

# elcometer® **3101 Barcol Hardness Tester**

**Can be used in accordance with:**

**ASTM B 648**

**ASTM D 2583**

**NF P 38-501**

**For testing :**

- **Aluminum Alloys** • **Soft Metals** • **Plastics** • **Fiberglass Sheet, Tanks, Surfaces** • **Fire Department Ladders** • **Composite Materials** • **Rubber or Leather** • **Laminates** • **Lead**



**Portable** The Impressor is a convenient tool for testing the hardness of aluminum, aluminum alloys, copper, brass and other materials including plastics and fiberglass. The instrument is designed for use on fabricated parts and assemblies as well as on raw stock.

**Easy to Use** No experience required; can be used in any position and in any space that will allow for the operator's hand. The hardness reading is instantly indicated on the dial, which is divided into one hundred graduations. No waiting, pre-loading or separate measurements.

**Lightweight** The Impressor weighs only 1 lb. 2 oz. The entire Impressor package comes complete with carrying case, adjusting wrench and two spare indenter points. The Impressor + case = 2 lb. 8oz. Shipping weights = 1.8 kilograms, box = 21 x 28 x 16 cm, dimension weight 2.5 Kilograms

## **Features**

The Impressor is best suited for testing homogeneous materials. Materials of granular, fibrous or coarse structure will produce a wide variation in hardness readings because of the small diameter of the indenter point.

For accurate readings, material should be at least 1/32" thick and large enough for a minimum distance of 1/8" in any direction from the indenter point to the edge of the specimen. The testing area should be smooth and free from mechanical damage.

Simply exert slight pressure against the instrument to drive the spring-loaded indenter point into the material. The indenter point must be perpendicular to the surface being tested. On very soft metals, the highest reading should be used since cold flow permits the spring loaded indenter point to continue penetration.

Note: Physical characteristics of very soft materials are such that uniform correlation between different hardness measuring systems cannot be established. We recommend that Impressor hardness limits for each material be established by test.

## Recommended Sample Sizes

|                             | Scale | Variance | Readings | of Ave. |
|-----------------------------|-------|----------|----------|---------|
| <b>Homogeneous Material</b> | 20    | 2.47     | 9        | 0.27    |
|                             | 30    | 2.2      | 8        | 0.28    |
|                             | 40    | 1.93     | 7        | 0.27    |
|                             | 50    | 1.66     | 6        | 0.28    |
|                             | 60    | 1.39     | 5        | 0.28    |
|                             | 70    | 1.12     | 4        | 0.28    |
|                             | 80    | 0.85     | 3        | 0.28    |
| <b>Reinforced Plastics</b>  | 30    | 22.4     | 29       | 0.77    |
|                             | 40    | 17.2     | 22       | 0.78    |
|                             | 50    | 12       | 16       | 0.75    |
|                             | 60    | 7.8      | 10       | 0.78    |
|                             | 70    | 3.6      | 5        | 0.75    |

## Examples of Typical Barcol Hardness Readings

|       |   |
|-------|---|
| 35    | Nu-Lite Polystyrene Panels                                    |
| 30-40 | Duroplastic swimming pool liners                              |
| 35    | DOW Derakane 411 laminate                                     |
| 35    | Valspar Composite Boat Repair 5783R90015 Red Tooling Gel Coat |
| 36.5  | Pearlveil fiberglass  |
| 49    | Cyro Acrylic Plastic Sheet                                    |
| 50    | Polyester Pultruded   |
| 65    | Melamine Plastic Abrasives                                    |
| 68    | Polyester SMC Compression                                     |
| 100   | Ceramic pallets for semi-conductor wafer pallets              |

## Applications

| Model            | Type  | Substrate  |
|------------------|-------|--|
| Elcometer 3101/1 | 934/1 | Soft metals, hard plastics etc, with conversion table into Brinell, Vickers, & Rockwell B, E, F, H |
| Elcometer 3101/2 | 935   | Plastics and very soft materials   |
| Elcometer 3101/3 | 936   | Extremely soft materials and fabrics, e.g. leather.  |

## Technical Specifications

| Model              | Description                                      | Part Number  |
|--------------------|--|--------------|
| Elcometer 3101/1   | Elcometer 3101 Barcol Hardness Tester Type 934/1 | K0003101M001 |
| Elcometer 3101/2   | Elcometer 3101 Barcol Hardness Tester Type 935   | K0003101M002 |
| Elcometer 3101/3   | Elcometer 3101 Barcol Hardness Tester Type 936   | K0003101M003 |
| <b>Accessories</b> | Spare Indenter Point 934-1 935 GYZJ 6-5          | KT003101P001 |
|                    | Control Disc for 934-1 GYZJ 24 (85-87)           | KT003101P002 |
|                    | Control Disc for 934-1 GYZJ 24 (48-43)           | KT003101P003 |