PAD COMPENSATION

FOR RADIUS OPTICS

Matching the radius of the pad surface with the desired curve of the finished workpiece, referred to as pad compensation, is vital to the successful production of radius optics. The process requires reducing or increasing tooling radii to "compensate" for the thickness of the pad.

EXAMPLE		
DESIRED WORKPIECE CURVE (D)	PAD THICKNESS (T)	FORMULA
10.00 DIOPTER	1.27 MILLIMETER	$\frac{530}{(D)} - (T) =$ MILLIMETER RADIUS CURVE OF TOOL
Tool would be cut to a 51.73mm radius to impart a 10.00 diopter finished workpiece curve.		
Subtract pad thickness for a convex tool working a concave optical surface. Conversely, for a concave tool and convex optic, add pad thickness.		

Relative hardness is also be a factor in pad compensation. The softer the pad, the more "forgiving" it is in compensation computation. Harder pads however, require more exacting compensation and usually yield more accurate finished curves. This is intended as a rough guideline. Please keep in mind that determining compensation factors does not address differences in the hardness of the workpiece materials being processed.

Compensation accuracy can be monitored in the optical workpiece during processing. After a short period of fining or polishing, inspection of the optic may show less progress around the center area or along the edges of the optic. This shows up as a gray unpolished area during polishing, or generation marks or swirls during fining, and is indicative of the following:

FOR CONVEX TOOLS AND CONCAVE OPTICS		
FAULT AREA	CURVE DEFICIENCY	CORRECTION
Edges	Too Strong, Radius too "short"	Increase radius of tooling or employ thicker pad
Center	Too Weak, Radius too "long"	Decrease radius of tooling or employ thinner pad

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