Metals in shape.

The Challenge of Large Castings

Large castings are always a challenge for any foundry.

The production relies less on machinery and equipment, yet the handling of the mould boxes, the cores and the cast part itself is very time-consuming. Every time an object must be moved, this blocks crane capacity. This can lead to a complete stop of the foundry each time during transport.

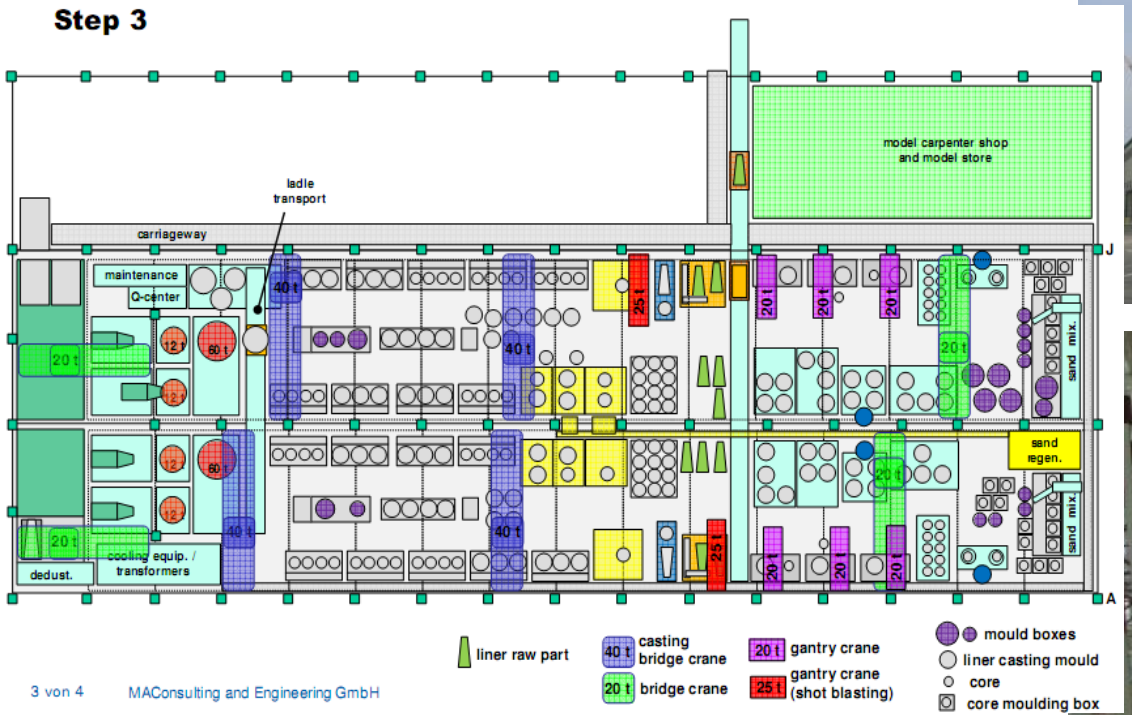
This makes production logistics much more important. The material flow must be designed in such a way that transports have a uniform direction and cycles are created.

In addition, production processes must run in rhythms.

Long cooling times block working areas under cranes. The fixed cost burden that must be borne by the cast part increases proportionally to the cooling time. The cooling time thus becomes the cost- and capacity-determining element.

Project Example

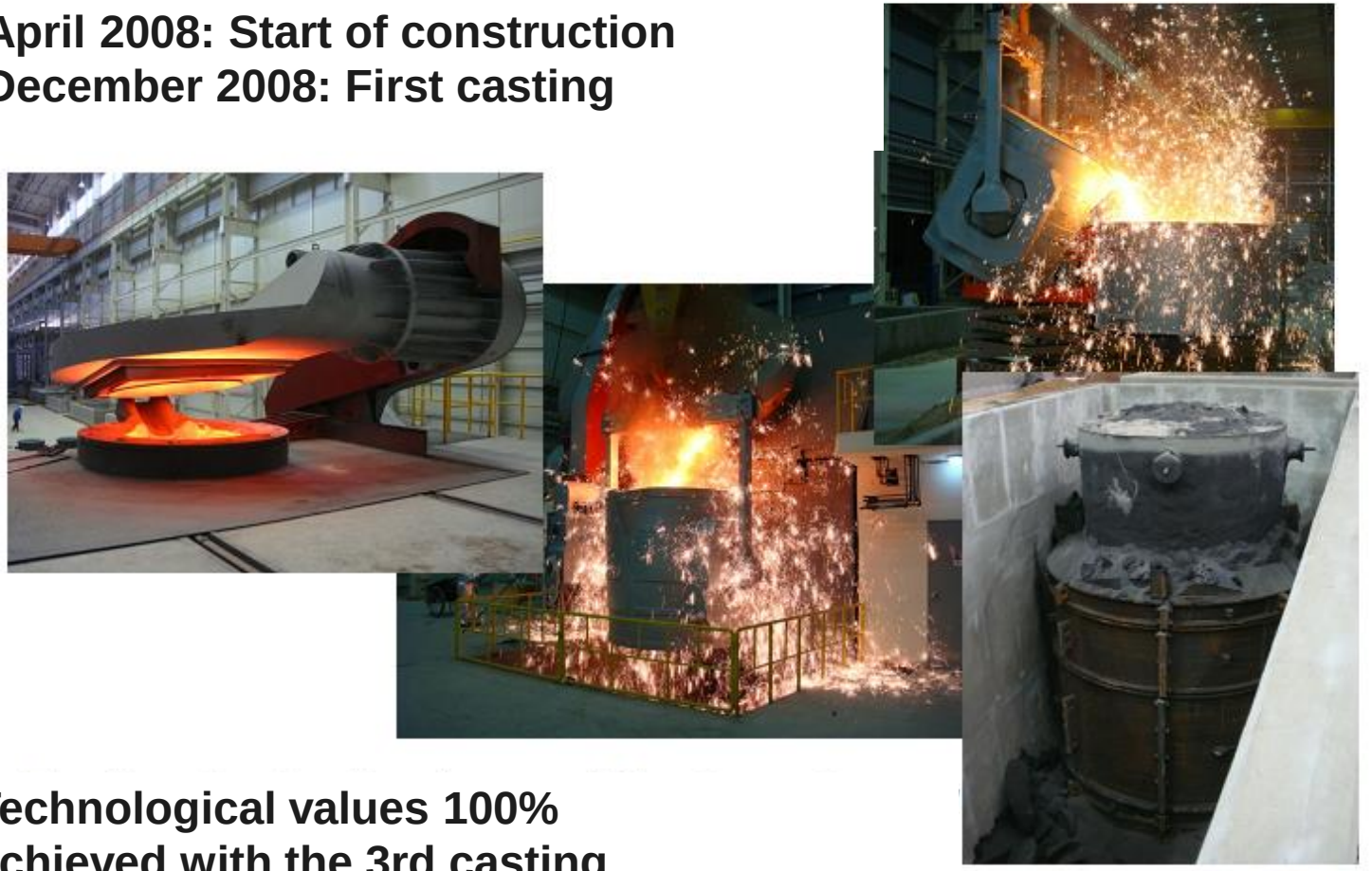
Grey cast iron foundry, South Korea, for cylinder liners for 2-stroke marine engines



Project Example

Grey cast iron foundry, South Korea, for cylinder liners for 2-stroke marine engines

April 2008: Start of construction
December 2008: First casting



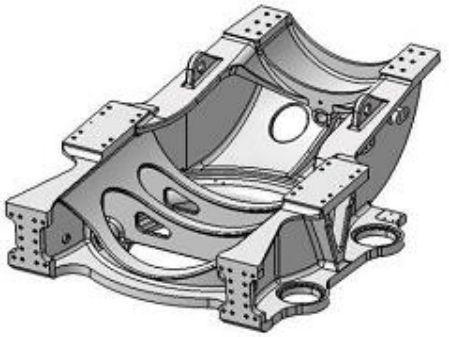
Technological values 100% achieved with the 3rd casting

Project Example

Conversion of iron foundry for wind power components

Concept of the client

Increase in casting weight with existing delivery obligations; concept with logistical disadvantages and poor economic efficiency.

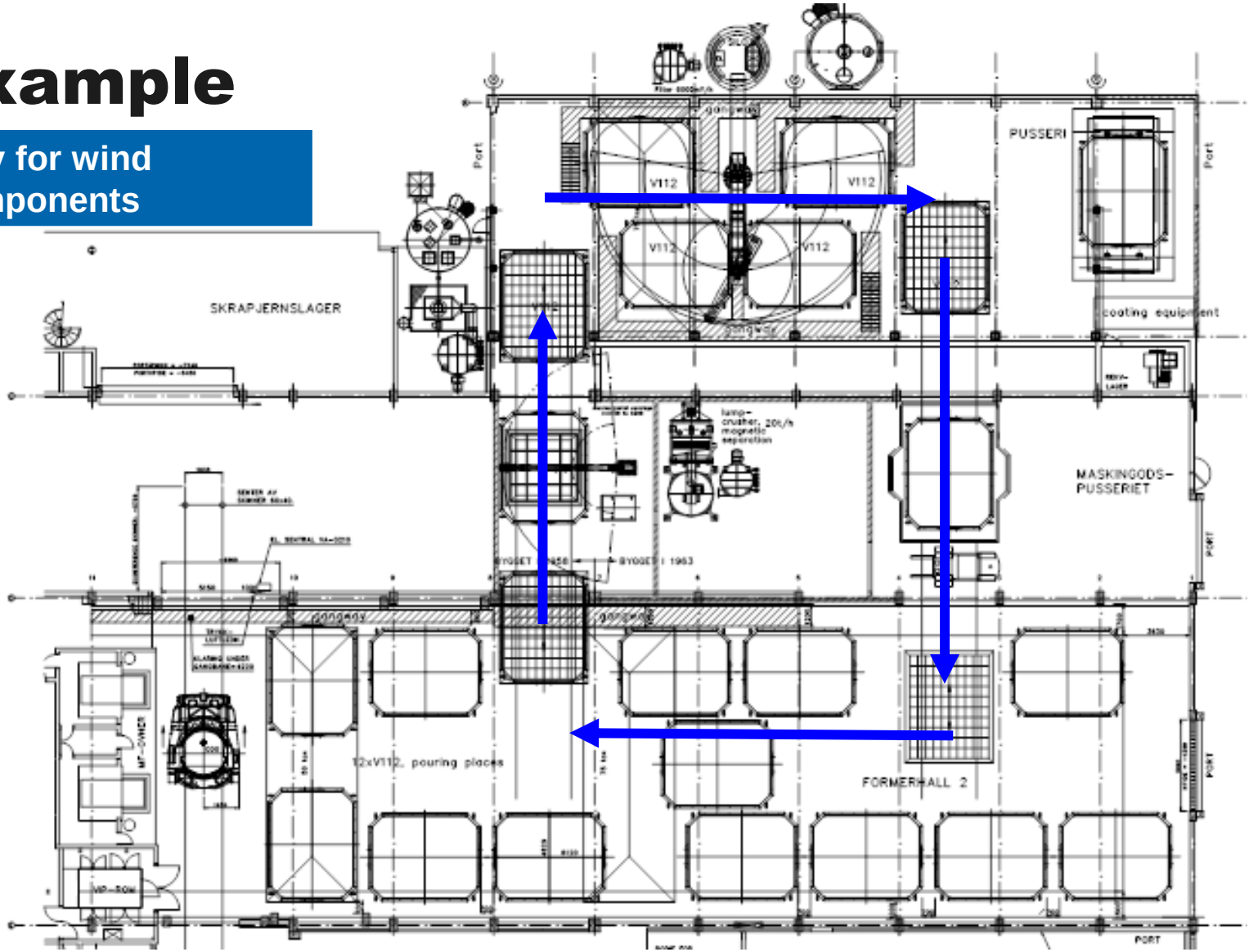


Project Example

Iron foundry for wind power components

MAC concept

The optimised material flow allows an increase in capacity, better productivity and very good economic efficiency.

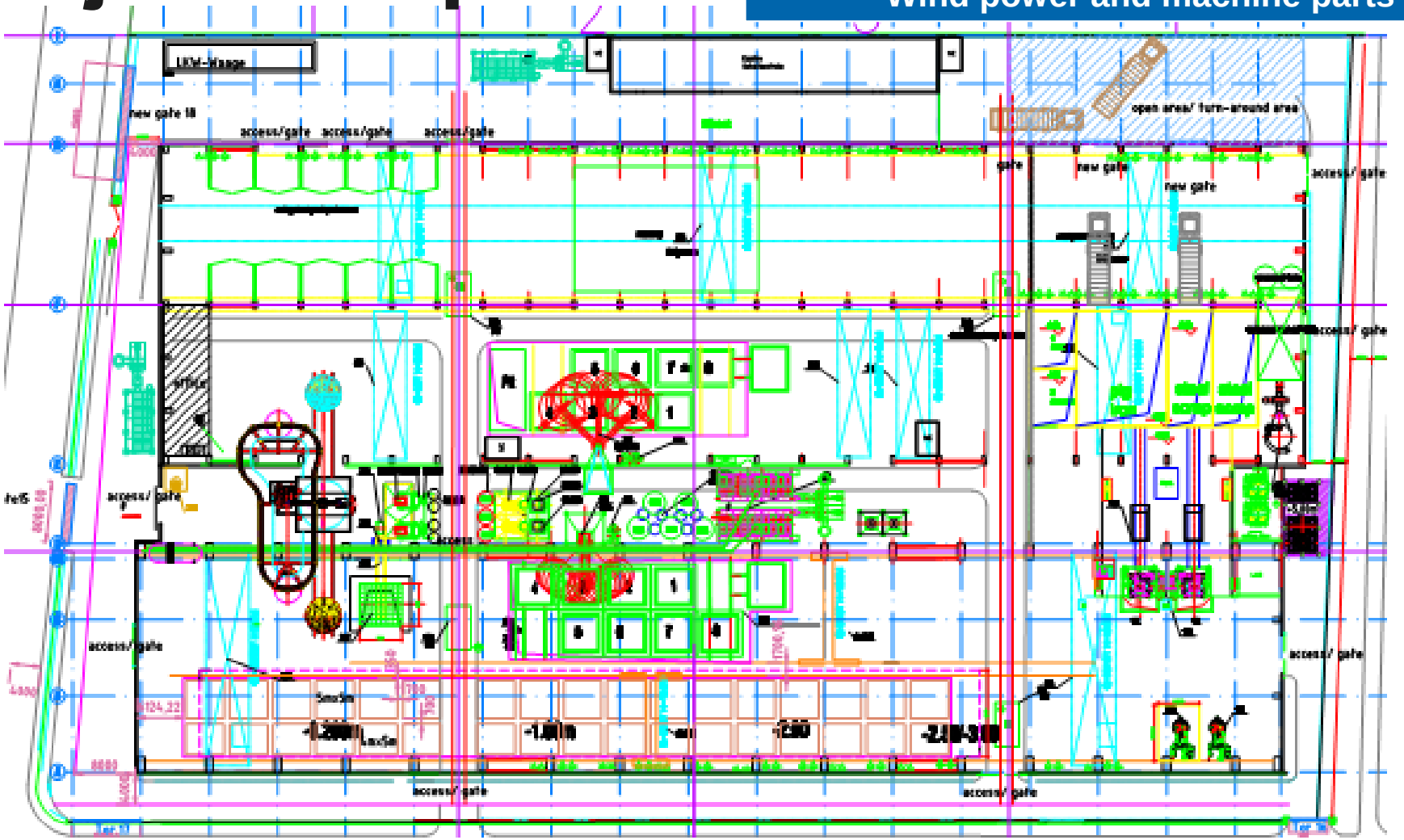


Project Examples

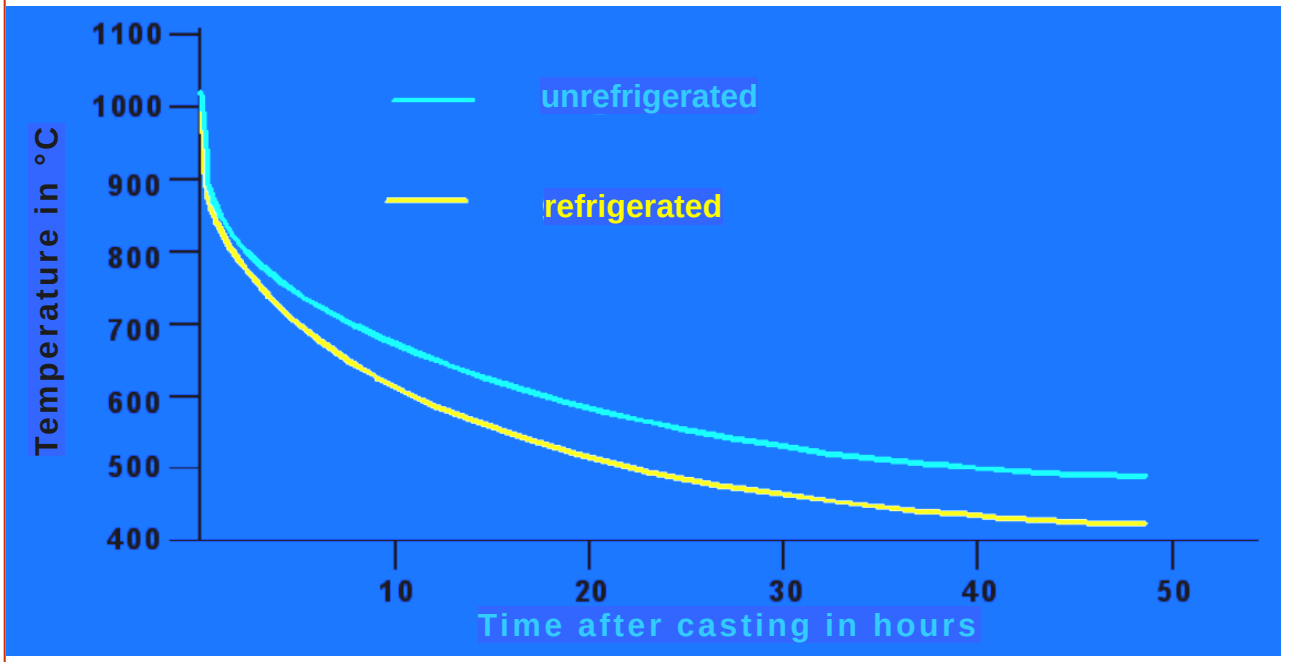
JIANGYIN CASTING, Jiangsu, China	Vestas, Kristiansand, Norway	SULZER, Oberwinterthur, Switzerland
Iron foundry for wind power parts and parts for injection moulding machines, < 25 t	Iron foundry for wind power components, raw casting weight 16 t	Iron foundry for ship engine blocks, gross weight cast part max. 56 t
Ductile cast iron (grey cast iron)Capacity 30,000 t/a	Ductile cast iron Hand moulds in moulding boxes	Grey cast iron, ductile cast iron Hand moulds in casting pits
Conversion of a plastics processing plant into a competitive foundry for large castings	Increase in production capacity and max. casting weight, upgrading of building structure, changeover to water-based coatings	Reduction of cooling time by up to 80%, reduction of residual stresses, improvement of microstructure
Concept development, plant specification, sourcing, tendering, award negotiations, supplier monitoring	Optimisation of production flow, specification of equipment, tendering, award negotiations, supplier and assembly supervision	Support and concept development of cooling time reduction, scrap reduction through avoidance of critical residual stresses

Project Example

Jiangyin Casting
Wind power and machine parts



Cooling of large castings

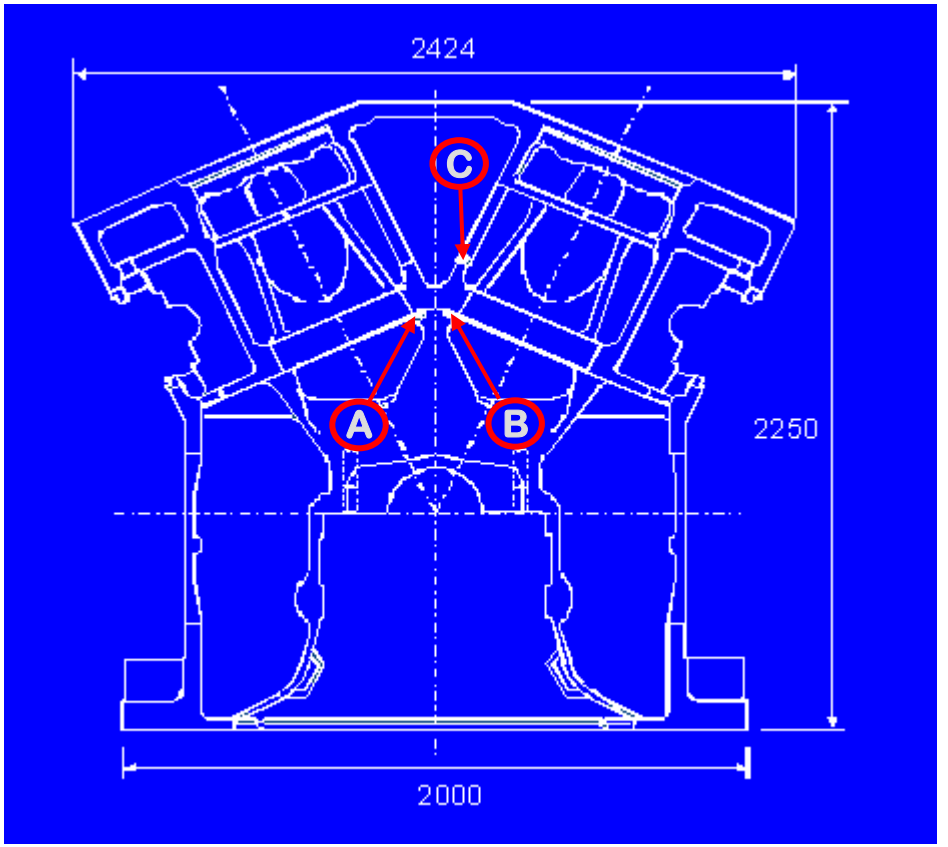


Increase production capacity in existing foundries by increasing throughput in the bottleneck casting area.

Increased throughput in areas with high structural investment (high crane and building loads).

Increase the turnover rate of tied working capital.

Cooling of large castings



Quality improvement and scrap reduction due to lower residual stresses in the cast part.

Improved technological properties in casting areas with large wall thicknesses.

More freedom in casting design by controlling residual stresses and metallurgy.

Cost reduction by avoiding heat treatment of ADI materials.

σ^{ES}	conventional cooling	dynamic cooling
A	86 N/mm²	- 86 N/mm²
B	106 N/mm²	- 36 N/mm²
C	119 N/mm²	- 5 N/mm²

Contact

We will be happy to answer your questions about our field of work and are available to discuss and implement a task with you.

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