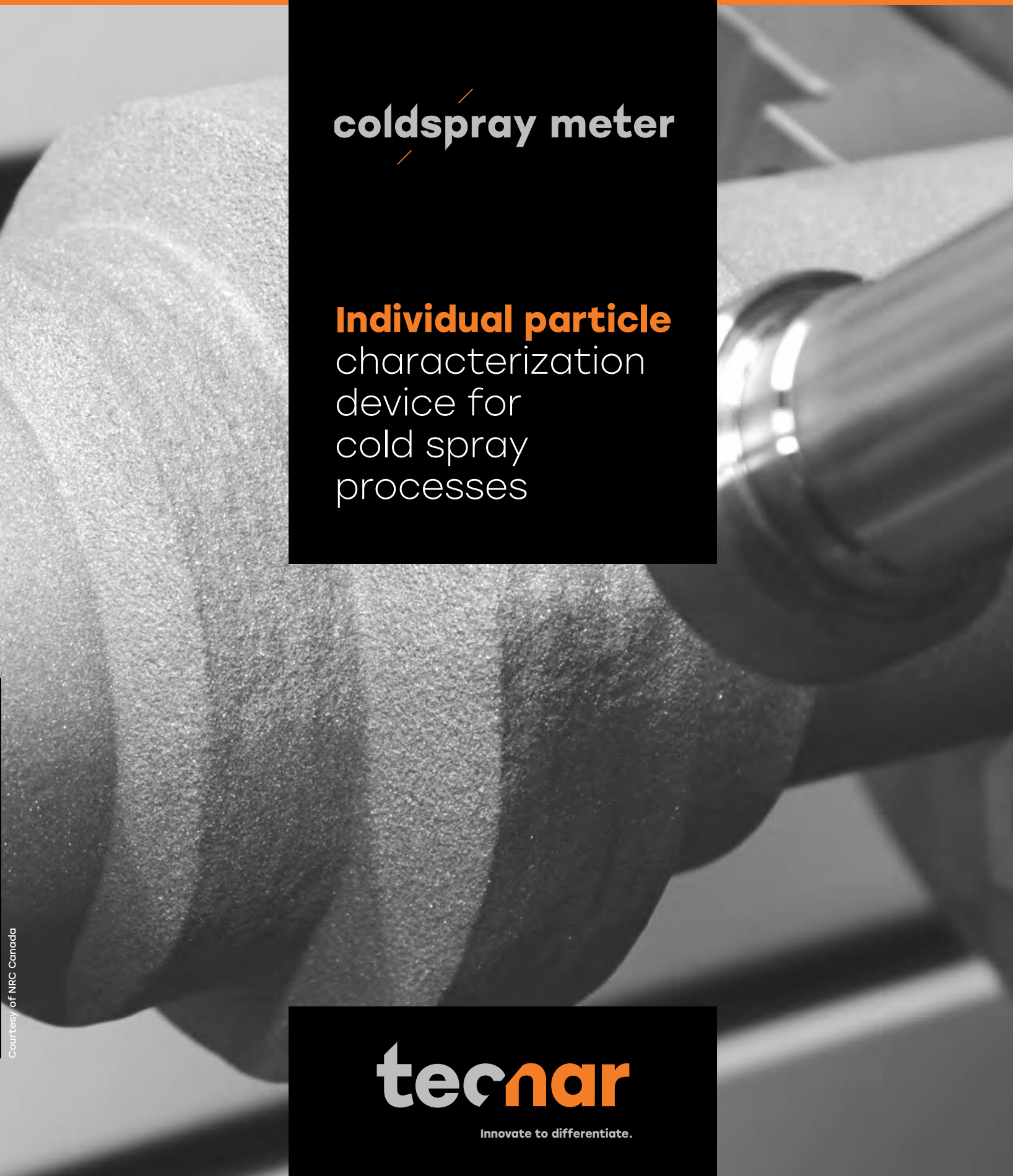
coldspray meter

Individual particle characterization device for cold spray processes



Courtesy of NRC Canada

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Innovate to differentiate.

Coldspray Meter innovative technology

Based on the time-tested Dpv principle, the Coldspray Meter can characterize particles individually and provide complete velocity and size distributions (not only mean values).

Monochromatic light is shone onto the system's measurement volume to illuminate the cold particles that would otherwise be impossible to see. They are then characterized (velocity, size, flux) based on the back-scattered light.

See how fast is fast enough

The Coldspray Meter is the ideal tool for researchers and production managers involved in cold spray processes. It helps to validate fluid dynamic models, optimize spray nozzles, develop and optimize spray parameters, maximize deposit efficiency and monitor the process during production runs.

Its intuitive touch screen user interface makes it easy to integrate into your daily operations. The data is available as CSV files and can be easily accessed via Ethernet or a USB jump drive.

The ***Coldspray Meter*** is generally used to:

- Monitor/characterize cold spray processes
- Develop spray conditions
- Design and optimize spray nozzles
- Validate models
- Monitor sand/grit blasting processes or even shot peening

Plant supplies

Power requirements

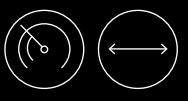
120-240 VAC, 50-60 Hz 5A

Air supply

20-30 psi of clean, dry compressed air

Get the *Coldspray Meter* **advantages:**

Single particle characterization



Simultaneously measures velocity, size and flux

Technical specifications

Measurement ranges

Particle velocity	400-1200 m/s (1300-3900 f/s) at 2% precision **optional**: low speed configuration: 5-400 m/s (16-1300 f/s) at 2% precision
Particle diameter	10-300 µm (0.39-11 µin), depending on process parameters

Measurement volume information

Temperature & velocity measurement volume	0.43 mm³ (0.000026 in.³) at 5 mm (0.2 in.) depth of field **optional **: low-speed configuration: 0.15 mm³ (0.0000092 in.³) at 5 mm (0.2 in.) depth of field
Working distance	100 mm (4 in.)
XY scanning unit travel range	50 mm x 50 mm (2 in. x 2 in.)

Laser characteristics

Laser wavelenght	790 mm
Nominal laser power	3.3 W
Maximum power density (at waist)	6.5 W/cm²
Laser type	CW, class IV
Waist position	100 mm (4 in.) in front of lens

Dimensions

Scanning module

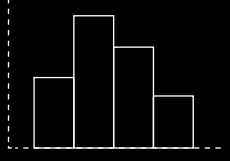
152 mm x 300 mm x 615 mm
(6 in. x 11.8 in. x 24.2 in.)

Controller

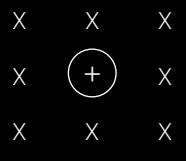
580 mm x 770 mm x 305 mm
(22.8 in. x 30.3 in. x 12 in.)

Total weight

49.5 kg (109.1 lbs)



Histograms
with full distributions
(not only mean values)



Computer-controlled
cross-sectional mapping
of spray plume properties

earlier insight changes everything

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Learn more about the *Coldspray Meter*

References

CSIRO
École des Mines de Paris
FZ-Juelich
Helmut-Schmidt University
Nanyang Technological University
National Research Council
Oerlikon Metco US Inc.
Plasma Giken
University of Ottawa

"Sensors, such as the Coldspray Meter, allow us to validate numerical models (CFD) that can then be used to design cold spray nozzles that meet specific requirements in terms of particle velocity. Furthermore, they allow us to better understand the spray deposition windows of reactive materials to ensure that we avoid powder reaction during consolidation and also to maximize the reactivity of the consolidated powders."

Prof. Bertrand Jodoin,
University of Ottawa, Canada