



# ENCOMPASS

INTEGRATED DESIGN DECISION SUPPORT SYSTEM

ENCOMPASS IDDS tool allows significant reduction from "design to piece", increase of productivity and reduction of production costs

## What does the IDDS tool allow you to do?

### Design Interrogation Tool

#### Design

- Evaluates design features for AM process chain
- Highlights risks or problems for each step
- Recommends support structures

#### Manufacturing Database

- Lookup of equipment capabilities
- Simulation of the:
  - Design for build
  - Post-process
  - Inspection
- Highlights equipment or design issues

#### Process

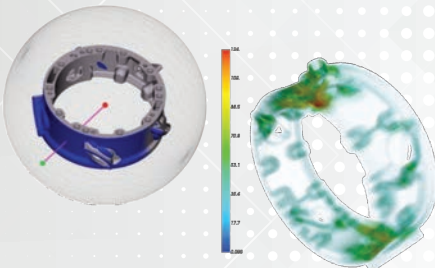
- Plans the AM build, post-process and inspection
- Collects empirical data
- Revises the process based on recommendation from the IDDS

### Analytics Module

- Orientation
- Local minima
- Recoater exposure
- Thin walls & small gaps
- Surface Roughness
- Voids
- Voxel mesh
- Slicing
- Transitions
- Ellipses
- Circles
- Small holes
- Large areas
- Blocked pads

### Inspection Simulation

- Radiographic inspection tool
- Evaluate line of sight



### Post-process Simulation

- Surface roughness requirements and equipment capabilities
- Heat treatment cycle for distortions





**ENCOMPASS**  
INTEGRATED DESIGN DECISION SUPPORT SYSTEM

## The Case Studies

### **Aeronautics**



Initial design



Optimised Design  
after IDDS iteration



Optimised Part  
Manufactured

  
**Inner Case  
Component from  
legacy engine**

### **Aeronautics**



Initial design



Optimised Design  
after IDDS iteration



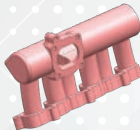
Optimised Part  
Manufactured

  
**Turbine casing  
mounted  
accessory  
bracket**

### **Automotive**



Initial design



Optimised Design  
after IDDS iteration



Optimised Part  
Manufactured

  
**Intake  
Manifold**

### **Medical**



Initial design



Optimised Design  
after IDDS iteration



Optimised Part  
Manufactured

  
**Knee  
Replacements**

