



# RathGibson's Precision Vision<sup>1,2</sup>

To the outside world, recent times may have appeared to have been difficult for RathGibson, headquartered in Lincolnshire, Illinois, USA. They are a leading manufacturer of precision welded, welded and drawn, and seamless stainless steel, nickel, and titanium tubing, offered in straight lengths, coil, and U-Bend configurations. Diverse industries, such as power generation, oil and gas, food and dairy, beverage, pharmaceutical, chemical, and petrochemical, trust RathGibson for their highly engineered tubing. In 2007, when the second sale and purchase of the company in fourteen months was completed, RathGibson was burdened with considerable debt. After exhausting all other avenues for recapitalization, including several opportunities with the equity owners as well as other investors, RathGibson filed for Chapter 11 on July 13, 2009. To some companies, this could have been the beginning of a downward spiral. Not so for RathGibson. Today, with a new name and an array of recent achievements under their belt, they are planning a very positive future. Stainless Steel World talked to Michael Schwartz, President and Chief Executive Officer, and Kirk Thorne, Vice President – Sales and Marketing, to gain the inside details.

By Gillian Kersley

Michael Schwartz, President and Chief Executive Officer takes up the story: "The leveraged position of our company in the face of a global economic recession necessitated a bankruptcy process to protect the company and its constituents."

Kirk Thorne, Vice President – Sales and Marketing, continues, "We anticipated that

our greatest challenge in filing for bankruptcy protection would be customer, supplier, and employee retention. Their loyalty through this process has created opportunities for RathGibson to serve for many years to come."

Because retention during 'Chapter 11' was such a significant challenge, RathGibson established a comprehensive

communication plan that was immediately put into action after the filing. The detailed strategy included 'Questions & Answers' documents on how the bankruptcy filing would impact customers, suppliers, and employees.

"We experienced a rallying of support," said Mr. Schwartz. "However, overseas, bankruptcy carries a more negative

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*RathGibson's operator visually inspects a tubing section.*

connotation. Some customers expressed concern about doing business. Fortunately, with our emergence and communication of our strengthened financial position, those concerns are alleviated.”

During this time period, RathGibson was faced with another challenge - the global economic recession.

“Like most manufacturers, suppliers, and distributors serving the consumer and durable goods sectors, we experienced a

reduction in demand in the range of 35%,” said Mr. Thorne. “In addition to managing the challenges associated with the bankruptcy process, RathGibson was also tasked with aggressively controlling costs and managing the impact of significant reduction of demand as a result of the recession while continuing to meet customer needs.”

### **Emergence from bankruptcy**

On June 11, 2010, RathGibson announced their transition out of bankruptcy and into ownership by an investment group led by Wayzata Investment Partners. Wayzata invested in RathGibson because of “their high level of confidence in our people, products, and future,” said Mr. Schwartz. “Through their efforts and commitment, we have been able to emerge completely delivered.”

### **Change of name**

The company, formerly known as RathGibson, Inc., is now RathGibson, LLC. Aside from these changes, RathGibson continues to provide high quality tubing as well as high levels of technical support to customers around the world.

### **Achievements**

Because RathGibson held the trust of their customers, suppliers, and employees, they were also able to accomplish a great deal during the restructuring. These achievements stemmed from RathGibson's commitment to the markets which they serve, as well as their dedication to providing ‘real solutions in real time’.

### **Traditional and renewable power generation**

A U-Bend Manufacturing Center has been fully integrated into RathGibson's Janesville facility. The center produces U-Bend tubing

that exhibits less than 5,000 psi residual stress for stress corrosion cracking (SCC) susceptible alloys.

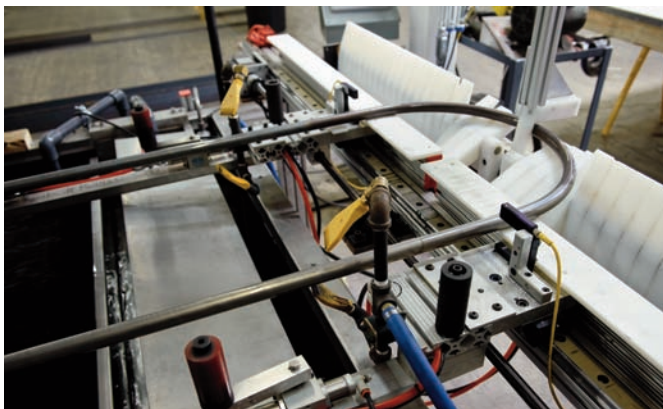
Mr. Thorne said, “Worldwide investment in power generation is growing significantly, both in terms of fossil fuel, nuclear, and renewable energy generation sources.” To that end, RathGibson has supplied tubing for feedwater heaters, steam condensers, heat exchangers, steam generators, condensers, geothermal wells, and concentrated solar plants. So deep is their dedication to clean energy sources, that RathGibson has recently developed an entirely new product line to serve the renewable power segment.

### **Environmentally-friendly production equipment**

Another method that RathGibson utilizes in their quest for reduced pollution is the installation of environmentally-friendly equipment to their production facilities. One of the world's largest degreasing systems was integrated into RathGibson's Clarksville facility. This closed cleaning system, which is used for the in-process cleaning of seamless tubing, was designed with vacuum technology to decrease the release of VOC (Volatile Organic Compound) emissions by a factor of ten.

### **ISO and PED certifications**

Earning ISO (International Organization for Standardization) certification is global recognition of utilizing formalized quality procedures. RathGibson earned ISO certification for two of their manufacturing plants. Their facility in North Branch achieved ISO 9001:2000 certification, and their Clarksville plant acquired ISO 9001:2008 certification. These certifications assure customers that the management systems in place at both facilities consistently provide conforming products



*RathGibson's integrated U-Bend Manufacturing Center serves the needs of the power generation industry*



*The environmentally-gentle degreaser in RathGibson – Clarksville.*



and services that meet and even exceed customer expectations as well as applicable industry standards and regulations.

As RathGibson – North Branch manufactures tubing for use in pressure vessels, they pursued and were awarded Pressure Equipment Directive (PED) 97/23/EC 7/2 Annex I, Paragraph 4.3 certification. This recognition is earned by companies that consistently demonstrate high levels of safety in their quality management systems. Initially adopted by the European Parliament and Council in 1997, PED certification is mandatory throughout the European Union for the design, manufacturing, testing, and conformity assessment of pressure equipment assemblies.

“Earning ISO and PED certifications is a source of pride for RathGibson,” said Mr. Schwartz. “No matter the economic climate or challenges, we remain focused on quality tubing products and services.”

### New products

Not only did RathGibson constantly seek to improve their existing products during the restructuring period, they also continued with product innovations. Their facility in Marrero, Louisiana, Mid-South Control Line, created single and dual pneumatic spooling units to fulfill customers' needs in the oil & gas industry. Both products readily accommodate control lines of different sizes and weights, and utilize regular air for environmentally friendly operation. With each purchase or rental of these spooling units, RathGibson offers a self-produced CD with easy-to-follow video instructions for ease of use.



The dual pneumatic spooling unit created by RathGibson's Marrero facility, Mid-South Control Line.

### International offices

Before the restructuring, RathGibson responded to international customer needs by opening sales offices in Melbourne, Australia; Shanghai, China; Manama, Bahrain; and Seoul, Republic of Korea. As demand for RathGibson products and services grew, so did their global reach. During the restructuring, the expansion grew to include Buenos Aires, Argentina; Vienna, Austria; and Mumbai, India. “With these offices, RathGibson's opportunities to serve our customers multiplied,” said Andrew Yeghnazar, Vice President – International Sales and Business Development. “RathGibson reached chemical and petrochemical companies in Central and South America, oil and gas businesses in Indonesia, Malaysia and Singapore, and geothermal plants in Turkey.”

### Polishing capabilities

RathGibson's polishing capabilities allow them to fulfill the tubing needs of many industries. Their 8-head mechanical polisher

produces a 30  $\mu$ -in Ra (0.8  $\mu$ m) OD maximum Ra surface roughness, while their proprietary electropolishing process attains 10  $\mu$ -in Ra (0.25  $\mu$ m) ID maximum and 15  $\mu$ -in Ra (0.4  $\mu$ m) ID maximum finishes.

In addition to their mechanical polishing and electropolishing abilities, RathGibson has installed a 12-head polisher. This equipment produces a finish of less than 10  $\mu$ -in Ra (0.25  $\mu$ m) OD Ra surface roughness. This ultra fine surface tubing may be used in the food, dairy, beverage, pharmaceutical, biopharmaceutical, chemical, petrochemical, power generation, and solar industries.

### History

The company has been manufacturing tubing since the Rath family began a fabrication shop in 1952. In 1999, Rath Manufacturing in Janesville, Wisconsin combined with Gibson Tube in North Branch, New Jersey to produce welded and welded and drawn tubing in straight lengths, coil, and U-Bend configurations. RathGibson has grown to become a worldwide force in industrial tubing. Stainless steel and nickel alloy seamless tubing was added to RathGibson's product portfolio with the inclusion of the Clarksville plant in 2006. The ability to offer oil & gas well completion accessories was gained with the 2008 acquisition of Mid-South Control Line in Marrero, Louisiana.

### Value-added technical services

RathGibson supplies specialized services for their coworkers, channel partners, and end users through their Technical Group. “Our Technical Group is unique in the business,” said Mr. Thorne. “By providing support in the early stages of a project, including application, assessment, and alloy selection, we add even more value to our high quality tubing.”



Tubing manufactured by RathGibson is readied for shipment.

Table 1: List of tubing alloys offered by RathGibson

| Stainless steel                                                                                                                                                                              | Duplex stainless steel                                                                                                                                                                                                                                      | Nickel alloys                                                                                                                                                                       | Super austenitic                                                                                                                                                           | Super ferritic/ferritic                                                                                                                        | Titanium                                                                        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• 304/304L/304LN /304H</li> <li>• 316/316L/316H</li> <li>• 317/317L/309S/309H</li> <li>• 310S/310H</li> <li>• 321/321H</li> <li>• 347/347H</li> </ul> | <ul style="list-style-type: none"> <li>• Duplex 2205</li> <li>• Lean Duplex Nitronic 19D®</li> <li>• Lean Duplex 2003™</li> <li>• Lean Duplex 2101®</li> <li>• Lean Duplex 2304</li> <li>• Super Duplex Zeron® 100</li> <li>• Super Duplex 2507®</li> </ul> | <ul style="list-style-type: none"> <li>• 20</li> <li>• 200/201</li> <li>• C276</li> <li>• 400</li> <li>• 600</li> <li>• C22®</li> <li>• 625</li> <li>• 686</li> <li>• 59</li> </ul> | <ul style="list-style-type: none"> <li>• 6-Moly AL-6XN®</li> <li>• 6-Moly 254-SMO®</li> <li>• 825</li> <li>• 904L</li> <li>• 27-7MO®</li> <li>• 800/800H/800HT®</li> </ul> | <ul style="list-style-type: none"> <li>• AL 29-4C®</li> <li>• E-Brite®</li> <li>• 439</li> <li>• 444</li> <li>• 446</li> <li>• 18SR</li> </ul> | <ul style="list-style-type: none"> <li>• Grade 2</li> <li>• Grade 12</li> </ul> |

Table 2: RathGibson tubing size range

| Property            | Minimum (inches)      | Minimum (mm) | Maximum (inches) | Maximum (mm) |
|---------------------|-----------------------|--------------|------------------|--------------|
| Outer diameter (OD) | 0.0625                | 1.59         | 8                | 203.2        |
| Wall thicknesses    | 0.010                 | 0.25         | 0.225            | 5.7          |
| Straight lengths    | up to 90' (27 m)      |              |                  |              |
| Coil sizes          | up to 80,000' (24 km) |              |                  |              |

The Technical Group's primary responsibility is to provide expert assessment in the tubing that will best meet design and financial requirements. Director of Process and Product Development, Dave O'Donnell said, "Tubing is usually specified based on process. My job is to discover the actual needs so that we can recommend the sizes, tooling, operations, and alloys that will best serve the application and function."

### Operator expertise

Expert mill operation is essential to the production of high quality tubing. "We depend on our mill operators to bring their dedication and experience to each RathGibson tube," said Mr. Thorne. Each step of the manufacturing process requires the steady hand and keen eye of an operator to ensure that procedures are performed properly. Recognition and awareness of the mill, tooling, alloy, and final

product condition are essential in creating tubing in an efficient and cost-effective manner. RathGibson provides regular training and refresher courses to keep their operators abreast of current techniques.

### Verification processes

Extensive quality control procedures are in place at RathGibson to meet and/or exceed customer requirements and applicable industrial standards, such as ASTM, ASME, DIN, EN, and ISO. Eight different tubing characteristics: strength, hardness, soundness, leak and strength, leak, bend, dimensional, and metallurgical are monitored. Standard tests performed by RathGibson include: tensile, burst (for coils), Rockwell hardness, eddy current, reverse bend, flattening, reverse flattening, flange, outer diameter, wall, and straightness. Optional testing available from RathGibson includes ultrasonic testing (UT) to check for



Mechanically polishing tube at RathGibson's Janesville facility.

soundness, air under water (AUW) testing to locate leaks, and hydrostatic testing to discover leaks and strength.

### Tubing alloys

In order to supply straight lengths, coil, and U-Bend tubing for applications in the power generation, oil and gas, chemical, petrochemical, pharmaceutical, food, dairy, beverage, and general commercial industries, RathGibson offers a comprehensive list of alloys (Table 1) in a broad size range (Table 2).

### The Future

RathGibson continues to invest in future projects that will allow them to provide even more products and services. In addition to supporting customers in the chemical processing, high purity, and oil & gas industries, RathGibson has significantly entered the power generation segment, with an emphasis on fossil fuel, nuclear, and renewable energy plants.

In order to support their power generation customers, RathGibson plans to make further investments in their in-process U-Bend manufacturing center. Currently, the center consists of a laser welding, fully-finished tubing mill, drawing operations for low and high pressure feedwater heaters, stretch straightener, environmentally-friendly bright annealing, CNC (computer numeric control) bending, precision stress relief anneal station, and custom stack rack boxing. "An expansion will make it possible for us to increase the scope of products that we are capable of manufacturing," said Mr. Thorne.

Aerospace is another industry on which RathGibson is focusing. RathGibson's superior quality small diameter seamless tubing meets applicable Aerospace Material Specifications (AMS), Military, and Quad regulations and specifications. Applications for RathGibson's tubing in the aerospace industry include landing gear, hydraulic lines, fuel lines, cooling and bleed lines, duct systems, and structural components. RathGibson also looks to enhance their customer support abilities by opening sales offices in emerging regions, as well as teaming with more channel partners. Mr. Schwartz concludes: "RathGibson's ultimate goal is to offer tubing products and services that bring satisfying solutions to our customers. **Our vision is to be the preferred global solutions provider for precision stainless and specialty alloy tubing products.**"