

# MONTIPOWER

JUST **MBX** IT!

- Coating and Scale Removal
- Weld Cleaning and Roughening
- Decontamination
- Surface Preparation
- Texturing Applications
- Corrosion Removal

## THE MBX<sup>®</sup>

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# BRISTLE BLASTER



Introducing the MBX Bristle Blasting System – an innovative surface preparation and maintenance solution that removes corrosion and generates an anchor profile in a single step.

# MBX Bristle Blasting Technology Simultaneously Removes Corrosion and Generates Anchor Profile

## Process Description and Principles of Operation

The bristle blasting process is a new innovation that both removes corrosion and generates an anchor profile by using a specially designed rotary bristle tool. This tool consists of hardened wire bristle tips that are bent forward and dynamically tuned to a hand-held power tool which operates at approximately 2,500 rpm. The mechanical principles upon which the bristle blasting tool is based are summarized as follows: Bristle tips are designed to strike the corroded surface with kinetic energy that is equivalent to standard processes that use grit blast media. Immediately after the bristle tips strike the corroded steel surface, they retract (i.e., “rebound”) from the surface, which results in both corrosion removal and a micro-indentation that exposes fresh surface. Consequently, surfaces that have been treated by the bristle blasting tool have a texture and visual cleanliness that mimics those obtained by traditional grit blasting processes.

## Tool Performance and Life

Recently completed tests carried out at Marquette University, Milwaukee, Wisconsin, USA, have indicated that the bristle blasting tool can perform on a par with traditional grit blasting processes. That is, corroded/pitted steel surfaces have been restored to a near-white or white metal appearance after treatment. In addition, an anchor profile that ranges from 2.6 to 3.3 mil is routinely obtained on standard API 5L steel, which is commonly used for petroleum piping applications. This same testing program has also shown that corroded surfaces can be thoroughly treated at a rate of 1.1 m<sup>2</sup>/hr., which is well within the life of a single bristle blasting tool. Finally, the bristle blasting process simultaneously generates a compressive residual stress along the treated surface which, in turn, can increase the ability of steel to resist cracking, fatigue, and stress corrosion.

## Process Advantages/Benefits

Chief advantages of the bristle blasting process lie in its simplicity and in its economic advantages. The tool itself is driven by a light-weight hand-held power tool that can utilize either a standard electric power source or compressed air. Safety precautions taken by the operator are the same as those which apply to ordinary hand-held power tools; namely, wearing work gloves, suitable work-clothing and appropriate face/eye protection. The tool has excellent mobility, and eliminates the need for complex equipment, work-suits, breathing apparatus, and grit-recovery systems that are commonly required for ordinary abrasive blasting processes. In addition, the bristle blasting process is eco-friendly, and does not use or generate hazardous waste, thereby providing a “green” approach to corrosion removal and surface preparation of steel components.

## Common Applications

Although the bristle blasting process is ideally suited for spot-repair applications, it can also be readily applied to larger surface areas where the use of other metal cleaning processes may be prohibitive. The process provides an efficient means for the removal of corrosion, mill scale, defunct protective coatings, and for post-weld cleaning operations. These applications frequently arise in a wide range of fabricating and infrastructure-support operations, such as onshore/offshore well drilling installations, bridge refurbishment, and the fabrication and repair of naval/marine vessels and industrial maintenance applications.

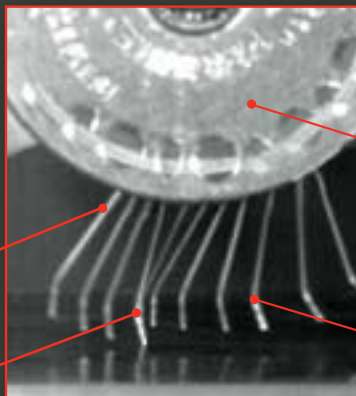
# The Bristle Blasting Innovation

- ▶ Bristle Blasting is a new process that uses a specially designed rotary bristle tool for achieving both corrosion removal and an anchor profile.
- ▶ The rotating bristles are DYNAMICALLY TUNED to the power tool which results in impact and immediate retraction of the bristle tips from the corroded surface.
- ▶ The bristle tips strike the corroded surface with kinetic energy that is equivalent to grit blast media, generating a texture and visual cleanliness that mimics the grit blasting process.
- ▶ Bristle Blasting simplifies the surface preparation operation and reduces expense through the elimination of expensive equipment, media and extensive environmental and safety measures.

**Time-exposed high-speed photography of single bristle illustrating the approach, impact, and retraction of bristle tip from steel surface.**

Incoming Bristle Tip

Bristle Tip Contact/Impact



Hub

Bristle tip rebounding/retraction (after impact)







**Demonstrated Performance in Corrosion Removal**



API 5L Piping



- Bristle Blaster
- Near- white/white metal
- 1.1 m<sup>2</sup>/hr



• 83 R<sub>c</sub> (3.3 mil)

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# The MBX<sup>®</sup> Bristle Blaster Advantage

The MBX Bristle Blaster offers distinct advantages over conventional surface preparation methods and will yield superior results – with far less time and effort.

- 1 Removes corrosion, coatings, mill scale and other contaminants - without removing healthy material
- 2 Generates anchor profiles ranging from 2.5 to 3.3mil on hardened steel – also on weld seams, edges, around bolts and on surface irregularities
- 3 Restores corroded and pitted surfaces to near white metal or white metal appearance - no grinding or polishing during operation
- 4 Improves integrity of treated surface - generates compressive residual stress for crack growth resistance, improved fatigue life and improved corrosion resistance
- 5 Cleans and profiles quickly and economically with long lasting, safe Bristle Belts – eliminating the need for costly abrasive blast equipment
- 6 Suitable for spot repairs as well as larger areas where other processes are prohibitive – will not use/produce hazardous material



**Conventional  
Grit Blasting**



**Newly Developed  
Bristle Blaster**

	<b>MBX Blaster Pneumatic</b> USSP-06	<b>Free Speed:</b> 3,500 rpm <b>Required Air Pressure:</b> 90 psi <b>Average Air Consumption:</b> 4 cfm <b>Interior Air Hose Size:</b> 3/8" <b>Weight:</b> 2.4 lbs <b>Warranty:</b> 6 months
	<b>MBX Blaster Electric</b> USSE-06	<b>Free Speed:</b> 3,200 rpm <b>Voltage Rating:</b> 120 v +/- 10% <b>Amperes:</b> 4 amps <b>Weight:</b> 4.0 pounds <b>Warranty:</b> 6 months
	<b>MBX Bristle Blaster Set</b> USBU-110-11 11 mm width	0.7 mm spring steel angled, ground and heat treated tips OD: 115mm
	<b>MBX Bristle Blaster Set</b> USBU-110-23 23 mm width	0.7 mm spring steel angled, ground and heat treated tips OD: 115mm
	<b>MBX Adapter System</b> USAS-009-11 11 mm width	Made of high quality die cast aluminium, with safety elements
	<b>MBX Adapter System</b> USAS-009-23 23 mm width	Made of high quality die cast aluminium, with safety elements
	<b>MBX Bristle Blaster Set</b> USSP-06-02 Pneumatic	<p>The MBX System combines ease of use, superior performance and safety of operation in a versatile tool that handles a wide variety of surface preparation tasks.</p>
	<b>MBX Bristle Blaster Set</b> USSE-06-02 Electric	

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