



Technical Support Bulletin

EM-Tec W2 / W3 / W4 / W6 / W8 wafer holders for SEM

Products #12-000282, 12-000383, 12-000293, 12-000393, 12-000284, 12-000384, 12-000286, 12-000386, 12-000288 and 12-000388



Description

The EM-Tec wafer holders for SEM are designed to securely hold thin silicon wafers for SEM imaging. There are five types:

- EM-Tec W2 for $\varnothing 50.8\text{mm}$ (2") wafers
- EM-Tec W3 for $\varnothing 76.2\text{mm}$ (3") wafers
- EM-Tec W4 for $\varnothing 100\text{mm}$ (4") wafers
- EM-Tec W6 for $\varnothing 150\text{mm}$ (6") wafers
- EM-Tec W8 for $\varnothing 200\text{mm}$ (8") wafers
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The wafers are held on three clips; two fixed and one spring-loaded sliding clip. For the 2" wafers, inverted cone washers are used. The EM-Tec wafer holders are versatile: the spring-loaded clip can be configured for wafers with a flat or with a notch. The slider can be adjusted to accommodate larger flats. The wafer holder support plates are weight balanced to reduce mechanical stress. They exhibit square cut-outs to accommodate wafers tweezers to enable easy loading / removing wafers.

The EM-Tec wafer holders are available with either the standard 3.2mm pin, M4 threaded hole for mounting on the EM-Tec stage adapters or Hitachi SEMs and with the 14mm JEOL sample stub for mounting on JEOL stage adapters.

Operation

Consider wearing gloves to avoid contamination.

- Configure the spring-loaded slider for wafers with a flat or a notch. The slider holds the flat or the notch
- Before loading the silicon wafer, pull the slider outwards
- Place the wafer on the wafer holder with the flat or notch facing the slider
- Gently release the slider until it touched the side of the wafer
- To remove the wafer, pull the spring-loaded slider outwards and lift wafer of the holder.





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Specifications

Wafer size for type W2:	50.8mm (2") diameter
Wafer size for type W3:	76.2mm (3") diameter
Wafer size for type W4:	100mm (4") diameter
Wafer size for type W6:	150mm (6") diameter
Wafer size for type W8:	200mm (8") diameter
Dimensions (w/o pin) type W2	Ø76 x 18mm
Dimensions (w/o pin) type W3	Ø82 x 18mm
Dimensions (w/o pin) type W4	Ø106 x 16mm
Dimensions (w/o pin) type W6	Ø156 x 6mm
Dimensions (w/o pin) type W8	Ø206 x 16mm
SEM stage compatibility - standard pin:	#12-000282, 12-000293, 12-000284, 12-000286, 12-000288
- EM-Tec stage adapters M4:	#12-000382, 12-000393, 12-000384, 12-000386. 12-000388
- Hitachi M4	#12-000382, 12-000393, 12-000384, 12-000386. 12-000388
- JEOL stage adapter 14mm:	#12-000682, 12-000693, 12-000684, 12-000686. 12-000688
Material for wafer holder plate:	Vacuum grade aluminium
Material for spring loaded slider:	Low friction brass
Materials for guide rods:	Precision ground anti-magnetic AISI 304 stainless steel
Material for springs:	Low magnetic spring grade stainless steel
Material for dowel pins:	Precision ground anti-magnetic AISI 316 stainless steel
Material for side clips:	Phosphor bronze
Material for inverted cone washers (W2)	Low friction brass
Material for screws:	Brass and anti-magnetic stainless steel

Maintenance

The EM-Tec W2 / W3 / W4 / W6 / W8 wafer holders are maintenance free. Do not use oil or grease on the guide rods or slider; this will cause contamination in the SEM. Do not allow debris to enter between the aluminium plate and the spring-loaded slider.



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Vof Micro to Nano
Tappersweg 91
2031 ET Haarlem
The Netherlands

T +31-85-2013155
E info@microtonano.com
I www.microtonano.com
Kvk AMS: # 62301959



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Vof Micro to Nano
Tappersweg 91
2031 ET Haarlem
The Netherlands

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