The *Hex* range of deposition systems are highly flexible and versatile, offering users almost limitless ability to re-configure and upgrade.

**ADAPTABLE CHAMBER DESIGN**

The vacuum chamber consists of a frame with six side faces and a top/bottom face, machined from a single piece of aluminium, which makes the system lightweight and weld free, whilst providing a rigid structure.

The frame supports 8 interchangeable panels (six side and top/bottom), which can be rapidly and simply swapped or replaced to achieve a new system configuration.

Depending on the type of the panel, it may serve as:

- Chamber wall (blank panel)
- Viewport (viewport panel)
- Deposition source (source panel)
- Gas injection panel
- Load-lock panel

The panels can be mounted onto the frame in a matter of minutes, which saves a considerable amount of time whilst performing maintenance procedures or reconfiguring the system.

**MULTI-CHAMBER CONFIGURATIONS**

Frames can be stacked together vertically, horizontally or side-by-side with adapter plates to enable simple and inexpensive expansion of the system to accommodate in-line or multi-zone applications.

**GLOVEBOX INTEGRATION**

Replacement of the standard top plate allows the system to be integrated into any standard glovebox. The large handles and sample-stage mounting posts are particularly suited to allow easy operation with gloves.
The single thermal boat source allows for the integration of a range of thermal boats for the deposition of both metals and organics/polymers.

The ORCA organic deposition source is designed to operate between 50 and 600°C to allow sensitive organic materials to be evaporated with precise control.

The unique design and flexibility makes it a powerful platform for a range of exciting applications:
EASY ACCESS SUBSTRATE STAGE

ROTATING STAGE
Sample size: 4" (Hex), 6" (Hex-L)
Rotation speed: 0, 2-30 rpm
Optional RF or DC bias

ROTATING/HEATING STAGE
Sample size: 4" (Hex), 6" (Hex-L)
Rotation speed: 0, 2-30 rpm
Temperature: 100-500°C

ROTATING/COOLING STAGE
Sample size: 4" (Hex), 6" (Hex-L)
Rotation speed: 0, 10-20 rpm
Water cooled

COMPACT DESIGN
Innovate collapsing sample shutters and compact component design allows the Hex-L and Hex to accommodate large samples but still occupy a small system footprint.

EFFICIENT SAMPLE EXCHANGE
The sample stage is fitted with two ergonomic handles for easy transfer to and from the chamber.

In order to change the sample, the stage may be lifted from the chamber, turned over and conveniently placed on the top lid using the sample stage guide rods. This arrangement provides a stable platform for rapid sample loading as well as inspection of the deposited film.

The Hex-L system is supplied as standard with a mounting frame, while the Hex system can be located on the electronics rack, saving valuable lab space. Both systems can also be bench-mounted as an alternative.
LOAD-Lock SAMPLE TRANSFER

For applications demanding the highest purity or low operating pressures, a load-lock sample transfer system may be employed. This allows the main deposition chamber to remain under vacuum at all times with sample insertion and removal taking place via a separate sample entry chamber and gate valve. The Korvus load-lock is available for the HEX-L systems and allows 6” samples to be transferred.

THIN FILM THICKNESS MONITOR

Film deposition rate and thickness can be determined with the use of a quartz-crystal-monitor (QCM) which uses the change in resonant oscillation frequency of a thin quartz crystal to determine the mass and hence the thickness of a film of material deposited on the surface. In the Hex systems the QCM is mounted on a cooled copper base to minimise temperature-related changes to the frequency.

AUTOMATED SYSTEM

The Niobium automation software package allows the user full PC control over the HEX deposition system and components. The full data-set can be written to a log-file, charting of multiple parameters is possible and sophisticated process programming is enabled via step-based procedures including ramping and conditional options.
RAPID PUMP DOWN

The Hex system is shipped as standard with an 80ls⁻¹ turbo pump (optional 300ls⁻¹) while the Hex-L standard is a 300 ls⁻¹ turbo (optional 700 ls⁻¹). Both are backed by oil-free pumps and pressure is measured by a full-range gauge.

The low-volume of the systems allows rapid pumpdown, with operational pressure for typical applications being reached in less than 10 minutes.

The system base pressure with standard pumps is 5 x 10⁻⁶ mbar and 9 x 10⁻⁷ mbar with the Hex and Hex-L respectively, although with careful system maintenance, lower pressures are commonly reached.

SPECIFICATIONS

(FOR FULL SPECIFICATIONS PLEASE REQUEST OUR SEPARATE SYSTEM DATASHEETS)

<table>
<thead>
<tr>
<th></th>
<th>HEX</th>
<th>HEX-L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Sample Size</td>
<td>4&quot; (100mm) diameter</td>
<td>6&quot; (150mm) diameter</td>
</tr>
<tr>
<td>Standard Turbo Pump</td>
<td>80 ls⁻¹</td>
<td>300 ls⁻¹</td>
</tr>
<tr>
<td>Optional Turbo Upgrades</td>
<td>300 ls⁻¹</td>
<td>700 ls⁻¹</td>
</tr>
<tr>
<td>Number of Side Panels</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Maximum Deposition sources</td>
<td>3 (plus QCM)</td>
<td>6</td>
</tr>
</tbody>
</table>

Utilities

Power: 220V single phase, 16A socket
Water: 0.5l/min, 15psi
6mm OD tube inlet to system
Gas: Ar (sputtering), N (venting, optional)
6mm OD tube inlet to MFC

HEX ON ELECTRONICS RACK

(Shown with optional load-lock mounted)