

DCA 5 DETONATION CALORIMETER

Product Datasheet

TECHNICAL PARAMETERS

Accuracy of temperature measuring:	1 %
Accuracy of pressure measuring:	3 %
Maximum pressure:	65.000 kPa

Pressure vessel

Weight:	50 kg
Inner volume:	5.3 dm ³
Maximum sample weight:	25g of TNT equivalent (equivalent to 160 kJ of energy)

Insulated calorimetric bath

Inner volume:	25 dm ³
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STANDARD INSTRUMENT PARTS

DCA-CAL	Calorimeter stand with calorimetric vessel - rigid stainless steel construction - integrated calorimetric vessel with copper compensated jacket and shock absorbing insulation - ignition power source with constant current - automatically controlled pneumatic lid with process air reservoir and low power compressor - semi-automatic electric manipulator for DCA-PVS
DCA-PVS	Stainless steel spherical pressure vessel for up to 165 kJ HE charges with limit 25 g - 35 mm thick wall with inner volume 5.3 liters - 80 mm thick lid with connection to manipulator - inlet valve for filling with gas or evacuation - outlet valve for gas sampling and ventilation - 2 firing ports for ignition - designed for voltage of up to 4 kV - central port for pressure sensor mounting - designed for - detonation of high explosives charges of up to 165 kJ with limit 25 g of TNT eq. - available environmental pressure range is from vacuum to 2 MPa of gas - combustion in oxygen under pressure of 3 MPa - pyrotechnic and propellant compositions burning and explosion
DCA-TMP	Temperature measuring system - system for measuring of calorimetric water and compensated jacket - resolution 0.0001 K - design for high reproducibility and precision over years of operation
DCA-WMS	Water management system - fully automatic conditioning of process water and compensated jacket - water reservoir for exact volume sampling of process water - water reservoir for compensation of evaporated water from system - 2 series of chilling units for cooling of process water after experiment - 3 heating units for warm up of the water circuits - automatic pump in, pump out and refill sequences integrated into measuring software - set of pumps and precise water level sensors for automatic operation

DCA-DAQ	Data acquisition and evaluation unit - dynamic pressure sensor with amplifier and data acquisition unit - integrated into testing software for easy data processing
DCA-PLC	PLC unit for device control from software interface - PC based system with hardware support for real time execution - isolation transformer for safe operation with detection of short connection
DCA-SW	Operating software BlastIT 3.0 - software for fully automatic operation of DCA5 measurement reporting
DCA-OXY	Set for combustion in oxygen - electrodes with crucible holder and fuse wire connectors - quartz crucible
DCA-GAS	Set for filling of testing vessel with pressurized gas and ventilation - adaptors with hoses - valves for reduction of high pressure to operating pressure
DCA-MNT	Operation and maintenance KIT - set of standard parts for operation and maintenance of the DCA5
DCA-TLB	Operation and maintenance toolbox - set of standard tools for operation and maintenance of the DCA5

CONSUMABLES

DCA-OCR	Set of 5 quartz crucibles
DCA-SCR	Set of 5 stainless steel crucibles
DCA-FWR	Set of 100 fuse wires
DCA-CABE	Set of calibration pellet - benzoic acids - 50 pcs of 3 gram pellets - 50 pcs of 4 gram pellets
DCA-CAPP	Calibrated polypropylene foil for verification of calibration - 100 grams

OPTIONAL ACCESSORIES

DCA-AIR	High power air compressor for ventilation
DCA-VAC	Vacuum pump with barometer for evacuation
DCA-LID2	Lid for propellant burning - designed for mounting of pressure sensor for slow burning - pressure sensor for longer time measurements (propellants, pyrotechnic) - SW module for data evaluation - interface as DCA-PVS - Interface for DCA-DAQ