

# JBC corporation LTD.



## Micro - Vickers Hardness Tester JM series

- The precise mechanical and optical measuring device ensure the reliability and repeatability of the measurement
- The precise automatic turret makes indentation by fast and accurate loading and accurate measurement of sample Vickers ( HV ) hardness values and conversion to HR hardness values
- Six-positions turret  
In addition to the standard configuration of one indenter and two objectives ( x 10 observation and x 40 measurement ) , the six-positions turret can be used another three of the objectives from ( x 5 x 20 x 50 x 60 and x 80 )
- After D1 reading key pressed , the indentation in the eyepiece has been automatic moving 90 degrees to be easy and directly to measure D2 ( JM - 900 AUTO D1 / D2 )
- The new turret enables to assembly both of Micro Vickers indenter and Knoop one. The measurement hardness of Vickers or Knoop requires just only rotating the turret to replace another indenter. The two indenters use the most advanced and independent centring device to ensure that Vickers or Knoop indenter is located in center of eyepiece view ( JM - 850D )



JM - 800

## Specifications

| ITEM                                  |                   | JM - 800 Series                                                                                                    | JM - 1000                        | JM - 2000                                             | JM - 3000                                                    |
|---------------------------------------|-------------------|--------------------------------------------------------------------------------------------------------------------|----------------------------------|-------------------------------------------------------|--------------------------------------------------------------|
| Test load                             |                   | gf : 10 / 25 / 50 / 100 / 200 / 300 / 500 / 1000<br>mN : 98.07 / 245.2 / 490.3 / 980.7 / 1961 / 2942 / 4903 / 9807 |                                  |                                                       |                                                              |
| Loading machanism                     |                   | Automatic loading and releasing / 50 - 100 μm / sec                                                                |                                  |                                                       |                                                              |
| Dwell time                            |                   | 5 - 99 sec                                                                                                         |                                  |                                                       |                                                              |
| Turret mechanism                      |                   | Automatic turret ( 6 positions )                                                                                   |                                  |                                                       |                                                              |
| Objective                             |                   | Standard: 2 objectives ( x 10 and x 50 )<br>Optional 3 objectives from ( x 5 , x 20 , x 40 , x 60 , x 80 )         |                                  |                                                       |                                                              |
| Diamond indenter                      |                   | Vickers indenter ( HV )                                                                                            |                                  |                                                       |                                                              |
| Magnification of measurement          |                   | x 500                                                                                                              | x 500                            | x 500                                                 | x 500                                                        |
| Measuring eyepiece                    |                   | x 10                                                                                                               | x 10                             | x 10                                                  | x 10                                                         |
| Max. measuring length                 |                   | x 100 : 920 μm<br>x 500 : 190 μm                                                                                   | x 100 : 920 μm<br>x 500 : 190 μm | x 100 : 920 μm<br>x 500 : 190 μm                      | x 100 : 920 μm<br>x 500 : 190 μm                             |
| Resolution                            |                   | 0.01 μm                                                                                                            | 0.01 μm                          | 0.01 μm                                               | 0.01 μm                                                      |
| Automatic measurement                 | Max. meas. length | ——                                                                                                                 | In objective x 10 : 460 μm       |                                                       |                                                              |
|                                       | Resolution        | ——                                                                                                                 | In objective x 50 : 0.16 μm      |                                                       |                                                              |
| X-Y stage                             |                   | Manual stage<br>Max. movement ( x ) 25 mm ( y ) 25 mm                                                              |                                  | Auto stage<br>Max. movement ( x ) 100 mm ( y ) 100 mm |                                                              |
| Auto focus                            |                   | ——                                                                                                                 | ——                               | ——                                                    | Focusing accuracy ≤ 1μm<br>Focusing range<br>2.5 μm ~ 100 μm |
| JM - 850D                             |                   | Dual indenters HV / HK                                                                                             | ——                               | ——                                                    | ——                                                           |
| JM - 900                              |                   | Auto D1 / D2                                                                                                       | ——                               | ——                                                    | ——                                                           |
| Max. specimen heignt                  |                   | 90 mm                                                                                                              |                                  |                                                       |                                                              |
| Max. specimen depth                   |                   | 115 mm                                                                                                             |                                  |                                                       |                                                              |
| Test scale                            |                   | HV ( Vickers ) / HK ( Knoop )                                                                                      |                                  |                                                       |                                                              |
| Light source                          |                   | LED illumination : 12 v , 5 w                                                                                      |                                  |                                                       |                                                              |
| Communication interface , data output |                   | RS232C / parallel interface / USB                                                                                  |                                  |                                                       |                                                              |
| Accuracy                              |                   | Conform to : JIS B - 7735 - 2010 , ASTM E - 384 - 2017 and ISO / DIN 6507 - 2 - 2018                               |                                  |                                                       |                                                              |
| Dimension / weight                    |                   | W 235 x D 480 x H 480 mm / 45 kg                                                                                   |                                  | W 290 x D 510 x H 480 mm / 50 kg                      |                                                              |
| Power supply                          |                   | Single-phase AC 110 V / 220 V 50 / 60 Hz                                                                           |                                  |                                                       |                                                              |



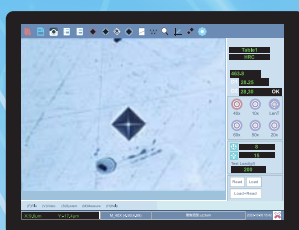
## Micro - Vickers / Macro - Vickers / Knoop automatic measurement system

- Used for Micro - Vickers / Macro - Vickers / Knoop automatic measurement of various metal materials.
- It is especially suitable for the microscopic determination of hardening layer, nitriding layer, oxide film and metallographic structure.



JM - 1000

### Inside PC



JM - 1000



JM - 2000 / 3000



JM - 2000 / 3000

| Function \ Model | JM - 1000 | JM - 2000 | JM - 3000 |
|------------------|-----------|-----------|-----------|
| Auto measurement | •         | •         | •         |
| Auto stage       | —         | •         | •         |
| Auto focus       | —         | —         | •         |

### Auto measurment

- Auto measurement time is  $\leq 0.3$  sec
- Min. diagonal of indentation  $6 \mu\text{m}$
- Accuracy of measurement  $\leq 0.1 \mu\text{m}$

### Auto stage

- Max. movement  $100 \times 100 \text{ mm}$
- Min. step length  $5 \mu\text{m}$
- Recovery accuracy  $\leq \pm 3 \mu\text{m}$  ( single step )

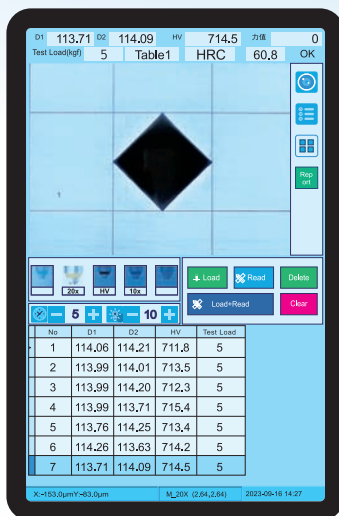
### Automatic focus

- Focusing accuracy  $\leq \pm 1 \mu\text{m}$
- Min. step length  $0.4 \mu\text{m}$  / step
- Focus range  $2.5 \mu\text{m}$  to  $100 \mu\text{m}$



# LOAD - CELL TYPE Macro – Vickers Hardness Tester JV - 850

- One button touch to complete automatic operation and display the tested value
- 10" LCD color touch screen. It is easy and friendly to control operation for user
- Automatic turret can be with one indenter and five objectives ( standard type : with x 10 & x 20 objectives , HV indenter )
- Manual vise can be update to X-Y automatic stage ( Max. X-Y movement , 100 x 100 mm )



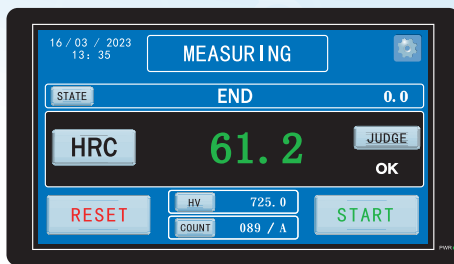
JV - 850

## Specifications

| ITEM                     |                         | JV - 850                                                                                                                  |
|--------------------------|-------------------------|---------------------------------------------------------------------------------------------------------------------------|
| Test Load                |                         | kgf: 1 / 2 / 3 / 5 / 10 / 20 / 30 / 50<br>N : 9.807 / 19.614 / 29.421 / 49.035 / 98.07 / 196.14 / 294.21 / 490.35         |
| Loading Mechanism        |                         | Automatic loading and releasing method in 50 - 100 $\mu$ m / sec                                                          |
| Dwell Time               |                         | 5 - 99 sec                                                                                                                |
| Turret Mechanism         |                         | Automatic moving                                                                                                          |
| Indenter                 |                         | Diamond Vickers indenter ( for HV )                                                                                       |
| Objective                |                         | x 10 , x 20                                                                                                               |
| Auto-Measuring           | CCD                     | 1.3 million pixels                                                                                                        |
|                          | Max. indentation length | 450 $\mu$ m / x 10                                                                                                        |
|                          | Min. Measuring unit     | 0.38 $\mu$ m / x 20                                                                                                       |
| Max. Specimen Height     |                         | 200mm                                                                                                                     |
| Max. Specimen Depth      |                         | 190mm                                                                                                                     |
| Measuring Hardness Scale |                         | HV / HK                                                                                                                   |
| Operation Panel Display  |                         | Load / Read / Load + Read / Delete / Clear / Bright / Objective / Indenter /<br>Measuring Data / HV                       |
| Data Display             |                         | D1 / D2 / HV-HK value / Conversion / Load value / Dwell time                                                              |
| Data Output              |                         | RS232C & USB<br>Measured data and statistic data ( Max. value / Min. value / Mean value /<br>Range / Standard deviation ) |
| Light Source             |                         | LED Illuminator                                                                                                           |
| Accuracy                 |                         | Conform to : ISO / DIN 6507 - 2 - 2018, JIS B-7735-2010, ASTM E - 384 - 2017                                              |
| Dimensions / Weight      |                         | W 260 × D 580 × H 910 mm / 160 kg                                                                                         |
| Power Supply             |                         | Single phase AC 220V 50 / 60 Hz                                                                                           |

## LOAD - CELL TYPE Rockwell Tester JR - 900

- One button touch to complete automatic operation
- Space between indenter and sample is 0-8mm
- 7" LCD color touch screen.  
It is easy and friendly to control operation for user
- The control screen shows user all of testing progress ( Minor Load, Testing Load, Dwell Time, etc.) and tested value



JR - 900

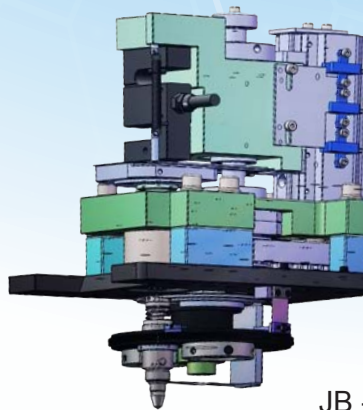


## Specifications

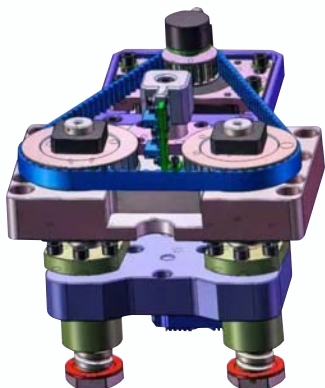
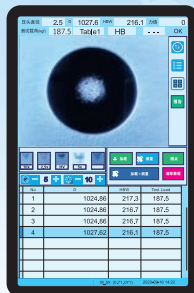
| ITEM                      |            | JR - 900                                                                                                                                        |
|---------------------------|------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| Load                      | Minor Load | N: 29.42 / 98.07 ( kgf: 3 / 10 )                                                                                                                |
|                           | Test Load  | kgf: 15 / 30 / 45 / 60 / 100 / 150<br>N : 147.1 / 294.2 / 441.3 / 588.4 / 980.7 / 1471                                                          |
| Load Control              |            | Automatic Loading                                                                                                                               |
| Dwell Time                |            | 1 - 99 sec                                                                                                                                      |
| Measuring Type            |            | Automating                                                                                                                                      |
| Max. Specimen Height      |            | 200mm                                                                                                                                           |
| Max. Specimen Depth       |            | 190mm                                                                                                                                           |
| Hardness Value Conversion |            | Conform to ASTM ( E140 )                                                                                                                        |
| Operation                 |            | One button to start                                                                                                                             |
| Scale Display             |            | C , D , A , G , B , F , K , E , H , P , M , L , V , S , R<br>15N , 30N , 45N , 15T , 30T , 45T<br>15W , 30W , 45W , 15X , 30X , 15Y , 30Y , 45Y |
| Output Signal             |            | USB interface , output the tested value in Excel                                                                                                |
| Data Output Mode          |            | Tested data : Tested data and conversion data<br>Evaluation results ( Max. value / Min. value / Mean value / Range /<br>Standard deviation )    |
| Accuracy                  |            | Conform to : JIS B7726 ASTM E18 ISO / DIN6508-2                                                                                                 |
| Dimensions / Weight       |            | W 256 × D 570 × H 850 mm / 150kg                                                                                                                |
| Power Supply              |            | Single phase AC 220V 50 / 60 Hz                                                                                                                 |

# LOAD - CELL TYPE Brinell Hardness Tester JB - 200 / JB - 3000

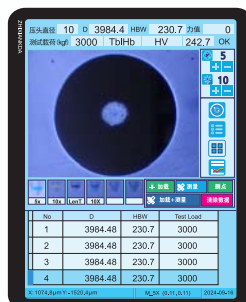
- One button touch to complete automatic operation and display the tested value
- LCD color touch screen. It is easy and friendly to control operation for user of JB - 200 / JB - 3000.
- Automatic turret can be with one indenter and four objectives  
(standard type for JB-200: with x 2.5 / x 5 / x 10 objectives and  $\Phi 2.5$  HB indenter)  
(standard type for JB-3000: with x 2 / x 5 / x 10 objectives and  $\Phi 10$  HB indenter)
- The loadcell uses loading with up directly, no loading use by lever so that much increasing loading accuracy, reliability and stability of the loading force of the system are ensured.



JB - 200 (10" LCD)



JB - 3000 (12" LCD)



JB - 3000

## Specifications

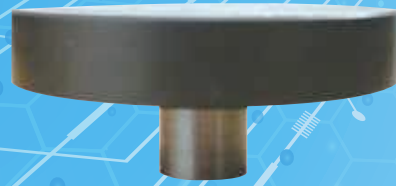
| ITEM                            |                         | JB - 200                                                                                                                | JB - 3000                                                                          |
|---------------------------------|-------------------------|-------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| Test Load                       |                         | kgf: 2.5 / 5 / 6.25 / 10 / 15.625 / 30 / 31.25 / 62.5 / 100 / 125 / 187.5                                               | kgf: 62.5 / 100 / 125 / 187.5 / 250 / 500 / 750 / 1000 / 1500 / 2000 / 2500 / 3000 |
| Loading Mechanism               |                         | Automatic loading and releasing method in 50-100 $\mu$ m / sec                                                          |                                                                                    |
| Dwell Time                      |                         | 5 - 99 sec                                                                                                              |                                                                                    |
| Turret Mechanism                |                         | Automatic moving                                                                                                        |                                                                                    |
| Diamond indenter ( Built - in ) |                         | $\Phi$ 1 mm / $\Phi$ 2.5 mm / $\Phi$ 5 mm                                                                               | $\Phi$ 1 mm / $\Phi$ 2.5 mm / $\Phi$ 5 mm / $\Phi$ 10 mm                           |
| Objective                       |                         | x 2.5 / x 5 / x 10                                                                                                      | x 2 / x 5 / x 10                                                                   |
| Auto - Measuring                | CCD                     | 1.3 million pixels                                                                                                      | 5 million pixels                                                                   |
|                                 | Max. indentation length | 1600 $\mu$ m / x 2.5                                                                                                    | 6000 $\mu$ m / x 2                                                                 |
|                                 | Min. measuring unit     | 0.76 $\mu$ m / x 10                                                                                                     | 0.49 $\mu$ m / x 10                                                                |
| Max. Specimen Height            |                         | 200mm                                                                                                                   | 300mm                                                                              |
| Max. Specimen Depth             |                         | 190mm                                                                                                                   | 200mm                                                                              |
| Measuring Hardness Scale        |                         | HBW                                                                                                                     | HB / HBW                                                                           |
| Operation panel                 |                         | Load / Read / Load + Read / Delete / Clear / Bright / Objective / Indenter / Measuring Data / HB                        |                                                                                    |
| Data display                    |                         | Indenter diameter / Indentation diameter / Conversion / Test load / Hardness value conversion / Dwell Time / Test times |                                                                                    |
| Data Output                     |                         | RS232C & USB<br>Measured data and statistic data ( Max. Value / Min. value / Mean value / Range / Standard deviation )  |                                                                                    |
| Light Source                    |                         | LED Illuminator                                                                                                         |                                                                                    |
| Accuracy                        |                         | Conform to : JIS B - 7725, ASTM D-785, ISO 6506 – 2                                                                     |                                                                                    |
| Dimensions / Weight             |                         | W 260 × D 580 × H 910 mm / 160 kg                                                                                       | W 310 × D 660 × H 980 mm / 195 kg                                                  |
| Power Supply                    |                         | Single phase AC 220 V 50 / 60 Hz                                                                                        |                                                                                    |



## Optional Accessories



Universal Inclining Holder  
with hand press



Large Flat Anvil



Fine specimen holder  
(Horizontal type)



Universal Inclining Holder



X-Y Auto-Stage



Precision vise



X-Y Manual-Stage



Object lens



Small V-Shape Anvil



Indenter of Brinell



Specimen holder of mounting  
press specimen

## JCH - 3300 Automatic Crankshaft Rockwell Hardness Testing System



Protective cover  
with indenter



Crankshaft sample

- Model JCH - 3300 is a fully automatic crankshaft Rockwell hardness test system which made by JBC Lim. Co. in Japan.
- The operator only needs to clamp the crankshaft specimen on the sample table , select the operating program and then operate the control panel , the test work can be fully automatic performance , no manual operation .
- By the program , the four-axis linkage table is realized . It can move in X - Y - Z axes and rotation axis . And all of the pointed positions can be tested one by one . The tested hardness value of the crankshaft can be transfer and output .



JCH - 3300

Crankshaft rotation degrees  $30^{\circ}$  /  $60^{\circ}$  /  $90^{\circ}$  /  $120^{\circ}$  /  $180^{\circ}$  can be choiced by operator .



## Specifications

|                                                |                                                                                                               |                                                                                |
|------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| Measurement mode                               | Crank journal hardness measurement                                                                            | Automatic ( crank journal including shaft journal and connecting rod journal ) |
|                                                | Crank journal centring                                                                                        | Auto                                                                           |
|                                                | Crankjournal position changes                                                                                 | Auto                                                                           |
|                                                | Crank journal rotation                                                                                        | Auto                                                                           |
| Max. load-bearing capacity of the sample table | 100 kg                                                                                                        |                                                                                |
| The width of indenter protective cover         | 20 mm ( can be customized according to the crankjournal under test )                                          |                                                                                |
| Console performance parameters                 | X / Y / Z axis operation                                                                                      | System program running                                                         |
|                                                | X / Y / Z axis operation accuracy                                                                             | 0.02 mm                                                                        |
| Average time for a single point measurement    | 50 seconds ( total time between pressing and output )                                                         |                                                                                |
| Crankshaft position locking device             | Auto                                                                                                          |                                                                                |
| Crankshaft rotation degrees of freedom         | 180°, 120°, 90°, 60°, 30° are optional                                                                        |                                                                                |
| Dementions                                     | 560 x 200 x 200 mm ( other sizes can be customized )                                                          |                                                                                |
| Crankshaft operating system                    | JBC operating system                                                                                          |                                                                                |
| Max. axial working movement of crankshaft      | 560 mm                                                                                                        |                                                                                |
| Table size                                     | ( L ) 1100mm x ( W ) 335 mm                                                                                   |                                                                                |
| Measurement requirement                        | Meet the hardening crankjournal surface hardness measurement ( usually reserved > 0.3mm machining allowance ) |                                                                                |
| Max. allowable error                           | Confirms to GB17230.2                                                                                         |                                                                                |
| Lifting table moving speed                     | Moving speed system program has been set                                                                      |                                                                                |
| Hardness value resolution                      | 0.1 HRC                                                                                                       |                                                                                |
| Reset                                          | Auto                                                                                                          |                                                                                |
| Data transfer                                  | Word / Excel / Pdf                                                                                            |                                                                                |
| Isolation system                               | Isolation workbench                                                                                           |                                                                                |
| Standard hardness block                        | Users can choose the following standard hardness blocks according to their needs:                             |                                                                                |
|                                                | Rockwell :HRA, HRB,HRC,HRD,HRE, HRF,HRG,HRH, HRK,Surface Rockwell: HR15N, HR30N, HR45N,HR15T, HR30T, HR45T    |                                                                                |
| Jig                                            | Crankshaft mounting slot jig                                                                                  |                                                                                |
| Machine weight                                 | Hardness tester : 215 kg , table : 265 kg , machine : 480 kg                                                  |                                                                                |
| Power Supply                                   | Hardness tester : AC single phase 220V    Workbench : AC three phase 220V                                     |                                                                                |
| Language                                       | Japanese / English / Chinese                                                                                  |                                                                                |
| Data memorization                              | To your own memory card / mobile storage                                                                      |                                                                                |
| Print                                          | Connectable printer                                                                                           |                                                                                |



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