
To remanufacture or not

By Russ Olexa

There has been a conflict of opinion by laser-optics suppliers about remanufacturing laser focusing lenses for reuse. Ophir Optics Group strongly opposes doing this. Boaz Yaffe, the company's sales and marketing director gives his opinion on why the company won't remanufacture lenses.

FFJ: Why shouldn't lenses be remanufactured and why?

We believe that the risk in using reground [remanufactured] focusing lenses as a replacement for a new one far outweighs purchasing a new one.

There are many reasons as to why. We can never truly know what types of stress that this lens sent in for remanufacturing experienced during its lifetime. Although today we can check the lens to see how much stress is inside it by using a polarization device, it doesn't give us any information about how far the lens is from actually breaking--just how much stress there is in it. So if it's not worth remanufacturing, we'll know from this test.

For instance, if you look at a light bulb, you know it's working fine even after many hours of use. But it will eventually fail, and you'll have no indication of that time until it actually happens. It's the same with the laser lens.

Also, a used lens expands and contracts multiple times from the heat of the laser beam when it's being focused. A laser beam doesn't run continuously. It's only running when it's cutting. Every few seconds it can be on and then off. Also, there's always air next to the lens to cool it, which adds to its expansion and contraction cycle. It's never at the same temperature.

Sometimes we look at these lenses before we dispose of them, because they're sent back to us after use. They are considered hazardous material and must be disposed of properly. The trouble with used lenses is that many of them are already broken or chipped on the edges and they usually can't be remanufactured, but some can. Even if you take a lens that is almost new, with very little use and without any stress, to strip the coating and put another coating on it, you need to regrind it. This takes some of the thickness away from the lens. Then you take this lens and put it back into the laser. The fit of the lens in the machine is different because the parameters of the dimensions have changed from a new lens. Also, because of the edge chips that have been ground out if possible, it might sit improperly in the cutting head, shifting the laser beam or not producing a proper focus.

What happens if a lens fails?

When they fail, the damage they can do is very costly in terms of machine downtime and repair. If you're lucky, when the lens fails, it will just stop cutting because the focus is gone. If you're unlucky, the lens can shatter inside the machine. Usually a shattered lens won't destroy the entire cutting head, but it'll need cleaning and it might destroy some of the mirrors, especially the one closest to the cutting head. But the majority of the repair work will be cleaning and parts replacement.

The average direct cost for a repair technician to come into a shop is, depending on the country, around \$10,000 to \$40,000. This also depends on the damage done by the shattered lens. Repairs can take a day or two. So there can be significant costs to replace expensive parts. These costs don't include the downtime expenses from the laser not producing parts either.

Another thought is that we produce thousands of lenses per month. If a company were to send us a used lens for remanufacturing, it would be very difficult to do all the testing to make sure it's reusable,

remanufacture it and keep track of it throughout this process. It would be difficult to impossible to track a lens.

We've also found that laser equipment manufacturers do not want a remanufactured lens being used in their equipment. They feel that the possibility of a lens shattering is too great a risk.

We feel that using remanufactured lenses is not money wisely spent, especially when you consider the costs if one shatters. **FFJ**