Grinding Flats on Stepper Motor Shafts

None of our stepper motors are sold with shaft flats. This saves a little cost and gives the customer flexibility when deciding on couplers. Many couplers you can buy attach with a clamping action distributing the compression around the entire motor shaft. While these types of couplers are ideal, they are often expensive.

Set screw type couplers are more economical. They have a small set screw in the side of them to “lock” the coupler in place to prevent slippage. But, because the motor shaft is not hardened, the set screw will most often dimple the motor shaft, which makes it very difficult to remove the coupler at a later date. If you grind a small flat on the shaft where the set screw will sit, it will benefit from better “locking”, and will also allow room for the dimple to form without interfering with removing the coupler.

The flat doesn’t need to be very deep and it only need to be as long as the distance that the set screw sits back. You can remove the set screw and do a dry fit and mark the hole with a magic marker. To grind the flat, hold the motor to the side of a bench grinder for a few seconds. Do not put a lot of force on it, or you will soften the shaft by overheating it. You can also use a flat file to grind the flat.