

## 3 Ways to Increase Fan Performance & Get More Out of Your Fan

Over time companies grow and industries change which leads to a process change. At the heart of that process is a fan that is still operating, but now needs to do more to keep up. Rather than throw away a significant piece of capital equipment, you reach out to your local Chicago Blower representative and ask, ***“How do we increase the airflow output of our old fan?”*** It is a complicated question, but punting isn't the answer.

**Here are 3 common ways to increase fan performance:**

### 1. Change the Wheel

Many of Chicago Blower's products are similar or related to each other in some way where, with some care, changing the wheel is a very good option. The Design 38 and 53 Pressure Blowers allow multiple wheel sizes in the same housing. For instance, there are four wheels available with a Size M Design 53, wheels M1, M2, M3, and M4, where the larger number corresponds to higher CFM and SP output. If you have an airfoil square fan or Design 51 fan, there is a backward inclined wheel alternative that will also increase performance. Backward inclined wheels create more CFM and SP than an airfoil at the same operating speed. The drawback with the wheel change, whether it's a pressure

blower or airfoil fan, is the new wheel will require more BHP to operate and can be louder.

***However, the benefit is the fan's footprint and inlet/outlet flange dimensions are unaffected, making the wheel change over much easier.***

## **2. Speed the Fan Up**

Another method to increase a fan's performance is to speed the fan up. Increasing fan speed sounds easy on the surface, but there are many other factors to consider. First, the increase in speed will increase the required BHP. The motor on site may not have an HP rating that will accommodate the new speed. A new motor may also require a larger adjustable motor base. Next, if the fan is belt driven, the V-belt drives will need to be changed. The new sheaves may be larger than what can fit inside the belt guard. This would require a modified or completely new belt guard. With higher speeds and larger motors the fan class must also be checked. For a new fan, you just pick whichever class will work for the selection's running speed and operating temperature. With an installed fan, the class may not be able to handle the speed up so a replacement of the wheel, shaft, and bearings may be required. If you've gotten this far, an entire replacement fan is a better solution for the customer, instead of upgrading parts by piecemeal.

***In any case, if the fan can be economically upgraded for a speed increase, you will benefit by being able to use the same fan.***

## **3. Get A Secondary Fan**

Rather than fooling with a fan that is already installed, a secondary fan that runs simultaneously with the original fan may be a better solution. If you require more airflow in the system, an additional fan that runs in parallel with the

original fan would help. If more pressure is required, then the additional fan would be set up in the system before or after the original fan. In either case, some modification will be required on site to your system.

***The benefit is the original fan does not need to be modified to accommodate the secondary fan.***

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