MACHINE PORTABLE

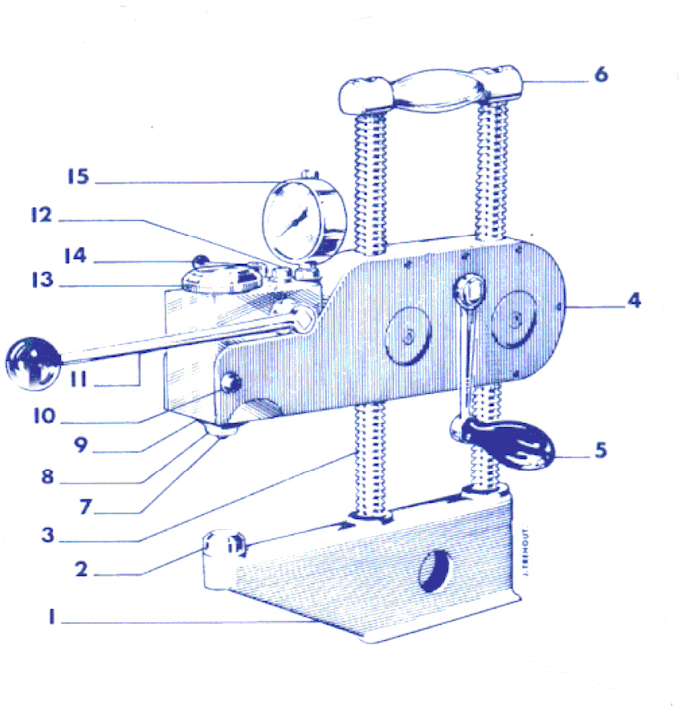
BRINELLA

The **BRINELLA** machine carries out the standard Brinell hardness test on all metals

REFERENCES FOR MAIN PARTS

Frame including:
- 1- Base
- 2- Interchangeable anvils
- 3- Vertical threaded rods
- 4- Movable carriage
- 5- Carriage control crank handle
- 6- Carrying handle

Hydraulic unit including:
- 7- Ball
- 8- Ball-holder cap
- 9- Piston
- 10- Unit fixing screw
- 11- Pumping lever
- 12- Plumbed cap
- 13- Cap
- 14- Discharge lever
- 15- Manometer



START UP OF THE MACHINE

The Brinella machine is delivered complete in working condition with:

Hydraulic unit
- 1 hydraulic unit.
- 1 pumping lever (Rep. 11)
- 1 discharge lever (Rep. 14)
- 2 fixing screws with their washers.
- 1 standard (for the new machines) with 3 homogeneous impressions (± 3HBW)
- the calibration certificate of the unit.

Frame
- 1 frame (250 or 400mm)
- 1 handle (Rep. 5)
- 3 anvils (V ; convex ; flat)
- 1 bed-plate with 2 screws and fixing washers.

It is necessary to use the adapted anvil for the parts you want to ball-test. (for ex.: convex anvil for ball-testing of tubes; V anvil for ball-testing of rounds…).
Wrong use of the machine would cause bending of the rods and would therefore give untrue impressions.

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CARRYING OUT A BRINELL HARDNESS TEST

Since the unit is hydraulic, before proceeding with the impression measurements, it is necessary to carry out several ball- tests on a testing plate (between 3 & 5 ball- tests).

1. Have the discharge lever (Rep14) turned by about a quarter revolution in an anticlockwise direction.
2. Lower the movable carriage (Rep4) and place the part to be checked between the anvil (Rep2) and the ball (Rep7)
3. Lower the movable carriage (Rep4) and tightly screw the part to be tested between the anvil and the ball (use the handle Rep5) so that the ball-holder piston (Rep9) goes as far as possible into the hydraulic unit. ***The piston must go all the way in, in order to obtain a steady and constant pressure rise.***
4. Turn the discharge lever (Rep14) in a clockwise direction and push it strongly.
5. Operate the pumping lever 10 times ***slowly and steadily*** from one end to the other of its stroke; the manometer needle moves into the red zone. (A slight drift in + or – is acceptable).
6. Turn the discharge lever (Rep14) in an anti-clockwise direction; the manometer needle returns to its original position.
7. Move the movable carriage (Rep4) upwards and remove the part.
8. ***Turn the discharge lever (Rep14) clockwise when the machine is no longer used.***
9. Measure the diameter of the impression made on the part, with a graduated microscope that we can supply on request.

SOME PRACTICAL ADVICE

The Brinell hardness test must be carried out on a smooth and flat surface. The preparation of the surface can be made with a file or a grinding wheel: it is preferable to improve the surface state by polishing the part with a fine grain emery cloth.
Avoid altering the surface in particular by heating or hammer-hardening. This advice must above all be observed for forged or foundry parts in which the surface layer is generally oxidized or charged with grains of sand.

The thickness of the test piece must be sufficient for no distortion to be visible on the opposite face.
The distance from the centre of an impression to the edge of the part or between the impressions must be at least equal to 4 times the diameter of the impression.
When the impression is oval, add half of the largest and smallest diameter.
Change the ball regularly and especially for testing very hard steels (>450HB).

In case of problem, do not open the machine. Send it back carriage paid to MECADRUM (freight costs at your expense).