PLANT MATTERS

Why Use the Motoscreed® Vibratory Beam Screed

By Rob Beiersdorfer

Introduction

The Workmaster's revolutionary MOTOSCREED vibratory beam screed enables production of an exceptionally smooth surface and strong below-surface structure prior to final concrete finishing operations. This vibratory screed provides numerous advantages when compared to other standard screeds. Use of the MOTOSCREED not only provides one of the most completely flat, void-free surfaces, but also yields significantly increased levels of employee safety and productivity, superior finish, and increased strength of the concrete bed.

How It Works

In today's world of labor shortages, using the MOTOSCREED beam screed can help resolve labor issues by keeping employees injury-free while performing an otherwise difficult job. The innovative design has been specifically engineered to lessen the physical strain placed on employees when using a conventional screed. The MOTOSCREED vibratory beam screed is self-propelled by virtue of its design and use of counter-rotating, synchronized electric vibrators. Operators can safely and easily guide the screed along form rails without the normal strenuous pulling, pushing, and muscling. Our screed greatly reduces hand, arm, and back musculoskeletal disorders associated with the regular use of traditional manual screed equipment. The MOTOSCREED moves itself down the form with the operators only needing to guide it, rather than manually move it. The lessened physical strain on the operators yields not only a safer work environment for the employees with less time loss due to injury, it also can increase employee productivity through improved moral when realizing a physically challenging process has now become less strenuous and safer.

Additionally, the MOTOSCREED operates at a decibel level (<70 dBa) which does not require the use of hearing protection. This quiet sound level is achieved through the use of squirrel cage, induction motor rotary electric vibrators. Other vibratory screeds on the market generate vibration using noisy internal combustion engines (≥85 dBa). Not only is the MOTOSCREED quiet, it doesn't produce carbon dioxide

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or require the use of potentially hazardous workplace materials, such as gasoline and oil. When comparing the MOTOSCREED's quiet operation to other noisy vibratory screeds, it is easy to see why the MOTOSCREED is the preferred screed on the market today.

Screeding operations fill in large gaps and remove high spots when installing concrete. The MOTOSCREED enhances these operations through the use of linear force vibration. The synchronized electric motors produce 3600 vibrations-per-minute, which enables the MOTOSCREED to produce > 5g impact into the concrete surface. This applied linear vibratory force accomplishes a number of needed concrete finishing requirements. When the concrete surface is subjected to the MOTOSCREED's linear impacts, the exposed and shallow-depth aggregates are forced below the surface, an action which drives "cream" to the top. The use of the MOTOSCREED produces a nearly "finish-ready surface" free of voids and ridges due to the 3600 RPM vibration frequency. The applied vibration causes rapid movement of the concrete particles under the vibratory beam's area of influence. This movement causes even microscopic air bubbles to release their surface attraction to cement and aggregates. The release of air from the concrete mixture yields increased finished strength of the cured concrete and increased adhesion of cement mix to aggregates and rebar which are embedded in the concrete. It's also important to note that poured concrete can contain up to 30% entrapped air. The consolidation and removal of this entrapped air from vibration-treated concrete finishing results in more homogenous concrete. The concrete will become stronger and more durable, have fewer cracks and voids, and the surface will have an improved finish with fewer visible flaws, while the below-surface material compacts and flows into voids. Further, vibration frequency imparted under the MOTOSCREED's flat beam surface temporarily liquifies the "cream" and causes ultra-fine particles of cement to release extremely small surface air pockets. The release of this entrapped surface air enables the MOTOSCREED to produce an exceptionally durable and hard-surface finish, and an exceptionally strong depth of structure of the poured concrete.

Final Thoughts

Vibration is the key to dispersing aggregate and filling air pockets; thus, the end result is a stronger, more uniform slab. The MOTOSCREED vibratory beam screed's synchronized motors produce up to 1,320 lbf. This amount of linear force can consolidate to a depth of up to 12". If a jobsite requires 4,000 PSI concrete and the operators place it by hand or do not vibrate it, the maximum strength the concrete may reach is 3,000 PSI. Running the MOTOSCREED over the form as it vibrates the concrete to get the trapped air out will increase the concrete's strength, which is required in today's stringently governed process requirements. With the MOTOSCREED vibratory beam screed, the vibration covers the whole area, so you don't have hit-and-miss consolidation on the surface or in the structure.

The MOTOSCREED provides a modern, engineered approach to vibrating concrete to yield a superior product while at the same time enhancing employee safety and productivity.

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Thanks for reading our post. If you'd like to learn more about concrete vibrators and finishing equipment, please contact one of our Vibration Specialists at **+215-333-5600** or at **infocenter@airmatic.com.**