

## Manuvis in the Metal Fabrication Products Industry

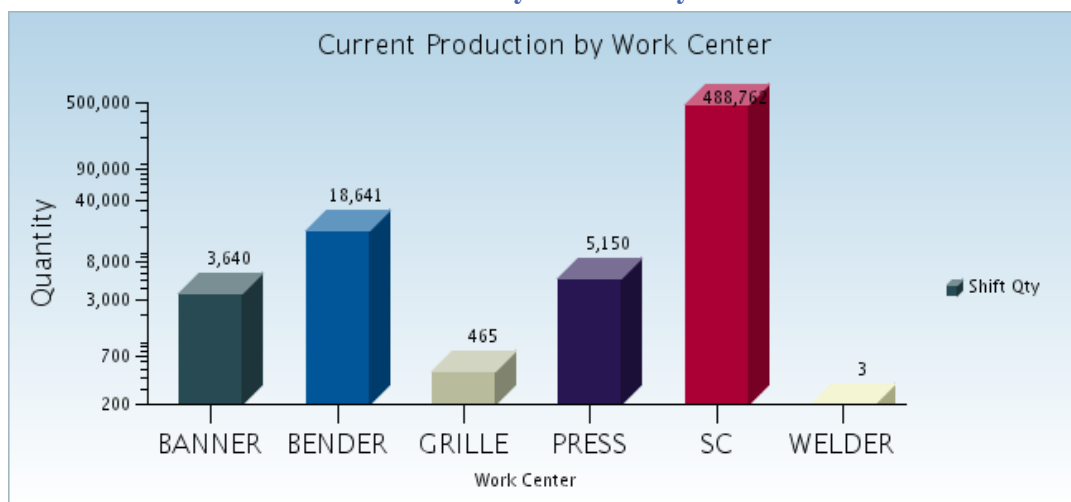
### Manufacturing Intelligence for Rolling, Shearing, Forming, Stamping, Welding, and Coating Operations

FactoryMRI® is Manuvis' leading Enterprise Manufacturing Intelligence software for manufacturing firms, including Metal Fabrication Products. FactoryMRI has been designed and developed by a team of experienced manufacturing executives who needed a method to improve manufacturing operation's data collection and availability processes. One successful customer, Premier Manufacturing Corporation, a metal manufacturer servicing the HVAC industry has been successfully using FactoryMRI since 2004 to eliminate manual data entry on a variety of machine types ranging from wire straightening, to hydraulic punch-presses, and wire coating operations. Plant managers, staff and production planning, and corporate executives use FactoryMRI for true real-time operational visibility they require for their multi-plant enterprise.

### FactoryMRI Overview

Our FactoryMRI application is a comprehensive software solution that fully integrates enterprise tools with the shop floor, allowing manufacturers to better leverage previous investment in ERP. FactoryMRI pulls data directly from machines through small, operator control stations (OCS) that are connected directly to existing PLCs. This approach has several benefits with the primary being that data is "pulled" directly from machines instead of being "pushed" from existing PLCs to remote servers. The data is immediately transformed and displayed as powerful information in either graphic or report formats. From the integration of these elements managers and decision makers across the enterprise access information they need to make informed, accurate, and rapid decisions to drive increased throughput, improve customer response, and reduce costs.

### Persistent Visibility in Summary or Detail



Real-time operational visibility for a Wire Products operation showing work center progress for current shift. Note automatic logarithmic scale.

### Metal Product Companies Challenges

Companies that manufacture Metal Products typically do not have complex manufacturing processes. But like other manufacturers, controlling variation and reducing operational cost are crucial. Metal Products manufacturers are under intense pressure to improve their profitability in an environment of constantly fluctuating raw material costs and the "squeeze" of reducing product prices. These firms must also improve output and reduce costs as well as increasing internal flexibility in their processes to maintain profitability, while coordinating customer's design changes.

Managing through these and other challenges requires enterprises to improve operational efficiency, its effectiveness, and productivity; the ratio between efficiency and effectiveness. Having secure, 24/7 access to real-time visibility of ANY machine, work center, or the entire company prepares managers to solve to these challenges by providing operational transparency.

Viewing operational intelligence through summary to detail-level queries and graphics is a must. This enables process owners and their managers to work on exceptions rather than waste time reviewing a mound of data, identifying problems, and trying to solve exceptions in some sort of optimized sequence. FactoryMRI's simple, configurable Event Notification tool empowers process owners to know what is happening, has happened, and potentially will happen, making them much more accountable for results.

“Things that are measured tend to improve.” This quotation by Oliver Wight, one of the key innovators and contributors to improving manufacturing operations, emphasizes the need to measure. Maintaining ongoing performance measurements is paramount to knowing the effectiveness of each process owner's decision-making record and for sustaining individual accountability. But most companies find it difficult, if not impossible, to devote people to maintain this data. FactoryMRI's persistent ability to pull data directly from machines makes the job of creating and maintaining Key Performance Indicators (KPIs) straightforward and manageable. Company managers are therefore able to view any available KPI's, for any facility, using a web browser securely from anywhere on the globe through their own wide area network (WAN). As a result managers and process owners become more proactive and their decision-making expertise improves as well.

FactoryMRI returns its value up to 50% faster than its competitors because of its R.A.P.I.D. implementation methodology and its ability to immediately begin pulling data off of your production machines. FactoryMRI delivers a tangible return on your investment more quickly due to FactoryMRI's ability to capture machine, product, and process data directly --- plant-wide, 24/7, without the need for an IT support person! Powerful, persistent diagnostic capabilities will transform your data into a synchronized, proactive framework, helping guide decision-makers as they manage your company's mission-critical processes.

The web-based interface tailors the information available to your managers and decision-makers across the operation in an individualized manner, reducing phone calls and interruptions stemming from status updates. These advantages contribute significantly to creating a competitive advantage for your enterprise as customer inquiries related to deliveries, for example, may be answered in one phone call instead of repeated exchanges. Whether you wish to view a production line's performance or use our extensive drill-down logic to see specific completion time for a customer's job, FactoryMRI returns your request accurately, quickly, and completely. As an operation's manager being able to drill-down on down time issues, for example, will allow you to pinpoint the root cause of availability, performance, or quality concerns. Does it not make sense to have the tools that support managing proactively rather than reacting to constant change?

#### **FactoryMRI's Real-time Operational Visibility Also Supplies:**

- Powerful interfacing capabilities, and provides information retrieved from other business systems such as ERP (see example below)
- User-defined, graphical dashboards promoting efficient access to essential information to focus your attention
- Detail and summarized views that produce powerful reporting or speedy data exports for subsequent analyses
- Asset management performance may be tracked and integrated with an Enterprise Asset Management system
- Rapid creation and personalization of reports, analyses and KPIs with an easy-to-use drag and drop interface

## Maximize Your Investment in Existing Business Systems with FactoryMRI's Powerful Interfacing Capabilities

**Note: NONE of the data shown resides within FactoryMRI, but was retrieved from an ERP system**

**Illustrates a custom query drill-down, by item number, that became a Planner Workbench.**

**Selecting an item number FactoryMRI dynamically obtains warehouse, inventory detail, open jobs, and MRP pegging detail from an ERP system, in real-time.**

Item	Whse Type	Group	Length	Desc.	Sub Desc.
1 LENO315A		0.000	0.000	100015-03 GRBLE	
2 LENO315ADW1	BW	0.000	40.812	CRCP W/SE	BW.000 X.040.812" LONG
3 LENO315AP1	BW	0.162	40.562	PLATTEN & PIERCE	BW.162 X.040.562" LONG
4 LENO315AH2	BW	0.000	44.812	HANG W/SE	BW.000 X.044.812" LONG
5 LENO315AL1	BW	0.009	88.625	LONG W/SE	BW.009 X.088.625" LONG

Whse	City	Qty
MAIN		382,753

Job	Op	Date	Complete
23775	10	2006-06-27	0
23824	10	2006-06-27	0

Whse	Loc	Qty	Lot
MAIN	STOCK	0	
MAIN	WG	37,870	90-81
MAIN	WG	13,264	90-211
MAIN	WG	40,192	90-84
MAIN	WG	19,670	95-42
MAIN	WG	143,080	sc546h
MAIN	W1	6,790	42-061
MAIN	W1	32,228	50-338
MAIN	WG	33,305	sc80
MAIN	WG	66,724	sc134

Item	Gross Qty	Due Date	Reference	Parent
LENO315ADW1	143,000	2006-07-09	J 23666 0 10	LENO315A
LENO315ADW1	143,000	2006-07-13	J 23664 0 10	LENO315A
LENO315ADW1	137,600	2006-07-17	J 23663 0 10	LENO315A

### FactoryMRI Results

Measurable ROI starting in about 30 days

FactoryMRI returns your precious capital in weeks through:

- Reducing downtime
- Increasing throughput
- Improved WIP inventory accuracy and timely reporting
- Optimized coating and/or plating line usage
- Better machine utilization
- Understanding exactly what caused unacceptable performance
- Identifying sub-optimized processes
- Reduced scrap

### Lowest Total Cost of Ownership

Other manufacturing intelligence solutions claim to have the lowest total cost of ownership. This claim is simply not true. An investment in FactoryMRI does more than provide the best manufacturing intelligence tool available to empower your team with instant, real-time visibility of your shop floor. FactoryMRI can leverage your existing business systems. How? Our efficient interfacing utilities quickly connect to, access, display, and manage, if desired, data from disparate business systems, transforming or merging data you think is impossible today. Why do process owners continue to rely on manual, slow, and most likely inaccurate work-around methods when FactoryMRI could assemble/present valuable information at the speed of light?

In addition, our Six Sigma/Lean professionals will ensure your team truly knows what data will be collected, why, and how through extensive strategy and training sessions PRIOR to the software even being installed. FactoryMRI will be implemented only after our company and yours have identified/aligned goals and objectives and your critical success factors are defined. That is how we measure your success and illustrates our commitment to you.

## Key FactoryMRI Advantages

- FactoryMRI is the first, and only, enterprise manufacturing intelligence software capable of monitoring multiple sources of real-time data simultaneously and triggering actions based upon user-defined events
- ROI starts immediately as data begins to be collected, typically within weeks not months. As machines are brought on-line valuable information becomes available to begin improving your processes
- As machines are decommissioned or machines are added/changed FactoryMRI's straightforward utilities make it easy for your team to reconfigure, increasing flexibility
- FactoryMRI operates on a small server, minimizing hardware costs
- As other business systems such as ERP change through acquisition or replacement FactoryMRI remains unaffected, only needing to be interfaced with the new software

## Finally eliminate manual data gathering and reporting systems

FactoryMRI replaces your operation's manual data entry and collection processes with a persistent, dependable real-time tool. The net result is considerable cost savings in ongoing management, maintenance and training. You also gain a consistent view of your entire plant's data and can apply manufacturing rules across your entire enterprise.

## Manuvis is saving Premier Manufacturing Corporation over \$1,000,000 per year!

Premier has implemented FactoryMRI in two Wire Products manufacturing facilities in the U.S. *"Every year, we had a truckload of paperwork,"* remarks David Barna, CFO of Premier Manufacturing. *"We knew this system caused wasted time, energy and resources. Today, FactoryMRI has been accepted throughout our organization as a powerful tool and resource that helps solve production issues,"* Barna adds. "Before, we didn't have a practical way to assemble all of the information."

In addition, FactoryMRI saves Premier Manufacturing roughly \$150,000 per year in data collection costs. The system reduced annual machine setup costs by 33 percent, helped increased production capacity by 7 percent and boosted labor efficiency by approximately 15 percent. *"That's lean manufacturing in the works,"* Barna remarks. *"FactoryMRI allows us to improve our ability to service customers and it helps our organization perform at a more profitable and efficient level".*

## Several Key Performance Indicators for Metal Products Industries

Below are several KPIs customers monitor to continually improve their operations. All of these examples, and more, may be quickly and easily established through FactoryMRI:

- ✓ Average versus standard pcs or feet per minute
- ✓ Unplanned machine downtime
- ✓ Coating oven temperature by zone
- ✓ Overall work center downtime
- ✓ Overall Equipment Effectiveness (OEE)
- ✓ Part counts
- ✓ Cycle times by item
- ✓ Pounds produced
- ✓ Part cycles until next PM
- ✓ Machine utilization
- ✓ Operator performance by shift, job, machine

## For more information about how Manuvis can help improve your firms' profitability please contact us:

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