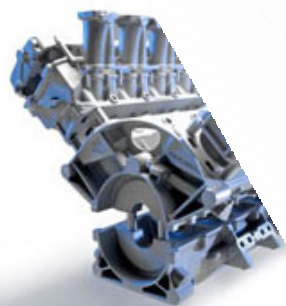


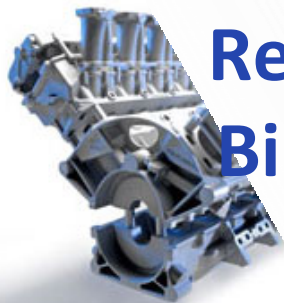


EXCELLENCE FOR YOUR SUCCESS

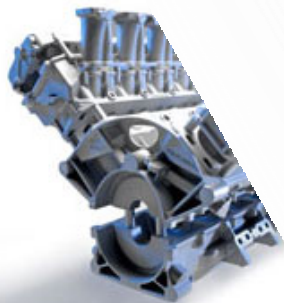




Qualitative und wirtschaftliche Bewertung eines Regenerationsverfahrens für anorganische Bindersysteme in der Kleinserienfertigung



1. Unternehmen
2. NASCAR: Vom Prototypen- zum Kleinserien-Lieferant
3. Video: Kleinserienfertigung von Zylinderköpfen
4. Vorteile / Nachteile von anorganischen Bindersystemen
5. Versuchswerkzeug (Regenerierung von Anorganikbindern)



Unternehmen

Leistungsbausteine

UNSRERE KUNDEN WELTWEIT

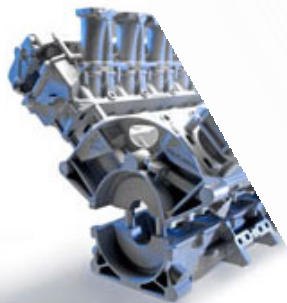
- Automobilindustrie
- Motorsport
- Motorenentwickler
- Gießereien
- Modell- und Formenbauer

I. ENGINEERING

II. RAPID
PROTOTYPING

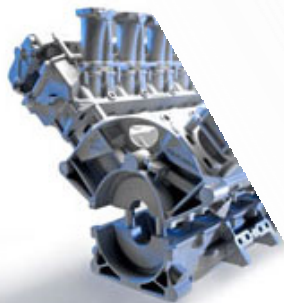
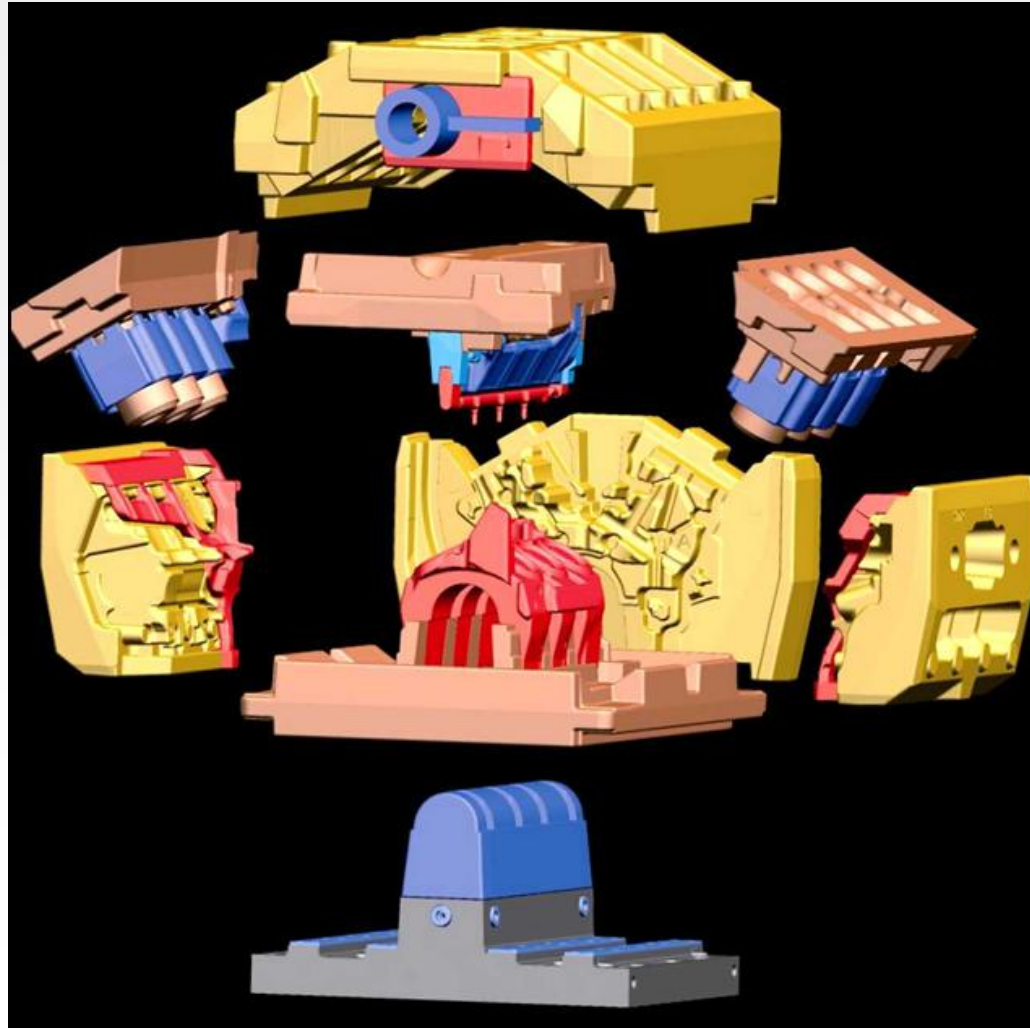
III. KLEINSERIE

QUALITÄTSSICHERUNG



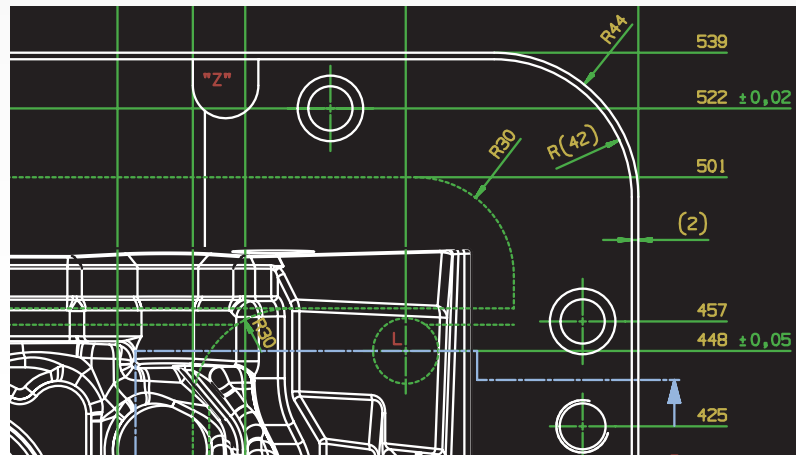
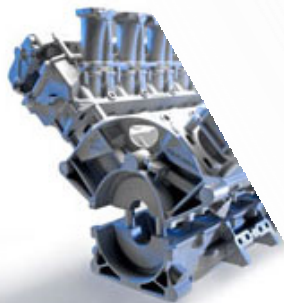
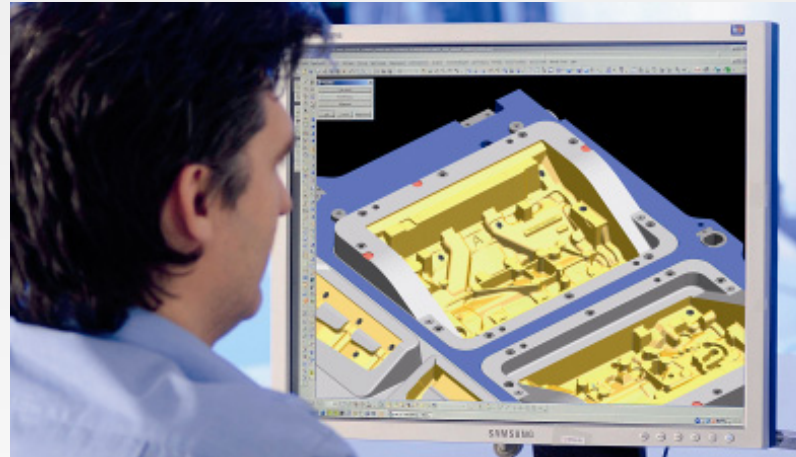
Engineering:

3D- Datenmodelle



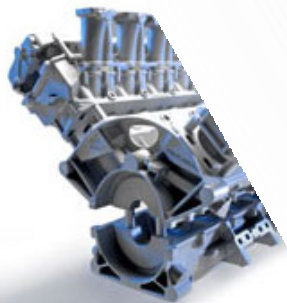
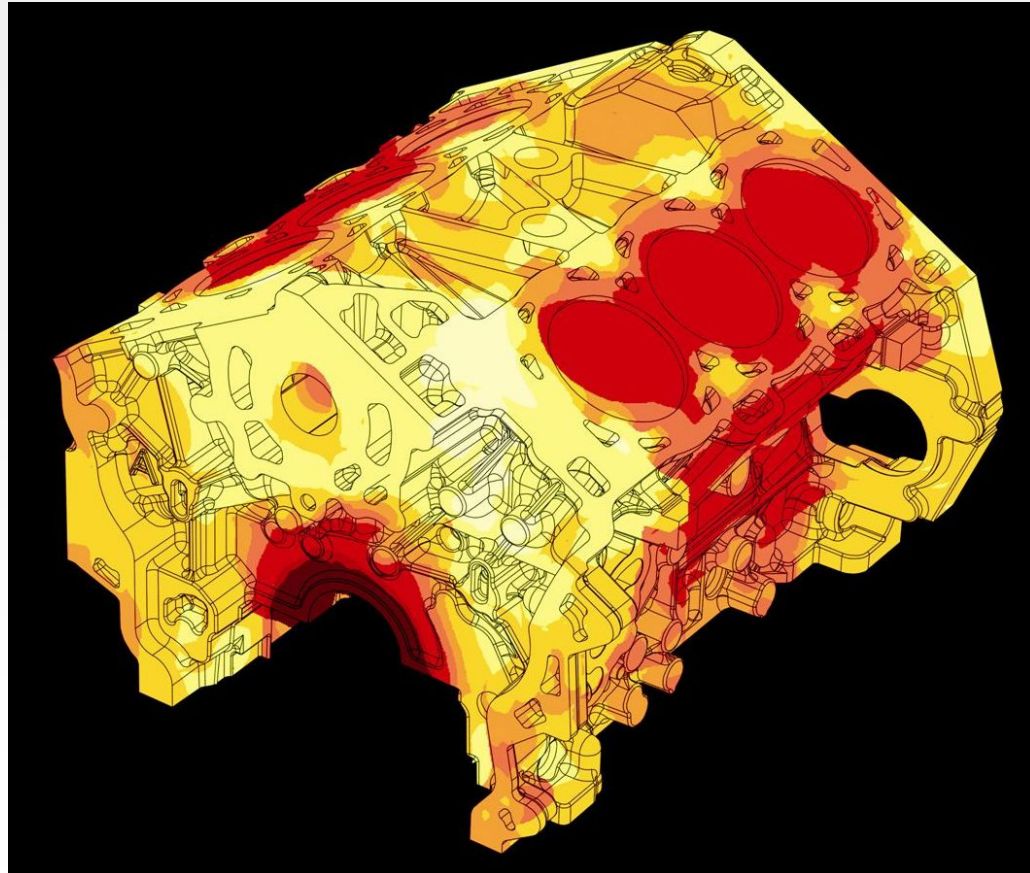
Engineering:

Werkzeugkonstruktion

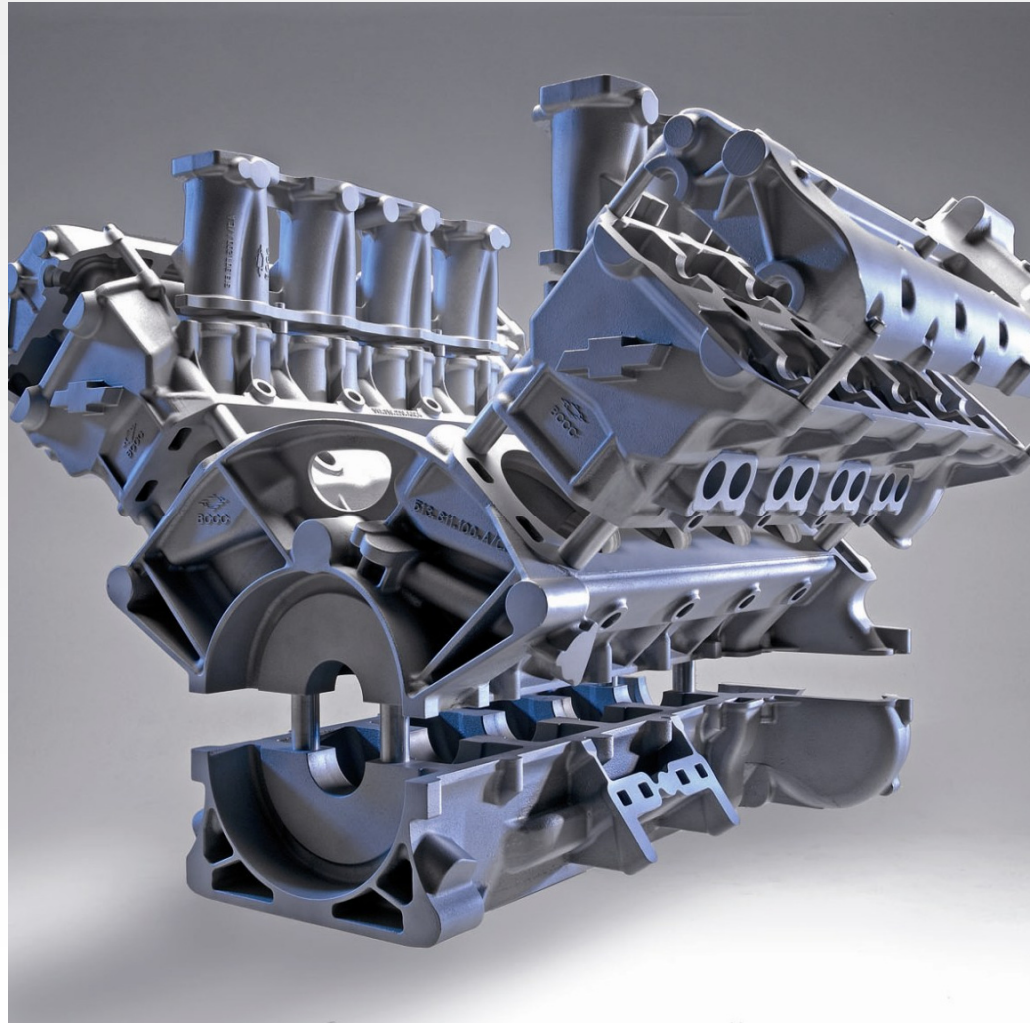
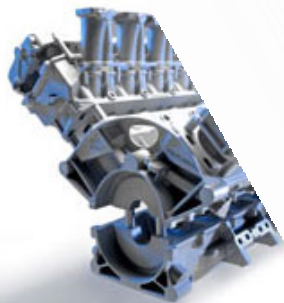


Engineering:

Computersimulation

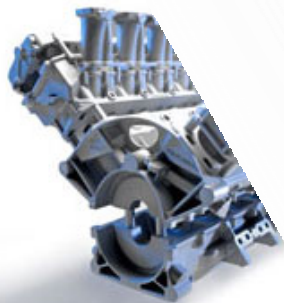


Rapid Prototyping



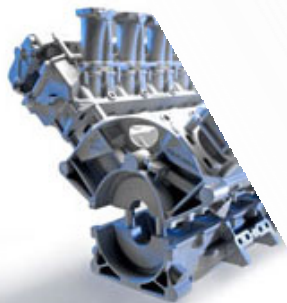
Rapid Prototyping:

Konv. Kernherstellung



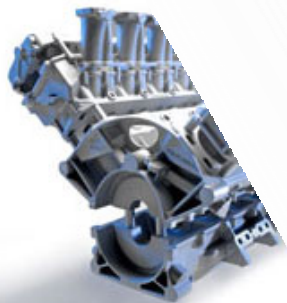
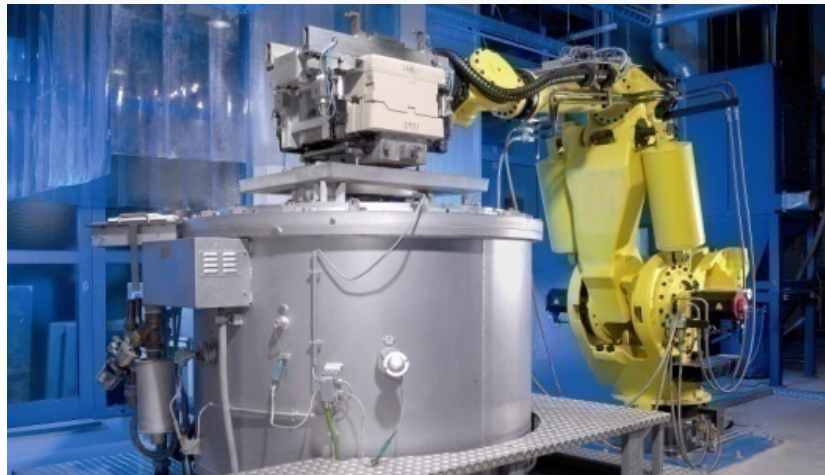
Rapid Prototyping:

RP-Printkernfertigung



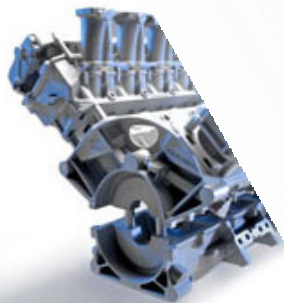
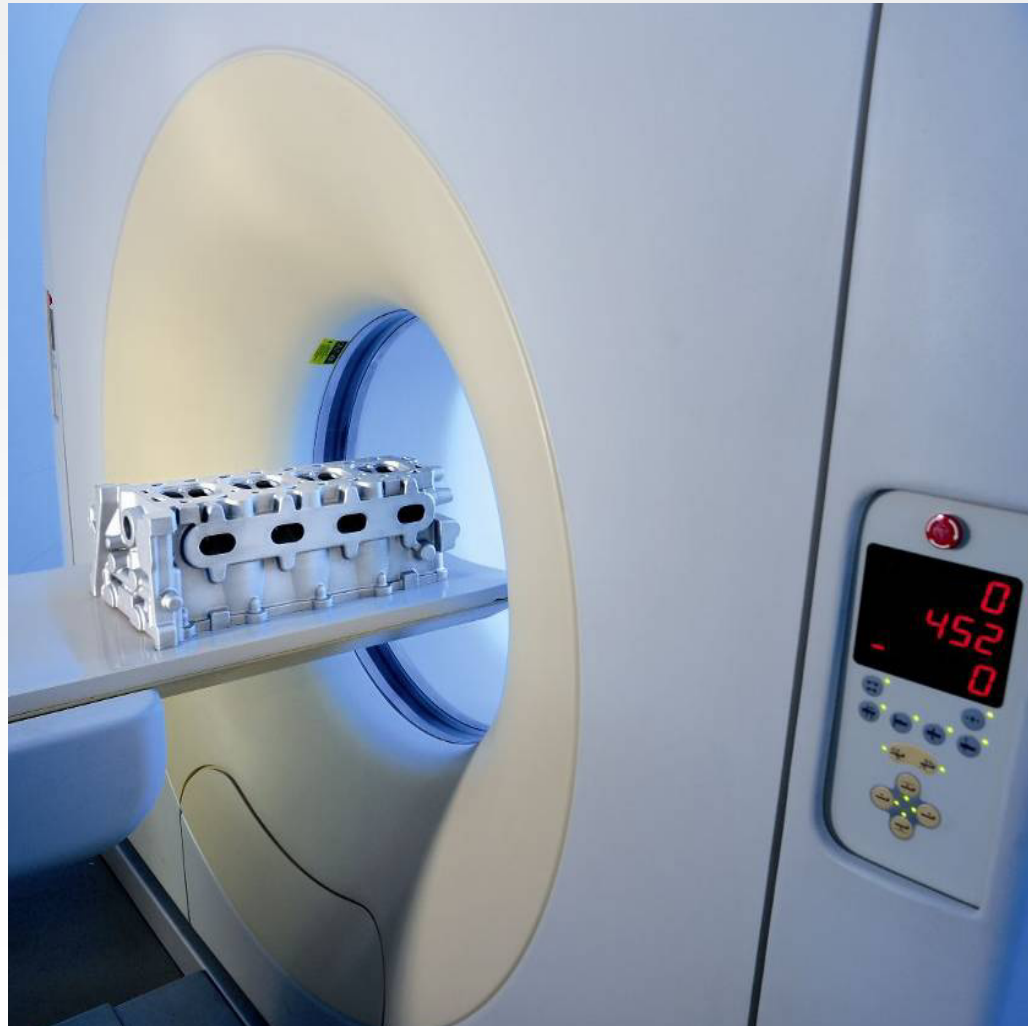
Rapid Prototyping:

Niederdruck-Sandguss

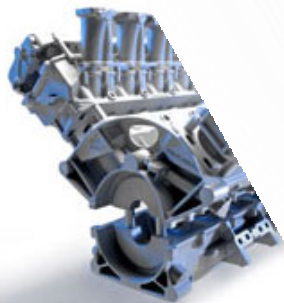


Qualitätssicherung:

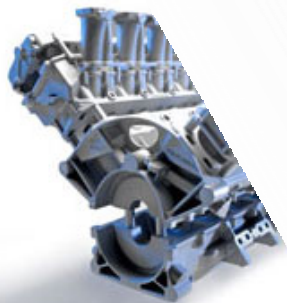
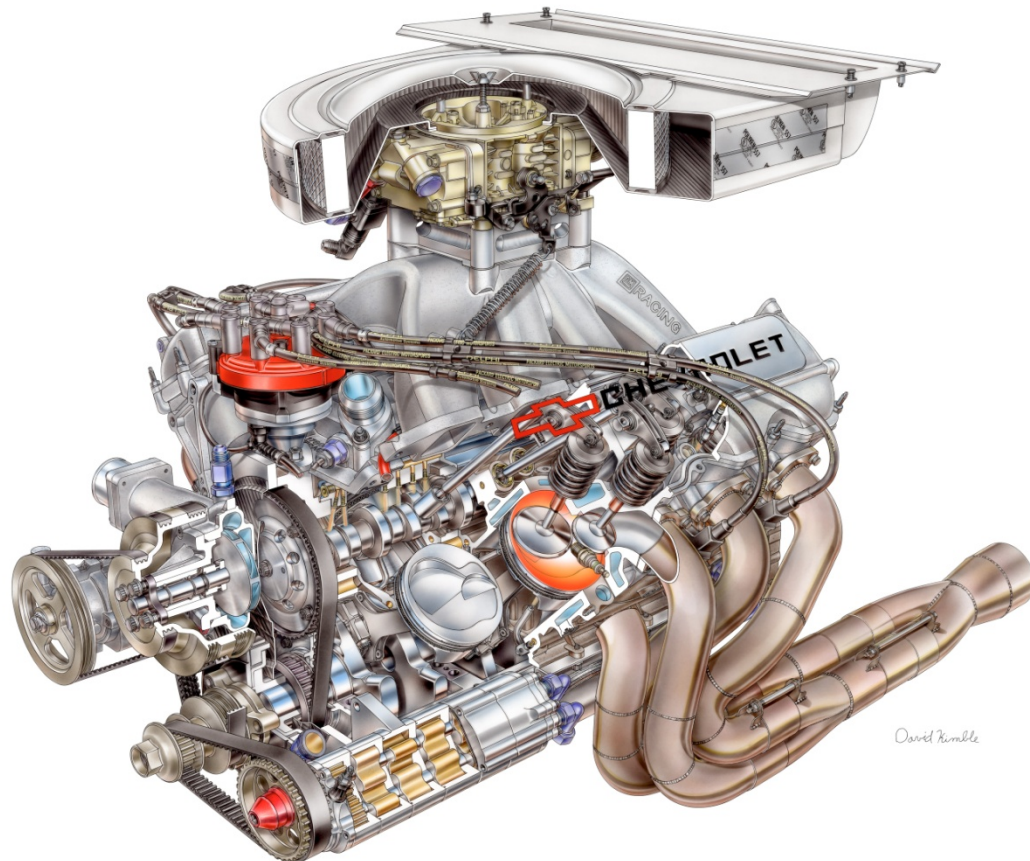
Computertomographie



NASCAR: Vom Prototypen- zum Kleinserien-Lieferant

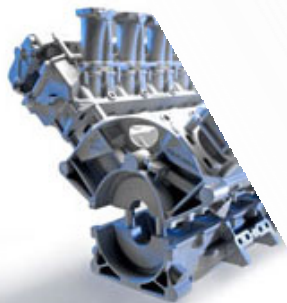


NASCAR: Vom Prototypen- zum Kleinserien-Lieferant



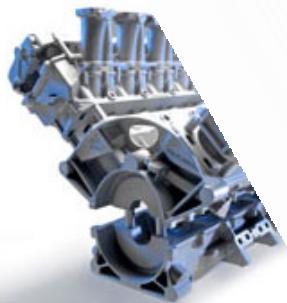
Entwicklung

- 2000-2005 Diverse Prototypen-Motoren Projekte
- Mai 2005 Erstes “Kleinserien-Gespräch”
- Dez. 2005 Kleinserien Pilot Anlage



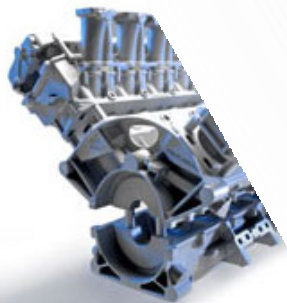
Kernprozesse:

Anorganische Kernfertigung



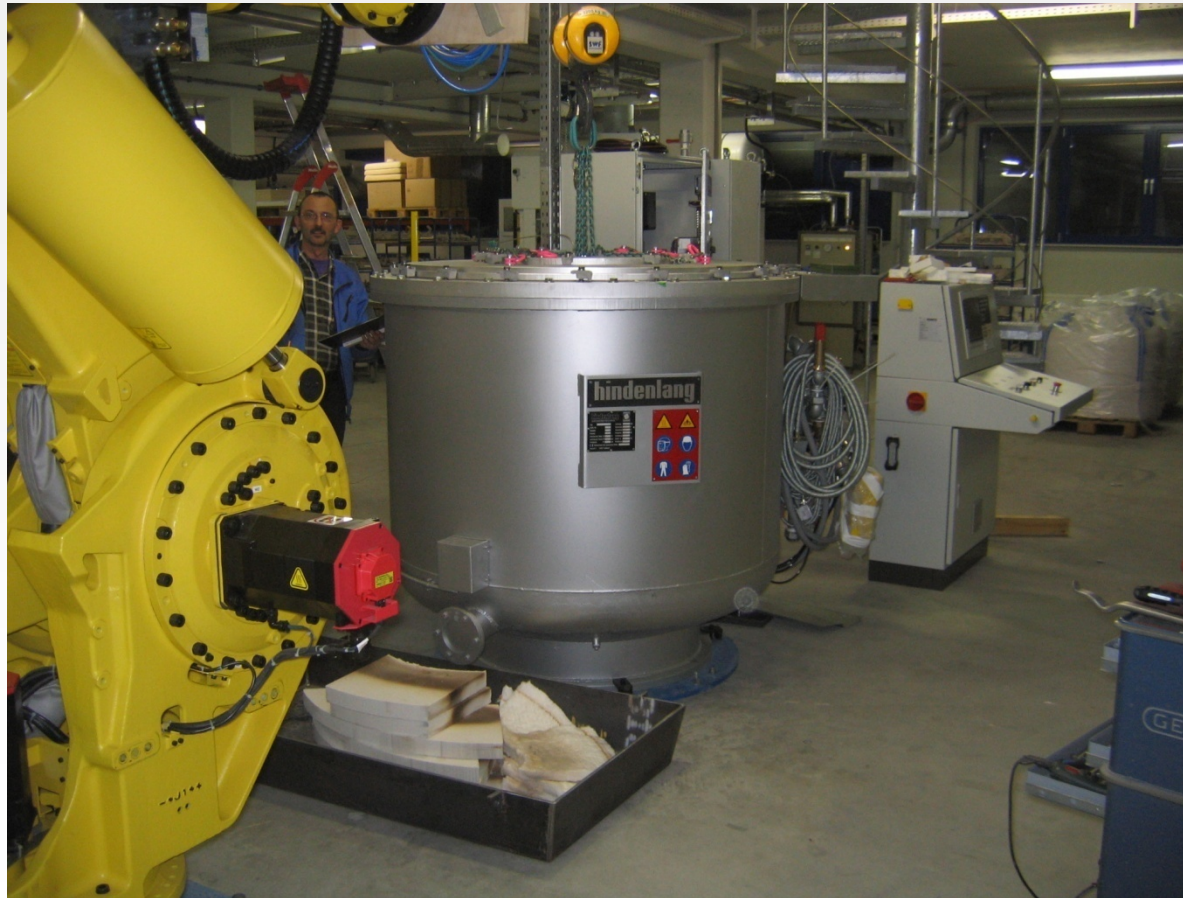
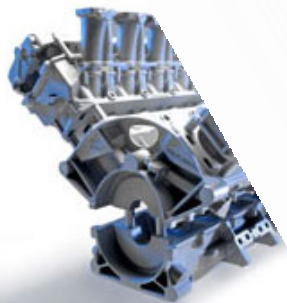
Kernprozesse:

Roboter Kernpaket Handling



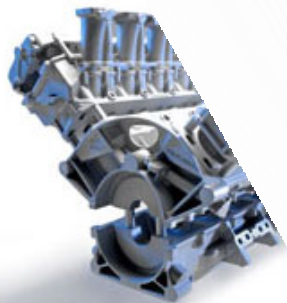
Kernprozesse:

Niederdruck-Sandguss



Kernprozesse:

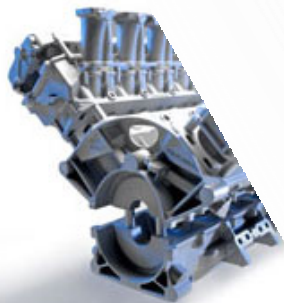
Automation

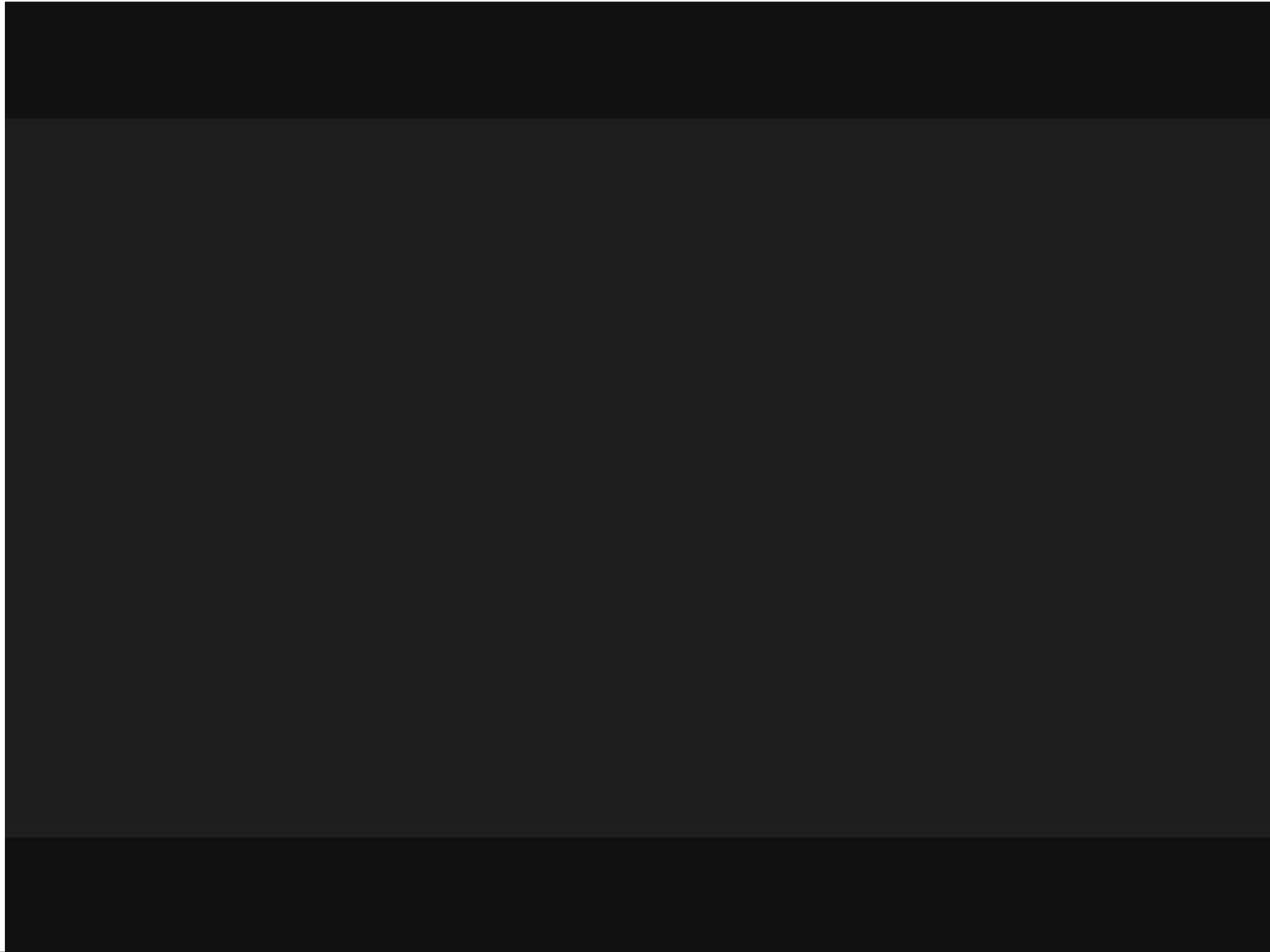


Entwicklung

- 2000-2005 Diverse Prototypen-Motoren Projekte
- Mai 2005 Erstes “Kleinserien-Gespräch”
- Dez. 2005 Kleinserien Pilot Anlage

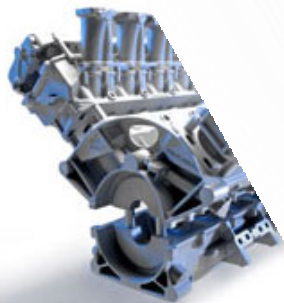
- 2006-2007 > 2.400 Zylinderköpfe (2 versch.)
- 2007 Kleinserien-Gießerei





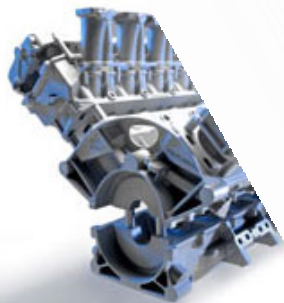
Vorteile von anorganischen Bindersystemen

- Minimale Emissionen
- Kein Kondensat
- Reduziertes Kerngas
- Erhöhte Design Flexibilität
- Hohe Anfangsfestigkeit der Kerne
- Reduzierte Werkzeug-Wartung

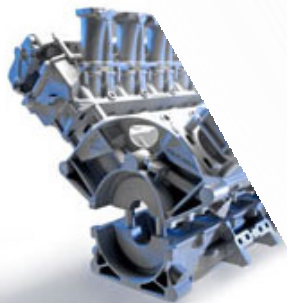
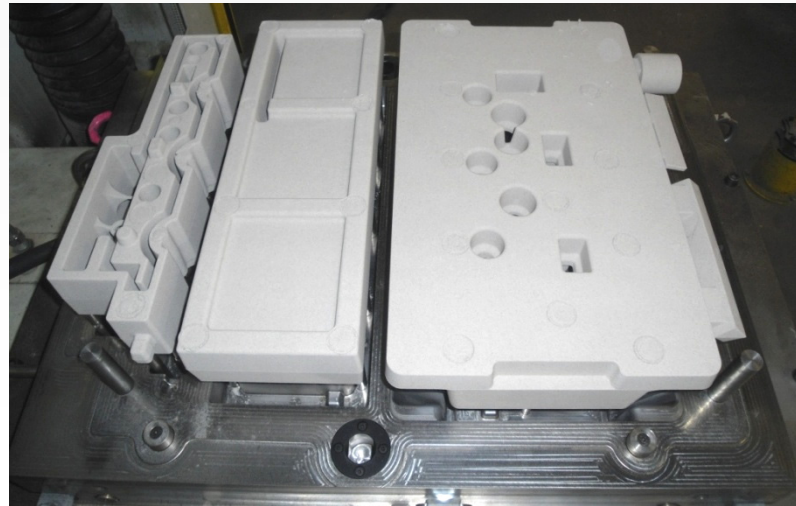
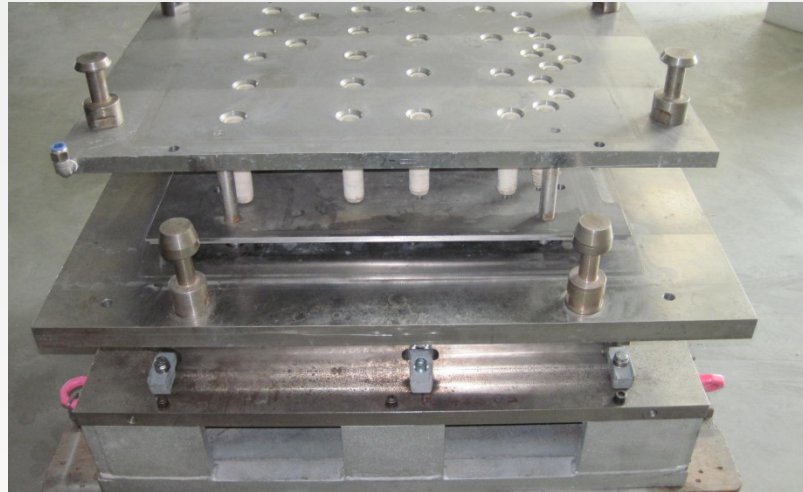


Nachteile von anorganischen Bindersystemen

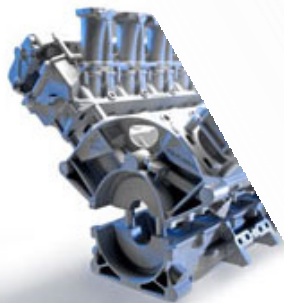
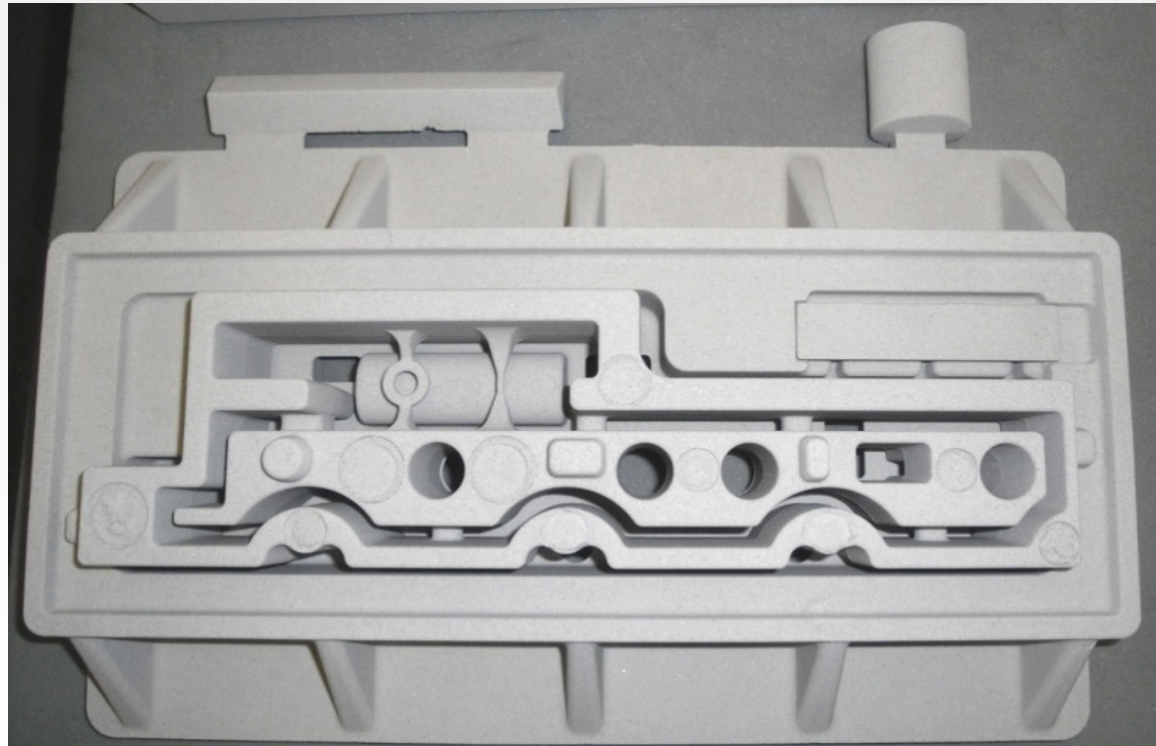
- Heiße Werkzeuge
- Taktzeit
- Aushärtung der Schusssdüsen
- Planieren der Einschüsse
- Sandanhaftung am Guss
- Kernlagerung
- Sprödes Bindersystem
- Restsand – keine thermische Zersetzung



Versuchswerkzeug



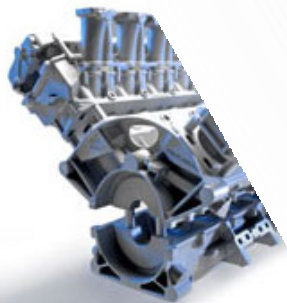
Gießform



Prüfkriterien

Prüfkriterien Kernfertigung

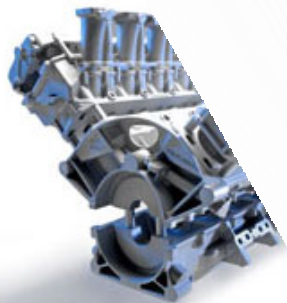
- Kerngewicht
- Gasdurchlässigkeit
- Biegefestigkeit
- Thermische Stabilität
- Lagerfähigkeit
- Fließfähigkeit



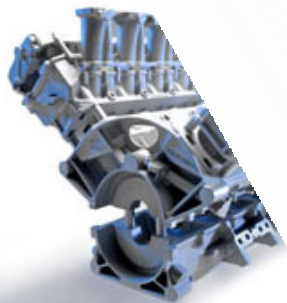
Prüfkriterien

Prüfkriterien Gießprozess

- Gießen (unterschiedliche Lagerzeiten)
- Entkernbarkeit
- Oberflächenrauigkeit
- Gussfehler (Computertomographie)
- Maßhaltigkeit / Deformation (CNC-Messmaschine)



Vielen Dank für Ihre Aufmerksamkeit.





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