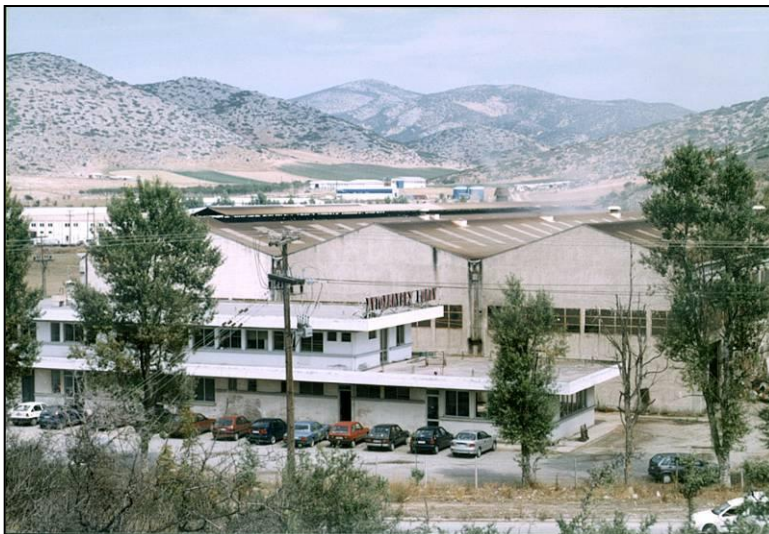
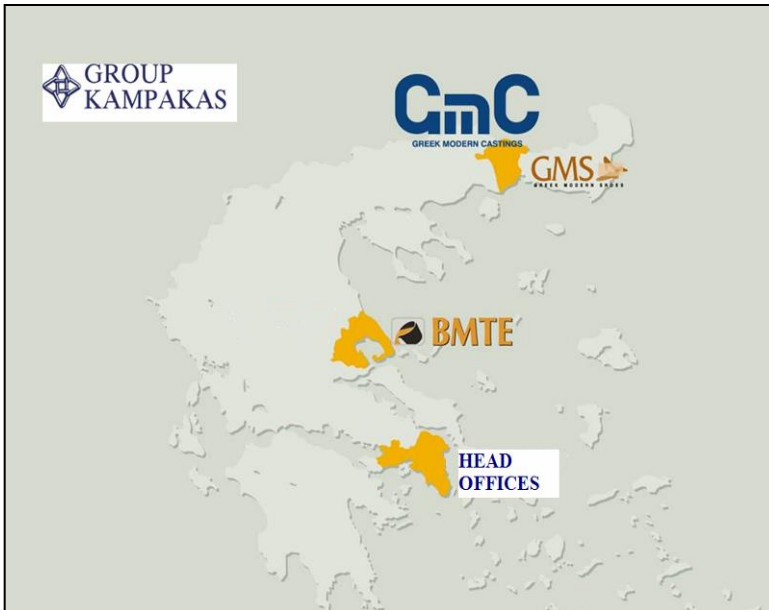




GROUP  
KAMPAKAS







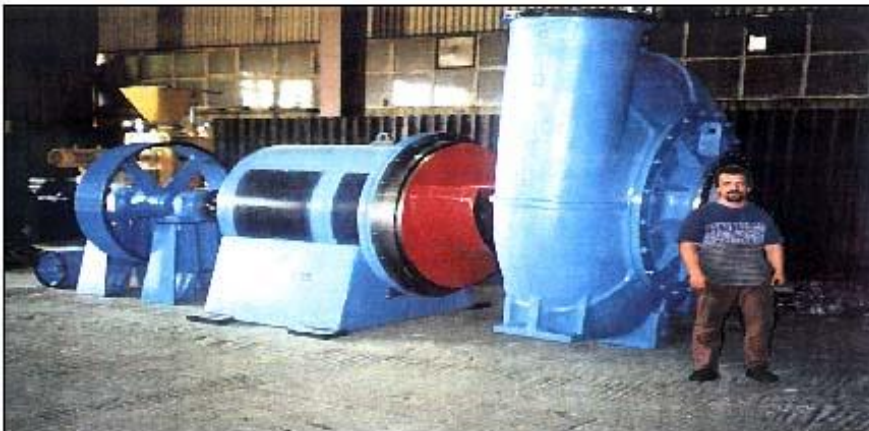
## Casting & Forging



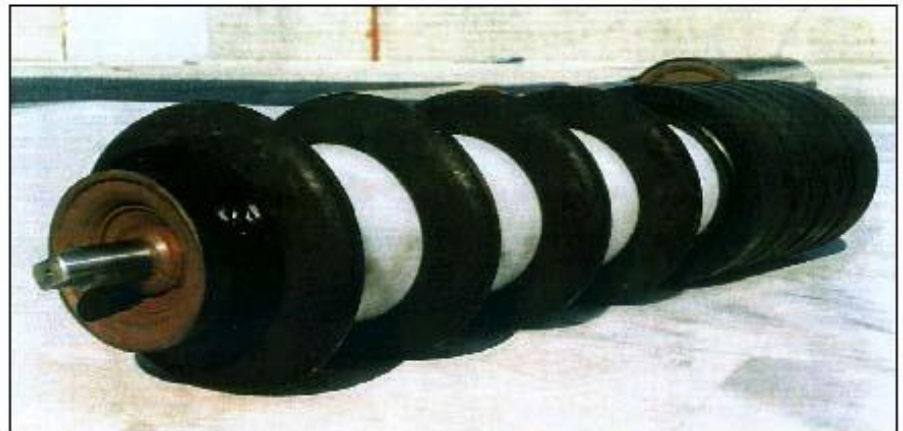
## Machining



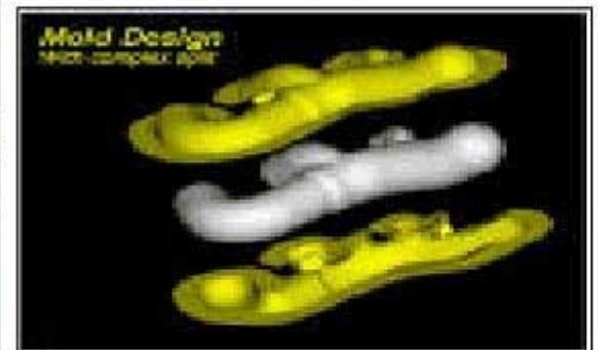
## Metal Constructions



## Assembly

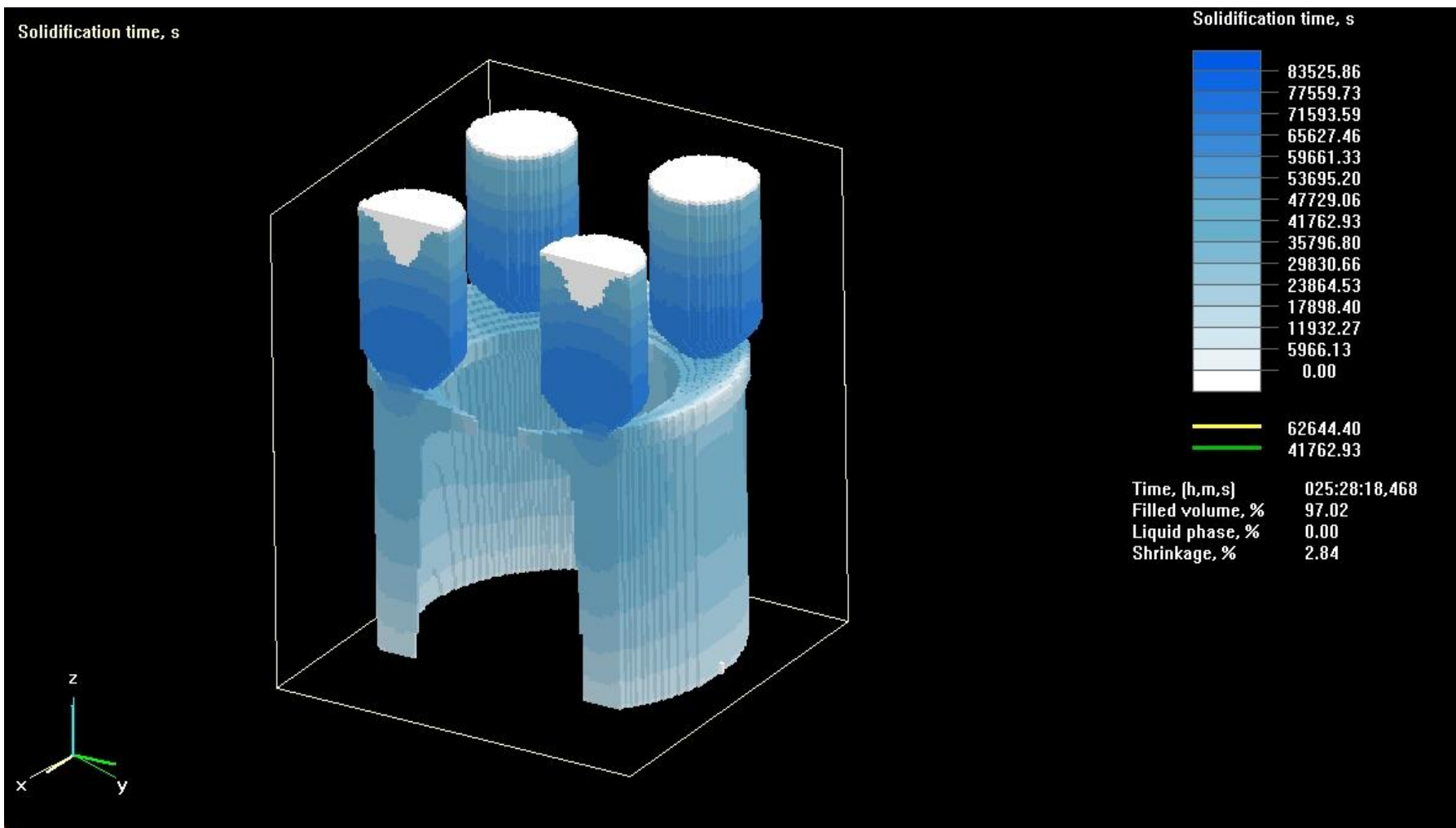


## Prototyping



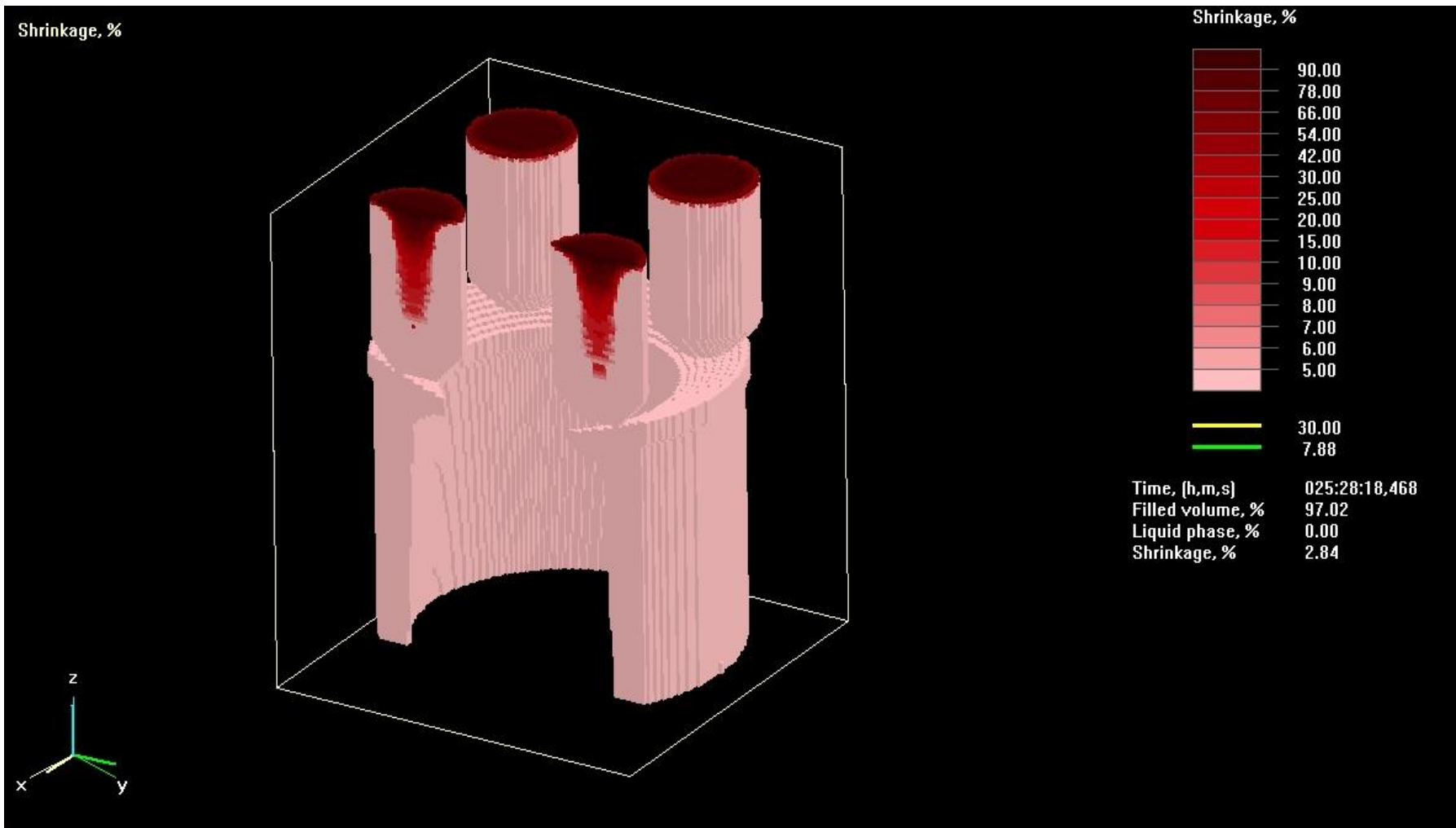


**CAD CAM FEA FEM**



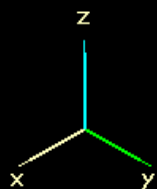
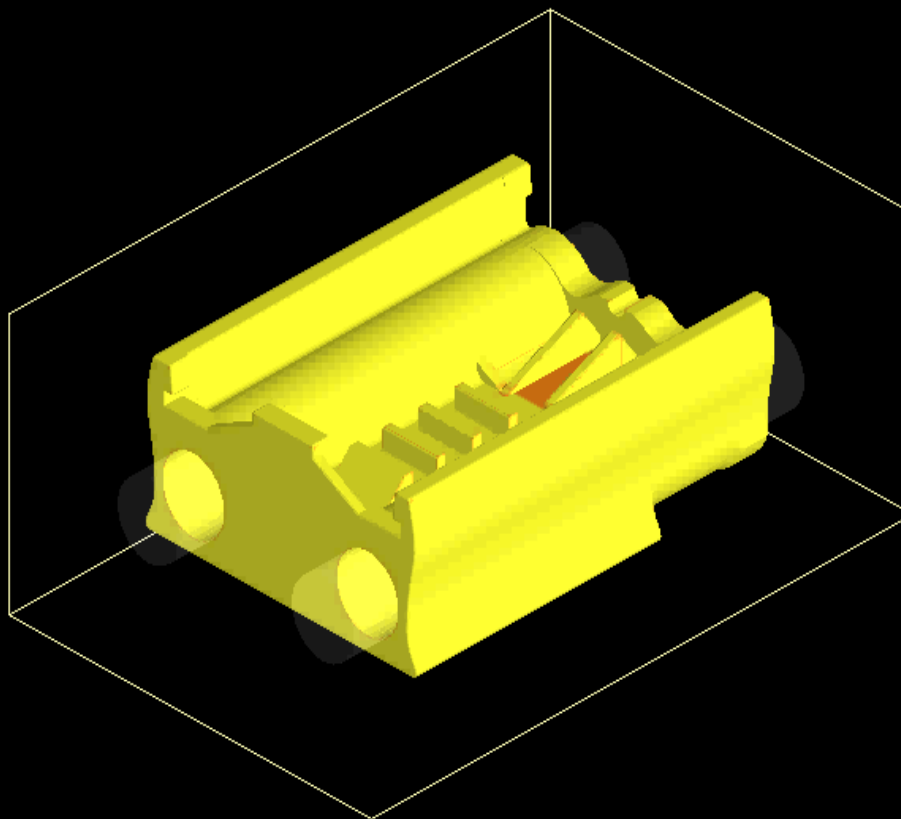
**MAGMA – SOLIDIFICATION ANALYSIS**

**CAD CAM FEA FEM**

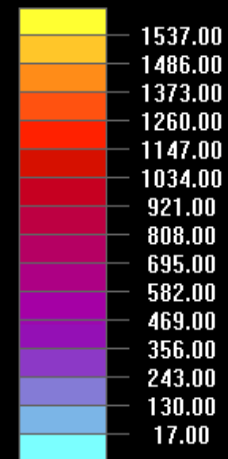


**MAGMA – INTERNAL DEFECT PREDICTION**

Temperature, °C



Temperature, °C



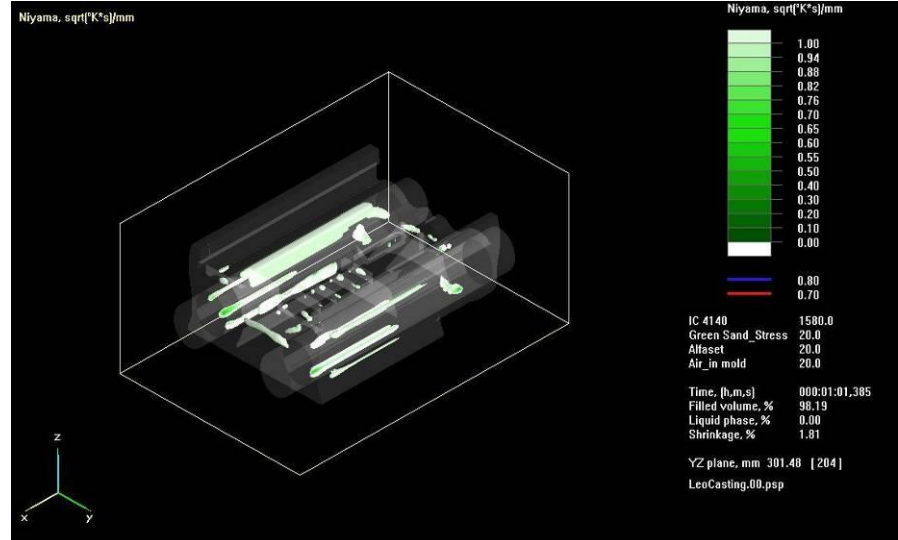
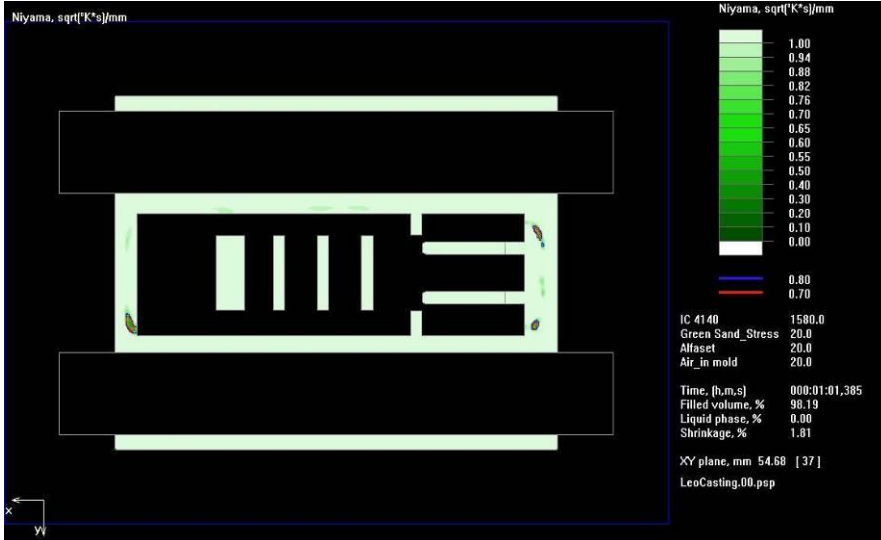
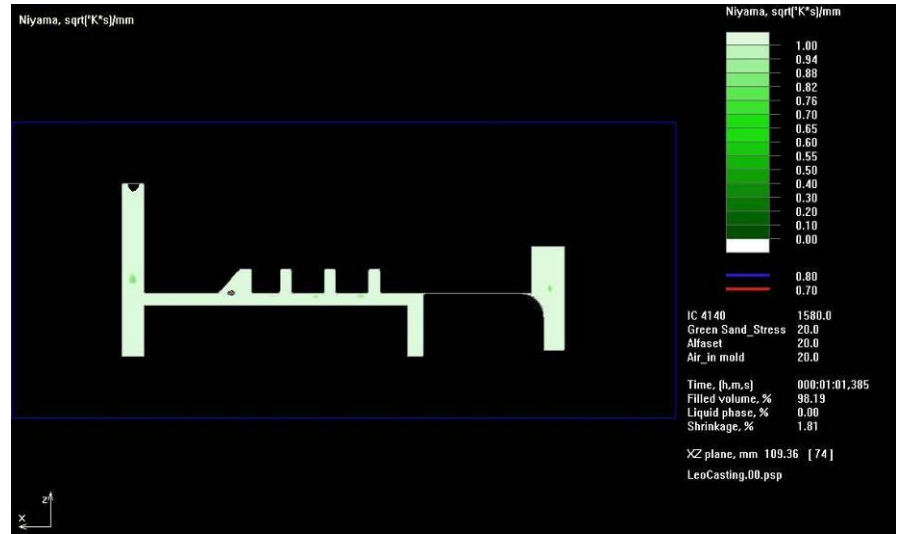
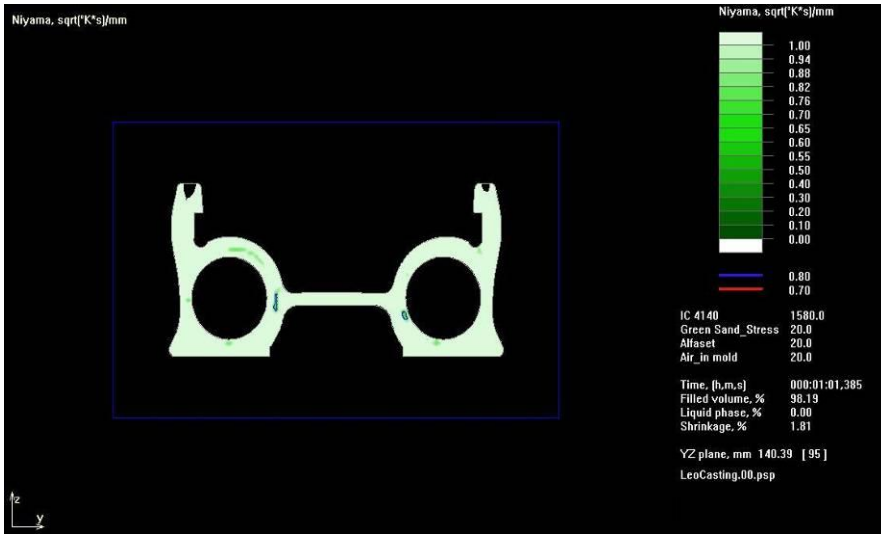
1486.00  
1148.00

IC 4140	1580.0
Green Sand_Stress	20.0
Alfaset	20.0
Air_in mold	20.0

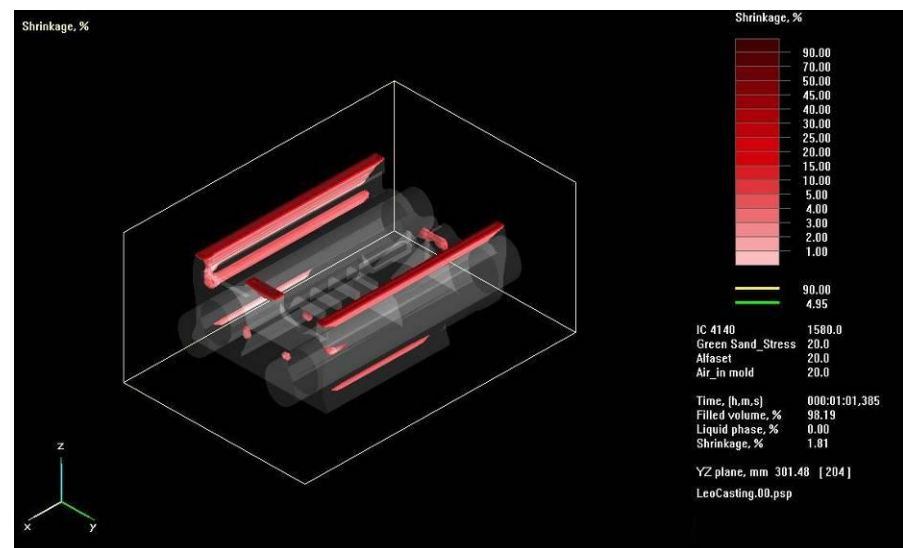
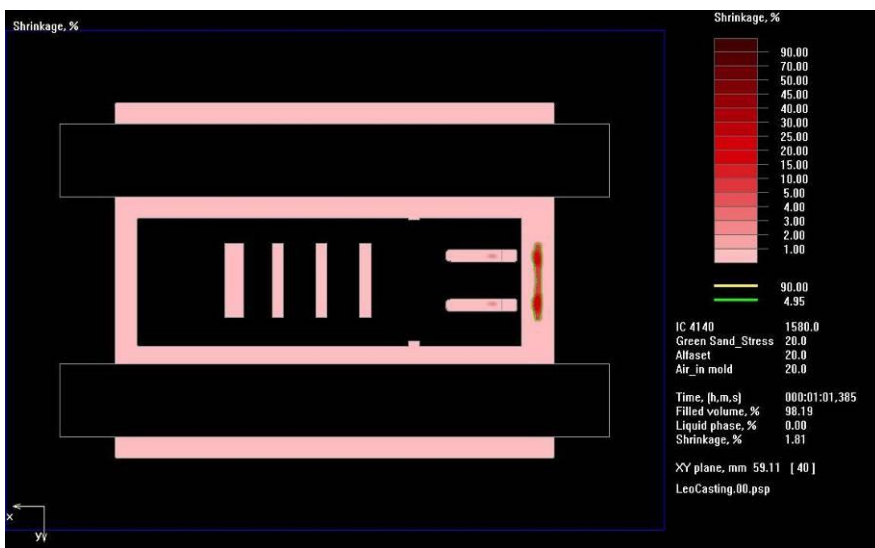
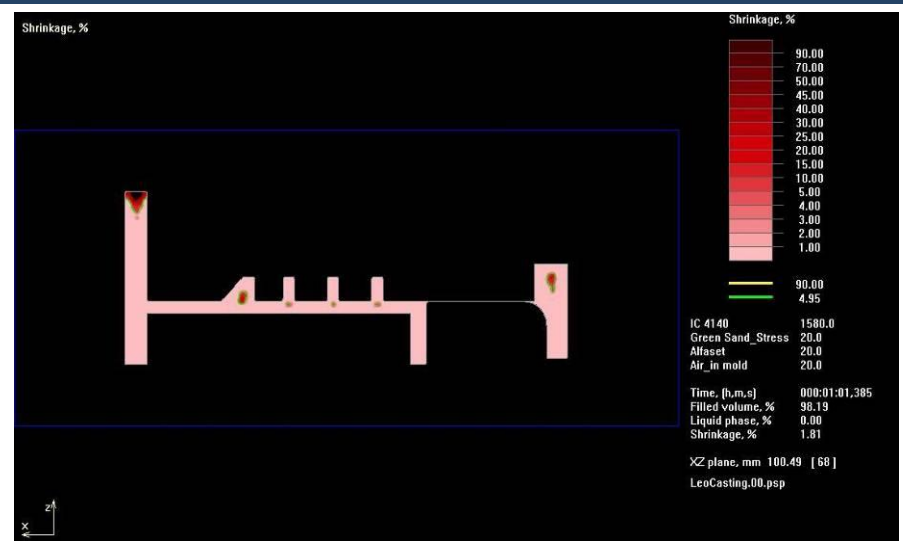
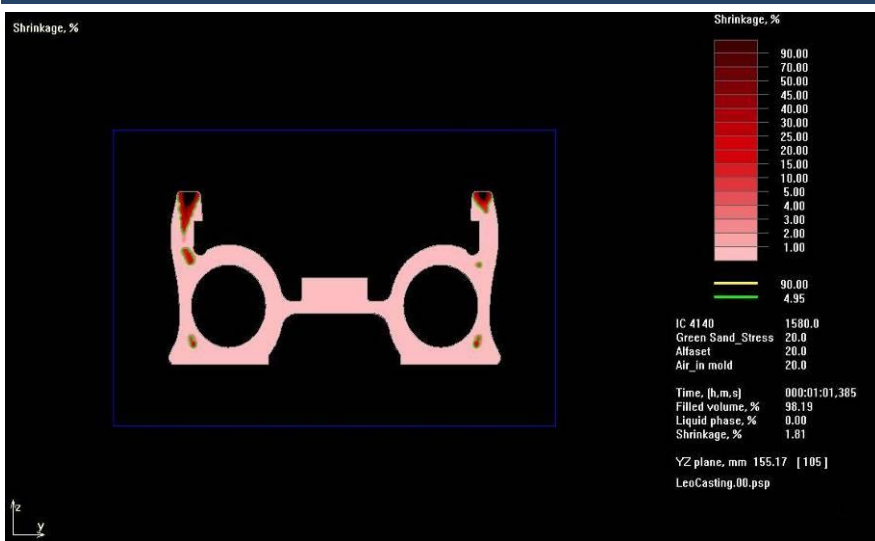
Time, (h,m,s)	000:00:00,006
Filled volume, %	99.97
Liquid phase, %	99.90
Shrinkage, %	0.03

YZ plane, mm 301.48 [ 204 ]

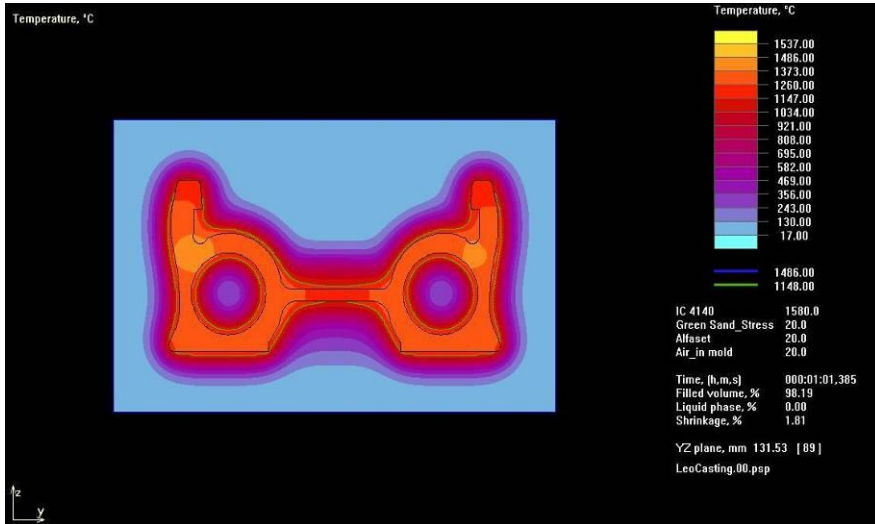
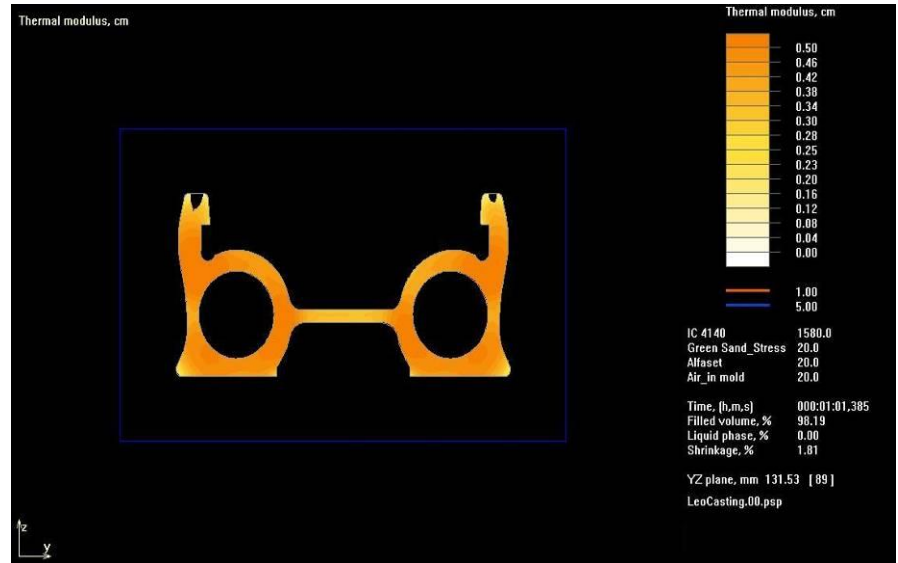
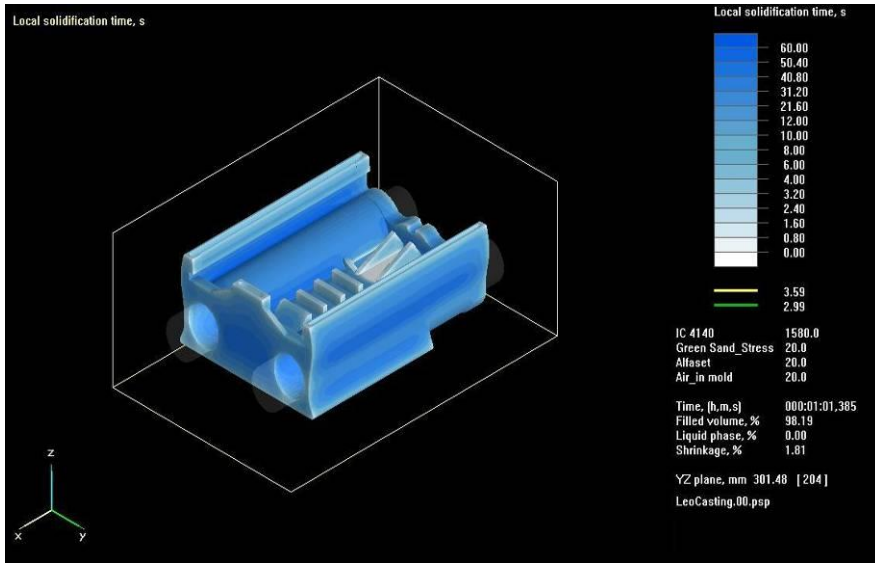
LeoCasting.00.psp







## CASTING SIMULATION



## CASTING SIMULATION

## Molding



**Quartz Sand**



**Olivine Sand**



**Chromite Sand**



**Zircon Sand**





## Molding



**Green  
Sand Molding**



**Resin  
Bonded Sand  
Cold Box**



**Coated Sand  
(Shell Molding)**



**Permanent Mold**



## Molding





## Melting Steel Making





## Casting-Alloys

### Steel

**Carbon Steels  
Low Alloyed Steels  
Corrosion & Heat Resistant Steels  
Austenitic Manganese Steels**

### Cast Iron

**Gray Cast Iron  
Ductile Cast Iron  
White Cast Iron  
High Chromium Cast Iron  
Ni-Hard**

### Aluminum Alloys

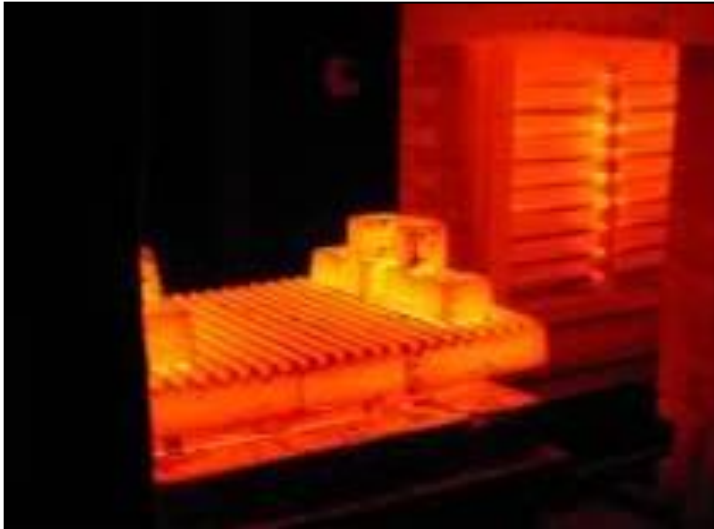
**Al-Mg-Si  
Al-Cu**

### Copper Alloys

**Brass  
Bronze  
Aluminum Bronze  
Manganese Bronze**

**ASTM  
DIN-EN  
AFNOR  
JIS  
SAE  
TGL  
BS  
LLOYDS**

## Heat Treatment



### **Standard Heat Treatment**

**Annealing**

**Normalizing**

**Quenching in air oil and water**

**Tempering**

**Solution Hardening–Ageing (Al)**



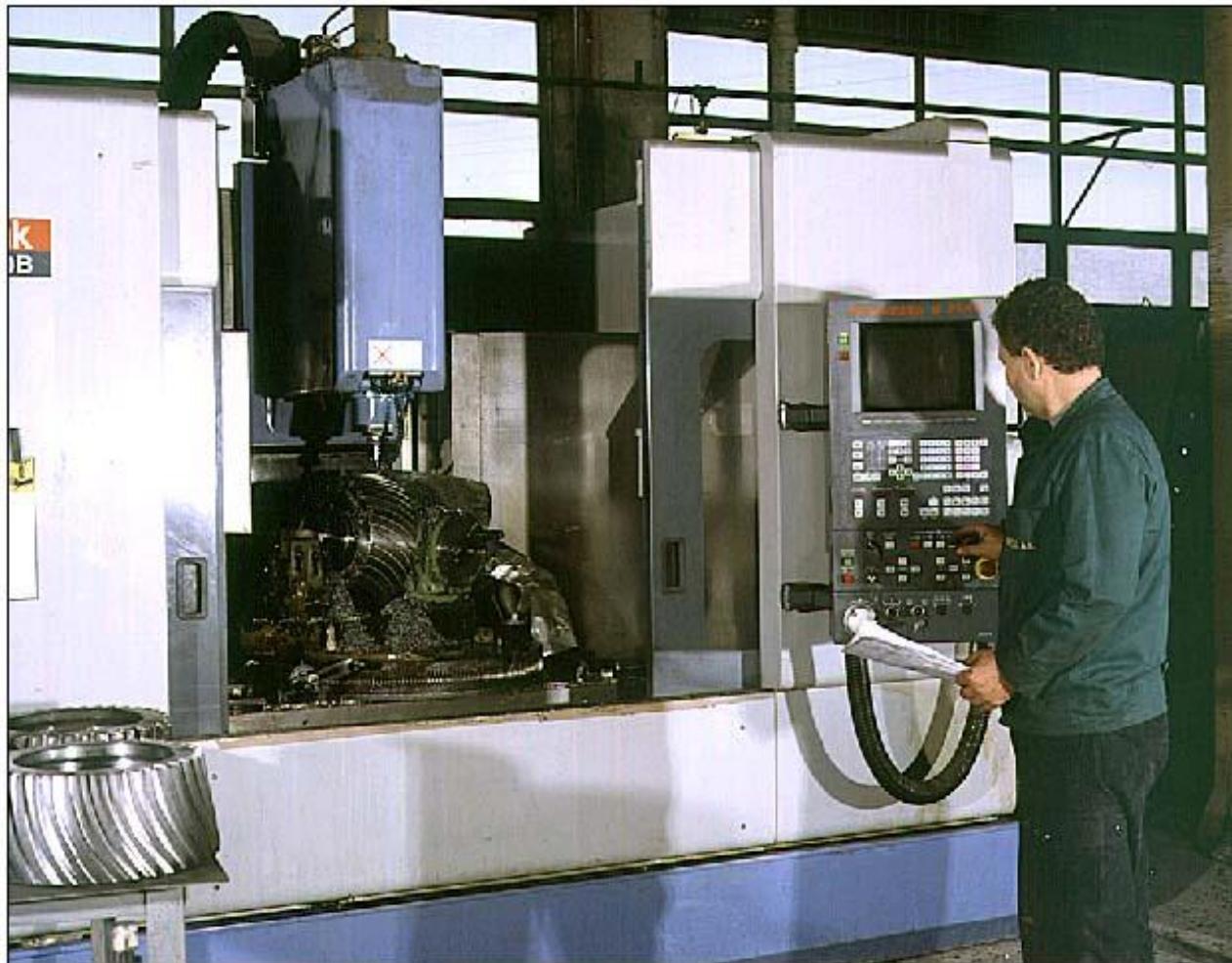
### **Surface Hardening**

**Induction Hardening**

**Flame hardening**



## CNC Machining



CNC MAZAK



HORIZONTAL CNC  
MACHINING CENTRE



BORING CNC-SHAFT  
 $\Phi 120$ -(2 x 2 x 2 m)



## Conventional Machining



VERTICAL LATHE 5.5 M DIA



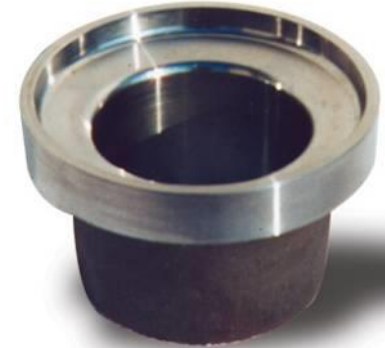
HORIZONTAL LATHE-1  
METER DIA-5 METERS  
LENGTH



BORING – SHAFT  $\Phi 100$



## Metal Constructions and Forgings



**HYDRAULIC PRESS**

## ISO 9001

ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ  
HELLENIC REPUBLIC  
ΥΠΟΥΡΓΕΙΟ ΕΘΝΙΚΗΣ ΑΜΥΝΑΣ  
MINISTRY OF NATIONAL DEFENCE  
ΓΕΝΙΚΗ ΔΙΕΥΘΥΝΣΗ ΑΜΥΝΤΙΚΩΝ ΕΞΟΠΛΙΣΜΩΝ & ΕΠΕΝΔΥΣΕΩΝ  
GENERAL DIRECTORATE FOR DEFENCE ARMAMENTS & INVESTMENTS

**Β Ε Β Α Ι Ω Σ Η**  
**C E R T I F I C A T E**

ΒΕΒΑΙΩΝΕΤΑΙ ΟΤΙ Η ΕΛΛΗΝΙΚΗ ΕΤΑΙΡΕΙΑ:  
THIS IS TO CERTIFY THAT THE HELLENIC COMPANY:

**ΚΑΜΠΑΚΑΣ ΑΒΕΕ – ΕΡΓΟΣΤΑΣΙΟ ΞΑΝΘΗΣ**  
Διομήδεια ΤΘ 114, 67 100 Ξάνθη  
**KAMPAKAS SA – XANTHI PLANT**  
Diomidia P.O.Box 114, 67 100 Xanthi, GREECE

ΕΙΝΑΙ ΕΓΓΕΓΡΑΜΜΕΝΗ ΣΤΟ "ΜΗΤΡΩΟ ΚΑΤΑΣΚΕΥΑΣΤΩΝ ΑΜΥΝΤΙΚΟΥ ΥΛΙΚΟΥ ΤΟΥ ΥΠΕΘΑ" ΜΕ ΑΥΞΟΝΤΑ  
ΑΡΙΘΜΟ ΜΗΤΡΩΟΥ: 0079 ΓΙΑ ΔΡΑΣΤΗΡΙΟΤΗΤΕΣ ΣΤΟΥΣ ΤΟΜΕΙΣ:

- ΚΑΤΑΣΚΕΥΗΣ ΧΥΤΩΝ & ΣΦΥΡΗΛΑΤΩΝ ΜΕΤΑΛΛΙΚΩΝ ΜΕΡΩΝ ΚΑΙ ΕΞΑΡΤΗΜΑΤΩΝ ΓΙΑ ΑΜΥΝΤΙΚΑ ΣΥΣΤΗΜΑΤΑ

IS REGISTERED IN "THE REGISTRY OF DEFENCE MATERIEL MANUFACTURERS OF THE HELLENIC MOD", CERTIFICATE NUMBER: 0079, FOR THE ACTIVITIES OF:

- MANUFACTURING OF CAST & FORGED METAL PARTS AND COMPONENTS FOR DEFENCE SYSTEMS

Η ΙΣΧΥΣ ΤΗΣ ΠΑΡΟΥΣΗΣ ΒΕΒΑΙΩΣΗΣ ΕΙΝΑΙ ΜΕΧΡΙ 31 ΑΥΓΟΥΣΤΟΥ 2012  
THIS CERTIFICATE IS VALID UNTIL 31 AUGUST 2012

Η ΒΕΒΑΙΩΣΗ ΑΥΤΗ ΕΧΕΙ ΕΚΔΟΘΕΙ ΣΕ ΕΦΑΡΜΟΓΗ ΤΟΥ ΠΔ 3/2008 (ΦΕΚ Α' 3/14 Ιαν. 2008) ΚΑΙ Η ΙΣΧΥΣ ΤΗΣ ΕΞΑΡΤΑΤΑ ΑΠΟ ΤΗΝ ΣΥΝΧΗ  
ΣΥΜΜΟΡΦΩΣΗ ΤΗΣ ΕΤΑΙΡΕΙΑΣ ΜΕ ΤΑ ΠΡΟΒΛΕΠΟΜΕΝΑ ΣΕ ΑΥΤΟ  
THIS CERTIFICATE HAS BEEN ISSUED IN ACCORDANCE WITH PRESIDENTIAL DECREE 3/2008 (FEK A' 3/14 Jan. 2008) AND ITS VALIDITY  
DEPENDS ON THE UNINTERRUPTED COMPLIANCE OF THE COMPANY WITH ITS TERMS AND CONDITIONS

Ημερομηνία/Date 31 Αυγούστου/August 2010

  
ΕΥΑΓΓΕΛΟΣ ΒΑΣΙΛΑΚΟΣ - ANGELOS VASILAKOS  
ΓΕΝΙΚΟΣ ΔΙΕΥΘΥΝΤΗΣ - GENERAL DIRECTOR

EUROPEAN QUALITY ASSURANCE - EUROPEAN QUALITY ASSURANCE



**C E R T I F I C A T E  
O F A S S E S S M E N T**

The certification Body  
European Quality Assurance Hellas  
certifies that

**KAMPAKAS S.A.**  
with address HEADOFFICE:DIOMIDEIA XANTHIS, 671 00 XANTHI  
SITE:B' VI.PE VOLOU, 381 00 VOLOS

has established and applies a Quality Management System which is in conformance with

**ELOT EN ISO 9001:2000**  
(Quality Management System)

for the following scope(s):

**METALLIC CONSTRUCTIONS - WELDINGS.  
MACHINE WORKS AND HEAT TREATMENTS.  
PRODUCTION AND SALES OF CASTINGS AND FORGING  
CASTINGS.**

  
GENERAL MANAGER  
CHARALAMBOS GALATSANOS

This Certificate of Conformity Number **1763** first issued on **14th JULY 2006**  
is valid until **13th JULY 2009** and is issued subject to the regulations and within  
the accredited scope of

European Quality Assurance Hellas  
Makedonias 7, 152 33 Chalandri, Athens Hellas



CERTIFICATE No 193 (A1/1)  
ELOT EN 45012

The use of accreditation mark indicates accreditation in respect of those activities covered by the accreditation certificate nr. 193 (A1/1)

EUROPEAN QUALITY ASSURANCE - EUROPEAN QUALITY ASSURANCE

### ISO 9001:2000

- Castings of Steel, cast Iron, Aluminum and Copper Alloys

- Production of Forgings

- Fabrications, Welded Structures and Machining Operations

### NATO CAGE CODES

**BMTE: G-1745**

**GMC: G-1508**

**KAMPAKAS: G-0897**

### HELENIC MOD:

**Certificate No 0079**



## QC Laboratories



**LABORATORY - XANTHI**

## QC Laboratories



SPECTROGRAPH Fe, Cu, Al-32 ELEMENTS



MICROHARDNESS-  
METALLOGRAPHY



EXPANSION METER



## Small Castings / Forgings - Machining





## Medium Castings - Machining

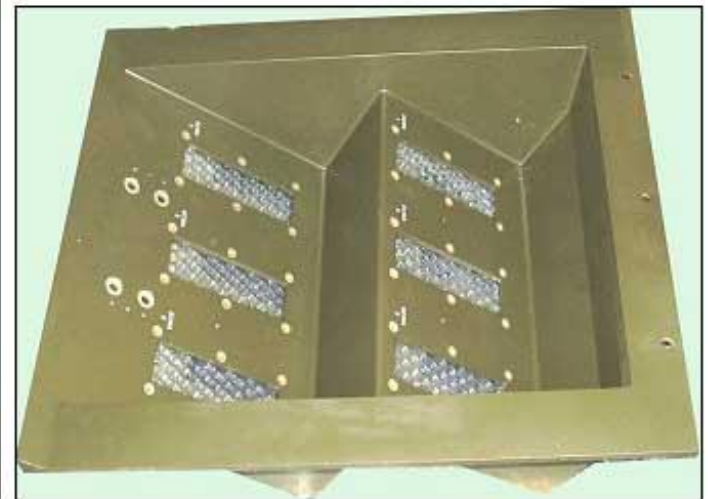
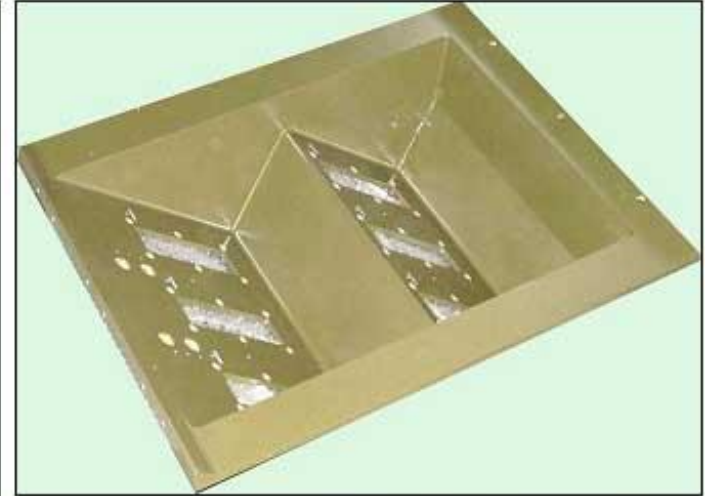
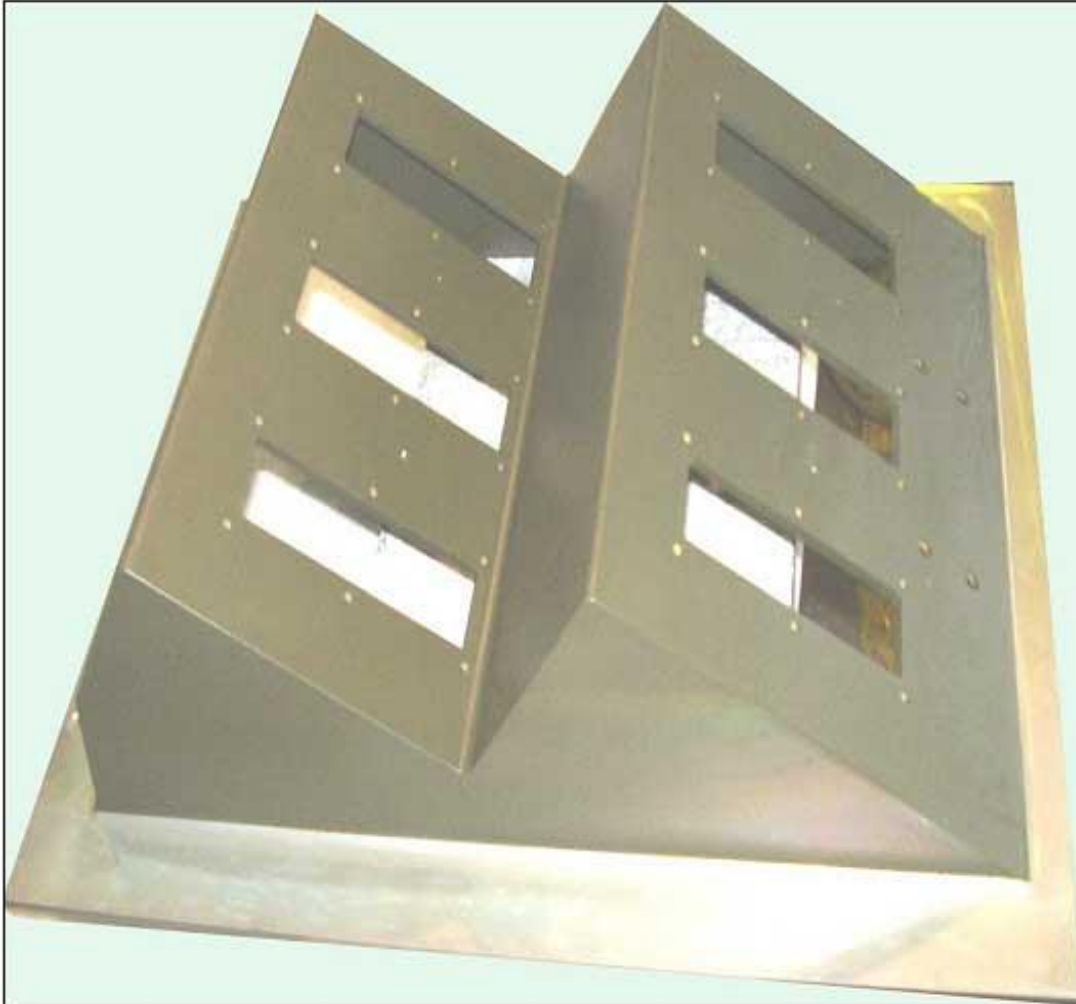


## Large Castings – Welded Structures - Machining



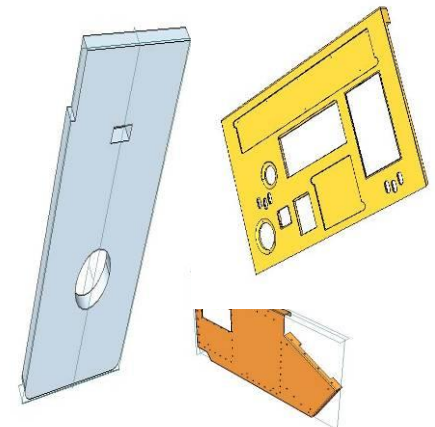


## Aluminum Castings



BOXES FOR ELECTRONICS HERMES II PROGRAM HAI

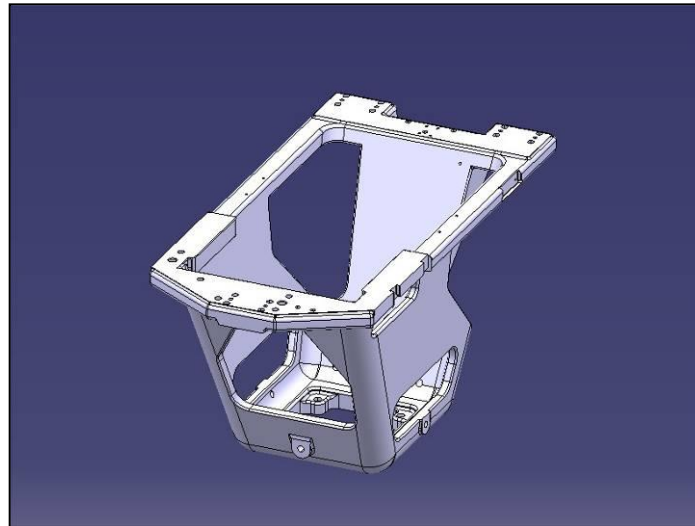
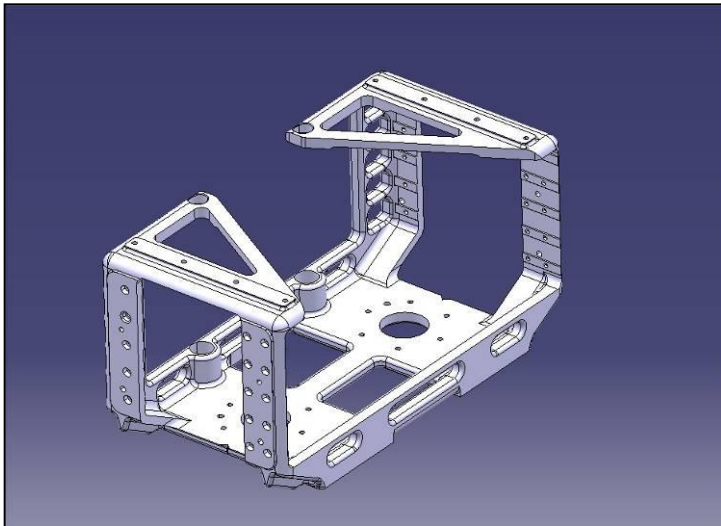
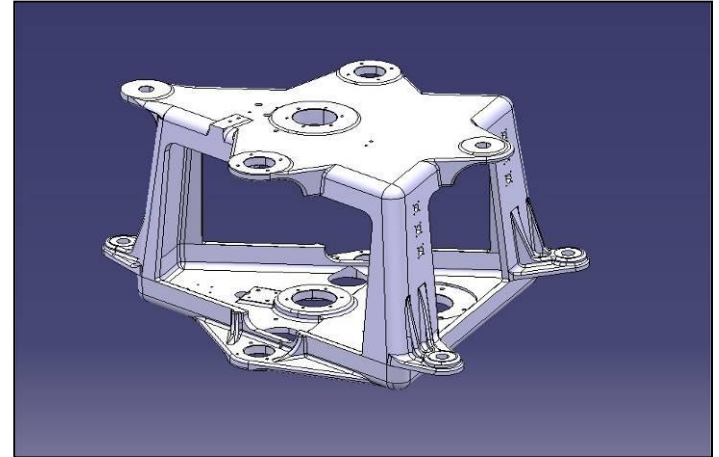
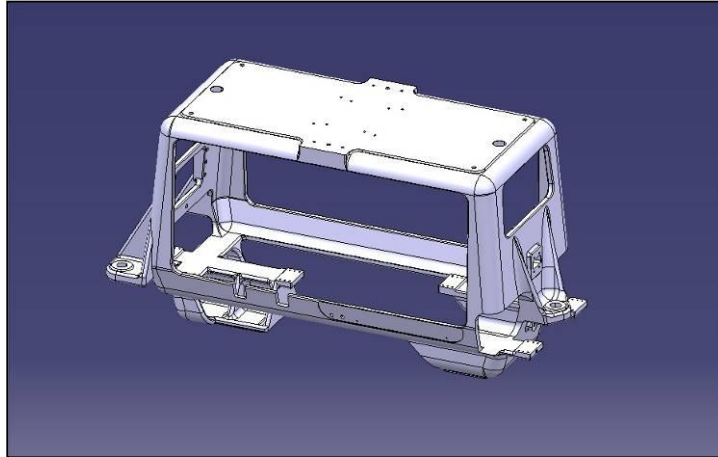
## Fabrications



**CONTROL CABINETS FOR WARSHIPS**

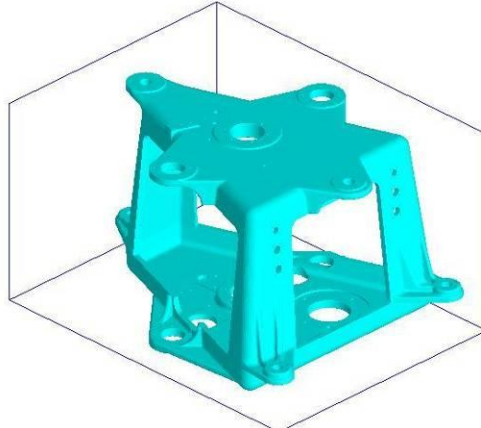


## Parts for CERN

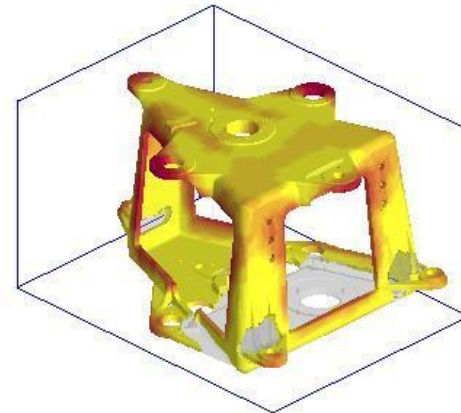


## Parts for CERN

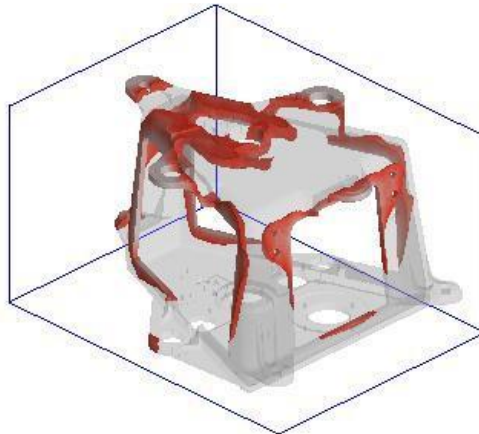
**Solid Model**



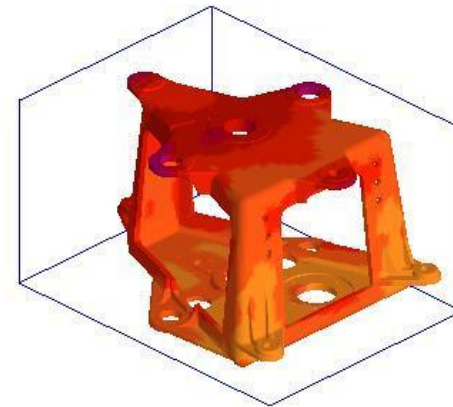
**Fluid Velocity**



**Local Solidification Time**



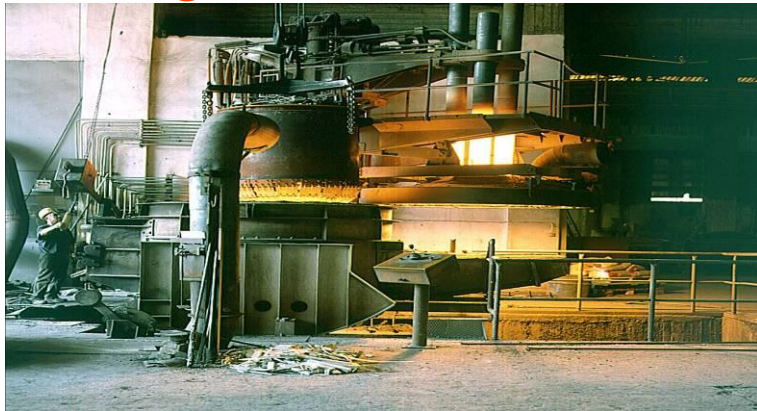
**Temperature Distribution**





## Parts for CERN

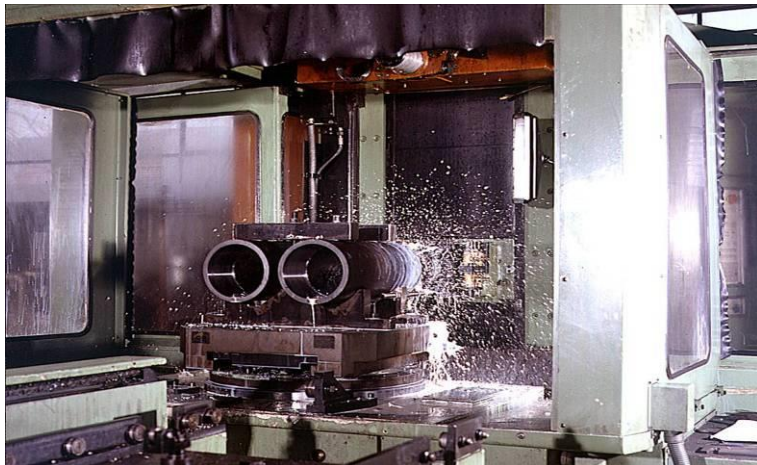
**Casting**



**Heat Treatment**



**Machining**



**Inspection**



**Production**



## Parts for CERN



**Case Boit Carter for Target North Zone.**



## Parts for CERN



**Carter for Target North Zone.**

## Parts for CERN



**Carter for Target North Zone.**



## Parts for CERN



Corps de Boit for Target North Zone.

Thank You