



Innovate to differentiate.

**tecnar's advanced sensor technology:
a seamless integration in an industry 5.0
CSAM platform**

CSAT gold sponsorship webinar series - 21 January 2025

tecnar

Innovate to differentiate.



Jean-Nicolas Robert
vp of product - spray sensors



Alexandre Nadeau
ceo & owner



Jean-Félice Henri
service manager - spray
sensors

joined by:



Luc Pouliot
ceo & owner



Fernanda Caio
vp research

 **POLYCONTROLS**

innovate to differentiate

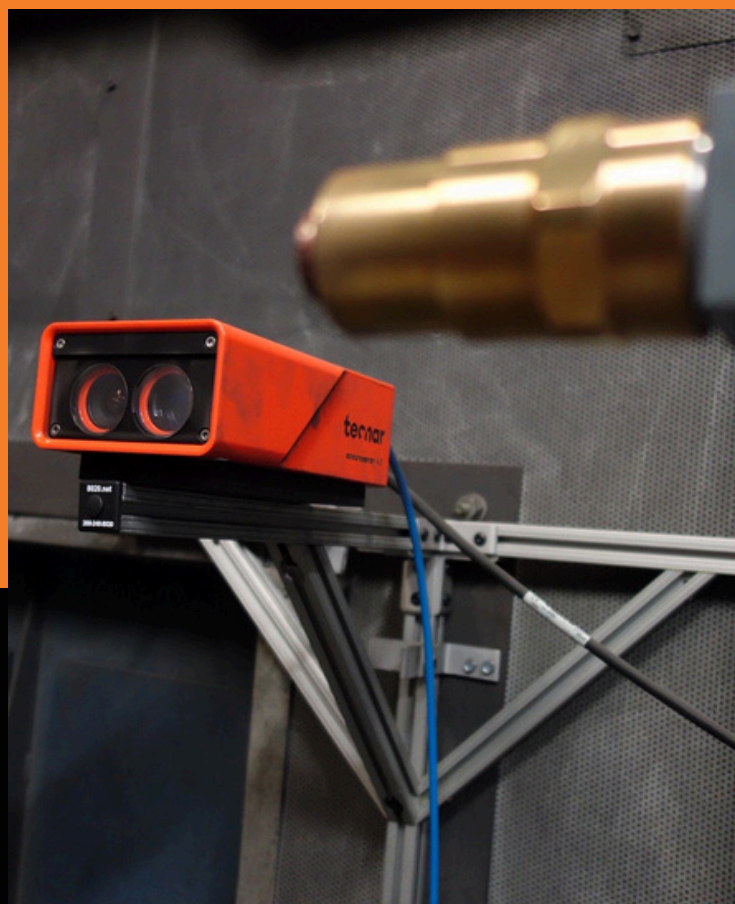


since 1989 :
70+ employees
4 product lines
1000+ clients

tecnar

4 divisions

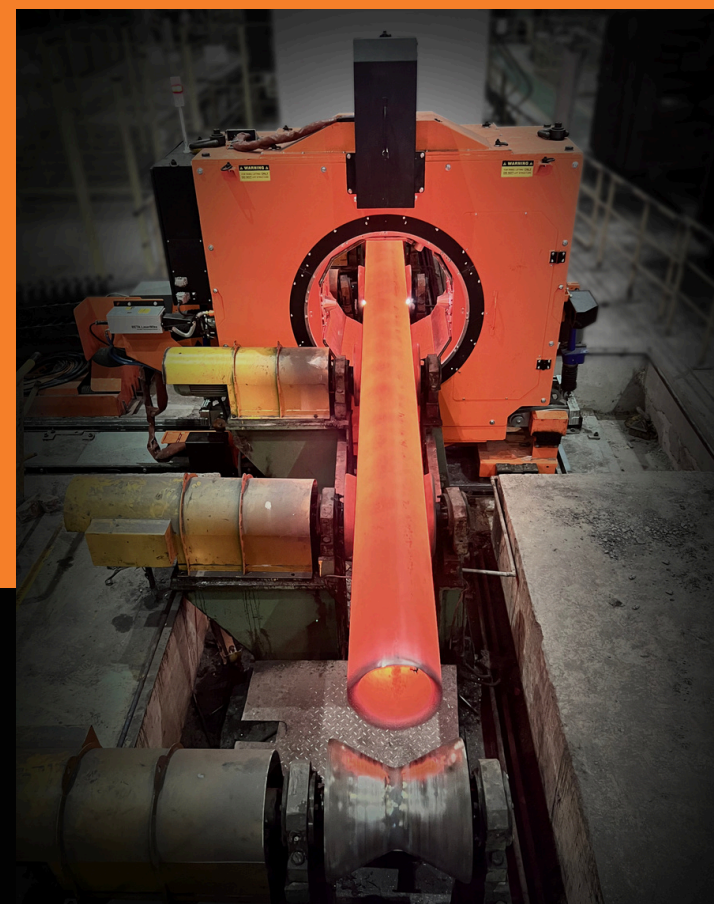
tecnar designs, develops, manufactures,
and markets novel systems and sensors
for industrial process monitoring and control



spray sensors:
accuraspray
dpv
shotmeter



welding:
rotoweld



laser ultrasonic:
weldspector
lut
lus



libs:
galvalibs
alulibs

spray sensors division

research

thermal spray

cold spray

dpv evolution



production

thermal spray

cold spray

shot peening

accuraspray 4.0

accuraspray CS

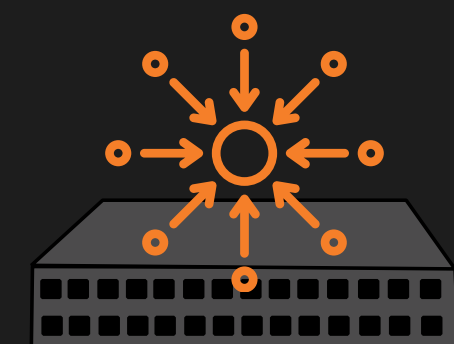
shotmeter

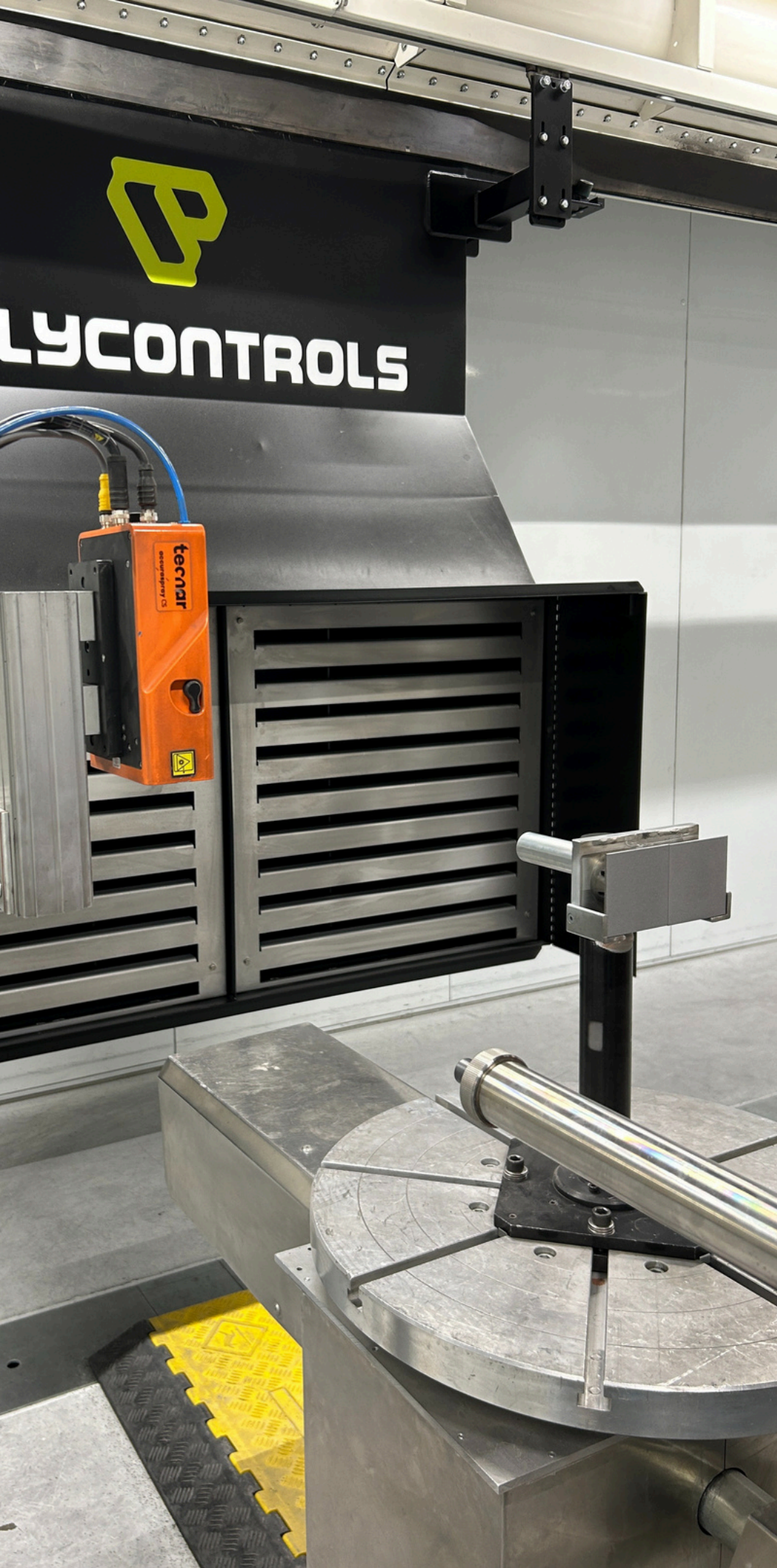


software

all processes

accuraspray HUB





what spray sensors are for:

- powder lot validation
- easy parameter transfer
- process IP archiving
- optimized gun maintenance
- reduced coupon usage
- reduced powder waste
- less operator dependency
- instant go/no-go tool
- proactive problem resolution
- effortless process optimization
- quick booth qualification
- efficient process development



“Tecnar’s Accuraspray is the poor man’s doppler”

Vic Champagne

...and
easy to use
reliable
repeatable

tec**nar**

**for research
and R&D**



dpv evolution

**individual particle
characterization
device for thermal
and cold spray**

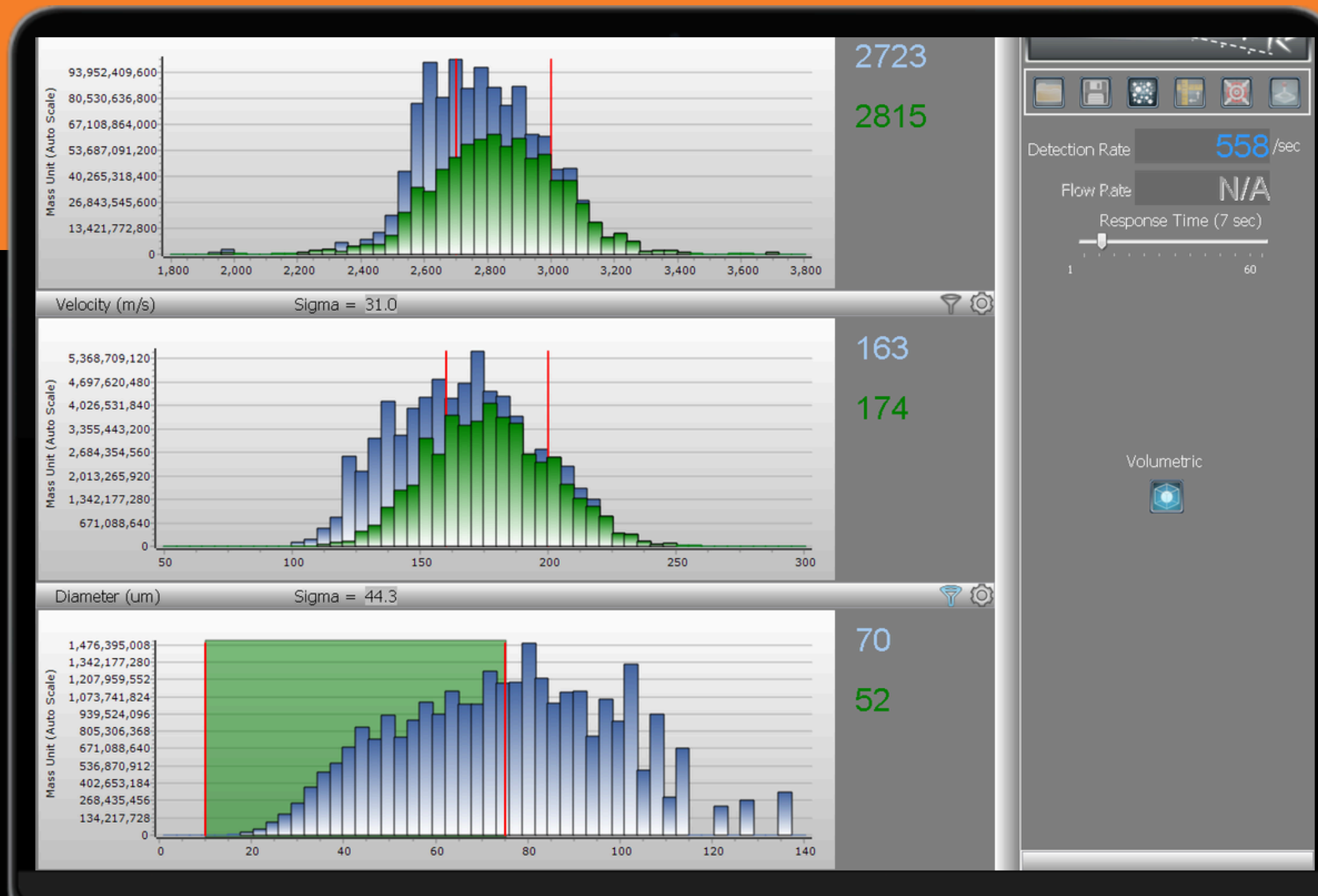
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what it measures - cold spray option

d/v evolution

- individual particle velocity
- individual particle size
- velocity distribution
- size distribution

comprehensive data



dpr evolution

**for production
environments**



accuraspray CS

**production-friendly
cold spray sensor**

- robust measurement principle
- ensuring repeatability

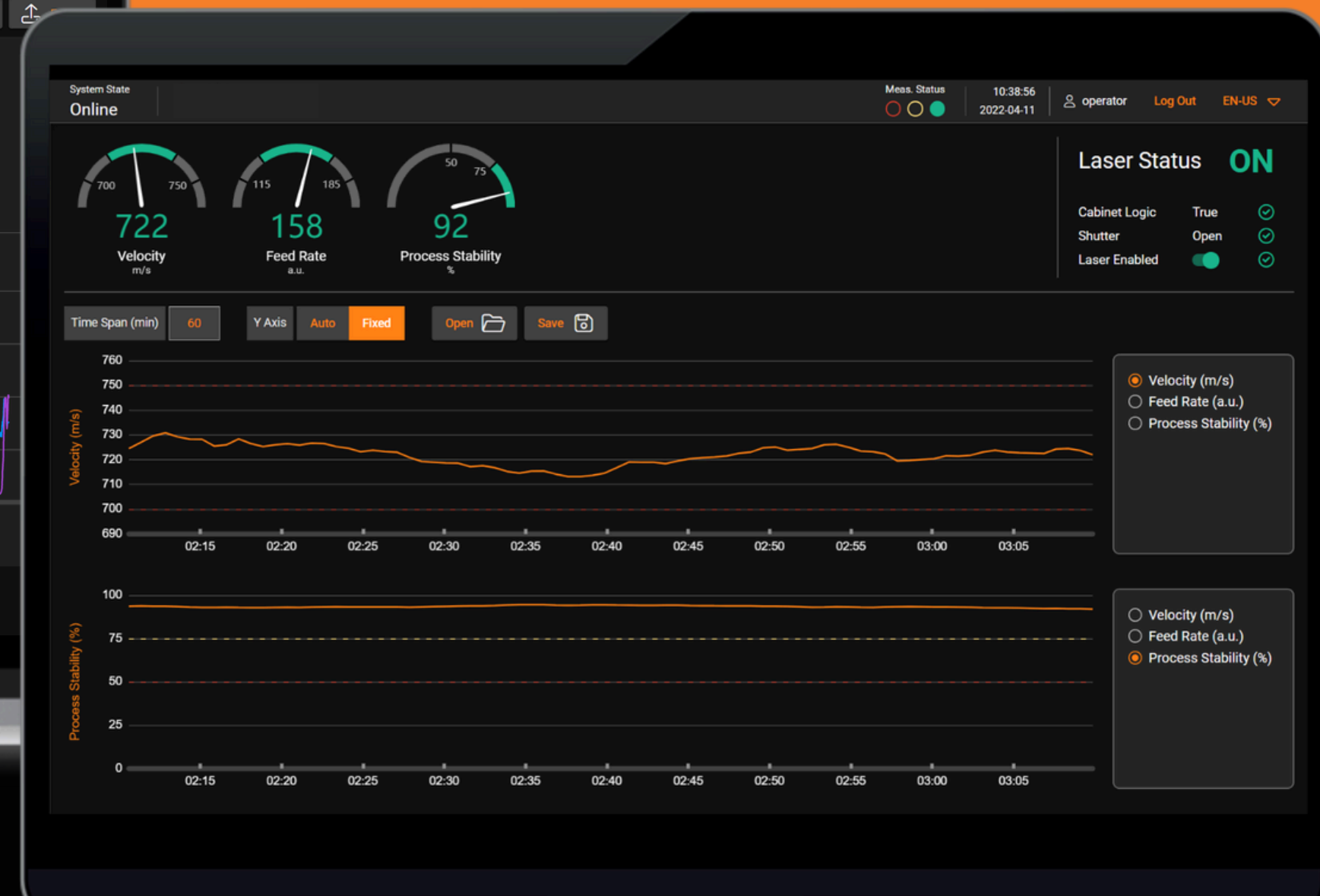
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what it measures

accuraspray CS

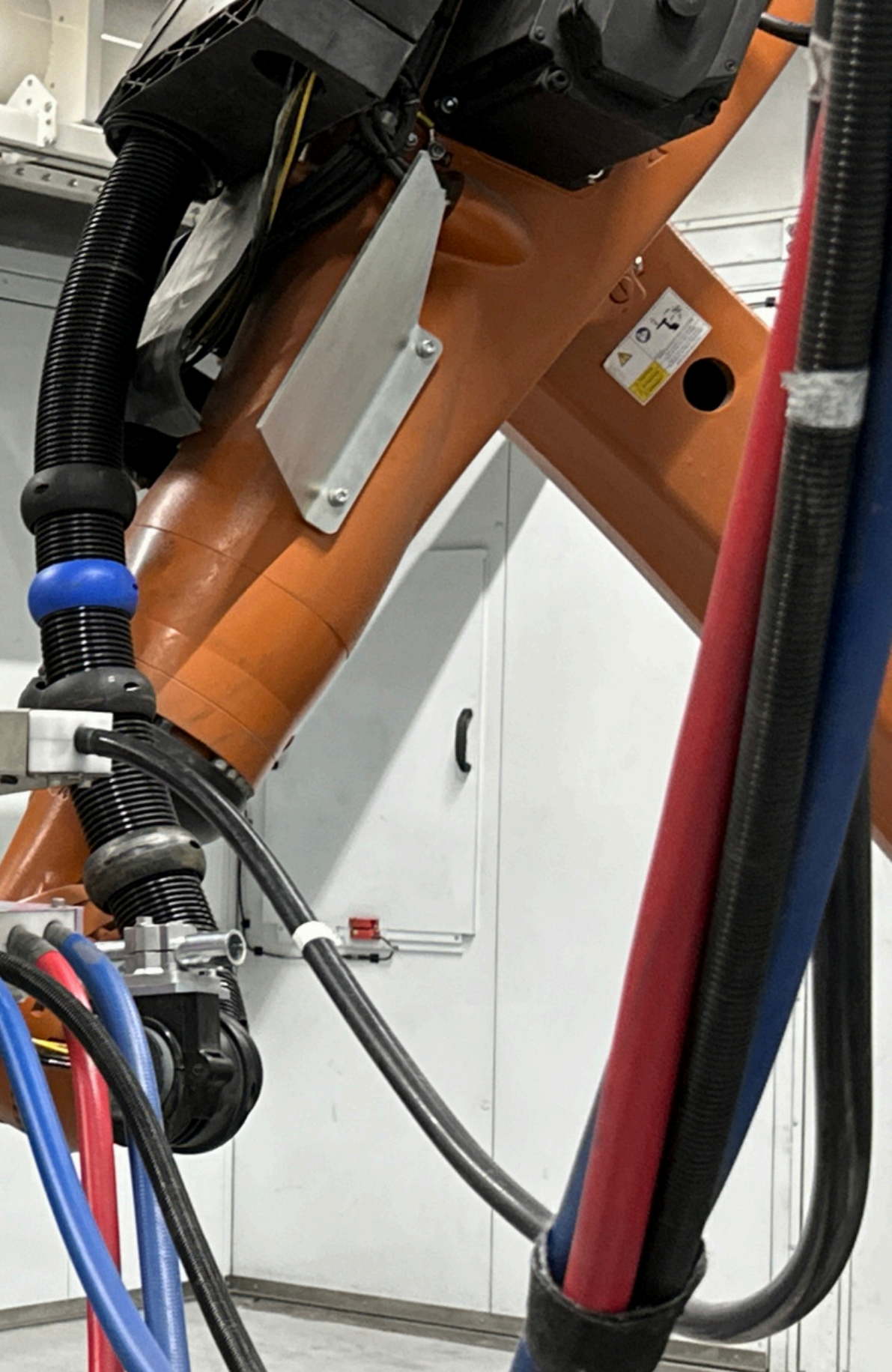
- relative feed rate
- in-flight particle velocity
- substrate temperature

real-time monitoring



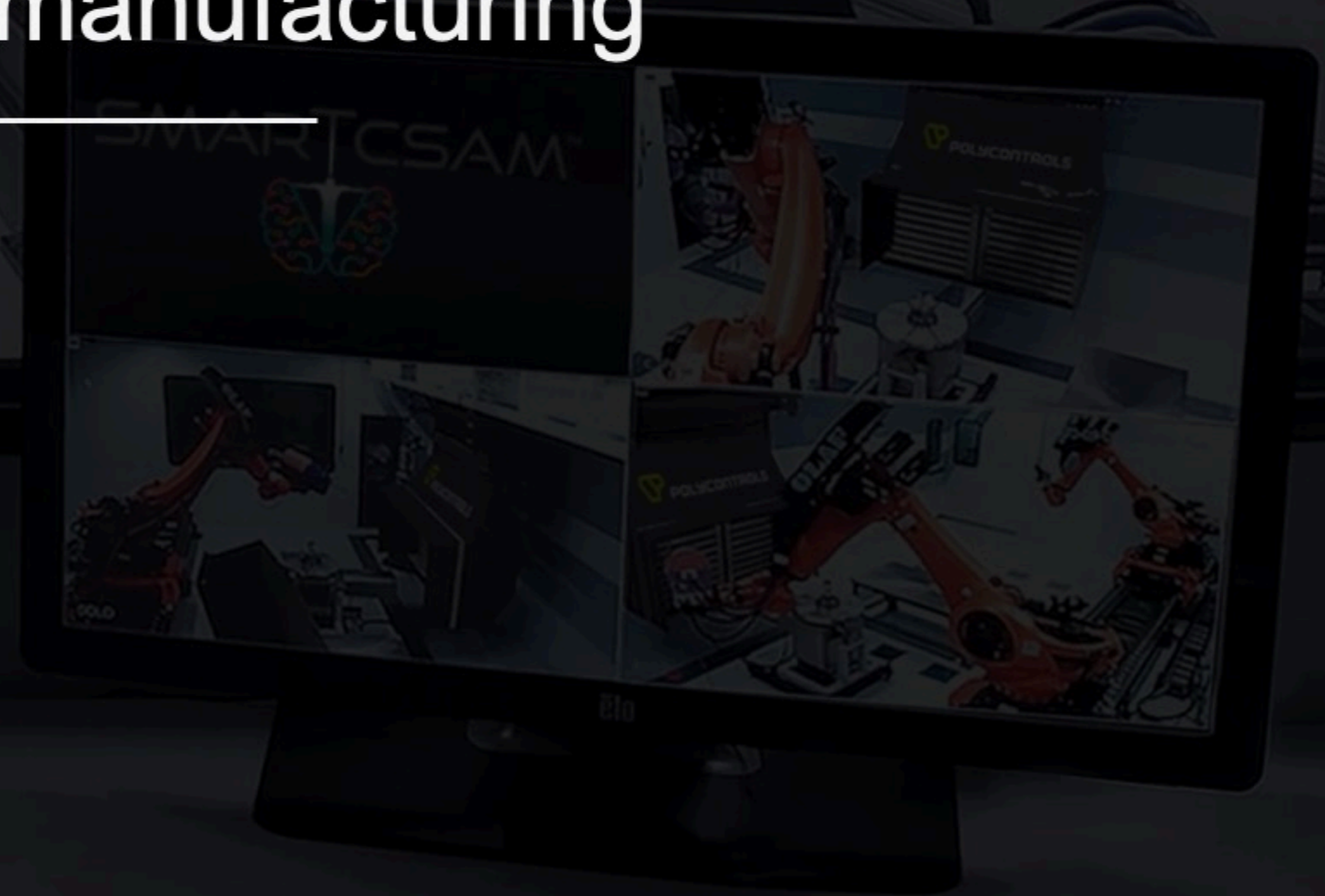


POLYCONTROLS





Metal additive manufacturing



Who are we?



Sustainable innovation. World renowned services.

- Since 1982
- 2 Facilities
- 40 employees
- Highly qualified multidisciplinary team
- Innovative technologies
- Strong collaborative network

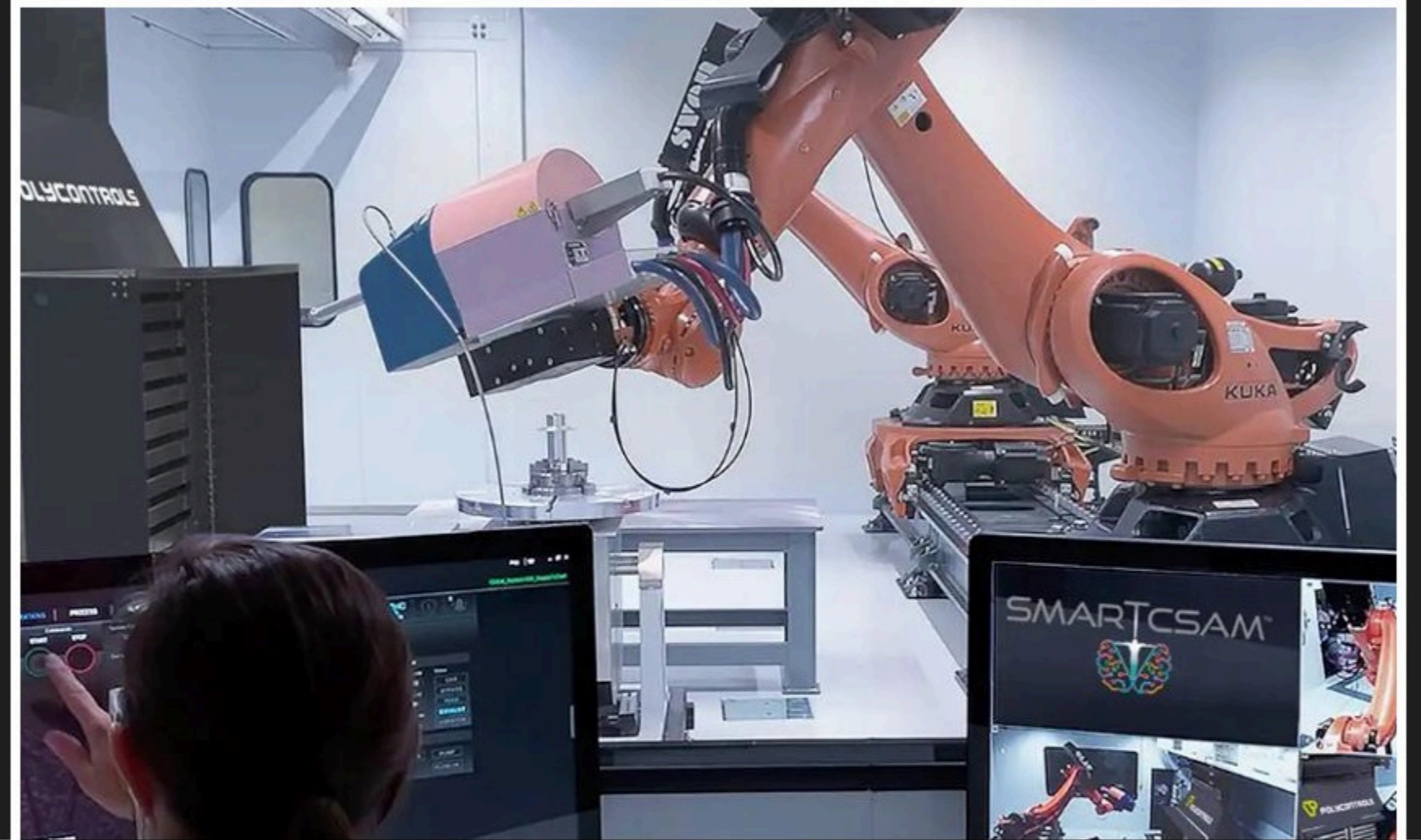


Our expertise



Flow measurement and control

- ✓ Instrumentation
- ✓ Engineering and manufacturing of integrated systems
- ✓ Flow meters calibration



Metal additive manufacturing

- ✓ Repair, manufacturing and revalorization services
- ✓ Engineering and integration of cells and systems
- ✓ Specialized equipment

Our accreditations



**Your assurance of quality,
rigor and reliability.**



Guarantees the highest levels of safety and reliability for aerospace products and services.



Accuracy and reliability of calibration and testing results guaranteed.



- High-quality service guaranteed.
- Rigorous quality management system.
- Internationally recognized continuous improvement process.



- Compliance with Canadian and American standards.
- Safety and Electrical conformity of our integrated systems.



Registered in the Government of Canada's Controlled Goods Program. Defense Industry.

Confirming adequate particle's velocity



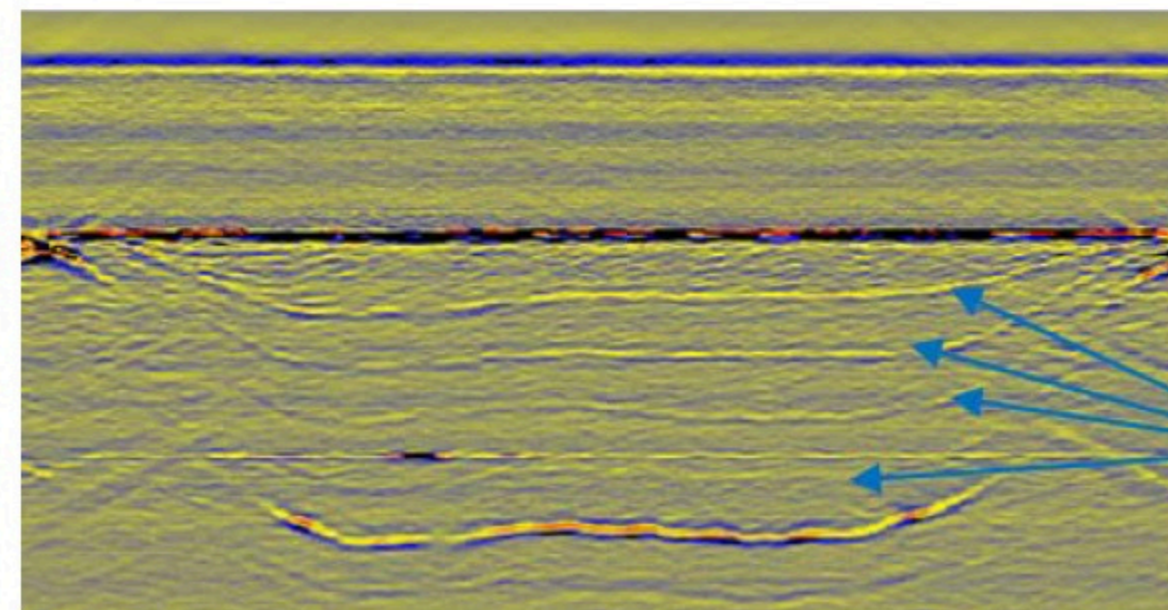
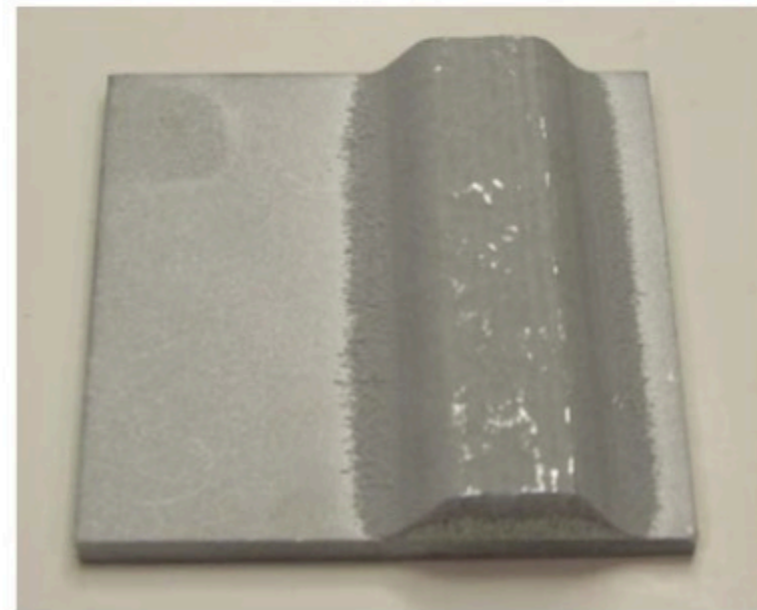
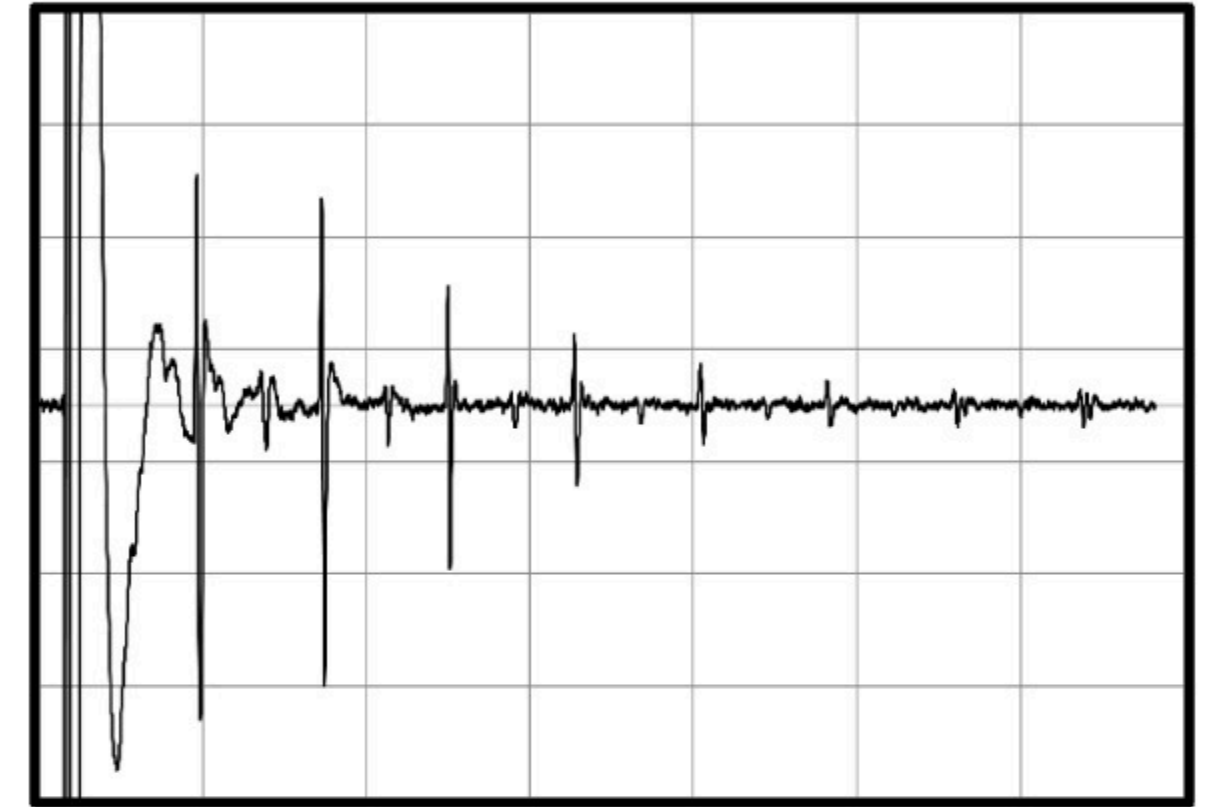
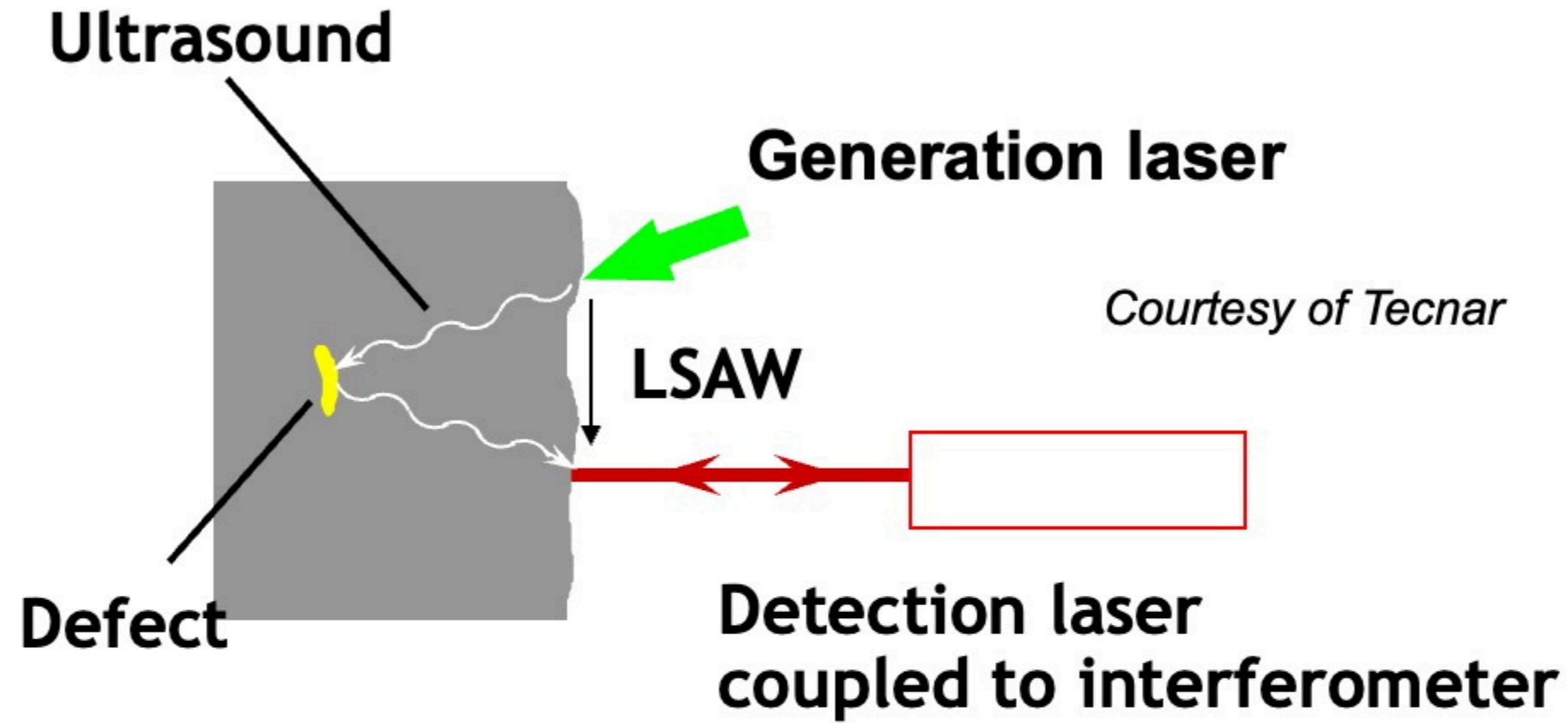
- Cold spray being a kinetic energy-based process, measuring & controlling sprayed particles velocity is CRITICAL.
- The **AccurasprayCS** (Tecnar, Qc, Canada) is a very reliable & repeatable system that we use every single spray run to confirm that particles have reached their critical deposition velocity.

IoT (Internet of Thing) are key to industry 5.0 process control

- The system has been seamlessly integrated into our **SmartCSAM** control platform, that way velocity data can be saved in the central repository (historian).
- At **Polycontrols**, we strongly believe that non-destructive sensors add significant value to process ruggedness and control.

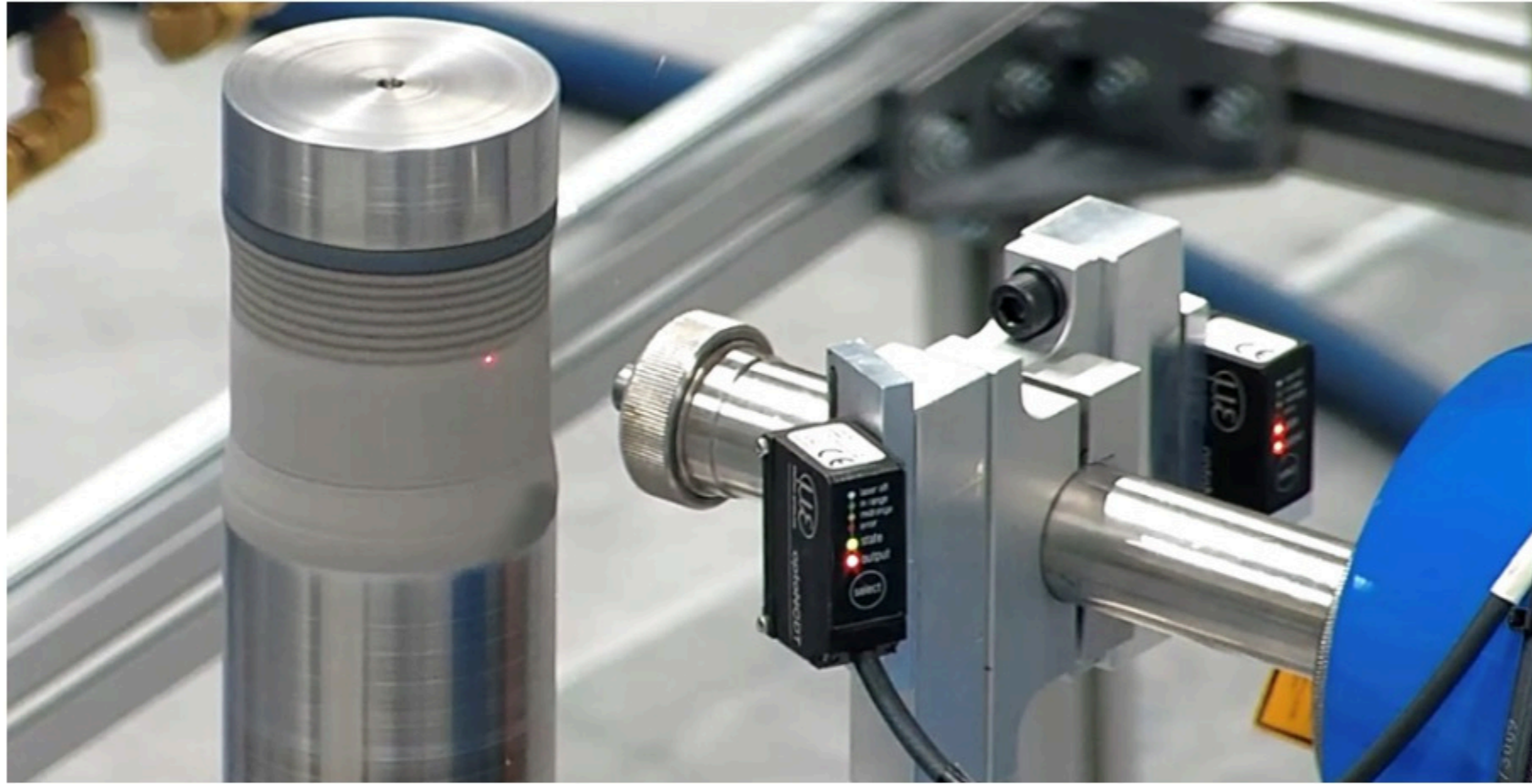


Laser ultrasonics to identify defects, interfaces or porosities



Courtesy of NRC

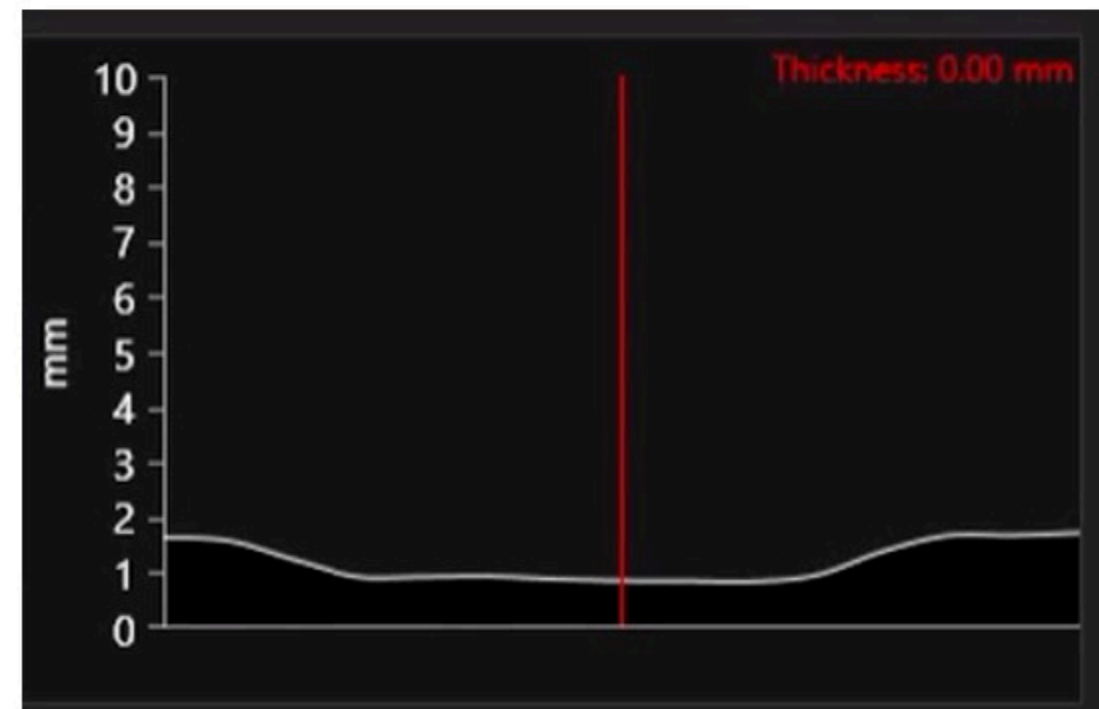
Dimensional characterization & stand-off control



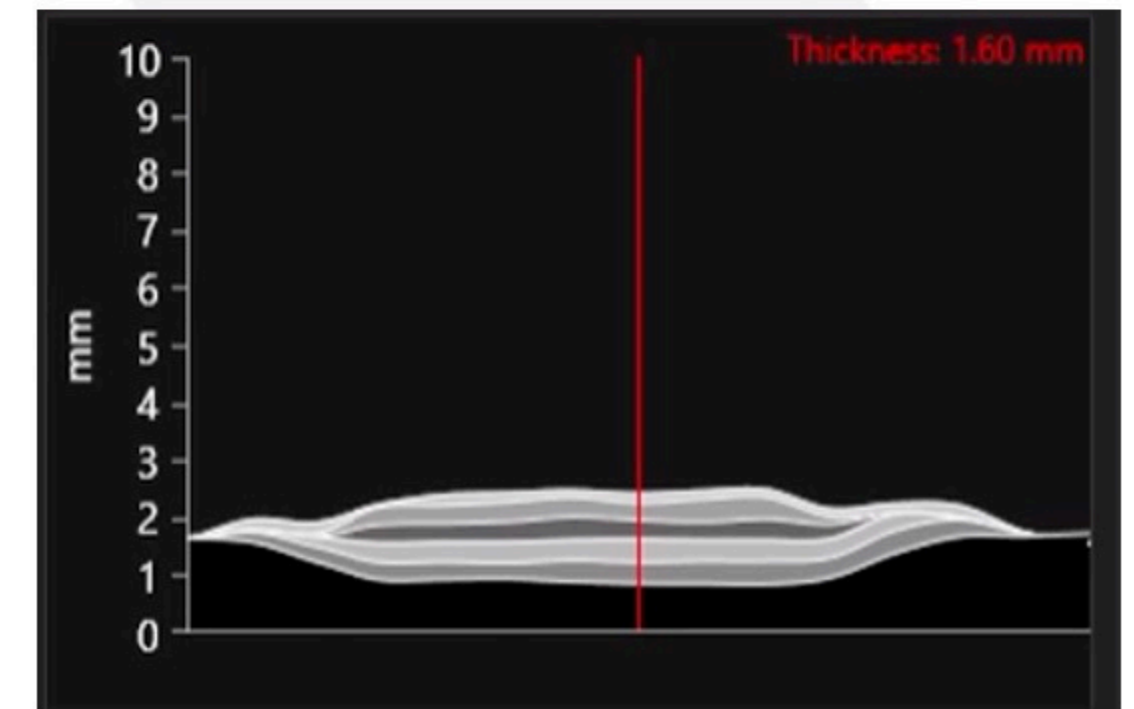
- Ensuring constant spray distance (SOD) and spray angle.
- Scanning to obtain initial surface **profile** prior to spraying.
- Knowing how much has been put down (online **thickness** measurement).



Automatic stand-off control



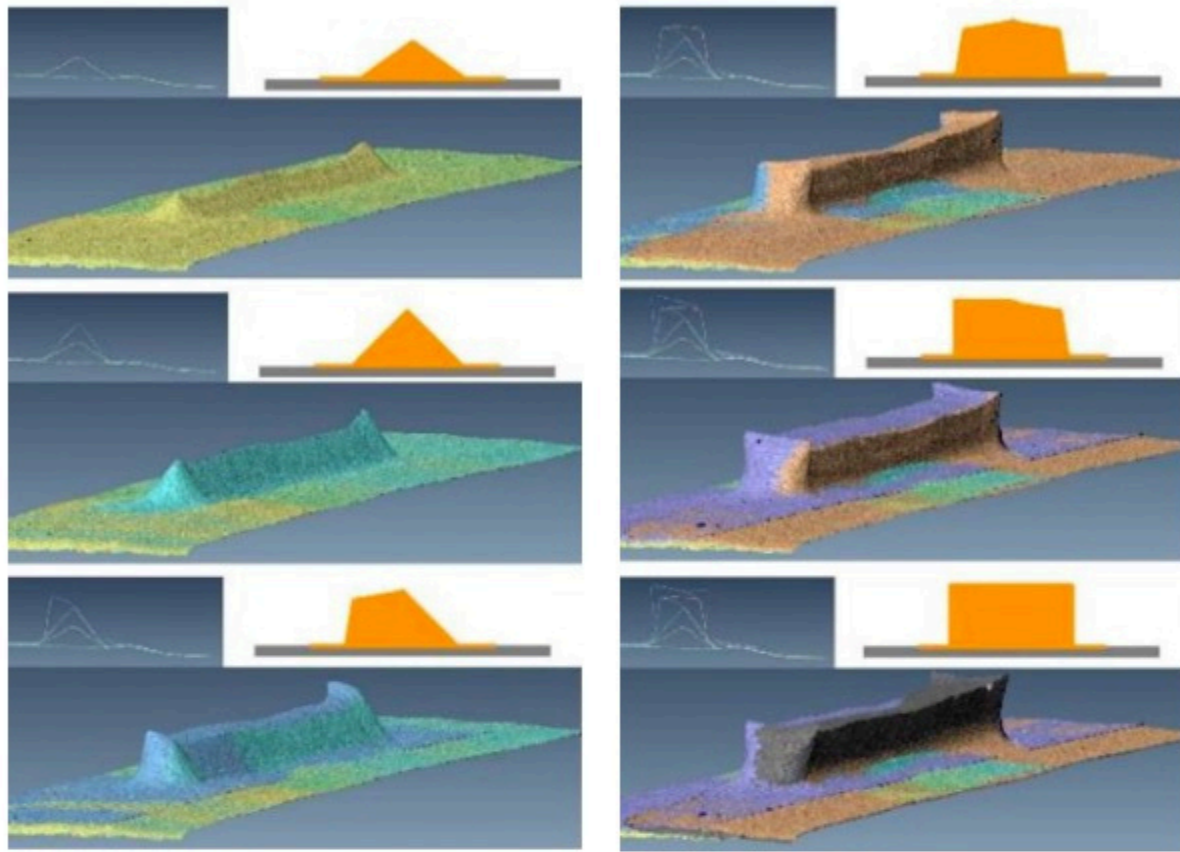
Online base profile measurement



Online thickness measurement



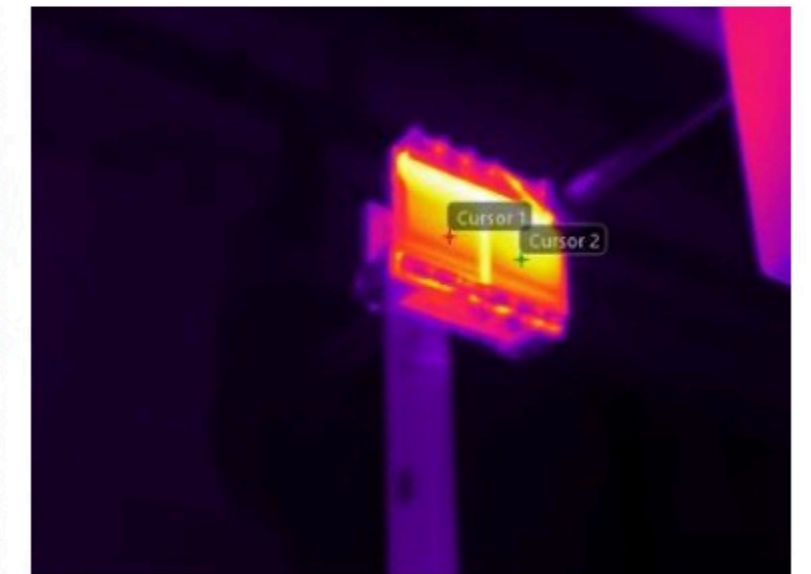
Other sensor integrations in the works...



OCT - Optical Coherence Tomography applied to build-up profile characterization

(CSAM Industrial R&D Group, NRC-Canada)

IR imaging to monitor and control thermal state/history of the part




Acoustic devices to monitor nozzle state






| **questions?**

pre-process



spray parameters
+
equipment consumables
(maintenance)

in-situ



inflight characteristics
(camera feed, pyrometer, velocity, acoustic, etc.)

post-process




coating properties
(lab data: porosity, hardness, etc.)

accuraspray HUB



process window & refinement



suggested adjustments & maintenance

launching at ITSC Vancouver May 2025

The interface displays recipe configurations and a 3D scatter plot of process parameters. The left screen shows two recipes, SM5847 and CM343, with their respective powder, gas, and projection settings. The right screen shows a 3D scatter plot of Velocity (m/s), Temperature (°C), and Hardness, with a summary table below it.

Velocity (m/s)	Temperature (°C)	Hardness
Average 625.960	Average 1931.775	Average 1822.778
STD DEV 19.914	STD DEV 26.598	STD DEV 2605.936
Min 556.794	Min 1848.029	Min 1102.000
Max 668.023	Max 1977.384	Max 12564.000

accuraspray HUB



contact us to learn
more



Jean-Nicolas
Robert

tecnar



Luc
Pouliot

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