



# Oxford Vacuum Science

Bench-top high vacuum and thin film technology

Learn more at: <https://universalvacuumtech.com/products/oxford-vacuum-science>

## VapourStation bench-top deposition systems



### VapourStation3

entry level resistive evaporation deposition platform for research and development

- high process visibility with DN 200 ISO-K stainless steel lower and glass jar upper chamber
- 400A air-cooled **VapourPhase  $\Omega$**  evaporation power with up to 4 switched source positions
- up to 3" substrates on DN 100 ISO-K platen with substrate shutter and deposition monitor
- 85l/s turbo-drag and 3m<sup>3</sup>/hr dry scroll backing pump for 10<sup>-7</sup>mbar range base pressure with full range diaphragm / Pirani / ionisation gauge
- fully automated PUMP and VENT, with PC control
- no pump oil, cooling water or compressed air needed

### VapourStation5

flexible thermal evaporation platform with multiple deposition technique and upgrade options

- larger, high process visibility with DN 250 ISO-K stainless steel lower and glass jar upper chamber
- water-cooled high current feedthrough and *power rails* for longer, hotter deposition runs
- Telemark R508 or R509 single pocket electron beam source options
- up to 5" substrates on DN 160 ISO-K platen with water-cooling, rotation and heating options and dual blade shutter and deposition monitor
- 240l/s turbo-drag and 3m<sup>3</sup>/hr dry scroll backing pump for low 10<sup>-7</sup>mbar range base pressure with full range diaphragm / Pirani / ionisation gauge
- fully automated PUMP, STORE and VENT functions with PC control

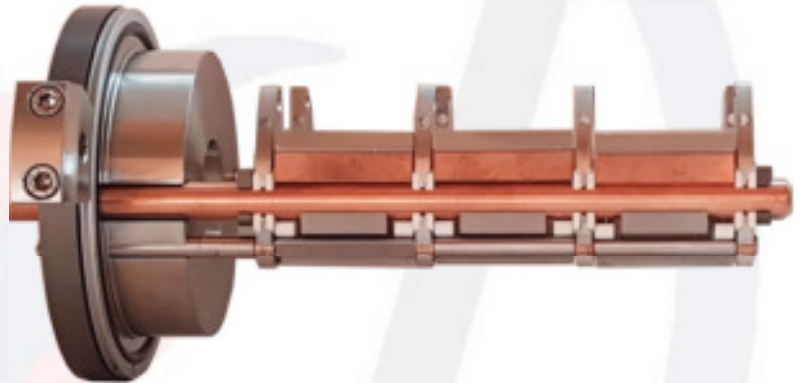


# Deposition Level



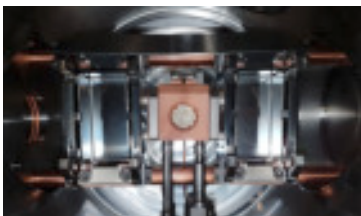
## Resistive evaporation with *VapourPhase Ω*

- direct-on-chamber mounted 400A air-cooled power supply
- current, voltage, power and software control modes
- full thermal protection of feedthrough and electronics
- flexible *power rail* source mounting system
- up to 4 switched source positions
- $\sigma\epsilon T^4$  radiatively coupled source option for temperature controlled evaporation of organic materials



## Telemark R508 / R509 eb sources for *VapourStation5*

- single crucible electron beam sources without beam raster
- 270° beam arc prevents filament contamination
- 1.5cc (R508) or 4cc (R509) crucibles
- R508 and R509 can be mounted centrally between resistive source via perpendicular DN 100 ISO-K auxiliary port
- R509 can be mounted off-centre to the side of, or in line with resistive sources
- Compact, 3KW switch-mode *WARP FX* power supply with arc suppression and integrated filament supply





# Substrate Level

## VapourStation3

- DN 100 ISO-K substrate platen with 4 sliding clamps for all diameters up to 3"
- single blade substrate shutter to cover substrates up to 70mm
- quartz crystal deposition monitor

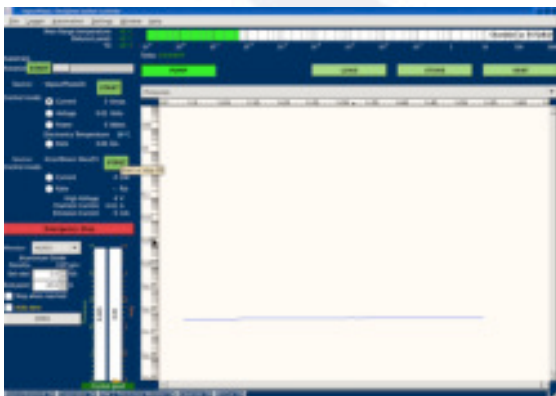


## VapourStation5

- choice of water-cooled or *Sub-θ* rotary substrate platen with backside heating option, on DN 160 ISO-K with 4 sliding clamps for all diameters up to 5"
- dual blade substrate shutter to cover substrates up to 120mm
- quartz crystal deposition monitor
- over-pressure relief valve
- 2x KF16 and 3x KF25 auxiliary ports for expansion and further options



# Software & Control



- embedded PC with bespoke system control software
- clear graphical display of pressure, temperatures or deposition history
- full control of deposition elements from home screen
- automated data-logging of pressure and deposition
- deposition monitor crystal lifetime indicator
- user configurable deposition material database



# Specifications

## VapourStation3

## VapourStation5

### Evaporation PSU:

### VapourPhase $\Omega$

output:

up to 2.4kW, 0-400A / 0-6V  
(supply voltage 185Vac - 265Vac)  
up to 1.2kW, 0-200A / 0-6V & 0-400A / 0-3V with software range switch  
(supply voltage 85Vac - 135Vac)

control:

manual, current, voltage or power via front panel interface;  
current, voltage or power via RS 232 interface to software control,  
source temperature control optional

vacuum feedthrough &  
mount:

“On-board” mounting on DN 100 ISO-K compatible flange  
with concentric NW 38 CF-F auxiliary port

cooling:

forced air cooled power supply  
forced air cooled *power rails*

forced air cooled power supply  
water / forced air cooled *power rails*

cooling water return:

N/A

DN 100 ISO-K vacuum feedthrough

interface:

RS 232 to VapourStation plinth

protection:

thermal protection of electronics, transformer and *power rails*  
over-current (circa 425A), mains quality (phase balance), source failure (open circuit)

### Suggested Evaporation Source Options:

options:

1 x “standard width” unswitched source clamp set  
for sources up to 32mm wide (1¼”)  
with radiation / deposition baffles

or

2 x “narrow” switched source clamp sets  
for sources up to 22mm wide (0.85”)  
with radiation / deposition baffles

up to 4 x “narrow”

or 3 x “standard width” source clamp sets  
with radiation / deposition baffles

2 x “standard width” switched source clamp sets  
for sources up to 32mm wide (1¼”)  
with radiation / deposition baffles

or

2 x “standard width” switched source clamp sets  
with radiation / deposition baffles and  
1 x R509 unswept electron beam source

up to 4 x “standard width” source clamp sets  
with radiation / deposition baffles  
and

1 x R509 unswept electron beam source

### Vacuum System:

ultimate pressure:

Edwards nEXT 85D  
85l/s wide range turbo-drag pump  
Agilent IDP3, 3m<sup>3</sup>/hr dry scroll pump  
Inficon BCG450 Triple Gauge pressure transducer:  
capacitance diaphragm/ Pirani / ion Gauge  
<5.6x10<sup>-7</sup>mbar (4.2x10<sup>-7</sup>Torr / 5.6x10<sup>-5</sup>Pa)

Edwards nEXT 240D  
240l/s wide range turbo-drag pump  
Agilent IDP3, 3m<sup>3</sup>/hr dry scroll pump  
Inficon BCG450 Triple Gauge pressure transducer:  
capacitance diaphragm / Pirani / ion gauge  
<3.2x10<sup>-7</sup>mbar (2.4x10<sup>-7</sup>Torr / 3.2x10<sup>-5</sup>Pa)

### Chamber:

DN 200 ISO-K x 365mm (8” x 14.4”)  
incl 145mm (5.7”) glass-jar  
1 x DN 100 ISO-K (evaporator)  
1 x DN 63 ISO-K (turbo)  
1 x KF25 (gauge)

DN 250 ISO-K x 442mm (8” x 16”)  
incl 180mm (5.7”) glass-jar  
4 x DN 100 ISO-K  
(evaporator, water return, turbo, spare)  
1 x KF25 (gauge)  
1 x KF16 (load gas inlet - optional)

### Substrate Level:

DN 200 ISO-K top-plate with DN 100 ISO-K  
substrate mounting plate  
KF16 quartz crystal deposition monitor head  
Inficon STM-2 USB oscillator electronics  
KF16 shutter to clear Ø70mm (2¾”)

DN 250 ISO-K top-plate with DN 150 ISO-K  
substrate mounting plate  
KF16 quartz crystal deposition monitor head  
Inficon STM-2 USB oscillator electronics  
KF16 dual-blade shutter to clear Ø120mm (4¾”)  
2 x DN16 ISO-F & 4 x DN25 ISO-F auxiliary ports

### Envelope:

485mm wide x 500mm deep x ~500mm high

485mm wide x 550mm deep x ~585mm high

### Services:

85Vac-135Vac / 185Vac-265Vac 50/60Hz, 16A

85Vac-135Vac / 185Vac-265Vac 50/60Hz, 16A  
8mm OD push-fit water cooling for evaporator

### Other requirements:

keyboard, monitor, mouse not included  
internet connection strongly recommended (for free software updates and technical support)



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