

Ductile Iron Components Made Easy.

News Letter No: 72

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Sub : Excellence through Design.

Magna pioneered casting simulation since its inception in 1995. In February 2006, Magna installed the globally best solidification simulation program “MAGMA SOFT” from Magma Engineering Asia Pacific PTE Ltd, Singapore with various solid modeling packages like ProE, Solid Edge, Solid Works and Unigraphics. With this installation of MAGMA since February 2006, Magna joined the global elite club of foundries with this capability. Magna has invested over \$ 135,000 for product design capabilities.



Simulation in Magna’s dedicated design center

Magna is proud to submit a progress report on its “Excellence through design campaign”.

Cost Reduction and Market Expansion is imperative for the Foundry industry to survive and flourish in these times of Soaring raw materials costs, Appreciation of the Indian Rupee and Inflationary salary trends!

Magna has used its design capability to:

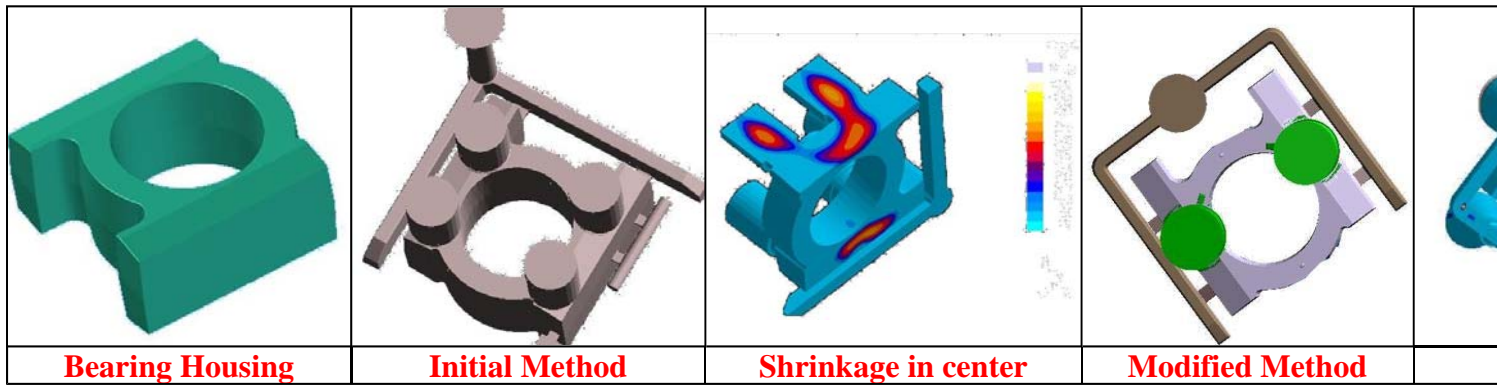
1. Reduce Rejection
2. Improve Yields
3. Solve Problems
4. Reduce time to Market

Highlighted below are the a few examples:

1.Rejection Reduction

Casting Name: Bearing Housing

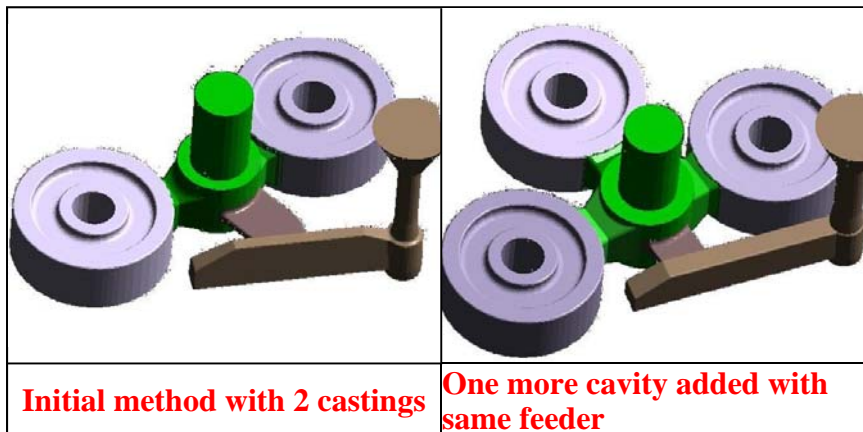
Casting Wt : 187kgs
 Material : EN1563GJS400-18-ULT
 Problem : Ultrasonic Failure
 Type of Mold: Furan No Bake sand



	Before Simulation	After Simulation
Yield	58%	68%
Rejection rate	25%	5%

2.Yield Improvement

Casting Name: Head
 Casting Wt : 8.25kgs
 Material : SG400/18
 Problem : Low yield
 Type of Mold: Green sand



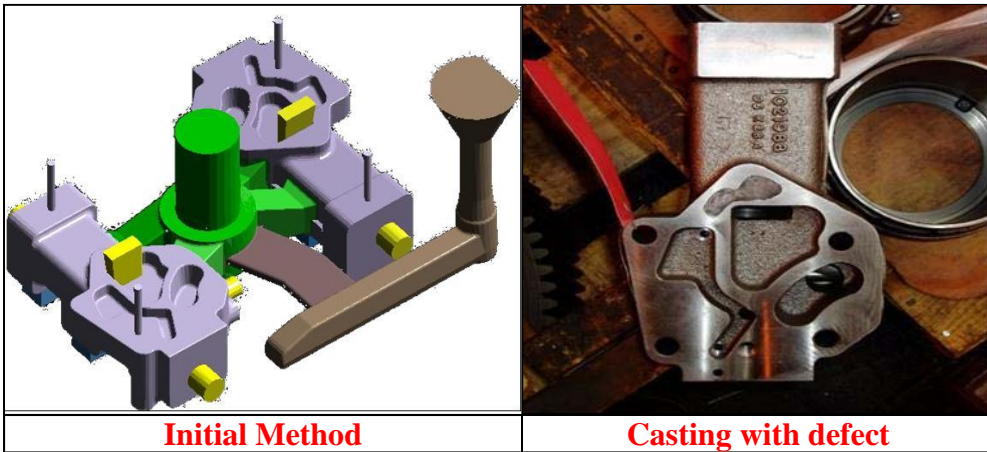
Initial method with 2 castings **One more cavity added with same feeder**

	Before Simulation	After Simulation
Yield	61%	67%
Rejection rate	4%	4%
No of Cavities	2	3

3.Problem Solving

Casting Name: Valve Housing
 Casting Wt : 10.8kgs

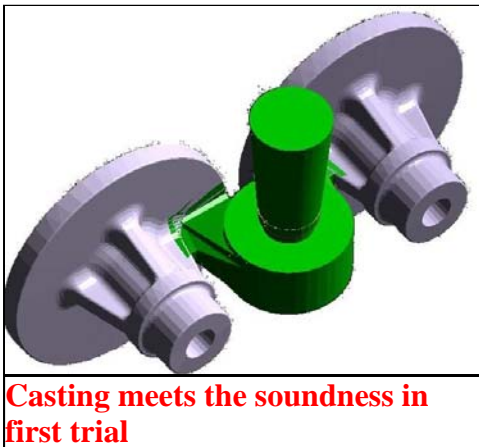
Material : FG200
 Problem : Gas Hole
 Type of Mold: Green sand



	Before Simulation	After Simulation	Corrective Action
Rejection rate	50%	5%	<ul style="list-style-type: none"> • Vent Position changed • Core print redesigned

4. Time to Market

Casting Name: Bonnet
 Casting Wt : 48.7kgs
 Material : GGG40.3
 Type of Mold: Furan No Bake sand



Casting meets the soundness in first trial

	Before Simulation	After Simulation
No of Trials to Prove	-	1
Yield	-	74%
Time to market	-	6 weeks

In last two year Magna had completed more than 100 such projects, whose benefits can be summarized below:

1. Brought down rejection rates from 12% to 7%

2. Net yield improved from 51% to 58%
3. No of customer complaints per annum due to porosity had declined to 15 to 3.
4. Time to market – 80% of new components proved within 2 trials.

Magna's "Excellence through design" campaign has enabled it to reduce the affect of the present inflationary spiral on its costs and thereby benefit its customers.