

USER MANUAL

4400M

Surface Replication Kit
with Microset® Compounds



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4400M **Surface Replication Kit**



Each 4400M Kit Includes:

1. 1 x Dispensing Gun (P/N 4400-1)
2. 5 x 50ml Replication Compounds (P/N 4400-2RT/RF)
3. 1 x Nozzle Pack, 50/Pack (P/N 4400-31),
4. 1 x Pack of Backing Slides, 50/Pack (P/N 4400-4)
5. 1 x Pack of Backing Paper, 100/Pack (P/N 4400-5)
6. 1 x Tilting Stage Base (P/N 4400-7)
7. 1 x Tall Micrometer Base (P/N 8400-27)
8. 1 x Carrying Case (P/N 4400-6)

Compounds and Curing Times

Technical Specifications:

Resolution: 0.1 microns

Shrinkage: Less than 0.1%

Shelf Life: 24 months

Color: Black or Grey

Cured hardness: 28-30 Shore A

Usable temperature range: -10C to +180C

GRADE	WORKING LIFE	CURE TIME	KEY FEATURES	TYPICAL APPLICATIONS
101RF	0.5 MIN	5 MIN	General purpose fast curing fluid material.	Replication of horizontal or sloping surfaces. Use in low temperature conditions or where rapid results are required.
101FF	4 MIN	30 MIN	General purpose fluid material.	Replication of horizontal or sloping surfaces. Use in normal or high temperature conditions.
101XF	15 MIN	60 MIN	Specialist purpose material.	Replication of horizontal or sloping surfaces.
101FS	50 MIN	210 MIN	Specialist purpose material.	Replication of horizontal or sloping surfaces.
101RT	0.5 MIN	5 MIN	Fast curing thixotropic material.	Replication of vertical or overhead surfaces. Use in low temperature conditions or where rapid results are required.
101TH	3 MIN	20 MIN	General purpose thixotropic material.	Replication of vertical or overhead surfaces. Use in normal or high temperature conditions.
101THS	7 MIN	30 MIN	Specialist purpose material.	Replication of vertical or overhead surfaces.
101XFT	15 MIN	60 MIN	Specialist purpose material.	Replication of vertical or overhead surfaces.

ASSEMBLE THE DISPENSING GUN



Raise slide release lever on dispenser body and insert piston slide.



Keep slide release lever raised and push slide back as far as possible.



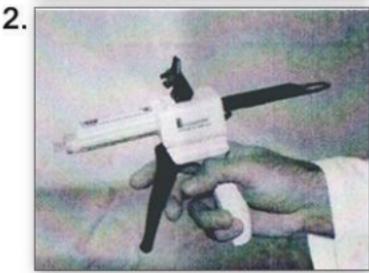
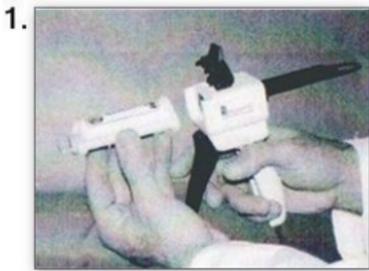
Lower slide release lever.



MICROSET is supplied in a two part cartridge which is dispensed through a static mixing nozzle using a hand held dispenser. The two components of the cartridge are mixed together as they pass through the static mixing nozzle during the dispensing procedure. This ensures air-free mixing and minimum wastage of material during application.

The curing rate for MICROSET compounds varies with temperature. Low temperature increases curing time. High temperature decreases curing time. Refer to the details printed on the cartridge.

INSTALL COMPOUND CARTRIDGE

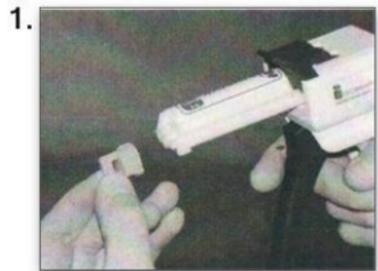


Lift cartridge clip on dispensing gun and slide cartridge into place, aligning larger side of cartridge with larger slot.

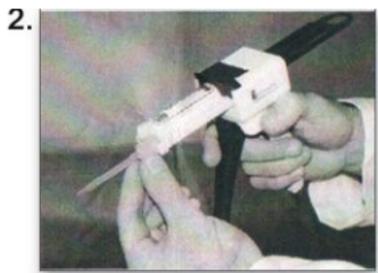


Lower cartridge clip to secure.

INSTALL MIXING NOZZLE



Remove cap from compound cartridge.



Position mixing nozzle on cartridge and rotate clockwise 1/4 turn to lock in place.



For new cartridges only, dispense a small amount of compound on to waste paper.



MAKING REPLICAS

1. Squeeze dispenser handle steadily to apply the MICROSET compound. Keep the nozzle end touching or as close to the surface as possible to avoid trapping air in the replica and to force the material into surface features. Overlap runs to cover larger areas. Weave the nozzle end from side to side if a wider bead is required. Note that each weave should overlap the previous one (similar to welding). When replicating vertical surfaces, work upwards.



2. Do not apply excessive hand pressure to the dispenser as this may damage the operating mechanism.
3. Do not stop flow of the material through the nozzle for longer than the working life of the MICROSET grade being used. Once the working life has been exceeded a new nozzle will be needed.
4. If desired, apply backing slide or paper to surface of exposed compound. Allow the MICROSET compound to cure (see cartridge for the curing time) and then carefully peel off the cured replica from one side. To prevent damage and loss of recorded detail do not touch the replica surface and store the replica in a plastic bag.
5. After use, remove the nozzle and replace the cap. To re-use the cartridge, fit a new nozzle.

Note: The 4400M Microset Kit includes a Tall Tripod Base (8400-27) and the Tilting Stage Base (4400-7) for use with the Model 8400 Optical Depth Micrometer. For instructions on taking measurements, refer to the 8400K User Manual.

TROUBLE SHOOTING

Dispensing gun fails to pressurize cartridge.

Damaged piston slide. Check piston slide and replace if necessary.

Compound does not bond to backing paper.

Wrong side of backing paper used. See backing paper instructions.

Material cures in the nozzle.

Stop/Start operation or nozzle attached for a long period before use. Replace nozzle and proceed without delay.

Material does not dispense from the nozzle after replacing previous nozzle.

Cartridge ports have cured over. Remove cured material or discard cartridge. The nozzle can be used as a seal for up to 4 months.

When using a new cartridge the first part of the replica does not cure.

Cartridge not leveled before attaching nozzle. Cartridge will not work satisfactorily with subsequent nozzles. To level the cartridge: prior to fitting nozzle, dispense small amount of material until an even amount issues from both cartridge ports.

Material cures too quickly or too slowly.

Incorrect grade being used for the ambient temperature. Choose a grade appropriate for the conditions. See compound chart.

Air bubble entrapment.

Poor application. Keep the nozzle in contact with the surface. For blind holes place the lip of the nozzle at the bottom of the hole.

Replica distorts and resolution is poor when examined under a microscope.

Replica too soft when removed due to incomplete curing. Extend curing period.

Replica surface does not cure.

Cure inhibited by surface contamination e.g. grease, oil, etc. Clean surface with solvent/ suitable cleaning agent and reapply compound.

Replica breaks during removal.

Severe re-entrant geometry or replica not completely cured. Allow adequate curing time. Remove slowly applying constant pressure.

Excessive voids in replica when using thixotropic materials.

Air entrapment due to poor application. Keep the nozzle in contact with the surface. Overlap runs and use backing paper.

Replica adheres to surface.

Mechanical attachment to fibrous or porous surface. Remove slowly applying constant pressure.

Base piston on cartridge leaks.

Solution: Excessive pressure on dispensing gun due to nozzle blockage. Remove cured material if possible or replace cartridge.