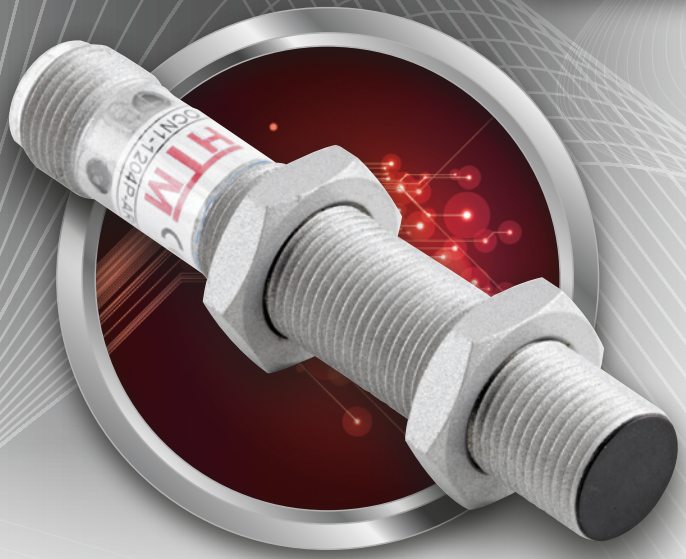
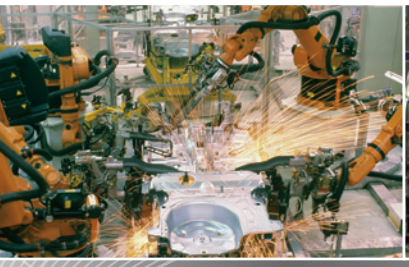


HTM™ SENSORS

White Paper

Eliminating **Unplanned Production Downtime**

Instances Due to Replacement of Sensors in Instrument Panel Beam Production Cell

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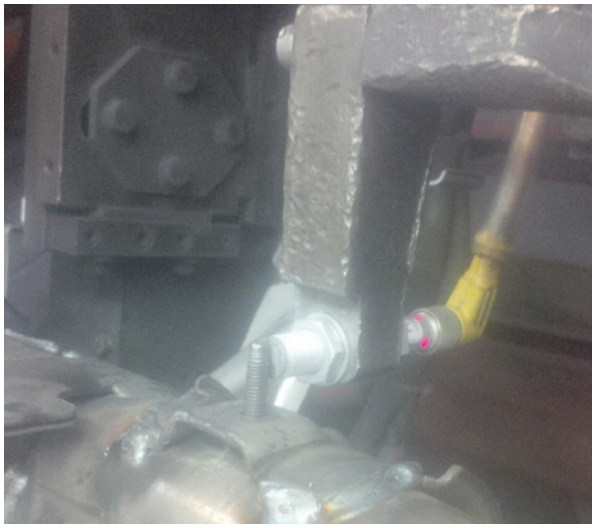
Eliminating Unplanned Production Downtime Instances Due to Replacement of Sensors in Instrument Panel Beam Production Cell

Continuous Improvement Opportunity:

The HTM Sensors Cost Reduction Vending System has identified that production line IP Beam had unplanned production downtime instances due to replacement of M12 Proximity Sensors, M8 Rectangular Sensors, and C-Slot Cylinder Sensors.

The IP Beam line is a robotic mig welding line that generates intense heat, weld spatter, and the opportunity for impact damage to sensors.

HTM performed an audit on the IP Beam line to determine which strategy will best eliminate costs and downtime related to this sensor application.



CI Opportunity 1:

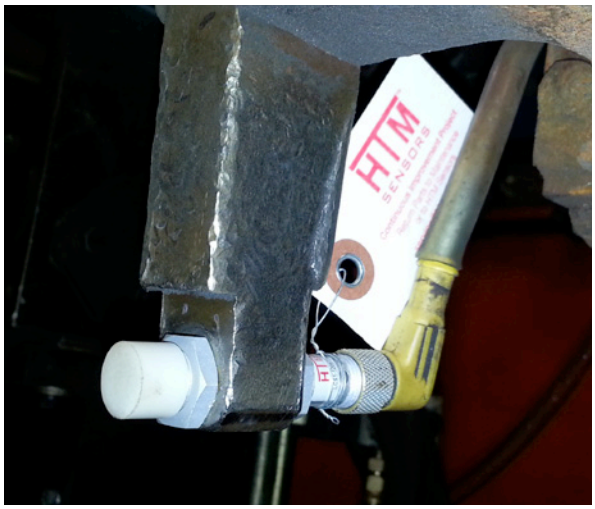
Discussions with maintenance experts while observing the IP Beam in action revealed that the majority of M12 sensors are being replaced in one application on the final station of the IP Beam line. The reason for sensor replacement in this high usage spot is impact with a stud on the finished part while the operator is loading it.

CI Implementation 1:

The current 4 mm range sensor was replaced with a MetalHead™ sensor with 6 mm sensing range. This will enable the sensor to be farther from the part it is detecting reducing the frequency of impact.

A sensor cap was installed to further protect the sensor face from any future impact.

The Maintenance Manager is having a bracket built to protect the underside of the sensor ensuring that the stud being detected will hit the bracket before hitting the sensor face.



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CI Opportunity 2:

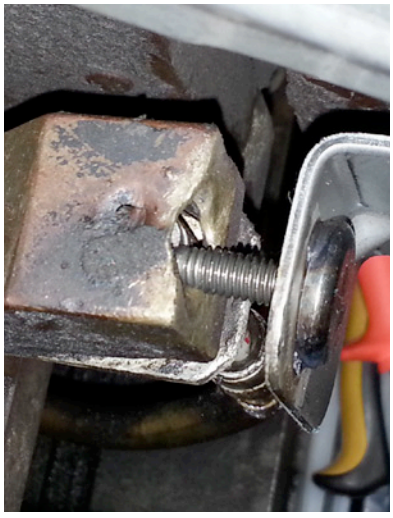
M12 Proximity Sensors are also being replaced in several application on the 2nd of the IP Beam line due to impact damage when the part is being loaded.

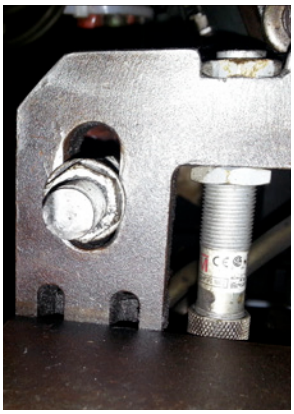
The head of the sensor is elevated above the opening lip and is thus exposed to impact from the stud as it is loaded. This repeated impact is leading to damage and eventual sensor failure.

CI Implementation 2:

A MetalHead™ Sensor with 6 mm range was implemented enabling the sensor to be mounted lower in the opening lip – partially shielding it from impact. A sensor cap was then installed to further protect the sensor face from any potential impact.

M12 sensor caps were also installed on exposed M12 sensors on the 2nd IP Beam Station.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Eliminating Unplanned Production Downtime Instances Due to Replacement of Sensors in Instrument Panel Beam Production Cell

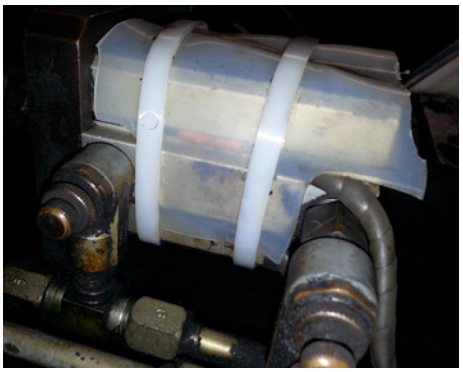
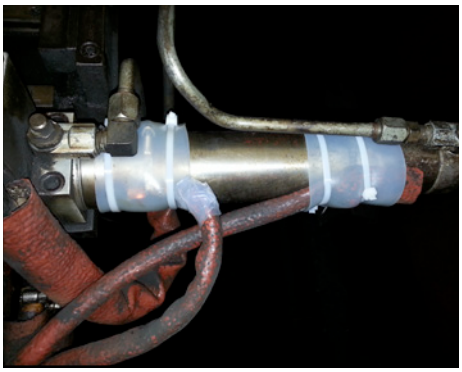
CI Opportunity 3:

C-Slot Cylinder Sensors are being replaced very frequently due to heat and weld spatter damage. One specific sensor on the final IP Beam station is being replaced daily.

CI Implementation 3:

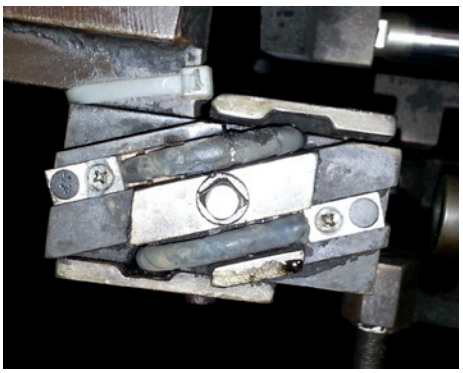
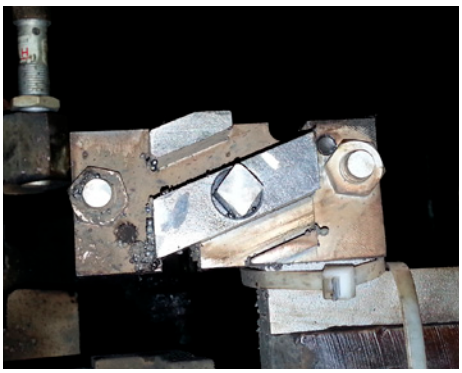
Silicone sheet was custom cut and wrapped around exposed cylinder sensors to protect them from heat and weld spatter damage. This technique has proven extremely effective at reducing cylinder sensor usage on other IP Beam lines.



CI Opportunity #4

M8 rectangular sensors are being replaced frequently on the 1st station of the IP Beam line in 4 specific brackets. They are being replaced due to heat, weld spatter, and impact/abrasion damage to the pig-tail cable.

The Maintence Manager has had a new mounting block created that will eliminate these rectangular sensors, using M8 cylindrical sensors instead. This enables the sensors to be better protected from impact and heat as well as eliminate the issues with cable damage due to impact.

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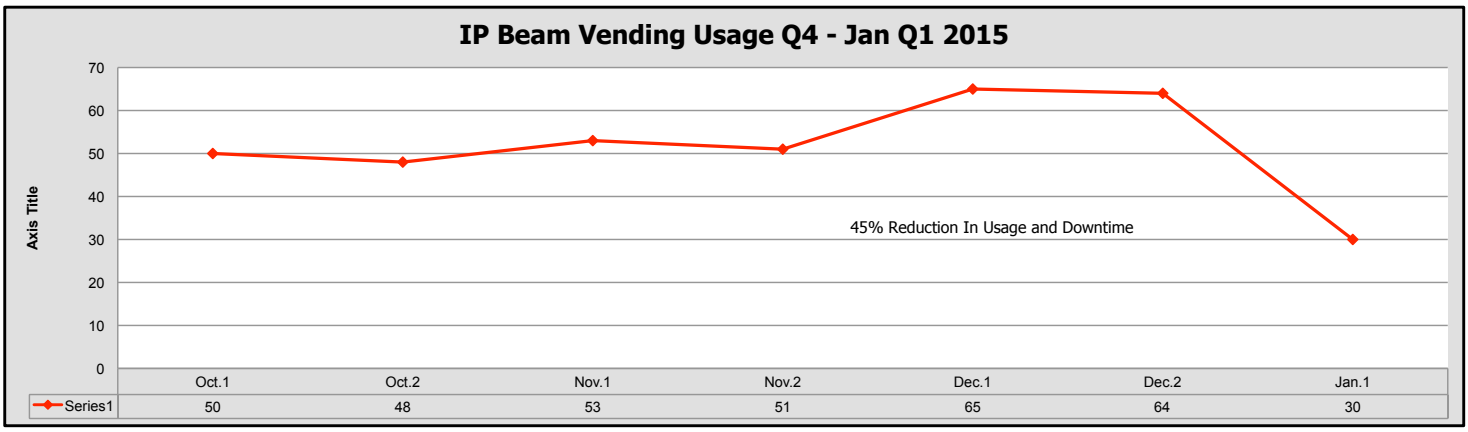
Eliminating Unplanned Production Downtime Instances Due to Replacement of Sensors in Instrument Panel Beam Production Cell

Result:

Implementation of Continuous Improvement recommendations has resulted in a **45% reduction in proximity sensor usage, cable usage, and production downtime**. **None of the sensor applications that were upgraded during CI implementation have been replaced.** All damages have come from applications that were not upgraded due to time constraints. Expanding Continuous Improvement initiatives on the IP Beam line will further reduce product usage and product costs while reducing downtime and improving productivity.



45% REDUCTION IN PROXIMITY SENSOR USAGE, CABLE USAGE, AND PRODUCTION DOWNTIME

0 UPGRADED SENSORS REPLACED

PROXWORX™
COST REDUCTION VENDING

DOWNTIME REDUCTION VENDING SYSTEM

TOTAL COST SAVINGS WITH CONSIGNMENT SERVICE

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- CONSIGNMENT STOCK
- CONTINUOUS IMPROVEMENT DATA
- AUTOMATED USAGE MONITORING

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