB / 0.1 HR / 0.1 HV
Test height	500 mm (other on request)
Depth	200 mm (other on request)
Conform standard	Brinell EN-ISO 6506
	Vickers EN-ISO 6507
	Knoop
	Rockwell EN-ISO 6508
	Plastic DIN EN 53456
Max. Weight allowed for the specimen to be tested	1000 Kg
Field of application	For all metals: iron, steel, tempered steel, bronze, aluminium and nitriding, cementation, hard facing, plastic
Size	600x1000x1980H
Net weight	500 Kg
Packing weight	600 Kg
Power supply	230V 50±60Hz