



CAL^o3k

NEXT GENERATION CALORIMETERS

CAL³K

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CAL3K-AP OXYGEN BOMB CALORIMETER

SUPERB OXYGEN BOMB CALORIMETERS FOR TODAY'S ANALYTICAL NEEDS.

CAL3K-AP CALORIMETER



The CAL3K-AP is the first in the range of innovative new oxygen bomb calorimeters from DDS. The new range, from the engineers who designed the CAL2K oxygen bomb calorimeter range, features higher speeds and improved accuracy with a small carbon footprint (uses less resources; no water required, lower power consumption). The new bayonet bomb vessel with the option of the adiabatic, isothermal or dynamic calorimetry methods results in optimized speed and accuracy. This can be tailored to your laboratory needs by parameter settings via the USB port. The CAL3K-AP conforms to ASTM D5865-12, ASTM D4809-13, ISO 1928-2009, and DIN 51900-2 international standards. The traditional CAL2K-4 bomb vessel has been replaced with a self-locking and sealing bayonet vessel with built-in temperature sensors. The vessel is completely removable for easy sample management, cooling, cleaning and maintenance. The CAL3K can interface with multiple devices required for sample determination.

The oxygen bomb calorimeter and air cooler are operated together for effective routine sample determination, using 2 or more bomb vessels. It is recommended to use the air cooler for optimum results and faster throughput.

COMPLETE SYSTEM FOR USE WITH THE CAL3K-AP.

The complete CAL3K-AP oxygen bomb calorimeter system contains all the parts and consumables necessary to set up the unit. The installation kits included with the setup of the calorimeter contains consumables for approximately 200 samples, depending on the type of sample being analyzed (coal analysis, animal feed analysis). Other samples like oil, might use more consumables as they are corrosive and could cause wear and tear. Additional consumables can be purchased separately from our authorized agents.

The complete calorimeter system is delivered with installation kits for the calorimeter, air cooler and vessels (for approx. 200 firings).

The CAL3K-AP uses a combination of the Isothermal and Adiabatic calorimetry methods, while still using the dry method, i.e. it's waterless. The maximum determination speed is up to 3 minutes.

There is no need for an external oxygen filling station as the vessel is automatically filled with oxygen inside the bomb calorimeter and the pressure is monitored. The oxygen filling pressure can be changed (programmed) on the bomb calorimeter.

The CAL3K-AP is best suited for a clean and well maintained laboratory with a requirement for very fast and accurate results.

The following accessories can be added to the calorimeter:

- CAL3K Air Cooler
- CAL3K Bayonet Bomb Vessel

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CAL3K-AP CALORIMETER NEW INNOVATIVE FEATURES.



VARIABLE FILLING PRESSURE
Allows for variable filling pressure



7 CALIBRATION FIELDS
For different mode and different calorimeters



HIGH SPEED DETERMINATIONS
Choose between faster or more accurate determinations



EXTREMELY ACCURATE
Extremely accurate (%RSD - 0.05%) determination eliminates multiple sample repeats



MULTIPLE COMM CHANNELS
1 Wired (USB) and 2 optional wireless channels



USER FRIENDLY
User Friendly Operation



10 CALIBRATION AVERAGE
For variable amount of calibration average to suit your application



LOW POWER CONSUMPTION
Very low power consumption. No temperature controlling required.



ECO FRIENDLY
Eco Friendly - small carbon footprint. No water, low power consumption.



TEMPERATURE RANGE
Extensive temperature range from 0°C to 70°C.



EVENT LOGGING
Built-in event logging for ~6000 events



FAULT FINDING
Extensive fault finding and testing



TEMPERATURE ACCURACY
Temperature accuracy of 10ppm (parts per million)(0.00001°C)



RESULTS
Results in MJ/Kg, BTU/lb or Cal/g



COMPENSATION*
Compensation for firing energy and sulphur



PRESET FIELDS
One default setting per mode



OPERATING PARAMETERS
Operating parameters can be changed via USB interface in experimental mode



RESTRICT ACCESS
Operating parameter access is password restricted



LARGE STORAGE
Up to 1024 results storage



INTELLIGENT VESSEL
Intelligent vessel with built-in temperature sensing



LINEAR SENSORS
Linear temperature sensing with platinum sensors



SAFETY
Safety checks guarantee the safety of the operator.



STEP-BY-STEP HELP
Screen prompts assist with step-by-step instructions to operate the calorimeter



BAYONET BOMB VESSEL
Self-Locking and Self-Sealing bayonet bomb vessel



AIR COOLER
No water required to cool the bomb vessel



BALANCE INTERFACE
Balance interface with baud speed setting



IMPROVED INITIAL TIMING
Based on drift and time, or time after drift



FULL LIMS SUPPORT
For the assignment, scheduling, and tracking of samples.



FILTER DATA ON EVENTS
Extensive testing and detailed data viewing



TEMPERATURE CONTROL
No temperature control of room/lab required



LEAK DETECTION
Detects leaks and aborts the firing in the vent of a leak



NO WATER REQUIRED
No Water Bucket. No Spillage. No Measuring.



THREE OPERATING MODES
Isothermal, Adiabatic and ISOBATIC (and experimental)



AUTOMATIC OXYGEN FILLING
Automatic oxygen filling and de-filling of the reaction vessel

CAL3K-AP KIT & CONSUMABLES THE COMPLETE KIT AND ALL CONSUMABLES

The CAL3K Bomb Calorimeter Installation Kit includes :

- Power Supply (3K-SM)
- Mains Cable 220V (KETTLECORD)
- Balance Cable (3K-BC)
- PC Cable USB (USBCABAB)
- PC Keyboard PS2 (CAL2K-KB)
- Preparation Stand (3K-4-PS)
- Stainless Steel Tweezers (TWEEZERS/S/S)
- Certified Benzoic Acid Tablets (50 x 0.5g tablets per bottle)(CAL2K-4-BA)
- High Pressure Oxygen Pipe 4mm (4m long, clear)(3K-1-OP)
- Exhaust Pipe 6mm (2m long, black)(3K-1-EP)
- Oxygen Regulator Connection Standard (Quick Fit)(3K-1-RC)
- Calorimeter O-Rings (1 packet of 5)(3K-1-CF-05)
- O-Ring Retainer for Centre Filling Plastic (3K-1-LCR)
- Tool to Remove O-ring Retainer (3K-1-LCR-TOOL)
- Vessel Nozzle Kit complete with nozzle o-ring and nut (3K-4-VN-KT)
- Silicone Grease Tube (GREASE_TUBE)
- Printed Installation Guide (3K-1-INST)

The CAL3K Air Cooler Installation Kit includes :

- Power Supply (3K-SM)
- Mains Cable 220V (KETTLECORD)

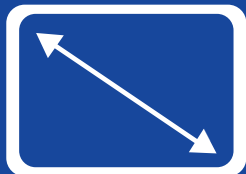
The CAL3K Bayonet Vessel Installation Kit includes :

- Center Electrode (3K-4-CE)
- Vessel Nozzle O-Ring (3K-4-VNR)
- Outside Electrode (3K-4-OE)
- Crucibles (CAL2K-4-CB-SINGLE)
- Deflector Plate (3K-4-DP)
- Firing Wire (3K-4-FW)
- Firing Cotton (1 packet of 200 threads)(3K-FC)
- Lid O-Rings (1 packet of 5)(3K-4-LR-5)



CAL3K-AP TECH SPECS

All the technical specifications for your CAL3K.



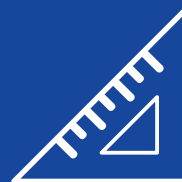
LCD Display

Large display for easy viewing.

x3

Easy to Use

With 3 different operating modes



Compact Size

Approximately 350mm x 280mm x 240mm



Lightweight

Light weight for easy moving.
Approximately 12kg.



TUV CE Certification

Complies with ASTM, DIN and ISO International Standards.

Specification

Information

Working (Operating) Temperature

15-70°C

Storage Temperature

0-70°C

Temperature Resolution

0.000001°C

Reproducibility/Repeatability

<0.01% RSD

Resolution

0.0001 MJ/Kg

Results per hour

12 samples per hour using 3 bayonet bomb vessels

Measuring range max.

99MJ, 99000J

Working temperature min.

0°C

Working temperature max.

50°C

Temperature Measurement Resolution

10ppm (parts per million)

Cooling Medium

Air

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All the technical specifications for your CAL3K.

Specification	Information
Type of Cooling	Airflow
Oxygen Operating Pressure Max	40 bar
Balance/Scale Interface	RS232
Printer Interface	RS232
PC Interface	USB
Power Input	12W
Interface External Keyboard	PS2
Oxygen Filling	Automatic
De gasification	Automatic
Halogen (Decomposition) Vessel	Yes, optional
Analysis according to DIN 51900	Yes
Analysis according to ASTM D240	Yes
Analysis according to ASTM D4809	Yes
Analysis according to ASTM D5865	Yes
Analysis according to ASTM E711	Yes
Analysis according to ISO 1928	Yes
Dimensions	350mm x 280mm x 240mm
Weight	~ 12.000kg
Permissible Ambient Temperature	0-35 °C
Permissible Relative Humidity	80%
RS232 Interface	Yes
USB Interface	Yes
Voltage	220-240 / 100-120V, 12VDC, 3Amp
Frequency	50/60 Hz

Please Note : Technical Specifications subject to change without prior notice. Please contact our team for accurate technical specifications at the time.

**CONTACT US- CAL3K
OUR TEAM IS READY TO ASSIST.**

CAL3K HQ

Where the magic happens.

From the designers, engineers and manufacturers who brought you CAL2K Calorimeters.

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For more information please visit our website at www.cal3k.com