DNP DIGITAL 3000



The DNP digital 3000 generates high-purity, contamination-free nanoparticles in a gas-phase process. No chemicals, solvents, or ligands are involved. A broad range of conductive electrode materials allows the targeted production of metal, alloy, and carbon particles in the low-nanometer range. Available materials include copper, silver, gold, and graphite, as well as other electrically conductive materials; alloys and mixed electrodes are also possible. The resulting particles are suitable for material development as well as for the calibration of particle measurement devices and complete particle measurement systems. Digital control keeps particle size and concentration reproducibly constant over hours of operation.

BENEFITS

- Contamination-free nanoparticles without chemicals
- Broad material range: graphite, copper, silver, and gold, plus other conductive electrode materials, including alloys and mixed electrodes
- Fast adjustment of particle size and concentration
- Excellent short- and long-term stability for reproducible results in research and calibration
- Diesel-soot-like particle structure with graphite electrodes for PMP reference measurements
- Testing of measurement systems at up to 400 °C
- Straightforward connection to CVS systems for the PMP measurement line (in combination with the REF 3000)

FEATURES

- Spark ablation: High voltage between two electrodes vaporizes the material
- Primary particles ranging from 3 to 10 nm in nitrogen or argon carrier gas
- Interchangeable electrodes made of graphite, copper, silver, gold, and other conductive materials
- Spark frequency controls the number, concentration, and agglomerate size
- Dilution controls agglomerate formation
- Digital control ensures constant spark energy and high long-term stability

APPLICATIONS

- Nanoparticle synthesis for material research
- Development of new nanomaterials
- Inhalation research and toxicology
- Calibration of particle measurement devices and sampling lines
- Calibration of the PMP measurement system (in combination with the REF 3000)

Particle size range	0.02 – 0.35 μm
Volume flow	4 – 70 Nl/min
Volume flow (accessories)	0 – 450 l/min (REF 3000)
Volume flow (carrier/dispersion gas)	4 – 20 l/min
Volume flow (dilution gas)	0 – 50 l/min
Mass flow (particles)	0.1 – 25 mg/h (for carbon)
Particle material	Carbon, copper, silver, gold and other metals
Dosing time	Several hours nonstop
Pre-pressure	4 – 8 bar
Carrier/dispersion gas	Nitrogen, argon
Compressed air connection	Quick coupling
Aerosol outlet connection	$Ø_{inside}$ = 6 mm, $Ø_{outside}$ = 8 mm
Particle size range (primary particles)	3 – 10 nm
Dilution gas	Particle-free and dry compressed air
Dimensions	185 • 445 • 380 mm (H • W • D)
Weight	23 kg