20-L HIGT TEMPERATURE & PRESSURE AUTOCLAVE

P_{max}, $(dp/dt)_{max}$, K_G, LEL, UEL, LOC

AT ELEVATED TEMPERATURE AND PRESSURE

Model: ACL-2

ver. 2.1 2023

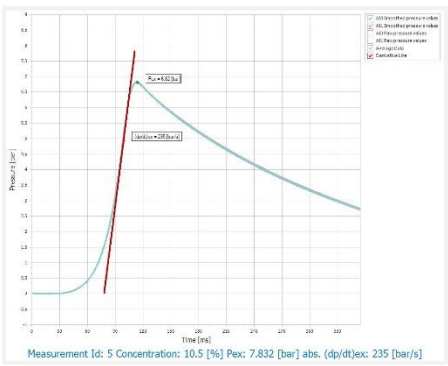
THE DEVICE COMPLIES WITH THE STANDARDS LISTED BELOW:

- ASTM E918 "Standard practice for determining limits of flammability of chemicals at elevated temperature and pressure"
- ASTM E2079 "Standard test methods for limiting oxygen (oxidant) concentration in gases and vapors"
- EN 15967 "Determination of maximum explosion pressure and the maximum rate of pressure rise of gases and vapours"
- EN 1839 "Determination of explosion limits limiting and the oxygen concentration (LOC) for flammable gases and vapours"

TECHNICAL SPECIFICATION:

Measured parameters	P_{max}, $(dp/dt)_{max}$, K_G, LEL, UEL, LOC
Explosion test vessel	spherical volume: 20L 316 or 321, stainless steel Pmax 210bar (3000psi) Tmax: 350°C
Outer shell	20-L vessel is covered with a copper for better heat distribution
High temperature protection measures	high temperature insulation outer cover made of stainless steel
Valves and fittings	½", ¼", ⅛"
Heating system	from ambient to 350°C PID temperature control
Custom manufacture options	temperatures up to 500°C Pmax = 300bar 20-L vessel made of Inconel
Ignition system	fuse wire continuous spark spark discharge
Gas thermocouple	type K
Safety measures	ignition activation lock rupture disk
Built-in gas mixing system	gas stirrer with the propeller mixes the gases inside
Static pressure sensor	-1/16bar, accuracy: 0.1% FS other ranges available on request
Explosion pressure sensor	250 bar max resistant to high temperatures
Vacuum pump	included
Power supply	110 / 230 VAC

AN EXAMPLE OF p(t) CHART:



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SOFTWARE AND DATA ACQUISITION BLOCK:

Dedicated computer program

Ready-made procedures in accordance with
ASTM E918, ASTM E2079, EN 15967, EN 1839

PC control and data processing

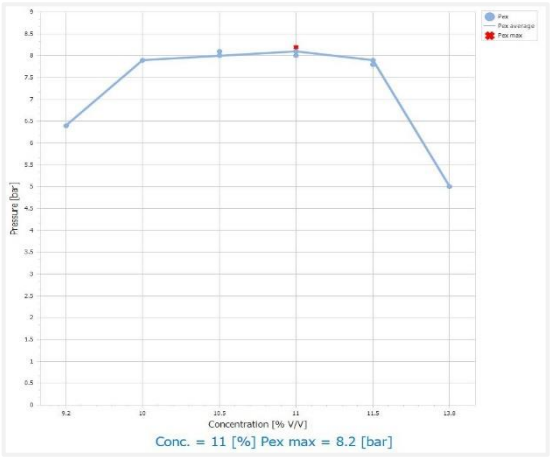
Visualization of pressure graphs and data export

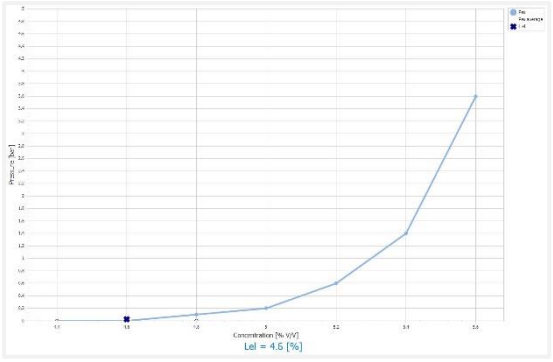
Automatic signal noise cancelling

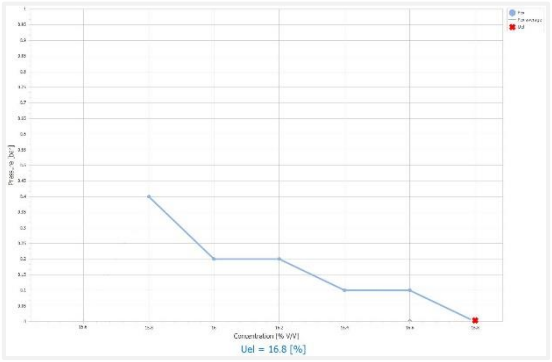
Tested parameters of gases and vapors:
P_{max}, (dp/dt), K_G, LEL, UEL, LOC

Partial pressure calculations

Protocol printing







UNIQUE FEATURES OF THE DEVICE

We ensure the availability of design changes and project customization.

The device is equipped with a vacuum system reaching at least 5 mbar abs.

The device can be equipped with any ignition sources.
By default, a continuous spark circuit is built-in.

The partial pressures of gas mixtures are calculated by a computer program.
Pressures are measured using a sensor with an accuracy of 0.1% FS.
Sensors with increased accuracy of 0.05% FS are also available for this device.
Accuracy of 0.01% FS is available on special request.

The system ensures easy and reliable mixing of gases to obtain a homogeneous mixture.
This is done using a mechanical stirrer whose propeller is placed directly in the explosion chamber.
Mixing for a few minutes is sufficient for the most difficult mixtures.
The rotational speed of the drive is 400 RPM.
The stirrer is resistant to high temperatures and pressures, in accordance with the specs of this autoclave.

The temperature on the surface of the vessel is evenly distributed thanks to a large number of heaters and an additional copper jacket, which ensures excellent heat distribution.

ANKO provides software modifications according to user needs.

The system is delivered as plug-and-play and is ready for use immediately after delivery.

The device's sensors come with a calibration certificates in accordance with ISO 17025.

We also provide pre-installation consultations, installation assistance and on-site training.

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