



AN INSIDER'S PERSPECTIVE

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Visions of the Future

Part one of a two-part series on the past, present and future of shot peening and blast cleaning from industry leaders, including Michael Brauss, Dominic Cimino, Jim Harrison, Scott Nangle, Alain Portebois, Jim Whalen and Ron Wright

IN A WORLD littered with terms such as “the internet of things,” “big data”, and “industrial internet,” one often wonders about the position of our relatively small surface preparation world. What revolutionary changes in the past 20 years impacted it? What is its future? Unless retirement is imminent, what should we anticipate and prepare for? The 2015 USA Shot Peening Workshop provided an ideal opportunity to speak with some of the industry influencers about their thoughts on the shot peening and blast cleaning industry. I spoke with Jim Whalen of Progressive Surface, Ron Wright and Alain Portebois of Wheelabrator, Michael Brauss of Proto Manufacturing, Jim Harrison and Dominic Cimino of Curtiss-Wright/Metal Improvement Company and Scott Nangle of Empire Abrasive Equipment Company. This is a compilation of their assessment of its current state and vision for the future.

Evolutionary Milestones in the Past 20 Years

Peening equipment has truly evolved in the past 20 years: the sophistication of controls, prominence of specifications, new industry entrants and variety of applications have made the last two decades more dynamic than ever before. Our group was unanimous that computer controlled/monitored peening was the most significant milestone in the last 20 years. Each of them had their own valuable addition to this common opinion.

“Our business has seen closed-loop process controls and intuitive HMIs develop in conjunction with computer controls. Customers are also interested in a direct approach to velocity scanning with our ShotMeter G3 Particle Velocity Sensor,” said Jim Whalen of Progressive Surface. Listing ergonomics (cleaner and quieter equipment) and a smaller footprint as other aspects, Jim sees peening evolving as part of a larger lean-manufacturing set-up.

Wheelabrator is a manufacturer of wheel- and air-type cleaning and peening systems. Ron Wright, their Northern America Air and Wheelblast Peening Manager, said, “We have seen greater development in air over wheel-type equipment in the past few years, but that’s not the whole story. In addition

to hybrid machines (air and wheel in one cabinet), we are re-designing popular wheel machines for traditional peening applications with sophisticated controls, automation and material technology. This of course speaks to the needs of our customer base that is demanding this change in order to stay competitive with a repeatable process.”

Alain Portebois echoed Jim Whalen’s observation that velocity measurement and control are becoming more important to customers.

Scott Nangle, who describes Empire’s identity as “everything airblast,” commented, “Our engineers identify accuracy, precision, automation and controls as evolutionary milestones both in cleaning and peening equipment. We are also experiencing greater customer involvement in validating peening and grit blasting applications before and after a sale. There is no doubt that computer controls and process engineering have become as important as the actual equipment itself.”

“Validation essentially is a means by which multiple customer facilities stay uniform with expected results, cycle after cycle. It also removes the ambiguity from those applications the customer has not worked with in the past,” added Nangle. This is a sentiment that also forms the basis of specification conformance in our industry.

Michael Brauss of Proto Manufacturing builds X-ray Diffraction (XRD) equipment and provides in-house XRD services. “More and more customers from North America and overseas are sending their parts to our labs to measure residual stress. XRD is certainly catching on as a critical, additional step for customers that validate their peening results,” said Brauss. “Computer-monitored peening and robotics have changed the level of sophistication in the peening world, and XRD measurements are downstream of this value chain,” he added.

Jim Harrison and Dominic Cimino of Curtiss Wright/Metal Improvement Company are experts in providing shot peening and laser peening services to many industry sectors. According to Harrison, “We provide our services to a wide

variety of industries including sophisticated markets such as Aerospace and Defense. Being a service provider, our equipment has to be flexible enough to handle part variety while at the same time conforming to specification and audit requirements.” Dominic Cimino, who is in charge of multiple facilities in the northeastern United States, said, “Specification conformance and process control are the two main evolutionary milestones our business has seen over the past few years. Our customers, particularly in Aerospace, have led our business into this progression over the years.”

New Adopters?

“Aerospace and Automotive are the traditional users of peening equipment with Medical joining in the recent past, and we don't see new users that could match this growth for our industry,” said Jim Whalen. He was quick to add, “That said, current users are expanding the limits of their existing machines and applications by adding new components to the process.”

Commenting on new adopters, Ron Wright said, “Our cleaning equipment continues to bring new industries into our database of users. Also, grit blasting equipment has grown in control sophistication, particularly in Aerospace.”

“Empire continues to see new industries adopting blast cleaning equipment, and the oil and gas industry are shot peening more components. Additionally, traditional industries are converting from manual to automated cleaning equipment,” said Scott Nangle.

Jim Harrison and Dominic Cimino feel a mix of industries have used their shot peening job shop services over the years. “New industries haven't approached us with significant volumes of parts to be peened,” explained Cimino.

Michael Brauss said, “We provide XRD services to industries that don't use shot peening. In terms of post-peening XRD, we have seen an increase in users from outside the traditional industries of automotive, aerospace and medical, such as power generation, structural (bridges and buildings) and the resource-based industries.”

What's Next?

It was interesting to get perspectives from equipment manufacturers and service providers. No discussion about the future can commence without appreciating where we came from and this discussion was an attempt at exactly that. Our journey thus far has brought us to the present with these questions: Where is this industry headed? What features are users going to seek in their equipment? Are our Industry Influencers concerned about the future? With the high level of equipment sophistication that ensures conformance, are specifications going to be relaxed? Will alternate materials eliminate the need for shot peening, at least for some components? Will alternate techniques displace shot peening?

Follow on to part two of this discussion, in the spring edition of *The Shot Peener*, to read what these industry stakeholders had to say about such profound issues. ●

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