Features

- Porous design without gasket
- Each suction hole works independently
- Flip the switch and instantly suck
- Internal spool adopts clogging free technology

CNC Porous Vacuum Chuck

For CNC Machining Center

Product Description

The non-gasket vacuum chuck, Used in CNC machining centers and engraving machines, Adopts an independent switch valve in each suction hole. When the surface of the suction hole is not covered by the workpiece, the internal switch of the suction hole automatically closes. When the surface of the suction hole is covered by the workpiece, the internal switch of the suction hole opens, forming an air pressure difference on the upper and lower sides of the workpiece, and the workpiece is firmly sucked on the surface of the vacuum chuck.

The workpiece can be sucked for the Irregular shape workpiece, and the workpiece is milled through, which does not affect the normal work of the suction hole in other places that are not milled. The non-spring design is used inside the valve core to ensure that the processing of ceramics, glass, glass fiber, graphite and other workpieces (a lot of powdery debris will be produced during drilling and milling) will not cause blockage of the suction hole.

Benefits

- Simple operation.
- Maintenance-free.
- Automatic drainage.
- The suction hole does not clog.
- Pneumatic self-cleaning.

Applications

- Metal material: aluminum plate, copper plate, stainless steel, titanium alloy.
- Nonmetal materials: ceramic, quartz, glass, graphite.
- Polymer materials: POM, PVC, acrylic, PTFE.
- Irregular shaped thin plate workpiece. （Recommended thickness:0.4mm ~ 40mm)
- Hollowed-out workpiece.
- Ultra-thin parts that do not withstand large clamping forces.
- Magnetic chuck can not hold.

CNC Porous Automatic Valve Type Vacuum Chuck

Pressure gauge

Knob switch

Extraction port

Clamp slot
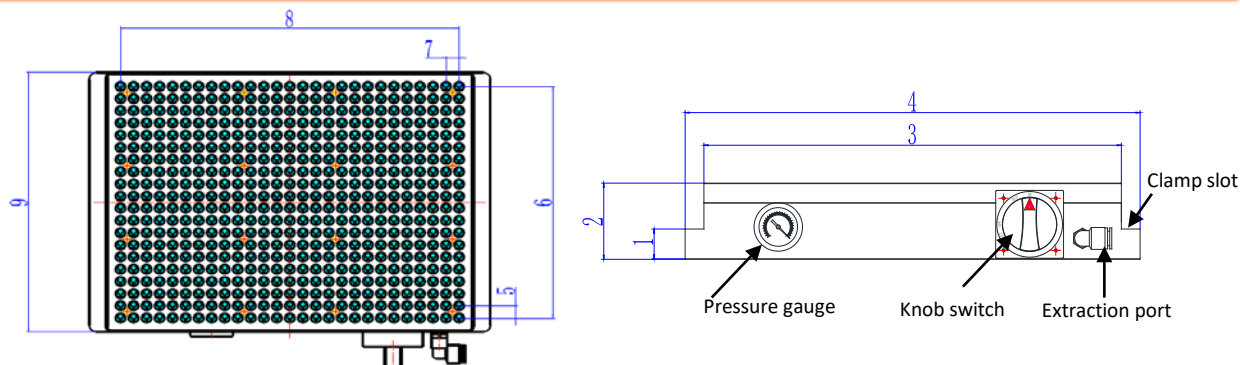
[Unit:mm]

Model	Normal Size		Overall Length	Height		Workface		Suction Hole Pitch		Dia.of Suction hole	No.of Suction hole	Mass	Work Vacuum Range	Consumed Volume	Buffer Tank Volumn	Minimum parts area
	9	3	4	1	2	6	8	5	7							
PRO3040	300	400	436	29	73	256	352	16	16	12mm	391		– 55Kpa~ – 95Kpa	360L/min	40L	10cm× 10cm
PRO4050	400	500	536	29	78	352	448	16	16		667			420L/min	60L	
PRO4060	400	600	636	29	83	368	560	16	16		864			460L/min	90L	
PRO5080	500	800	836	29	83	446	746	16.5	16.2		1316			500L/min	90L	
PRE1824	180	240	276	27	73	161	221	13.42	13	10mm	234	8kg		300L/min	40L	8cm× 8cm
PRE3040	300	400	436	29	73	268	368	14.11	14.15		540	23kg		420L/min	40L	
PRE4060	400	600	636	29	83	368	568	14.15	13.85		1134	49kg		500L/min	90L	

Auto Drain Device-Special for Vacuum Chuck

Negative pressure connection

Vacuum chuck connection

Drain outlet

Clean inlet

Power
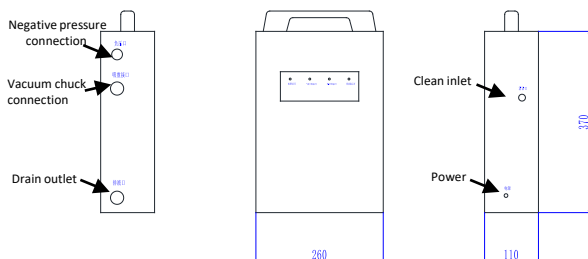
All parameters are set at the factory, and the auto drain device can operate continuously for extended periods, automatically returning the cutting fluid to the CNC machine tank while maintaining stable pressure. Once the collected cutting fluid volume exceeds the set value, it will be automatically discharged one time.
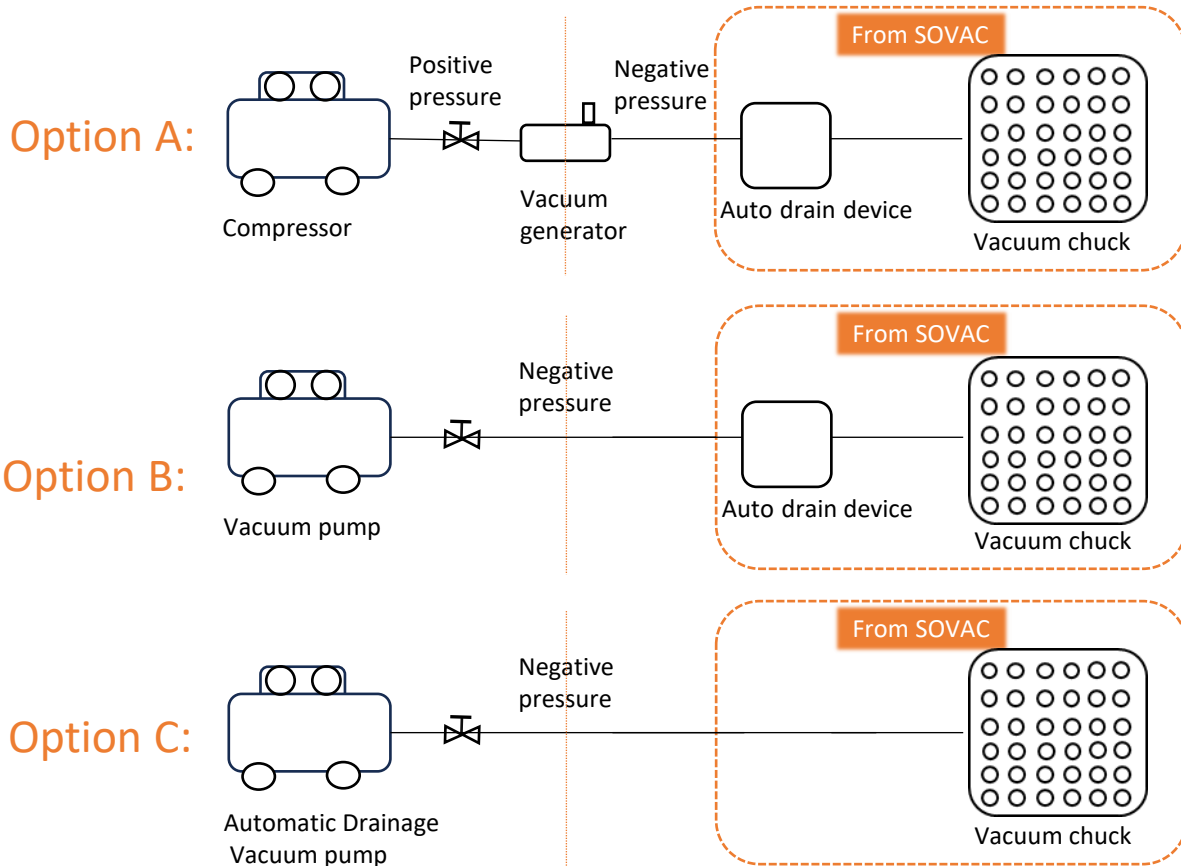
Model	Voltage	Power	Overall Size	Inlet and Outlet Joint	Inner Dia. of Joint	Drain Cycle	Applicable model	Mass
ADD-110V	110V	220W	260*300*110	1 Inlet, 2 Outlet	12mm	Liquid collection 1 liter	All model from SOVAC	17kg
ADD-220V	220V	440W						

Operation process

1. According to the recommended device connection method, prepare the vacuum pump (or air compressor + vacuum generator), we recommend that the vacuum pump is preferred.

2. The vacuum chuck is fixed on the working table of the machining center and fixed by the press plate. If the processing accuracy is relatively high (accuracy is less than 0.02mm), a replaceable hard faceplate can be installed on the surface of the suction chuck , and the upper surface of the hard faceplate is firstly processed (Face milling cutter head: Feed quantity:0.03mm, Rotate speed:4000RPM) ,Connect the negative pressure air source to the auto drain device first, and then connect the vacuum chuck.

3. Start the power switch of the vacuum pump and auto drain device, turn on the suction chuck switch, and check whether the whole system can work exactly.

4. Placed the workpiece on the surface of the vacuum chuck, turning on the switch, and the workpiece can be fixed firmly.

5. During drilling and milling, pay attention to the length of the penetration bottom that does not exceed 0.05mm; otherwise, the bit may damage the vacuum chuck body. When you install a hard faceplate, we still recommend the length of the penetration bottom no more than 0.05mm.

6. After drilling and milling the workpiece, blow the debris on the surface of the workpiece and vacuum chuck with an air gun, and then turn off the switch to remove the workpiece.

7. At the end of every day, sprinkle some water on the surface of the vacuum chuck at the 45 degree position of the switch. The vacuum chuck will quickly inhale the water into the inside of the vacuum chuck , and the inside of the vacuum chuck will be forcibly cleaned. Cleaning status is recommended for more than 15 seconds.

Device connection

Option A:
Compressor — Positive pressure — Vacuum generator — Negative pressure — Auto drain device — Vacuum chuck (From SOVAC)

Option B:
Vacuum pump — Negative pressure — Auto drain device — Vacuum chuck (From SOVAC)

Option C:
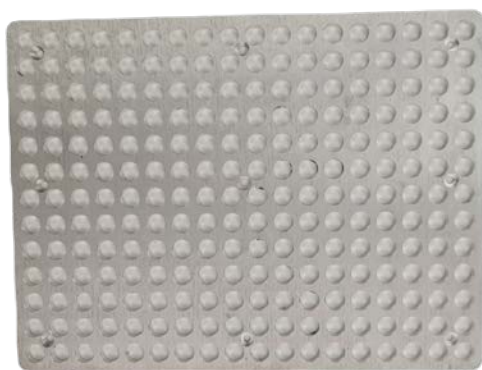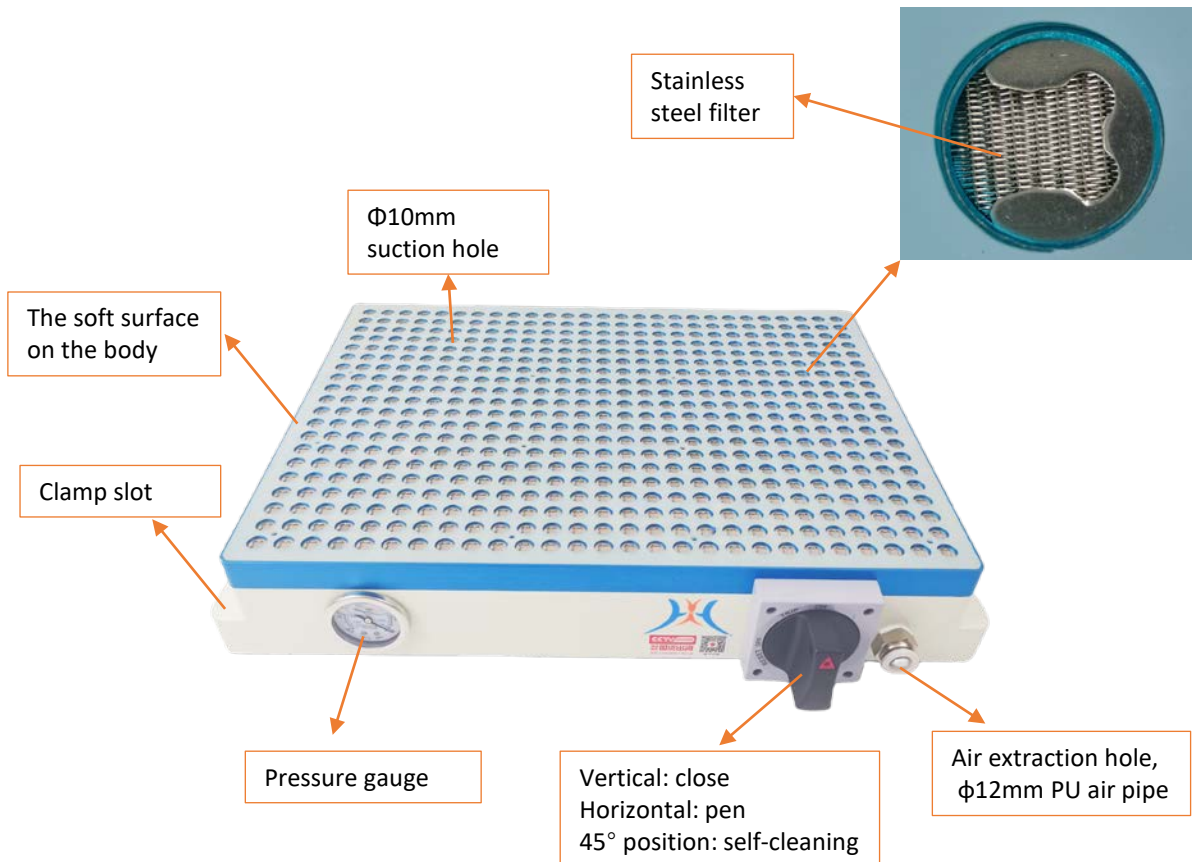Automatic Drainage Vacuum pump — Negative pressure — Vacuum chuck (From SOVAC)

Noted： If you have a compressor and a vacuum generator, you can choose Option A.
If you have a vacuum pump, you can choose Option B.
SOVAC can supply all the devices above, However, considering the transportation cost, we recommend buying only **Vacuum Generator ,Auto Drain Device** and **Vacuum Chuck** from us. And buy the others in your country.

Structure Description

Stainless steel filter

Φ10mm suction hole

The soft surface on the body

Clamp slot

Pressure gauge

Vertical: close
Horizontal: pen
45° position: self-cleaning

Air extraction hole, φ12mm PU air pipe

Replaceable hard faceplate

Installed hard faceplate

Noted: The hard faceplate materials can be selected from aluminum alloy, die steel, PTFE,
According to the accuracy you require. When it is exhausted after many surface cuts.
Download the hard faceplate drawing files from our website: www.sovacuumclamp.com/support

Workpiece Condition Recommendation

Body soft surface
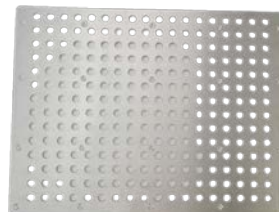
Replaceable hard faceplate

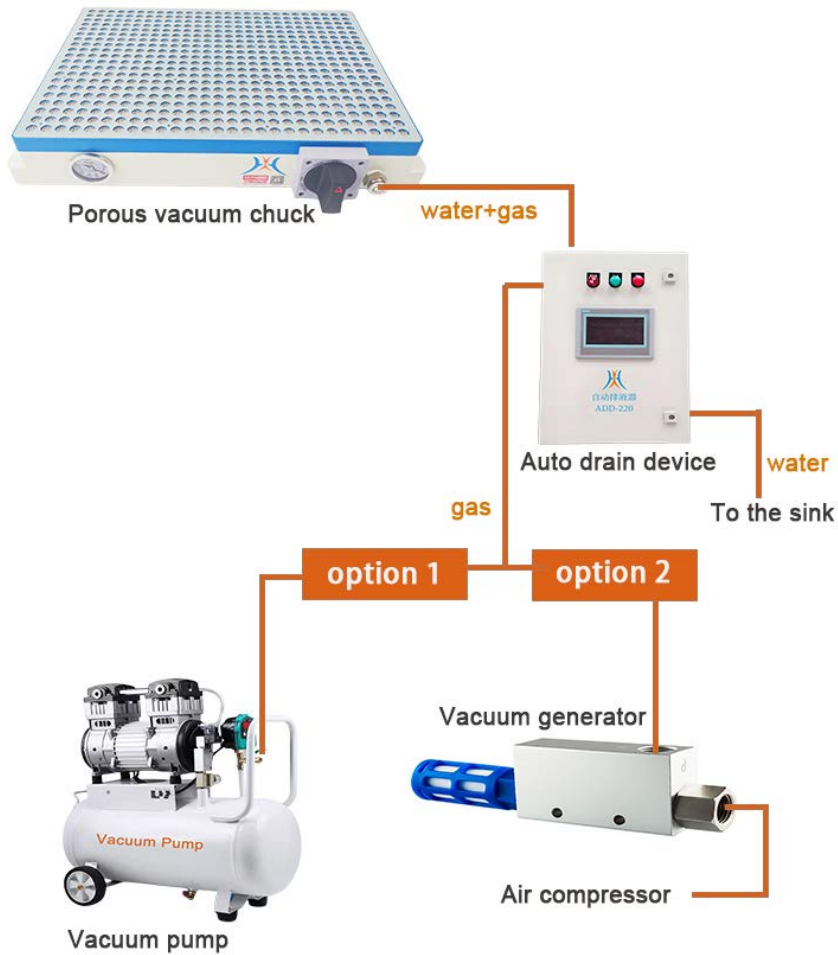Installed hard faceplate

Installed ultrafine hole hard faceplate

Install hard faceplate or not	Workpiece material	Typical material examples	Flatness	Parallelism	Recommended workpiece thickness	Recommended minimum size(After machining)	Finished workpiece is small,Typesetting processing,Reserve bottom thickness	when workpiece thickness:0.4mm~1mm,Recommended hard faceplate suction hole diameter
Installed hard faceplate	Metal(Ferrous and non-ferrous)	Aluminium alloy, Copper,Stainless steel	≤3.2um	≤0.2mm	0.4mm ~ 40mm	Cover more than 25 holes,or more than 10cm*10cm	0.03mm	Drill three 1~2mm holes,Corresponding body suction hole area,Improve the support area
	Non-metal	Ceramic, Quartz, Glass, Graphite					0.03mm~0.06mm	
	Polymer	POM, PVC, Acrylic, PTFE			1mm ~ 40mm		0.06mm~0.2mm	
Body soft surface	Metal(Ferrous and non-ferrous)	Same as above	Moderate relaxation of conditions		0.4mm ~ 40mm	Cover more than 16 holes，or more than 10cm*10cm	0.03mm	Not Applicable
	Non-metal						0.03mm~0.06mm	
	Polymer				1mm ~ 40mm		0.06mm~0.2mm	

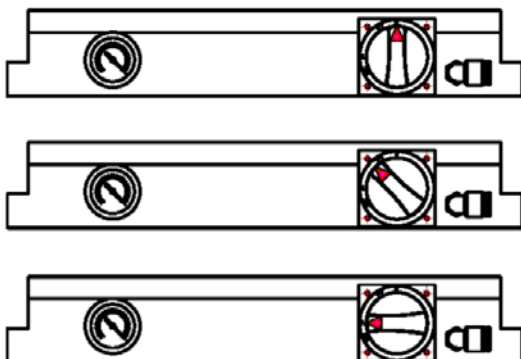## How to chose the material and the hole size for the hard faceplate?

when need ultrafine hole for hard faceplate	Hard faceplate material proposal	Ultrafine hole size proposal	Common workpiece material	Workpiece feature	Workpiece thickness
	Can chose Aluminum alloy, die steel, PTFE	2~3 small holes(Φ1~3mm) are drilled within the area of one suction hole	Ceramic, Quartz, Glass,graphite	Brittle, easy to crack	0.4mm~2mm

Noted: The hard faceplate materials can be selected from aluminum alloy, die steel, PTFE,
According to the accuracy you require. When it is exhausted after many surface cuts.
Download the hard faceplate drawing files from our website: www.sovacuumclamp.com/support
And you can change the hole size when you need an ultrafine hole hard faceplate.

Email:ditrong@outlook.com   *www.sovacuumclamp.com*

Irregular thin plate workpiece clamping

Physical connection diagram

Porous vacuum chuck

water+gas

Auto drain device

water

To the sink

gas

option 1

option 2

Vacuum generator

Vacuum Pump

Vacuum pump

Air compressor

On/Off Description

Vertical: off

45° position: self-cleaning, Keep it for more than 15 seconds to achieve a good cleaning effect

Horizontal: on