



## Opening and Closing the CNC Door

In order to operate the machine, the robot needs to open and close the door. To do so, you can decide to simply use the robot to open the door just like a human would. This is not time-effective but it is really cheap to integrate. Otherwise if there is an automatic door already embedded in the machine, the door can be operated automatically by the CNC machine.

### Robot Moving the Door

The easiest (read cheapest) way to automate door-opening is to use the robot. In fact, before entering the machine, the robot can simply grab the door by the handle and slide it until the robot has enough room to get in.

Once the machine is ready to start, the robot only needs to close the door and everything can run normally. Click [here](#) to see a video of a cobot opening and closing a CNC machine door.



The major advantages of this solution are simplicity and cost effectiveness. In fact, if you own a robot you also own a CNC machine door opener. There is no need for a robot/machine handshake and you can be up and running in no time.

The downside is that the process is usually slow and it takes more time for the machine to get back to work. If you are not concerned about cycle time, this can be a good option. However, if your idea is to optimize your production, you might want to think twice before implementing this method.

## Built-In Door Opener

You are not the first person to think about automating your CNC machine. In fact, it is so popular that CNC machine builders offer automated door-opening in their product line or as an option. If you are buying a new machine, you are probably able to get an embedded door opener for a couple of thousand dollars extra.

The good thing is that you can insert machine codes (G or M codes) in the program and make the door open at specific times so that no handshake is required between the door opener and the robot.

The downside is that it is usually expensive to do so, and if you want to operate your machine without a robot you will need to press a button to open the door.

## Off-the-Shelf Door Opener

More automation companies are starting to design and produce automated door openers for CNC machine tending applications. Brands such as [EasyRobotics](#) and [CNC AutoDoor](#) are specialized in these types of devices. They are generally easy to install and need minimum customization to get started. These doors are built with the robot in mind, so they are easy to integrate with the robot. You can also remove the door opener if you don't need it anymore. This option is a very good compromise between simplicity and price.

## DIY Door Opener

If you don't want to pay for all of this, you can build your own door opener. It is fairly easy and cheap.

In fact, if you use a double-action cylinder strong enough to move your door as well as a 2-way valve, you can make a door opener for less than a thousand dollars. Add a couple of sensors, some tubing and connect everything in the configurable I/Os of the robot, and you are good to go. Make sure it does not affect the integrity of the CNC and does not block any internal component. Also consider that the safety latch can be an issue when automating a door; make sure to manage this risk.

When the machine sends a "ready" signal, you can trigger the correspondent I/O and open the valve to move the pneumatic cylinder. When the part is placed correctly, you can trigger the I/O back and move the door back to a safe position. It is simple and cost-effective; it's worth a try.