Isotherm®

Forced Convection Laboratory Ovens

Introducing Esco Isotherm® - world class laboratory ovens from Esco with the technologies and compliance to prove it. Ergonomic, intuitive interfaces, microprocessor PID controls with programming options, 4 zone heated air jacket, precisely tuned and tested ventilation and insulation package, all supported by Esco’s solutions - based sales and service representatives worldwide.
 Isotherm® Forced Convection Laboratory Ovens

**Reliable Performance For Universal Applications**

**Solaris™ Pre-Heat Chamber Technology**
- Innovative design guarantees maximum thermal performance.
- No exposed heating elements located inside the chamber to ensure maximum user safety.
- 4 zone heated air jacket ensures stable heating and maximum temperature uniformity in the chamber.
- Standard temp range up to 300°C for maximum application flexibility.
- Secure 2 point door seal and eccentric hinge ensure maximum gasket compression for stable chamber temperature.

**VentiFlow™ Ventilation System**
- Forced convection design produces higher heating and drying rates, improved temperature uniformity and reduced fluctuation.
- German made ebm-papst fan, permanently lubricated, maintenance free for uniform air circulation.
- Low energy consumption for reduced operating costs.
- Fan speed and air exchange rates are adjustable.
- Consistent air circulation and heat uniformity.
- Low noise during operation.
- Fresh air entry from the base of the chamber, combined with the rounded corners of the chamber interior, and air exhaust at the rear of the chamber, creates uniform air circulation ensuring maximum temperature uniformity.
- Chamber fan inlet pulls air away from the user, preventing the user from being exposed to blasts of hot air when the door is opened.

**Superior Insulation**
- Multi layer chamber, pre-heat chamber, insulation and external carcass.
- Improves chamber temperature stability, while reducing external surface temperatures.
- Unique door ventilation design reduces door temperature even when the chamber temperature is at the maximum operating point.
- Superior insulation performance reduces heat load output to the laboratory, reduces operating power consumption, and lowers operating costs.
Isotherm® Forced Convection Laboratory Ovens

- Superior insulation performance reduces heat load output to the laboratory, reducing operating power consumption and lowering operating costs.
- Unique door ventilation design reduces door temperature even when the chamber temperature is at the maximum operating point.
- Improves chamber temperature stability, while reducing external surface temperatures.
- Multi-layer chamber, pre-heat chamber, insulation and external carcass.

**Extremely Uniform Thermal Distribution**

- Pre-heated air enters the chamber fan inlet pulls air away from the user, preventing the rear of the chamber, creating uniform air circulation ensuring the rounded corners of the chamber interior, and air exhaust at rates, improved temperature uniformity and reduced fluctuation.
- Consistent air circulation and heat uniformity.
- Fan speed and air exchange rates are adjustable.
- German made ebm-papst fan, permanently lubricated.
- Forced convection design produces higher heating and drying rates, improved temperature uniformity and reduced fluctuation.

**VentiFlow™ Ventilation System**

- Secure 2 point door seal and eccentric hinge ensure maximum gasket compression for stable chamber temperature.
- Standard temp range up to 300°C for maximum application flexibility.
- 4 zone heated air jacket ensures stable heating and maximum temperature uniformity in the chamber.

**Solaris™ Pre-Heat Chamber Technology**

- For temperature, alarm, function keys and other settings.
- Display units selectable between °C / °F.
- User programmable alarm setpoints.
- Twin temperature displays for easy monitoring.
- Tuned PID control ensures fast ramp time, prevents overshoot, and ensures stable temperature once setpoint is achieved.
- Instrument-grade precision platinum temperature probe.
- Diagnostic functions in the microprocessor include historical read-out of temperatures.
- Diagnostic menu provides read-out of all sensor inputs and controller settings.
- Diagnostic LEDs on electronics PCB simplify service.

**Easy-to-Service**

- All electrical components UL recognized.
- Red LED illuminates if external mechanical temperature protection is engaged.
- Overall temperature protection meets DIN 12880 requirements.
- SmartSense™ Microprocessor PID Control Technology

**Wide Range of Program Options**

- Sample Program 1
  - Repeats of identical processes based on user's setting of 'start temp', 'arrival temp', and running time after arrival.
  - All settings can be done in a single program. For example, repeat a process from 70°C to 120°C and back.

- Sample Program 2
  - Running different processes sequentially based on user's setting of 'start temp', 'arrival temp', and running time after arrival. Different programs may be linked to extend the total number of sequences, thus creating virtually unlimited programming options.

**SmartSense™ Microprocessor PID Control Technology**

- Instrument-grade precision platinum temperature probe.
- Tuned PID control ensures fast ramp time, prevents overshoot, and ensures stable temperature once setpoint is achieved.
- Twin temperature displays for easy monitoring.
- Built-in menu is intuitive, easy to operate; left display shows parameter being set, and right display shows preset value.
- User programmable alarm setpoints.
- Display units selectable between °C / °F.
- User programmable PIN to prevent unauthorized use.
- Anywhere from 10 programs with 5 segments to 1 program with 50 segments may be configured. Programs may be set up to repeat automatically or wait for user confirmation at a particular segment before proceeding.
- Audible confirmation of all settings.
- Diagnostic functions provide access to chamber historical temperatures and sensor read-outs to simplify service.
- Diagnostic LEDs on electronics PCB simplify service.

**User and the Environment**

- 2 shelves are included for 32L, 54L and 110L models.
- Bright LED displays mounted at top (not base) of the device are easily read from across the laboratory.
- Ergonomic door handle, operation is gravity assisted.
- “Cleanroom” design with minimal joints and crevices is easy to clean.
- Low service costs.
- Diagnostic menu provides read-out of all sensor inputs and controller settings.
- Diagnostic functions in the microprocessor include historical read-out of temperatures.
- Diagnostic LEDs on electronics PCB simplify service.

**Options and Accessories**

- External surfaces are powder coated with Esco Quality Esco Construction.
- Bacterial Population (10 folds)
- Esco Voyager software for the remote monitoring, datalogging, and programming / device configuration of Esco controlled environment laboratory equipment.
- Additional shelf.
- Low service costs.
- Diagnostic functions provide access to chamber historical temperatures and sensor read-outs to simplify service.
- Diagnostic LEDs on electronics PCB simplify service.
Safe, Superior Protection for Sample, User and the Environment
- Multiple redundant over-temperature protection systems to guarantee maximum sample and user protection.
- Electronic over-temperature protection built into the microprocessor.
- Redundant mechanical over-temperature protection, adjustable from the front, independent from the microprocessor.
- Overall temperature protection meets DIN 12880 Class 3.1.
- Red LED illuminates if external mechanical temperature protection is engaged.
- Controller will control temperature at the over temperature setpoint.
- All electrical components UL recognized.
- Electrical circuit protection in accordance with UL requirements.

Quality Esco Construction
- Electrogalvanized steel with white oven-baked epoxy-polyester antimicrobial powder-coated finish.
- External surfaces are powder coated with Esco ISOCIDE to eliminate 99.9% of surface bacteria within 24 hours of exposure.

Ergonomic Design Improves Convenience
- Ergonomic door handle, operation is gravity assisted.
- Bright LED displays mounted at top (not base) of the device are easily read from across the laboratory.
- 2 shelves are included for 32L, 54L and 110L models.

Easy-to-Clean
- “Cleanroom” design with minimal joints and crevices is easy to clean.
- Single piece stainless steel chamber with rounded corners.

Easy-to-Service
- Diagnostic functions in the microprocessor include historical read-out of temperatures.
- Diagnostic menu provides read-out of all sensor inputs and controller settings.
- Service can be carried out from the front.
- All electronics components are isolated from the work chamber and easily accessible for replacement.
- Low service costs.

Options and Accessories
- Door keylock prevents unauthorized access to sensitive samples.
- Glass viewing port in main door enables easy sample monitoring.
- Wall bracket (only for 32L, 54L chambers) accommodates desired operating heights.
- Support stands, fixed height, available 703 mm (27.7”).
- Reversed door swing.
- Additional shelf.
- Esco Voyager software for the remote monitoring, datalogging, and programming / device configuration of Esco controlled environment laboratory equipment.
### General Specifications, Isotherm<sub>®</sub> Forced Convection Laboratory Oven

<table>
<thead>
<tr>
<th>Model</th>
<th>OFA-32-8</th>
<th>OFA-54-8</th>
<th>OFA-110-8</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Volume</strong></td>
<td>32 litre (1.13 cu.ft)</td>
<td>54 litre (1.91 cu.ft)</td>
<td>110 litre (3.88 cu.ft)</td>
</tr>
<tr>
<td><strong>Temperature Range</strong></td>
<td></td>
<td></td>
<td>Ambient +5°C to 300°C</td>
</tr>
<tr>
<td><strong>Temperature Variation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>at 70 °C</td>
<td>&lt;=+/-0.7°C</td>
<td>&lt;=+/-0.8°C</td>
<td>&lt;=+/-1.0°C</td>
</tr>
<tr>
<td>at 150 °C</td>
<td>&lt;=+/-1.5°C</td>
<td>&lt;=+/-1.6°C</td>
<td>&lt;=+/-2.0°C</td>
</tr>
<tr>
<td>at 250 °C</td>
<td>&lt;=+/-3.3°C</td>
<td>&lt;=+/-2.1°C</td>
<td>&lt;=+/-3.1°C</td>
</tr>
<tr>
<td><strong>Temperature Fluctuation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>at 70 °C</td>
<td>&lt;=+/-0.3°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>at 150 °C</td>
<td>&lt;=+/-0.3°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>at 250 °C</td>
<td>&lt;=+/-0.3°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>External Dimensions (W x D x H)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>550 x 437 x 615 mm</td>
<td>550 x 527 x 695 mm</td>
<td>710 x 587 x 785 mm</td>
<td></td>
</tr>
<tr>
<td>21.7” x 17.2” x 24.2”</td>
<td>21.7” x 20.7” x 27.4”</td>
<td>28” x 23.1” x 30.9”</td>
<td></td>
</tr>
<tr>
<td><strong>Internal Dimensions (W x D x H)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>400 x 250 x 320 mm</td>
<td>400 x 340 x 400 mm</td>
<td>560 x 400 x 490 mm</td>
<td></td>
</tr>
<tr>
<td>15.7” x 9.8” x 12.6”</td>
<td>15.7” x 13.4” x 15.7”</td>
<td>22” x 15.7” x 19.3”</td>
<td></td>
</tr>
<tr>
<td><strong>Number of Shelves</strong></td>
<td>Standard 2</td>
<td>Standard 2</td>
<td>Standard 2</td>
</tr>
<tr>
<td>Maximum</td>
<td>3</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td><strong>Load Per Shelf</strong></td>
<td>15 kg (33 lbs)</td>
<td>15 kg (33 lbs)</td>
<td>30 kg (66 lbs)</td>
</tr>
<tr>
<td><strong>Max. Total Load</strong></td>
<td>30 kg (66 lbs)</td>
<td>30 kg (66 lbs)</td>
<td>60 kg (132 lbs)</td>
</tr>
<tr>
<td><strong>Oven Construction</strong></td>
<td>Main Body: Electrogalvanized steel with white oven-baked epoxy-polyester powder-coated finish</td>
<td>Chamber: Stainless steel, grade 304</td>
<td></td>
</tr>
<tr>
<td><strong>Electrical</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oven Power/ Amp</td>
<td>1480 W / 6.4 A</td>
<td>1710 W / 7.5 A</td>
<td>2140 W / 9.4 A</td>
</tr>
<tr>
<td>Net Weight</td>
<td>42 kg (92 lbs)</td>
<td>55 kg (122 lbs)</td>
<td>69 kg (152 lbs)</td>
</tr>
<tr>
<td>Shipping Weight</td>
<td>54 kg (118 lbs)</td>
<td>68 kg (151 lbs)</td>
<td>85 kg (188 lbs)</td>
</tr>
<tr>
<td>Shipping Dimensions, Maximum (W x D x H)</td>
<td>610 x 530 x 670 mm</td>
<td>620 x 610 x 750 mm</td>
<td>770 x 670 x 840 mm</td>
</tr>
<tr>
<td></td>
<td>24.0&quot; x 20.9” x 26.4”</td>
<td>24.4” x 24.0” x 29.5”</td>
<td>30.3” x 26.4” x 33.0”</td>
</tr>
<tr>
<td>Shipping Volume, Maximum</td>
<td>0.21 m³ (7.4 cu.ft)</td>
<td>0.28 m³ (9.9 cu.ft)</td>
<td>0.43 m³ (15.2 cu.ft)</td>
</tr>
</tbody>
</table>

All technical specifications are specified for units with standard equipment at an ambient temperature of 20 °C and a voltage fluctuation of ±10 %. Temperature data is determined in accordance with DIN 12880 standards. All indications are average values, typical for units produced in series. Esco reserves the right to alter technical specifications at all times.

### Standards Compliance

<table>
<thead>
<tr>
<th>Temperature Safety</th>
<th>Electrical Safety</th>
</tr>
</thead>
</table>
| DIN 12880 Class 3.1 | UL 61010-1, USA  
CAN/CSA-22.2, No 61010-1  
EN 61010-1, Europe  
IEC 61010-1, Worldwide |
Esco reserves the right to alter technical specifications at all times. Temperature data is determined in accordance with DIN 12880 standards. All indications are average values, typical for units produced in series. All technical specifications are specified for units with standard equipment at an ambient temperature of 20 °C and a voltage fluctuation of ±10 %.

<table>
<thead>
<tr>
<th>Model</th>
<th>Oven Power/ Amp</th>
<th>Volume</th>
<th>Temperature Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFA-32-8</td>
<td>1480 W / 6.4 A</td>
<td>32 litre (1.13 cu.ft)</td>
<td>Ambient +50°C to 300°C</td>
</tr>
<tr>
<td>OFA-54-8</td>
<td>1710 W / 7.5 A</td>
<td>54 litre (1.91 cu.ft)</td>
<td></td>
</tr>
<tr>
<td>OFA-110-8</td>
<td>2140 W / 9.4 A</td>
<td>110 litre (3.88 cu.ft)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Standards</th>
<th>Uniformity</th>
<th>Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIN 12880</td>
<td>Spatial</td>
<td>Per DIN</td>
</tr>
<tr>
<td></td>
<td>Variation</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model</th>
<th>Oven Power/ Amp</th>
<th>Volume</th>
<th>Temperature Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFA-32-8</td>
<td>1480 W / 6.4 A</td>
<td>32 litre (1.13 cu.ft)</td>
<td>Ambient +50°C to 300°C</td>
</tr>
<tr>
<td>OFA-54-8</td>
<td>1710 W / 7.5 A</td>
<td>54 litre (1.91 cu.ft)</td>
<td></td>
</tr>
<tr>
<td>OFA-110-8</td>
<td>2140 W / 9.4 A</td>
<td>110 litre (3.88 cu.ft)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Standards</th>
<th>Uniformity</th>
<th>Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIN 12880</td>
<td>Spatial</td>
<td>Per DIN</td>
</tr>
<tr>
<td></td>
<td>Variation</td>
<td></td>
</tr>
</tbody>
</table>

Since 1978, Esco has emerged as a leader in the development of controlled environment, laboratory and cleanroom equipment solutions. Products sold in more than 100 countries include biological safety cabinets, cleanroom products, compounding pharmacy equipment, containment / pharma products, ductless fume hoods, in vitro fertilization workstations, lab animal research products, laboratory fume hoods, laboratory ovens and incubators, laminar flow clean benches and PCR products and instrumentation. With the most extensive product line in the industry, Esco has passed more tests, in more languages, for more certifications, throughout more countries than any biosafety cabinet manufacturer in the world. Esco remains dedicated to delivering innovative solutions for the clinical, life science, research and industrial laboratory community. www.escoglobal.com.