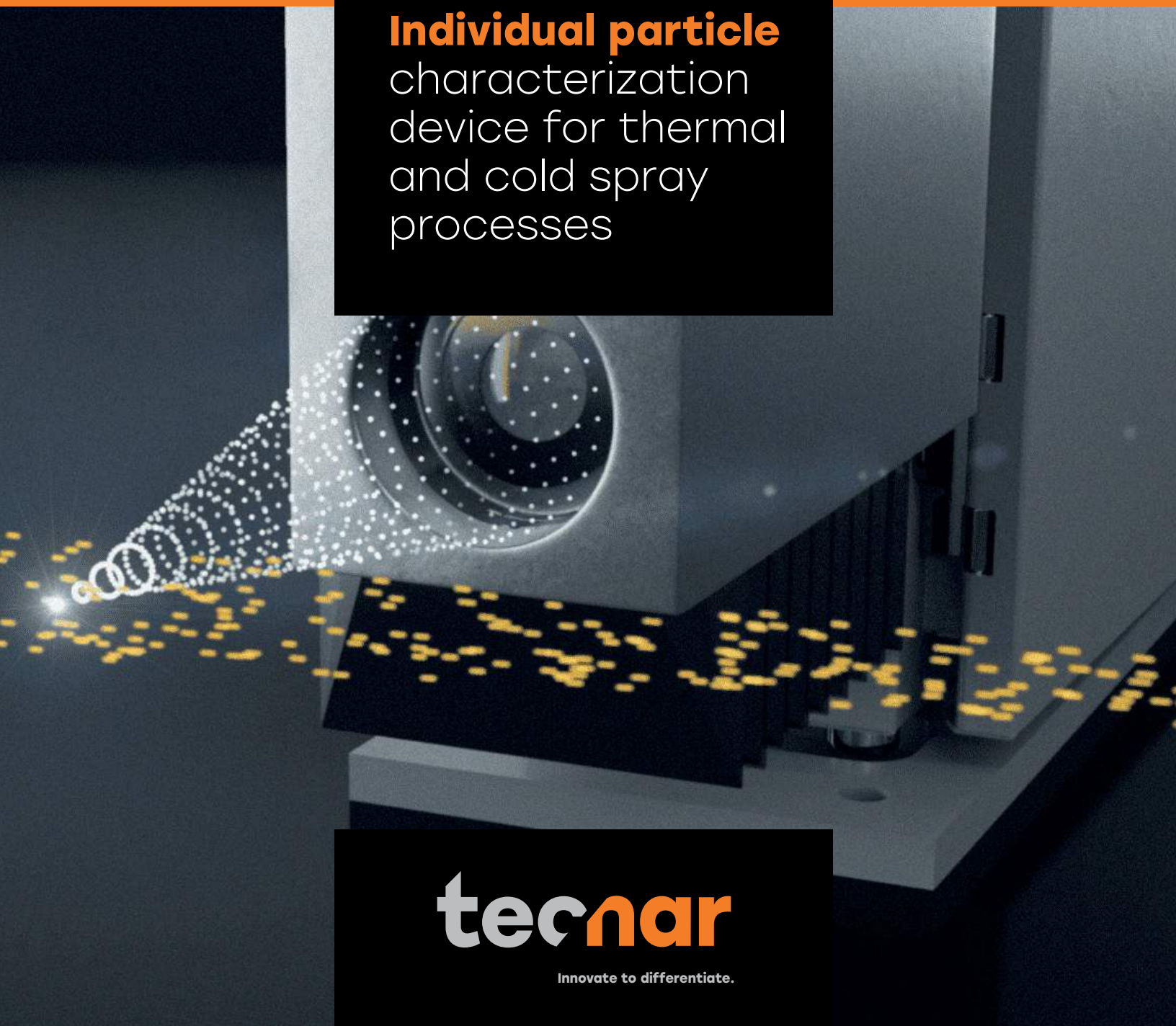
dpv evolution

Individual particle characterization device for thermal and cold spray processes



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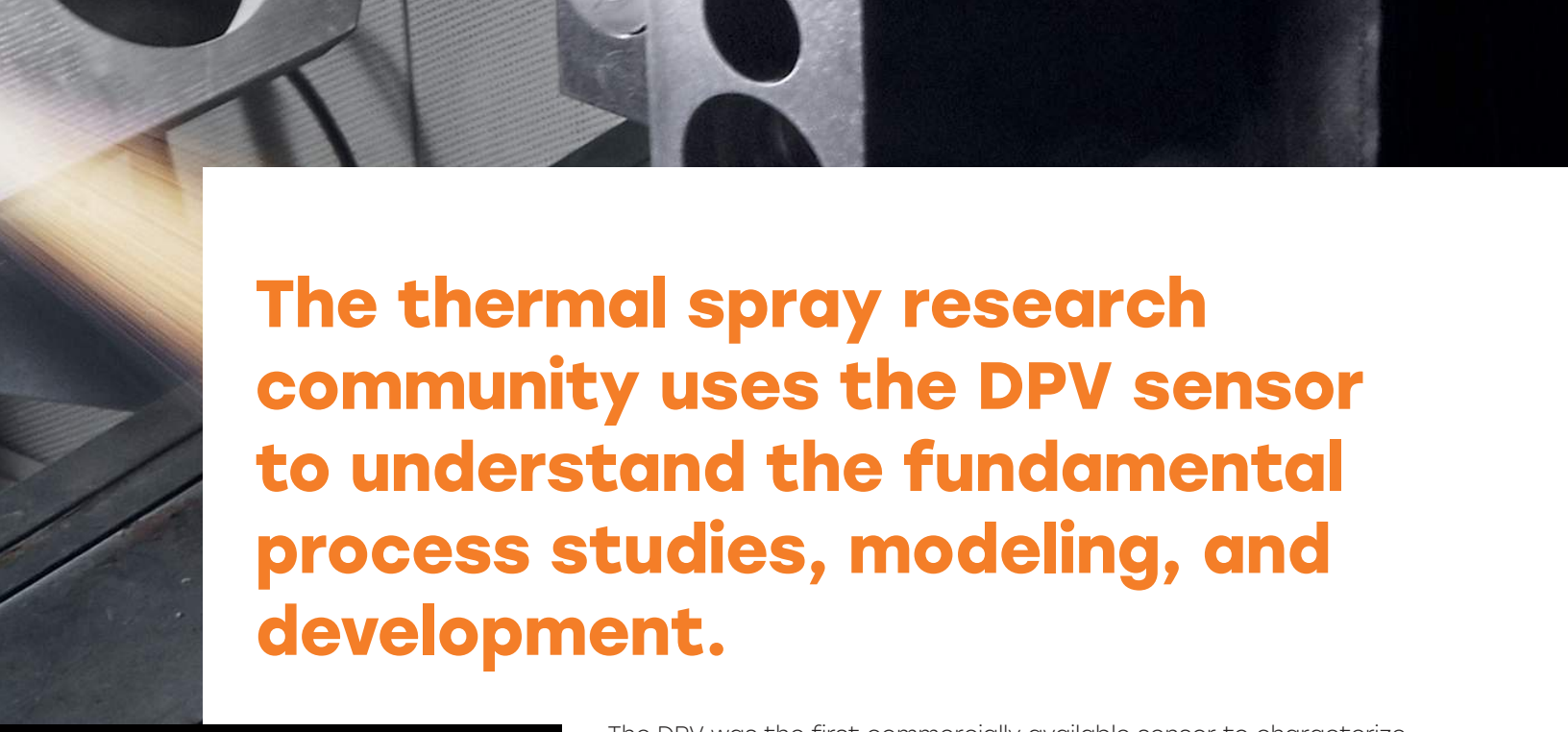
Innovate to differentiate.



The thermal spray research community uses the DPV sensor to understand the fundamental process studies, modeling, and development.

Dimensions

Scanning unit

706 mm x 367 mm x 152 mm
(27.8 in. x 14.5 in. x 6 in.)

Controller

770 mm x 580 mm x 305 mm
(30.3 in. x 22.8 in. x 12 in.)

Calibration module

200 mm x 304 mm x 340 mm
(7.9 in. x 12 in. x 13.4 in.)

Total weight

56.4 kg (124 lb)

Plant supplies

Power requirements

120/230 VAC Auto-Switch
50/60 Hz 4.9/2.7A

Air supply

1.35-2 bar (20-30 psi)

The DPV was the first commercially available sensor to characterize thermal spray processes. With its cleverly designed measurement volume and pattern recognition algorithms, the *DPV evolution* can characterize particles individually and provide complete distributions & mean values of the temperature, size, and velocity.

Since 1990, the DPV has become the industry standard in the thermal spray research community and is cited in of over 1,000 scientific papers.

Capable of providing individual particle characteristics for most commercially available spray materials.

Temperature measurement from 1,050 to 4,000°C

Velocity measurement from 5 to 1,200 m/s

Diameter measurement from 5 to 300 microns

Get the *DPV evolution* **advantages**:

- **Individual particle temperature**
- **Temperature distribution**
- **Individual particle velocity**
- **Velocity distribution**
- **Individual particle size**
- **Size distribution**

Technical specifications

Measurement ranges

Particle temperature	≥1050°C (≥1922°F), size and emissivity dependent at 3% precision
Particle velocity	Low speed configuration: 5-400 m/s at 2% precision High speed configuration: 400-1200 m/s at 2% precision
Particle diameter	5-300 μm (0.2-11.8 thou), morphology dependent

Measurement volume information

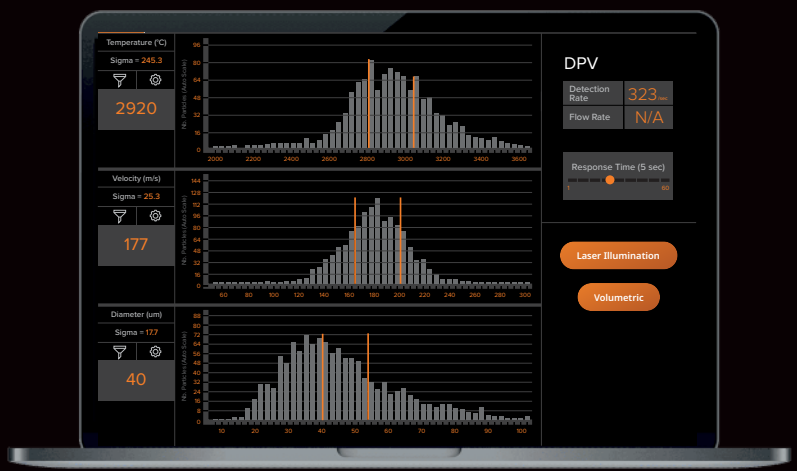
Temperature & velocity measurement volume	Low speed configuration: 0.15 mm³ (9.1 e-6 in.³) at 2.5 mm (0.1 in.) depth of field High speed configuration: 0.43 mm³ (2.6 e-5 in.³) at 2.5 mm (0.1 in.) depth of field
Working distance	100 mm (4 in.)
XY scanning unit travel range	100 mm x 100 mm (4 in. x 4 in.)

Product options

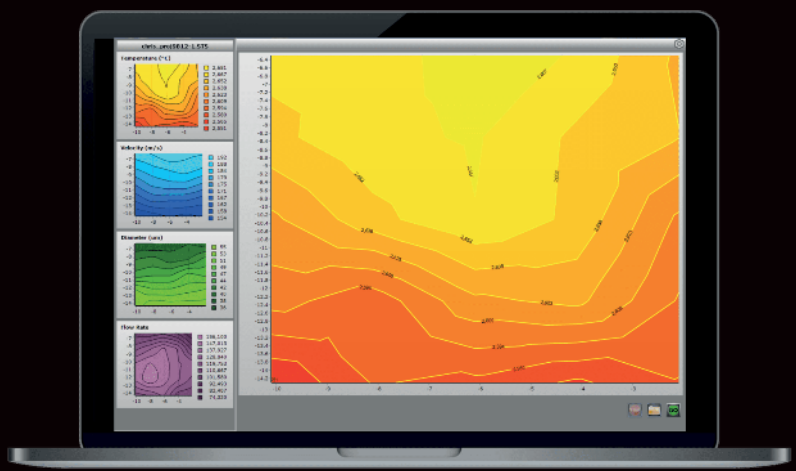
CPS Laser	Class IV laser 3.3W for cold particles characterization
Accuraspray 4.0 for DPV	For spray plume geometry characterization through camera analysis
Substrate temperature pyrometer	0-500 °C (32-932°F)

Measurements range with Accuraspray 4.0 for DPV option

Spray plume width and position	±0.6 mm (±0.02 in.) accuracy
Plume angle	0.2 degree accuracy
Plume intensity	5% accuracy

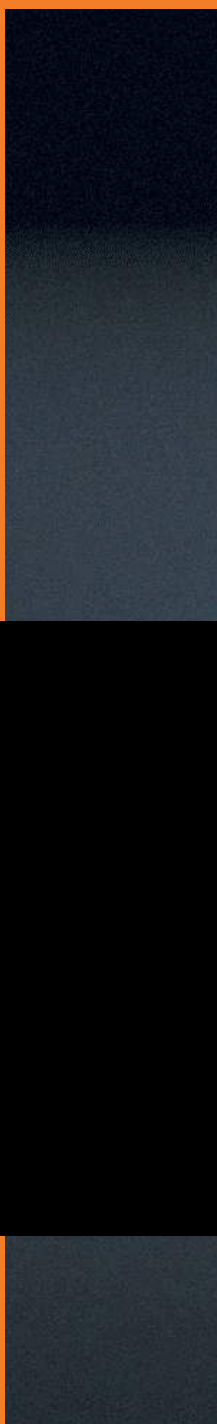


Correlates velocity and temperature with particle size for optimized spray parameters.



Provides spatial mapping of velocity, temperature, and size distributions for precise spray control.

earlier insight changes everything



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Learn more about the *DPV Evolution*

"At Forschungszentrum Jülich, we have used the DPV extensively and successfully for over 15 years to better understand and optimize our thermal spray processes. Its unique capability to simultaneously measure the temperature, velocity and size of individual particles and to perform cross-sectional maps of the spray plume has had a tremendous impact on our activities in the fields of process development, parameter optimization and quality management."

Dr. Georg Mauer
Head of Thermal Coating Technology Team
Institute of Energy and Climate Research (IEK-1)
Forschungszentrum Jülich GmbH, Germany