

PFI Linspray[®] Process Monitoring



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PJFI Prozestiber wachang LINSPRAY®

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PFI LINSPRAY[®] Process Monitoring

(Particle Flux Imaging)

Principal functionality of PFI:

Particle Flux Imaging (PFI) is a diagnostic tool for all kinds of thermal spraying processes.

The system images at the same time by means of a fixed camera unit the very luminous carrier medium close to the torch as well as the less luminous particle flux in the downstream zone before and after a spray period. A computer reduces the information contained in the images of the hot gas jet and of the particle flux by attributing ellipses that characterize with their typical quantities the actual state of the coating process. Therefore ellipse characteristics for an in advance defined, optimal process as comparative quantities (reference) are permanently compared with the ellipse characteristics out of the ongoing process. By this one can determine variations in the hot gas jet as well as in the particle flux.

Principal procedure of PFI:

The process is accepted as free of error if there is no deviation detected during a complete coating cycle, i.e. no deviation before coating and no deviation after coating. Because of the short time for the measurement and process analysis the stand by position of the torch can be used as measurement position mostly. As a result a very sensitive quasi in-situ detection of changes in the hot gas jet and in the particle flux is possible.

Characteristics of the systems:

- before/after process control
- complete result
- simple program use
- no process disturbance
- low amount of maintenance

Application fields:

- plasma spraying
- HVOF/HVAF

- measurement time and result $\sim 5 ext{s}$
- fully automatic camera
- robust set-up
- small integration effort
- VPS- suitable
- wire spraying
- flame spraying

Technical description:

Computer unit:

industrial Panel- PC with touch screen 3½" disc, CD- Rom, USB, LAN10/100Mbits keyboard and mouse integrated camera control unit digital ports (SPS- standard): 3 x OUT, 1 x IN, 5...24V Windows 2000 Professional/Windows XP

Camera unit:

automatic adjustment	: of
- iris - fe	ocus - zoom
- filter - iı	ntegration time - shutter
dynamic of camera:	0.110Lux
mass:	5.4kg
dust protection:	IP65 DFI
dimensions $(I \times w \times h)$): 375 x 250 x 90mm
distance camera - pro	ocess: I2m

Software:

- PFI Process Monitoring
- up to 4 independent ellipses
- easy process adjustment by just one button
- flexible communication protocol (OPC, DDE, TCP/IP)
- suitable for remote control
- host/client functionality
- data export compatible with Microsoft Excel

