

Model KVR VACUUM CHUCKS

Vacuum chuck

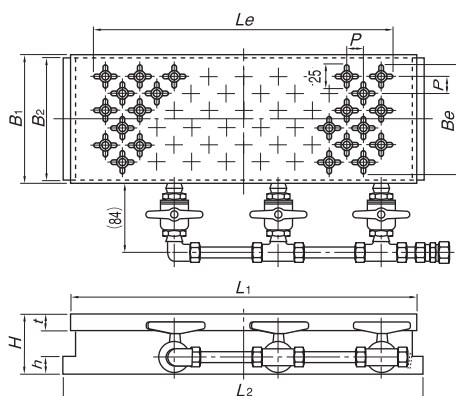
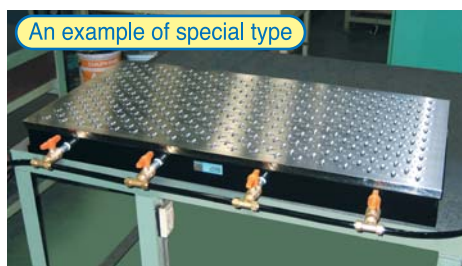
Vacuum system required additionally



KVR-2D3060



KVR-H1530



[Application]

Chucks to hold workpieces by utilizing atmospheric vacuum pressure. Nonmetallic and nonmagnetic materials can be held and machined. These chucks are suitable for grinding and cutting plastics and grinding aluminum, brass, stainless steel, ceramic and glass.

[Features]

- The suction holes on the chuck work face can be arranged to set an effective holding area according to shapes of workpieces by combined adjustment of thread valves and valves.
- The suction holes have cross grooves to expand the acting area. Thus, few thread valves are used to improve work efficiency.
- The chuck work face is made of iron to allow self grinding to recover parallelism.
- Since the chuck work face is made of iron, magnetic devices can be utilized as workpiece stoppers.
- A special suction hole layout adapter can be installed according to workpieces and work procedures.
- These chucks can be mounted on magnetic chucks.
- Since no heat source or moving parts are used inside the chucks, high precision machining is ensured.

■ KVR-D (Thread valve type)

- An effective holding area can be set according to shapes of workpieces by combined adjustment of thread valves and valves.
- Since suction grooves of cross shape are provided on the holding face, the number of thread valves has been reduced to enhance work efficiency.

■ KVR-H (Small hole type)

- Holes of $\phi 4$ are provided on the holding face at 8-mm pitches.
- This model is available upon request.

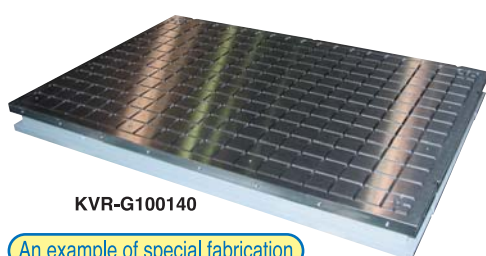
<Precautions for use>

The vacuum chuck is of such construction that the inside of the chuck is exhausted by a vacuum pump to reduce the internal pressure and a workpiece is held by atmospheric pressure. Therefore, the holding power is determined by a difference from atmospheric pressure and holding area. Due to physical restrictions, a difference in pressure that can be obtained by a pump is about 80 kPa (600 mmHg) in consideration of the upper limit of available exhaust efficiency. Since the same holding power as about 80 kPa (0.8 kgf/cm²) can be obtained, if the holding area of a workpiece is 100 cm², it is held by a holding power of about 800 N (80 kgf). Note, however, if the holding face of workpieces is rough or distorted, if small, atmospheric pressure leak occurs to decrease the holding power significantly. For such workpieces, some leak preventing measures must be taken. Workpieces could be deformed by heat generated during machining depending on materials and thickness of workpieces. Pay attention to machining methods. In particular, thin stainless steel plates deform due to machining heat largely and are difficult to hold. If you have questions, please contact us.

[mm (in)]

Model	Nominal Dimensions	Top Plate					Hole Pitch	Bottom Plate			Height	Mass	Applicable Vacuum System
		B ₁	L ₁	t	Be	Le		B ₂	L ₂	h			
KVR-2D1018	100 (3.93) × 175 (6.89)	100 (3.93)	175 (6.89)	20 (0.78)	85 (3.34)	145 (5.70)	P=20 (Staggered layout) (0.78)	96 (3.78)	195 (7.67)	20 (0.78)	70 (2.75)	9kg/19 lb	VPU-E10
KVR-2D1325	125 (4.92) × 250 (9.84)	125 (4.92)	250 (9.84)		105 (4.13)	225 (8.85)		121 (4.76)	270 (10.6)			15kg/33 lb	VPU-E20
KVR-2D1515	150 (5.90) × 150 (5.90)	150 (5.90)	150 (5.90)		125 (4.92)	125 (4.92)		146 (5.74)	170 (6.69)			11kg/24 lb	VPU-D20
KVR-2D1530	150 (5.90) × 300 (11.8)		300 (11.8)			245 (9.64)			320 (12.6)			22kg/48 lb	VPU-E20
KVR-2D1545	150 (5.90) × 450 (17.7)		450 (17.7)			405 (15.9)			470 (18.5)			33kg/72 lb	
KVR-2D2035	200 (7.87) × 350 (13.7)	200 (7.87)	350 (13.7)		185 (7.28)	305 (12.0)		196 (7.71)	370 (14.5)			34kg/74 lb	
KVR-2D2050	200 (7.87) × 500 (19.6)		500 (19.6)			465 (18.3)			520 (20.4)			49kg/108 lb	VPU-D20
KVR-2D3060	300 (11.8) × 600 (23.6)		300 (11.8)			600 (23.6)			285 (11.2)			545 (21.4)	296 (11.6)
*Clamp parts are included.													
KVR-H1018	100 (3.93) × 175 (6.89)	100 (3.93)	175 (6.89)	20 (0.78)	72 (2.83)	125 (4.92)	P=8 (0.31)	96 (3.78)	195 (7.67)	20 (0.78)	70 (2.75)	9kg/19 lb	VPU-E10
KVR-H1325	125 (4.92) × 250 (9.84)	125 (4.92)	250 (9.84)		92 (3.62)	205 (8.07)		121 (4.76)	270 (10.6)			15kg/33 lb	VPU-E20
KVR-H1515	150 (5.90) × 150 (5.90)	150 (5.90)	150 (5.90)		125 (4.92)	105 (4.13)		146 (5.74)	170 (6.69)			11kg/24 lb	VPU-D20
KVR-H1530	150 (5.90) × 300 (11.8)		300 (11.8)			252 (9.92)			320 (12.6)			22kg/48 lb	

Model KVR-G VACUUM CHUCK (GRID SEAL TYPE)



KVR-G100140

An example of special fabrication

Vacuum system required additionally



Also see "ELECTROMAGNETIC CHUCK WITH VACUUM CHUCK MODEL KETV" on page 9.

[Application]

Suitable for vacuum chucking such nonmagnetic materials as aluminum alloy, copper alloy, stainless steel and plastic during grinding.

[Features]

- Workpieces are vacuum chucked in the area defined by seal rubber strings set in the grid grooves, ensuring good sealing and consistent holding power.
- A desired work area can be set by cutting the seal rubber string ($\phi 6 \times 5 \sim 20$ m, included) according to workpieces.
- The suction ports are provided in two places on all models to allow setting two workpieces.
- A vacuum coupler to connect to the vacuum system is provided. (Vacuum is turned on and off with the valve on the vacuum system.)
- Single stoppers are provided.
- The main unit is made of iron to enable the chuck to be held by an existing magnetic chuck.

[mm (in.)]

Model	Nominal Dimensions	Dimensions								Grid Pitch $P \times P$	Effective Area $B_e \times L_e$	Mass	Applicable Vacuum System
		L_1	L_2	B_1	H	h	B_2	L_3	L_4				
KVR-G1530	150 (5.90) \times 300 (11.8)	300 (11.8)	324 (12.7)	150 (5.90)			55 (2.16)	50	120 (4.72)	20 \times 20 (0.78 \times 0.78)	120 (4.72) \times 280 (11.0)	22kg/48 lb	VPU-E10 VPU-D20
KVR-G2050	200 (7.87) \times 500 (19.7)	500 (19.7)	524 (20.6)	200 (7.87)			50 (1.96)	(1.96)	220 (8.66)		180 (7.08) \times 480 (18.9)	46kg/101 lb	
KVR-G3060	300 (11.8) \times 600 (23.6)	600 (23.6)	624 (24.5)	300 (11.8)	60	15		63	275 (10.8)	25 \times 25 (0.98 \times 0.98)	275 (10.8) \times 575 (22.6)	82kg/180 lb	
KVR-G4080	400 (15.7) \times 800 (31.5)	800 (31.5)	775 (30.5)	400 (15.7)	(2.36)	(0.59)	63 (2.48)	(2.48)	350 (13.7)		375 (14.7) \times 775 (30.5)	146kg/321 lb	
KVR-G50100	500 (19.7) \times 1000 (39.4)	1000 (39.4)	1024 (40.3)	500 (19.7)					475 (18.7)		475 (18.7) \times 975 (38.3)	228kg/503 lb	

Model VPU VACUUM SYSTEM



VPU-E10

<Operating valve>

VPU-D20

[Application]

A pressure reducing device dedicated to vacuum chucks. The chuck side is exhausted continuously to effectively maintain atmospheric pressure acting on workpieces on the chuck work face. Note, however, this equipment must not be modified to use it as a pressure vessel.

[Features]

- An exhaust system, filter, vacuum tank and vacuum gauge are incorporated neatly.
- Suction and exhaust operations to mount and dismount workpieces can be done quickly and easily with the attached special operating handle.
- A difference in pressure over 80 kPa (600 mmHg) can be obtained continuously.
- The dry type, wet type and exhaust amount can be selected according to work conditions.

■ Ejector type VPU-E

A vacuum system to reduce pressure by jetting air at high pressure (principle of the spray gun). This is recommended where an air line by use of a compressor is installed. This type can be used for both wet and dry machining operations. However, the use of a lubricator in the air line must be avoided.

■ Dry pump type VPU-D

A vacuum system to reduce pressure by exhausting by a pump driven by a motor. A power source only is required to obtain an independent vacuum source. Note, however, this is recommended only for dry machining operations.

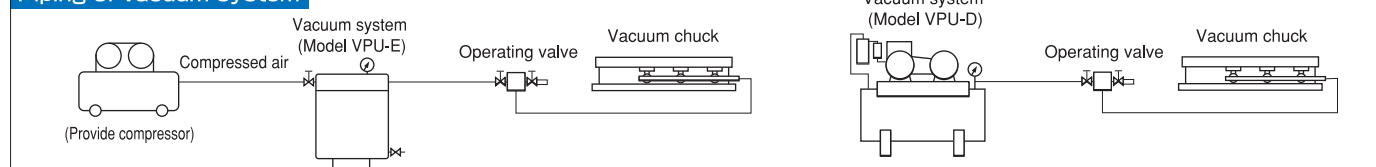
■ Other types

If the physical contact with the bottom face of workpieces is poor, a large amount of air leaks, requiring a large exhaust amount. In such a case, a blower type is required for dry operations and a water-sealed vacuum pump is required for wet operations depending on work conditions. Please contact us.

■ Examples of application of vacuum chucks and vacuum systems

Chuck Pump	1018	1325	1515	1530	1545	2035	2050	3060
VPU-E10	○	○	○	○	—	—	—	—
VPU-E20	○	○	○	○	○	○	○	○
VPU-D20	○	○	○	○	○	○	○	○

Piping of vacuum system



■ Ejector type VPU-E

[mm (in.)]

Model	Swept Volume	Degree of Vacuum	Inlet	Output Compressed Air			Dimensions		Tank Capacity	Mass
				Pressure	Consumption	Outlet	Out Dia	Height		
VPU-E10	110L/min	80kPa (600mmHg) min.	3/8	500—600kPa (5—6kgf/cm²)	180L/min	1/4	φ280 (11.0)	425 (16.7)	15L	25kg/55 lb
VPU-E20	220L/min				360L/min	3/8	φ330 (12.9)	600 (23.6)	30L	45kg/99 lb

※ The capacity of a compressor to use must be 2.5 kW or over for VPU-E10 and 4.5 kW or over for VPU-E20. ※ (1) Operating valve and (2) $\phi 12$ hose, 10 m long, are included as accessories.

■ Dry pump type VPU-D (for dry operations)

[mm (in.)]

Model	Swept Volume	Degree of Vacuum	Inlet	Power Source	Dimensions			Tank Capacity	Mass
					Width	Length	Height		
VPU-D20	220/260L/min (50/60Hz)	80kPa (600mmHg) min.	3/8	3P-AC200V 0.4kW	320 (12.6)	680 (26.7)	690 (27.1)	35L	68kg/149 lb

※ (1) Operating valve and (2) $\phi 12$ hose, 10 m long, and (3) power cable 5 m are included as accessories.

ELECTROMAGNETIC CHUCKS

CHUCK CONTROLLERS

PERMANENT MAGNETIC CHUCKS

PERMANENT ELECTROMAGNETIC CHUCKS

BLOCKS FOR MC

VACUUM CHUCKS

PROMELTA SYSTEM

SINE BAR CHUCKS

INJECTION MOLDING MACHINE MOLD FIXTURE

WORKING TOOLS

MAGNETIC BLOCKS

MEASURING TOOL HOLDERS

MEASURING TOOLS