



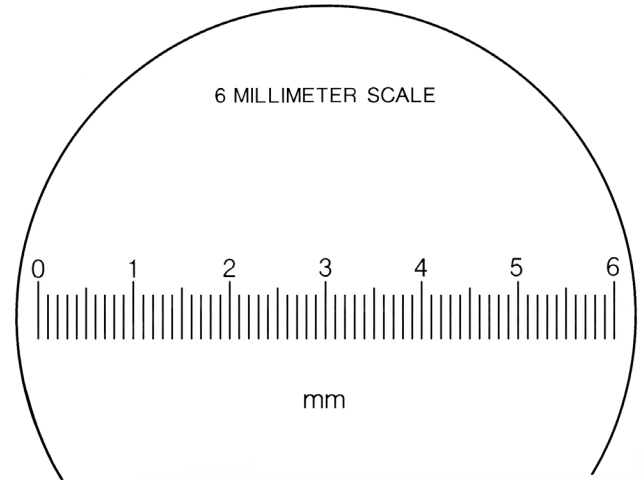
Brinell Microscope Reader with Illuminator - Model 450



Made In U.S.A.



Model 450 Brinell Microscope Reader.
Calibrated microscope for measuring
Brinell indentations in millimeters.



The scale is calibrated in 0.1 mm units
over a range of 6 mm. The diameter
of the microscope field is 7 mm.

SPECIFICATIONS

1. Magnification20X.
2. Reticle scale length 6.0 mm.
3. Scale divisions 0.1 mm.
4. Field diameter 7.0 mm.
5. Weight 7 1/2 oz. (213 g).
6. Shipping weight 2 lb. (907 g).

LIMITED LIABILITY WARRANTY

PTC® products are covered by a limited liability warranty from defects in material and workmanship for one year from date of purchase. This warranty does not apply if, in the judgement of PTC®, the product fails due to damage from shipment, handling, storage, accident, abuse or misuse, or if it has been used or maintained in a manner not conforming to product's instructions, has been modified in any way, or has a defaced or removed serial number. Repair by anyone other than PTC® or an approved agent voids this warranty. The maximum liability of PTC® is the product purchase price.

DESCRIPTION

The PTC® Model 450 Brinell Microscope Reader features a calibrated reticle in a flat field optical system. This instrument makes accurate measurements of the indentations for all Brinell-type hardness testers.

The Model 450 is a compact, portable reader designed as an accessory for Brinell-type testers. The illumination system features a MagLite® Solitaire™ flashlight. The flashlight uses one size AAA battery (included with the instrument). This instrument is quality built and durable, making it suitable for both the shop and laboratory. Two hex key wrenches are included (5/64" & 1/16") to adjust focus & magnification and/or for flashlight removal.

The reticle is calibrated in 0.1 mm units over a range of 6 mm and the field of vision is 7 mm. Measure the indentation at its largest diameter against the reticle scale. Use this measurement and convert to its Brinell Hardness Number (BHN) by using the chart on the back of this sheet.

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BRINELL HARDNESS NUMBERS

10mm Diameter Ball, Applied Loads of 500, 1500, and 3000kgf

Diam. of indentation mm	BRINELL HARDNESS NUMBER			(HRC/B)*
	500 kgf Load	1500 kgf Load	3000 kgf Load	
2.00	158.0	473	945	
2.05	150.0	450	899	
2.10	143.0	428	856	
2.15	136.0	408	817	
2.20	130.0	390	780	
2.25	124.0	372	745	
2.30	119.0	356	712	(63 HRC)
2.35	114.0	341	682	(62 HRC)
2.40	109.0	327	653	(60 HRC)
2.45	104.0	313	627	(59 HRC)
2.50	100.0	301	601	(57 HRC)
2.55	96.3	289	578	(56 HRC)
2.60	92.6	278	555	(55 HRC)
2.65	89.0	267	534	(54 HRC)
2.70	85.7	257	514	(52 HRC)
2.75	82.6	248	495	(51 HRC)
2.80	79.6	239	477	(50 HRC)
2.85	76.8	230	461	(49 HRC)
2.90	74.1	222	444	(47 HRC)
2.95	71.5	215	429	(46 HRC)
3.00	69.1	207	415	(45 HRC)

Diam. of indentation mm	BRINELL HARDNESS NUMBER			(HRC/B)*
	500 kgf Load	1500 kgf Load	3000 kgf Load	
3.05	66.8	200	401	(43 HRC)
3.10	64.6	194	388	(42 HRC)
3.15	62.5	188	375	(40 HRC)
3.20	60.5	182	363	(39 HRC)
3.25	58.6	176	352	(38 HRC)
3.30	56.8	170	341	(37 HRC)
3.35	55.1	165	331	(35 HRC)
3.40	53.4	160	321	(34 HRC)
3.45	51.8	156	311	(33 HRC)
3.50	50.3	151	302	(32 HRC)
3.55	48.9	147	293	(31 HRC)
3.60	47.5	142	285	(30 HRC)
3.65	46.1	138	277	(29 HRC)
3.70	44.9	135	269	(28 HRC)
3.75	43.6	131	262	(27 HRC)
3.80	42.4	127	255	(25 HRC)
3.85	41.3	124	248	(24 HRC)
3.90	40.2	121	241	(100 HRB)
3.95	39.1	117	235	(99 HRB)
4.00	38.1	114	229	(98 HRB)
4.05	37.1	111	223	(97 HRB)

This table is based on ASTM A370 Table 3A and E10 Table 1. This table gives the approximate interrelationships of hardness values of steel. It is possible that steels of various compositions and processing histories will deviate in hardness relationship from the data presented in these tables. The data in this table should not be used for austenitic stainless steels, but have been shown to be applicable for ferritic and martensitic stainless steel. Where more precise conversions are required, they should be developed specially for each steel composition, heat treatment, and part.

*Conversion to HRC or HRB is approximate. There is no general method for converting accurately Brinell hardness numbers to other hardness scales or tensile strength values. Such conversions are, at best, approximations and therefore should be avoided, except for special cases where a reliable basis for the approximate conversion has been obtained by comparison tests.

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