MICRO-MESH MX

DESCRIPTION: MICRO-MESH is a series of cloth-backed cushioned abrasives designed to produce very low roughness average (Ra) scratch patterns on a variety of materials. On metal the coarse grades of MICRO-MESH MX can achieve finishes below 1.0 micro inch with proper surface preparation and application.

Surface preparation prior to MICRO-MESH MX use includes establishing the geometry of the part reduction of the Ra to 20 micro inch or less using the most economical conventional method available. One application of MICRO-MESH MX should reduce the Ra to 10 micro inch.

Subsequent applications will further reduce the Ra by approximately 1/2 until the specified finish is reached. Using a combination of one or more of the MX series and variation of material feed, speed or pressure can produce sub 1.0- micro inch finish.

MICRO-MESH MX can also be used on painted metal surfaces and other hard surfaced materials.

MATERIALS: Silicon carbide crystals on a resilient layer over cloth back. The backing is stamped with the following grade number for easy identification.

60MX	120 MX	240 MX	400 MX	*1200 MX
80 MX	150 MX	320 MX	600 MX	
100 MX	180 MX	360 MX	*800 MX	* aluminum oxide crystals

AVAILABILE IN:

Sheets: 3" x 6"
6" x 12"
12" x 12"

Tapes: 1/2" - 2" widths

Discs: Various Sizes

Rolls: 4" x 50'
6" x 50'
6" x 25'
12" x 25'

Handi-Files: 1/2" x 5 3/4"
5/8" x 5 3/4"

Soft Touch Pads: 2" x 2"
3" x 4"

Kits : MX-90 Metal Finishing

Belts: Various Sizes

STORAGE & HANDLING: When stored between 0-120 degrees Fahrenheit a clean and dry environment, life is nearly unlimited. No special handling required.

APPLICATION: MICRO-MESH MX may be used by hand or machine. A firm foam block should be used as back-up during hand applications. The cutting ability of MICRO-MESH MX is increased by increasing the rigidity of the back-up material. MICRO-MESH MX may be used wet or dry. Most water or oil base lubricants are acceptable for used with MX. Lubricants should be tested for compatibility before general use. Always finish clean-up with soap and water to remove solvent.

When using water as a lubricant do not soak MX in water for more than four hours. Apply water by dipping or spraying.

Using MX with a sharp edged back-up may cause it to wear faster on the narrow edge.

Specific application instructions are available upon request from MICRO-SURFACE at 1-800-225-3006.

01/2004
Technical Bulletin-#12

TECHNICAL BULLETIN

METAL FINISHING WITH MICRO-MESH® MX

Sanding is used to establish a part's geometry or finish. Geometry is commonly established with coarse grits of coated abrasives, bonded abrasive wheels or by hand turning. Finishing is generally achieved with successively finer grades of abrasives until the desired surface quality (appearance) is obtained.

MICRO-MESH MX is a series of cushioned abrasives with a slightly stiffer backing, and several coarser grades than the MICRO-MESH Regular series. MICRO-MESH MX enables the user to achieve the desired finish faster and often with less steps than with conventional abrasives. Start to use MX as soon as practical in the finishing sequence.

All MICRO-MESH Regular and MX grades are constructed with a thin layer of soft resilient material between the cloth back and the abrasive crystals. This provides the unique "cushioned" action for the abrasives. This unique design allows the abrasive crystals to recede into the resilient layer and float to an even cutting plane. This eliminates deep random scratches and results in uniform scratch patterns and significantly longer product life than conventional abrasives.

MX grades cut rapidly due to the relatively large crystals and because the flexing action allows more abrasive crystals to contact the workpiece. The flexibility of the crystals keeps the swarf loose and prevents loading. MICRO-MESH outlasts conventional abrasives because the relatively large crystals do not load up. The flexibility prevents the crystals from fracturing and generating heat into the workpiece.

MX is economical to use. In dry applications, it outlasts conventional abrasives 5 - 7 times, When used wet, the life advantages increase 7 - 15 times that of conventional abrasives. MX can be used with most standard cutting oils, honing oils or coolants, either water or oil based. The objective is to flush the surface of the MX and the workpiece to keep it free of swarf. MX can not be used with solvents like acetone or certain chlorinated solvents. Lubricating with grease type or filler type lubricants will cause rapid loading. Such belt compounds are used to soften the cut of common abrasives which is not necessary since MX is engineered to have a controlled aggressiveness. Once the abrasive crystals have receded to their given level, further down pressure will not increase the rate of removal or surface quality but will put stress on the material. Keep the pressure light.

Machine Speeds
On .plastics and woods - speeds of 1000 sfpm (less if possible). Plastics should always be worked with a water mist.

Metals - Speeds below 6000 sfpm are recommended.

The floating action of the abrasive crystals in MX does not require high speed operation to achieve super finishes. If higher speeds are used, feed rates and pressure should be reduced. As a general rule, higher speeds promote a faster cut, while slower speeds produce a better finish.

Contact wheels should be kept as soft as possible for best finish and longest life. A non-serrated 40 durometer rubber wheel or a cloth wheel should be used. MX can also be used on inflatable wheels as replacement for buffing wheels.

If a "mirror" or highly reflective surface with no visible scratches are required, more steps are needed than for a #4 or #7 finish.

Steel, stainless and ferrous metals
The following is general information to help, not meant as an instruction sheet. Variables such as speed, pressure and differences in materials to be finished may change the combination of MX used. When starting with mill finished or ferrous stock, it may be desirable to use a conventional 240 or 280 p grit to remove all mill marks, scale, etc. A combination such as 100MX and 240MX. 400 MX is recommended for finishing steels. 400 MX cuts like a 400-600 grit but should leave a 1200-1500 grit finish. When a finer finish is required, use 600, 800 or 1200 MX. Sand casted material will require more steps with conventional abrasives before using MX.

Copper, brass, bronze, aluminum and other soft metals
The procedure is similar to that of steel. However, the starting point can be 80 MX, 100 MX or finer depending on the softness of the material. Coarse castings will require conventional abrasive steps prior to using MICRO-MESH. When finishing aluminum, it is important to slow the surface speed down and use a coolant made for aluminum.

Hataloys, titanium, nickel, stellite and other special materials and alloys
Each of these materials requires a trial piece run to determine the best sequence for achieving the desired finish. For more information and reference call 1-800-225-3006.