

Microset

PRECISION TO THE TENTH OF A MICRON

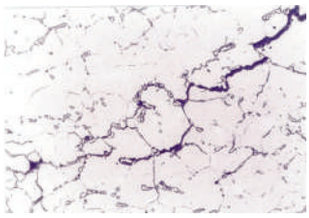
APPLICATIONS:

Microset manufacture specially formulated two-part polymers, designed for **high resolution replication** of **surface detail**. They are supplied in convenient and reliable **cartridge application systems** which allow replicas to be made, in **any shape or size,** of most **solid non-porous surfaces**.

Microset replicating compounds have a **resolution better down to 0.1 µm** (4 x10^{-6} inches) making them **ideal for the inspection and quality control of engineering surfaces**. Applications include **surface defect characterization**, **surface finish assessment** and **metallography**. Microset replicas are also dimensionally stable for **geometric measurement** and can be stored indefinitely for future reference.

Microset replicas are **high strength elastomeric materials** and are capable of being removed from holes, tubes and moderate re-entrant geometries **without damage to the replica surface**. This facilitates the **quality control of internal machined surfaces** which are often inaccessible to conventional measuring equipment.

MICROSTRUCTURE ASSESSMENT



(Optical micrograph x 100)

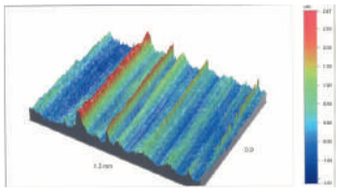
Microset 101RF replica of a polished and etched stainless steel section containing microcracking.

HOLE SURFACES



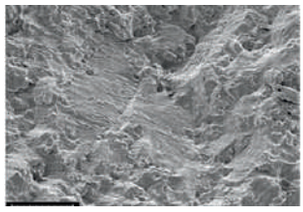
The illustration shows the replication of threaded hole using Microset 101TH. Holes in critical equipment are periodically monitored in this manner for thread deformation, corrosion and thread-root cracking.

SURFACE CONDITION



Microset 101RF replica of the surface of a marine engine crosshead pin measured using interferometry, for surface finish assessment.

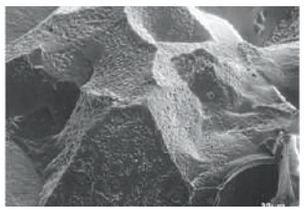
FRACTURE SURFACES



(Electron micrograph x 800)

Microset 101FF replica of a fracture surface in an aluminium alloy weld, caused by fatigue.

ASSESSMENT OF DEFECTS AT REMOTE LOCATIONS



(Electron micrograph x 1000)

Microset 101XF replica of a fracture in a stainless steel boiler tube situated within a boiler at a distance of four meters from the operator.

SURFACE CRACKING



(Optical micrograph x 100)

Microset 101RT replica of thermal cracking found on the surface of a bearing journal in a marine engine crankshaft.

MICROSET 101 FLUID REPLICATING COMPOUNDS

A free-flowing compound that minimises the risk of air entrapment, suitable for replicating horizontal or sloping surfaces, large surfaces, cavities, and threaded holes.

- **Resolution:** 0.1 µm
- **Shelf Life:** 24 months
- **Cured hardness:** 28-30 Shore A
- **Shrinkage:** Less than 0.1%

- **Colour:** Black or Grey
- **Useable temperature range:** -10°C to +180°C
- **Specific Gravity:** 1.1

Packaging: Twin pack cartridge in three sizes

- 50ml
- 265ml
- 495ml

Microset Grade	Working Life 25°C	Cure Time 25°C	Key Features
101 RF	30 seconds	5 minutes	**General-purpose**, ideal for **low temperatures** or **rapid results**.
101 FF	4 minutes	30 minutes	**General-purpose**, suited for **normal or high temperatures**.
101 FFS	10 minutes	40 minutes	**General-purpose,** with a longer working time, suited for **normal or high temperatures.**
101 XF	15 minutes	60 minutes	**Specialist-purpose**, with a longer working time, suited for **large surfaces**.
101 XFS	25 minutes	90 minutes	**Specialist-purpose,** with an **extra long working time,** suited for **large surfaces.**
101 FS	50 minutes	210 minutes	**Specialist-purpose**, **high working life** fluid material for **replicating large horizontal** or **sloping surfaces**.

MICROSET 202 FLUID COMPOUNDS

A high-resolution fluid compound ideal for metallography.
Harder and less flexible than 101, it is more prone to tearing when removed from complex surfaces.

- **Resolution:** 0.1 µm
- **Shelf Life:** 24 months
- **Cured hardness:** 45 Shore A
- **Shrinkage:** Less than 0.1%

- **Colour:** Black or Blue
- **Useable temperature range:** -10°C to +180°C
- **Specific Gravity:** 1.1

Packaging: Twin pack cartridge in one size

- 50ml

Microset Grade	Working Life 25°C	Cure Time 25°C	Key Features
202	2 minutes	7 minutes	**Fast-curing, low-viscosity** fluid, ideal for **microstructure analysis** and **surface finish measurement.**

MICROSET 101 THIXOTROPIC REPLICATING COMPOUNDS

A thixotropic compound that can be applied to vertical and overhead surfaces without dripping or flowing away.

- **Resolution:** 0.1 µm
- **Shelf Life:** 15 months
- **Cured hardness:** 28-30 Shore A
- **Shrinkage:** Less than 0.1%

- **Colour:** Black or Grey
- **Useable temperature range:** -10°C to +180°C
- **Specific Gravity:** 1.1

Packaging: Twin pack cartridge in three sizes
- 50ml
- 265ml
- 495ml

Microset Grade	Working Life 25°C	Cure Time 25°C	Key Features
101 RT	30 seconds	5 minutes	**Fast curing,** ideal for **low temperatures** or **quick results.**
101 TH	3 minutes	20 minutes	**General-purpose,** suitable for **normal** or **high temperatures.**
101 THS	7 minutes	30 minutes	**Specialist-purpose,** with a **longer working time** than **101 TH.**
101 XFT	15 minutes	60 minutes	**Specialist-purpose**, **high working life** for replicating **large vertical** or **overhead surfaces**.
101 XFT SL	25 minutes	90 minutes	**Specialist-purpose**, **extra high working life** for replicating **large vertical** or **overhead surfaces**.

MICROSET 121 FORMING PUTTY

Two-part synthetic rubber putty, to be mixed in equal parts by hand, ideal for macroscopic molding of surface shapes. Available in fast-curing (121F) and slow-curing (121S) versions.

- **Resolution:** 10 µm
- **Shelf Life:** 24 months
- **Cured hardness:** 77 Shore A
- **Shrinkage:** Less than 0.1%

- **Colour:** Part A: Yellow | Part B: Blue | Mixed: Green
- **Useable temperature range:** -10°C to +150°C
- **Specific Gravity:** 1.15

Packaging: Kit consisting of two tubs in two sizes
- 500G Kit (250G Tub PartA + 250G Tub PartB)
- 2KG Kit (1KG Tub PartA + 1KG Tub PartB)

Microset Grade	Working Life 25°C	Cure Time 25°C	Key Features
121 F	3 minutes	10 minutes	**Fast-curing,** hand-mixed putty for **moulding and measuring surface profiles**, ideal for **rapid results in low or room temperatures.**
121 S	20 minutes	60 minutes	**Slow-curing,** hand-mixed putty for **moulding and measuring surface profiles,** ideal for **high temperatures** or **large areas.**

PROCESS:

The microset replication process is fast, simple and reliable and requires minimal operator training.

Microset replicas are produced using liquid polymers dispensed from two-component cartridges, used in conjunction with dedicated dispensing guns.
The base and catalyst components are automatically mixed within a static mixing nozzle attached to the end of the cartridge. The material is applied fully mixed directly onto the surface from the end of the nozzle.
The Forming Putty, a two-part synthetic rubber compound, needs to be mixed manually in equal proportions before being applied to the surface to be replicated.

1. **Clean surfaces prior to application for optimal results.**
2. **Assemble the cartridge onto the gun and then attach the static nozzle.**
3. **Apply the compound to the surface to be replicated.**
4. **Ensure even distribution to avoid air bubbles.**
5. **Gently remove the replica after curing**
6. **Once cured the replica is peeled off and is ready for inspection.**

The detailed inspection of surfaces is of major importance in modern engineering. Manufacturing defects and surface deterioration can lead to poor performance and ultimately to failure.

The Microset replication system provides hi-tech industries with an additional inspection technique to meet the increasing demand for precision quality and safety.

For more detailed information about Microset, the range of products and their various applications, please contact our team.











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