



Deatak Inc

4004 W Dayton St., McHenry, IL 60050-U.S.A.

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e-mail: Instruments@deatak.com

EIN # 32-0021631

CC-2 Cone Calorimeter





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Description: CC-2 Cone Calorimeter

CONE HEATER

- Tubular heater element (original and spare) rated at 5000 Watts at 230 Volts conically wound to a truncated cone shape producing uniform irradiances of up to 100kW/m² measured 1 inch below heater face over the 100 mm x 100 mm specimen exposure area.
- The heater temperature is monitored and controlled by three (3) type K thermocouples and a 3-term PID temperature control.
- Spark igniter.
- Specimen shield.
- Computerized automated setting of heat flux level.
- Combustion area surrounded by transparent walls to prevent drafts during test.

EXHAUST SYSTEM

- ALL PARTS Stainless steel construction of combustion area hood, duct, orifice plate, exhaust blower and gas sampling ring probe.
- Variable speed blower having a nominal flow rate of 0.024 m³/s.
- Thermocouple temperature measurement and calibrated pressure transducer for determining exhaust flow rate.
- Easy to disassemble for routine maintenance or service.

WEIGH SYSTEM

- Total range of 6 kg.
- Accuracy ± 0.01 g.
- No effects of temperature to weigh system reading.
- Computerized calibration and scaling.

SPECIMEN HOLDERS

- 3 each, stainless steel construction.
- Retainer frame and grid included for each specimen holder
- Accommodate specimens 100 mm x 100mm x 50 mm thick.
- Easy loading of test specimens into holder.

SMOKE MEASURING SYSTEM

- Helium-Neon laser light source.
- Main beam and Reference beam (compensation) detectors.



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- Absorptive type (non-film) 0.3 O.D and 0.8 O.D neutral density calibration filters.
- K-type thermocouple temperature measurement.
- Computerized calibration and scaling.
- Maximum range: $k = 20.00^{-m}$ (extinction coefficient).

HEAT RELEASE CALIBRATION

- Calibration burner for burning pure methane to calibrate heat release measurement (determine C-factor)
- Calibrated Mass flow controller used to control gas flow
- Control and calibration procedure computerized
 - Computerized automatic adjustment of gas flow to user set energy level.

HEAT FLUX METER

- Computerized procedure for setting exposure irradiance of specimen under test.
 - Computer automatically adjusts appropriate controls to obtain user set flux level.
- Computer control of heat flux temperature controller
- Schmidt-Boelter Type Heat Flux Meter
 - Water cooled
 - 0-100 kW/m² range
 - NIST traceable calibration

GAS SAMPLING AND ANALYSIS SYSTEM

- Gas sampling ring and gas sample lines constructed of stainless steel or Teflon
- Soot Filters
- Hi-capacity sample pump constructed with Stainless Steel pressure heads and Teflon valve plate and diaphragm
- Sorbants
- Flow controls
- Sample pump
- Cold trap for removing excess moisture
- High Quality Gas Analyzers:

O₂ ANALYZER

- Paramagnetic
- 0 – 100 % O₂ range
- Pressure compensated
- Controlled temperature



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- < 100 ppm noise and drift (per standard)
- Computerized calibration and scaling

CO₂ ANALYZER

- Non-dispersive Infra-red
- 0 –10 % CO₂ range (v/v)
- Computerized calibration and scaling

CO ANALYZER

- Non-dispersive Infra-red
- 0 –1.0 % CO range (v/v)
- Computerized calibration and scaling

SOFTWARE

- The instrument is calibrated using Deatak's unique and proprietary Autocalibration techniques eliminating dependence on the operator to make tedious and precise tuning adjustments of the analytical devices.
- The Deatak Cone Calorimeter software is Microsoft (MS) Windows compatible.
- The user interface uses the standard Microsoft user interface logic and styling for ease of use and familiarity to simplify calibration and test operations.
- User-friendly pull down menus and tabs show status of the instrument, calibration and test progress.
- Fast data acquisition scanning – Collection and recording of test data a minimum rate of 4 scans per second (250 milliseconds per scan); e.g. 100 second test contains 400 test data scans.
- Real time display shows continuous instrument status
- A minimum of 6 analog input channels are made available to the User to store custom scaled data channels or events in the test file in addition to the channels required for the standard operation and test data gathering.
- Real time test data displayed during test
- Real time test data is collected and stored for analysis in Microsoft Excel.
- Standard calculations are accomplished using MS Visual Basic for Applications (VBA) macros preprogrammed in Microsoft Excel to present results as formatted reports and graphs.
- Macros creating reports and graphs to the ASTM 1354 and ISO 5660 Parts 1 and 2 are included with the Deatak software.
- The user, using Microsoft Excel's macro editor and/or MS VBA editor may easily customize the preprogrammed formatted reports creating:
 - Non-standard calculations of the data
 - Specialized or custom reports
 - Specialized or custom graphs.



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- Test Data may be transferred to any database and SPC programs capable of accepting MS Excel file data.

DATA ACQUISITION HARDWARE – (minimum)

- Data acquisition interface with and isolated digital inputs, isolated digital outputs, analog input/output channels, 16-bit analog input channel resolution, 16-bit analog output channel resolution
- Fast data acquisition scanning – Collection and recording of test data a minimum rate of 4 scans per second (250 milliseconds per scan); e.g. 100 second test contains 400 test data scans.
- HP laptop computer, Min Intel i5 processor, 8 GB RAM, Windows 10

One (1) Year Warranty:

Deatak warrants the CC-2 to be free of defects in materials and workmanship of non-consumable parts for a period of one (1) year from date of delivery. If, during the warranty period, the instrument malfunctions due to a defective component, the defective component will be replaced at no charge to the customer. Labor and travel costs to have a factory authorized representative install the replacement part is not covered by this warranty. The Deatak warranty does not apply to defects arising out of mishandling, improper operation, accidental damage or consumable parts.

Standards:

ASTM E1354, ASTM E1550, ASTM E1740, ASTM D5485 **, ASTM D6113, ISO 5660 Parts 1 and 2; NFPA 271*; CAN ULC 135; BS 476 Part 15. AS/NZS 3837

* Supersedes NFPA 264

** Requires auxiliary parts

Dimensions of Instruments (W x D x H):

Cone Calorimeter 69" x 42" x 101" (176cm x 107cm x 257cm)

Oxygen Depletion Analyzer System 23" x 24" x 60" (59cm x 61cm x 153cm)

Approximate Shipping Weight and Dimensions of Packed Base Instrument (W x D x H):

Cone Calorimeter 1,250 lbs., 76" x 53" x 91" (567kg, 110cm x 194cm x 232cm)

Oxygen Depletion Analyzer System 490 lbs., 34" x 38" x 75" (222kg, 87cm x 97cm x 191cm)