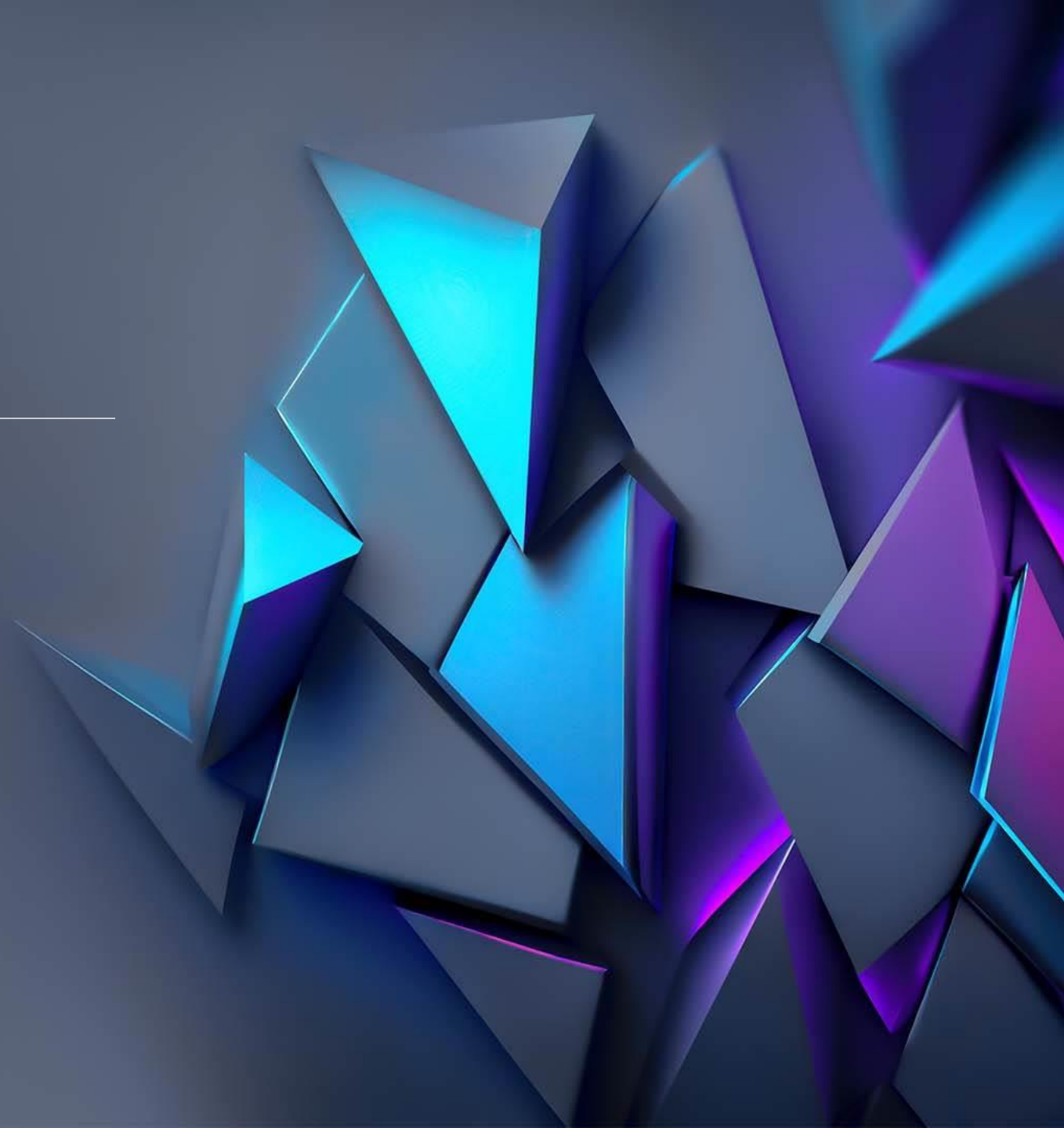


mid Moulding Innovation Day 2023



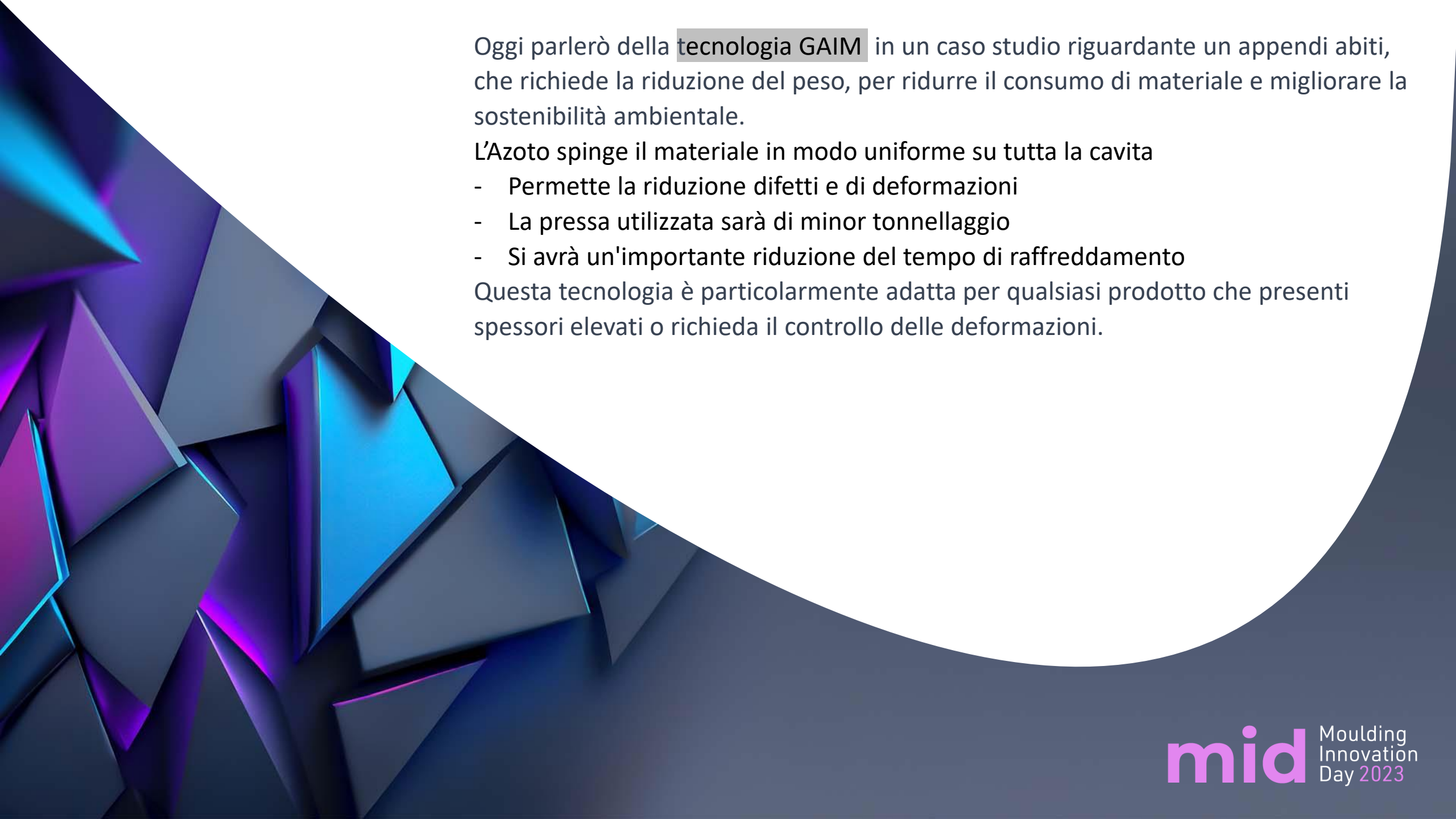
Alessandro Campioli

Moldex3D





La simulazione non è un lusso, ma un'opportunità per ottimizzare i processi e risparmiare risorse.



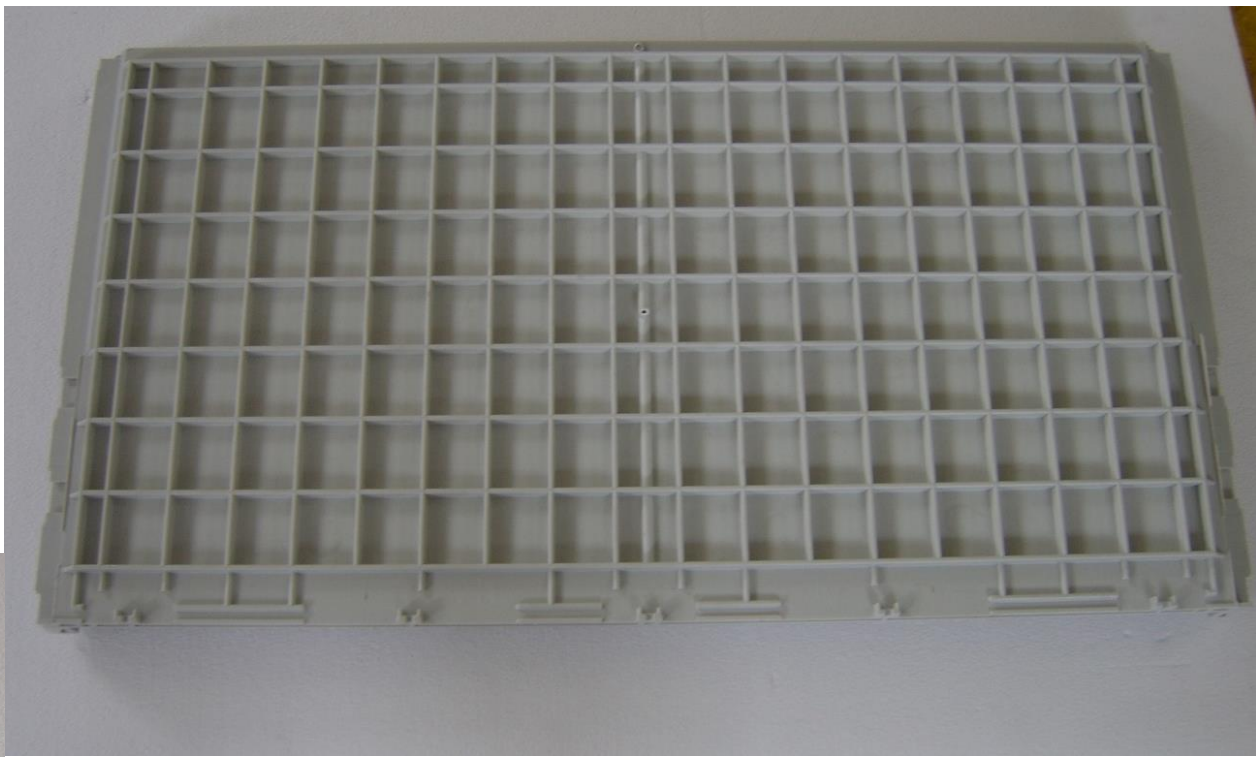
Oggi parlerò della tecnologia GAIM in un caso studio riguardante un appendi abiti, che richiede la riduzione del peso, per ridurre il consumo di materiale e migliorare la sostenibilità ambientale.

L'Azoto spinge il materiale in modo uniforme su tutta la cavità

- Permette la riduzione difetti e di deformazioni
- La pressa utilizzata sarà di minor tonnellaggio
- Si avrà un'importante riduzione del tempo di raffreddamento

Questa tecnologia è particolarmente adatta per qualsiasi prodotto che presenti spessori elevati o richieda il controllo delle deformazioni.



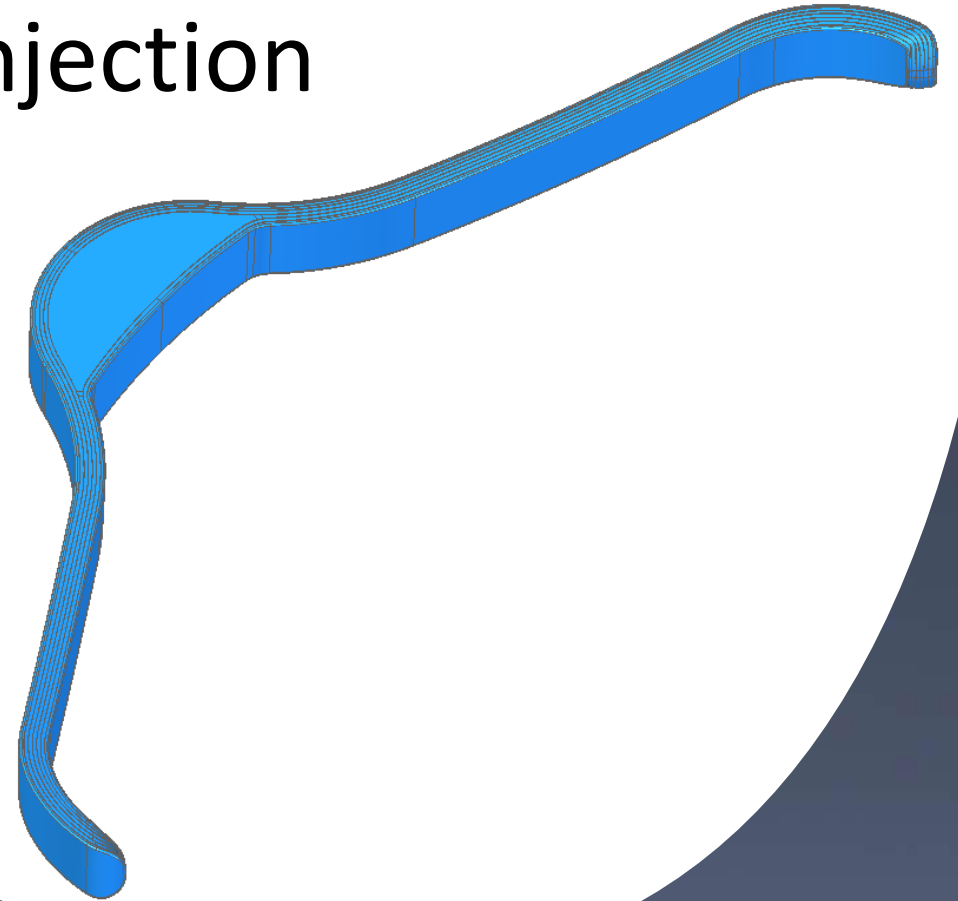




GAIM

Gas Assisted Molding Injection

Un caso di studio

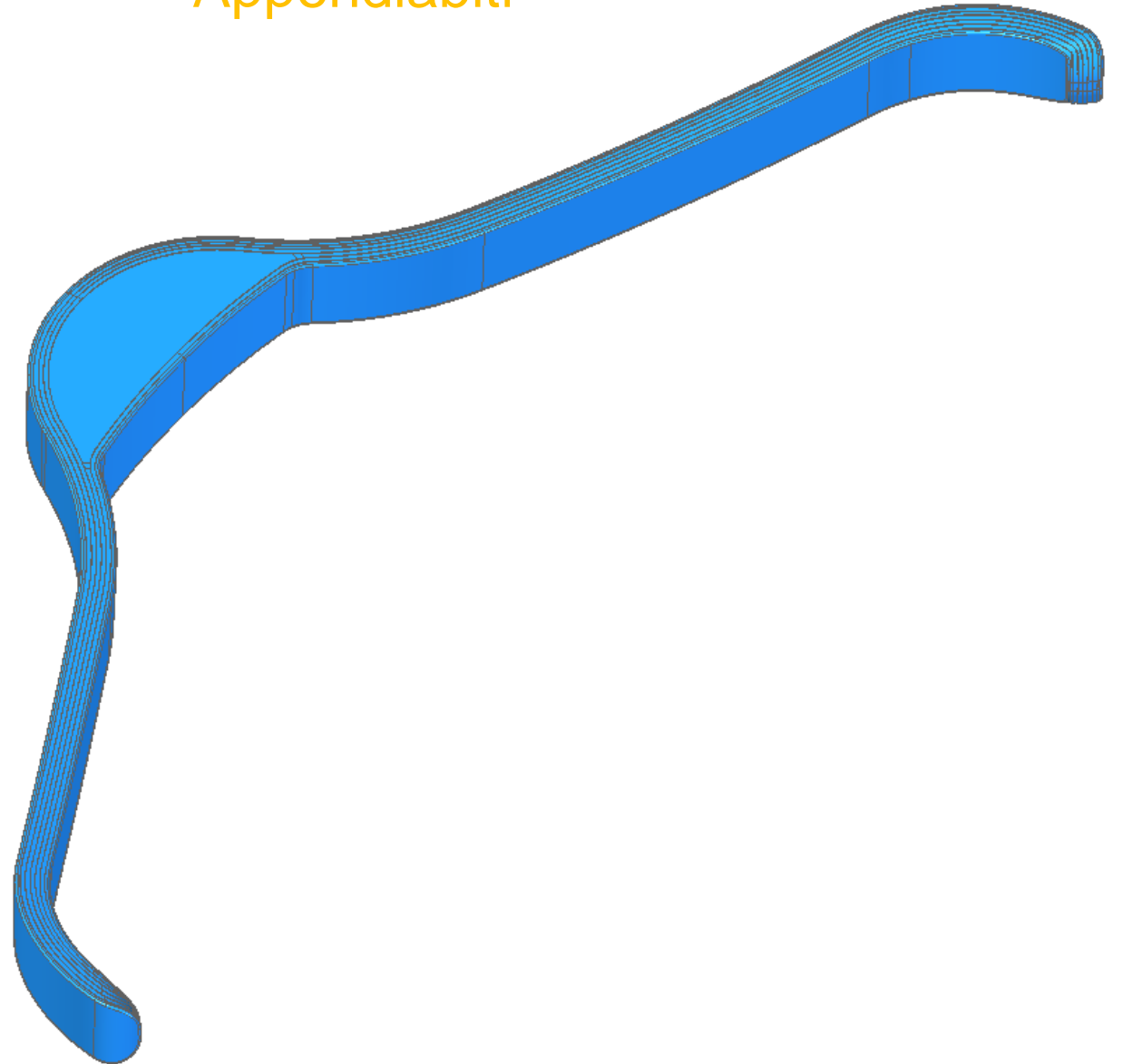


DATI PARTE:

Volume Parte	175 cm³
Dimensioni Parte	190x460x50 mm
Spessore Medio	9mm
Spessore Max.	25 mm
Materiale: Polipropilene	D=0.91gr/cm³
Peso Parte piena:	160 gr.
Peso Target Parte svuotata:	90 gr.

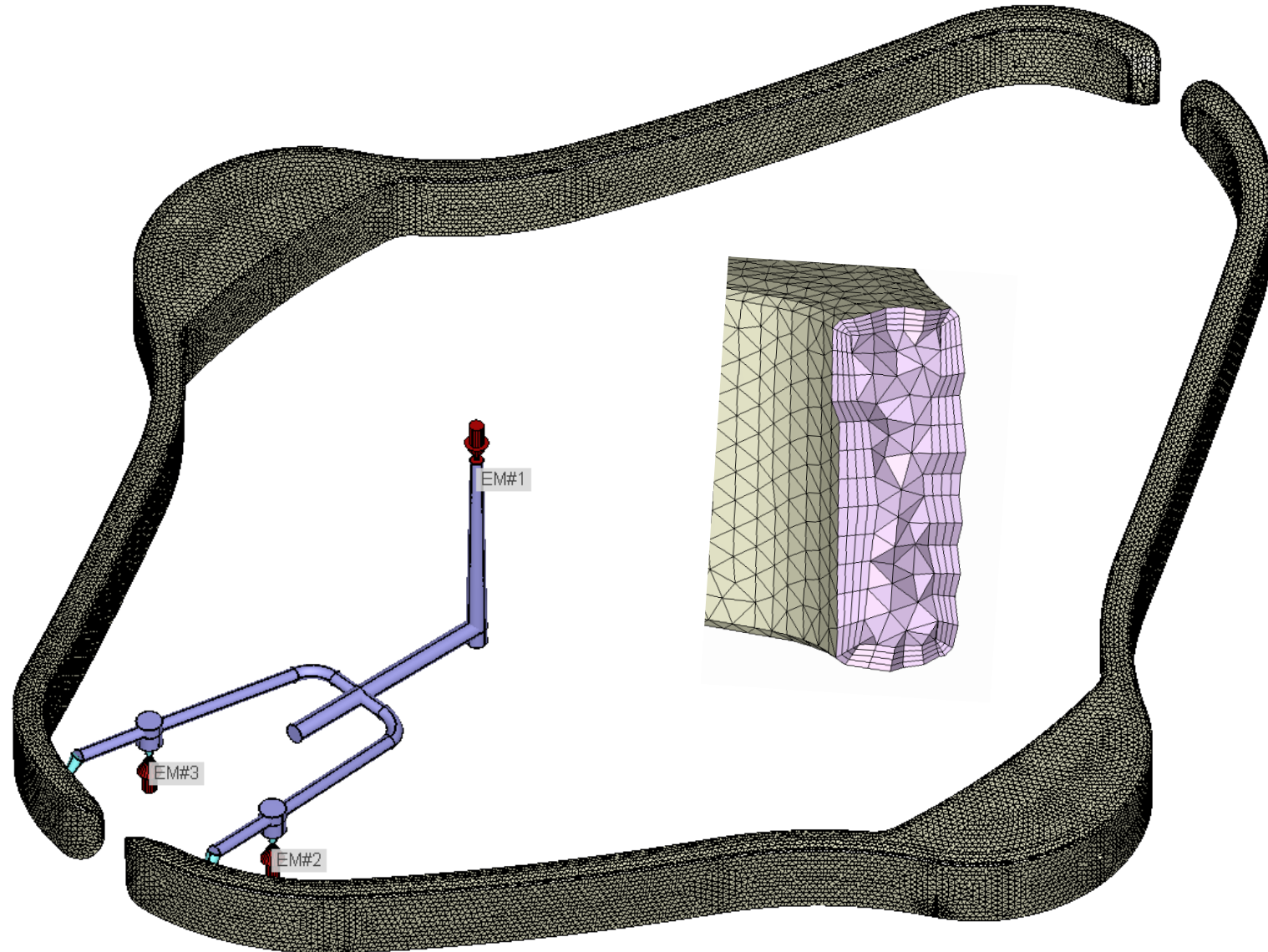
Risparmio di materiale superiore al 40%

Appendiabili



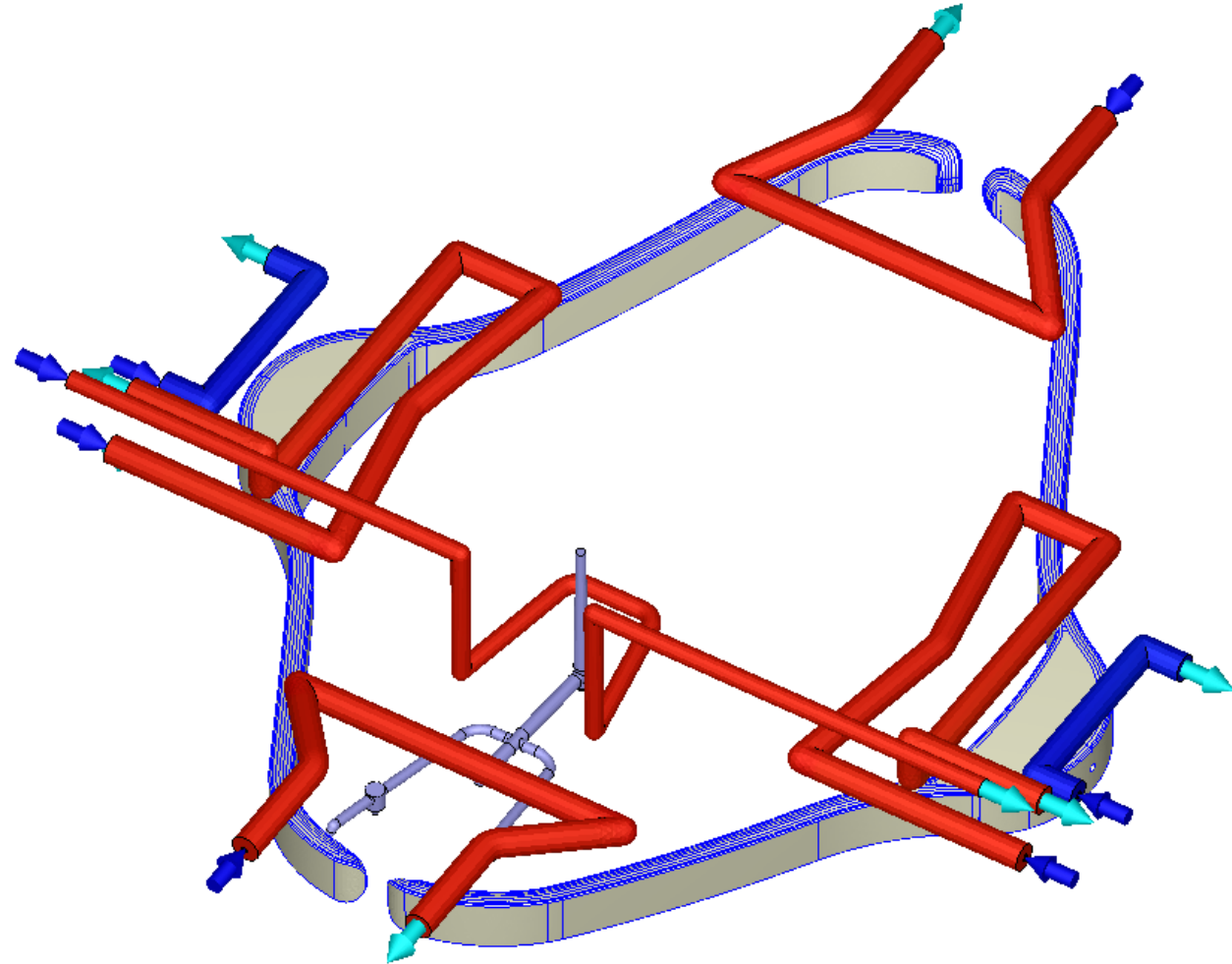
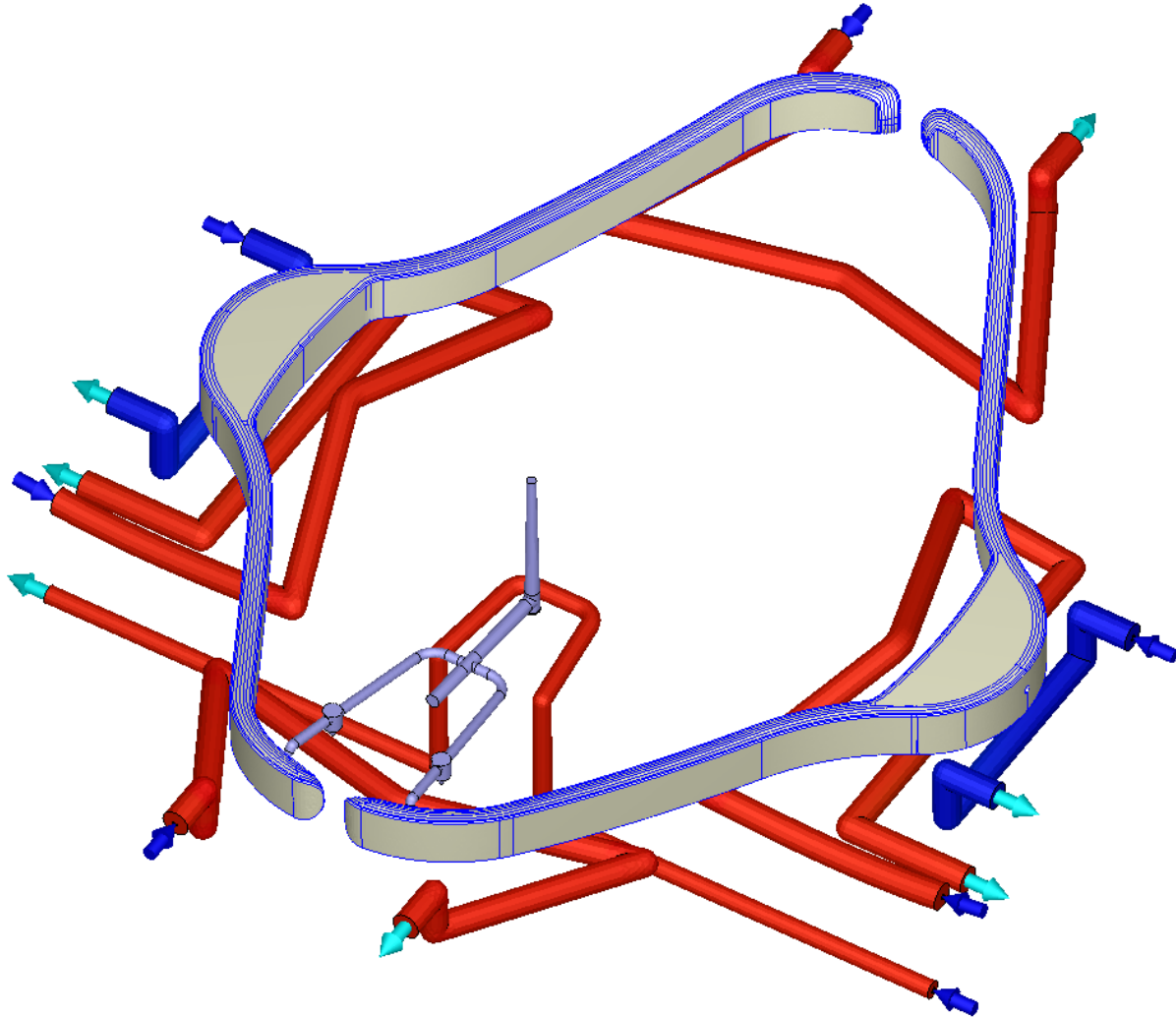
DATI STAMPO:

Solid Mesh Element	2.100.000
Singol Part	300.000
Cold Runner	250.000
Cooling Channel	250.000
Moldbase	1.000.000
Ritiro Stampo	1,5%
Volume Stampata	375 cm³
Materozza	8 cm³
Parte	183,5 cm³





CIRCUITO CONDIZIONAMENTO differenziato 20 e 40 gradi



+

SFOGHI ARIA

Venting

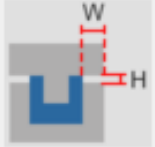


Select Curves

Target: 12



Venting Data



Name:

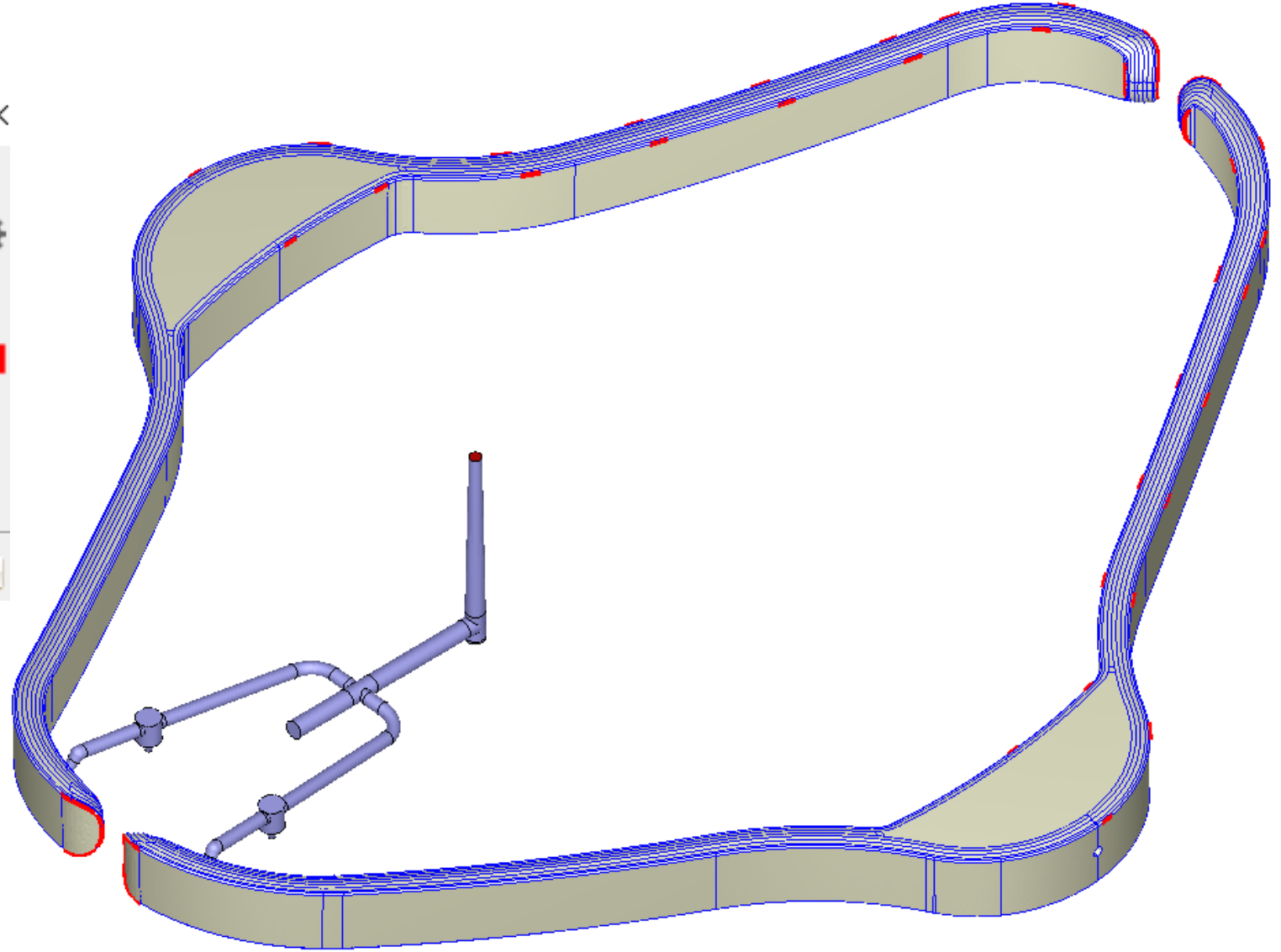
W (mm):

H (mm):

Venting Profile

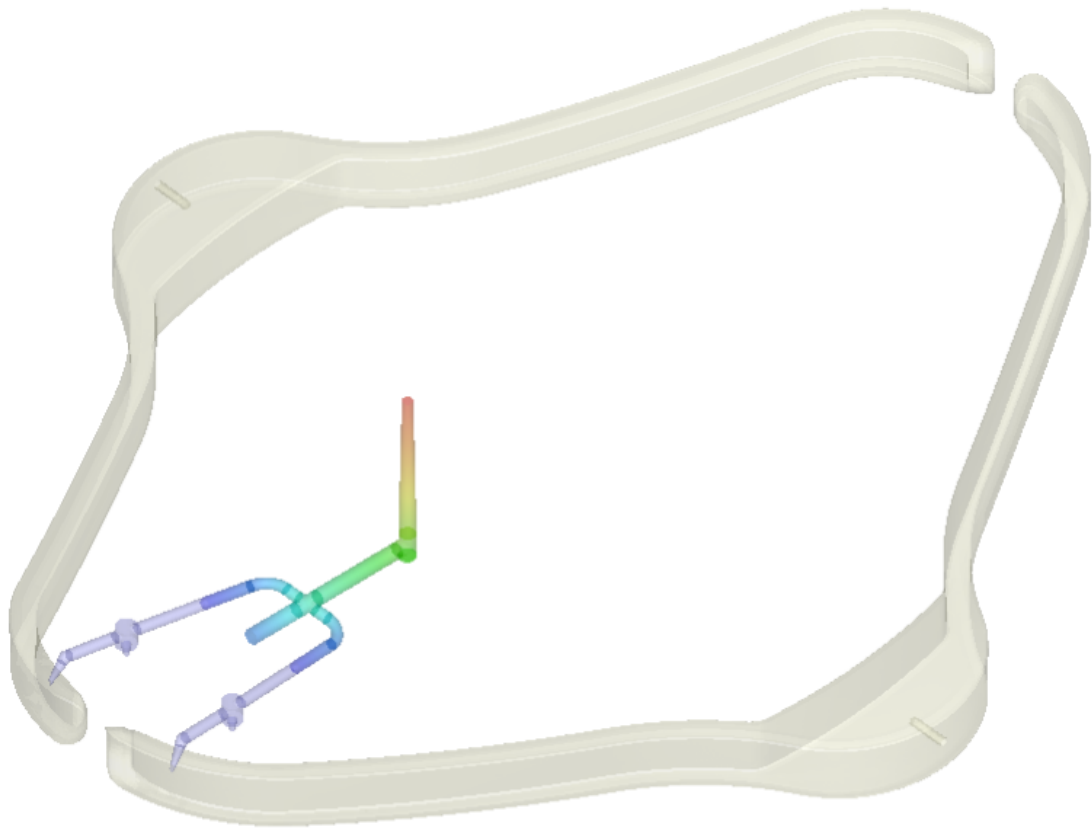
OK

Cancel



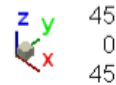
RIEMPIMENTO 0.1 sec.

Filling/Packing_Melt Front Time
Time = 36.641 sec (EOP)
[sec]



Max 1.681

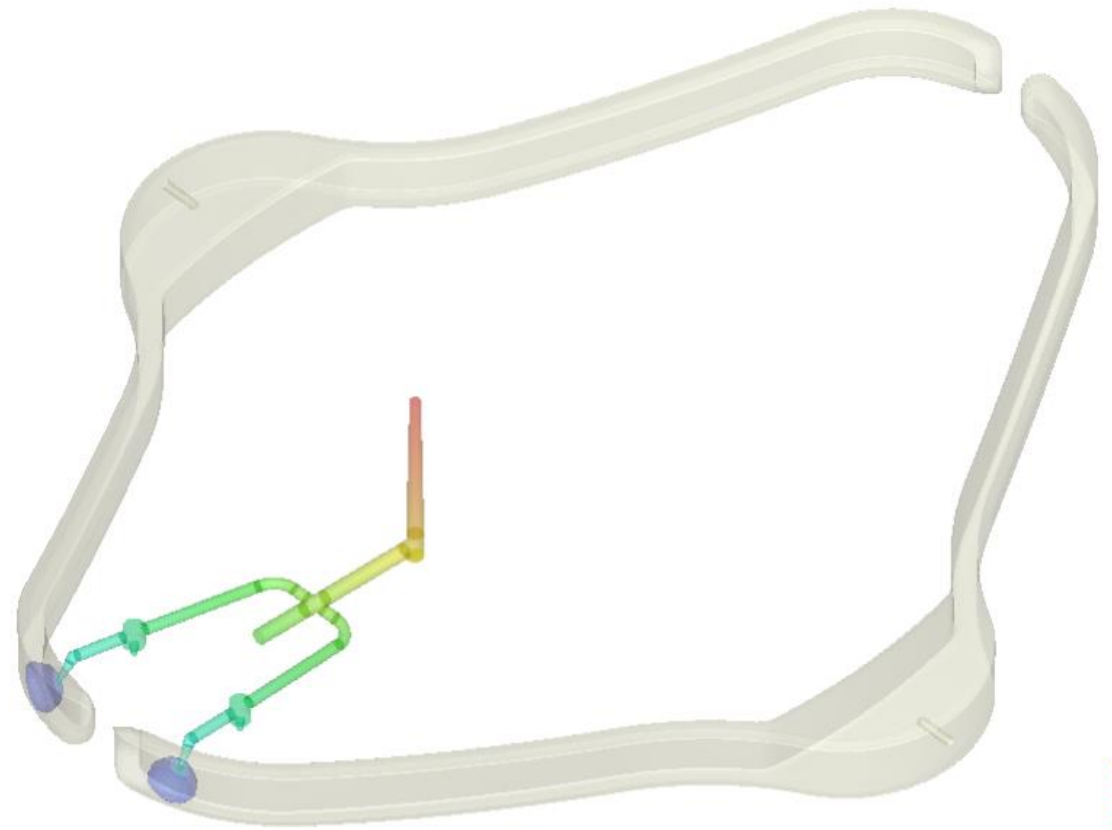
Min 0.000 0.104



30.00 mm Moldex3D

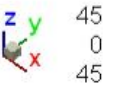
RIEMPIMENTO 0.2 sec.

Filling/Packing_Melt Front Time
Time = 36.641 sec (EOP)
[sec]



Max 1.681

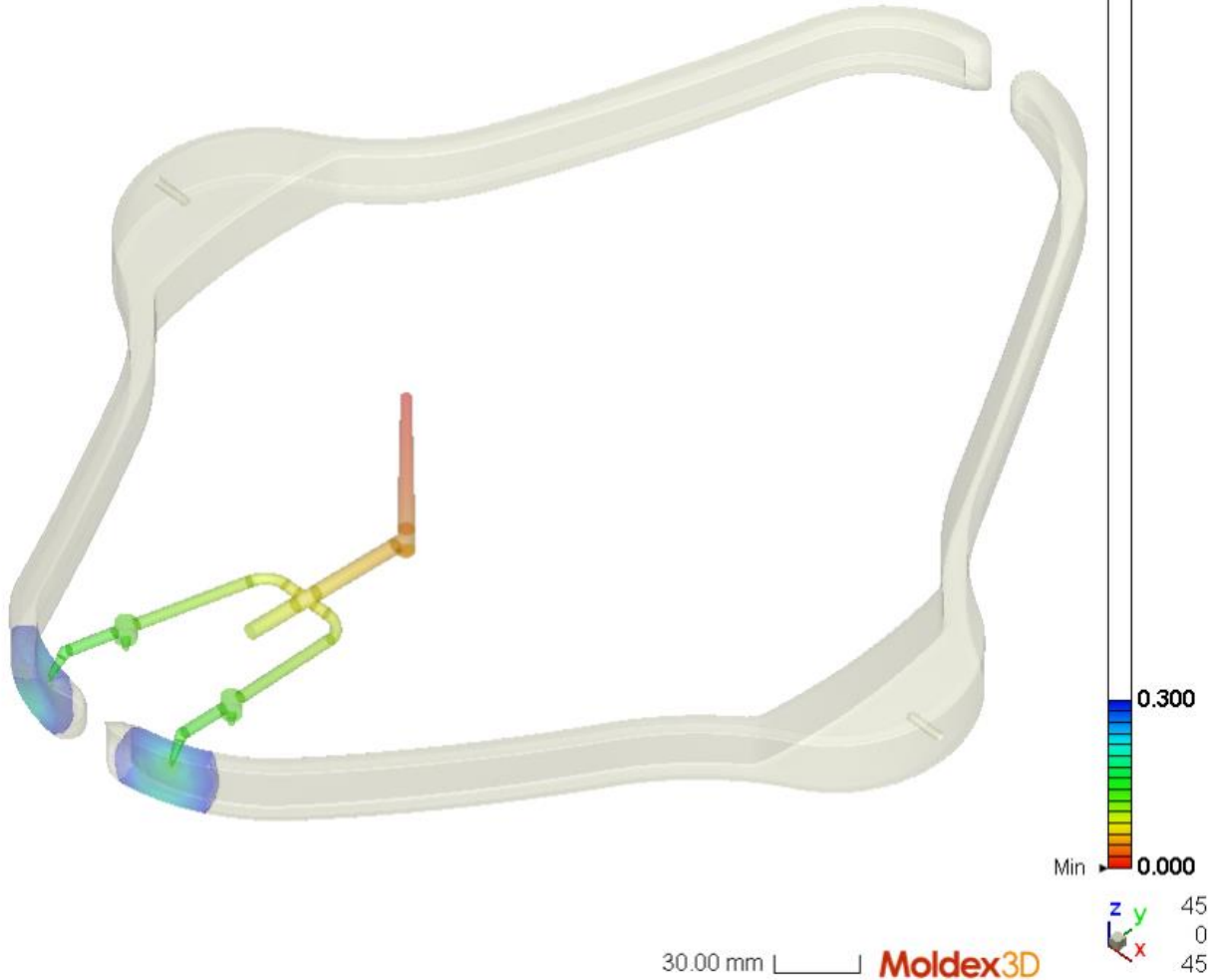
Min 0.000 0.201



30.00 mm Moldex3D

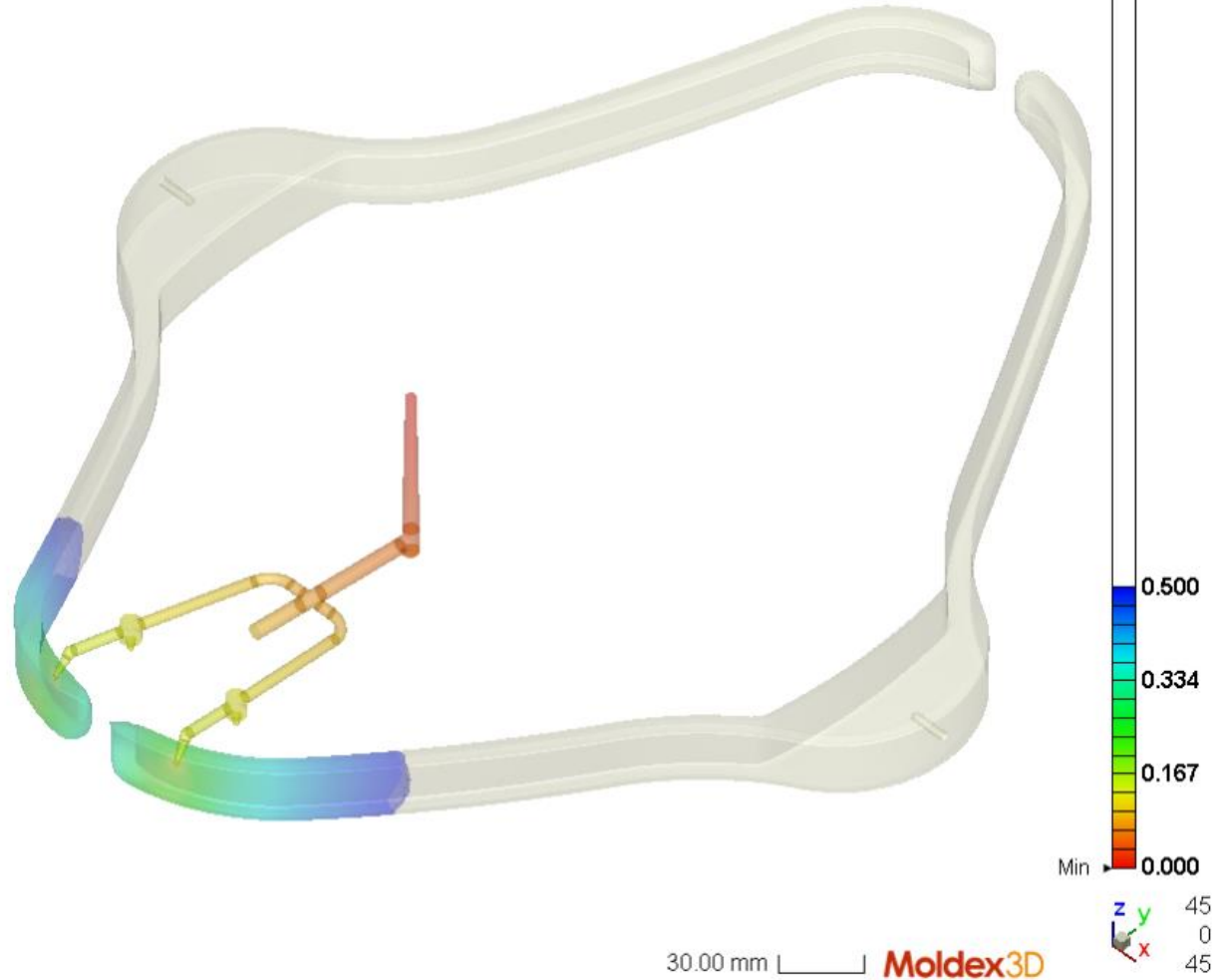
RIEMPIMENTO 0.3 sec.

Filling/Packing_Melt Front Time
Time = 36.641 sec (EOP)
[sec]



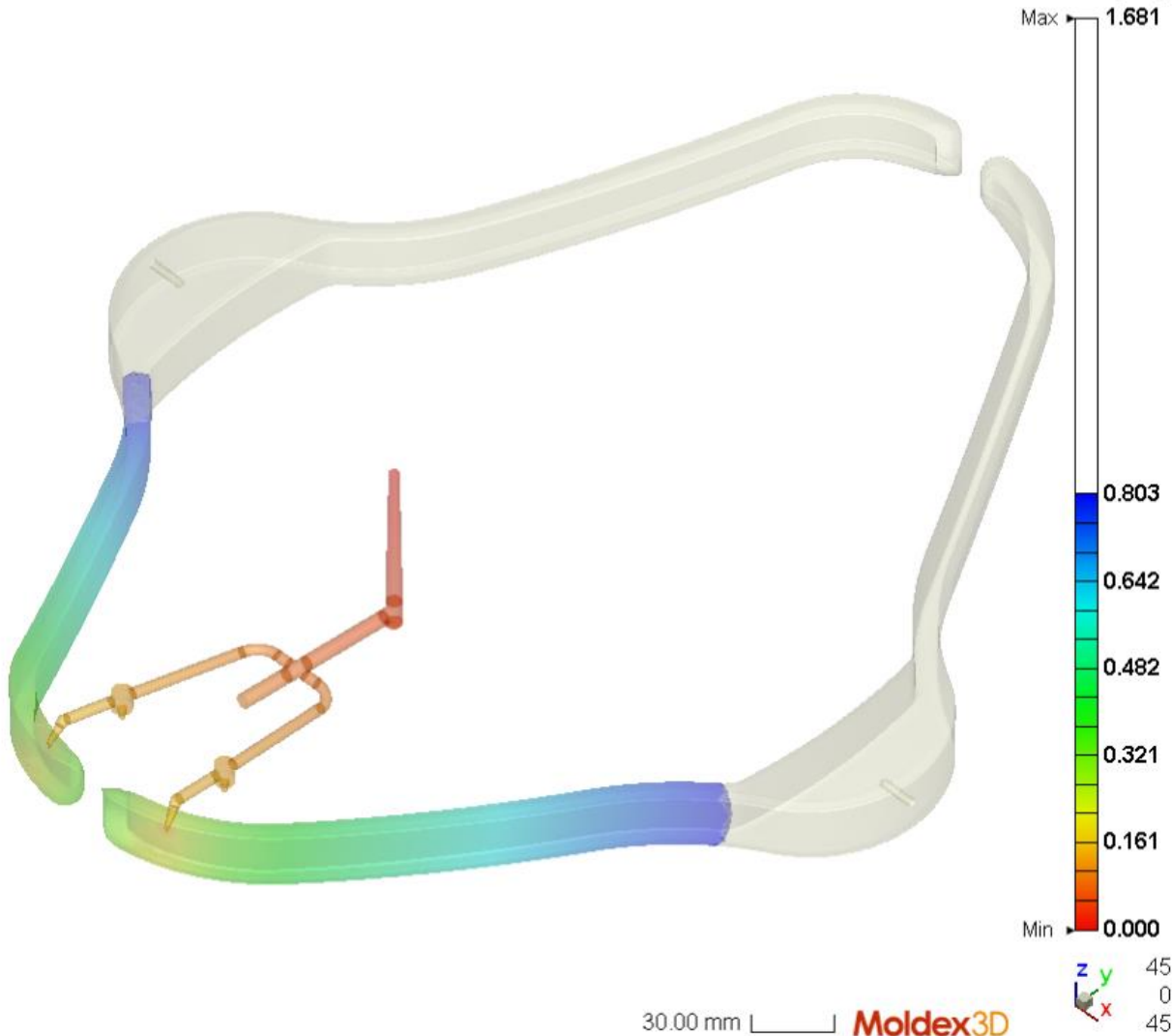
RIEMPIMENTO 0.5 sec.

Filling/Packing_Melt Front Time
Time = 36.641 sec (EOP)
[sec]



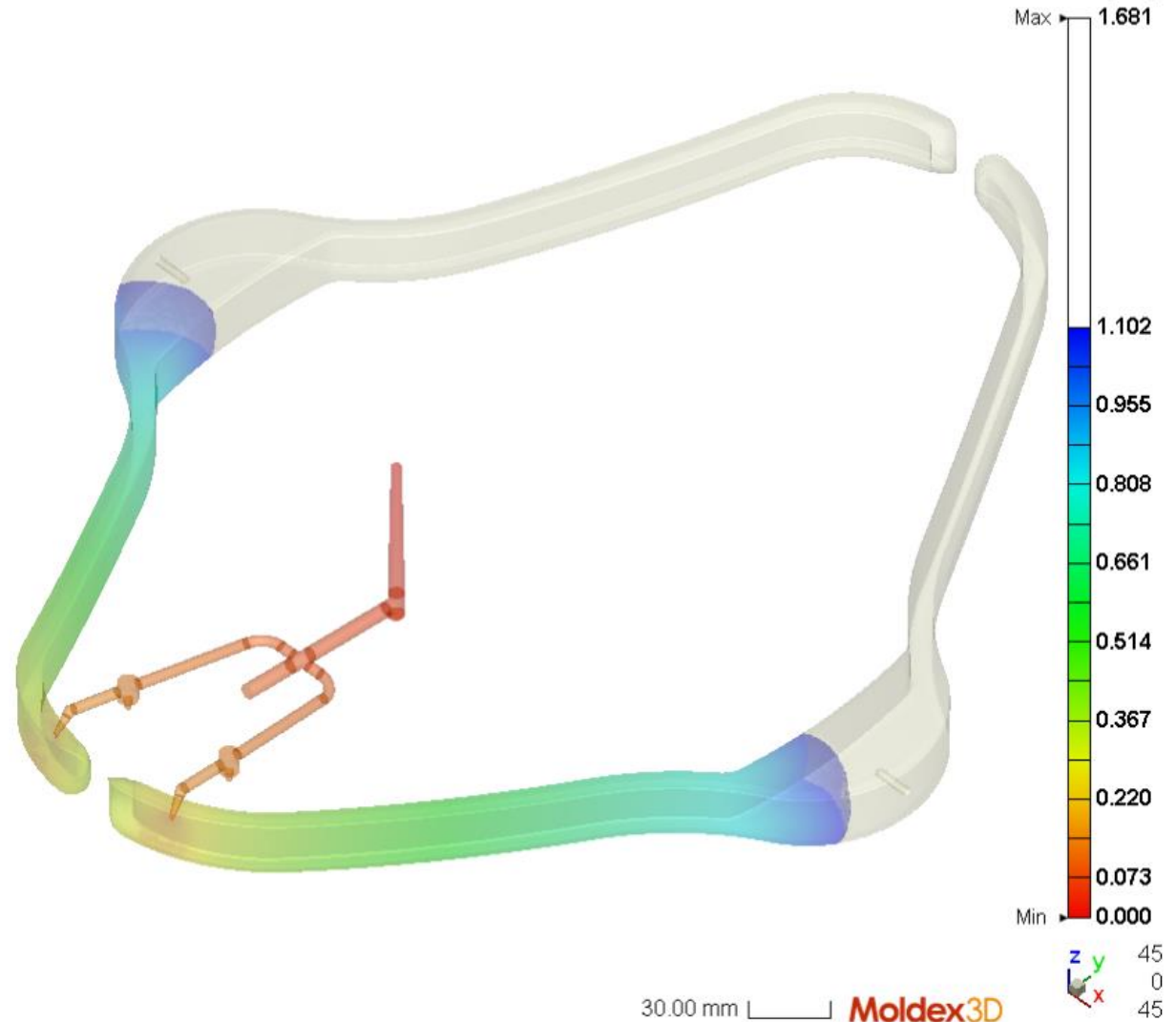
RIEMPIMENTO 0.8 sec.

Filling/Packing_Melt Front Time
Time = 36.641 sec (EOP)
[sec]

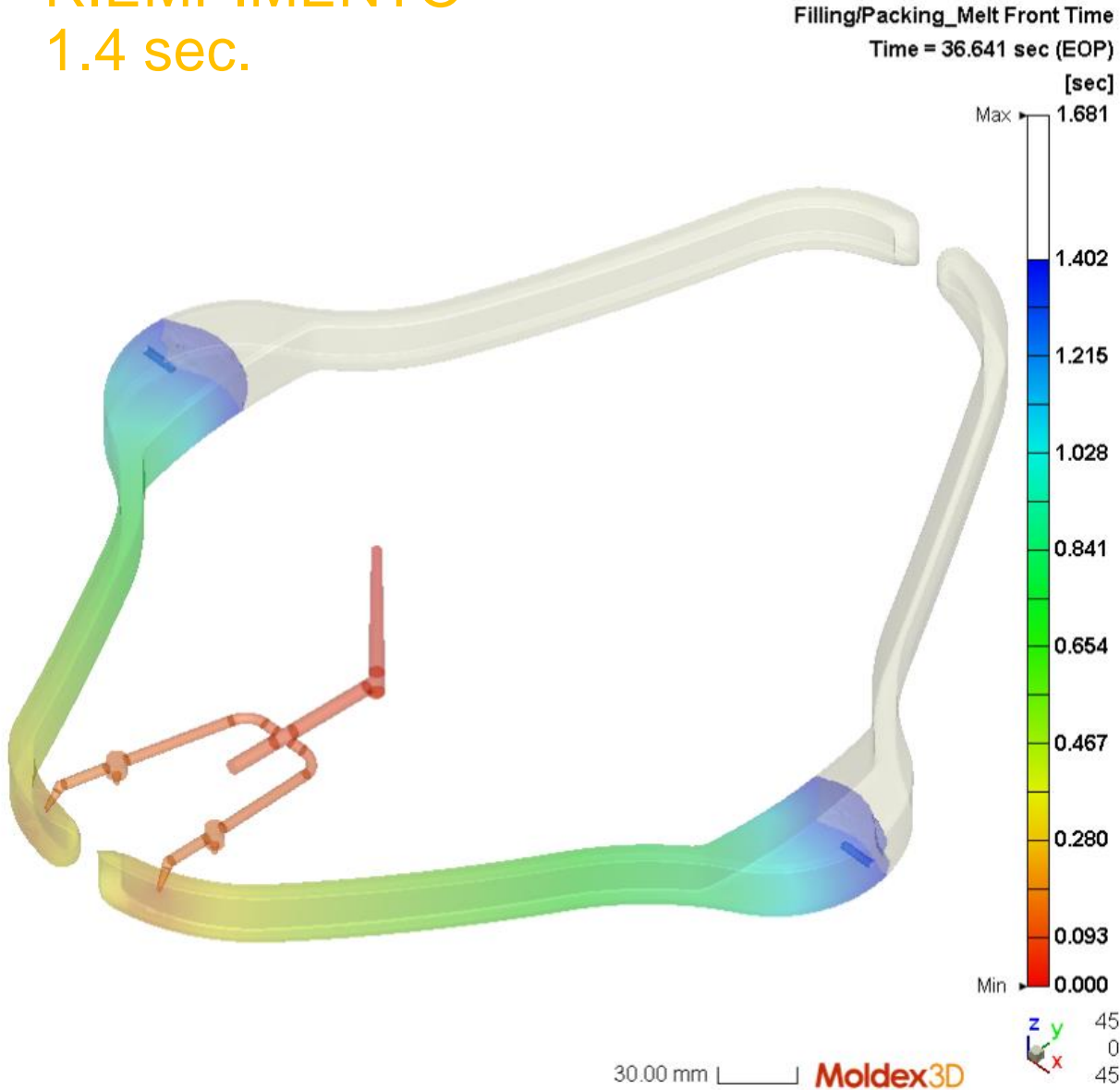


RIEMPIMENTO 1.1 sec.

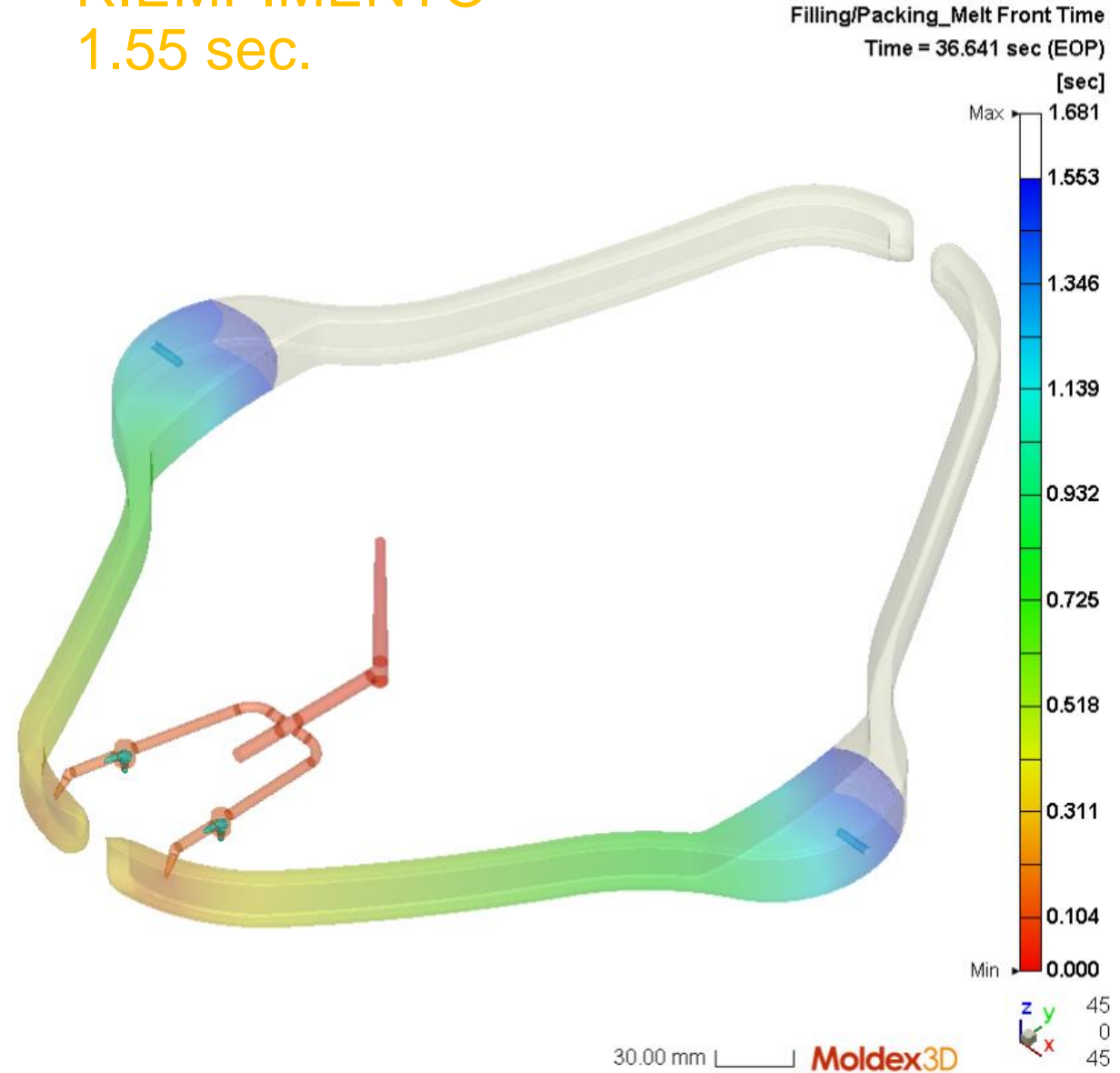
Filling/Packing_Melt Front Time
Time = 36.641 sec (EOP)
[sec]



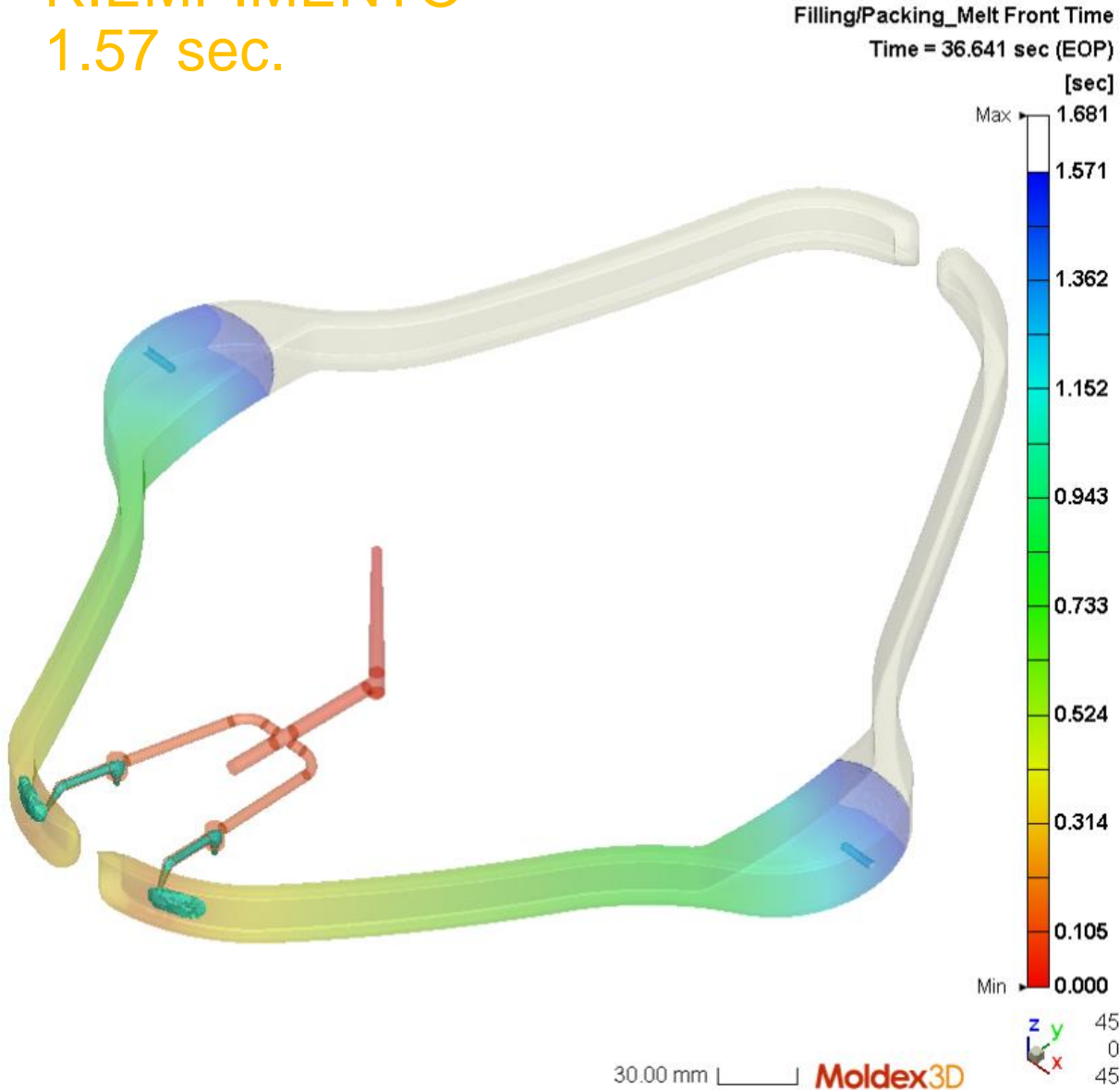
RIEMPIMENTO 1.4 sec.



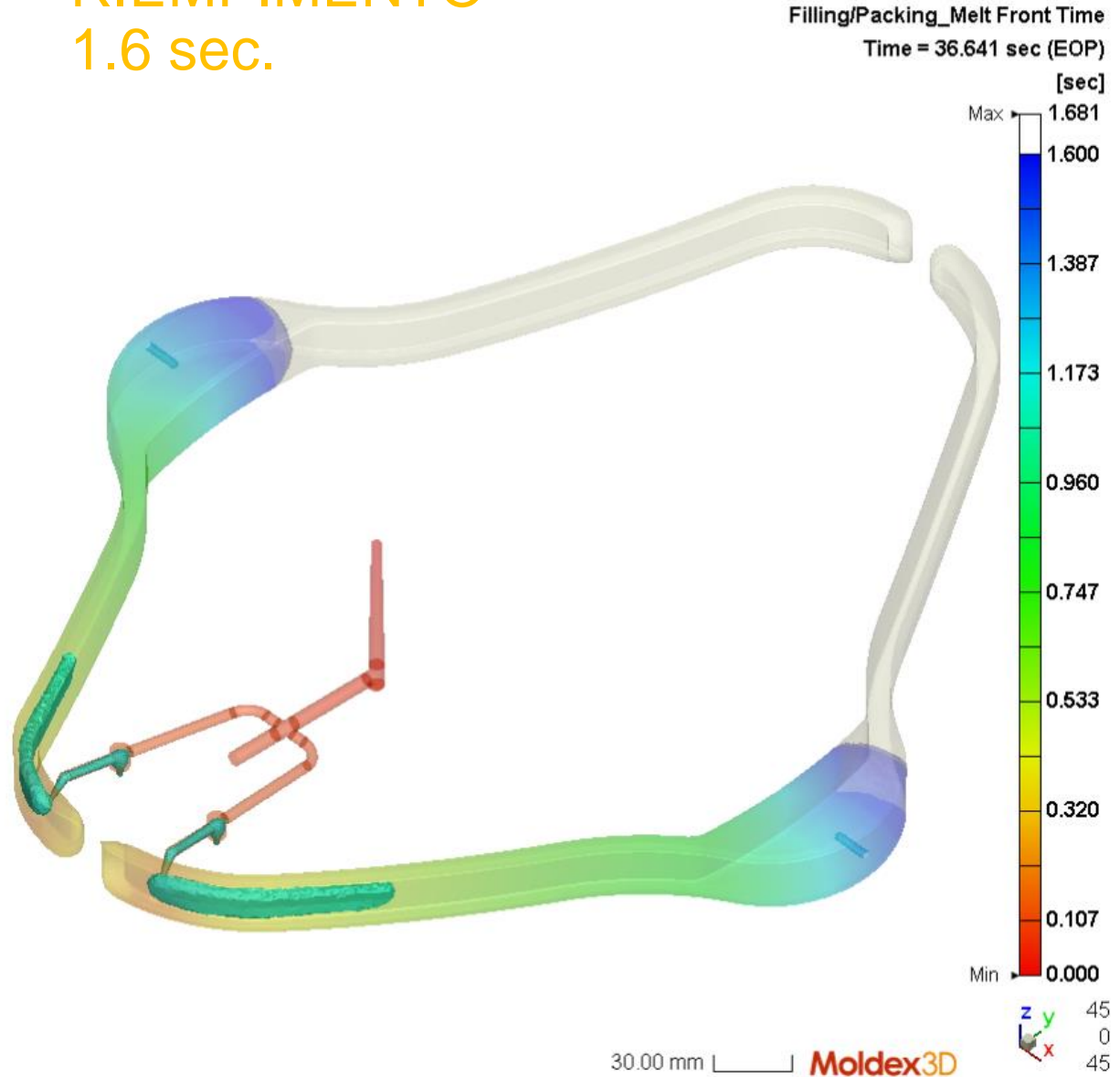
RIEMPIMENTO 1.55 sec.



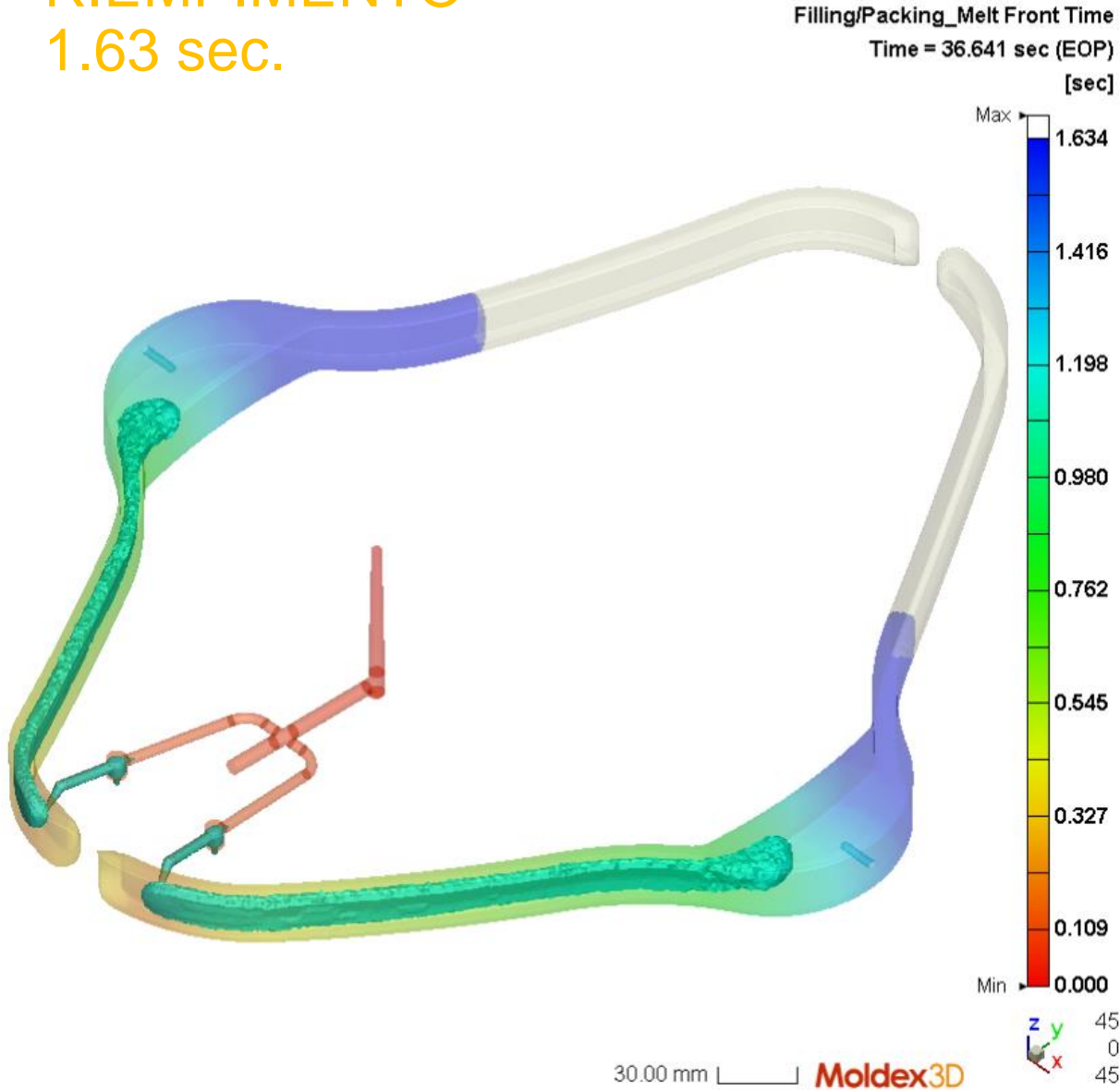
RIEMPIMENTO 1.57 sec.



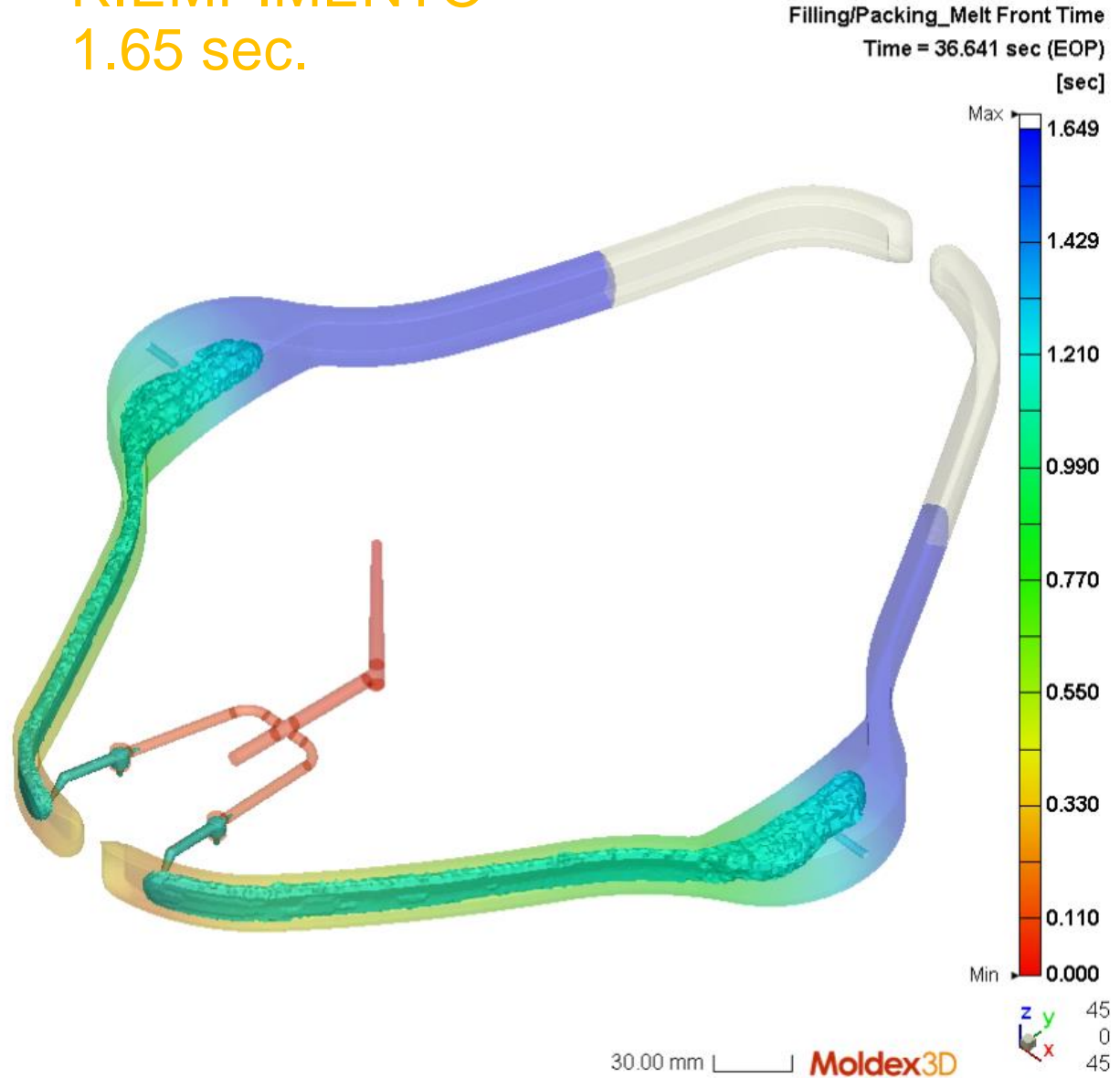
RIEMPIMENTO 1.6 sec.



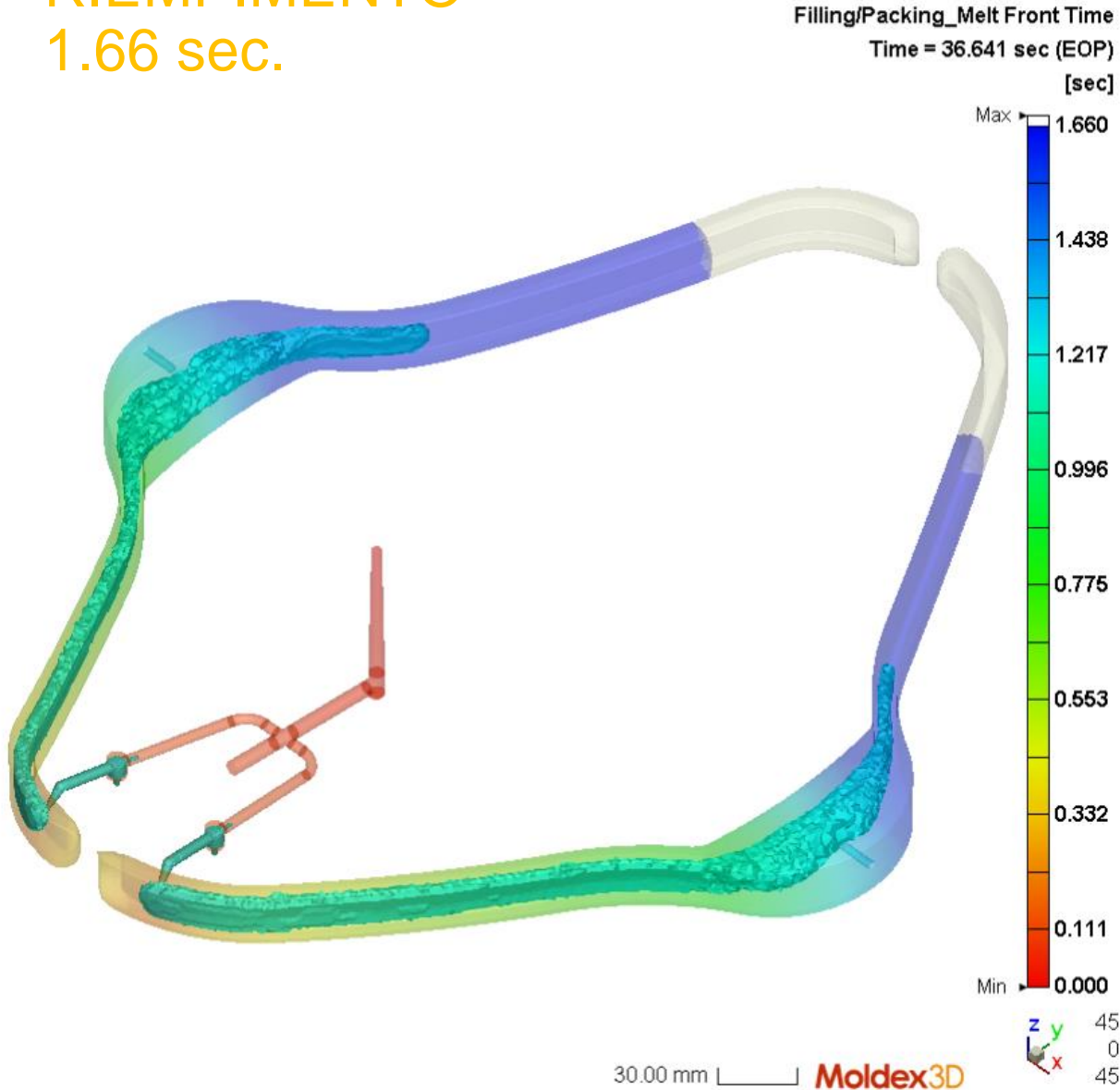
RIEMPIMENTO 1.63 sec.



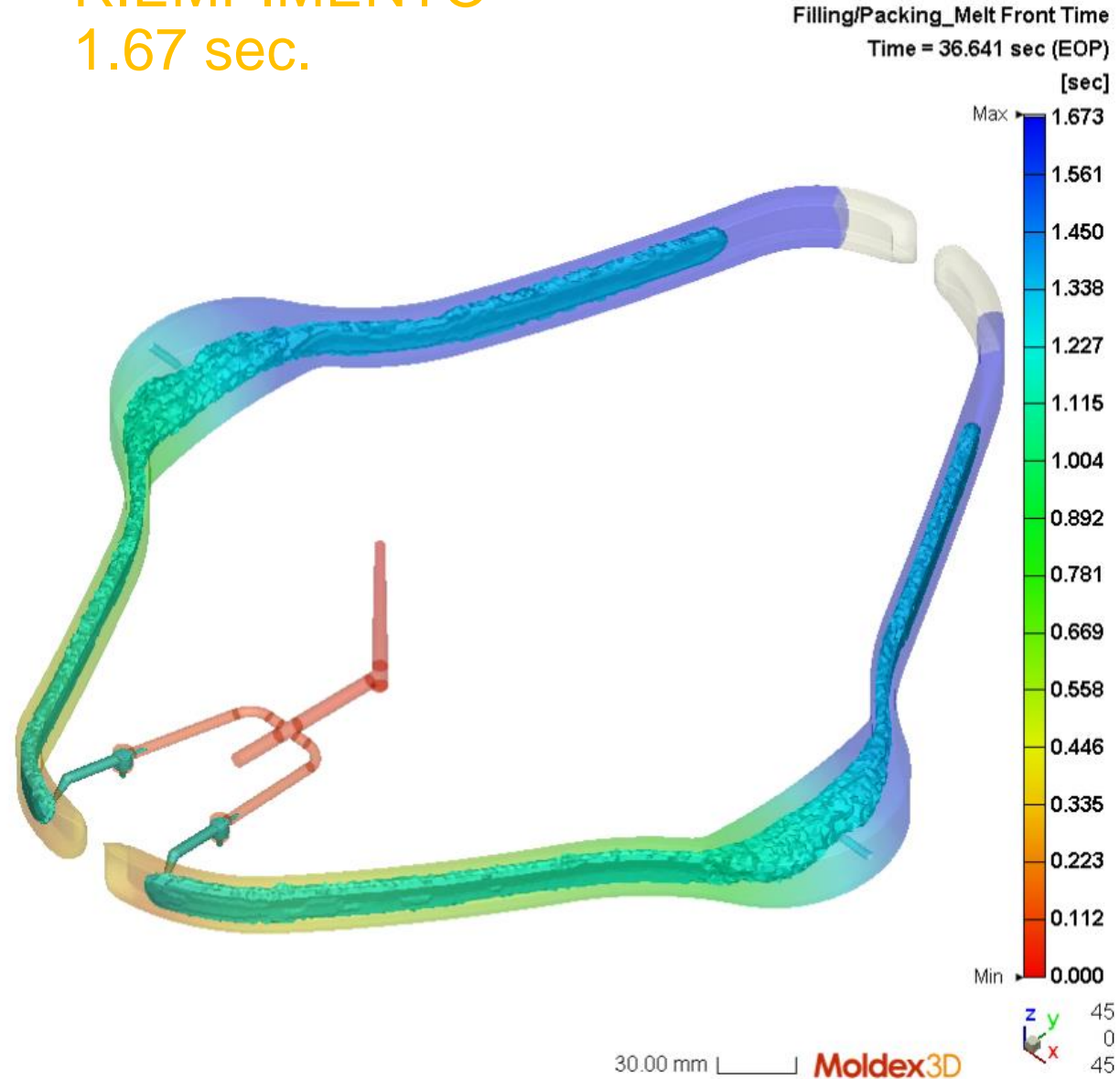
RIEMPIMENTO 1.65 sec.



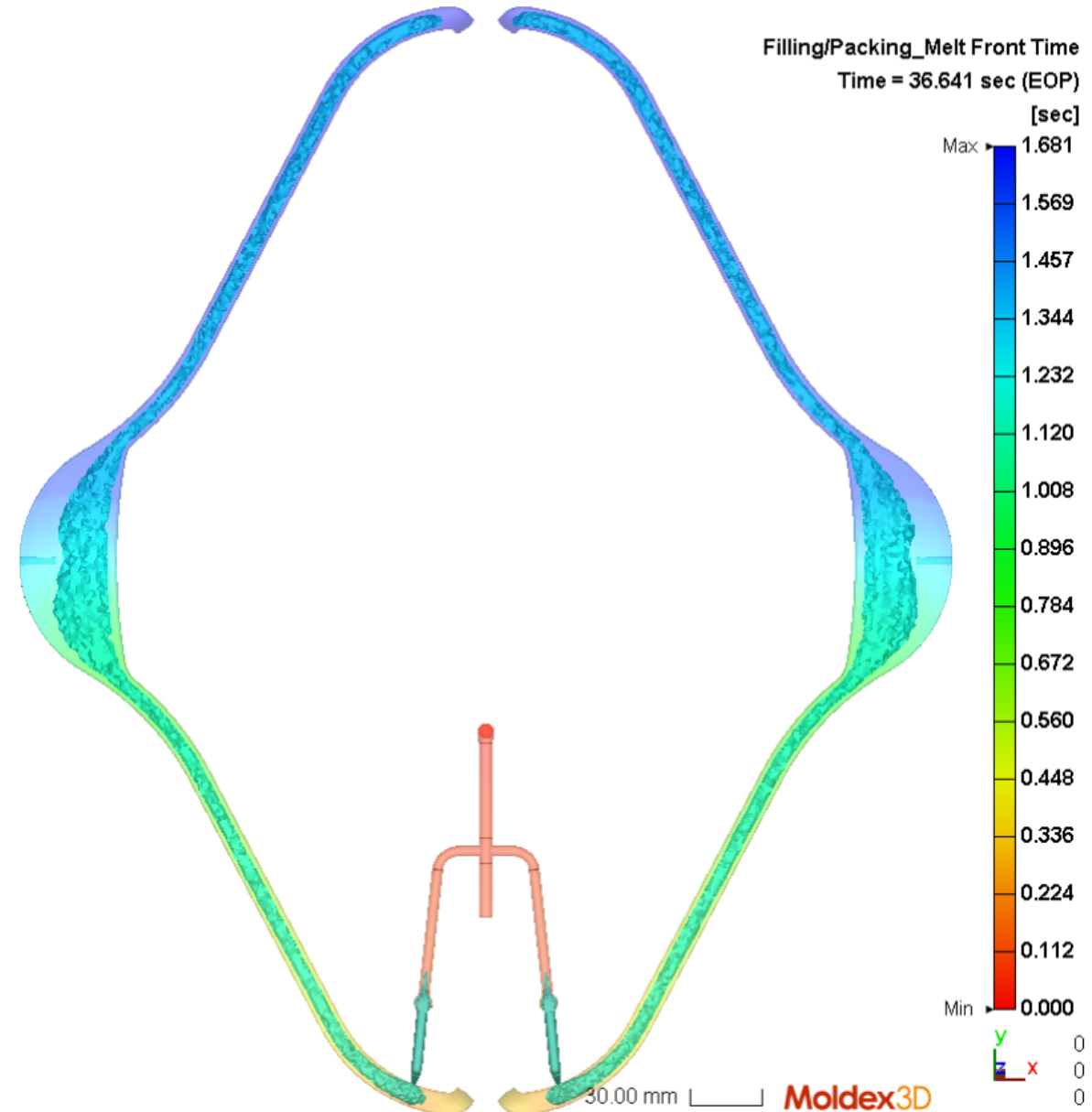
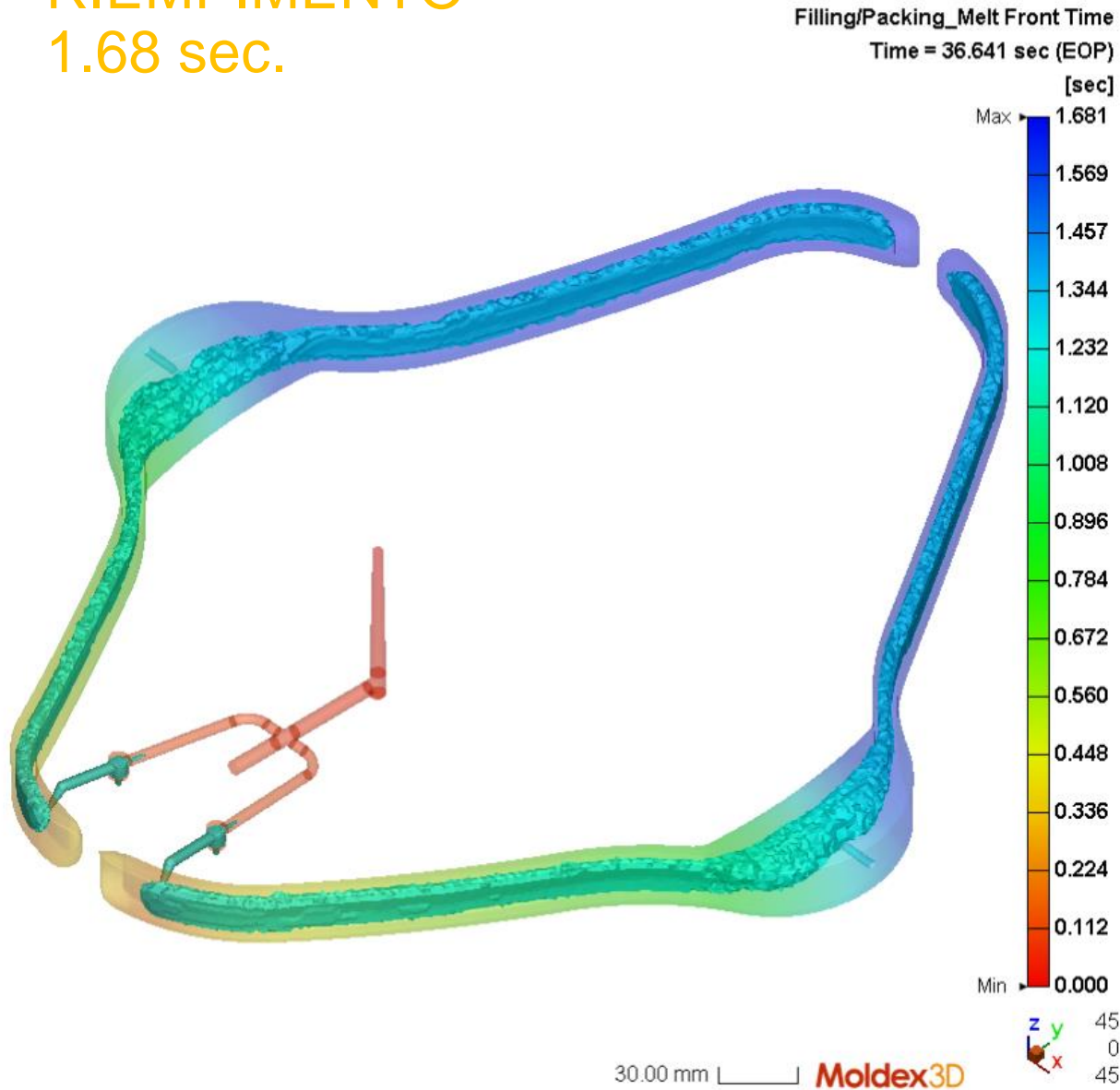
RIEMPIMENTO 1.66 sec.



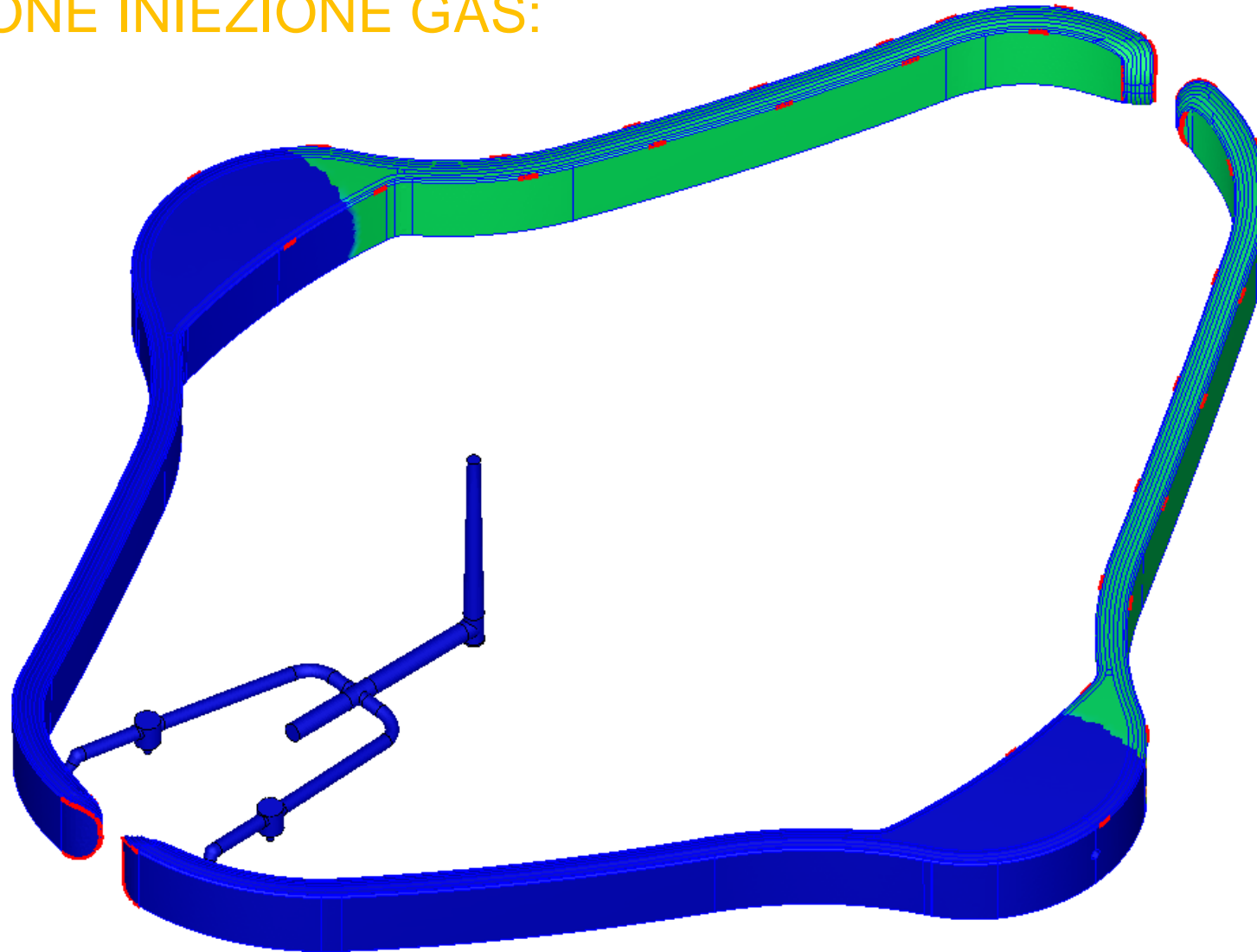
RIEMPIMENTO 1.67 sec.



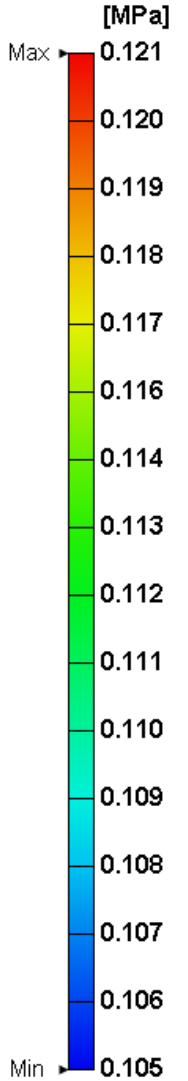
RIEMPIMENTO 1.68 sec.



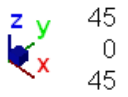
COMMUTAZIONE INIEZIONE GAS:



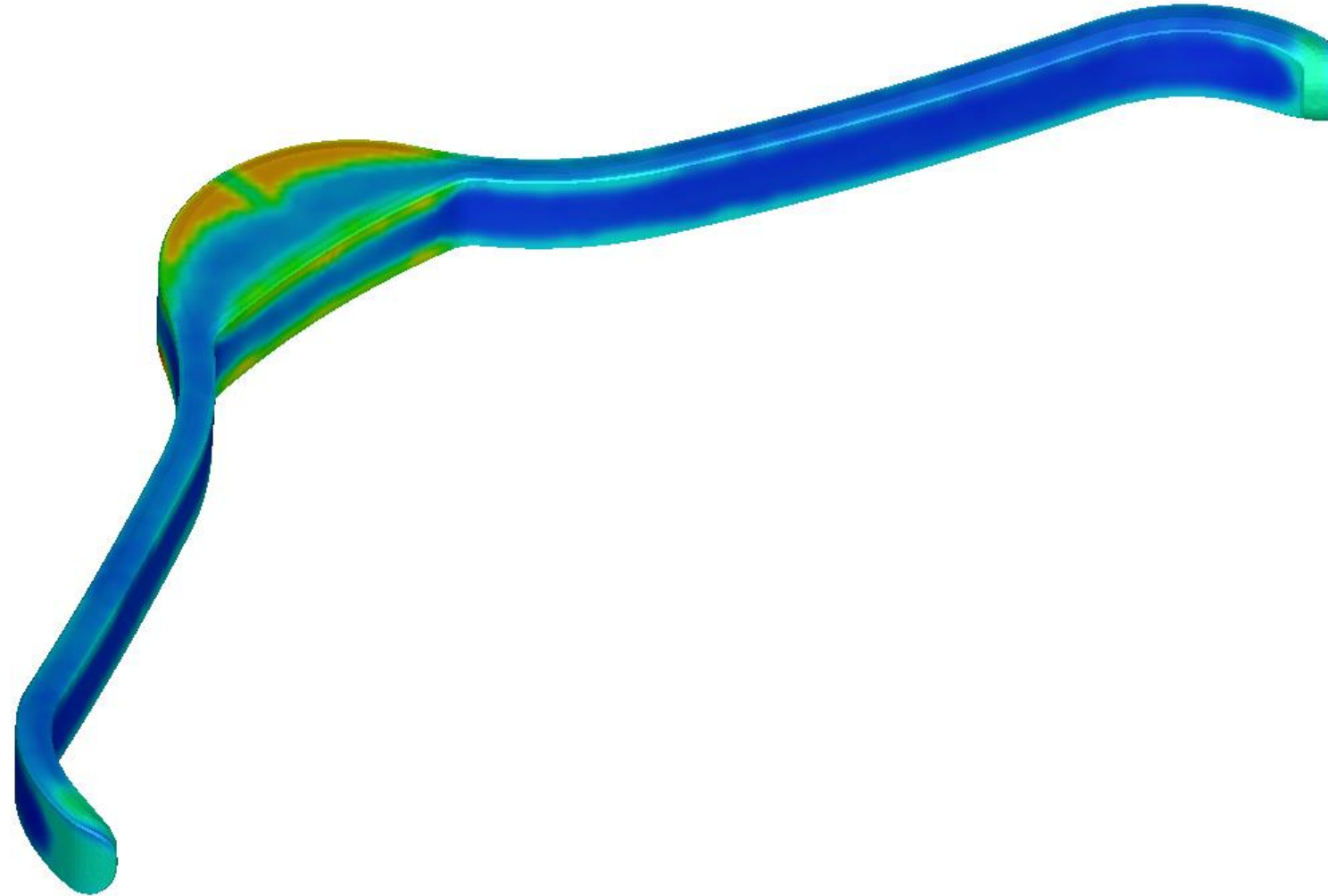
Filling/Packing_Air Zone Pressure
Time = 1.560 sec (GAIM Switch)



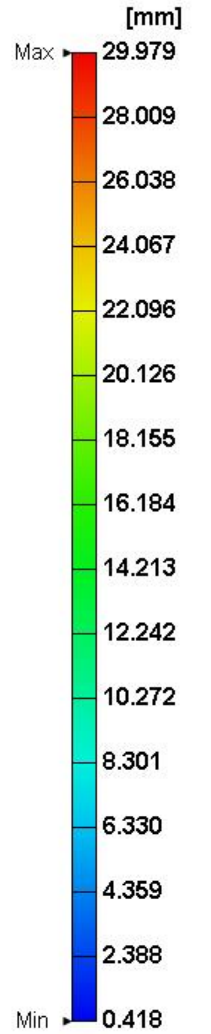
20.00 mm  Moldex3D



SPESSORE FINALE PARTE:

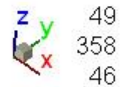


Filling/Packing_Skin Thickness
Time = 36.641 sec (EOP)

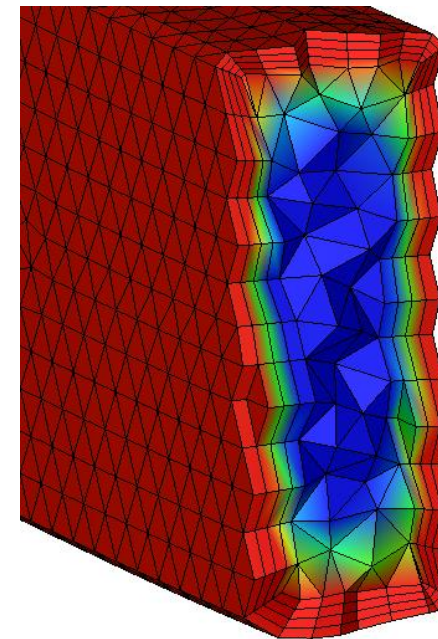
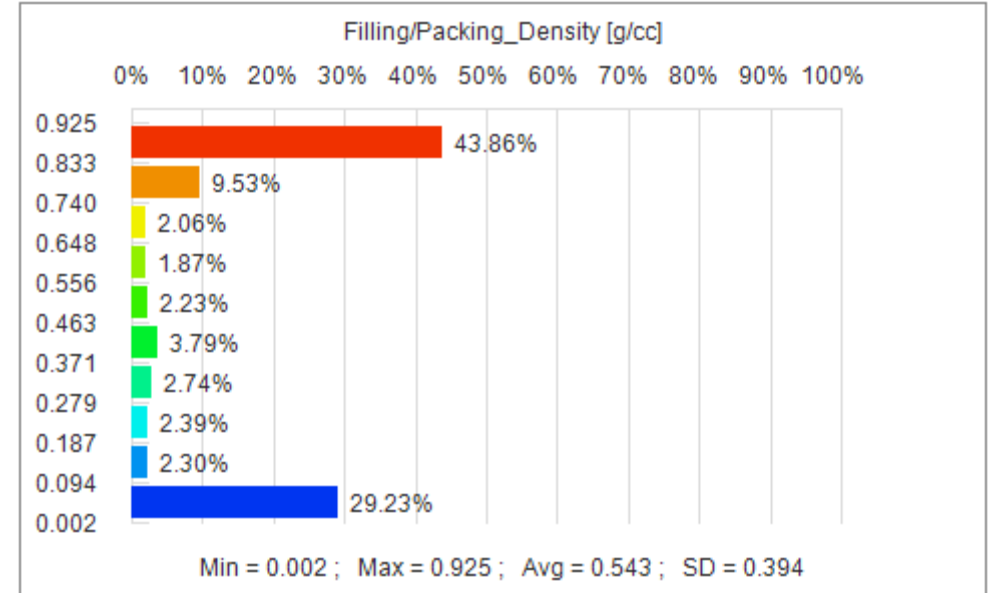
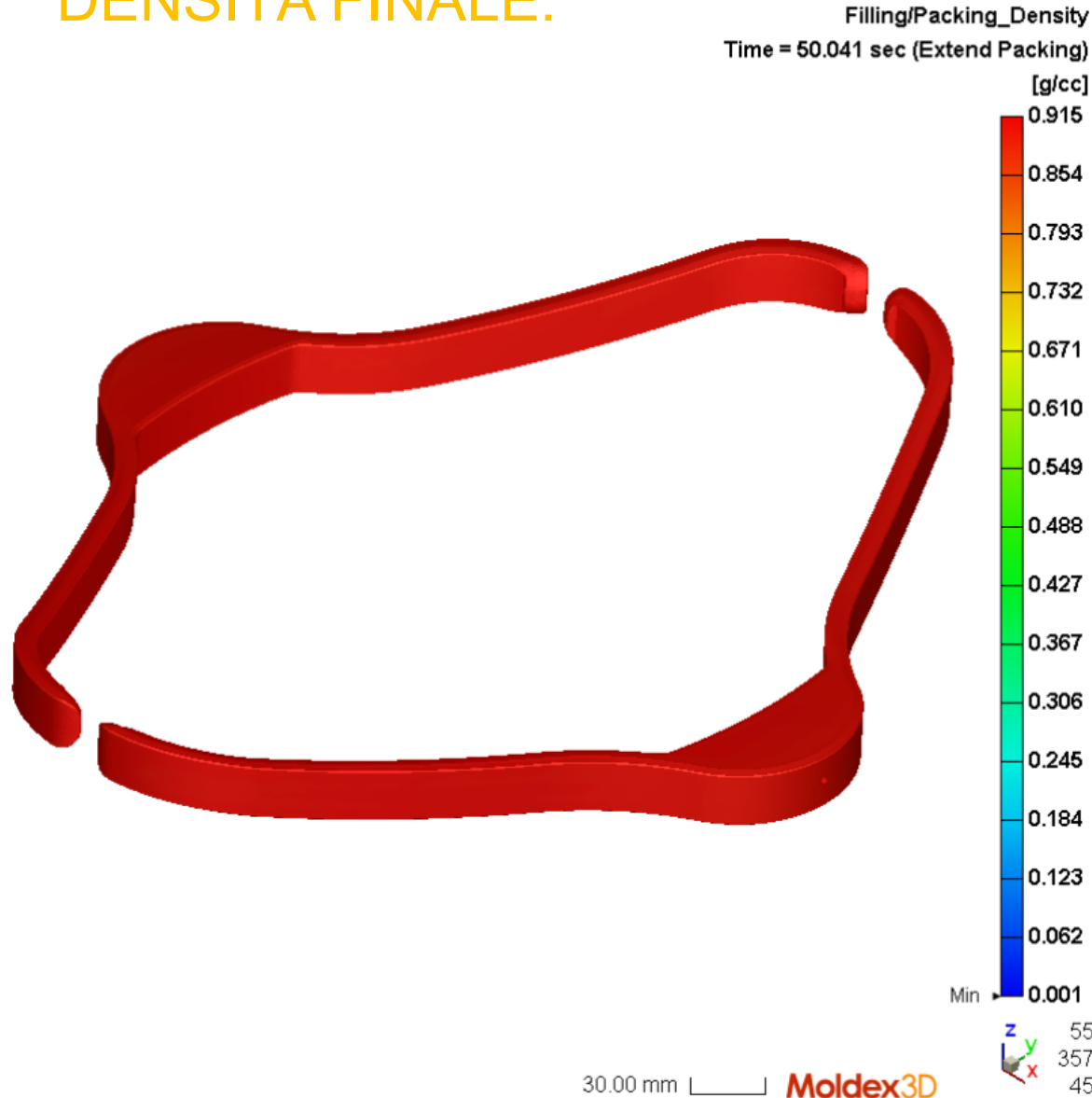


20.00 mm

Moldex3D

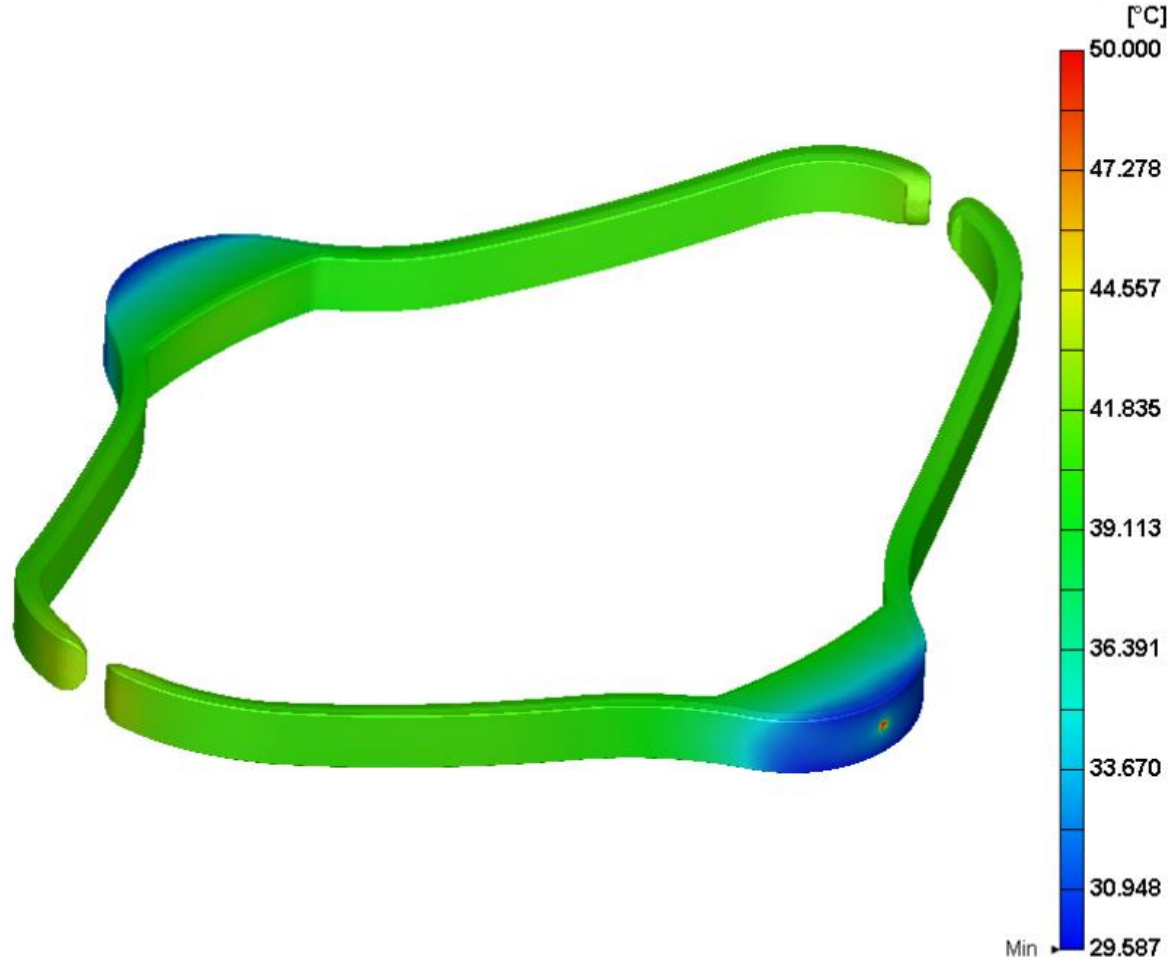


DENSITA' FINALE:



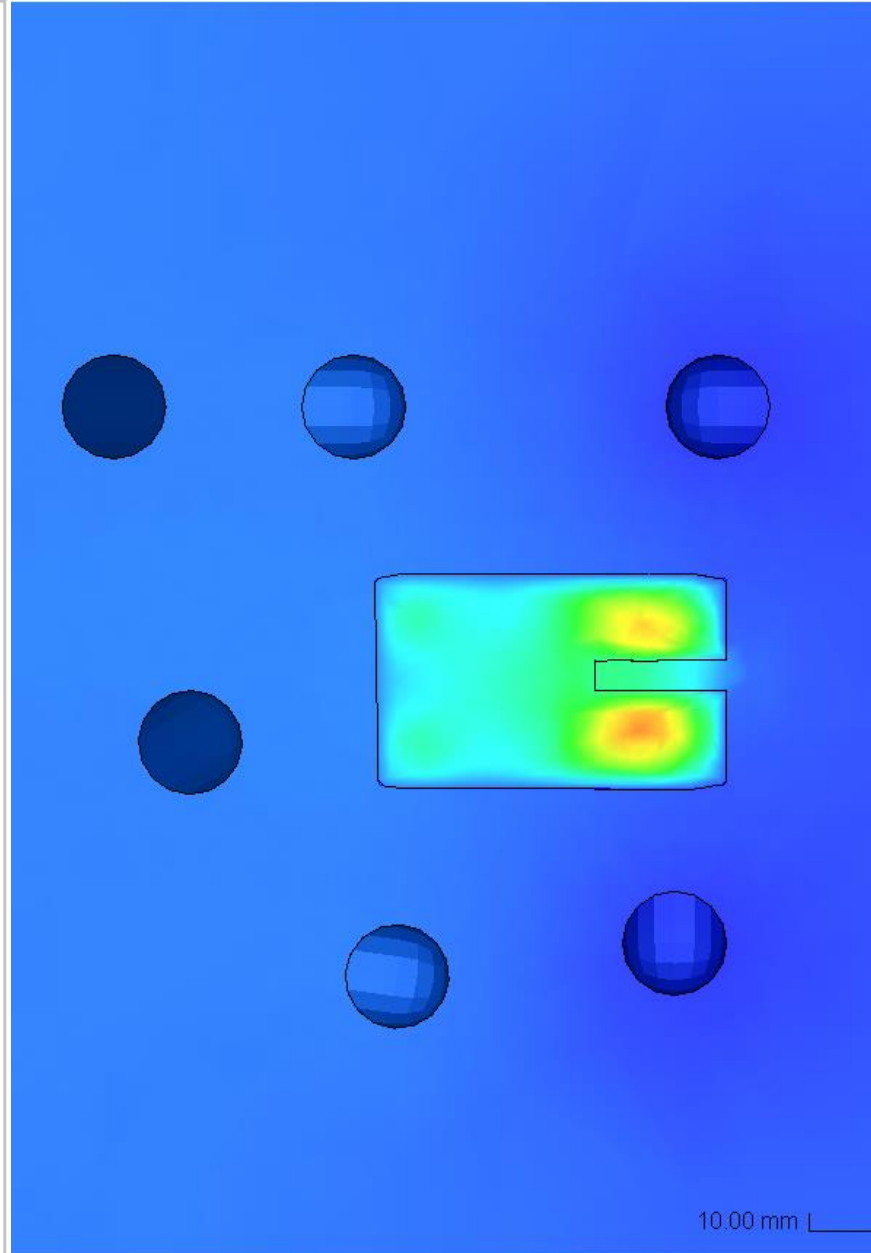
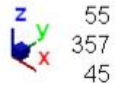
TEMPERATURE:

Cooling_Cavity Surface Temperature
Final Cycle
Time = 50.141 sec (EOC)



30.00 mm

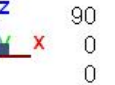
Moldex3D



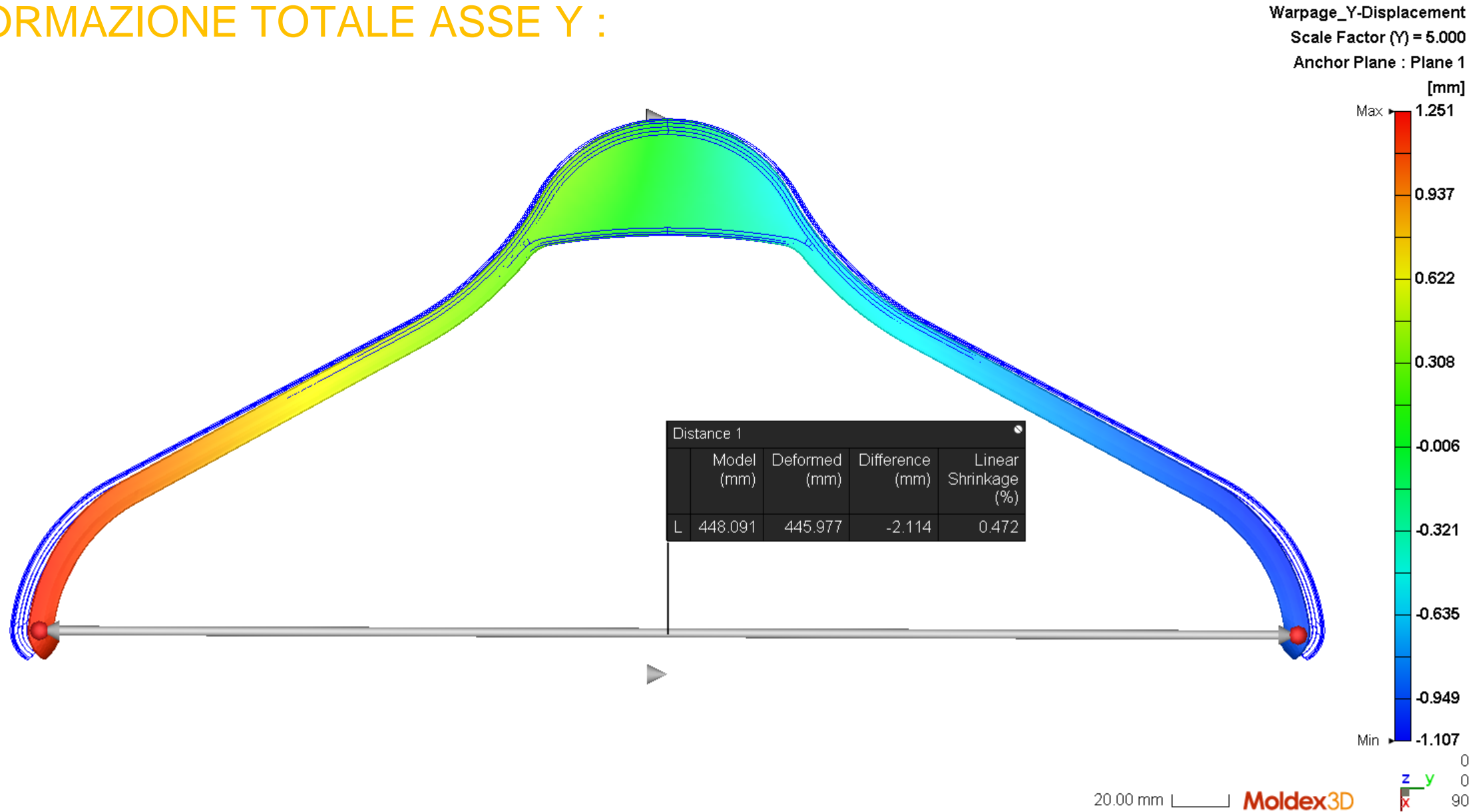
Cooling_Temperature(Clipping)
Final Cycle
Time = 50.141 sec (EOC)

10.00 mm

Moldex3D

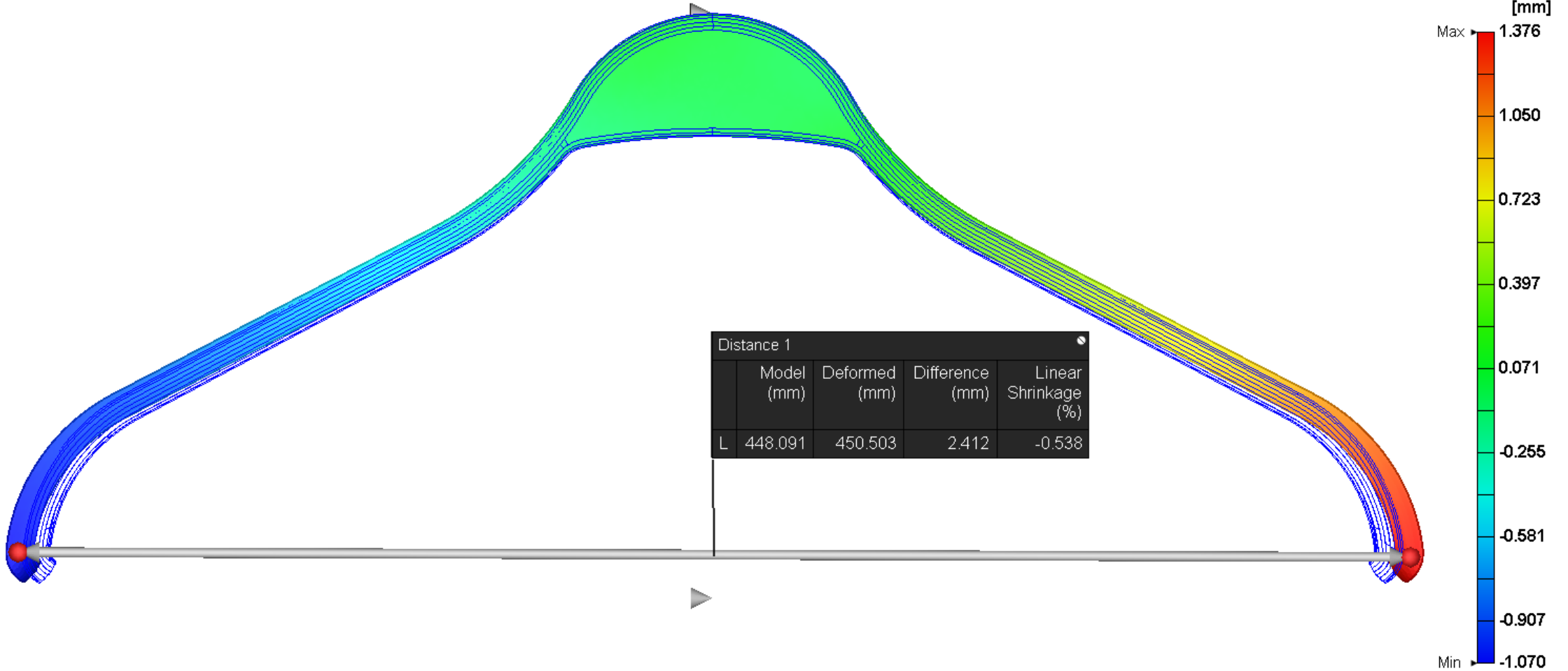


DEFORMAZIONE TOTALE ASSE Y :

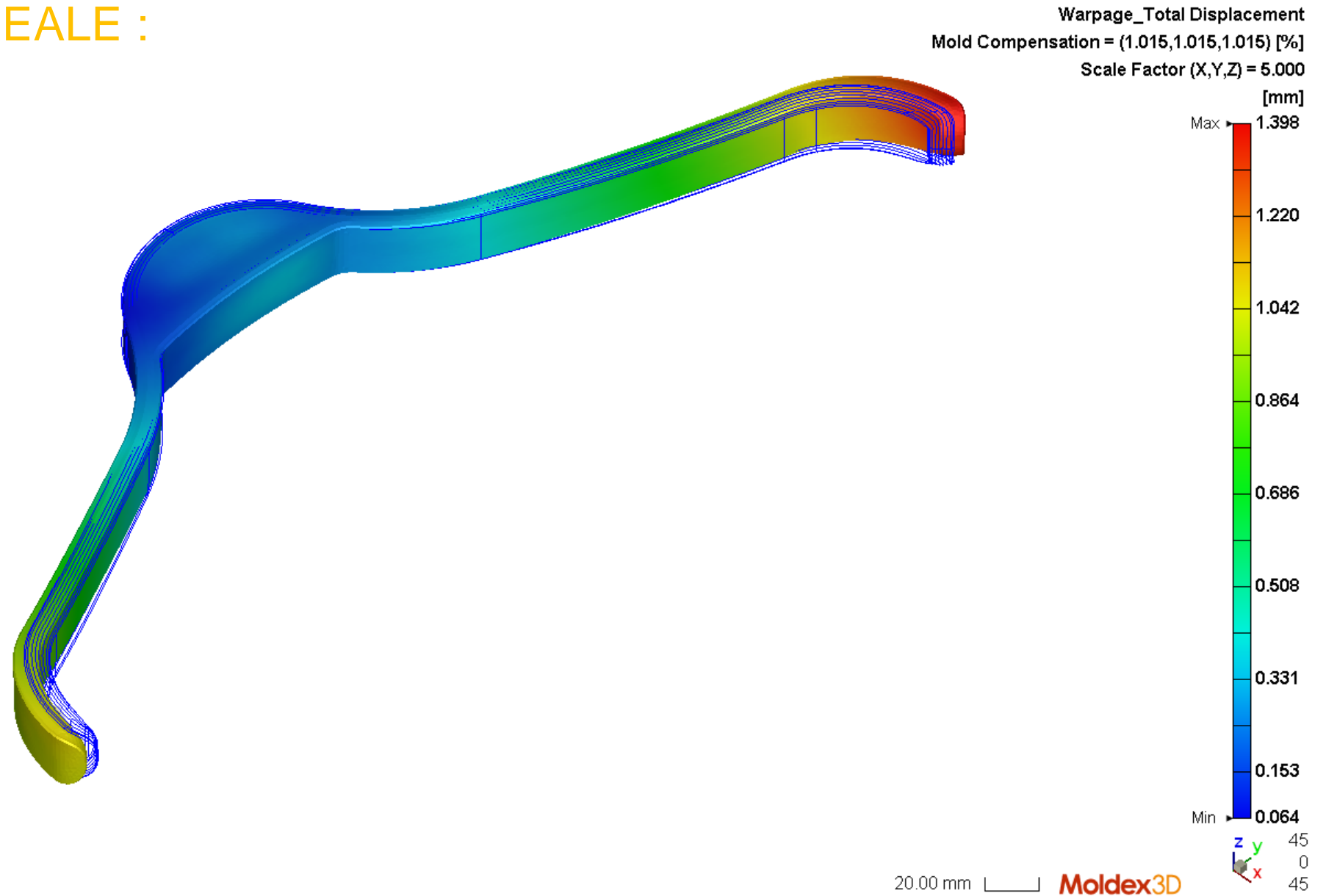


DEFORMAZIONE ASSE Y REALE:

Warpage_Y-Displacement
Mold Compensation = (1.015,1.015,1.015) [%]
Scale Factor (Y) = 5.000
Anchor Plane : Plane 1



DEFORMAZIONE REALE :



CONCLUSIONS:

Melt Volume of Cavity #1 = 127.7 cc
Melt Volume of Cavity #2 = 128.1 cc
Total Volume(+Cold runner) = 261.8 cc

Gas Volume of Cavity #1 = 55.8 cc
Gas Volume of Cavity #2 = 55.4 cc

Part Weight of Cavity #1 = **88.30 g**
Part Weight of Cavity #2 = **89.00 g**

Grazie



Per rimanere in contatto:
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Cell 334 6733775