Agenda

1. Novedades (Parte 1)
2. MyESI
3. FLEX TOKENS (licencias desde 2023)
4. FV Grifería – Presentación de Cliente-
5. Pausa para el Café
6. Buenas Prácticas (Parte 1)
7. Novedades (Parte 2)
8. **Buenas Prácticas (Parte 2)**

Módulo de optimización en QuikCAST

Asistente en la elección del sistema de llenado y alimentación

Reunión de Usuarios 2024

Igor Pérez Villalobos | 19 septiembre 2024

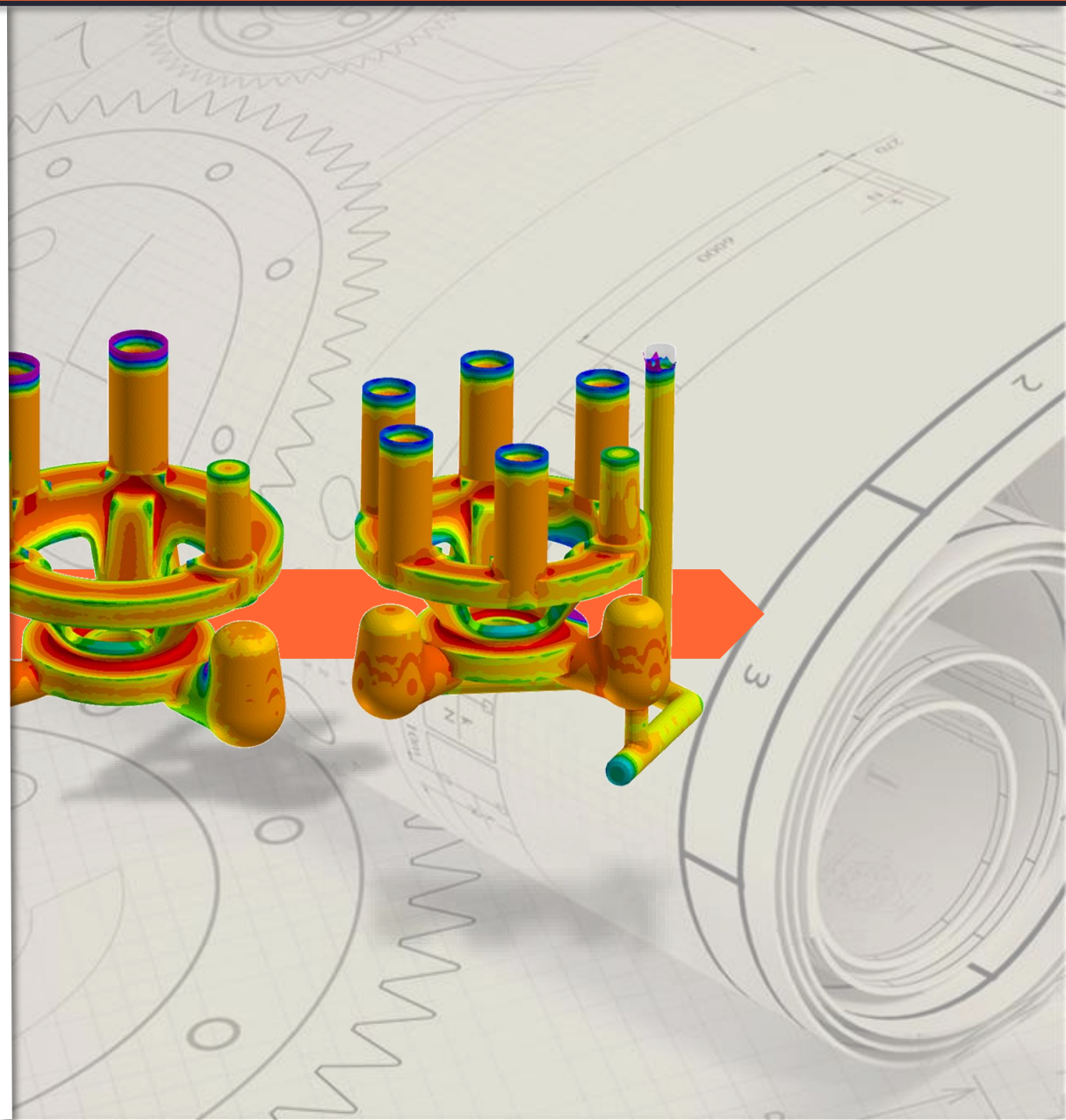
Funcionalidad MatID en el módulo de Optimización de ProCAST™ y QuikCAST™

Optimización del diseño

Seleccionar el mejor diseño

Pruebas automatizadas

Influencia del diseño



Agenda

1. Módulo de optimización: función MatID
2. Optimización del sistema de alimentación
3. Optimización del sistema de llenado
4. Ventajas y Conclusiones

Agenda

1. **Módulo de optimización: función MatID**
2. Optimización del sistema de alimentación
3. Optimización del sistema de llenado
4. Ventajas y Conclusiones

Módulo de optimización: función MatID

¿Valor Objetivo?

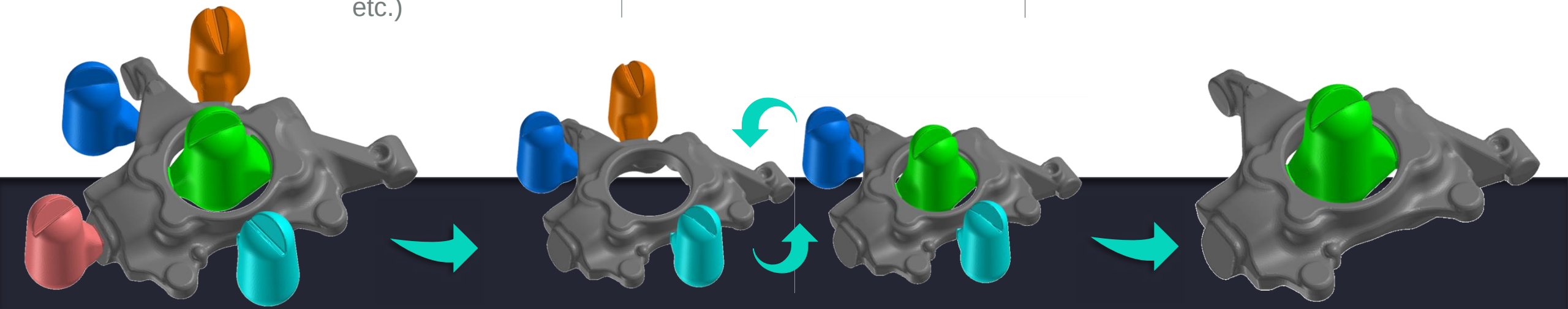
Obtener el mejor diseño para cumplir con un objetivo determinado (reducir porosidades, arrastre de aire, etc.)

¿Método?

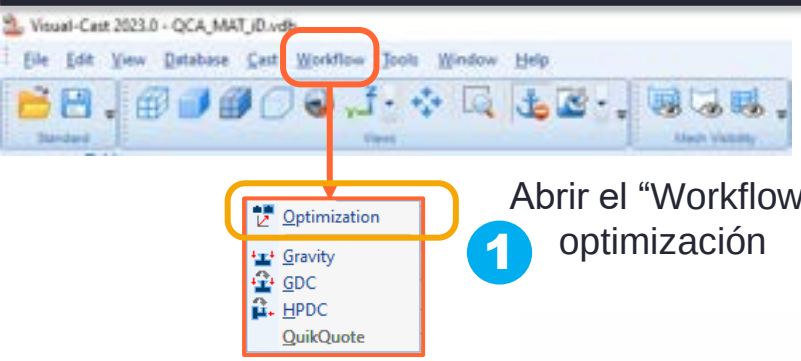
Asignar un material diferente a uno o más volúmenes

¿Dónde?

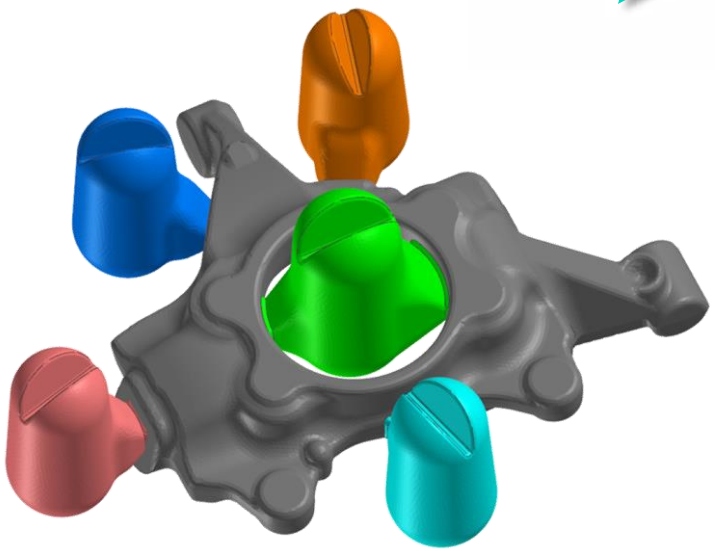
En el módulo de Optimización de ProCAST y QuikCAST

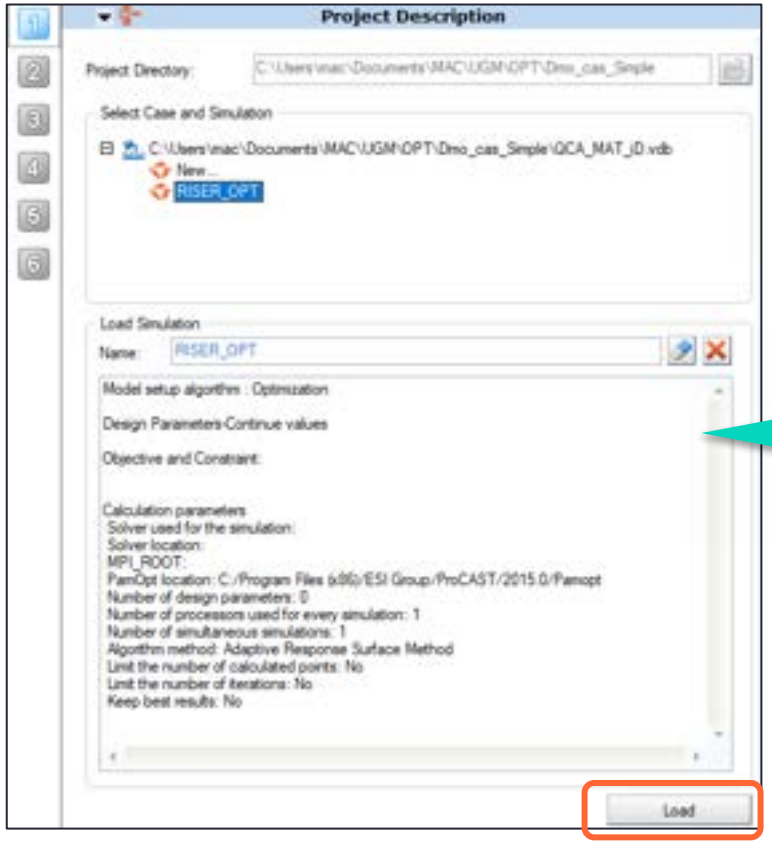


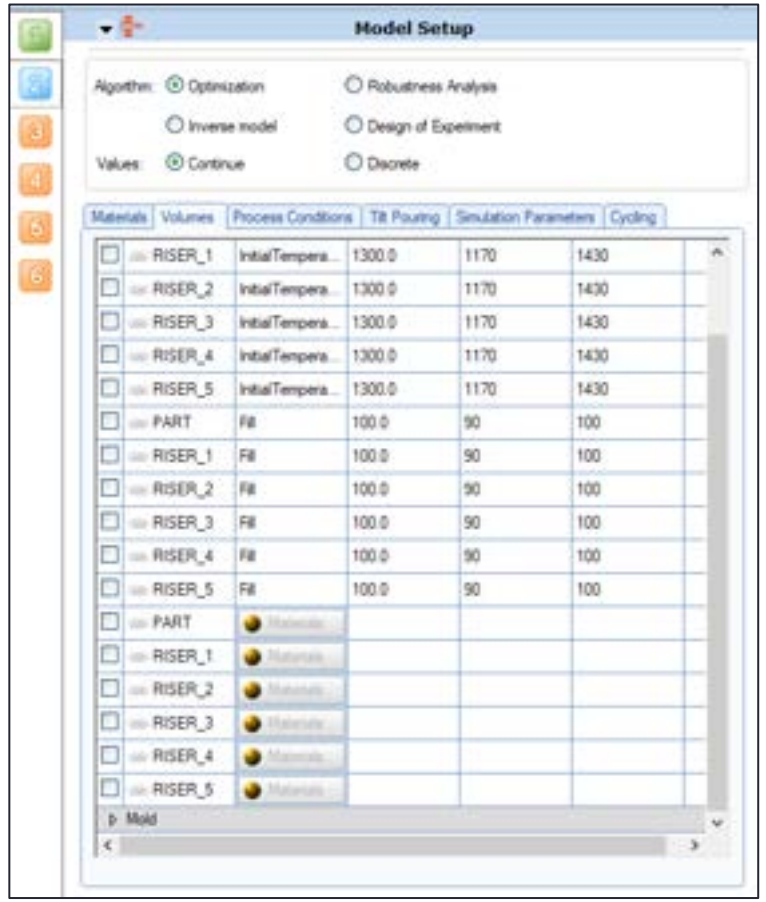
Módulo de optimización: función MatID



1 Abrir el “Workflow” optimización

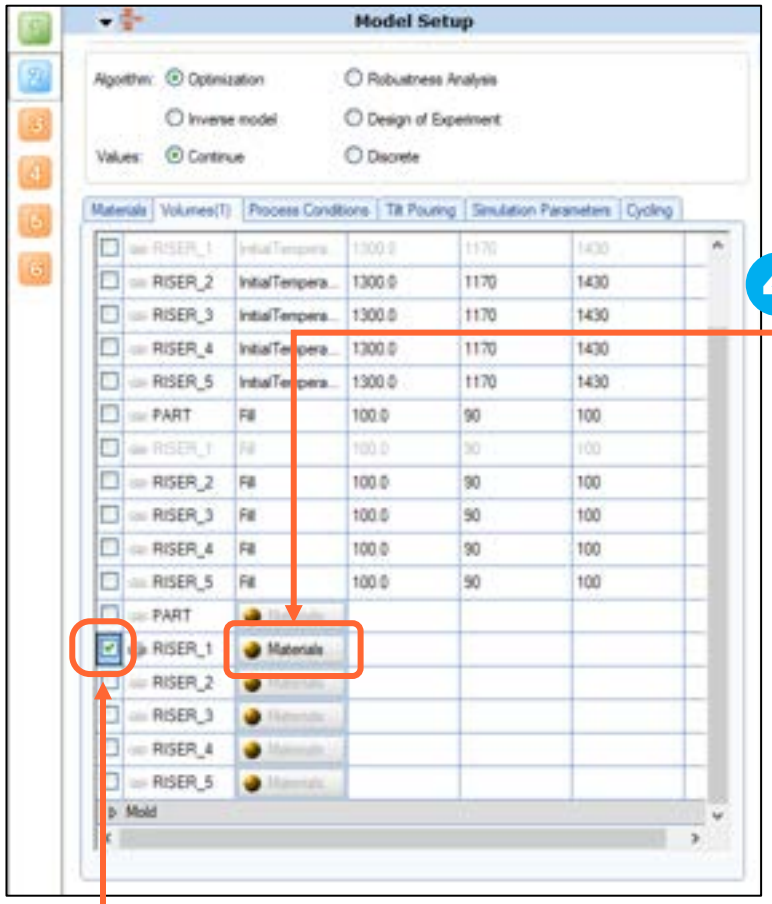




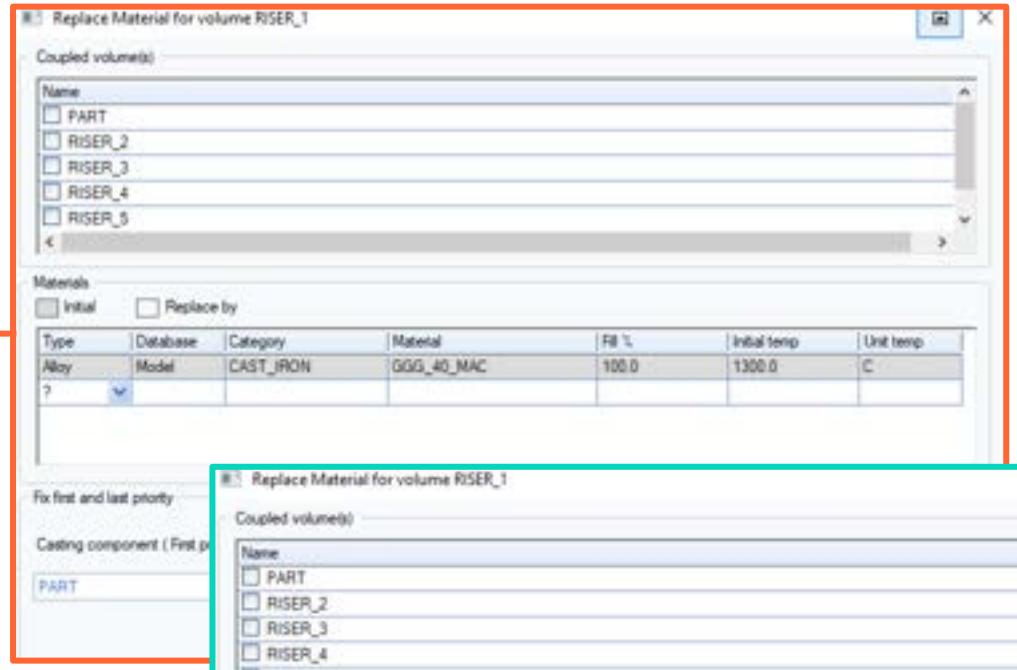


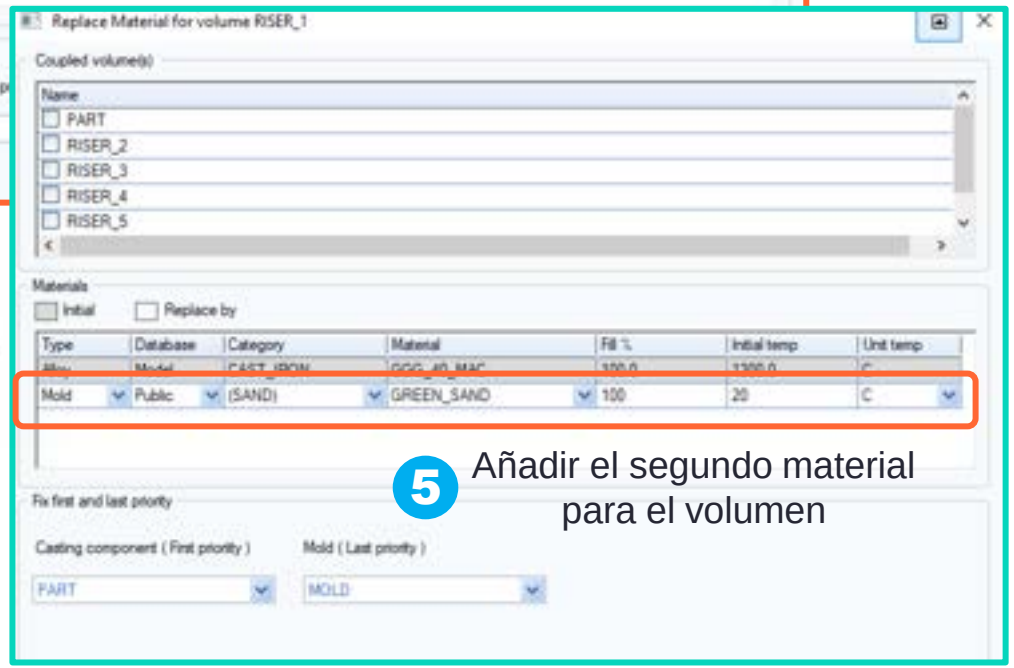
2 Cargar un proyecto existente o crear uno nuevo

Módulo de optimización: función MatID



4 Seleccionar materiales

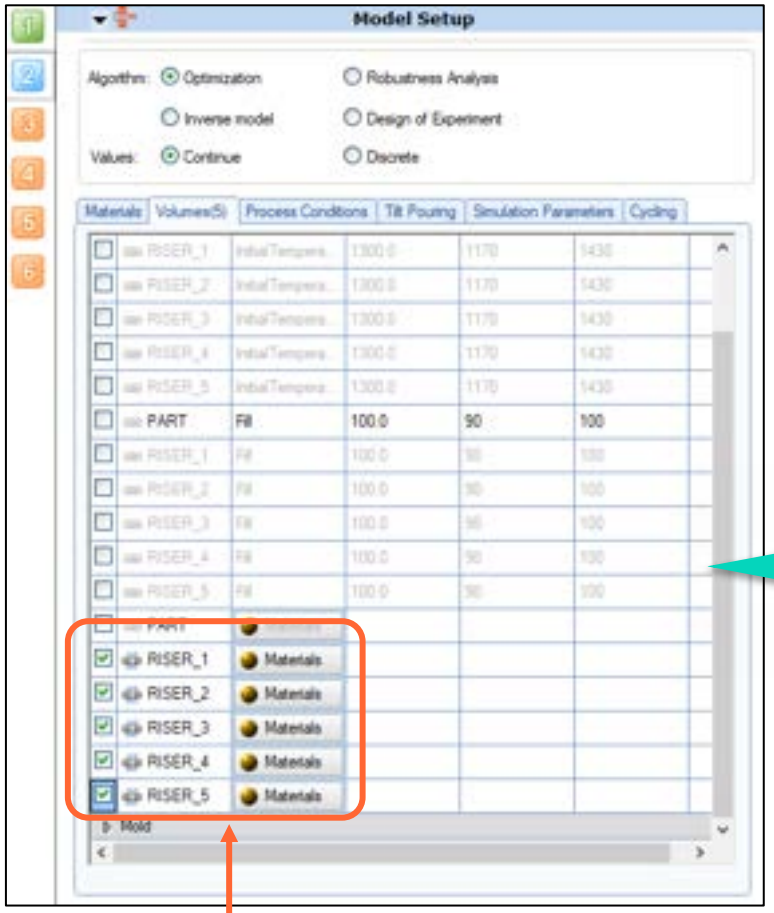


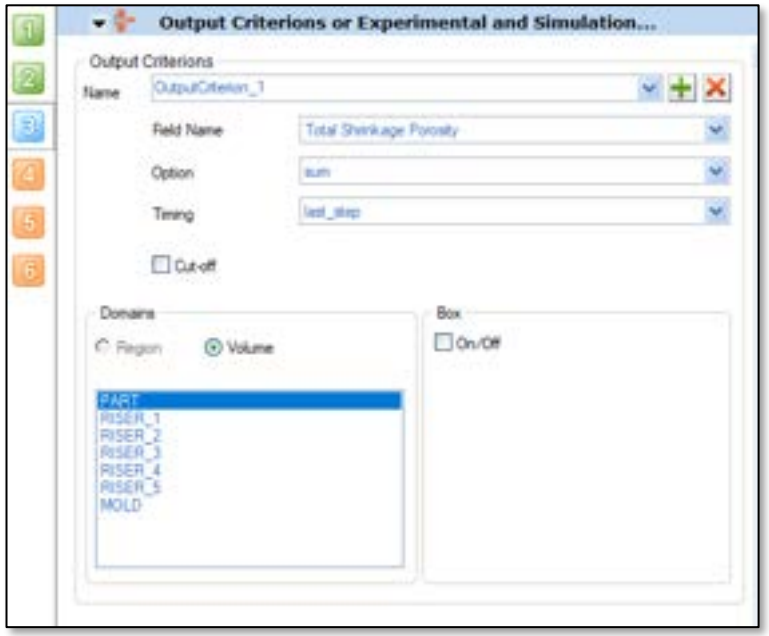


5 Añadir el segundo material para el volumen

3 Comprobar el volumen para el que debe variar el material

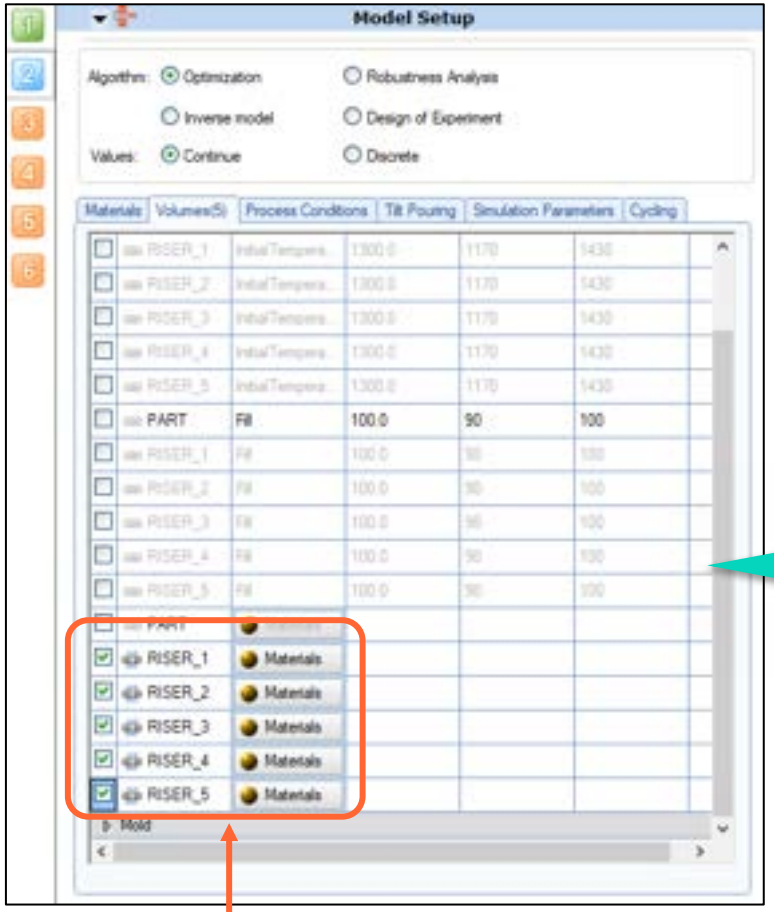
Módulo de optimización: función MatID

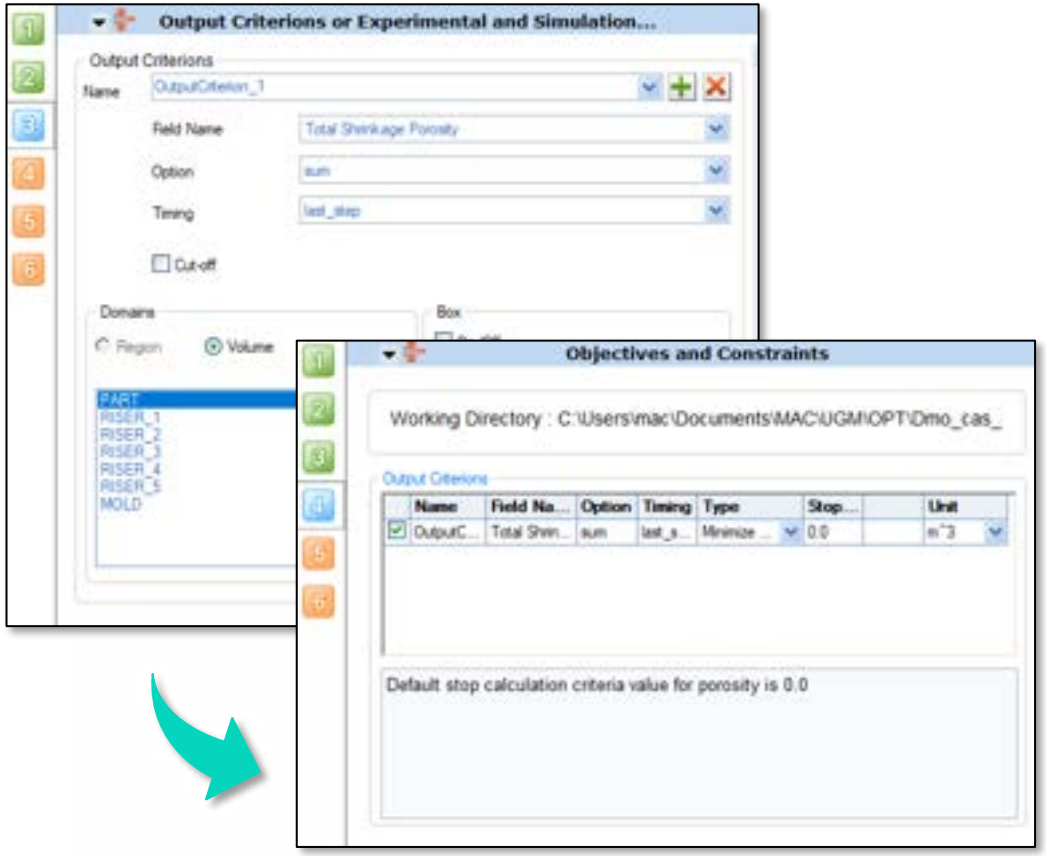




6 Replicar la metodología en los otros volúmenes de aleaciones y moldes, si los hay.

Módulo de optimización: función MatID





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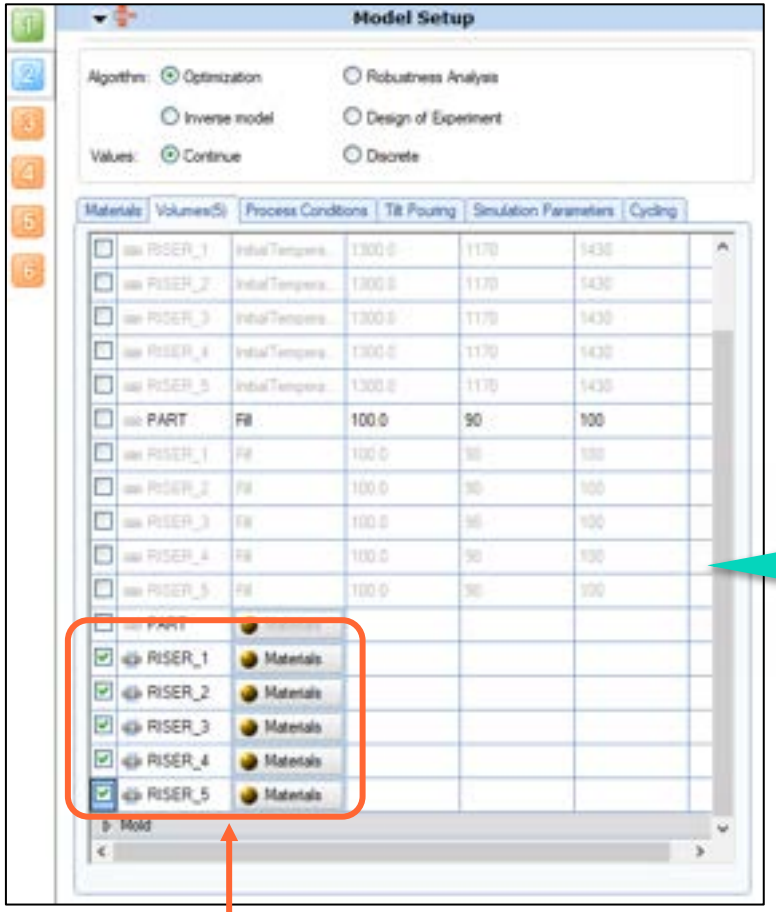
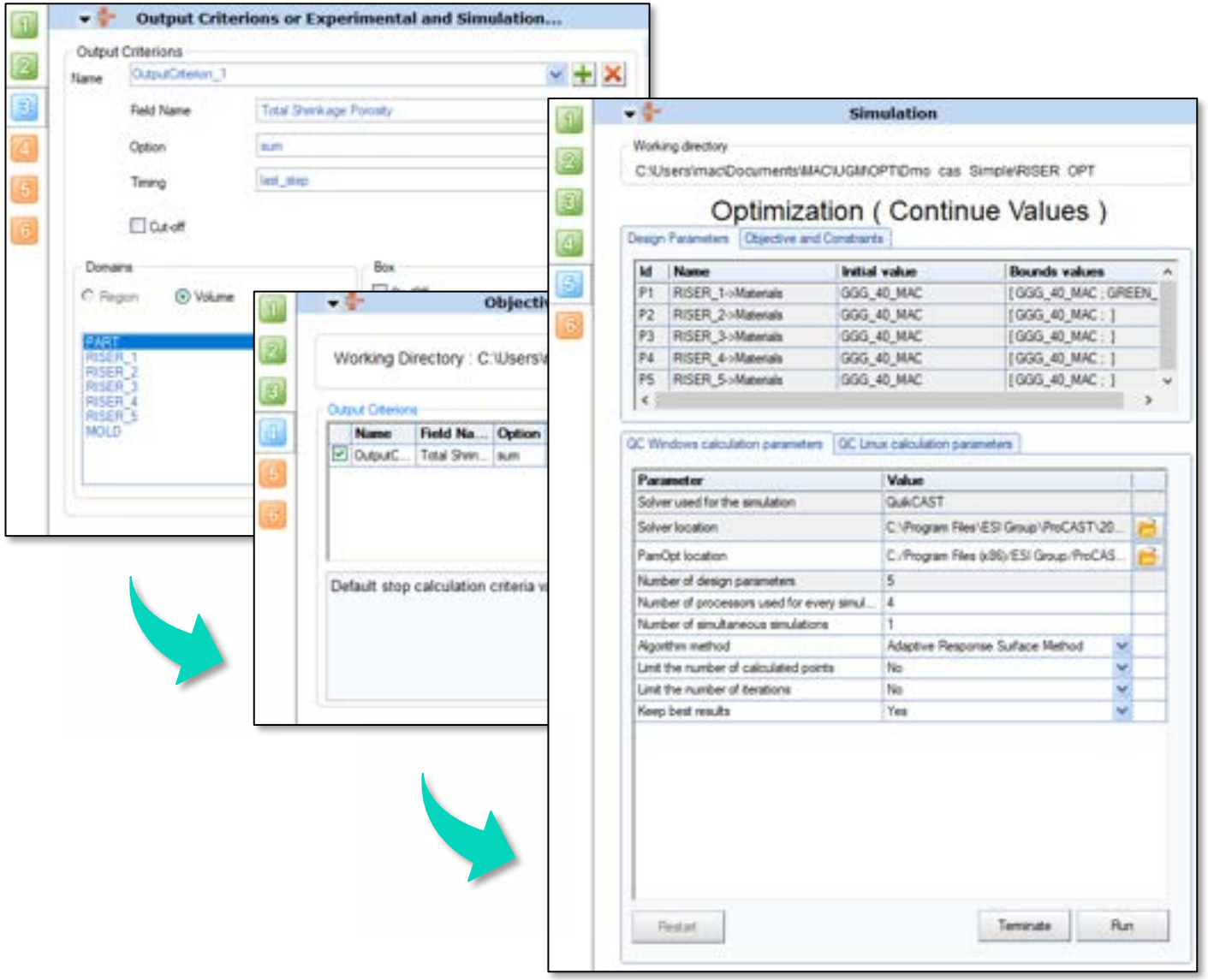
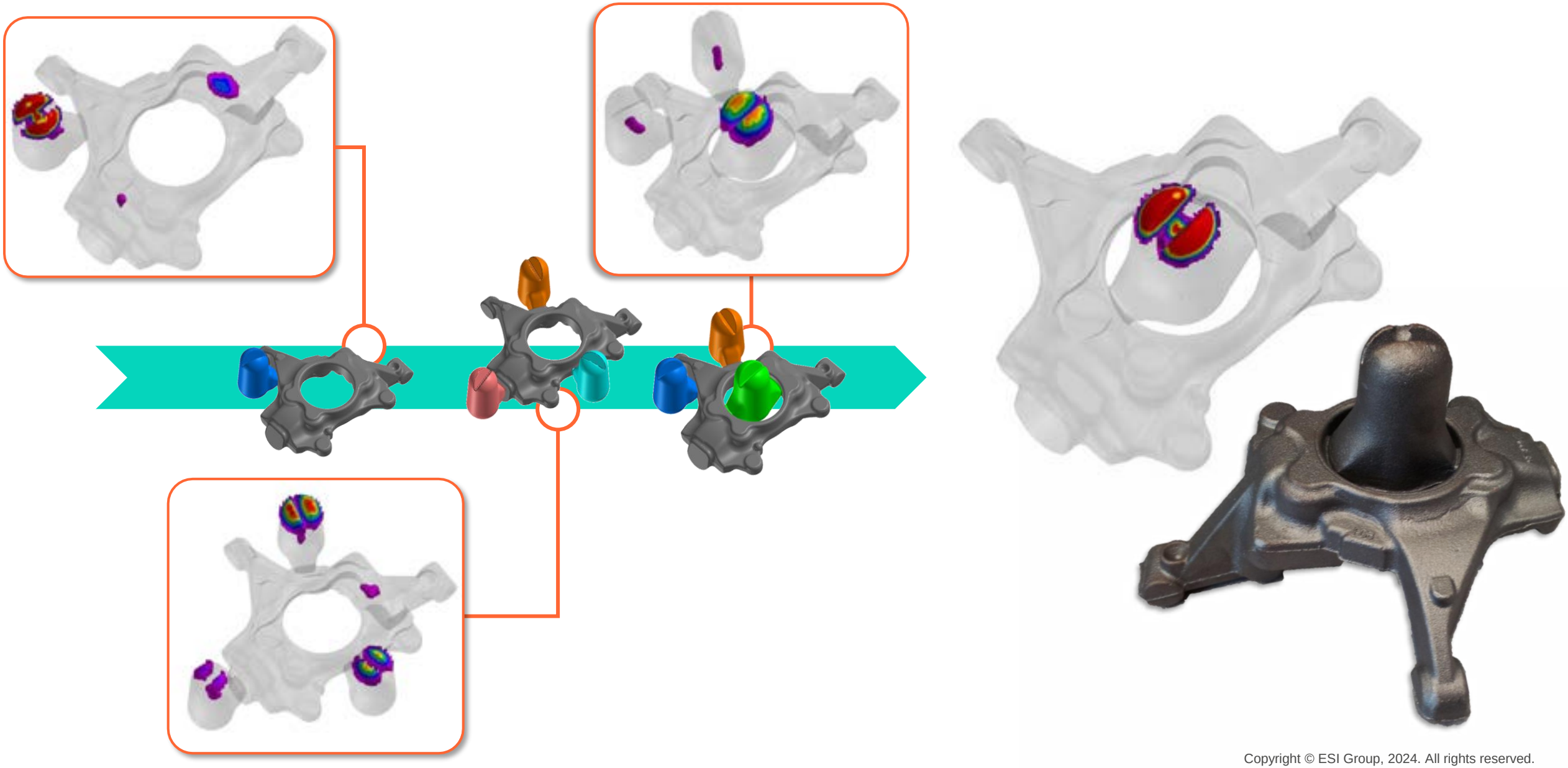
Módulo de optimización: función MatID





6 Replicar la metodología en los otros volúmenes de aleaciones y moldes, si los hay.

Módulo de optimización: función MatID

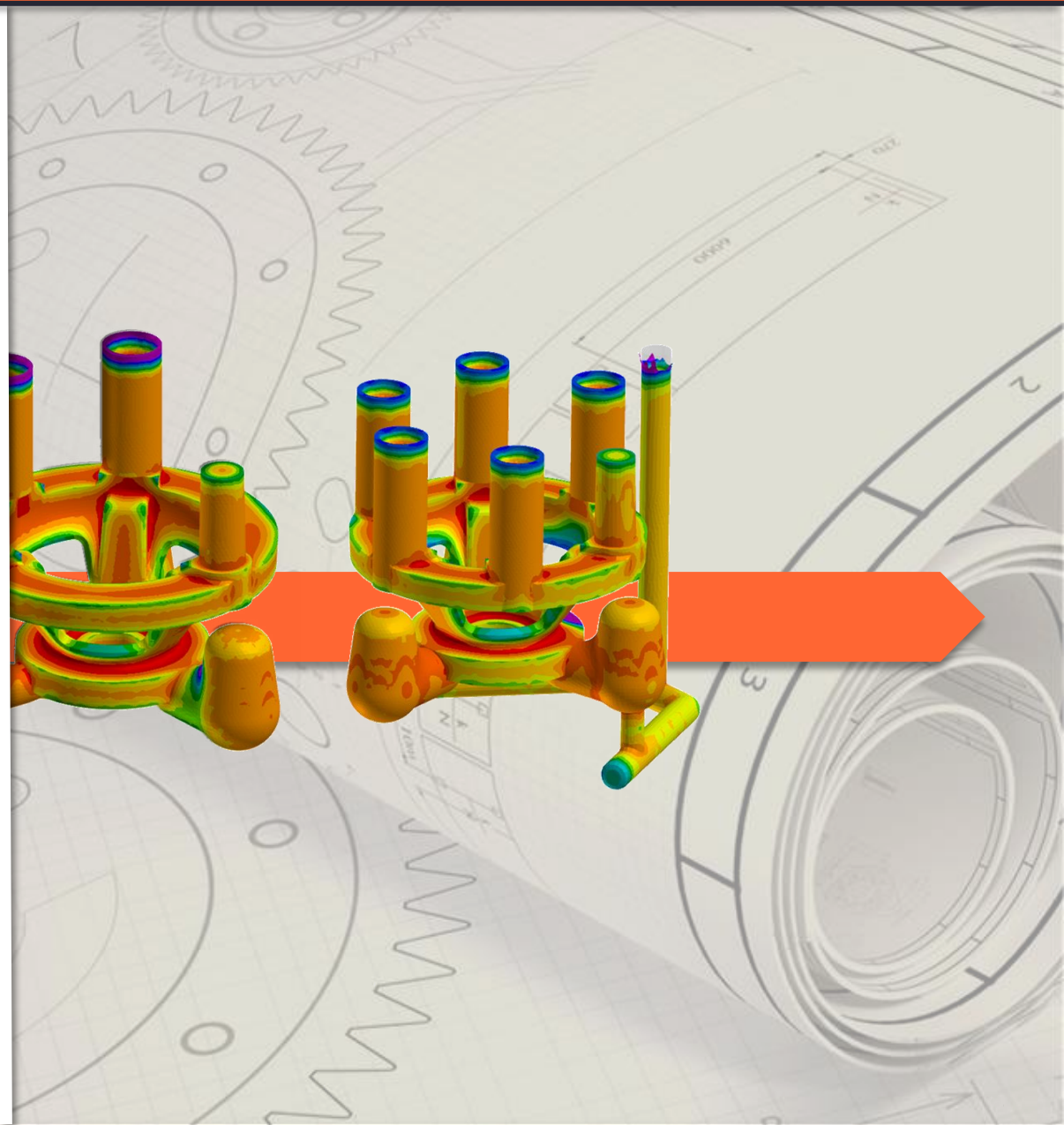


Agenda

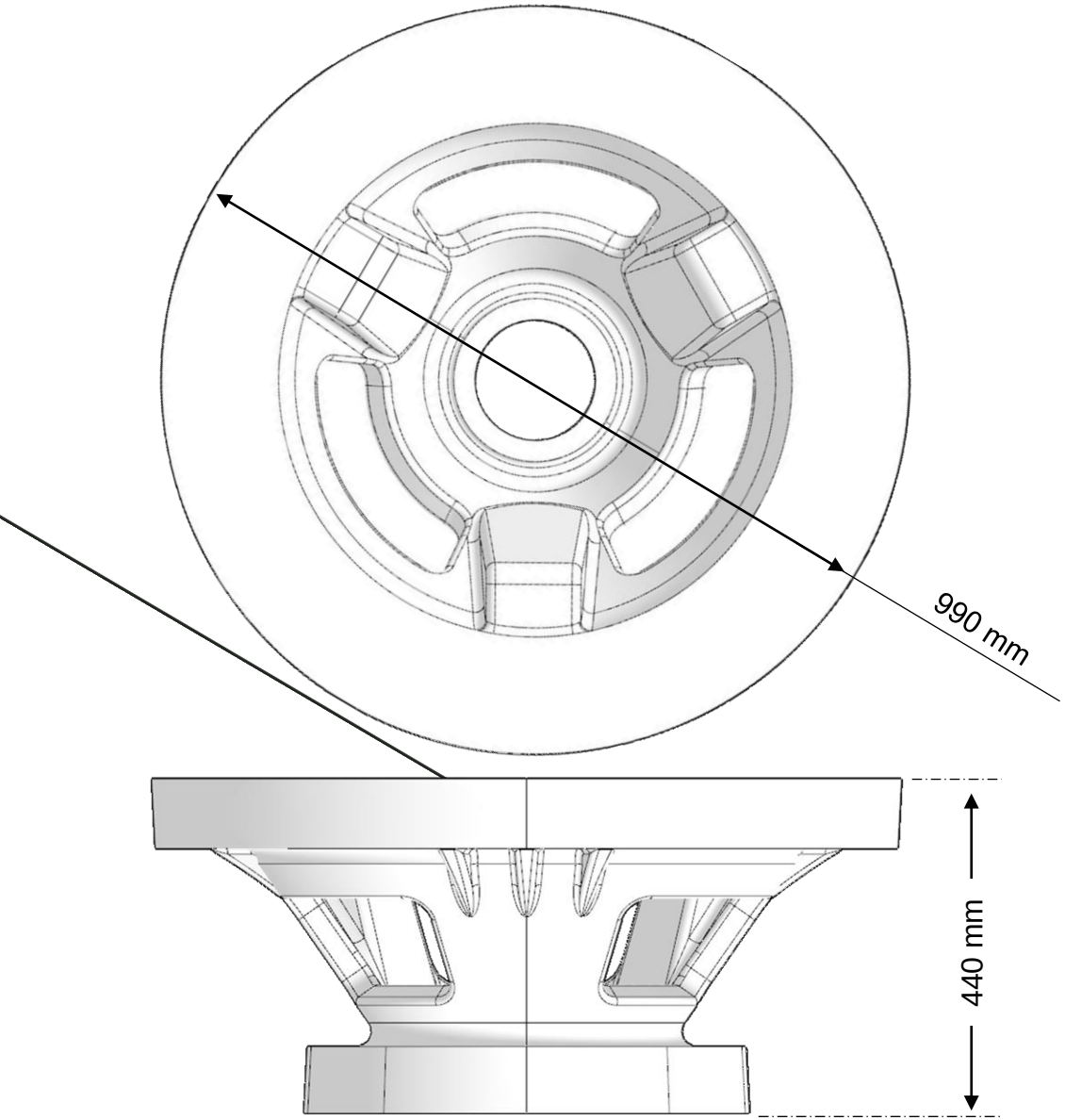
1. Módulo de optimización: función MatID
2. **Optimización del sistema de alimentación**
3. Optimización del sistema de llenado
4. Ventajas y Conclusiones

Objetivos

Optimice el número y el tamaño de las mazarotas y los enfriadores para garantizar una pieza sana

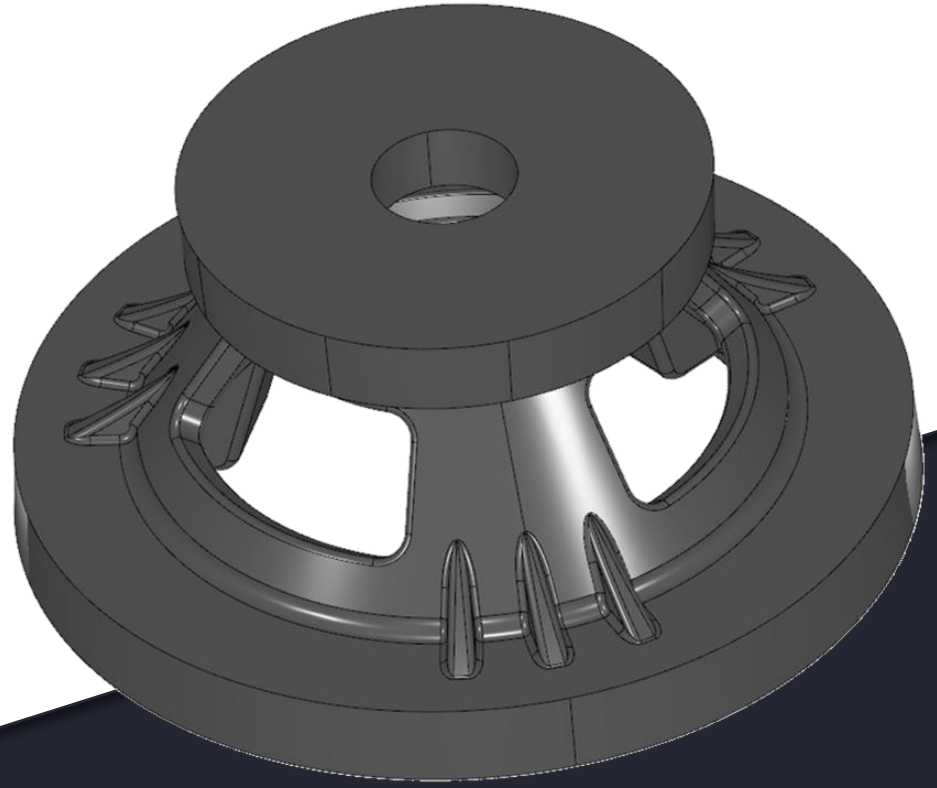


Descripción del modelo



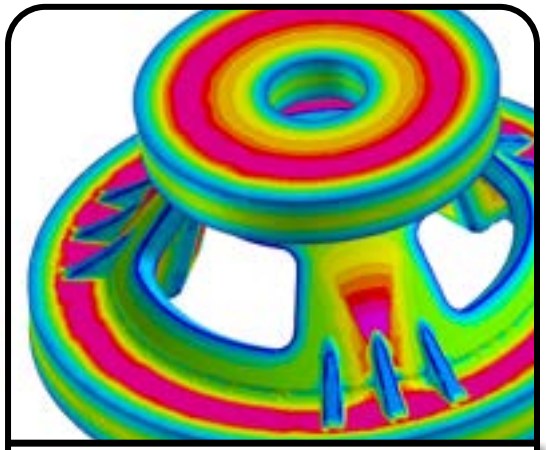
Cubre Pistón

Acero inoxidable

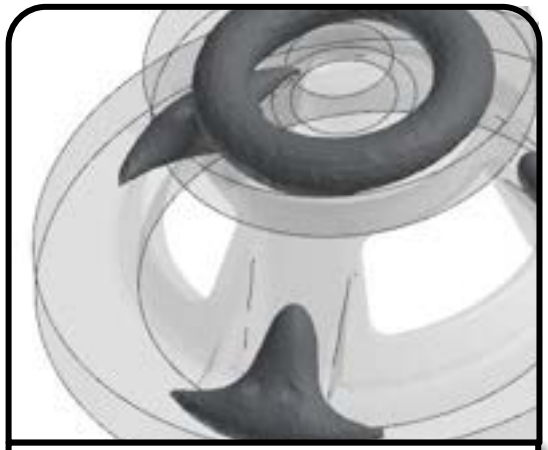


Módulo Co-Design

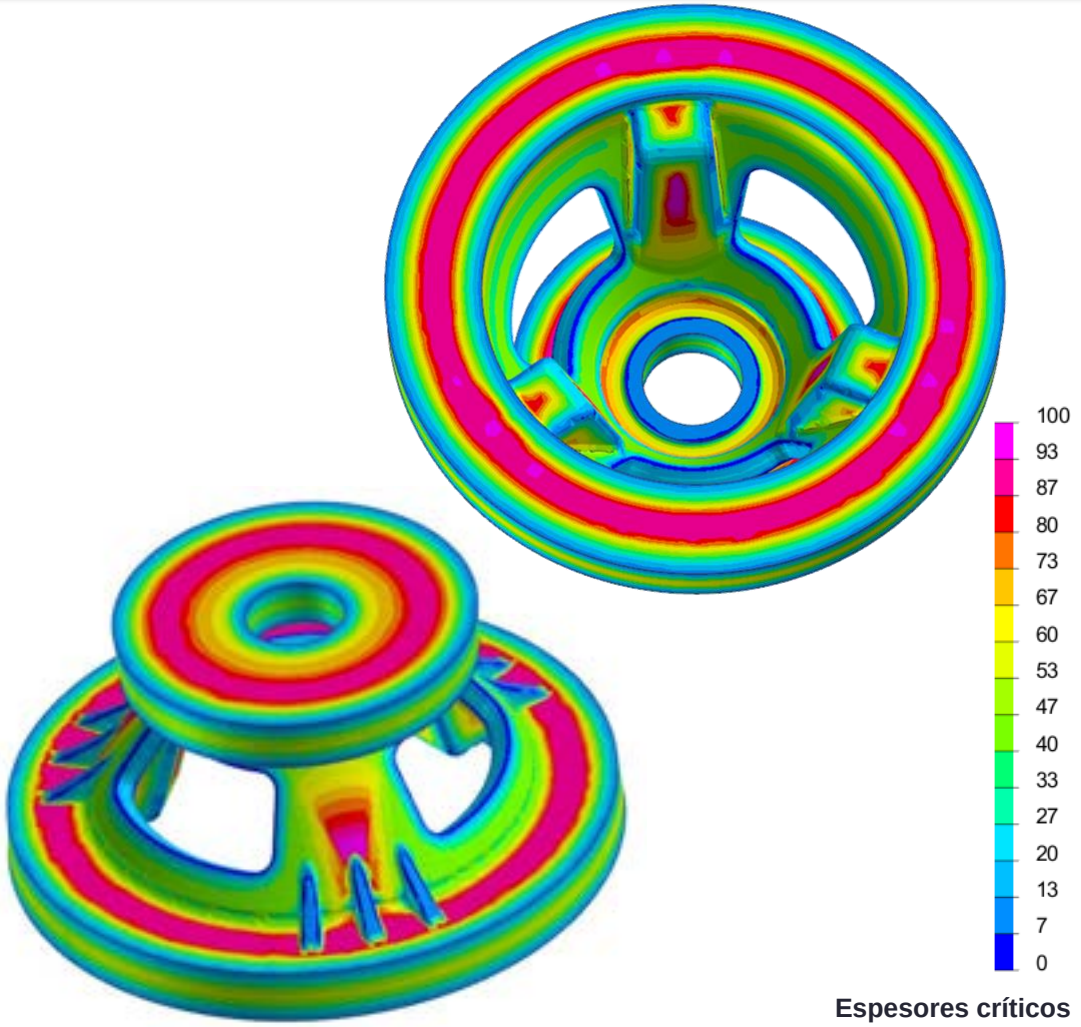
La pieza se analiza mediante el módulo de Co-Diseño



Enfoque geométrico



Enfoque térmico

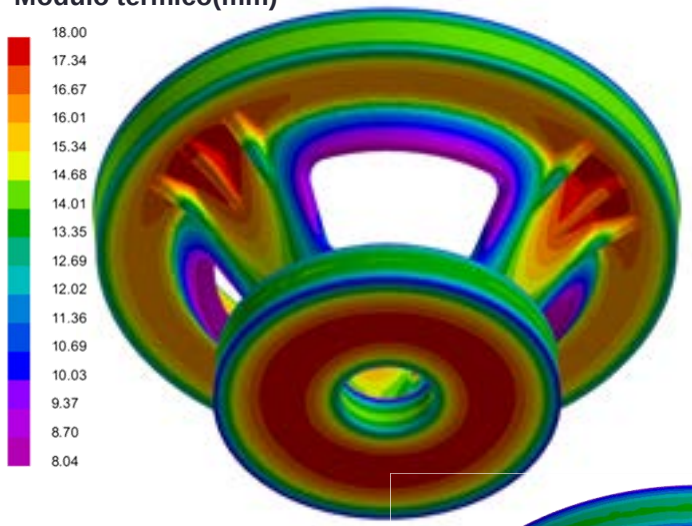


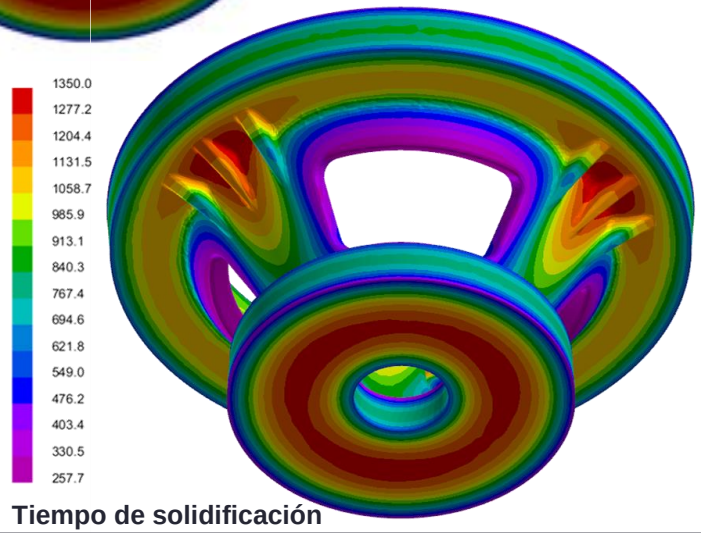
Espesores críticos

Fracción sólida(%)

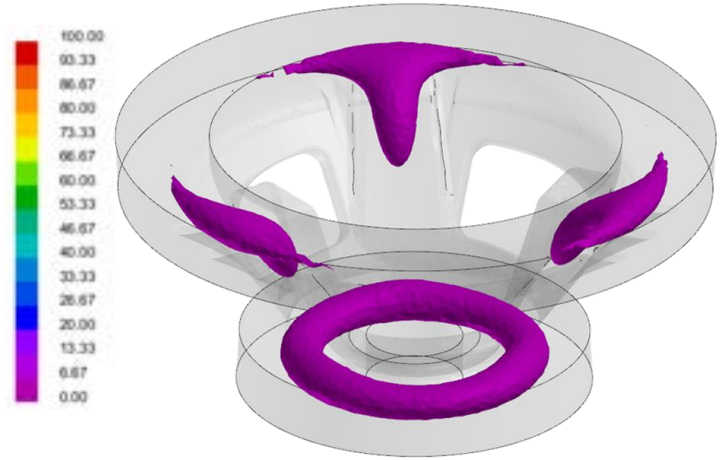
X-ray 85%

Módulo térmico(mm)





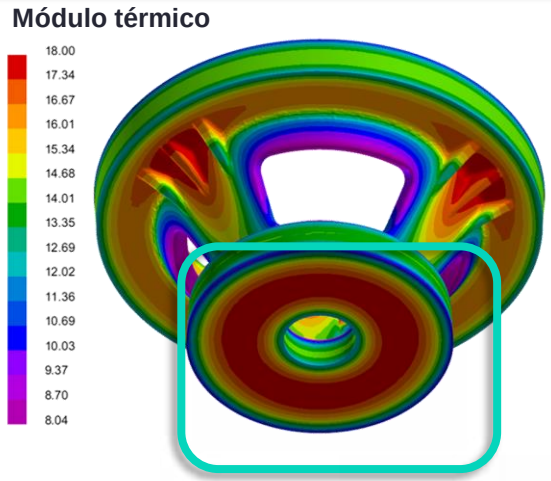
Tiempo de solidificación



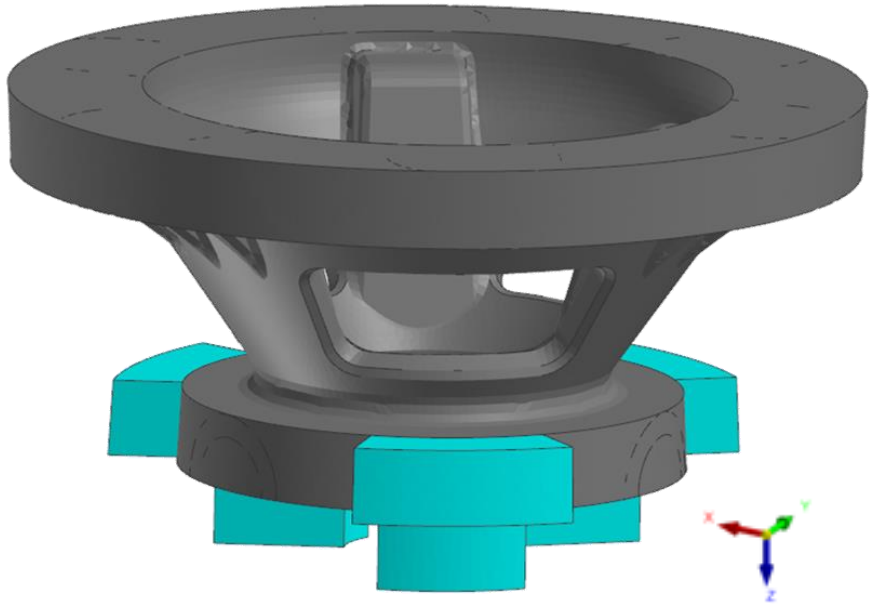
Zonas de riesgo de porosidad

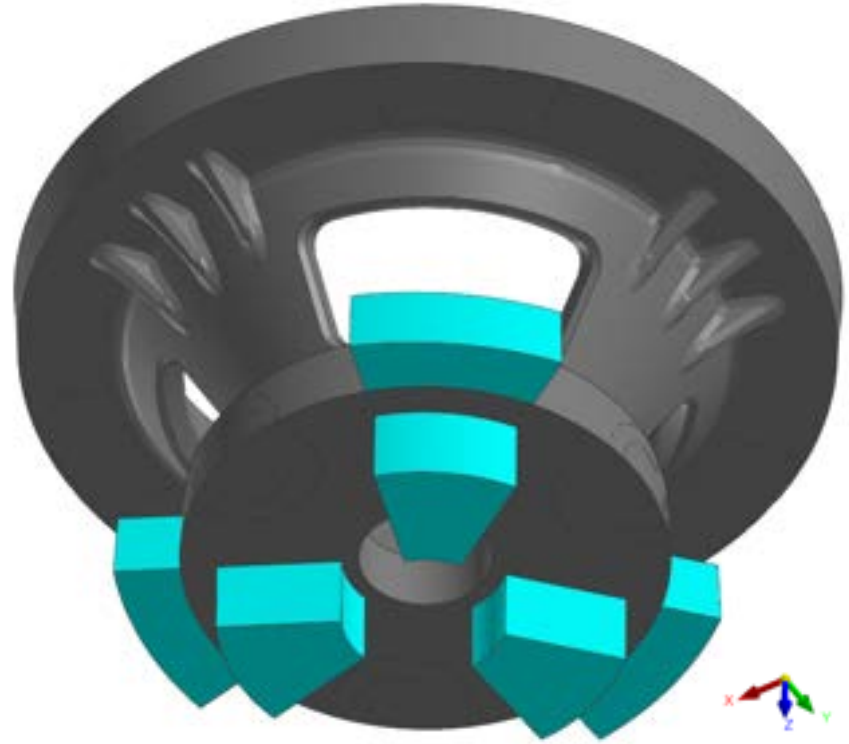
Enfoque térmico

Definición de mazarotas y enfriadores



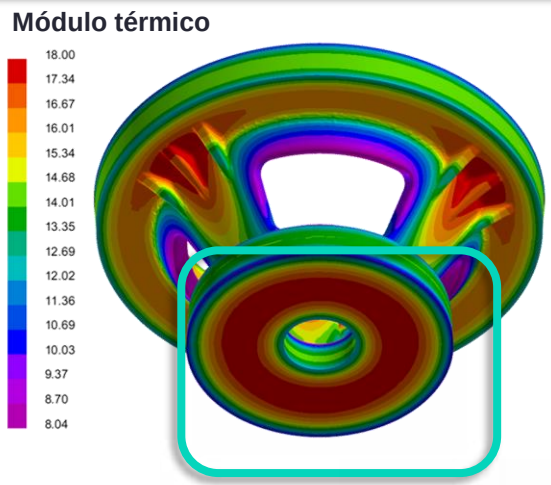
Añadir Enfriadores para direccionar la solidificación



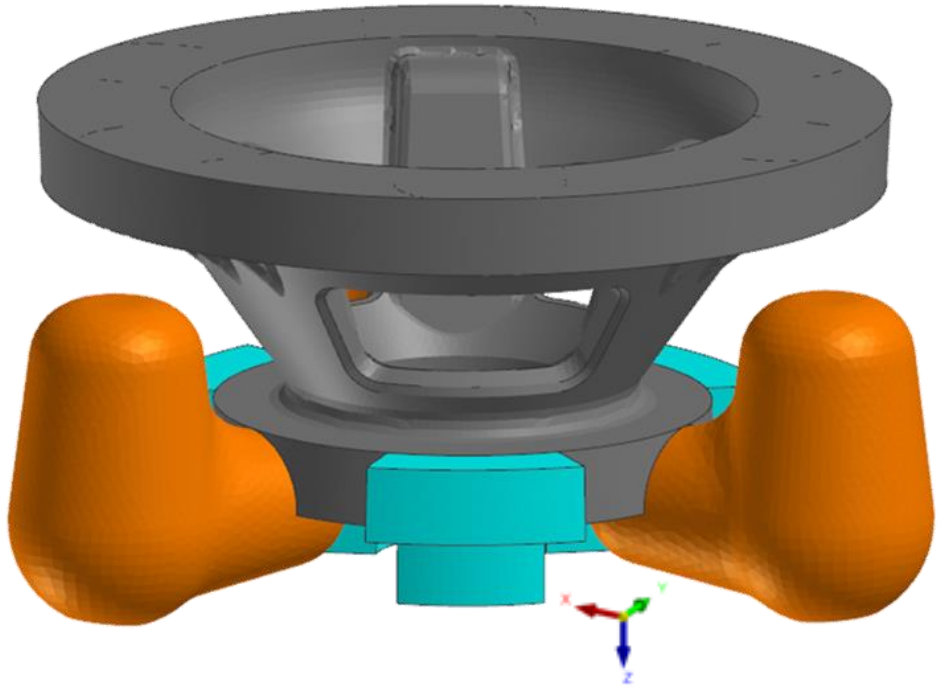


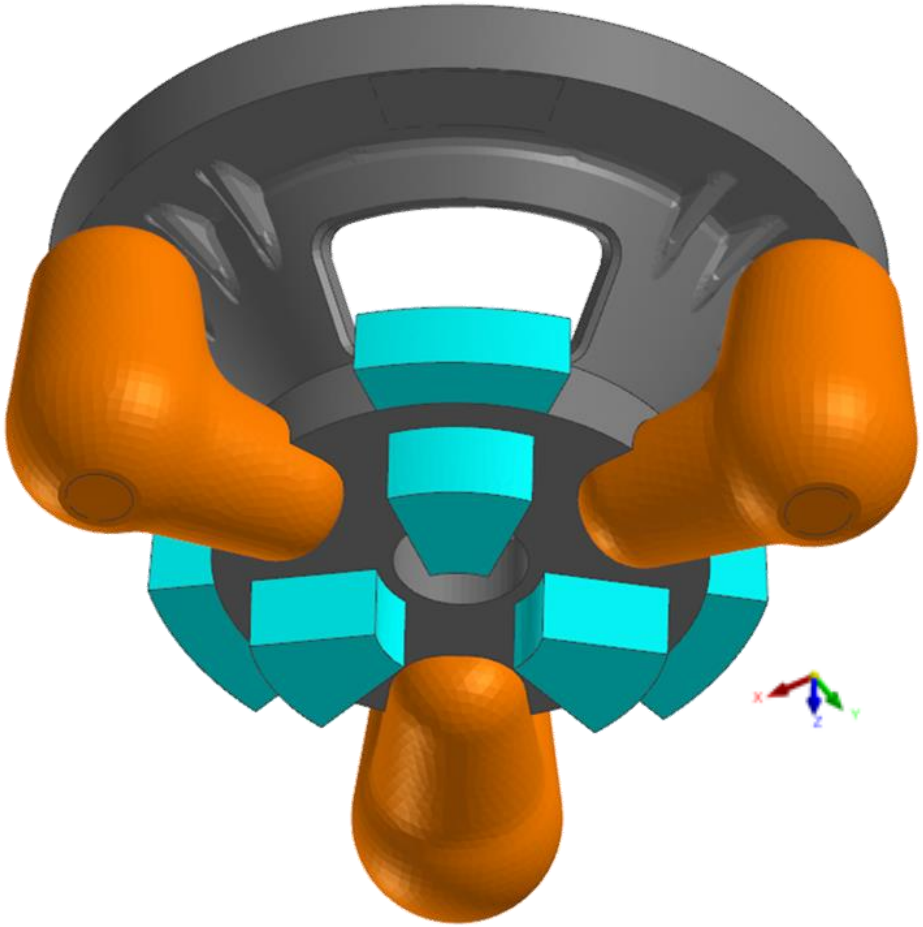
Parte inferior

Definición de Mazarotas y Enfriadores



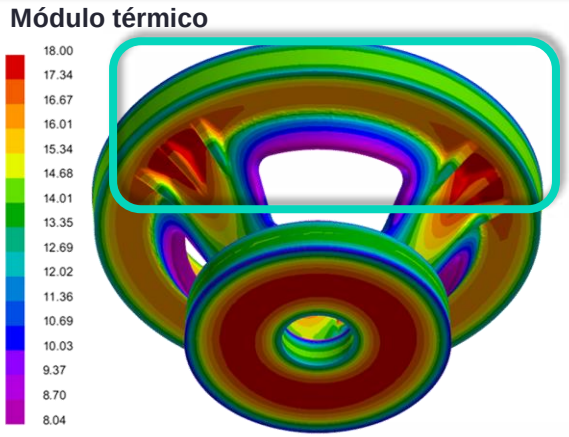
Diseño de Mazarotas



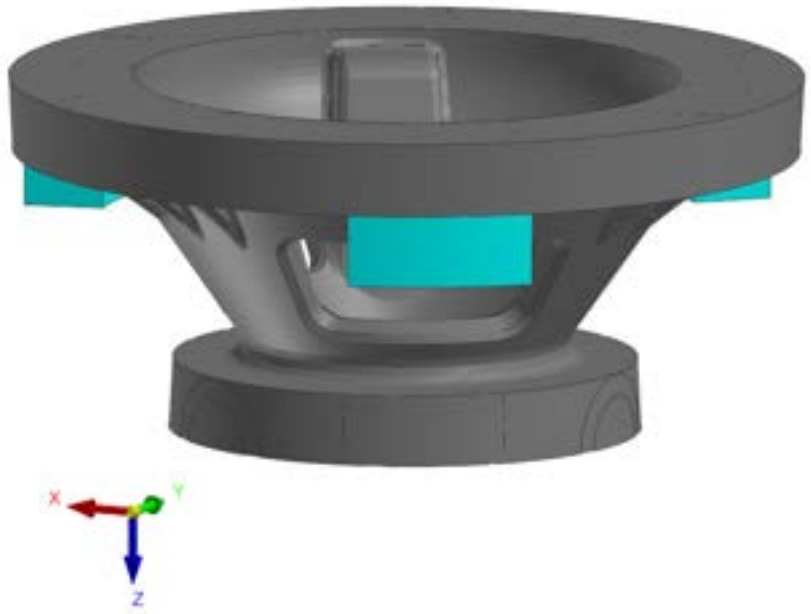


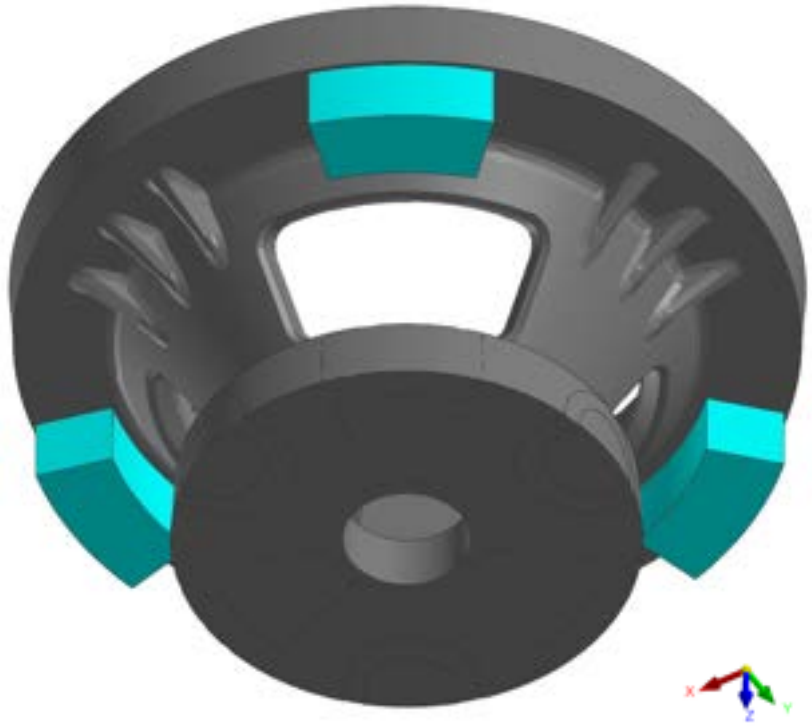
Parte inferior

Definición de Mazarotas y Enfriadores



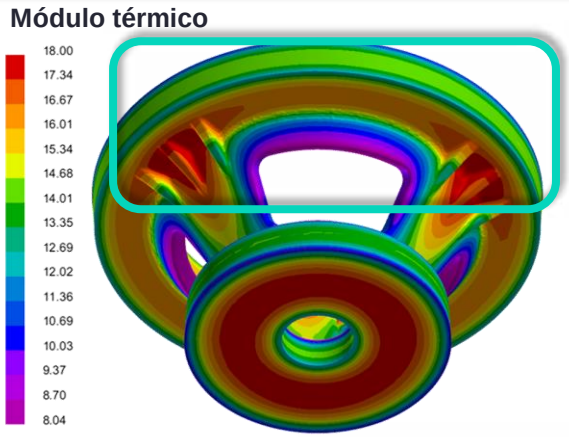
Añadir Enfriadores para direccionar la solidificación



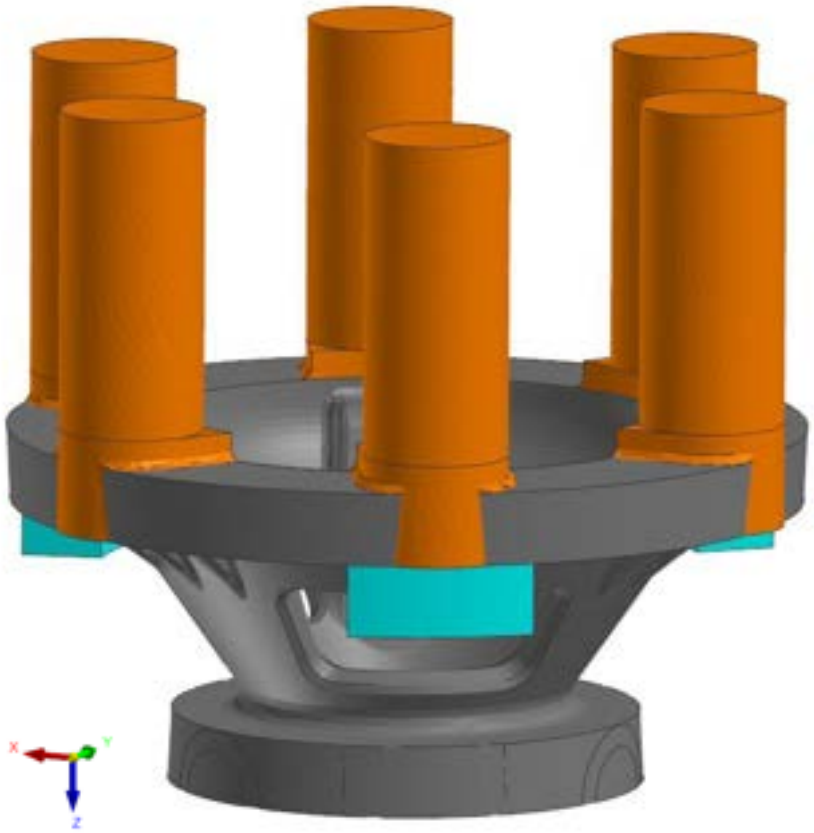


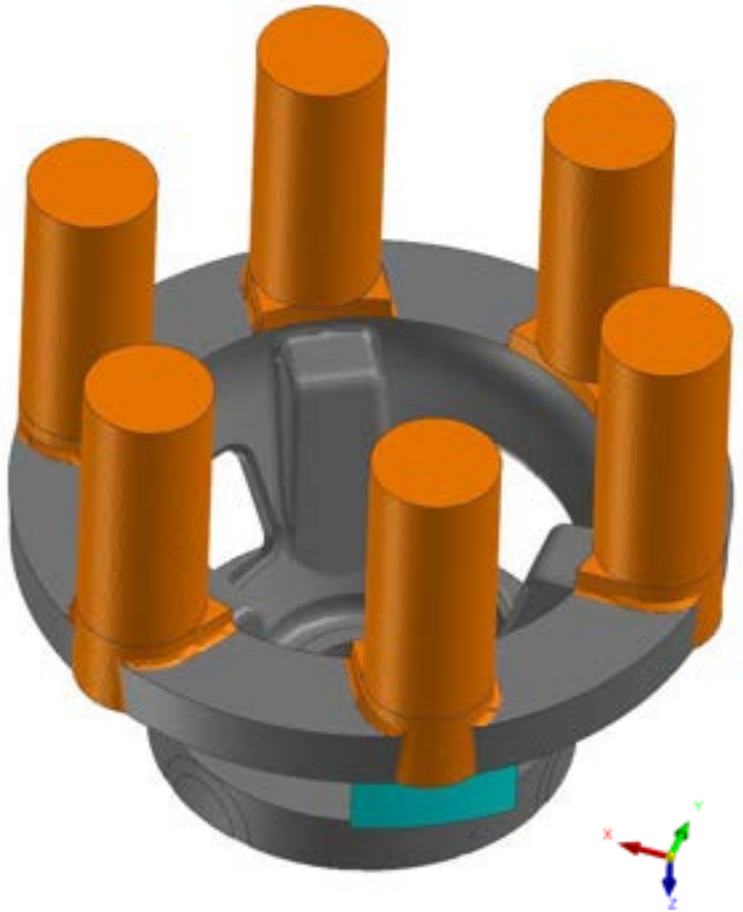
Parte superior

Definición de Mazarotas y Enfriadores



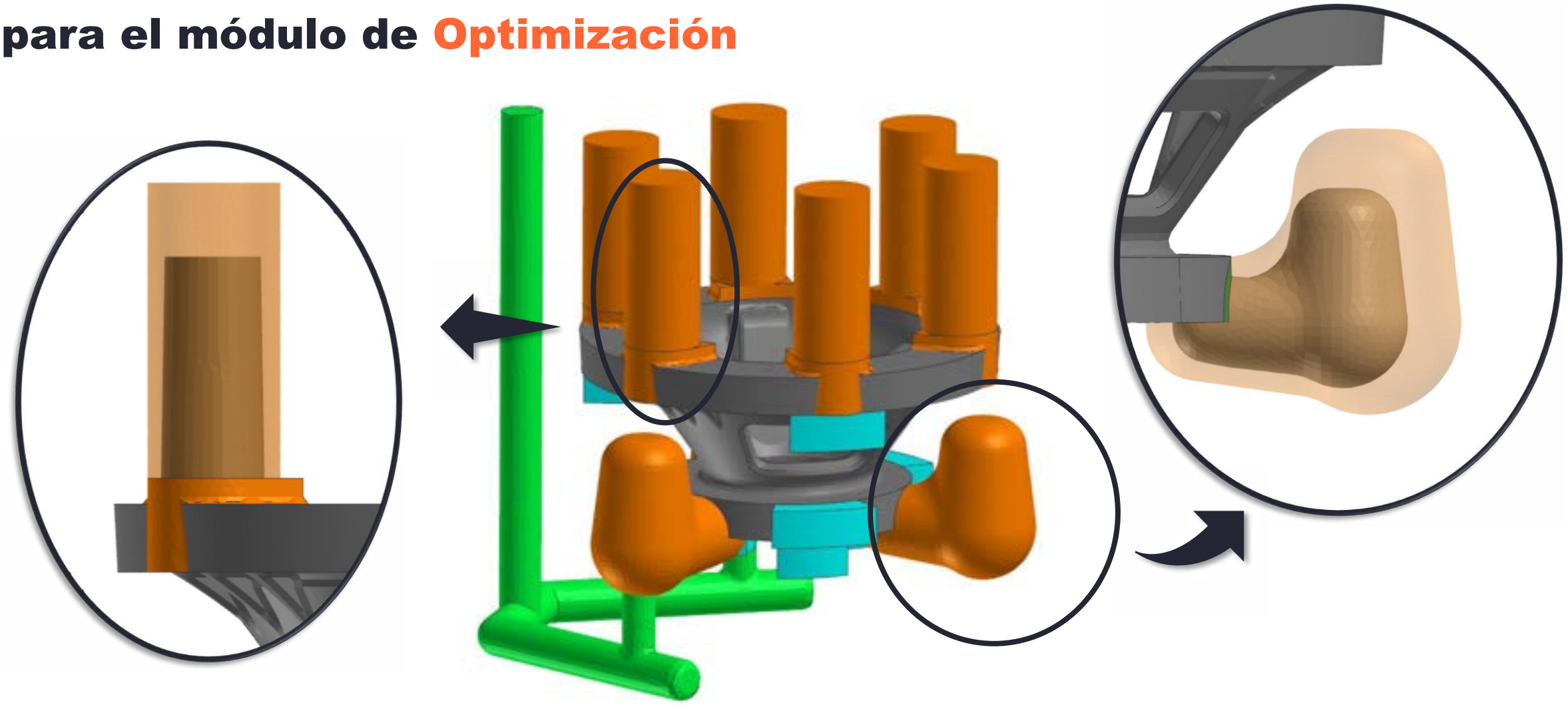
Diseño de Mazarotas

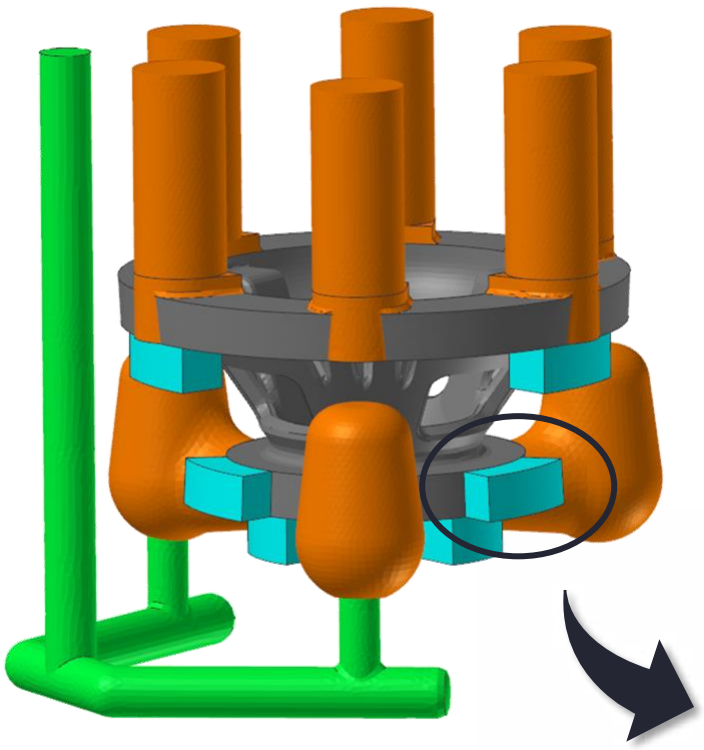




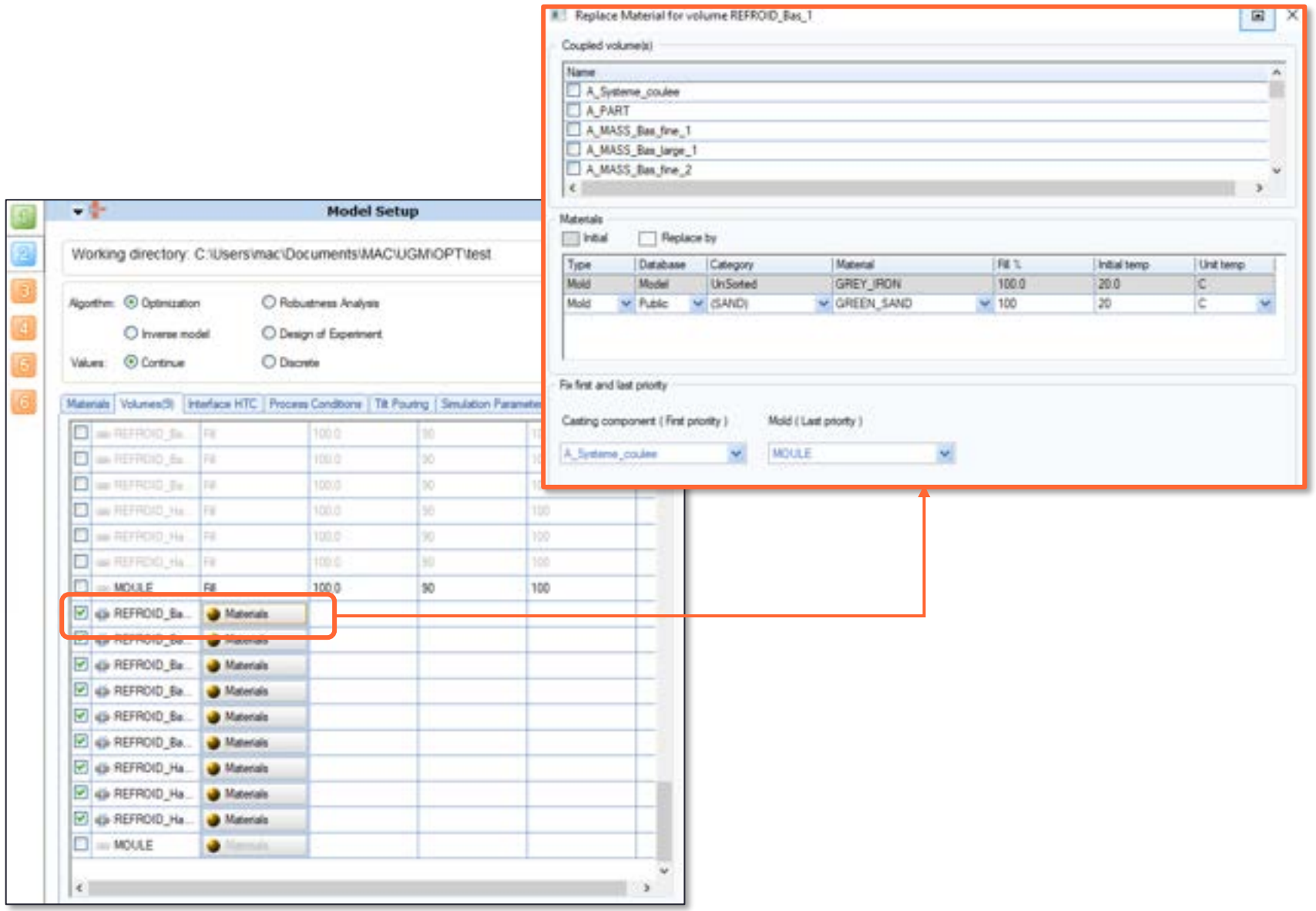
Parte superior

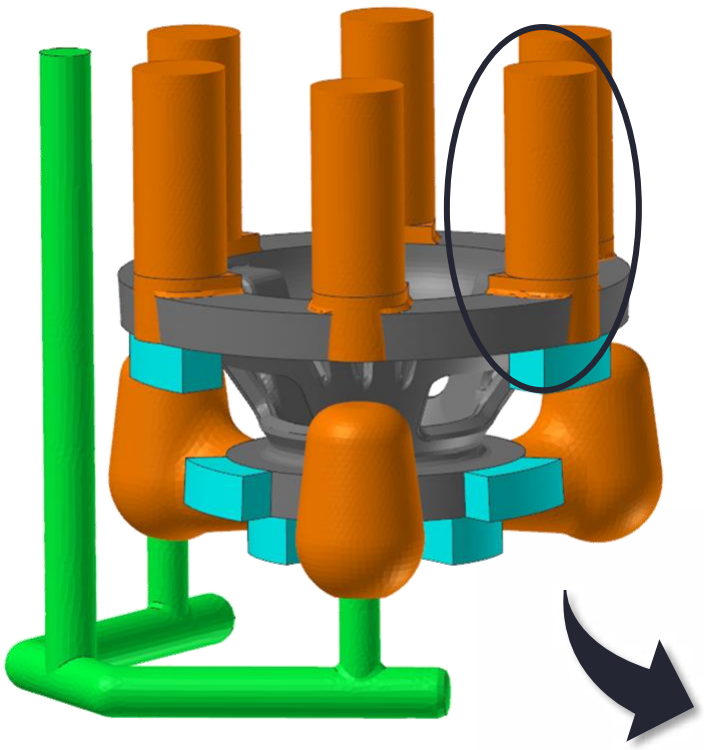
Geometría utilizada como entrada para el módulo de Optimización



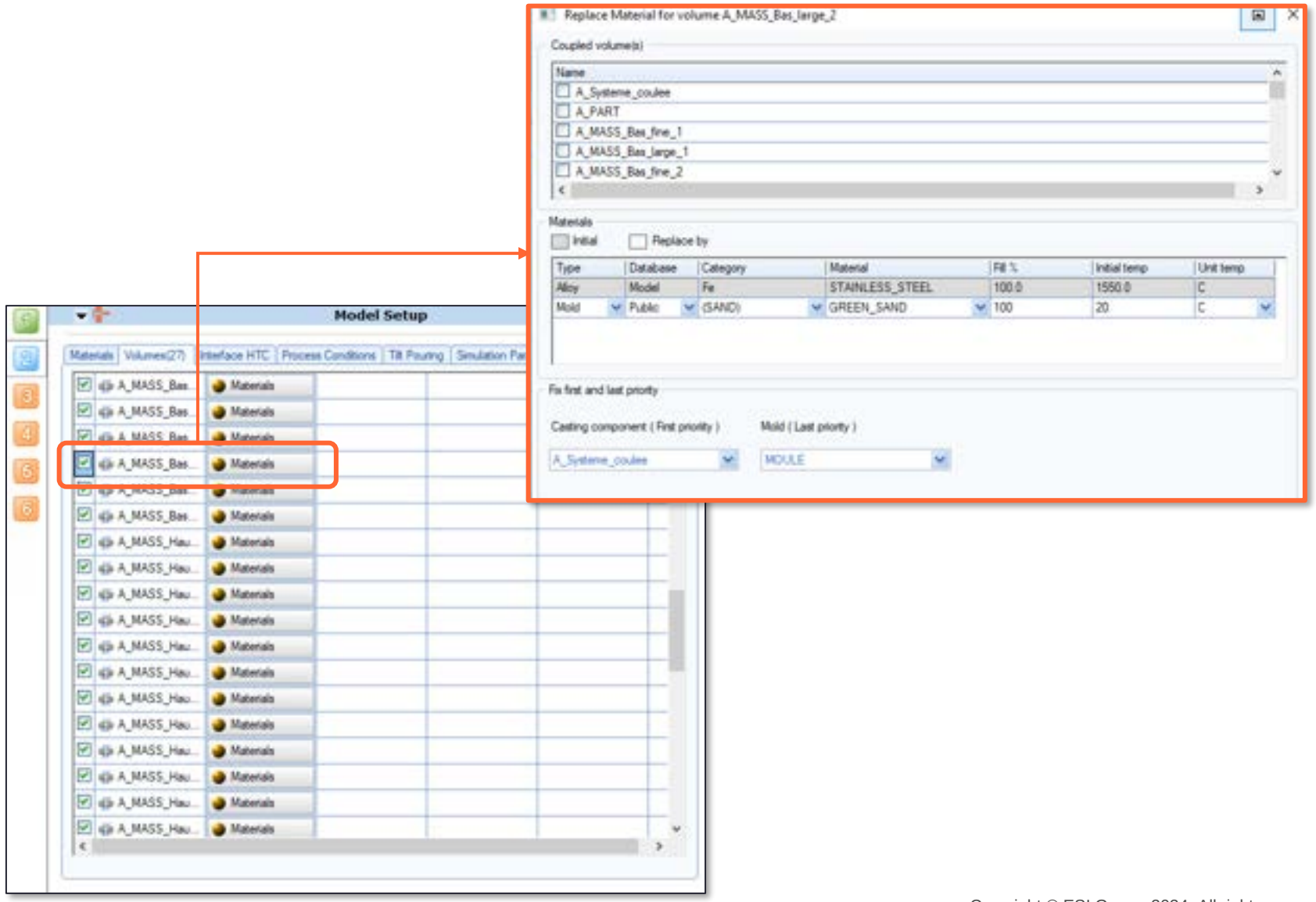


Entrada de datos para enfriadores

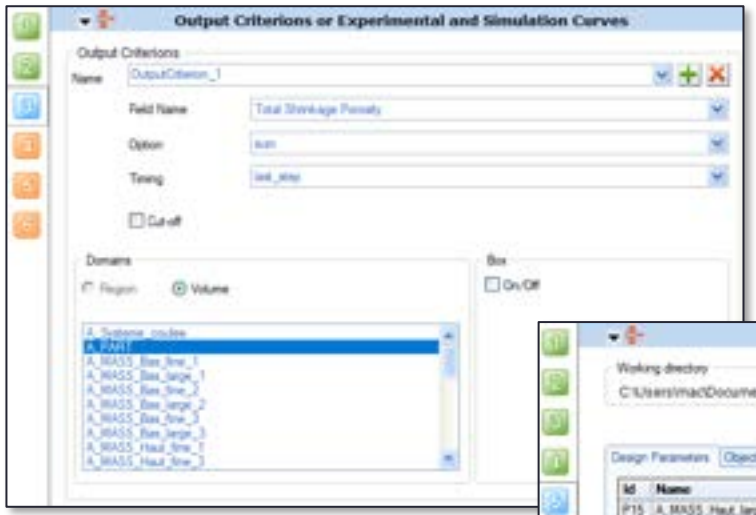


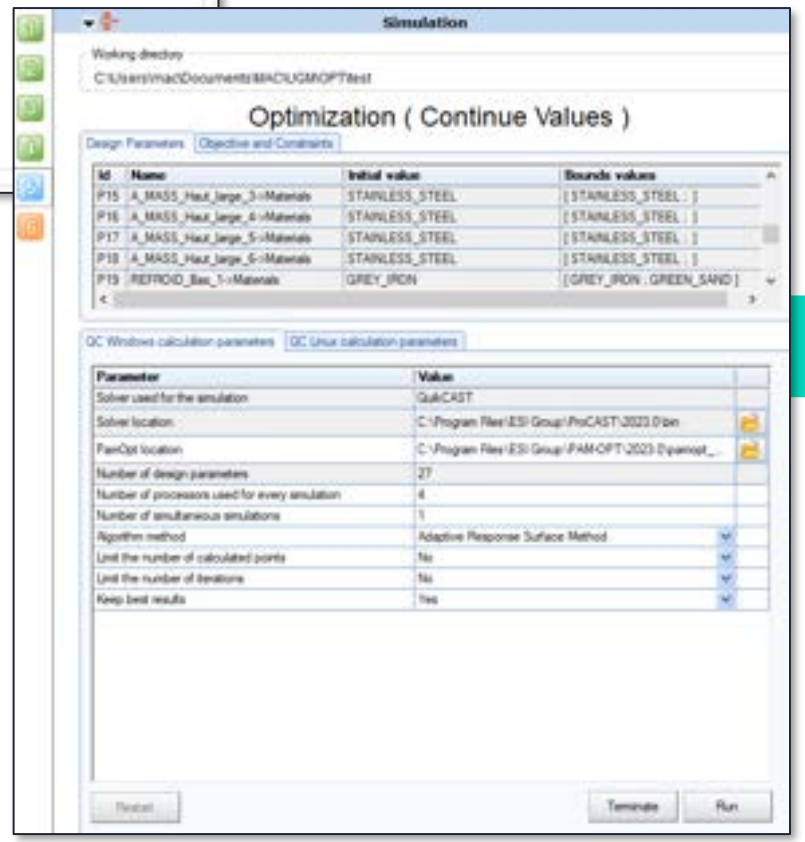


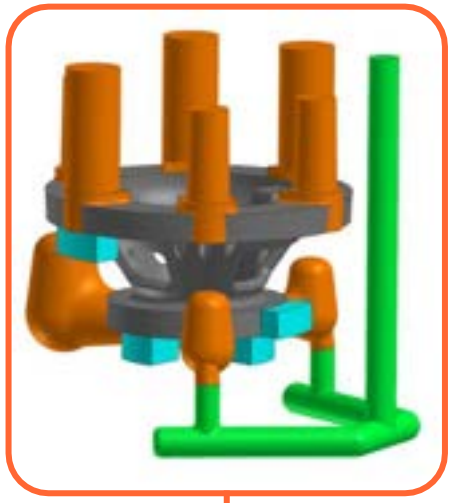
Entrada de datos para mazarotas

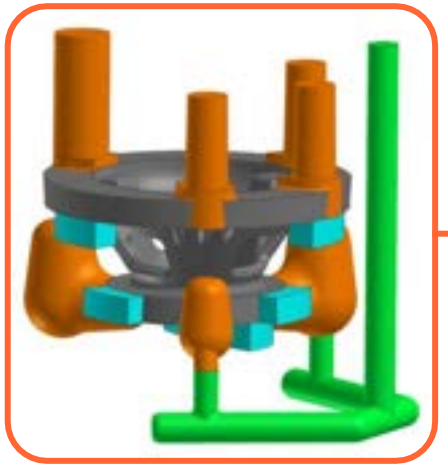


Datos





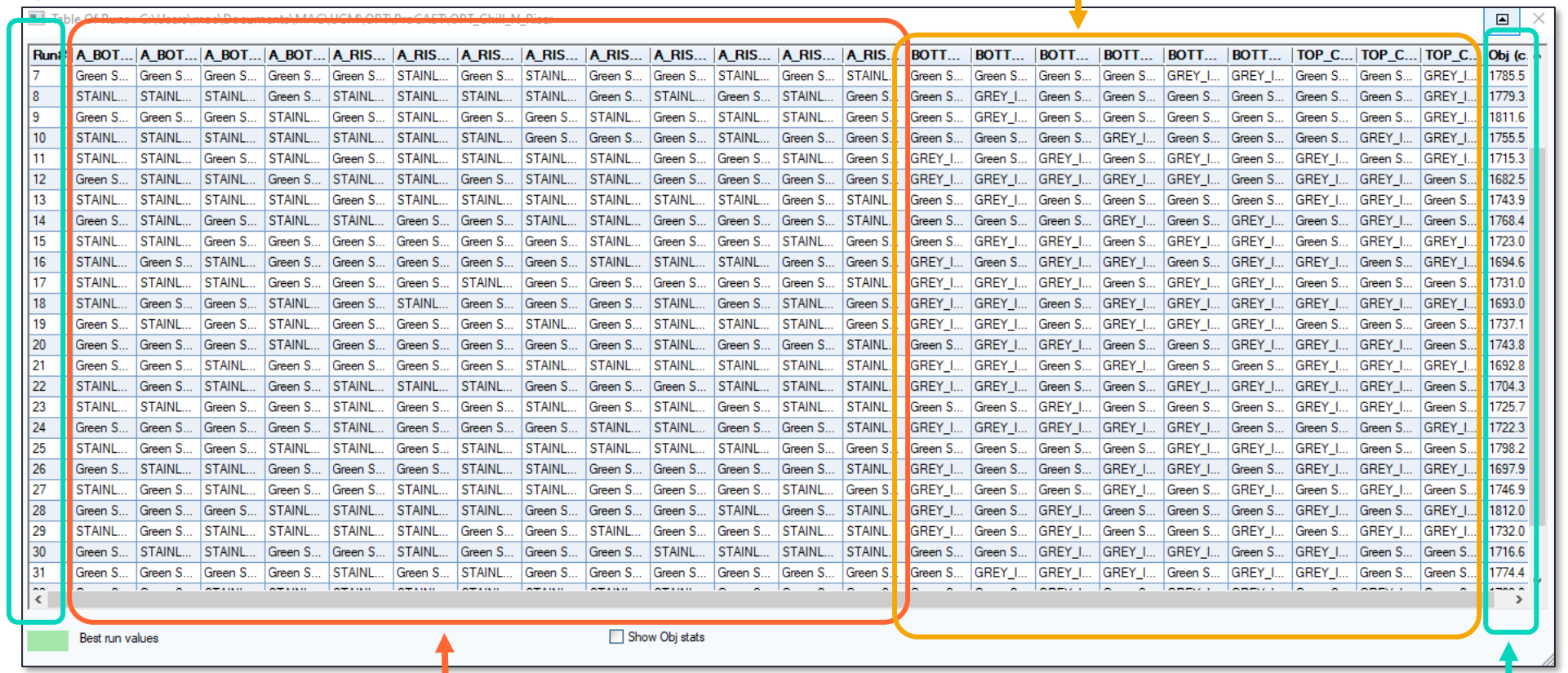




Resultados

Número de iteraciones

Variación de materiales para enfriadores:
Enfriador presente: GREY IRON
Ausencia de enfriador: Green Sand



Run	A_BOT...	A_BOT...	A_BOT...	A_BOT...	A_RIS...	A_RIS...	A_RIS...	A_RIS...	A_RIS...	A_RIS...	A_RIS...	A_RIS...	A_RIS...	BOTT...	BOTT...	BOTT...	BOTT...	BOTT...	BOTT...	TOP_C...	TOP_C...	TOP_C...	Obj (c...
7	Green S...	Green S...	Green S...	Green S...	Green S...	STAINL...	Green S...	STAINL...	Green S...	Green S...	STAINL...	Green S...	STAINL...	Green S...	Green S...	Green S...	Green S...	GREY_I...	GREY_I...	Green S...	Green S...	GREY_I...	1785.5
8	STAINL...	STAINL...	STAINL...	Green S...	STAINL...	STAINL...	STAINL...	STAINL...	Green S...	STAINL...	Green S...	STAINL...	Green S...	Green S...	GREY_I...	Green S...	Green S...	Green S...	Green S...	Green S...	Green S...	GREY_I...	1779.3
9	Green S...	Green S...	Green S...	STAINL...	Green S...	STAINL...	Green S...	Green S...	STAINL...	Green S...	STAINL...	STAINL...	Green S...	Green S...	GREY_I...	Green S...	Green S...	Green S...	Green S...	Green S...	Green S...	GREY_I...	1811.6
10	STAINL...	STAINL...	STAINL...	STAINL...	STAINL...	STAINL...	STAINL...	Green S...	Green S...	STAINL...	Green S...	STAINL...	Green S...	Green S...	Green S...	Green S...	GREY_I...	Green S...	Green S...	Green S...	GREY_I...	GREY_I...	1755.5
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12	Green S...	STAINL...	STAINL...	Green S...	STAINL...	STAINL...	Green S...	STAINL...	STAINL...	Green S...	Green S...	Green S...	Green S...	GREY_I...	GREY_I...	GREY_I...	GREY_I...	GREY_I...	Green S...	GREY_I...	GREY_I...	Green S...	1682.5
13	STAINL...	STAINL...	STAINL...	STAINL...	Green S...	STAINL...	STAINL...	STAINL...	STAINL...	STAINL...	STAINL...	Green S...	STAINL...	Green S...	GREY_I...	Green S...	Green S...	Green S...	Green S...	GREY_I...	GREY_I...	Green S...	1743.9
14	Green S...	STAINL...	Green S...	STAINL...	STAINL...	Green S...	Green S...	STAINL...	STAINL...	Green S...	Green S...	Green S...	STAINL...	Green S...	Green S...	Green S...	GREY_I...	Green S...	GREY_I...	Green S...	GREY_I...	Green S...	1768.4
15	STAINL...	STAINL...	Green S...	Green S...	Green S...	Green S...	Green S...	Green S...	STAINL...	Green S...	Green S...	STAINL...	Green S...	Green S...	GREY_I...	GREY_I...	Green S...	GREY_I...	GREY_I...	Green S...	GREY_I...	GREY_I...	1723.0
16	STAINL...	Green S...	STAINL...	Green S...	Green S...	Green S...	Green S...	Green S...	STAINL...	STAINL...	STAINL...	Green S...	Green S...	GREY_I...	Green S...	GREY_I...	GREY_I...	Green S...	GREY_I...	GREY_I...	Green S...	GREY_I...	1694.6
17	STAINL...	STAINL...	STAINL...	Green S...	Green S...	Green S...	STAINL...	Green S...	Green S...	Green S...	Green S...	Green S...	STAINL...	GREY_I...	GREY_I...	GREY_I...	Green S...	GREY_I...	GREY_I...	Green S...	Green S...	Green S...	1731.0
18	STAINL...	Green S...	Green S...	STAINL...	Green S...	STAINL...	Green S...	Green S...	Green S...	STAINL...	Green S...	STAINL...	Green S...	GREY_I...	GREY_I...	Green S...	GREY_I...	GREY_I...	GREY_I...	GREY_I...	GREY_I...	GREY_I...	1693.0
19	Green S...	STAINL...	Green S...	STAINL...	Green S...	Green S...	Green S...	STAINL...	Green S...	STAINL...	STAINL...	STAINL...	Green S...	GREY_I...	GREY_I...	Green S...	GREY_I...	GREY_I...	GREY_I...	Green S...	Green S...	Green S...	1737.1
20	Green S...	Green S...	Green S...	STAINL...	Green S...	Green S...	Green S...	Green S...	Green S...	STAINL...	Green S...	Green S...	STAINL...	Green S...	GREY_I...	GREY_I...	Green S...	Green S...	GREY_I...	GREY_I...	GREY_I...	Green S...	1743.8
21	Green S...	Green S...	STAINL...	Green S...	Green S...	Green S...	Green S...	STAINL...	STAINL...	STAINL...	STAINL...	STAINL...	STAINL...	GREY_I...	GREY_I...	Green S...	GREY_I...	Green S...	GREY_I...	GREY_I...	GREY_I...	GREY_I...	1692.8
22	STAINL...	Green S...	STAINL...	Green S...	STAINL...	STAINL...	STAINL...	Green S...	Green S...	Green S...	STAINL...	STAINL...	STAINL...	GREY_I...	GREY_I...	Green S...	GREY_I...	GREY_I...	GREY_I...	GREY_I...	GREY_I...	Green S...	1704.3
23	STAINL...	STAINL...	Green S...	Green S...	STAINL...	Green S...	Green S...	STAINL...	Green S...	STAINL...	Green S...	STAINL...	STAINL...	Green S...	Green S...	GREY_I...	Green S...	Green S...	Green S...	GREY_I...	GREY_I...	Green S...	1725.7
24	Green S...	Green S...	Green S...	Green S...	STAINL...	Green S...	Green S...	Green S...	STAINL...	STAINL...	Green S...	Green S...	STAINL...	GREY_I...	GREY_I...	GREY_I...	GREY_I...	GREY_I...	Green S...	Green S...	Green S...	GREY_I...	1722.3
25	STAINL...	Green S...	Green S...	STAINL...	STAINL...	Green S...	STAINL...	STAINL...	STAINL...	STAINL...	STAINL...	Green S...	Green S...	Green S...	Green S...	Green S...	Green S...	GREY_I...	GREY_I...	GREY_I...	Green S...	Green S...	1798.2
26	Green S...	STAINL...	STAINL...	Green S...	Green S...	Green S...	STAINL...	STAINL...	Green S...	Green S...	Green S...	Green S...	STAINL...	GREY_I...	Green S...	Green S...	GREY_I...	GREY_I...	Green S...	GREY_I...	GREY_I...	GREY_I...	1697.9
27	STAINL...	Green S...	STAINL...	Green S...	Green S...	STAINL...	STAINL...	STAINL...	Green S...	Green S...	Green S...	STAINL...	Green S...	GREY_I...	Green S...	Green S...	GREY_I...	Green S...	GREY_I...	Green S...	GREY_I...	Green S...	1746.9
28	Green S...	Green S...	Green S...	STAINL...	STAINL...	STAINL...	STAINL...	Green S...	Green S...	Green S...	STAINL...	Green S...	STAINL...	GREY_I...	Green S...	GREY_I...	Green S...	Green S...	Green S...	GREY_I...	Green S...	GREY_I...	1812.0
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31	Green S...	Green S...	STAINL...	Green S...	STAINL...	Green S...	STAINL...	Green S...	Green S...	Green S...	Green S...	Green S...	Green S...	Green S...	GREY_I...	GREY_I...	GREY_I...	GREY_I...	GREY_I...	GREY_I...	Green S...	Green S...	1774.4

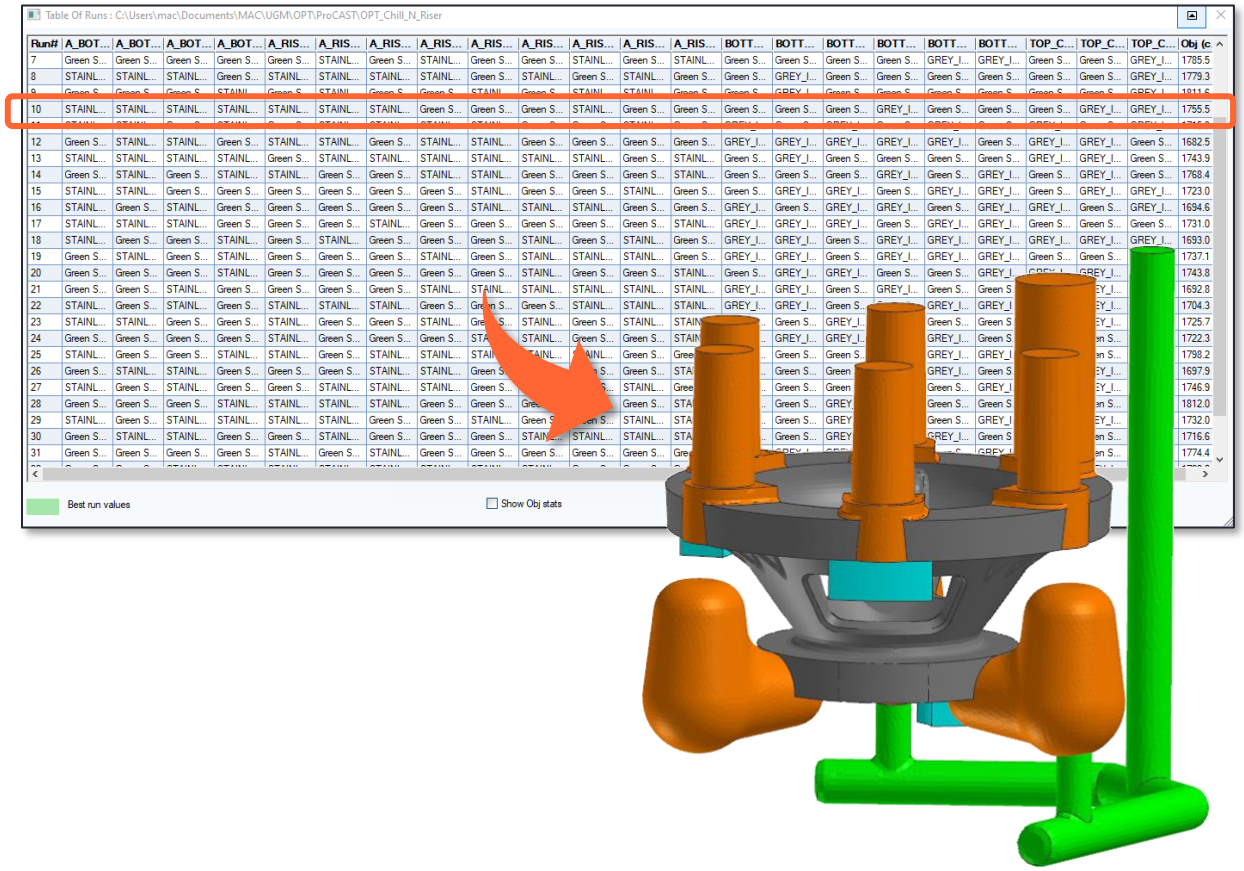
Best run values

Show Obj stats

Variación de material para Mazarotas
Mazarota Presente : STAINLESS STEEL
Ausencia de Mazarota: Green Sand

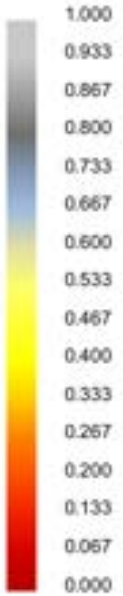
Objetivo : volumen de porosidad

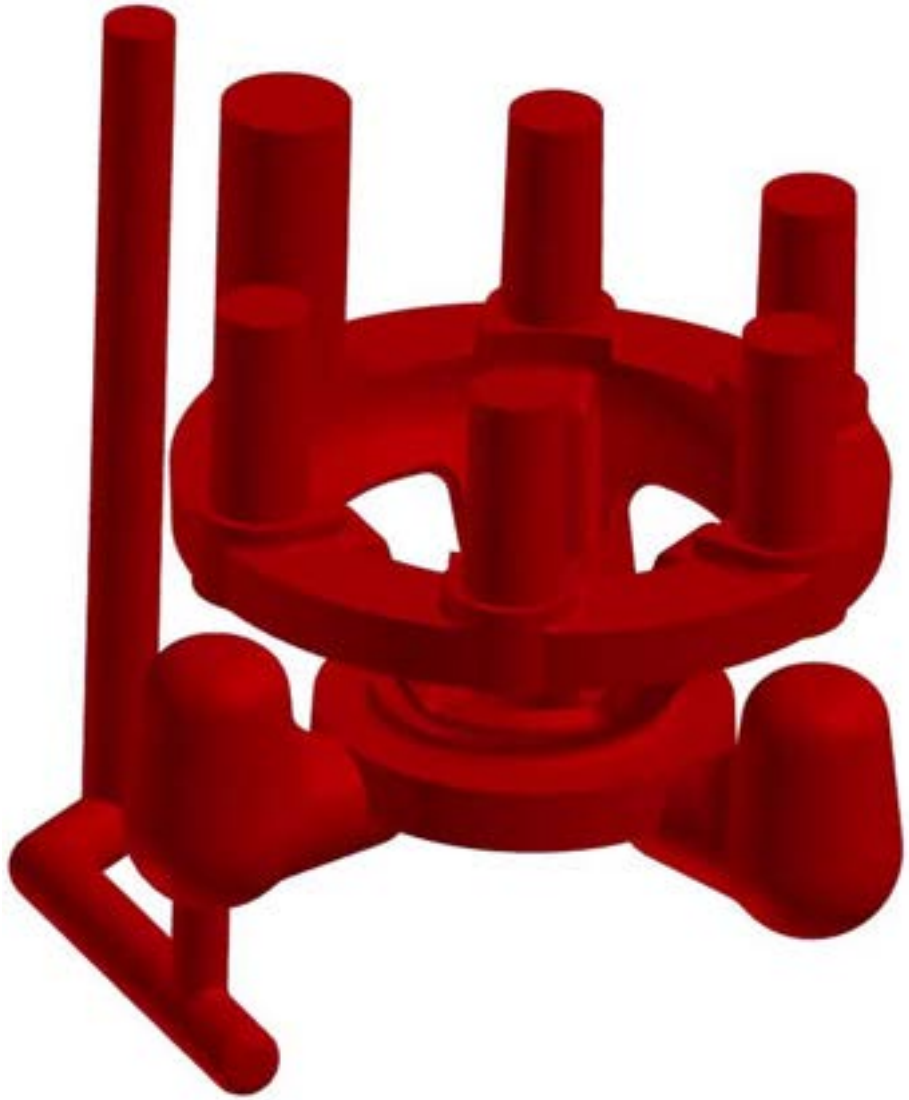
Resultados



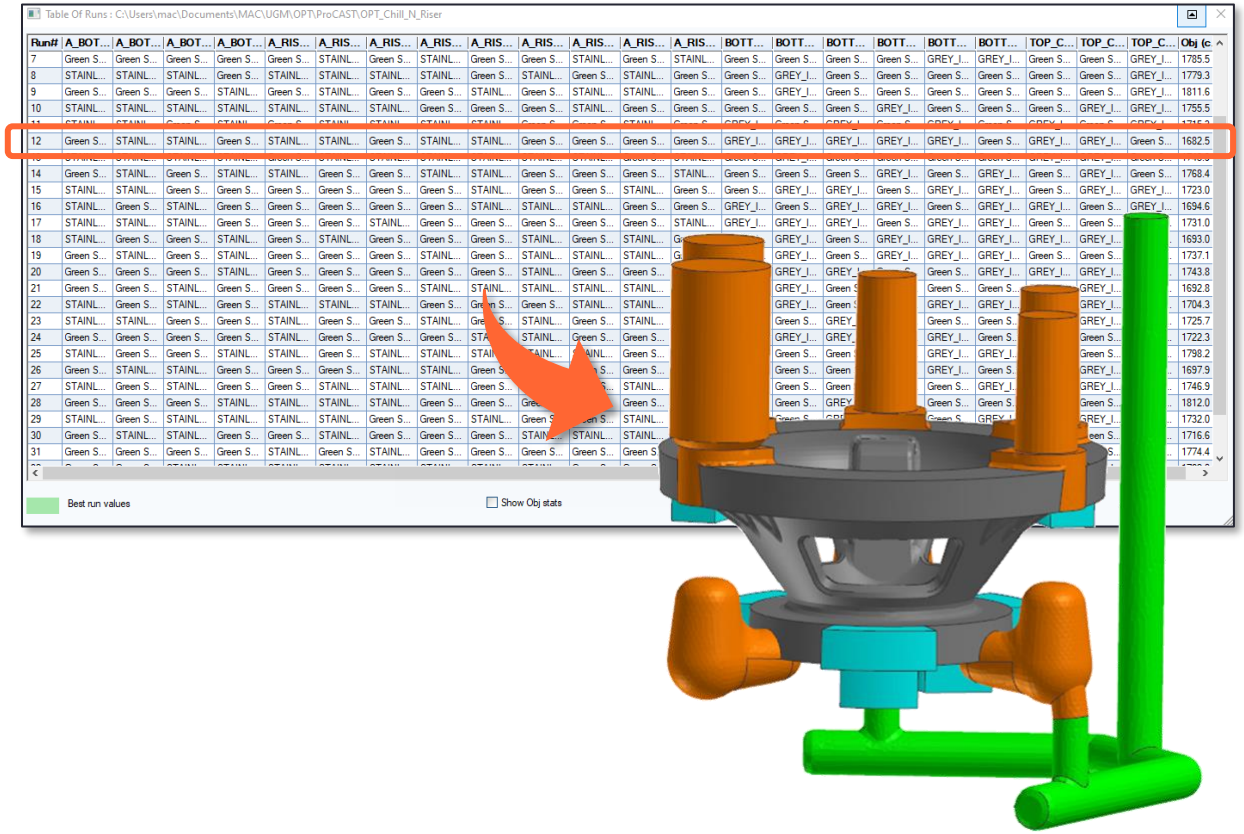
Fracción sólida(%)

Cut-off 85%



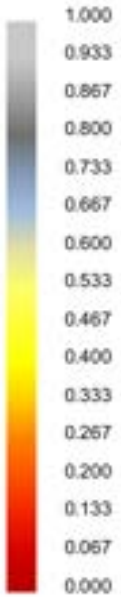


Resultados



Fracción sólida(%)

Cut-off 85%



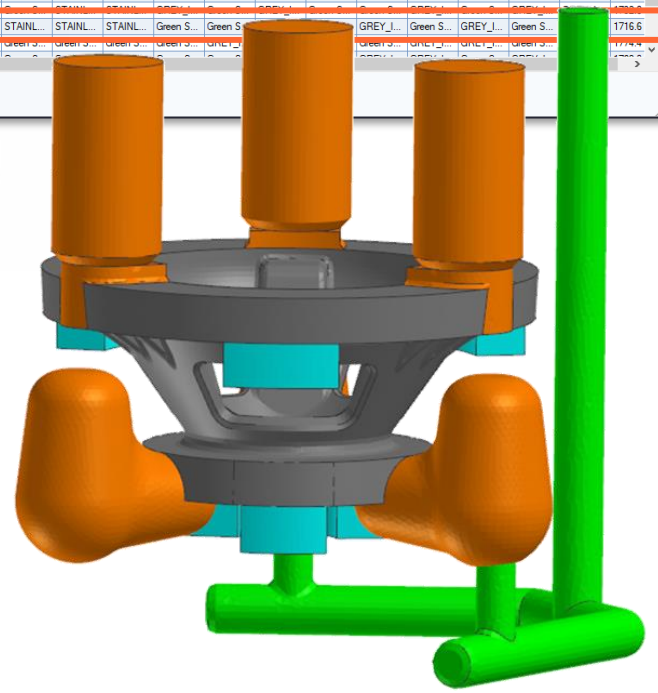
Resultados

Table Of Runs : C:\Users\mac\Documents\MAC\UGM\OPT\ProCAST\OPT_Chill_N_Riser

Run#	A_BOT...	A_BOT...	A_BOT...	A_BOT...	A_RIS...	A_RIS...	A_RIS...	A_RIS...	A_RIS...	A_RIS...	A_RIS...	A_RIS...	A_RIS...	BOTT...	BOTT...	BOTT...	BOTT...	BOTT...	BOTT...	TOP_C...	TOP_C...	TOP_C...	Obj (c
7	Green S...	Green S...	Green S...	Green S...	Green S...	STAINL...	Green S...	STAINL...	Green S...	Green S...	STAINL...	Green S...	STAINL...	Green S...	Green S...	Green S...	Green S...	GREY_I...	GREY_I...	Green S...	Green S...	GREY_I...	1785.5
8	STAINL...	STAINL...	STAINL...	Green S...	STAINL...	STAINL...	STAINL...	STAINL...	Green S...	STAINL...	Green S...	STAINL...	Green S...	GREY_I...	Green S...	Green S...	Green S...	Green S...	Green S...	Green S...	Green S...	GREY_I...	1779.3
9	Green S...	Green S...	Green S...	STAINL...	Green S...	STAINL...	Green S...	Green S...	STAINL...	Green S...	STAINL...	STAINL...	Green S...	Green S...	GREY_I...	Green S...	Green S...	Green S...	Green S...	Green S...	Green S...	GREY_I...	1811.6
10	STAINL...	STAINL...	STAINL...	STAINL...	STAINL...	STAINL...	STAINL...	Green S...	Green S...	Green S...	STAINL...	Green S...	Green S...	Green S...	Green S...	Green S...	GREY_I...	Green S...	Green S...	Green S...	GREY_I...	GREY_I...	1755.5
11	STAINL...	STAINL...	Green S...	STAINL...	Green S...	STAINL...	STAINL...	STAINL...	Green S...	Green S...	STAINL...	Green S...	GREY_I...	Green S...	GREY_I...	Green S...	GREY_I...	Green S...	GREY_I...	Green S...	Green S...	GREY_I...	1715.3
12	Green S...	STAINL...	STAINL...	Green S...	STAINL...	STAINL...	Green S...	STAINL...	STAINL...	Green S...	Green S...	Green S...	GREY_I...	GREY_I...	GREY_I...	GREY_I...	GREY_I...	Green S...	GREY_I...	GREY_I...	Green S...	Green S...	1682.5
13	STAINL...	STAINL...	STAINL...	STAINL...	Green S...	STAINL...	STAINL...	STAINL...	STAINL...	STAINL...	Green S...	STAINL...	Green S...	Green S...	GREY_I...	Green S...	Green S...	Green S...	Green S...	GREY_I...	GREY_I...	Green S...	1743.9
14	Green S...	STAINL...	Green S...	STAINL...	STAINL...	Green S...	Green S...	STAINL...	STAINL...	Green S...	Green S...	Green S...	STAINL...	Green S...	Green S...	Green S...	GREY_I...	Green S...	GREY_I...	Green S...	GREY_I...	GREY_I...	1768.4
15	STAINL...	STAINL...	Green S...	Green S...	Green S...	Green S...	Green S...	Green S...	STAINL...	Green S...	Green S...	STAINL...	Green S...	Green S...	GREY_I...	GREY_I...	Green S...	GREY_I...	Green S...	GREY_I...	GREY_I...	GREY_I...	1723.0
16	STAINL...	Green S...	STAINL...	Green S...	Green S...	Green S...	Green S...	Green S...	STAINL...	STAINL...	STAINL...	Green S...	Green S...	GREY_I...	Green S...	GREY_I...	GREY_I...	Green S...	GREY_I...	Green S...	Green S...	GREY_I...	1694.6
17	STAINL...	STAINL...	STAINL...	Green S...	Green S...	Green S...	STAINL...	Green S...	Green S...	Green S...	Green S...	Green S...	STAINL...	GREY_I...	GREY_I...	GREY_I...	Green S...	GREY_I...	GREY_I...	Green S...	Green S...	Green S...	1731.0
18	STAINL...	Green S...	Green S...	STAINL...	Green S...	STAINL...	Green S...	Green S...	Green S...	STAINL...	Green S...	STAINL...	Green S...	GREY_I...	GREY_I...	Green S...	GREY_I...	GREY_I...	GREY_I...	GREY_I...	GREY_I...	GREY_I...	1693.0
19	Green S...	STAINL...	Green S...	STAINL...	Green S...	Green S...	Green S...	STAINL...	Green S...	STAINL...	STAINL...	STAINL...	Green S...	GREY_I...	GREY_I...	Green S...	GREY_I...	GREY_I...	GREY_I...	Green S...	Green S...	Green S...	1737.1
20	Green S...	Green S...	Green S...	STAINL...	Green S...	Green S...	Green S...	Green S...	Green S...	STAINL...	Green S...	Green S...	STAINL...	Green S...	GREY_I...	GREY_I...	Green S...	Green S...	GREY_I...	GREY_I...	Green S...	Green S...	1743.8
21	Green S...	Green S...	STAINL...	Green S...	Green S...	Green S...	Green S...	STAINL...	STAINL...	STAINL...	STAINL...	STAINL...	GREY_I...	GREY_I...	Green S...	GREY_I...	Green S...	Green S...	GREY_I...	GREY_I...	GREY_I...	GREY_I...	1692.8
22	STAINL...	Green S...	STAINL...	Green S...	STAINL...	STAINL...	STAINL...	Green S...	Green S...	Green S...	STAINL...	STAINL...	STAINL...	GREY_I...	GREY_I...	Green S...	Green S...	GREY_I...	GREY_I...	GREY_I...	GREY_I...	Green S...	1704.3
23	STAINL...	STAINL...	Green S...	Green S...	STAINL...	Green S...	Green S...	STAINL...	Green S...	STAINL...	Green S...	STAINL...	Green S...	Green S...	Green S...	GREY_I...	Green S...	Green S...	Green S...	GREY_I...	GREY_I...	Green S...	1725.7
24	Green S...	Green S...	Green S...	Green S...	STAINL...	Green S...	Green S...	Green S...	STAINL...	STAINL...	Green S...	Green S...	STAINL...	GREY_I...	GREY_I...	GREY_I...	GREY_I...	GREY_I...	Green S...	Green S...	Green S...	GREY_I...	1722.3
25	STAINL...	Green S...	Green S...	STAINL...	STAINL...	Green S...	STAINL...	STAINL...	STAINL...	STAINL...	Green S...	Green S...	Green S...	Green S...	Green S...	Green S...	Green S...	GREY_I...	GREY_I...	GREY_I...	Green S...	Green S...	1798.2
26	Green S...	STAINL...	STAINL...	Green S...	Green S...	Green S...	STAINL...	STAINL...	Green S...	Green S...	Green S...	Green S...	STAINL...	GREY_I...	Green S...	Green S...	GREY_I...	GREY_I...	Green S...	GREY_I...	GREY_I...	GREY_I...	1697.9
27	STAINL...	Green S...	STAINL...	Green S...	Green S...	STAINL...	STAINL...	STAINL...	Green S...	Green S...	Green S...	STAINL...	Green S...	GREY_I...	Green S...	Green S...	GREY_I...	Green S...	GREY_I...	Green S...	GREY_I...	Green S...	1746.9
28	Green S...	Green S...	Green S...	STAINL...	STAINL...	STAINL...	STAINL...	Green S...	Green S...	Green S...	STAINL...	Green S...	STAINL...	GREY_I...	Green S...	GREY_I...	Green S...	Green S...	GREY_I...	Green S...	Green S...	GREY_I...	1812.0
30	Green S...	STAINL...	STAINL...	Green S...	Green S...	STAINL...	Green S...	Green S...	STAINL...	STAINL...	STAINL...	STAINL...	Green S...	Green S...	Green S...			GREY_I...	Green S...	GREY_I...	Green S...		1716.6

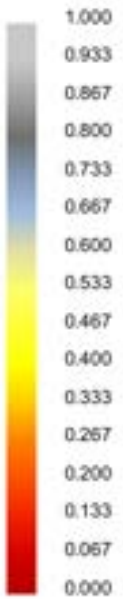
Best run values

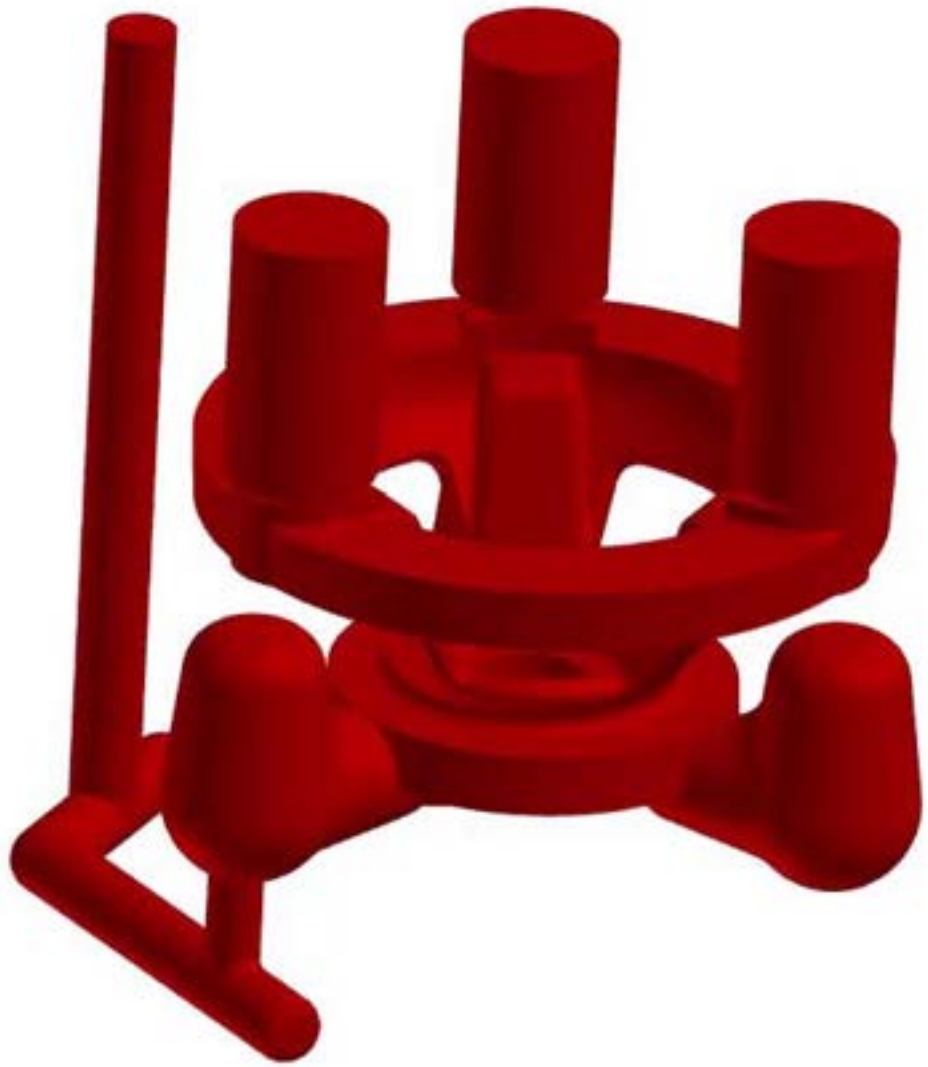
Show Obj stats



Fracción sólida(%)

Cut-off 85%

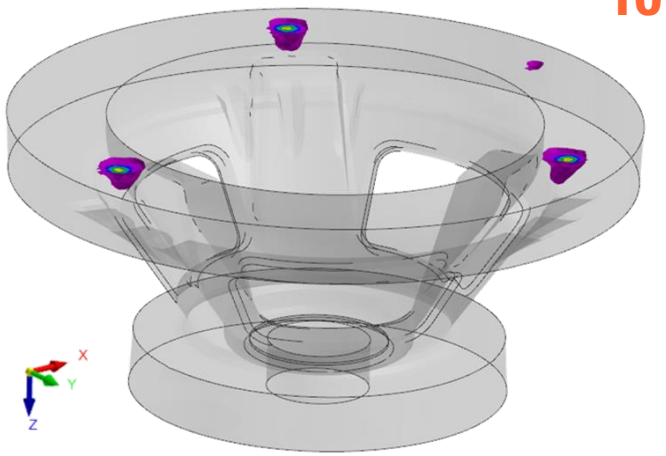




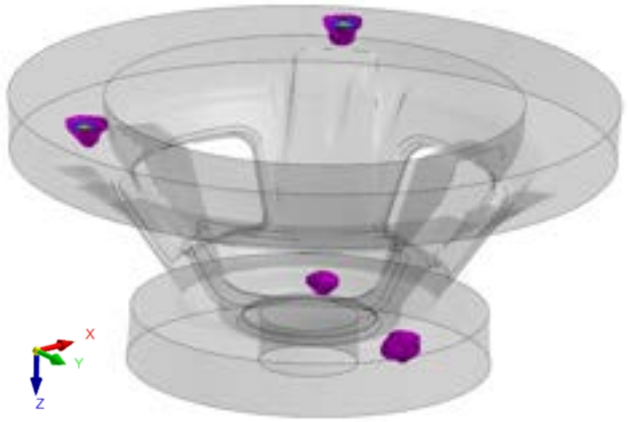
Resultados

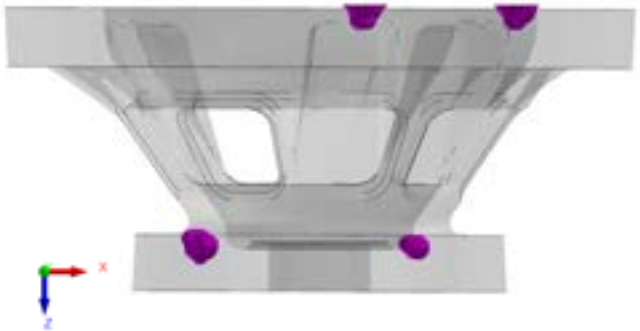
Ubicación de rechupes

Iteración 10



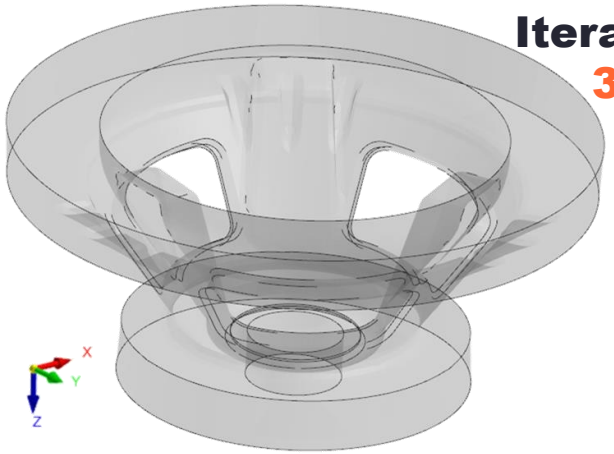
Iteración 14

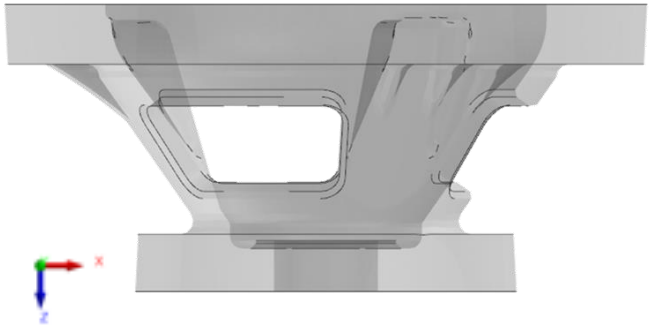




Mejores resultados

Iteración 30



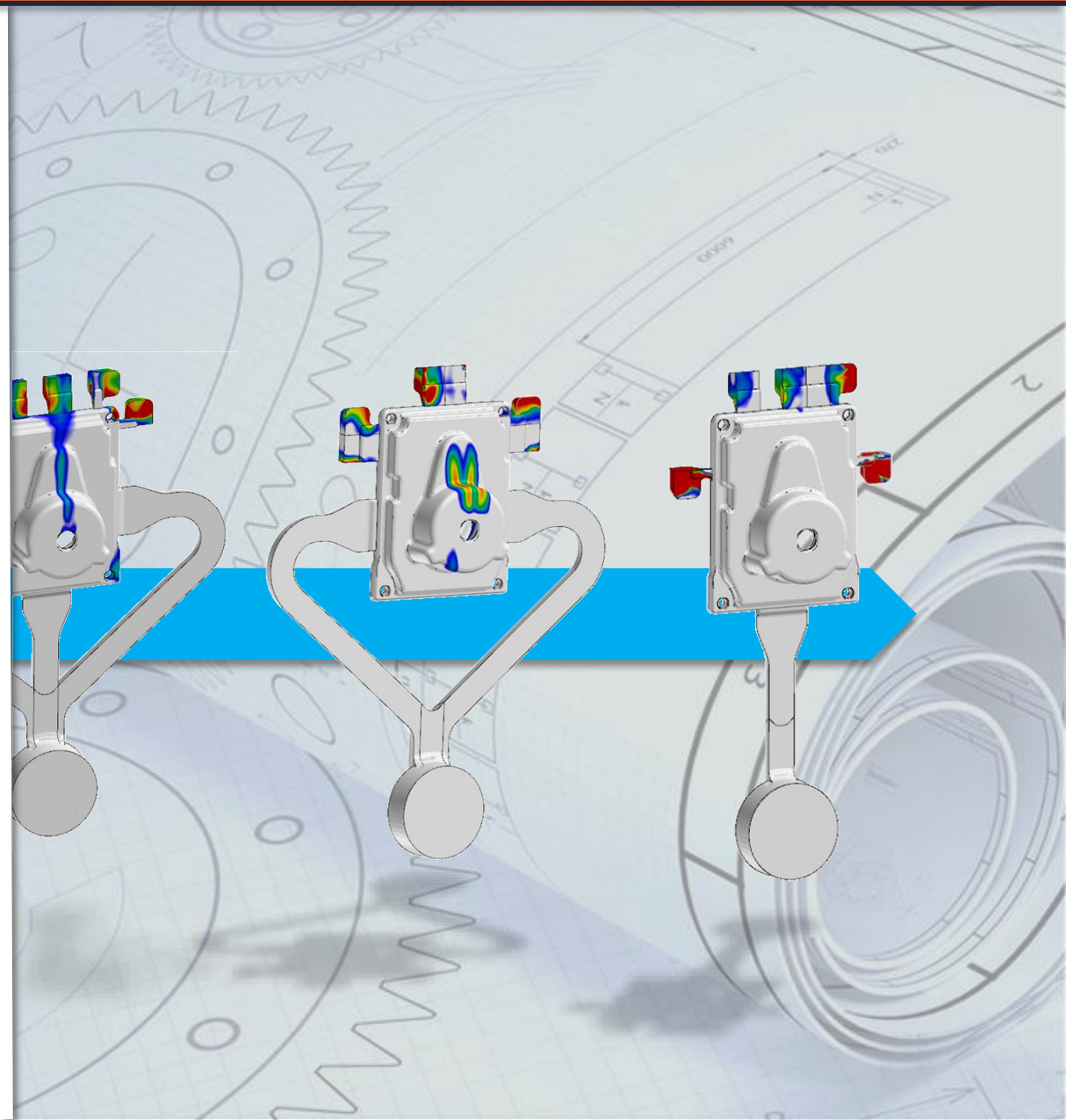


Agenda

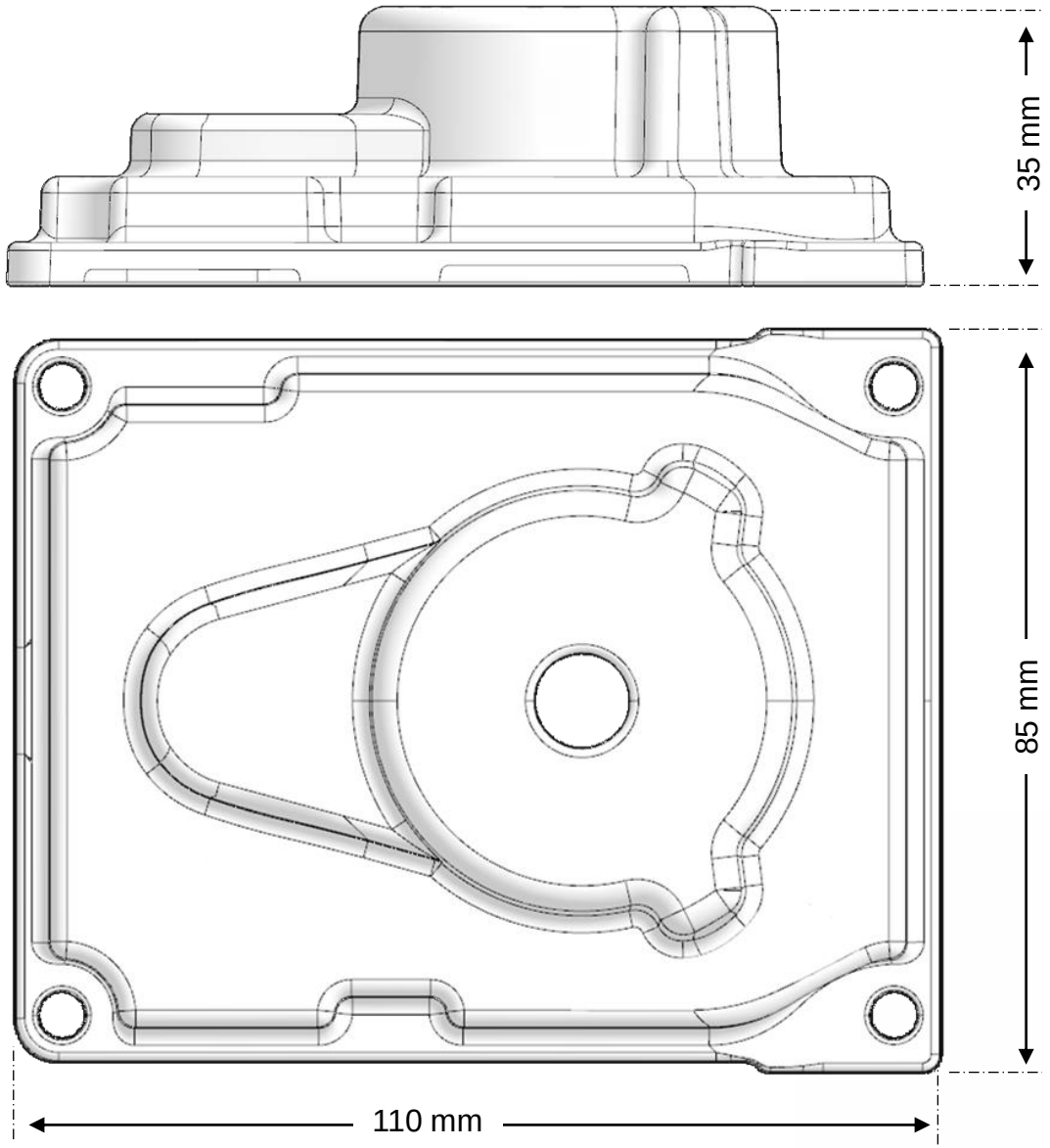
1. Módulo de optimización: función MatID
2. Optimización del sistema de alimentación
3. **Optimización del sistema de llenado**
4. Ventajas y Conclusiones

Objetivos

Optimizar el sistema de llenado y rebosaderos para reducir el atrapamiento de aire

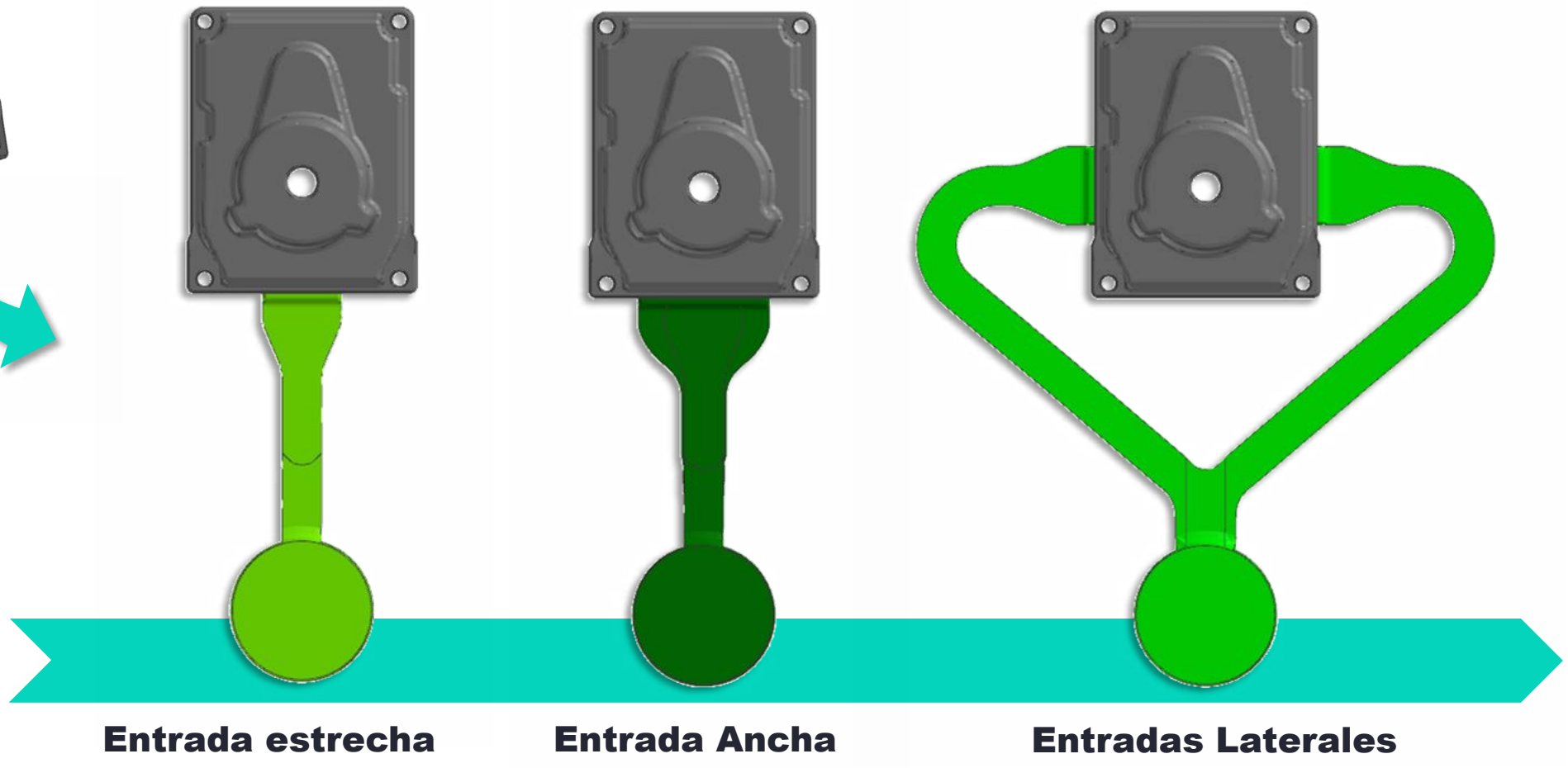


Descripción del modelo

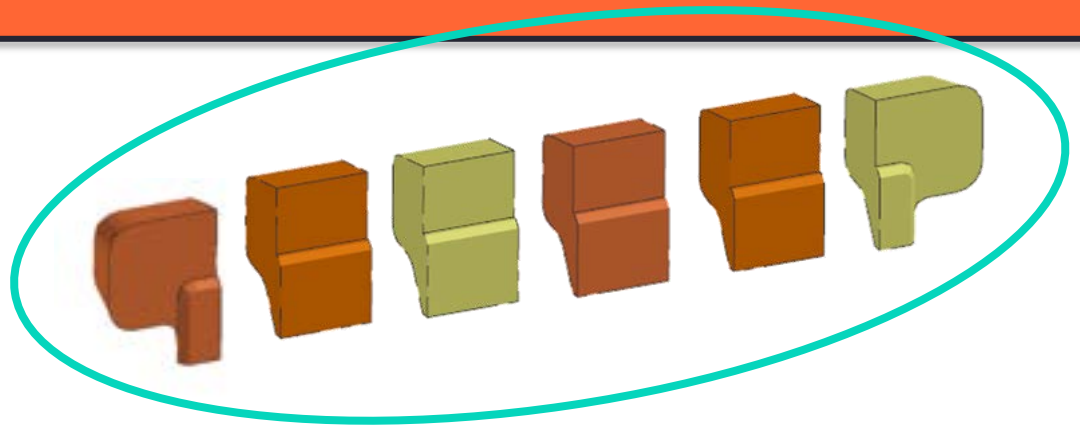


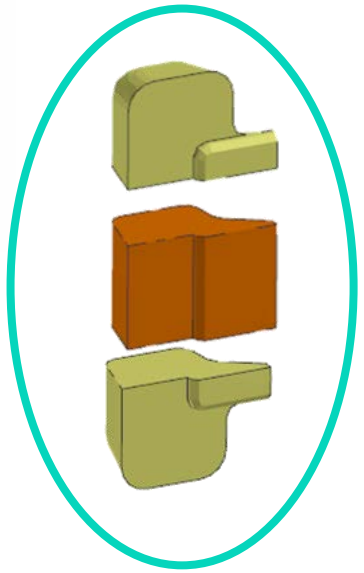
Cover plate

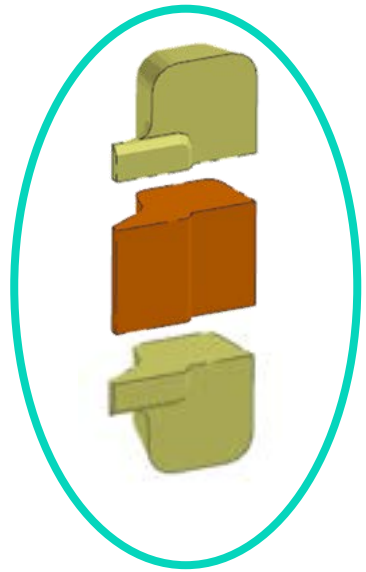
AlSi9Cu3



Optimización del sistema de llenado

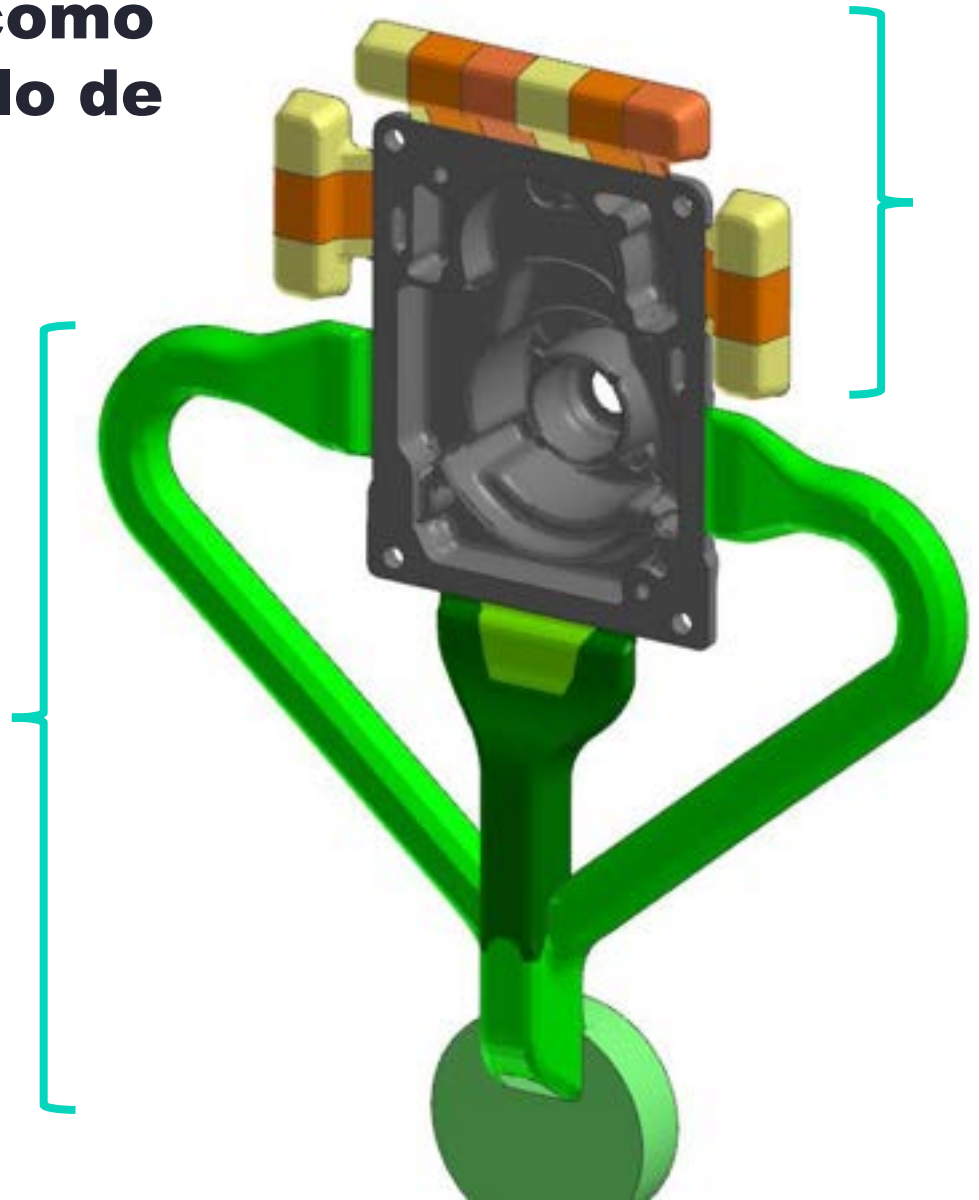






Optimización de los rebosaderos

Geometría utilizada como entrada para el módulo de Optimización



Optimización de los rebosaderos

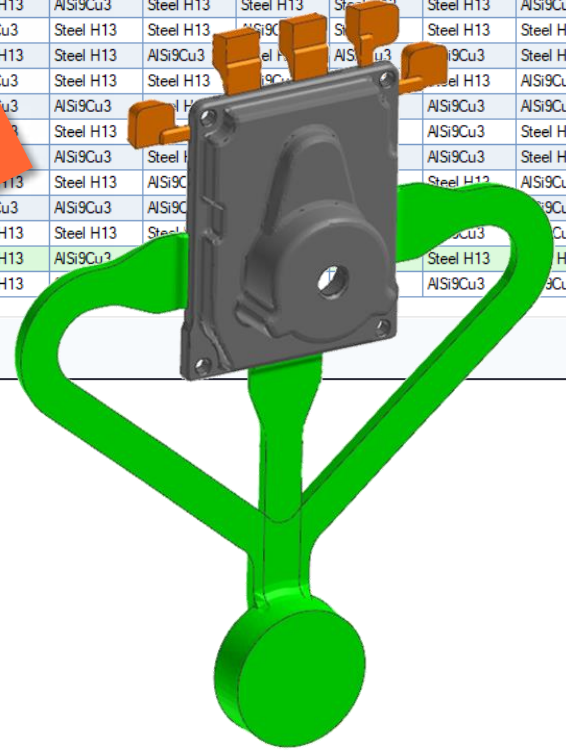
Optimización del sistema de llenado

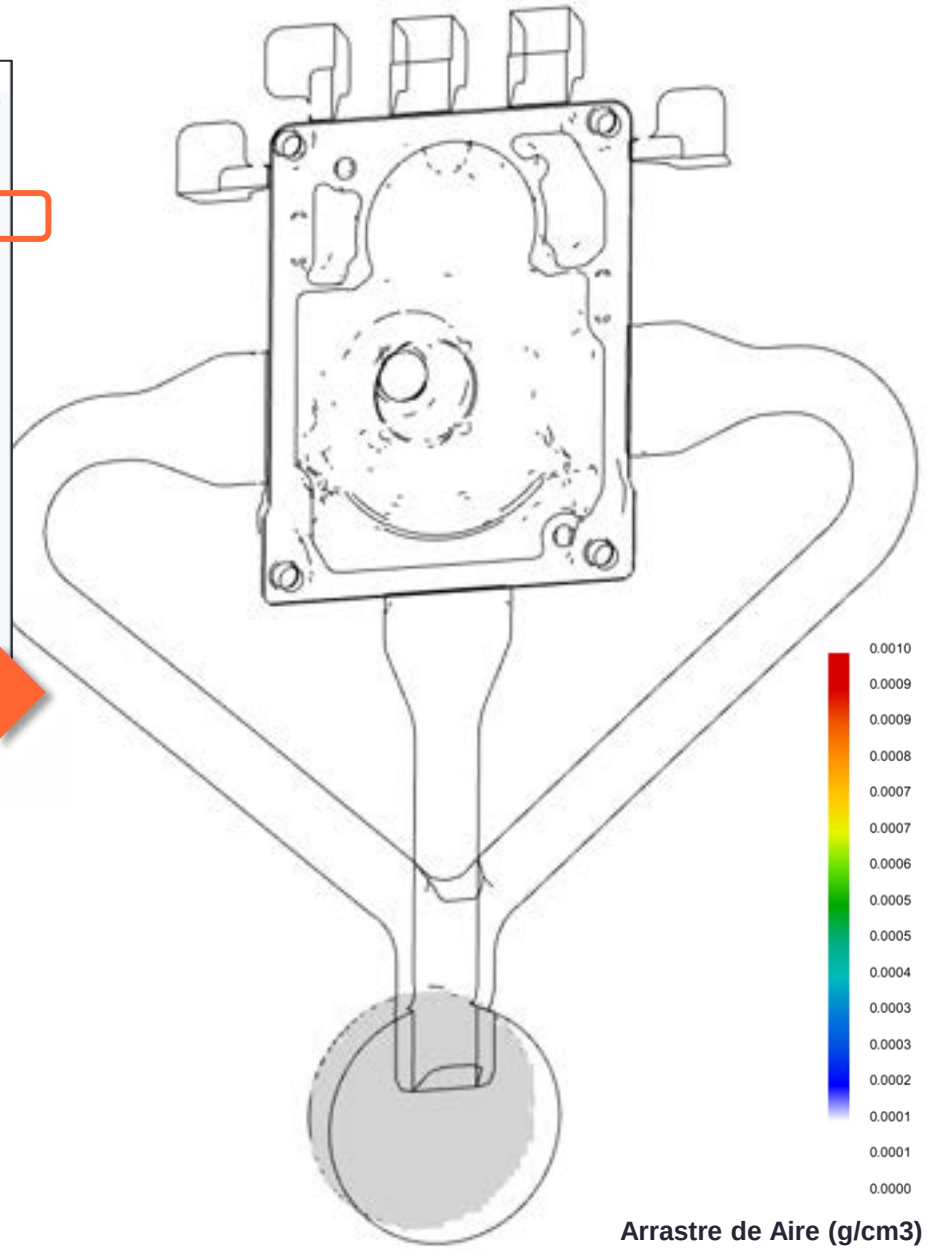
Resultados

Table Of Runs : C:\Users\mac\Documents\MAC\UGM\OPT\OPT_HPDC\OPT_Gate_N_Overflow

Run#	A_GATE...	A_GATE...	A_OVER...	A_OVER...	A_OVER...	A_OVER...	A_OVER...	A_OVER...	A_OVER...	A_OVER...	A_OVER...	A_OVER...	A_OVER...	A_OVER...	A_GATE...	Obj (g/...
1	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	0.0216798
2	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	Steel H13	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	Steel H13	Steel H13	Steel H13	AlSi9Cu3	AlSi9Cu3	Steel H13	Steel H13	AlSi9Cu3	0.0301733
4	AlSi9Cu3	AlSi9Cu3	Steel H13	AlSi9Cu3	Steel H13	Steel H13	Steel H13	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	Steel H13	AlSi9Cu3	Steel H13	Steel H13	Steel H13	0.0321166
6	Steel H13	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	Steel H13	Steel H13	AlSi9Cu3	Steel H13	AlSi9Cu3	Steel H13	Steel H13	AlSi9Cu3	Steel H13	0.0175994
7	AlSi9Cu3	AlSi9Cu3	Steel H13	Steel H13	Steel H13	AlSi9Cu3	Steel H13	Steel H13	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	Steel H13	AlSi9Cu3	Steel H13	Steel H13	0.0329915
9	AlSi9Cu3	Steel H13	AlSi9Cu3	Steel H13	Steel H13	Steel H13	AlSi9Cu3	Steel H13	AlSi9Cu3	Steel H13	Steel H13	[illegible]	Steel H13	AlSi9Cu3	AlSi9Cu3	0.0397429
11	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	Steel H13	Steel H13	Steel H13	Steel H13	AlSi9Cu3	Steel H13	Steel H13	[illegible]	[illegible]	Steel H13	Steel H13	Steel H13	0.0372757
12	Steel H13	Steel H13	AlSi9Cu3	Steel H13	AlSi9Cu3	Steel H13	Steel H13	Steel H13	Steel H13	AlSi9Cu3	[illegible]	[illegible]	[illegible]	Steel H13	AlSi9Cu3	0.0192908
13	Steel H13	Steel H13	Steel H13	Steel H13	Steel H13	AlSi9Cu3	[illegible]	AlSi9Cu3	Steel H13	Steel H13	[illegible]	[illegible]	el H13	AlSi9Cu3	AlSi9Cu3	0.0194619
15	AlSi9Cu3	Steel H13	Steel H13	Steel H13	AlSi9Cu3	Steel H13	Steel H	AlSi9Cu3	AlSi9Cu3	[illegible]	[illegible]	[illegible]	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	0.0341672
16	AlSi9Cu3	Steel H13	AlSi9Cu3	AlSi9Cu3	Steel H13	AlSi9Cu3	Steel H1	[illegible]	Steel H13	[illegible]	[illegible]	[illegible]	AlSi9Cu3	Steel H13	Steel H13	0.0351252
17	Steel H13	AlSi9Cu3	Steel H13	AlSi9Cu3	Steel H13	Steel H13	AlSi9Cu3	[illegible]	AlSi9Cu3	Steel H	[illegible]	[illegible]	AlSi9Cu3	Steel H13	AlSi9Cu3	0.0184025
18	AlSi9Cu3	Steel H13	AlSi9Cu3	AlSi9Cu3	Steel H13	AlSi9Cu3	AlSi9Cu3	St [illegible]	Steel H13	AlSi9C	[illegible]	[illegible]	Steel H13	AlSi9Cu3	Steel H13	0.032331
19	Steel H13	AlSi9Cu3	AlSi9Cu3	Steel H13	Steel H13	Steel H13	Steel H13	AlSi9Cu3	AlSi9Cu3	AlSi9C	[illegible]	[illegible]	[illegible]	AlSi9Cu3	AlSi9Cu3	0.0208899
20	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	Steel H13	AlSi9Cu3	Steel H13	Steel H13	Steel H	[illegible]	[illegible]	[illegible]	Cu3	Steel H13	0.0361007
21	Steel H13	AlSi9Cu3	Steel H13	Steel H13	AlSi9Cu3	Steel H13	AlSi9Cu3	Steel H13	AlSi9Cu3	[illegible]	[illegible]	[illegible]	Steel H13	H13	Steel H13	0.016164
23	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	Steel H13	Steel H13	Steel H13	Steel H13	Steel H13	[illegible]	[illegible]	[illegible]	[illegible]	AlSi9Cu3	6Cu3	Steel H13	0.0312391

Best run values





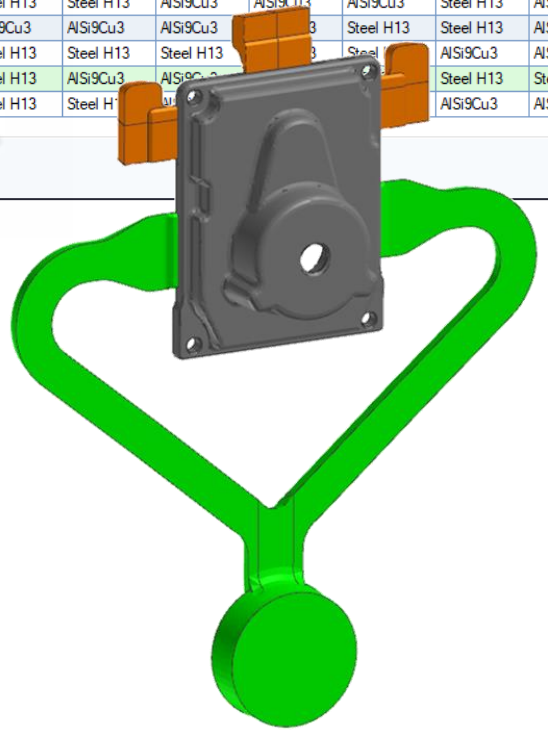
Arrastre de Aire (g/cm3)

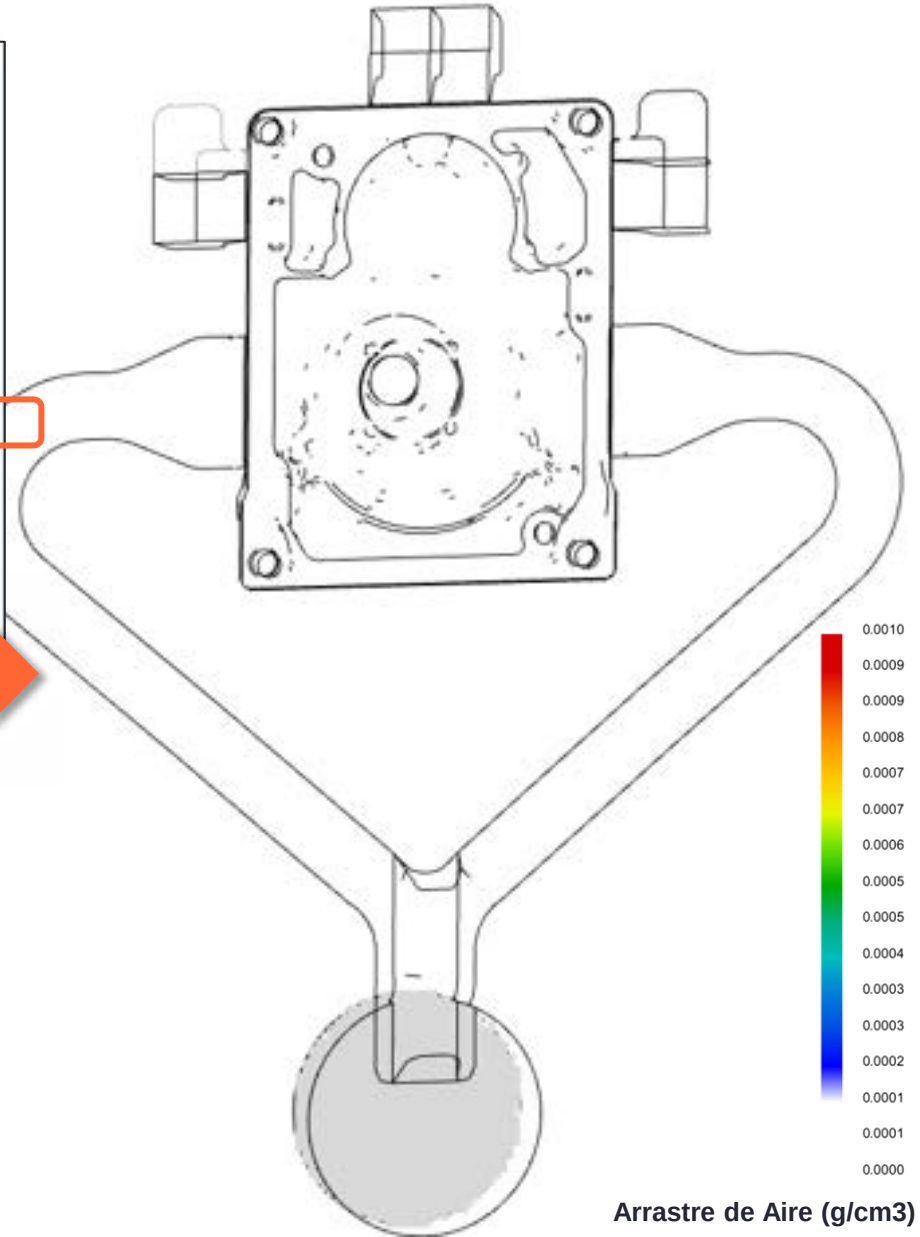
Resultados

Table Of Runs : C:\Users\mac\Documents\MAC\UGM\OPT\OPT_HPDC\OPT_Gate_N_Overflow

Run#	A_GATE...	A_GATE...	A_OVER...	A_OVER...	A_OVER...	A_OVER...	A_OVER...	A_OVER...	A_OVER...	A_OVER...	A_OVER...	A_OVER...	A_OVER...	A_OVER...	A_GATE...	Obj (g/...
1	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	0.0216798
2	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	Steel H13	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	Steel H13	Steel H13	Steel H13	AlSi9Cu3	AlSi9Cu3	Steel H13	Steel H13	AlSi9Cu3	0.0301733
3	AlSi9Cu3	Steel H13	Steel H13	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	Steel H13	AlSi9Cu3	AlSi9Cu3	Steel H13	Steel H13	Steel H13	Steel H13	AlSi9Cu3	0.0190457
4	AlSi9Cu3	AlSi9Cu3	Steel H13	AlSi9Cu3	Steel H13	Steel H13	Steel H13	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	Steel H13	AlSi9Cu3	Steel H13	Steel H13	Steel H13	0.0321166
5	Steel H13	AlSi9Cu3	Steel H13	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	Steel H13	AlSi9Cu3	Steel H13	AlSi9Cu3	AlSi9Cu3	Steel H13	AlSi9Cu3	Steel H13	AlSi9Cu3	0.0188583
6	Steel H13	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	Steel H13	Steel H13	AlSi9Cu3	Steel H13	AlSi9Cu3	Steel H13	Steel H13	AlSi9Cu3	Steel H13	0.0175994
7	AlSi9Cu3	AlSi9Cu3	Steel H13	Steel H13	Steel H13	AlSi9Cu3	Steel H13	Steel H13	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	Steel H13	AlSi9Cu3	Steel H13	Steel H13	0.0329915
9	AlSi9Cu3	Steel H13	AlSi9Cu3	Steel H13	Steel H13	Steel H13	AlSi9Cu3	Steel H13	AlSi9Cu3	Steel H13	Steel H13	Steel H13	Steel H13	AlSi9Cu3	AlSi9Cu3	0.0397429
11	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	Steel H13	Steel H13	Steel H13	Steel H13	AlSi9Cu3	Steel H13	Steel H13	AlSi9Cu3	Steel H13	Steel H13	Steel H13	Steel H13	0.0372757
12	Steel H13	Steel H13	AlSi9Cu3	Steel H13	AlSi9Cu3	Steel H13	Steel H13	Steel H13	Steel H13	AlSi9Cu3	Steel H13	AlSi9Cu3	AlSi9Cu3	Steel H13	AlSi9Cu3	0.0192908
13	Steel H13	Steel H13	Steel H13	Steel H13	Steel H13	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	Steel H13	Steel H13	AlSi9Cu3	AlSi9Cu3	Steel H13	AlSi9Cu3	AlSi9Cu3	0.0194619
15	AlSi9Cu3	Steel H13	Steel H13	Steel H13	AlSi9Cu3	Steel H13	Steel H13	AlSi9Cu3	Steel H13	Steel H13	Steel H13	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	0.0341672
16	AlSi9Cu3	Steel H13	AlSi9Cu3	AlSi9Cu3	Steel H13	AlSi9Cu3	Steel H13	AlSi9Cu3	Steel H13	Steel H13	Steel H13	AlSi9Cu3	AlSi9Cu3	Steel H13	Steel H13	0.0351252
17	Steel H13	AlSi9Cu3	Steel H13	AlSi9Cu3	Steel H13	Steel H13	AlSi9Cu3	Steel H13	AlSi9Cu3	Steel H13	AlSi9Cu3	Steel H13	AlSi9Cu3	Steel H13	AlSi9Cu3	0.0184025
18	AlSi9Cu3	Steel H13	AlSi9Cu3	AlSi9Cu3	Steel H13	AlSi9Cu3	AlSi9Cu3	Steel H13	Steel H13	AlSi9Cu3	AlSi9Cu3	Steel H13	AlSi9Cu3	Steel H13	Steel H13	0.032331
19	Steel H13	AlSi9Cu3	AlSi9Cu3	Steel H13	Steel H13	Steel H13	Steel H13	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	Steel H13	Steel H13	AlSi9Cu3	AlSi9Cu3	0.0208899
20	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	Steel H13	AlSi9Cu3	Steel H13	Steel H13	Steel H13	Steel H13	Steel H13	AlSi9Cu3	AlSi9Cu3	Steel H13	0.0361007
21	Steel H13	AlSi9Cu3	Steel H13	Steel H13	AlSi9Cu3	Steel H13	Steel H13	Steel H13	AlSi9Cu3	AlSi9Cu3	Steel H13	Steel H13	Steel H13	Steel H13	Steel H13	0.016164
23	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	Steel H13	Steel H13	Steel H13	Steel H13	Steel H13	AlSi9Cu3	AlSi9Cu3	Steel H13	AlSi9Cu3	AlSi9Cu3	Steel H13	AlSi9Cu3	0.0312391

Best run values





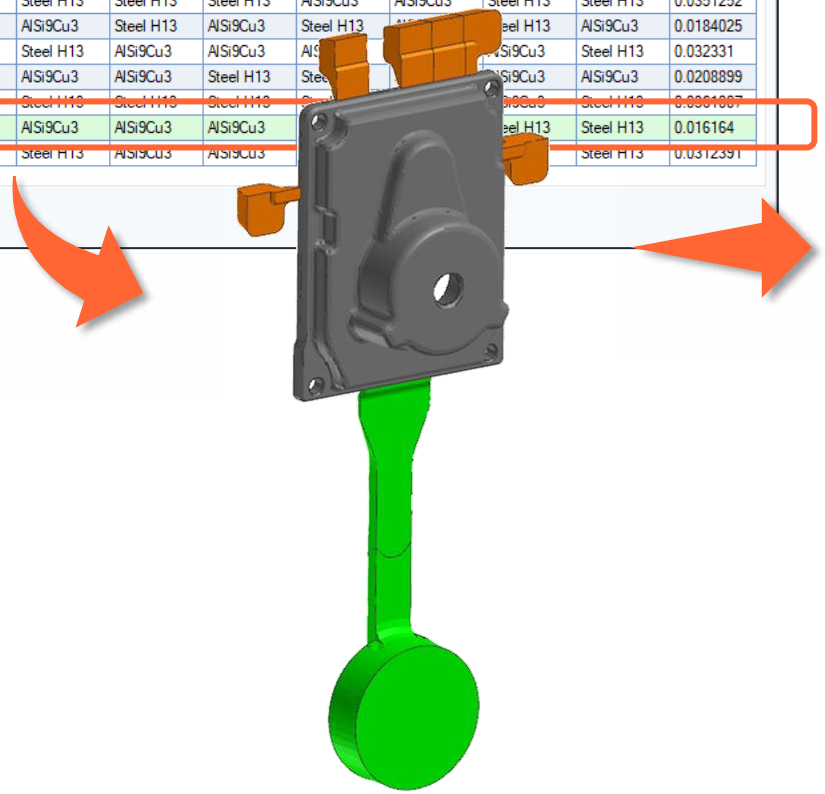
Arrastre de Aire (g/cm3)

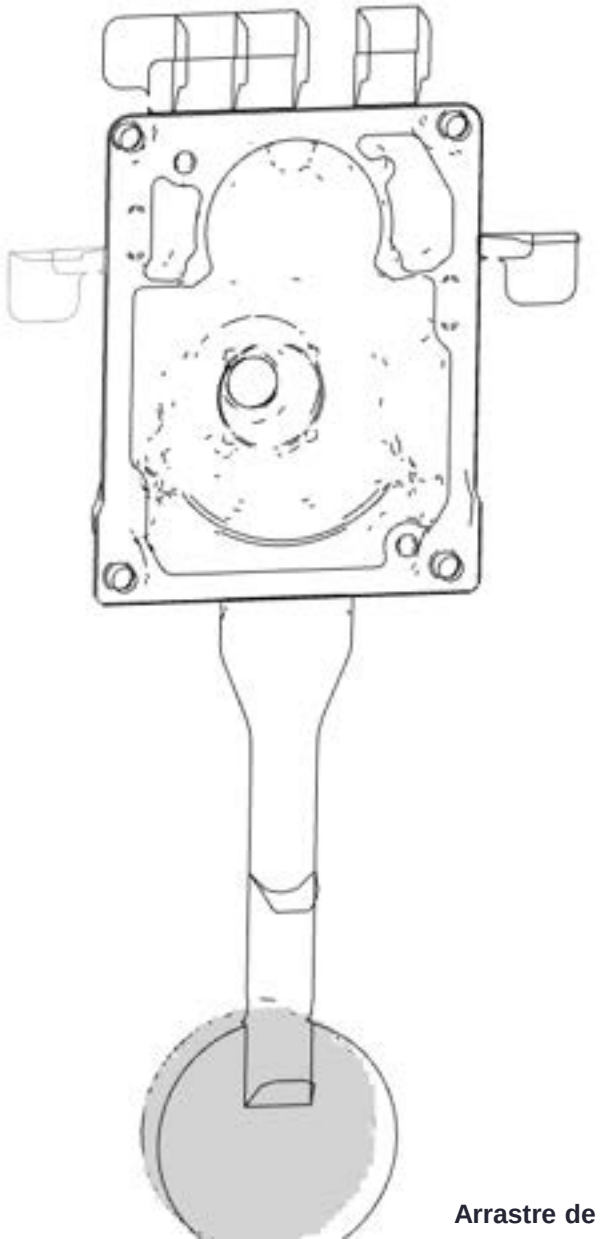
Resultados

Table Of Runs : C:\Users\mac\Documents\MAC\UGM\OPT\OPT_HPDC\OPT_Gate_N_Overflow

Run#	A_GATE...	A_GATE...	A_OVER...	A_OVER...	A_OVER...	A_OVER...	A_OVER...	A_OVER...	A_OVER...	A_OVER...	A_OVER...	A_OVER...	A_OVER...	A_OVER...	A_GATE...	Obj (g/...
1	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	0.0216798
2	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	Steel H13	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	Steel H13	Steel H13	Steel H13	AlSi9Cu3	AlSi9Cu3	Steel H13	Steel H13	AlSi9Cu3	0.0301733
3	AlSi9Cu3	Steel H13	Steel H13	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	Steel H13	AlSi9Cu3	AlSi9Cu3	Steel H13	Steel H13	Steel H13	Steel H13	AlSi9Cu3	0.0190457
4	AlSi9Cu3	AlSi9Cu3	Steel H13	AlSi9Cu3	Steel H13	Steel H13	Steel H13	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	Steel H13	AlSi9Cu3	Steel H13	Steel H13	Steel H13	0.0321166
5	Steel H13	AlSi9Cu3	Steel H13	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	Steel H13	AlSi9Cu3	Steel H13	AlSi9Cu3	AlSi9Cu3	Steel H13	AlSi9Cu3	Steel H13	AlSi9Cu3	0.0188583
6	Steel H13	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	Steel H13	Steel H13	AlSi9Cu3	Steel H13	AlSi9Cu3	Steel H13	Steel H13	AlSi9Cu3	Steel H13	0.0175994
7	AlSi9Cu3	AlSi9Cu3	Steel H13	Steel H13	Steel H13	AlSi9Cu3	Steel H13	Steel H13	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	Steel H13	AlSi9Cu3	Steel H13	Steel H13	0.0329915
9	AlSi9Cu3	Steel H13	AlSi9Cu3	Steel H13	Steel H13	Steel H13	AlSi9Cu3	Steel H13	AlSi9Cu3	Steel H13	Steel H13	Steel H13	Steel H13	AlSi9Cu3	AlSi9Cu3	0.0397429
11	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	Steel H13	Steel H13	Steel H13	Steel H13	AlSi9Cu3	Steel H13	Steel H13	AlSi9Cu3	Steel H13	Steel H13	Steel H13	Steel H13	0.0372757
12	Steel H13	Steel H13	AlSi9Cu3	Steel H13	AlSi9Cu3	Steel H13	Steel H13	Steel H13	Steel H13	AlSi9Cu3	Steel H13	AlSi9Cu3	AlSi9Cu3	Steel H13	AlSi9Cu3	0.0192908
13	Steel H13	Steel H13	Steel H13	Steel H13	Steel H13	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	Steel H13	Steel H13	AlSi9Cu3	AlSi9Cu3	Steel H13	AlSi9Cu3	AlSi9Cu3	0.0194619
15	AlSi9Cu3	Steel H13	Steel H13	Steel H13	AlSi9Cu3	Steel H13	Steel H13	AlSi9Cu3	AlSi9Cu3	Steel H13	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	0.0341672
16	AlSi9Cu3	Steel H13	AlSi9Cu3	AlSi9Cu3	Steel H13	AlSi9Cu3	Steel H13	AlSi9Cu3	Steel H13	Steel H13	Steel H13	AlSi9Cu3	AlSi9Cu3	Steel H13	Steel H13	0.0351252
17	Steel H13	AlSi9Cu3	Steel H13	AlSi9Cu3	Steel H13	Steel H13	AlSi9Cu3	Steel H13	AlSi9Cu3	Steel H13	AlSi9Cu3	Steel H13	[illegible]	[illegible]	AlSi9Cu3	0.0184025
18	AlSi9Cu3	Steel H13	AlSi9Cu3	AlSi9Cu3	Steel H13	AlSi9Cu3	AlSi9Cu3	Steel H13	Steel H13	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	[illegible]	[illegible]	Steel H13	0.032331
19	Steel H13	AlSi9Cu3	AlSi9Cu3	Steel H13	Steel H13	Steel H13	Steel H13	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	Steel H13	Steel H13	[illegible]	[illegible]	AlSi9Cu3	0.0208899
20	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
21	Steel H13	AlSi9Cu3	Steel H13	Steel H13	AlSi9Cu3	Steel H13	AlSi9Cu3	Steel H13	AlSi9Cu3	AlSi9Cu3	AlSi9Cu3	[illegible]	[illegible]	[illegible]	Steel H13	0.016164
23	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

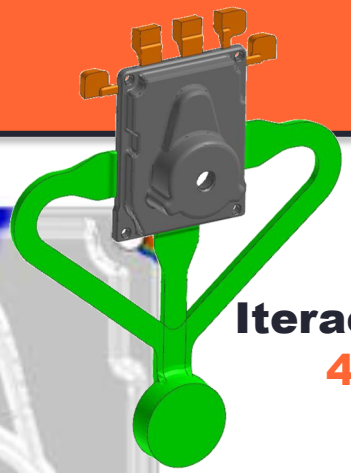
Best run values



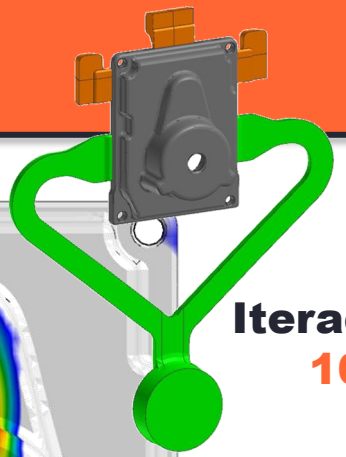


Arrastre de Aire (g/cm3)

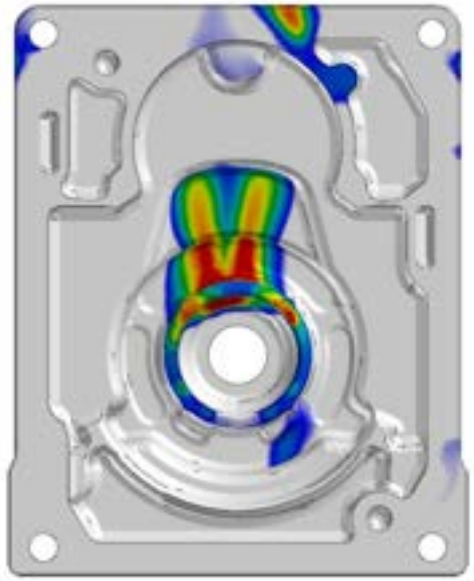
Resultados

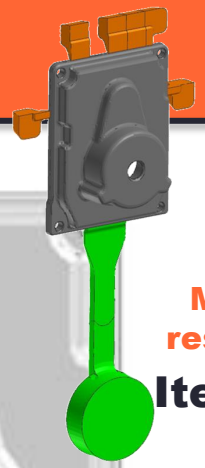


Iteración
4



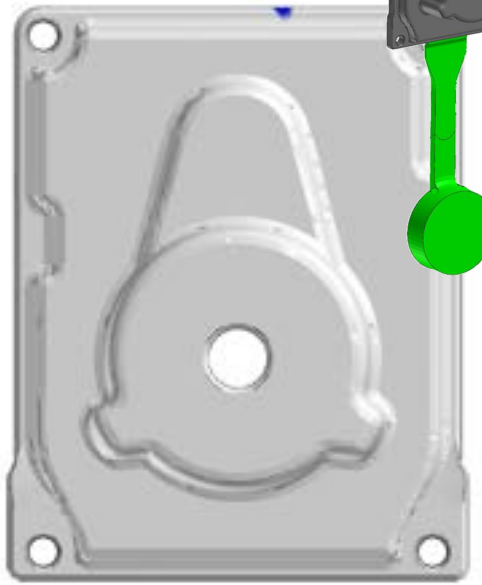
Iteración
16

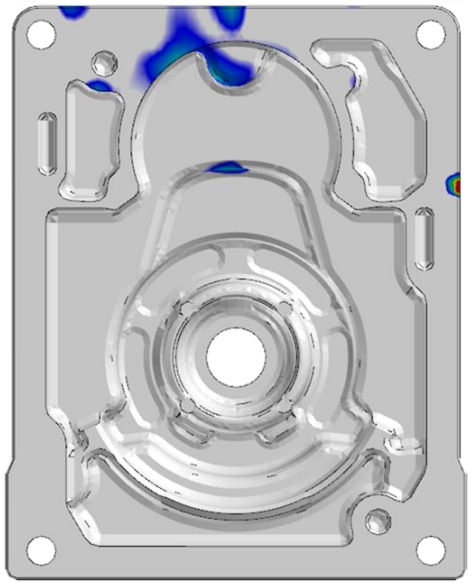




Mejores resultados

Iteración
21





Agenda

1. Módulo de optimización: función MatID
2. Optimización del sistema de alimentación
3. Optimización del sistema de llenado
4. **Ventajas y Conclusiones**

Ventajas y Conclusiones

1 Probar distintos Diseños

Iteraciones automáticas para probar diferentes diseños sin tener que rehacer los modelos

2 Obtener el mejor diseño

Permite determinar el mejor diseño para cumplir un objetivo (reducir porosidades, etc.)

3 Optimizar el diseño existente

Permite optimizar el número, el tamaño y el posicionamiento de los elementos de fundición (cargas, enfriadores, rebosaderos, etc.)

¡Gracias!

Obrigado!

ProCAST