

Facts:

| | C 5000 control P1/10 | C 5000 control P1/12 | C 5000 control P2/10 | C 5000 control P2/12 |
|--|----------------------|----------------------|----------------------|----------------------|
| Measurement | | | | |
| Measuring range max. [J] | 40.000 | 40.000 | 40.000 | 40.000 |
| Measuring mode dynamic 22°C | yes | yes | yes | yes |
| Measuring mode adiabatic 22°C | yes | yes | yes | yes |
| Measuring mode isoperibol 22°C | yes | yes | yes | yes |
| Measuring time dynamic approx. [min] | 10 | 10 | 10 | 10 |
| Measuring time adiabatic approx. [min] | 15 | 15 | 15 | 15 |
| Measuring time isoperibol approx. [min] | 22 | 22 | 22 | 22 |
| Reproducibility dynamic (1g benzoic acid NBS39i) [%RSD] | 0.1 | 0.1 | 0.1 | 0.1 |
| Reproducibility adiabatic (1g benzoic acid NBS39i) [%RSD] | 0.05 | 0.05 | 0.05 | 0.05 |
| Reproducibility isoperibol (1g benzoic acid NBS39i) [%RSD] | 0.05 | 0.05 | 0.05 | 0.05 |
| Temp. measurement resolution [K] | 0.0001 | 0.0001 | 0.0001 | 0.0001 |
| Decomposition vessel | C5010 | C5012 | C5010 | C5012 |
| Cooling | | | | |
| Cooling medium temperature [°C] | - | - | 10 - 19 | 10 - 19 |
| Cooling medium permissible operating pressure [bar] | - | - | 9 | 9 |
| Cooling medium | dist. water | dist. water | tap water | tap water |
| Type of cooling | internal | internal | flow | flow |
| Flow rate [l/h] | - | - | 18 - 42 | 18 - 42 |
| Oxygen operating pressure max. [bar] | 40 | 40 | 40 | 40 |
| Interfaces | | | | |
| Scale | RS232 | RS232 | RS232 | RS232 |
| Printer | Centronix | Centronix | Centronix | Centronix |
| PC | RS232 | RS232 | RS232 | RS232 |
| Test rack | yes | yes | yes | yes |
| General Data | | | | |
| Dimensions, W x D x H [mm] | 740 x 380 x 400 | 740 x 380 x 400 | 560 x 380 x 400 | 560 x 380 x 400 |
| Weight [kg] | 58 | 58 | 42 | 42 |
| Ambient temperature [°C] | 20 - 25 | 20 - 25 | 20 - 25 | 20 - 25 |
| Ambient humidity [%] | 80 | 80 | 80 | 80 |
| Protection class acc. to DIN EN 60529 | IP 21 | IP 21 | IP 21 | IP 21 |

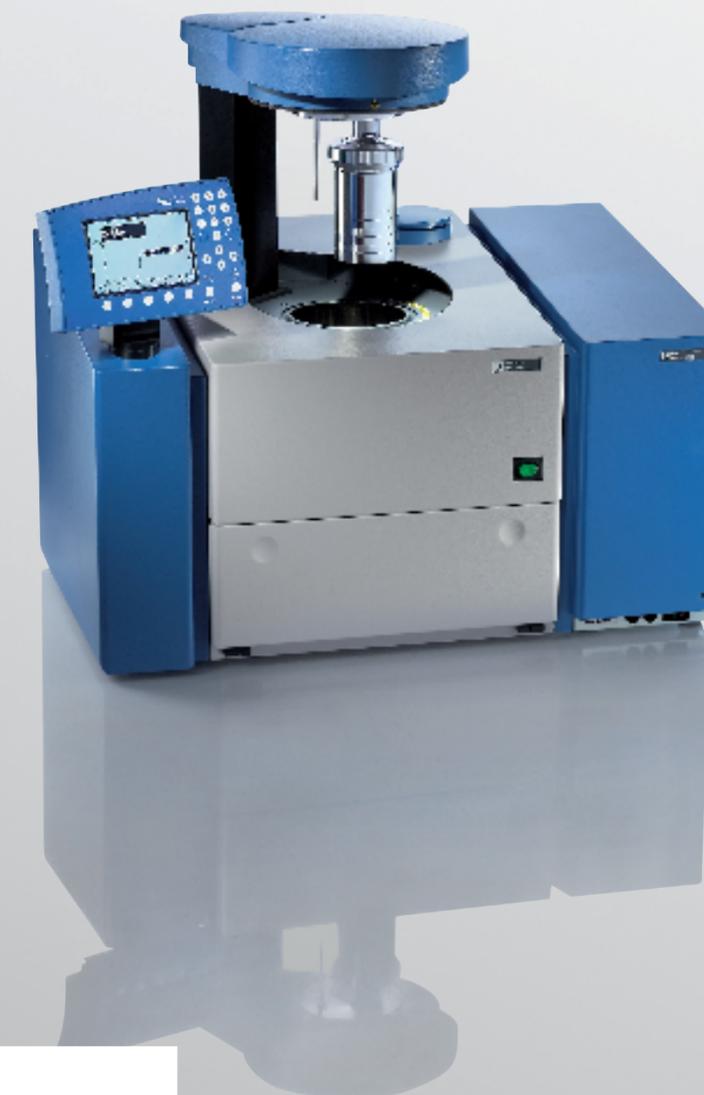
C 5000 control Accessories and consumables

| Accessories for C 5000 control | Ident. No. |
|--|------------|
| C 5010 Decomposition vessel, standard | 7114000 |
| C 5012 Decomposition vessel, halogen resistant | 7215000 |
| C 5010.4 Attachment for combustible crucible C 14 (for C 5010 / C 5012) | 3016900 |
| C 5010.5 Crucible holder, big (for C 5010 / C 5012) | 3055900 |
| C 5030 Venting station (for C 5010 / C 5012) with gas wash bottle acc. to DIN 12596 (for gas absorption) | 7198000 |
| C 5020 Sample rack | 7145000 |
| KV 600 Cooling water supply (230 V) | 3410500 |
| KV 600 Cooling water supply (115 V) | 3410501 |
| C 5041.10 Connection cable | 3036000 |
| C 21 Pelleting press | 1605300 |
| C 29 Pressure gauge, oxygen | 0750200 |
| Instructions on the IKA® calorimeter system C 5000 available on request | |

| Consumables for C 5000 control | Ident. No. |
|--|------------|
| C 5003.1 Aqua Pro stabilizing agent (2 x 20 ml) | 7207700 |
| C 710.4 Cotton thread, cut to length (500 pieces) | 1483700 |
| C 5010.3 Ignition wire, spare (5 pieces) | 7122800 |
| C 5012.3 Ignition wire, platinum (2 pieces) | 2994900 |
| C 4 Quartz dish | 1695500 |
| C 5 Set of VA combustion crucibles (25 pieces) | 1749500 |
| C 6 Quartz dish, big | 0355100 |
| C 710.2 Set of VA combustion crucibles (25 pieces) | 1483500 |
| C 9 Gelatine capsules (100 pieces) | 0749900 |
| C 10 Acetobutyrate capsules (100 pieces) | 0750000 |
| C 12 Combustion bags 40 x 35 mm (100 pieces) | 2201400 |
| C 12 A Combustion bags 70 x 40 mm (100 pieces) | 2201500 |
| C 14 Combustible crucible (100 pieces) | 7224500 |
| C 15 Paraffin strips (600 pieces) | 3131100 |
| C 16 Parafilm (100 x 5 cm) | 3801100 |
| C 17 Paraffin, liquid (20 ml) | 3801200 |
| C 43 Benzoic acid NIST 39i (30 g) | 0750600 |
| C 723 Benzoic acid, blister package (50 pieces) | 3243000 |
| C 723 Benzoic acid, blister package, big pack (450 pieces) | 3717400 |
| AOD 1.11 Control standard for sulfur and chlorine (50 ml) | 3044000 |
| AOD 1.12 Control standard for fluorine and bromine (50 ml) | 3080200 |

IKA®

C 5000 Calorimeter



Designed
to work perfectly

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Subject to technical changes. Indications not binding for delivery.



Designed
to work perfectly

IKA® Calorimeter System

The C 5000 control calorimeter is a modularly composed system. The individual components make it possible to build up different versions of the system so that the device is able to adapt to the needs of the user at any time.

A high level of automation in addition to well thought out practical accessories leave nothing more for the user to wish for. The C 5000 calorimeter is the only calorimeter system in the world that offers a free selection of 3 different working methods for the user. Thus it is possible to perform determinations of gross calorific values in dynamic (reduced-time), adiabatic and isoperibolic mode.

The technology of the equipment as well as the measuring procedure itself have been validated by all accepted standards such as DIN 51900, ASTM 4809D, ASTM 1989D, ASTM 5468D, ASTM 5865D, ASTM 240D, E 711, GOST, ISO 1928 and BSI.

In combination with special halogen-resistant decomposition vessels of the C 5012 model series, quantitative decompositions for determining halogens and sulfur can be performed in parallel to the gross calorific value analysis.

The user-friendly and menu-controlled software makes it possible to begin working quickly and effectively with the C 5000 calorimeter without a great deal of adjustment time. The user is then free to direct his or her attention entirely to the task of preparing the samples. All other processes that are necessary for determining the gross calorific value of a solid or liquid sample are completely automated. All time consuming water- and

oxygen handling processes of the classical calorimeters are fully automated. The C 5000 calorimeter displays the appropriate status reports on the graphics display with active background illumination. The temporal course of a measurement once it has been started as well as all current parameters of the weighed sample can be constantly monitored.

The library functions and various correction modes can be used at any time to bring up measurements that have already been performed and to refine search parameters. The C 5000 calorimeter has a separate service menu that allows for rapid access to individual maintenance functions and verification of basic system data.

Connections for analytical scale, printer, sample rack for sample identification / management and for a PC are already integrated into the device.

As an additional automation step, the C 5000 calorimeter system, just like all other combustion calorimeters from IKA®, can be operated via PC with our calorimeter software Calwin under Win95, Win98, WinNT, Windows 2000 and Windows XP. This makes for a very convenient way of working. A network connection as well as special configurations for a data exchange with LIMS can be implemented at any time.

Features

- Automatic water handling system includes tempering, filling and emptying of calorimeter inner vessel
- Device validation according to DIN 51900, ASTM 4809D, ASTM 1989D, ASTM 5468D, ASTM 5865D, ASTM 240D, E 711, GOST, ISO 1928, BSI
- Design based on modules
- The user selects the working method: dynamic, adiabatic, isoperibolic
- Automatic rinsing of the decomposition vessel with oxygen (acc. DIN 51900)
- Automatic filling of the decomposition vessel with oxygen
- Automatic degassing of the decomposition vessel after combustion
- Integrated decomposition mode
- Patented, dry cooling system (Package 1)
- Package 2 suitable for connection to water tap / thermostat
- Interfaces for connection to scales, a printer and an external PC
- Interface for connection to a C 5020 sample rack (sample management system)
- User-friendly and menu-driven software
- Special decomposition vessel for halogen and sulfur analysis available
- Controllable via Calwin for Windows calorimeter software (accessory)



C 5000 control Package 1

C 5000 control Package 1/10

For determination of calorific values of solid and liquid fuels.

Included with delivery:

- 1 C 5000 Controller
- 2 C 5003 Measurement cell
- 3 C 5010 Decomposition vessel, standard
- 4 C 5001 Cooling-System

Consumables for installation, calibration and unit start up are also included with delivery.

| C 5000 control Package 1/10 | Ident. No. |
|-----------------------------|------------|
| 230 V / 50-60 Hz | 8803000 |
| 115 V / 50-60 Hz | 8803001 |

C 5000 control Package 1/12

For determination of calorific values of solid and liquid fuels. Halogen resistant and catalytic activated decomposition vessel for simultaneous decomposition of halogens and sulfur included.

Included with delivery:

- 1 C 5000 Controller
- 2 C 5003 Measurement cell
- 3 C 5012 Decomposition vessel, halogen resistant
- 4 C 5001 Cooling-System

Consumables for installation, calibration and unit start up are also included with delivery.

| C 5000 control Package 1/12 | Ident. No. |
|-----------------------------|------------|
| 230 V / 50-60 Hz | 8803300 |
| 115 V / 50-60 Hz | 8803301 |



C 5000 control Package 1

C 5000 control Package 2

C 5000 control Package 2/10

For determination of calorific values of solid and liquid fuels.

Included with delivery:

- 1 C 5000 Controller
- 2 C 5003 Measurement cell
- 3 C 5010 Decomposition vessel, standard
- 4 C 5004 Cooling-System (integrated in measurement cell)

Water pipe between 10 -19 °C and 18-42 l flow rate (per hour) or active chiller required. Consumables for installation, calibration and unit start up are also included with delivery.

| C 5000 control Package 2/10 | Ident. No. |
|-----------------------------|------------|
| 230 V / 50-60 Hz | 8803200 |
| 115 V / 50-60 Hz | 8803201 |

C 5000 control Package 2/12

For determination of calorific values of solid and liquid fuels. Halogen resistant and catalytic activated decomposition vessel for simultaneous decomposition of halogens and sulfur included.

Included with delivery:

- 1 C 5000 Controller
- 2 C 5003 Measurement cell
- 3 C 5012 Decomposition vessel, halogen resistant
- 4 C 5004 Cooling-System (integrated in measurement cell)

Water pipe between 10 -19 °C and 18-42 l flow rate (per hour) or active chiller required. Consumables for installation, calibration and unit start up are also included with delivery.

| C 5000 control Package 2/12 | Ident. No. |
|-----------------------------|------------|
| 230 V / 50-60 Hz | 8803400 |
| 115 V / 50-60 Hz | 8803401 |



C 5000 control Package 2

KV 600 digital

KV 600 digital is an active chiller with air-cooled refrigeration unit. The KV 600 digital has a microcontrol controller. Temperature constancy 1 K. Cooling performance and flow rate of the cooling water supply are optimally adjusted to the requirements of the IKA® calorimeter C 5000 control Package 2.

| KV 600 digital | Ident. No. |
|------------------|------------|
| 230 V / 50-60 Hz | 3410500 |
| 115 V / 50-60 Hz | 3410501 |



KV 600 digital