



**MORBARK®**

# VTECTION®

VIBRATION DETECTION SYSTEM





# ADDED PROTECTION FOR HORIZONTAL GRINDERS FROM CATASTROPHIC DAMAGES

The patent-pending VTECTION® Vibration Detection System monitors rotor vibration to reduce damage from contact with ungrindable objects or other causes of damaging vibration like an out-of-balance rotor, broken insert, or defective bearing. When coupled with Morbark's Break-Away Torque Limiter, dual hammermill protection - both mechanical and electrical - is achieved.

To use the VTECTION system, the operator sets an acceptable operating vibration level through the electronic controller. Since different feedstocks produce different vibration levels, the operator can quickly fine-tune the trip point to match the grinding application. Adjusting the trip point based on the feedstock can help avoid unnecessary stopping of the infeed from normal operating vibration.

Once the VTECTION system is triggered, Morbark's Integrated Control System (MICS) initiates several actions to remove the tramp material out of the rotor area. The sequence of these actions includes: reversing and stopping the infeed, bringing the engine speed to idle, disengaging the clutch, and a warning message is displayed on the MICS screen. At this time, the operator can inspect the grinder and remove the object that caused the trip before resuming operation.

With feedstocks ever changing, our equipment modes allow you to have settings tailored to that day's grinding application. The Vtection system will stay tied to those modes allowing the user to have various vibration profiles if desired.

This system will minimize the potential for damage when a non-grindable material enters the mill. If an un-shreddable object enters the grinding chamber while in grinding protection mode, the VTECTION system will sense the spike in vibration and instantly stop and reverse the infeed conveyor. By reversing the infeed conveyor, the VTECTION system lowers the rotor's chance of repeatedly striking the foreign object.

The system cannot guarantee a machine is without a defect. Always use caution after the system trips and service work begins, as other components may have experienced damage.



Installed Vtection System



Contaminates Removed



Minimal Damage to Insert/Tip

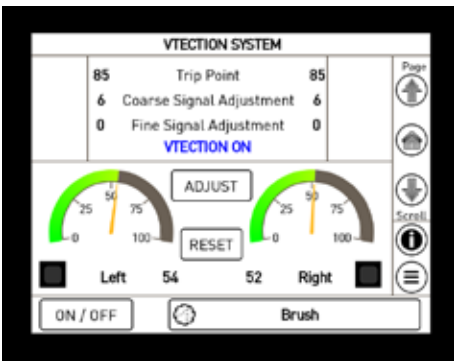


Figure 1 - Home Screen



Figure 2



Figure 3- Coarse Signal Adjustment

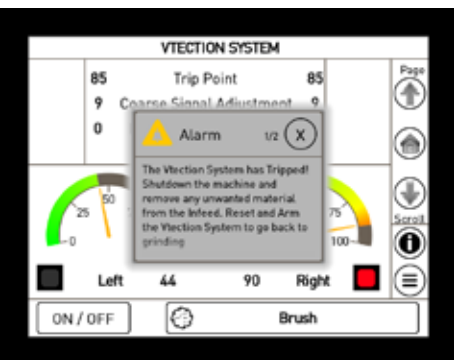


Figure 4 - Fine Signal Adjustment

## Trip Point

If this value is exceeded, the system will trip and Morbark Integrated Control System (MICS) will activate. The higher the Trip Point value, the more vibration required to trip the system. This value is set by the user by tapping Adjust and selecting left, right, or back up time on trip (See Figure 2).

## Coarse Signal Adjustment

This value is the coarse adjustment for signal reading. The higher this value, the more intense the signal will be, therefore increasing the idle reading. These setting should be calibrated when the engine is at high idle with the clutch engaged. As vibration levels on Drive vs. Driven can vary, ensure that each side is calibrated accordingly

## Fine Signal Adjustment

This value is the fine tune adjustment for the signal reading. The higher this value, the more intense the signal will be, therefore increasing the idle reading. These settings should be calibrated when the engine is at high idle with the clutch engaged. As vibration levels on Drive vs. Driven can vary, ensure that each side calibrated accordingly.

## System Status

Vibration Detection on/off (See Figure 3)

## Sensor Location and Status (See Figure 4)

Black=Operating; Red=Tripped

## System Power Button

Tap to turn system on. Press and hold for three seconds to disable.

## Reset

Tap reset to restart the system after a trip

## MICS Menu

Tap the menu icon in the far right column to get to the MICS menu.



Figure 6 - Trip message 2

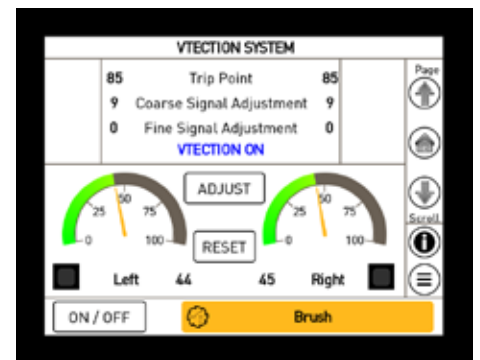


Figure 5 - Trip Message 1

Ship-out kits are available for in-field installations on preexisting 3000X, 3400X, and 6400X horizontal grinders. To find your dealer and place an order, go to [www.morbarkdealers.com](http://www.morbarkdealers.com) or contact Morbark sales at 800.831.0042 or additional information and pricing.



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