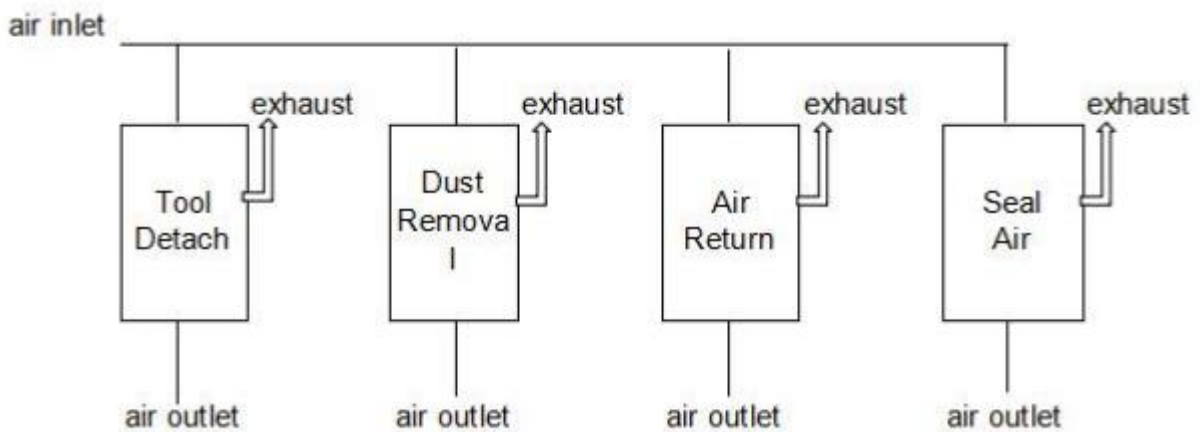


## Before the spindle started:

Check if the pressure of power source is really 0.6mpa, and then filter the outlet air from the power source. Filtration accuracy is 25um.

Correctly set up the frequency converter(VFD) according to the spindle parameters on the spindle housing.(Or the parameters in operation manual). Take one model for example. JGL-80/2.5R40-20, rated frequency: 666HZ, voltage: 220V. Time of start & stop: about 10~15 seconds.

About air seal: Before the spindle running, "air seal" must be connected in advance, with pressure 0.1mpa~0.15mpa. And it must be always in connection no matter when the spindle is working or in the process of tool changing, unless the CNC machine stops.



## Steps of tool change

1. Control tool-detach valve and pump the air into "air inlet", time of air pumping is about 3 or 5 seconds. At this time, clamp inside the spindle will open. Insert the tool holder ISO20 into the spindle cone hole till the hole top.

2. Control dust-removal valve and pump the air into "dust-removal". The air pressure is about 0.1~0.15mpa.

The valves of NO.1 and No.2 (tool-detach valve and dust-removal valve) can be turned on at the same time.

3. Turn off the valves of NO.1 and No.2 at the same time. The air in the cylinder escapes from the exhaust.

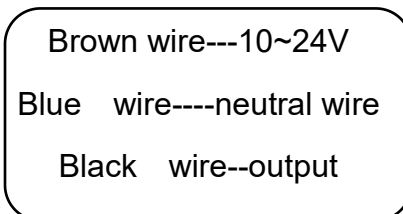
**Now, the tool holder is installed.**

4. Turn on the “air-return” valve, pump the air for 5 seconds and then turn it off.

**5. Now, that’s all for a process of tool-change.**

6. Turn on the tool-detach valve again, the original attached tool holder will be released.

## Operation of the sensor



1. As shown on above diagram, connect brown wire of sensor to 10~24V; connect blue wire to neutral wire, and connect black wire is output terminal.
2. When tool-detach valve is turned on and clamp inside the spindle opens, high voltage will be output from the tool-detach sensor. Now the output voltage is the same as the input voltage of brown wire.
3. When tool-detach valve is turned off and tool holder is right in place in the spindle, high voltage will be output from the tool-clamp sensor. Now the output voltage will be the same as the input voltage of brown wire.