

Surface preparation with Technologies for Subsea & Fieldjoint Coating

Active corrosion protection and coatings are vital for longevity of pipeline integrity. The application of coatings is considered a standard practice to save pipelines from the damaging effects of corrosion. However, before a coating can be applied, the pipe surface needs to be prepared to ensure long-term protection. The direct correlation between the surface preparation and the coating performance is often underestimated. Nonetheless, according to NACE statistics, incorrect surface preparation is responsible for 75 % of coating failure.

Specialized in pioneering technologies for professional surface preparation, Monti developed a solution for both, cleaning the surface and simultaneously preparing it for further preventative treatment by various kinds of coatings. The Bristle Blasting technology has a few unique characteristics. The key feature is the Accelerator Bar (**Figure 1**). It temporarily halts and subsequently accelerates each bristle during rotation and causes it to increase the kinetic energy of the bristle tip impacting the surface. The U-shaped anchored bristles are sharpened in a precisely defined manner. Immediately after the bristle tips strike the surface they retract providing both corrosion removal and micro-identification that exposes fresh surface. In this manner, even resistant coatings, corrosion, scale, temper colors and other oxidation products presenting a challenge for grinding

tools can be removed easily achieving a near white or even white metal cleanliness. Depending on the material to be treated, the surface roughness up to 120 $\mu\text{m R}_z$ (4.7 mils) can be achieved while working with the Bristle Blaster®. In case of steel types used for pipe and plant constructions, roughness values lay between approx. 65 and 90 $\mu\text{m R}_z$. Another important effect of the Bristle Blasting process is that it excludes damaging of the treated surface. The bristle tips strike almost vertically against the surface removing rust and coating as well as leaving the treated material intact. Furthermore, heat generation in the process is negligible – consequently warming-up of the treated surface is avoided. An established forerunner in the industry, Monti has developed the Bristle Blasting technology even further. The Bristle Blaster Subsea (**Figure 2**) is Monti's new hydraulic underwater device. This water driven technology provides a profiled surface which is dense, regular, and angular for mechanical bonding of protective materials against subsea or splash zone corrosion. Connected with a power unit via a single neutrally buoyant high-pressure hose, the Bristle Blaster Subsea creates a surface preparation grade comparable to Sa 2 ½ up to Sa 3, with roughness levels up to 50 $\mu\text{m R}_z$.

The Cleantech Prepper (**Figure 3**) is Monti's another recent development. That is the most advanced system in surface preparation. Enabling optimal coating performance through a

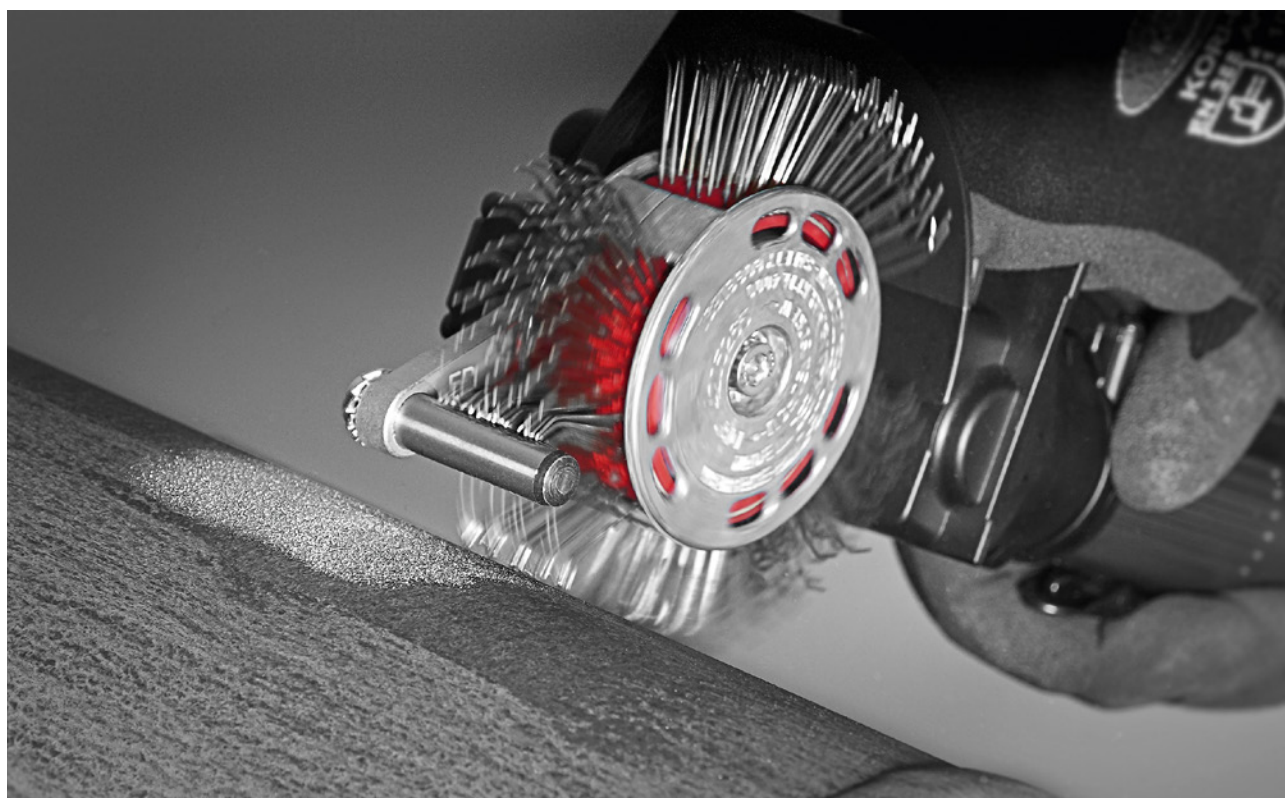


Figure 1: Bristle Blaster 23 mm Belt and Accelerator Bar

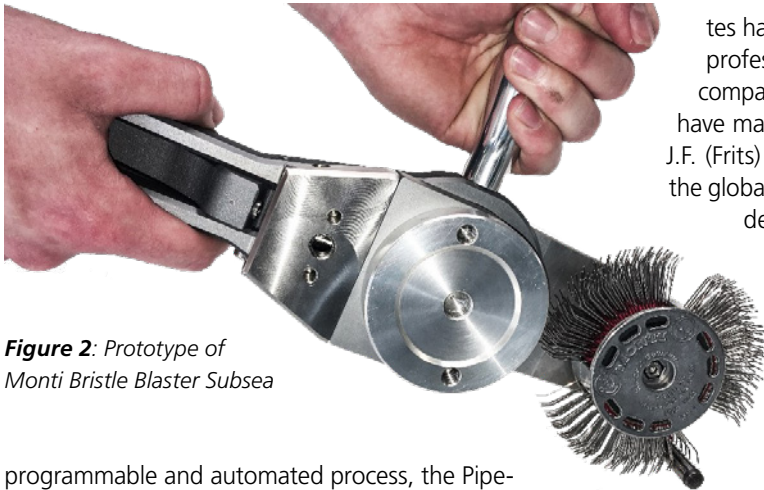


Figure 2: Prototype of Monti Bristle Blaster Subsea

programmable and automated process, the Pipeline Fieldjoint Prepper provides a constant and reliable roughness profile to the substrate surface. The system delivers regular peak height and peak density through an automated, programmable process and can be monitored to auto-adjust to the defined profile grades. Up to 4 times faster than the conventional blasting methods [1 m² surfaces cleaned in 127 sec. vs. 518 sec. by conventional blasting] and with adjustable and self-sharpening bristles, the Prepper provides longer life per m² and achieves very attractive cost efficiencies over larger surfaces.

Using all three tools is really very simple. Due to low vibration and sound pressure generation and the fact that no elaborate protective clothing is needed, the tools remain very safety-relevant and user-friendly. Besides, in the era of increasing environmental protection awareness, the Monti technologies can truly score. Compared to traditional abrasive blasting processes, no remains of sand or rust particles are smeared or rubbed into surface during Bristle Blasting. This feature makes the technology very environmentally friendly and cost effective since no transportation or recycling costs for contaminated blasting media are caused.

MontiPower Group, Monti Werkzeuge GmbH is a mid-size German company that engineers, manufactures and distribu-

tes hand-held tools and automated machine systems for professional surface preparation. Founded in 1987, the company develops innovative patented technologies, which have made it a key player in the sector. The CEO of Monti, J.F. (Frits) Doddema has more than 20 years' experience in the global industrial coating industry. All products are original designs and provide clear advantages to their users.

Monti is ISO certified and distributes its technologies across a wide variety of industries through a global network of partners. In the United States, the Monti Group is represented through MontiPower Americas, Inc. This 100 % daughter is a result from a combination of Monti Tools Inc. with Montipower, Inc. under the leadership of Charles "Chuck" Lockard. The businesses were combined on January 1, 2019. MontiPower Americas, Inc. is based in Manassas, Virginia. From our subsidiary in Houston, Texas, Monti serves the surface and coating inspection industry under the name of M.Test.

For more information, please visit www.montipower.com, www.m-testco.com, www.mbxit.com



Figure 3: Monti Cleantech Prepper



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