elcometer®

User Guide

Elcometer 2020, 2050, 2070
Fineness of Grind Gauges

CONTENTS

For the avoidance of doubt, please refer to the original English language version.

Please ensure that all packaging is disposed of in an environmentally sensitive manner. Consult your local Environmental Authority for further guidance.

1 OVERVIEW

Fineness of Grind Gauges are used to determine particle size and fineness of grind. They are suitable for measurement of many materials, including paints, pigments, inks, printing inks, coatings, chocolates and other similar products. They may also be used to indicate the presence of undesirable large particles in these materials.

A scraper is used to pull the material along a sloping groove machined into the top surface of the gauge and the fineness of grind is read directly from a scale engraved into the gauge.

Elcometer 2020: This model has two grooves and graduations marked in microns or mils, NS or H (Hegman) and PCU (Paint Club Units) on the top of the gauge.

Elcometer 2050: This model has a single groove and graduations marked in microns or mils on the top of the gauge.

Elcometer 2070: This model has two grooves and graduations marked in microns or mils and NPIRI (National Printing Ink Research Institute) on the top of the gauge.

2 BOX CONTENTS

- Elcometer Fineness of Grind Gauge
- Scraper
- Carry Case
- Calibration Certificate (if ordered)
- User Guide

3 TEST PROCEDURE

Before you start:

1 Ensure the gauge and scraper are clean (see Section 3.3 ‘Cleaning After Test’ on page en-4).
2 Perform a preliminary test to determine the size of gauge most suitable for the fineness of grind characteristics of the material being measured.

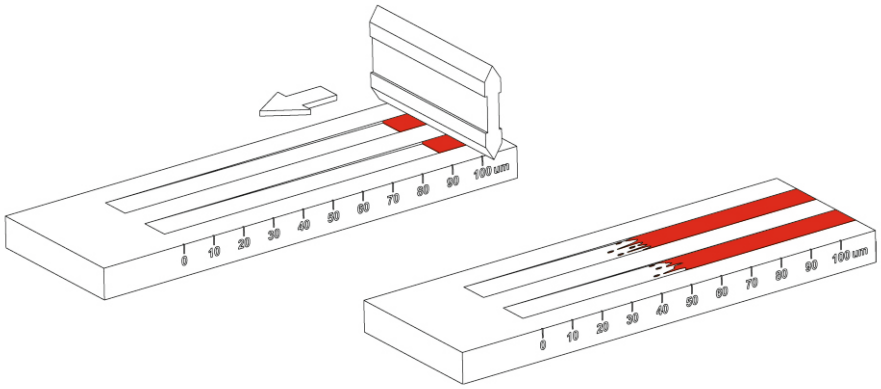
3 TEST PROCEDURE (continued)

1 Place the gauge on a flat, horizontal and non-slip surface, with the zero mark on the scale closest to the user.

2 Place a suitable amount of the material in the deep end of each groove.

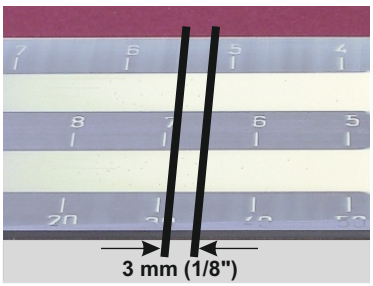
3 Place the scraper on the surface of the gauge behind the material. Use both hands to hold the scraper.

4 Pull the scraper along the length of the gauge at a constant speed[a]. Stop at a point beyond the zero depth. This operation should take approximately 1 to 2 seconds.



5 View the drawn out material within the next 3 seconds. This avoids inaccurate testing due to evaporation of the material. The material should be viewed at right angles to the length of the groove and at an angle of 20° to 30° with the surface of the gauge.

6 **Elcometer 2020 and 2050:** Find a band across the groove(s) 3mm (1/8”) wide which contains 5 to 10 particles of the material. Read the position of the upper limit of this band on the scale and record this value.



Elcometer 2070: Find the first position in the material where a given number[b] of scratches can be seen. Read the scale and record this value.

7 Use a suitable solvent to clean the gauge and scraper.

8 Perform two more tests and calculate the average value of the results. The average value is the fineness of grind of the material.

[a] Apply sufficient downward pressure to clean excess material from the edges of the gauge. Avoid the formation of air bubbles.

[b] A recommended method is to record 2 values: Position one - where there are 4 scratches, and Position two - where there are 10 scratches.

3 TEST PROCEDURE (continued)

3.3 CLEANING AFTER TEST

Always clean the gauge after each test using a suitable solvent. After cleaning and to protect against rust[c], ensure that all materials are removed and that the gauge is dry. Apply a thin layer of oil to the surface of the gauge and the scraper before storage.

⚠ DO NOT use very aggressive solvents or wire brushes, metal scrapers, metal files, or other metallic tools for cleaning.

Store the gauge and scraper in the case provide when not in use.

4 CARE & MAINTENANCE

Regularly inspect the gauge and scraper for signs of wear or damage.

To inspect the scraper:

1 Place the edge of the scraper on a reference plane (the smooth, level face of the gauge is a good alternative).

2 Shine a bright light towards the back of the scraper. Rock the scraper backwards and forwards and inspect the contact edge for any light coming through between the scraper and gauge.

If light is visible, the scraper is not suitable for use and should be replaced.

Description	Part Number
Replacement Scraper for Elcometer 2020	KT002020N001
Replacement Scraper for Elcometer 2050	KT002030N001
Replacement Scraper for Elcometer 2070	KT002070N001

[c] Rust can appear on the gauge when it is only used occasionally and when it has been handled by users with sweaty hands.

5 TECHNICAL SPECIFICATION

5.1 ELCOMETER 2070 FINENESS OF GRIND GAUGES			
Part Number[d]	**Range**		**Graduations**
	µm / mils	**NPIRI**	
K0002070M001	0 - 25µm	0 - 10	2.5µm
K0US2070M001	0 - 1 mil	0 - 10	0.1 mil
Groove Length	165mm (6.5")		
Groove Width	25mm (0.98")		
Accuracy	±3µm (0.12 mil) or 5% whichever is the greater		
Can be used in accordance with: ASTM D 1316			

5.2 ELCOMETER 2050 FINENESS OF GRIND GAUGES				
Part Number[d]	**Range**		**Graduations**	
	µm	**mils**	**µm**	**mils**
K0002050M001	0 - 25µm	-	1µm	-
K0002050M002	0 - 50µm	-	2µm	-
K0002050M005	0 - 100µm	-	5µm	-
K0002050M008	0 - 250µm	-	12.5µm	-
K0US2050M001	-	0 - 1 mil	-	0.05 mil
K0US2050M002	-	0 - 2 mils	-	0.1 mil
K0US2050M005	-	0 - 4 mils	-	0.2 mil
K0US2050M008	-	0 - 10 mils	-	0.5 mil
Groove Length	200mm (7.87")			
Groove Width	12mm (0.47")			
Accuracy	±3µm (0.12 mil) or 5% whichever is the greater			
Can be used in accordance with: ASTM D 1210, AS/NZS 1580.204.1, DIN 53203, EN 21524, FTMS 141 4411.1, ISO 1524, JIS K 5600-2-5, NF T30-046				

[d] Optional Calibration Certificates are available to purchase separately. Calibration Certificates must be requested at time of order, they can not be supplied retrospectively.

5 TECHNICAL SPECIFICATION (continued)

5.3 ELCOMETER 2020 FINENESS OF GRIND GAUGES

Part Number[d]	Range			Graduations
	µm / mils	Hegman (NS)	PCU	
K0002020M003	0 - 15µm	8 - 7	10 - 9	1.5µm
K0002020M004	0 - 25µm	8 - 6	10 - 8	2.5µm
K0002020M001	0 - 50µm	8 - 4	10 - 5	5µm
K0002020M002	0 - 100µm	8 - 0	10 - 0	10µm
K0US2020M004	0 - 1 mil	8 - 6	10 - 8	0.1 mil
K0US2020M001	0 - 2 mils	8 - 4	10 - 5	0.2 mil
K0US2020M002	0 - 4 mils	8 - 0	10 - 0	0.5 mil
Groove Length	127mm (5")			
Groove Width	12mm (0.47")			
Accuracy	±3µm (0.12 mil) or 5% whichever is the greater			

Can be used in accordance with:
ASTM D 4414-A, AS/NZS 1580.107.3, BS 3900-C5-7B, ISO 2808-1A, ISO 2808-7B, JIS K 5600-1-7, NF T30-125, US NAVY PPI 63101-000, US NAVY NSI 009-32

[d] Optional Calibration Certificates are available to purchase separately. Calibration Certificates must be requested at time of order, they can not be supplied retrospectively.