

# AET 402 AUTOMATIC EXPLOSION TEMPERATURE TESTER

## Product Datasheet

The heat sensitivity is a typical feature of all kinds energetic materials. Determination of the thermal impulse sufficient to starting of fast self accelerated decomposition is very important mainly for safety manufacturing, handling, transportation, and use of explosives, pyrotechnic mixtures and propellants.

Explosion Temperature Tester **AET 402** is designed for determination of the explosion (ignition) temperature at constant heating rate or time-to-explosion in isothermal mode.

**AET 402** instrument is equipped by the sensors and automatic data acquisition unit for automatic registering of explosion effects. The detection system will recognize the decomposition even if it is not accompanied with sound or light emission. This unique feature helps operator to fully replace visual observation and provides exact testing results without any possibilities of human errors.

### APPLICATIONS

A large number of methods are used for practical determination of sensitivity to thermal stimuli. Determination of the explosion temperature is used for small scale laboratory testing. A small sample may either be heated with a predefined temperature raise to the decomposition (explosion temperature test) or held at a constant temperature until explosion occurs (time-to-explosion test).

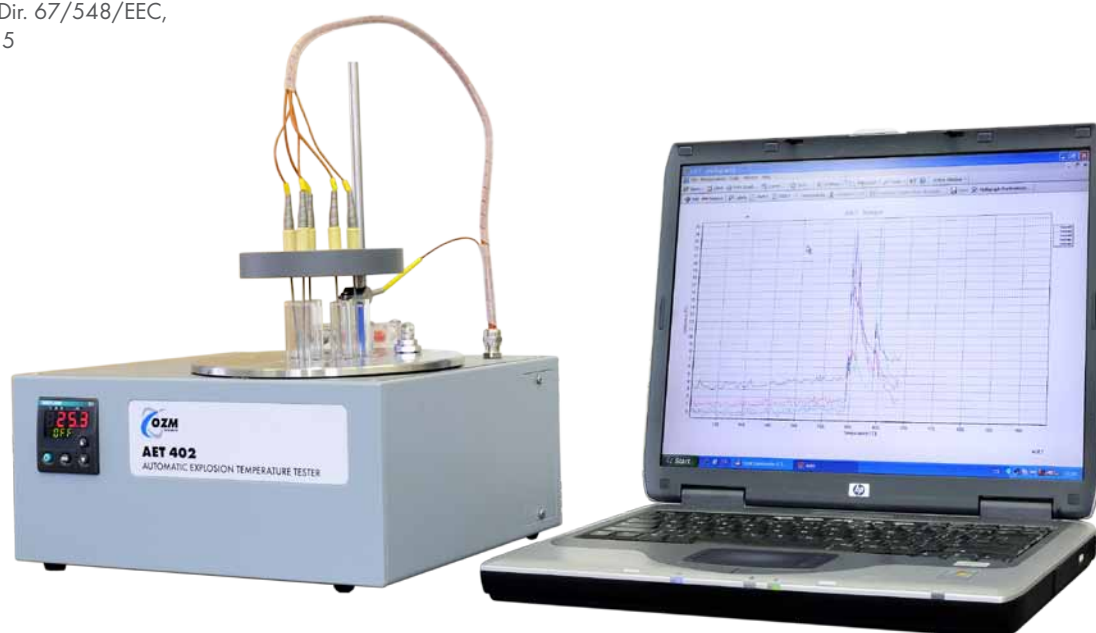
Explosion Temperature Tester **AET 402** is designed to comply with requirements of the following standard of testing:

- STANAG 4491 and Testing Methods of Annex V to Dir. 67/548/EEC, Method A-15

### INSTRUMENT DESCRIPTION

**AET 402** consists of a heating block with 6 holes filled by a small amount of Rose's metal (for better heat transfer). The temperature of the block is controlled by a precise digital temperature controller. The heating block is surrounded by stainless steel water-filled isothermal jacket and it is cooled automatically after the test allowing quick preparation for another test. The measurement of up to 5 samples can be carried out simultaneously. Temperature in the reference test tube is measured by calibrated digital thermometer or by calibrated mercury thermometer. Unit for

automatic registering of the explosion including 5 pieces of explosion sensors had been incorporated. In this case mercury thermometer can be replaced by sheathed thermocouples inserted directly into the reference test tube. The explosion of the samples are detected by 5 independent explosion sensors inserted in the glass test tubes above the sample. Results of the explosion is continuously recorded to a data acquisition unit (notebook computer) with data recording and evaluating software ADET for Windows XP.



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### TECHNICAL PARAMETERS

Temperature range:	20 - 400 °C
Heating rate:	0.1 - 20 °C.min <sup>-1</sup>
Cooling rate:	approx. 400 °C.hour <sup>-1</sup>
Accuracy:	±0.1 °C for 5 °C.min <sup>-1</sup> heating rate
Typical sample weight:	200 mg of non-primary explosive materials 25 mg of primary explosives

### STANDARD INSTRUMENT PARTS

AET402-MU6	Main unit - heating block (6 holes) - temperature controller
Accessories	Accessories - spatula - plastic hose (diameter 6 mm, length 4 m) - pincers - power cable - fitting 1/2"

### CONSUMABLES

AET402-GTT	Glass test tubes (diameter 14 mm, length 100 mm), set of 200 pcs.
R-metal	Rose's metal ingot (diameter 10 mm, length 500 mm), approx 250 g, m.p. 92 - 96 °C

### OPTIONAL ACCESSORIES

DIG-T200K	Calibrated digital thermometer 0 - 200 °C / 0.1 °C, K type temperature probe
AET-S	Explosion sensor set of 5 pcs
ADET 1.0	Software ADET 1.0 for Win XP for data acquisition and evaluation of result
PDP	Portable data processor (at least ASUS N61VN 16/Intel® Core™2 Extreme Q9000/DVDRW/HD 500G/ RAM 4GB/nVidia GeForce GT240M 1GB/MS Win XP)
AET402-DAQ6	Inbuilt 6 channels data acquisition unit - temperature sensor

### SHIPPING DATA

Package dimensions (L x W x H):	41 x 52 x 30 cm
Package gross weight:	14 kg
Custom code:	9031 20 00

### INSTALLATION REQUIREMENTS

Space requirements - Main unit: L x W x H: 30 x 30 x 14 (28) cm; Weight: 6 kg
Space requirements - Data acquisition unit: L x W x H: 41 x 32 x 32 cm; Weight: 3.5 kg
Electric power source: 230 V / 50 Hz, 500 W
Tap water source for cooling: min. 30 dm <sup>3</sup> .hour <sup>-1</sup>
Fume hood or local exhaust for heating block unit

