



WE DO DUCTILE...  
DIFFERENTLY.

**URICK**  
DUCTILE SOLUTIONS



# We Do Ductile... DIFFERENTLY.



## Collaboration

It's all about collaboration. That's the key difference in the way Urick produces ductile iron castings. Our engineers work closely with yours. Our staff metallurgists advise you on what properties are best suited for your products.

Putting our minds together allows for quicker design changes and, ultimately, better solutions. Our extensive experience in casting ductile iron — together with your expertise in the products you manufacture — make for a winning combination. The results are castings that outperform similar products made from other metals or by other metal-forming methods.

At Urick, we produce *high-quality, medium-volume, low-cost* parts. We do it faster, cheaper, stronger and easier. Exactly what you want from a supplier of ductile iron castings. As an ISO 9001:2008-certified company, Urick offers a real difference. One that makes your job easier and your products better.

It's the things we do differently that set Urick apart from other part manufacturers... especially when it comes to producing parts for critical applications. From the pattern-making and involvement of our on-staff metallurgists to the testing and secondary operations, we do ductile differently.



## Delayed In-Mold Vertical Casting

Urick is the only American company that uses the delayed in-mold vertical casting process in the production of all grades of ductile iron castings. This process is designed to provide optimal results in terms of the consistency of chemical and metallurgical properties, as well as superior machinability.



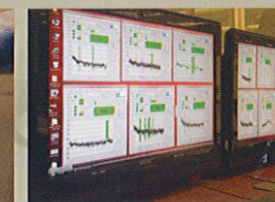
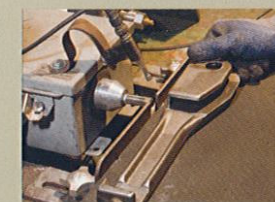
## Disamatic 230B Molding Machine

Urick's casting process is based heavily on our high-speed Disamatic 230B Molding Machine. It produces unique, complex, ductile iron parts while allowing for quick pattern changes and shorter runs. The results are parts with better finishes and better overall value for our customers.



## Lifetime Patterns

At Urick, we produce all of our patterns in-house using the latest, cost-effective urethane pattern technology. This allows us to produce precision patterns, minimizing the amount of parting line flash. Our customers own their patterns and we store them. We also replace worn patterns at no cost to our customers.



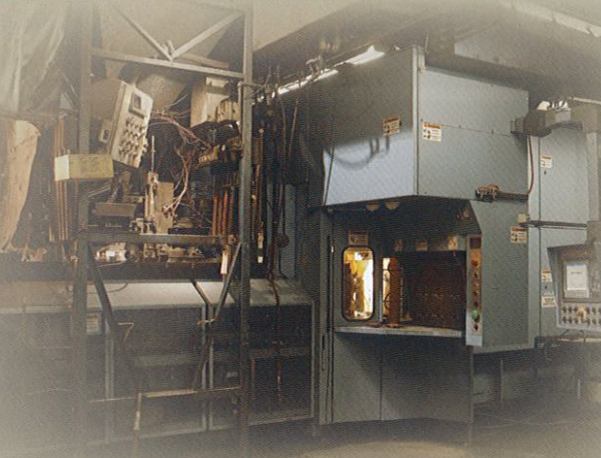
## 100% Resonant Frequency Testing

Every single casting produced by Urick is tested with our Resonant Frequency Test machine to insure that the percent nodularity exceeds SAE specifications, which is important for critical applications.



## Value-Added Services

In addition to single, cast component parts, Urick can provide savings through a one-stop solution of machining, assembly, heat-treating, powder coating, e-coating, galvanizing and plating. Our in-house capabilities range from pattern maintenance to grinding and trimming. Our finishing department utilizes a continuous shot-blast machine, robotic grinders and trimming equipment to minimize costs and reduce lead times. For all other services, we work with qualified outside partners.



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# Ductile Iron Casting: THE SMART ALTERNATIVE

## Definition Of Ductile Iron

Ductile iron is a family of versatile cast irons that contain as-cast spheroidal graphite nodules. It is these graphite nodules that give ductile iron the strength and ductility that has made it commercially popular today.

By controlling the matrix microstructure, ductile iron is available in several grades ranging from ductility exceeding 18% elongation to strength in excess of 100 ksi. Austempered Ductile Iron (ADI) offers even higher strengths and wear properties than the standard grades of ductile iron by means of a specialized heat treat process.

## Ductile Iron Vs. Steel

Ductile iron offers cost advantages over steel fabrications and forgings. Flexibility of design, the ability to reduce a multi-component fabricated assembly to a single casting offers several obvious opportunities to save cost. Designing complex castings that are closer to near net shape results in lower overall costs when compared to forgings.

## ASTM A897 / 897M-06 Grades Of Austempered Ductile Iron

Minimum Properties To Meet The Specified Grade

PRIOR DESIGNATION	GRADE	TENSILE STRENGTH MPa/KSI	YIELD STRENGTH MPa/KSI	ELONGATION %	IMPACT ENERGY Joules/Lb-Ft	TYPICAL HARDNESS BHN
	750-500-11	750 / 110	500 / 70	11	110 / 80	241-302
1	900-650-09	900 / 130	650 / 90	9	100 / 75	269-341
2	1050-750-07	1050 / 150	750 / 110	7	80 / 60	302-375
3	1200-850-04	1200 / 175	850 / 125	4	60 / 45	341-444
4	1400-1100-02	1400 / 200	1100 / 155	2	35 / 25	388-477
5	1600-1300-01	1600 / 230	1300 / 185	1	20 / 15	402-512

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We are successfully reducing our customers' costs by converting steel castings, forgings, stampings and fabrications to ductile iron castings. In order to provide higher strengths, we supply all grades of Austempered Ductile Iron (ADI). The consistent chemistry of our iron provides an ideal response to austempering, which gives us an advantage when ADI is required.

- Casting is also a more efficient, more cost-effective process than other
- metal-forming methods. Ductile Iron castings result in products that not only
- perform better, but also save money. Compared to using a forging, stamping
- or fabrication, using a casting may make more sense.



*Urick provides consistently higher nodularity and higher nodule counts which enhance metallurgical properties and machinability.*

## SAE J434 Grades Of Ductile Iron Produced By Urick

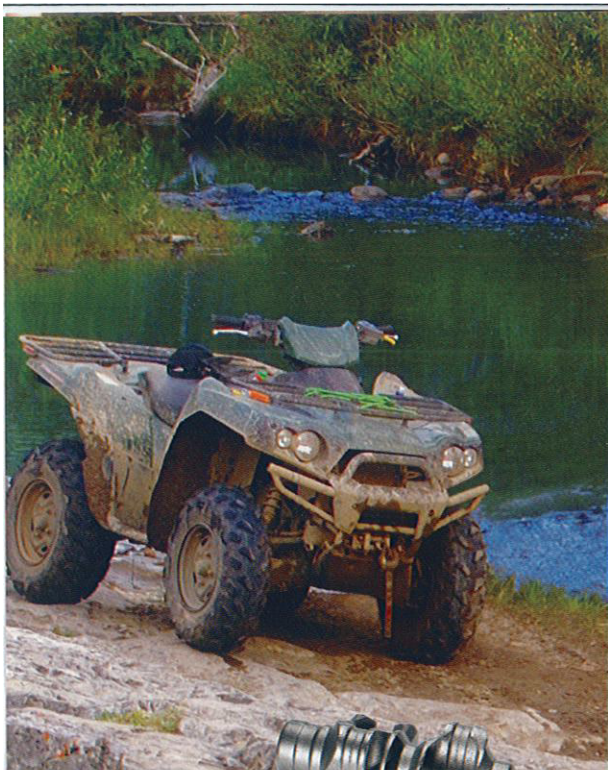
GRADE	TYPICAL BHN	TENSILE STRENGTH (min)		YIELD STRENGTH (min)		% ELONGATION (min)
		MPa	ksi	MPa	ksi	
D400	143-170	400	58	275	40	18
D450	156-217	450	65	310	45	12
D500	187-229	500	73	345	50	6
D550	217-269	550	80	380	55	4
D700	241-302	700	102	450	65	3
D800	255-311	800	116	480	70	2

## Benefits Of Ductile Produced By Urick

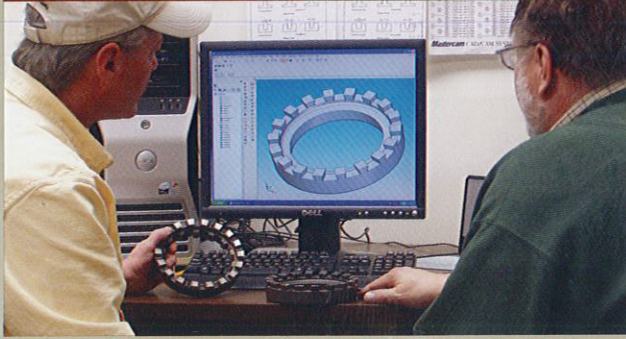
- Higher Nodule Count
- Higher % Nodularity
- Improved Machinability
- Improved Ductility
- Tighter BHN Ranges
- Better Surface Finish
- 100% Nodularity Testing







# Innovative SOLUTIONS



## Converting Steel Forgings; Stampings; Or Fabrications To Ductile Iron = Cost Reductions

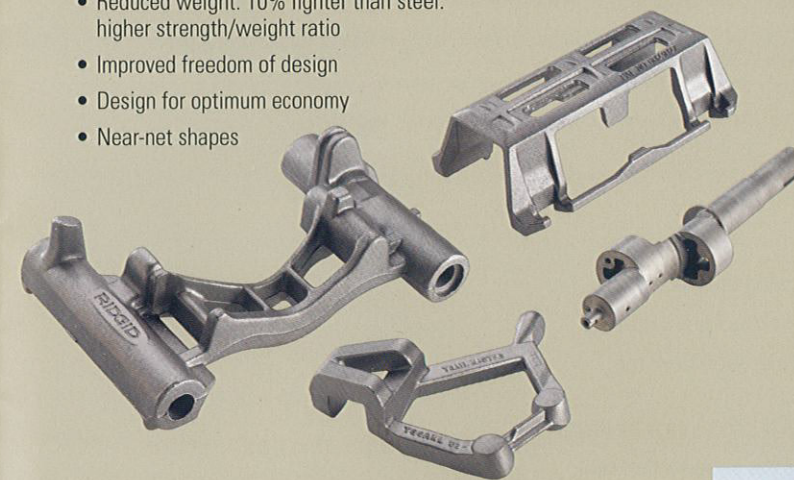
Here are a few examples of Urick's innovative solutions in ductile iron casting that were previously forged: **1)** internal parts for couplers on train cars, **2)** shifter forks for transmissions, **3)** suspension arms, **4)** fasteners with cast threads.



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## Original Designs — Design A Part In Ductile = Better, Faster, Cheaper

- Reduced weight: 10% lighter than steel: higher strength/weight ratio
- Improved freedom of design
- Design for optimum economy
- Near-net shapes

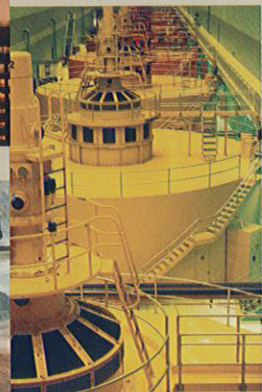
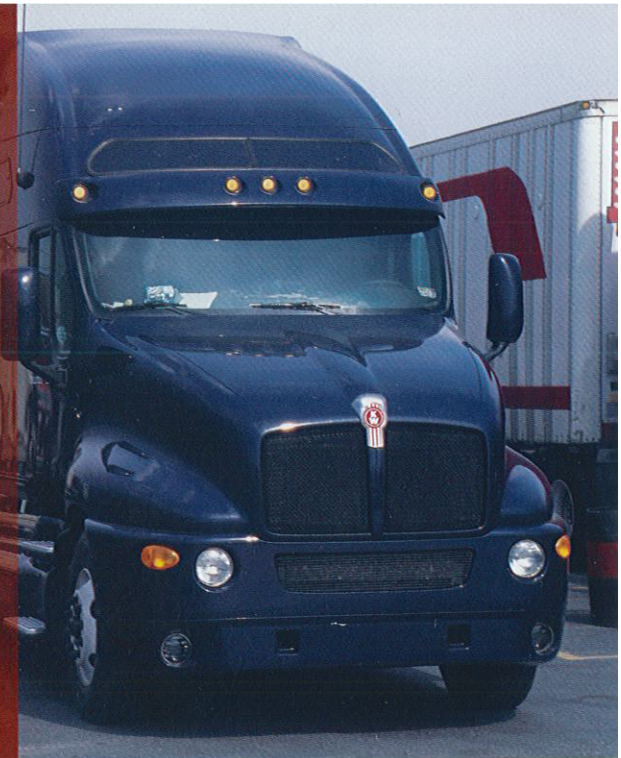


## Diverse Critical Applications

Urick currently supplies castings to a diverse group of industries, including Agriculture, Construction, Hand Tools, Heavy Truck, Green, Infrastructure, Mining, Oil, Railroad, Recreational, Utility and Valve Bodies to name a few.

## Rapid Prototyping

If you need rapid prototyping to find a solution to your business, call us.



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DUCTILE SOLUTIONS





Emerson ownership gives us the financial stability other suppliers simply don't have. That's why today's Urick is a state-of-the-art Disamatic manufacturer providing ductile solutions for a variety of companies in a wide range of industries.



## History

**1905**

**1905** – Urick begins operation as a family business – a foundry that primarily provides parts to the electric motor industry.

**1956**

**1956** – First commercial pour of ductile iron in the United States at Urick.

**1974**

**1974** – Emerson Electric Company acquires Urick to produce parts for its electric motor division.

**1984**

**1984** – Emerson transfers Urick to the Ridge Tool Company. A multi-million-dollar investment is made to upgrade the facility to a modern ductile iron casting operation and state-of-the-art casting technology.

**TODAY**

Today, Urick supplies castings to a diverse group of industries, including Agriculture, Construction, Hand Tools, Heavy Truck, Green, Infrastructure, Mining, Oil, Railroad, Recreational, Utility, Valve Bodies and other markets.

## Why URICK?

- We specialize in collaborating with customers to produce complex castings that are used in critical applications. Plus, we do a lot of little things differently to make your job easier. Things like rapid prototyping, in-house testing and modifying the overall design as needed. We also offer an "a la carte" metal menu, so you can pick and choose the exact services you want.

**Our different ways of doing ductile means superior parts at lower costs for a better overall value. That's the Urick difference.**

**Partner with us and we'll show you how ductile iron casting by Urick is the solution that will meet your most demanding requirements.**

- **Let us show you how**
- **we can do ductile**
- **differently and to**
- **request a quote go to:**
- **[www.URICK.net](http://www.URICK.net)**

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