Technical Support Bulletin

EM-Tec CV1 large centering vise

Products #12-000202 and #12-000302

1 – EM-Tec CV1 centering vise SEM sample holder for up to 110mm closed
2 – EM-Tec CV1 centering vise SEM sample holder for up to 110mm open
3 – EM-Tec CV1 centering vise SEM sample holder extended size closed
4 – EM-Tec CV1 centering vise SEM sample holder extended size open

Description
The EM-Tec CV1 large centering vise enables holding large and heavy samples up to 110mm. It includes positionable vise jaws and removable spindle knobs. It will be shipped fully assembled with the vise jaws at the widest opening and one brass spindle knob extension rod. Available with either the standard 3.2mm pin or an M4 threaded hole for mounting on the SEM sample stage.

Operation
Consider wearing gloves to avoid contamination. The EM-Tec CV1 large centering vise reversible vise jaws comprise a smooth side and a side with three grooves. The grooves are more suitable for small round samples.

- To open the EM-Tec CV1 large centering vise turn the brass spindle knob anti-clockwise.
- When the EM-Tec CV1 centering vise is opened, the vise plates slide over the spindle knobs. Operating the spindle knob becomes difficult, but it will be rather easy when using a large screwdriver to further open the vise. The screwdriver blade fits in the slot on the face of the spindle knob.
- Place the sample in the opening.
- To close the jaws, turn the spindle knob clockwise to clamp the sample. Be careful not to over-tighten the spindle.
- To accommodate the complete sample range from 0-110mm, the aluminium vise jaws are positionable on the vise plates; there is a choice of three positions on each base plate and two positions on each extension plate.
- The spindle knob extension rod can be removed to reduce possible interference in the SEM sample chamber.

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- Samples up to 155mm can be held when the optional extension plates are attached to the sides of the vise plates. The vise jaws can be repositioned on the extension plates as well. The vise jaws are mounted on the base plate with brass M3 screws which are accessible from the top.
- The spindle movement is 42mm and with the vise jaws positioned at the three different positions on the base plates, the sample clamping range is 0-42mm, 34-76mm and 68-110mm respectively. With the extension plates installed, the additional sample clamping ranges of 102-144mm and 113-155mm are added.

Optional vise jaws are available for large round samples. By using longer M3 screws, the vise jaws can be stacked to double the jaw height from 12 to 24mm. Even very thin samples can be securely held in the EM-Tec CV1 large centering vise sample holder. For delicate samples, consider lining the jaws with conductive soft material.

Options

12-003203	EM-Tec CVE1 extension plates to expand to 155mm, set/2
12-003204	EM-Tec CVC1 standard triple groove/smooth vise jaw, 12x40x6mm, each
12-003205	EM-Tec CVC2 single large groove/smooth vise jaw, 12x40x6mm, each

Specifications

Base plate size:	40 x 40mm (2x)
Vise jaw size, VC3 standard:	40 x 12 x 6mm (2x)
Base plate inter spacing with M3 thread:	17mm
Extension plate size:	40 x 22.5mm (2x)
Extension plate inter spacing with M3 thread:	11mm
Dual thread spindle travel:	42mm
Maximum clamping capacity, standard:	110mm
Dimensions closed (w/o pin):	106 x 40 x 34mm
Dimensions fully opened (w/o pin):	122 x 40 x 34mm
Maximum clamping capacity with optional plates:	155mm
Dimensions closed with optional plates (w/o pin):	146 x 40 x 34mm
Dimensions fully opened with optional plates(w/o pin):	167 x 40 x 34mm
SEM stage compatibility - standard pin:	#12-000202
- EM-Tec stage adapters M4:	#12-000302
- Hitachi M4	#12-000302
Material for vise plates, jaws and screw plates:	Vacuum grade aluminium
Material for spindle, knobs and side plates:	Low friction brass
Materials for screws:	Brass and anti-magnetic stainless steel

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Maintenance

The EM-Tec CV1 large centering vice is maintenance free. Do not use oil or grease on the screw or brass spindle; this will cause contamination in the SEM. Do not allow debris to accumulate on the brass spindle and underneath the vise plates. If the vise clamps are over-tightened, it might become necessary to realign the spindle drive. This can be accomplished by loosening the allen screws on the brass side plates, realign the plates and tighten the allen screws again.

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