


Preparation of Large and Difficult Specimens

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In the course of in-house investigative work, I often have to prepare larger than 'normal' specimens, usually to a finish of 1200 grit, for macro examination. The material is generally a 300 series stainless steel. Such specimens may be up to 80 mm square and 10 mm thick with the 80 x 80 faces being prepared. Often, these specimens may show a considerable (up to 5 mm) 'wedge' from one side to the other due to difficulties in cutting the piece initially. Previously such specimens were always prepared manually and it was common for preparation of a single face to just a 1200 grit finish to take 4 or 5 hours and several finger tips for thinner specimens! However, I recently came up with an effective preparation method using our RotoPol-22 and RotoForce-4 grinder/polisher with adhesive backed SiC papers and also MD system discs.

Using this method has reduced the preparation time four fold or more! The idea is simple and cheap and adaptable to many shapes and sizes of specimen. Basically, the specimen is held onto the back of the specimen holder using self-adhesive backed hook and loop tape. I have found the best results with the 'hook' tape being applied to the sample holder and the 'loop' tape being applied to the specimen. I generally use a single piece of tape across the centre of the sample holder, a matching piece of loop tape applied to a cleaned face of the specimen in the appropriate position. The specimen can then be attached to the sample holder, but remains easily removable for in-process cleaning etc.

The hook and loop tape provides a strong but flexible joint between specimen and sample holder which allows the surface of the speci-



The "hook and loop" tape can be used on standard specimen holders

men to be ground flat and plane even when the section is 'wedged'. Care needs to be taken not to use too much force or the hooks and loops will part company and you'll spend some time trying to get the sample out from under the bench!

Equally, check that the sample is not touching the grinding/polishing surface before starting the machine or once again, you may end up on your hands and knees – I have!

I have also tried double sided sticky foam pads, but these I found very difficult to remove and in-process cleaning and rinsing was unsatisfactory. Double sided sticky tape, not the foam type, was also unsatisfactory unless the sample was almost parallel to start with but again, difficult to remove residues of tape and adhesive.



The "hook" part of the tape is applied to the specimen holder for best results.