

**WAUKESHA FOUNDRY**

# **DEFENSE PRODUCTS**

***INDUSTRY EXPERIENCE  
ENGINEERING EXPERTISE  
ADVANCED TECHNOLOGY***





## **EXPERIENCE AN INDUSTRY LEADER**

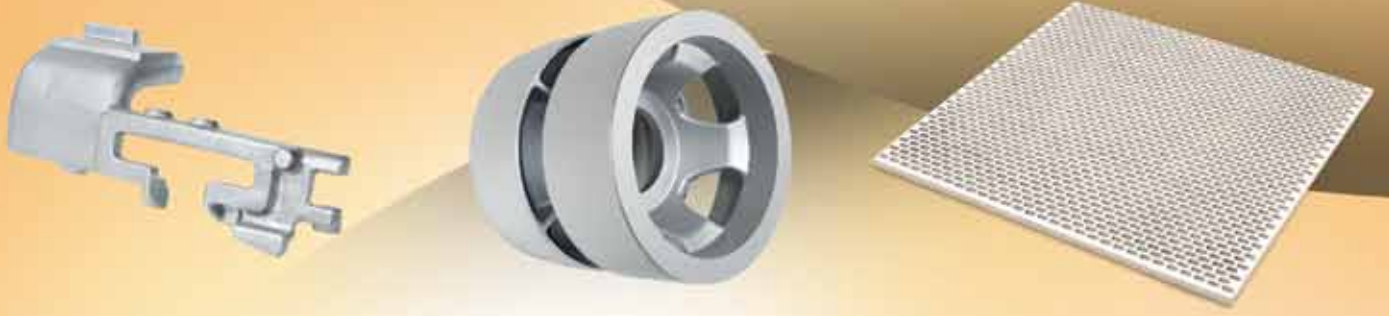
Waukesha Foundry has earned a reputation as an innovator in the production of highly engineered, complex cast components for the defense industry for over 70 years. Having an intimate knowledge of the markets we serve is as important to us as it is to our customers. Our advanced technical teams can meet the defense industry's needs for quality and:

- ▶ Engineering expertise
- ▶ Low-volume capabilities leading to production volumes
- ▶ Multiple casting processes
- ▶ Wide range of alloys
- ▶ Near net shapes
- ▶ Lighter weight materials
- ▶ High strength alloys
- ▶ Complex geometries
- ▶ Challenging mechanical requirements
- ▶ Difficult-to-manufacture alloys
- ▶ Complete components

With a century of experience as our foundation, we embrace changing technology and put our extensive expertise to work for you.

**AT WAUKESHA FOUNDRY, WE DON'T SHY AWAY FROM CHALLENGES...  
WE ACCEPT THEM HEAD ON.**





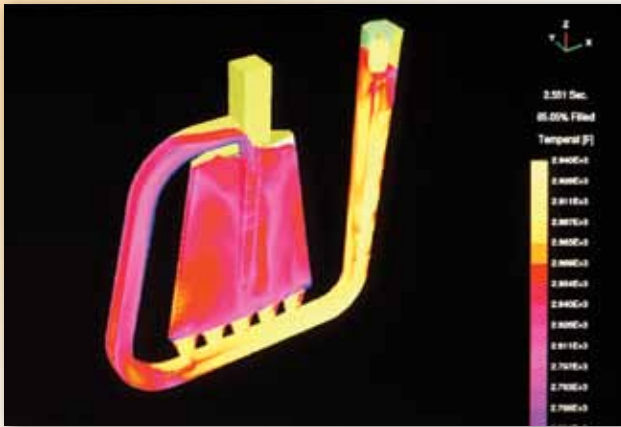
## **OUR STRENGTH IS ALLOY DEVELOPMENT**

Waukesha Foundry is well known throughout the industry as the go-to source for resolving casting project challenges. Our extensive experience in metallurgical processes enables us to customize or create new alloys to meet specific defense requirements for lighter, stronger components in a wide variety of applications. The following table includes examples of projects where our distinctive engineering expertise and/or unique process capabilities were essential in providing solutions to our customers' difficult geometrical, metallurgical and/or quality requirements.

| PROJECTS                               | ALLOY                    | CASTING PROCESS             | COMPLEX/UNIQUE REQUIREMENTS |               |      |
|----------------------------------------|--------------------------|-----------------------------|-----------------------------|---------------|------|
|                                        |                          |                             | Geometry                    | Metallurgical | NDT* |
| P900 Armor                             | 4130                     | Patternless Molding         | X                           |               |      |
| Towed Array Sonar System               | H Monel®                 | Sand                        | X                           | X             | X    |
| 105 mm and 155 mm Muzzle Brake         | 4330                     | FoamCast                    | X                           | X             | X    |
| Multiple Components for Abrams Tank    | FeMnAl                   | Sand, Resin Shell, FoamCast |                             | X             |      |
| AGT 1500 Engine Components (M1 Tank)   | 17-4                     | Ceramic Mold, Sand          |                             | X             | X    |
| Naval Weapons System Supports          | HY-80                    | Resin Shell                 |                             | X             |      |
| MK 45 and Vertical Launch              | 17-4, 316                | Sand                        | X                           |               | X    |
| Drive Sprocket Carrier Wheel           | 4140                     | Sand                        | X                           | X             | X    |
| Aerospace Tooling                      | Invar®-36                | Patternless Molding         | X                           | X             | X    |
| Actuator Housing (Nuclear Submarines)  | 4140                     | Sand                        | X                           |               |      |
| Rev E Cast Armor Steel Tank Components | 8625                     | Sand, FoamCast              |                             | X             |      |
| Pintle (Tank Transmission Component)   | Austempered Ductile Iron | FoamCast                    | X                           | X             | X    |
| Nuclear Submarine Diffusers, Impellers | Inconel®                 | Ceramic Mold, Sand          |                             | X             | X    |

\* Nondestructive Testing

# **INNOVATORS IN PROCESS ENGINEERING**



Waukesha Foundry sets the standard for process engineering. Our degreed manufacturing and metallurgical engineers are involved throughout the entire process. This team uses their expertise to analyze customer requirements to determine which molding and casting processes are right for your defense application.

We interface with computer-aided design (CAD) systems, accepting fully surfaced or solid models. By using solidification modeling, we can identify

problem areas *before* your castings are produced, which enables us to develop effective and efficient manufacturing processes, reduce lead times and ensure consistent quality.





## ***COMMITTED TO*** **SUPERIOR TECHNOLOGY**

Our commitment to technical advances sets us apart from the competition. Extensive manufacturing capabilities allow us to produce castings in over 200 different alloys, ranging from 1 to over 6,000 pounds. Waukesha Foundry leads the industry in process-controlled manufacturing, testing and machining.

**Patternless molding process** – We can expedite the production of cast components economically with this process, a necessity when an existing pattern isn't available. Our state-of-the-art robotic cells will convert your CAD data into machine paths and machine the geometries directly into sand mold blanks. This new technology eliminates the need for conventional pattern equipment and significantly reduces costs and lead times. It is ideal for both high-volume production runs and low-volume runs that require only one or two parts at a time.

**FoamCast molding process** – Using this process, Waukesha Foundry can cast thinner sections and internal features while reducing machine stock, resulting in a lighter weight design with near net shape. FoamCast's advantages make it an excellent choice for rapid low-cost prototypes and low- or medium-volume production runs. It is also a good option for high-volume applications, which are not suited to other casting processes.

**In-house nondestructive testing (NDT)** – Our experienced staff of certified testing inspectors performs nondestructive examination and testing to ensure the integrity of your castings. Our capabilities include radiographic, magnetic particle and liquid penetrant inspection processes as well as pressure testing.

**In-house machining** – Waukesha Foundry's machining expertise is a tremendous value to our customers. Our combination of fine craftsmanship, high-tech processes and high-volume capabilities for machining castings is unparalleled. With extensive in-house operations, we maintain the highest quality standards.



# **UNCOMPROMISING QUALITY STANDARDS**

Quality is a way of life at Waukesha Foundry. Using Six Sigma principles, our certified Black Belts drive continuous improvement. We build quality into every step of the process, which is exhibited by the certifications we hold:

- ▶ ISO 9001:2008
- ▶ ASME Section III NCA3800
- ▶ ASME IX Certified Welders
- ▶ MIL-I-45208
- ▶ MIL-STD-45662
- ▶ American Bureau of Shipping (ABS)



## **SEE WHAT WE CAN DO FOR YOU**

Customer satisfaction is important to us. We work closely with our customers to engineer the right process for their application. To find out what Waukesha Foundry can do for you, please call us or visit our website at:

[www.waukeshafoundry.com](http://www.waukeshafoundry.com)



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