

Construction Tips - Blower Conversion

A relatively simple way to make a powerful power blower for a forge is to acquire a hand blower with non-functional gearing and adapt an electric motor to it.

To the right is the unit that's been in service on my coal forge since 1991 (without maintenance except for an occasional dusting). The unit consists of a 110v power source and switch (which I flip on or off with a boot toe), an 1800 rpm 1/2 HP motor bolted to a scavenged base, the fan and fan shroud of a defunct hand blower bolted to a face plate, aluminum 3" dryer hosing connecting the blower to an air gate and then to the forge pot.

The chief technical problem is getting a bushing to make the jump from the outside diameter of the motor shaft to the inside



diameter of the fan. I fabricated the bushing but they are available from MSC. I didn't bother with a keyway and the fan hasn't slipped yet.

A face plate is needed that has bolt holes corresponding to the bolt holes on the rear of the fan shroud and a large hole in the center to accommodate the motor shaft. You can attach the rear section of the shroud to the faceplate and bolt the motor to the base. Slide the bushing on to the motor shaft and then slide the face plate/shroud over the shaft. Adjust the placement of the plate relative to the base so that the shaft doesn't rub. When your happy with the adjustment, weld the plate to the base. Bolt the fan and front of the shroud in place and you're good to do.



You can control the air flow with a rheostat (if your motor allows that) but a slide gate is a nice alternative.



The air gate consists of two pieces of 3" pipe, two slabs of plywood (4"x 12"), a 14-gage 'U' shaped piece (lining the 4x12 are with one of the 4" sides open) of steel acting as the meat in the wood sandwich. The pipes are jammed into 3" holes in the wood across from one another and opening into the cavity a couple of inches from the blind end of the 'U'. Small bolts extend through the wood and the 14-gauge to hold the sandwich together. A 16-gauge piece of steel which can slide in the cavity is the air-gate proper. A handle is added to the gate (I like an 'L' shaped piece of 1/2" x 1/8" -- ok, it was lying around in the shop that day). The whole assembly is mounted at a slight angle such that vibration will close the gate. The rationale is that the air gate is better than a rheostat because there is no time involved in the motor spinning up or down and no problem with motor speed control.