

20-LITER SPHERE APPARATUS

FOR DETERMINATION OF EXPLOSION CHARACTERISTICS
OF DUST CLOUDS P_{max} ° $(dp/dt)_{max}$ ° K_{st} ° MEC ° LEL ° LOC

Model: SPD-3.1

ver. 3.1, 2021

THE DEVICE COMPLIES WITH THE STANDARDS LISTED BELOW:

- ASTM E1226 Standard Test Method for Explosibility of Dust Clouds
- ASTM E1515 Standard test method for MEC
- ASTM E2931 Standard test method for Limiting Oxygen Concentration
- EN ISO/IEC 80079-20-2 Explosive atmospheres. Material characteristics. Combustible dust methods.
- EN 14034-1 Determination of the maximum explosion pressure P_{max} of dust clouds
- EN 14034-2 Determination of the maximum rate of explosion pressure rise $(dp/dt)_{max}$ of dust clouds
- EN 14034-3 Determination of the lower explosion limit LEL of dust
- EN 14034-4 Determination of the limiting oxygen concentration LOC of dust clouds

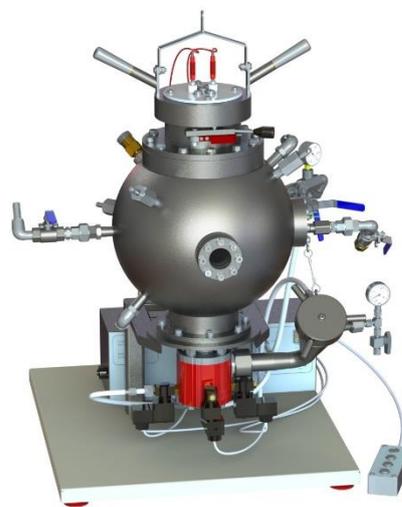
SPECIFICATION:

Double layer sphere vessel	20-liter, stainless steel
Maximum working pressure	30 bar (optional 40 bar)
ANKO software	ANKO Explosion Plotter®
Software functionality	ASTM test procedures EN test procedures ISO/IEC test procedures signal noise cancelling test report printing data export to any format

Measurement range:

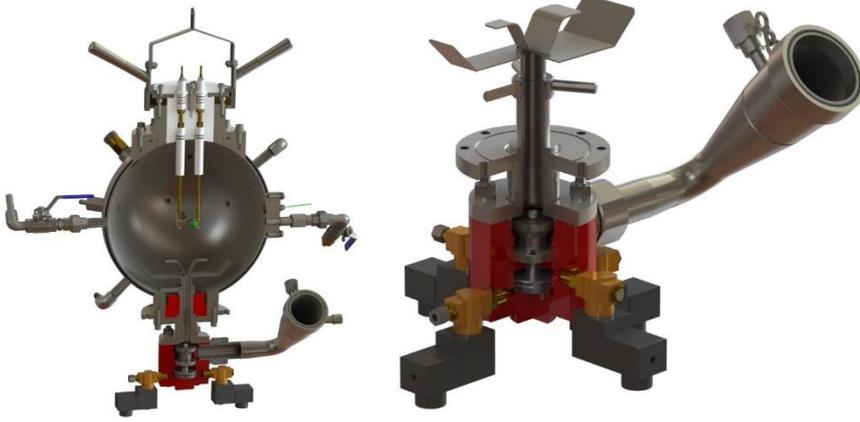
P_{max}	0-25 bar
$(dp/dt)_{max}$	> 4000
K_{st}	> 1000
LEL, MEC, UEL	from 0 g/m ³
LOC	1-21 %

Quick dust injection valve	opening time ≤ 30 ms
Front panel vacuum display	0-1 bar abs
Vacuum pressure adjustment	automatic -0.6 & manual
Water cooling system	external cooling block
Compatibility with available chemical igniters	compatible with Sobbe compatible with Simax
LOC module	optional, built-in
Additional manometers	0/25 bar; -1/0 bar
Manual control of injection valve	opening/closing air filling up to 20 bar
Dimensions (WxDxH)	without lift 600x700x900 mm with lift 600x700x1450 mm
Top head lift	available upon request
Power supply:	110 or 230 VAC



The information given in this document represents the state of engineering at the time of publishing. We reserve the right to make modifications to above specifications.

DUST DISPERSION & IGNITION SYSTEM



12/24V ignition block

Dispersion nozzles:

- rebound
- C-shape (optional)

fast opening valve, $T_o < 30\text{ms}$

the installation of chemical ignitors is safe, thanks to the grounding of metal parts

PC or front panel manual control

quick cleaning procedure

REQUIRED ACCESSORIES

- double stage vacuum pump
- laboratory cooler with temperature indicator
- compressed air
- nitrogen (for LOC only)
- flammable gases (for hybrid mixtures)
- fume hood
- laboratory bench
- vacuum cleaner
- laboratory scale
- dust dryer
- particle size distribution analyser (recommended)
- laboratory grinder (recommended)
- laboratory sieve, minimum $500\mu\text{m}$ and $63\mu\text{m}$
- sample containers
- safe for ignitors storing
- cleaning tools
- personal protection measures

RECOMMENDED INSTALLATION METHOD

We recommend installing 20L inside the fume hood or other well ventilated chamber. Installation advice and consultation are free.



SOFTWARE - ANKO DUST EXPLOSION PLOTTER®

- PC control and data processing
- visualization of pressure graphs
- automatic calculation of results
- signal noise cancelling
- safety measures & procedures
- custom options available
- upgrades free of charge

Automatic software procedures:

- P_{max} , $(dp/dt)_{\text{max}}$, K_{st} ,
- MEC, LEL & UEL
- LOC
- hybrid mixtures
- partial pressure calculations
- automatic gas mixing control

Application:

- science and research
- accredited laboratories
- industrial tests
- explosion prevention systems certification

