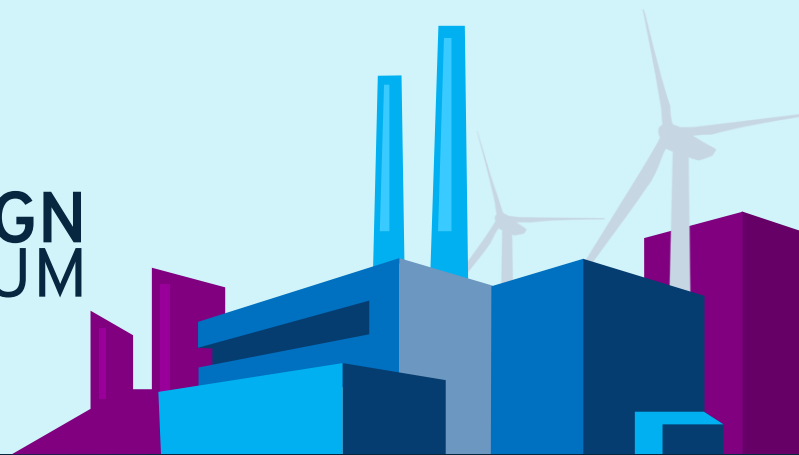




2022  
INDUSTRI&DESIGN  
FORUM

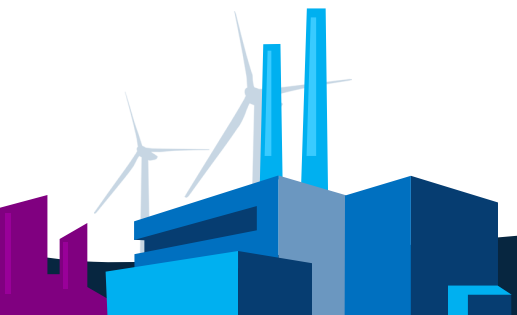


# Simulering af produkter i stedet for forsøg i test afdelingen.

*Autodesk Inventor Nastran 2023 kan beregne  
hvordan vores produkter vil opføre sig.*

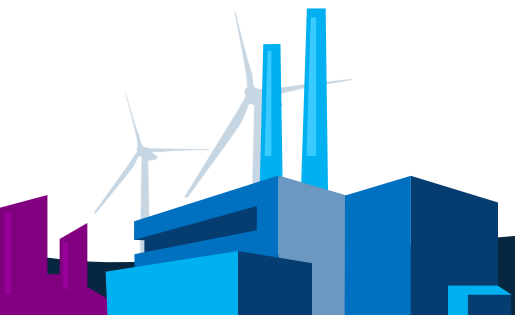
# Simulering af produkter i stedet for forsøg i test afdelingen.

- *Et par eksempler på at det giver meget mere forståelse for hvordan vores produkter virker når vi simulere dem i stedet for kun at lave praktiske forsøg i vores test afdelinger.*
- *Indlægget viser et par eksempler på hvordan vi kan udnytte Inventor Nastran 2023 og andre FEA programmer til at give forståelse for hvordan produkterne fungerer.*
- *20 minutter*



# Arne Kjaer, CEO

- *Med mere end 20 års erfaring med Finite Element Analysis kan PTFE Engineering A/S tilbyde en udførlig simulering og beregning af materialers opførsel.*
- *Arne Kjaer giver eksempler på, hvordan du får meget mere forståelse for, hvordan produkter virker, når vi simulerer dem i stedet for at lave praktiske forsøg i testafdelingen. Du får indblik i, hvordan du kan udnytte Inventor Nastran 2023 til at give forståelse for, hvordan produkterne fungerer.*



# Arne Kjær

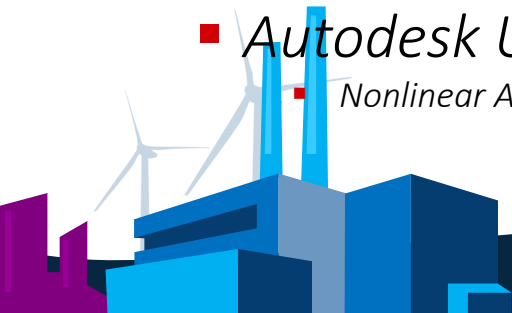
## CEO / ejer @ PTFE Engineering A/S

- *Polymer Specialist fra Danmarks Tekniske Universitet.*
- *39 års erfaring med udvikling af materiale sammensætninger og proces udvikling indenfor PTFE og avancerede Engineering Plastics som PEEK.*
- *Første FEA materiale model arbejde var i 1992 sammen for Universitet i Stuttgart.*
- *Polymer Materiale Modellering i 6 år med, Autodesk Nastran, LS Dyna, COMSOL and ANSYS.*
- *FEA foredrag i USA, Tyskland, Kina og Danmark.*
- *Medforfatter til bogen Up and Running with Autodesk Inventor Nastran 2023 – Nonlinear Analysis.*



# PTFE Engineering A/S

- *Autodesk University 2018*
  - *Challenges of Simulating Advanced Materials in Nonlinear Applications.*
- *Autodesk University 2019*
  - *Simulating\_with\_Nonlinear\_Materials\_like\_Hyperelastic\_and\_Isotropic\_Polymer\_Material.*
- *SKZ Innovations using Fluoropolymers 2019*
  - *Simulating Materials like PTFE with Nonlinear Material Model.*
- *SKZ Innovations using Fluoropolymers 2021*
  - *Simulation in the PTFE industry – Not only Simulating product, but also Simulating the process at making the products.*
- *FSCPA China Plast Fluoropolymers 2022*
  - *FEA Computer Simulation in the PTFE industry.*
- *Autodesk University 2022*
  - *Nonlinear Static Simulation of an Oil and Gas Multicontact Seal Application.*
- *Autodesk University 2022 – Cospeaker*
  - *Nonlinear Analysis of Thin-Walled Assemblies Using Inventor Nastran.*





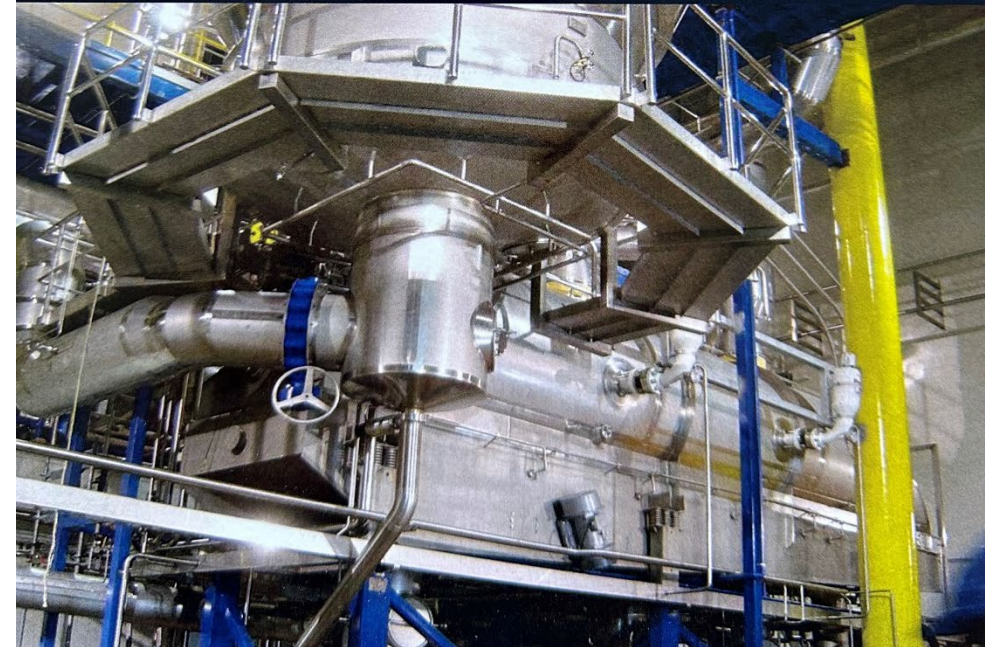
# PTFE Engineering A/S

- *Jeg har skrevet kapitel 8 i Wasim Younis seneste bog om simulering med Autodesk Inventor Nastran 2023.*
- *Wasim Younis*
- *Er simulerings ekspert igennem 30 år og har skrevet bog serien "Up and Running with Autodesk --- Nastran"*



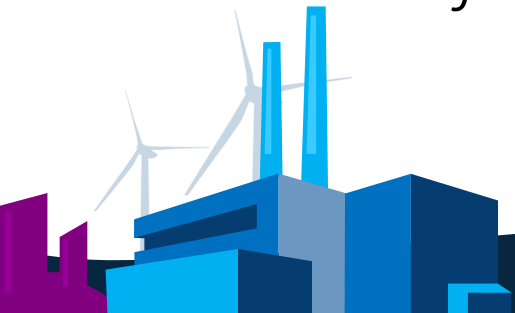
**Up and Running with  
Autodesk®  
Inventor®  
Nastran 2023**

**Nonlinear Analysis**



# PTFE Engineering A/S

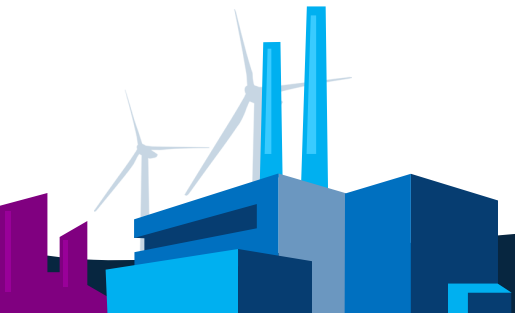
- *Hos PTFE Engineering A/S arbejder vi med.*
- *Udvikling, produktion og kvalitetssikring af PTFE og avancerede plast emner for internationale virksomheder.*
- *Udvikling af PTFE baserede materialer så de opfylder helt specielle krav til funktion og levetid.*
- *Udvikler matematiske materiale modeller af polymerer så de kan benyttes i FEA beregninger såsom i INVENTOR NASTRAN 2023.*
- *Holder foredrag om simulering med polymer materialer.*



# David Weinberg

## Distinguished Research Scientist with Autodesk

- *Autodesk Product Development and Manufacturing Solutions (PDMS), Nastran Simulation and Generative Design group*
- *Primary developer for Autodesk Nastran and Inventor Nastran*
- *Currently lead the team of developers for Autodesk Nastran*
- *Over 35 years' experience in FEA simulation working both as a user for several large Aerospace companies and as a developer*
- *Retired USAF aircraft commander/pilot*





# PTFE Engineering A/S

*PTFE Engineering A/S*

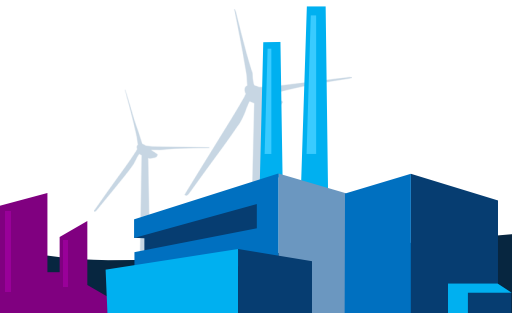
*Slotsvænget 12*

*3480 Fredensborg*

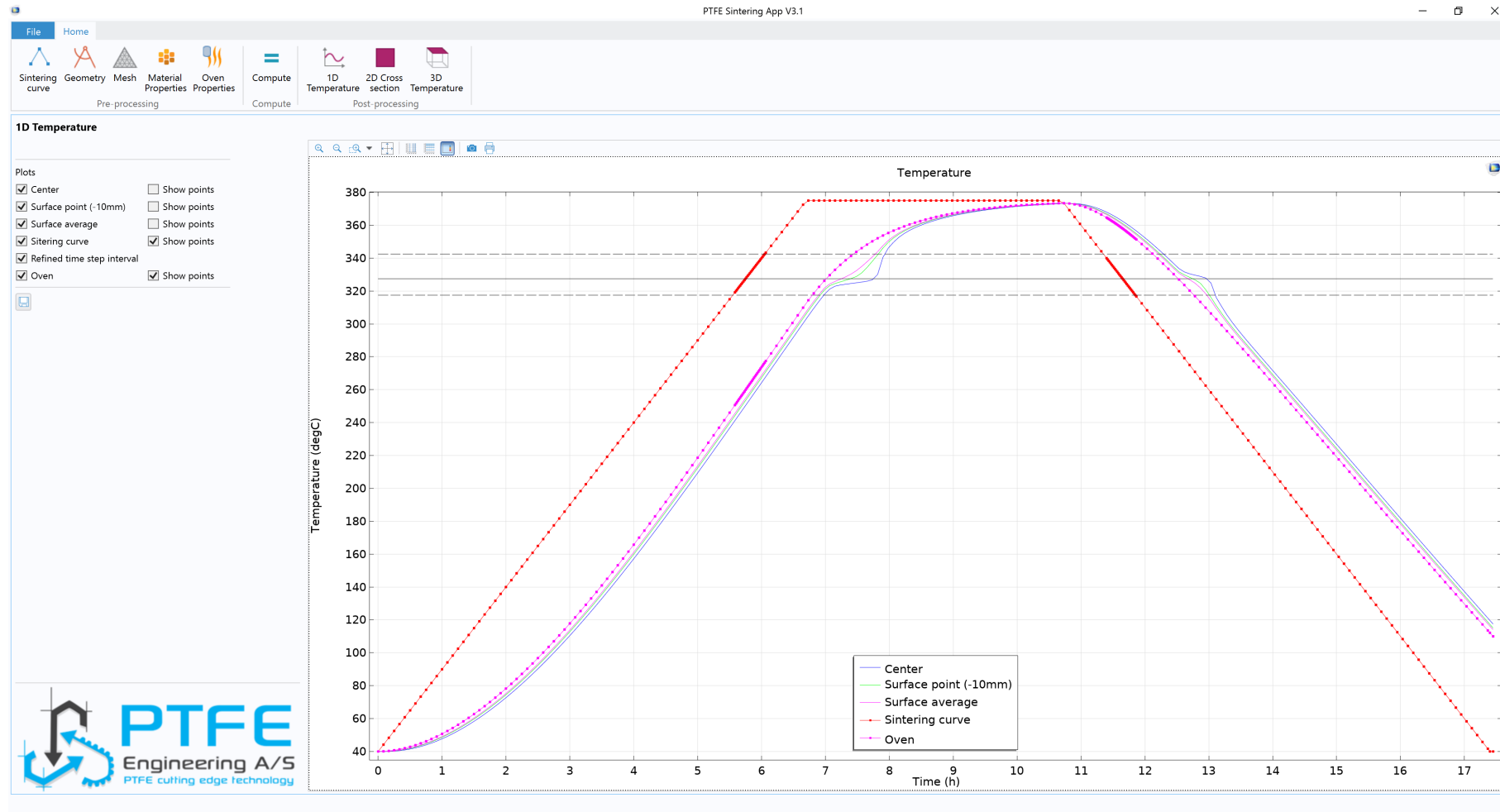
[www.PTFE-](http://www.PTFE-Engineering.com)

[Engineering.com](http://www.PTFE-Engineering.com)

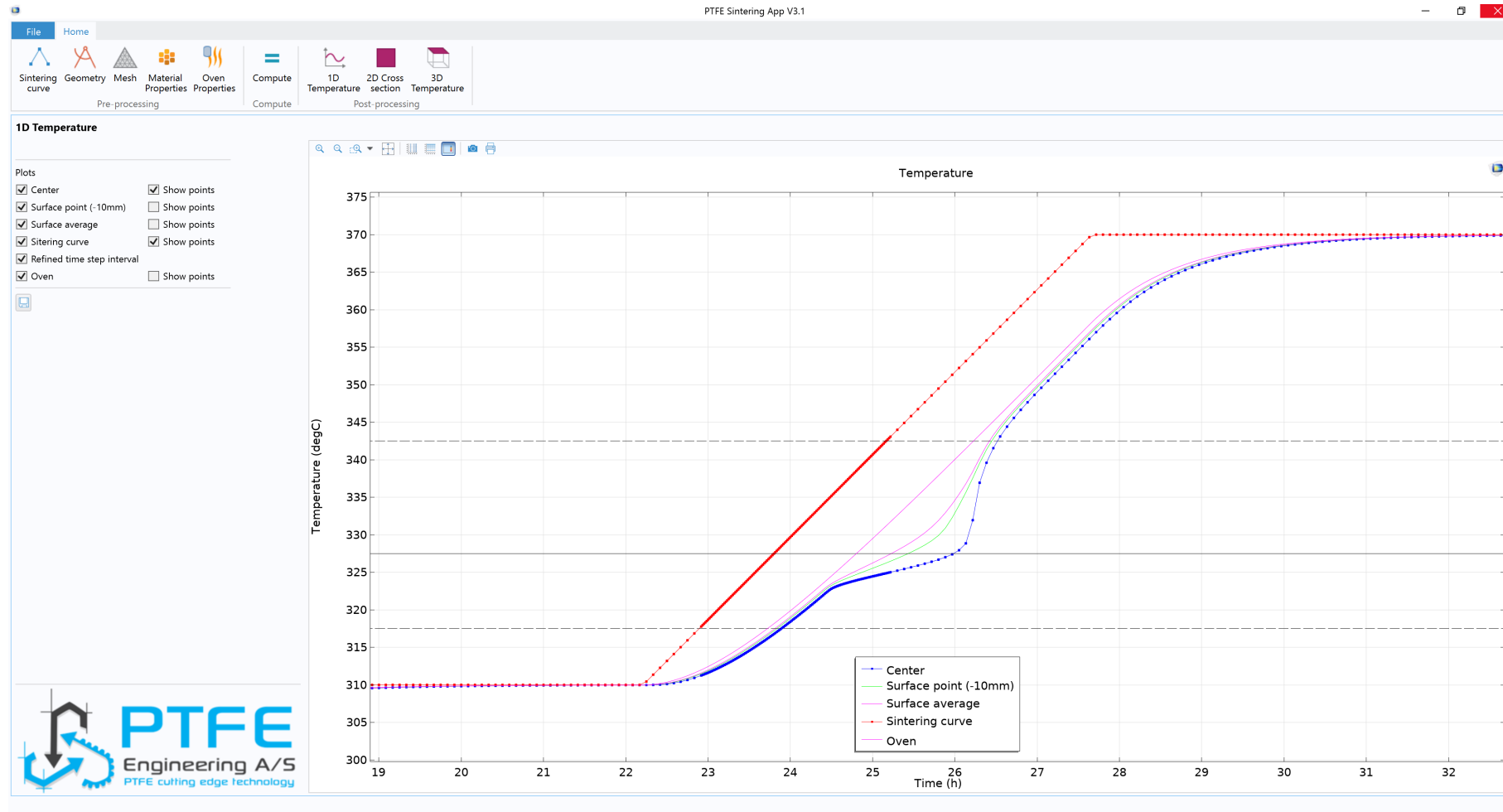
[resp@ptfe-engineering.dk](mailto:resp@ptfe-engineering.dk)



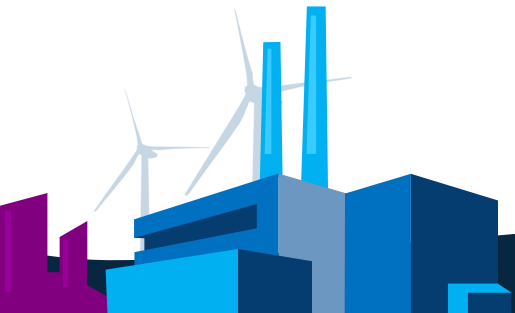
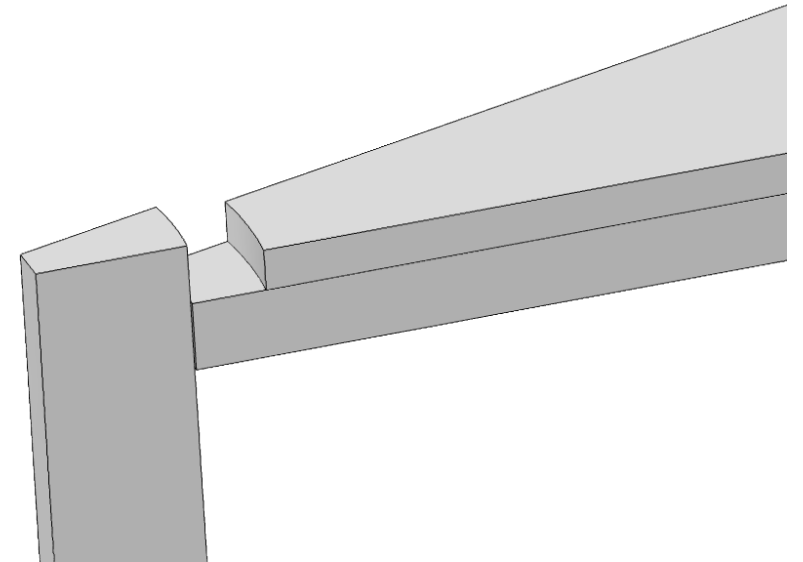
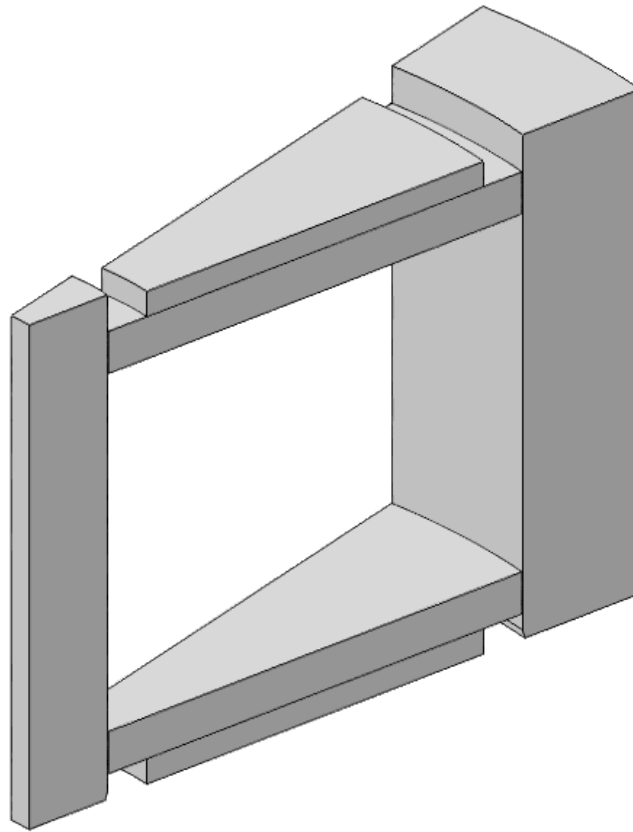
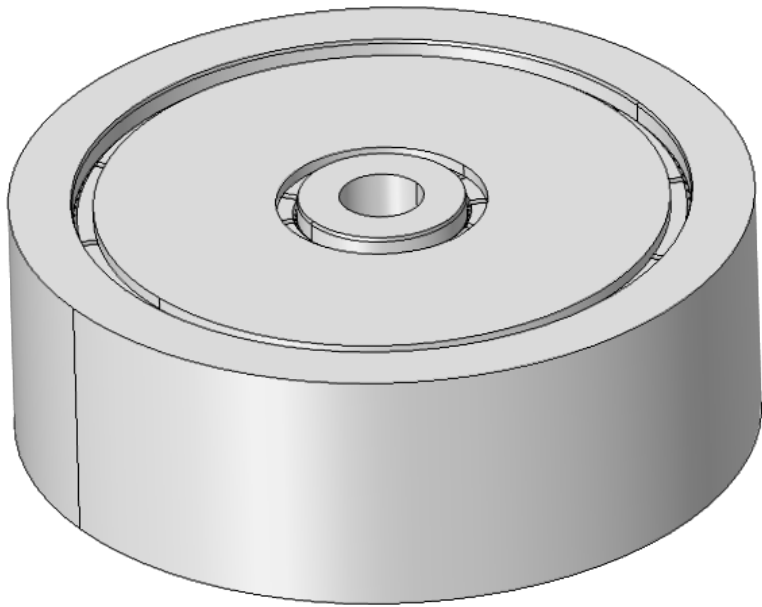
# PTFE Engineering A/S



# PTFE Engineering A/S

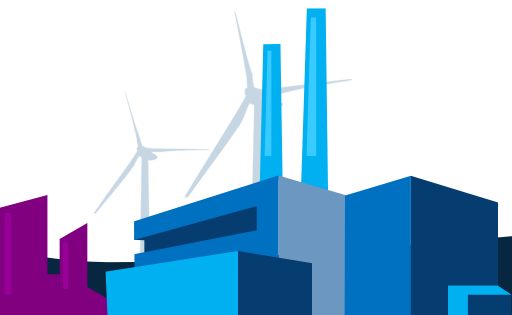
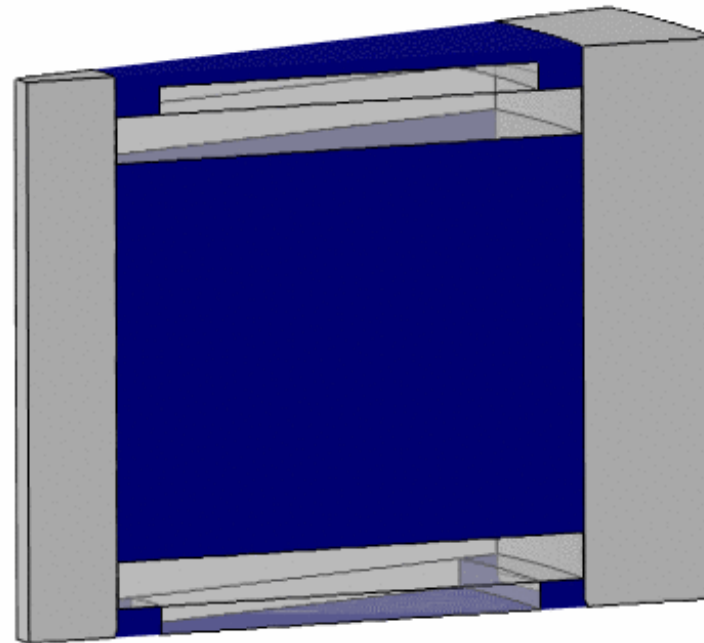


# PTFE Engineering A/S



# PTFE Engineering A/S

Piston velocity=12 mm/min, Time=0 s Velocity magnitude (m/min)



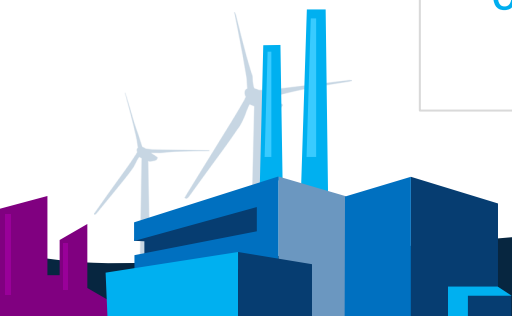
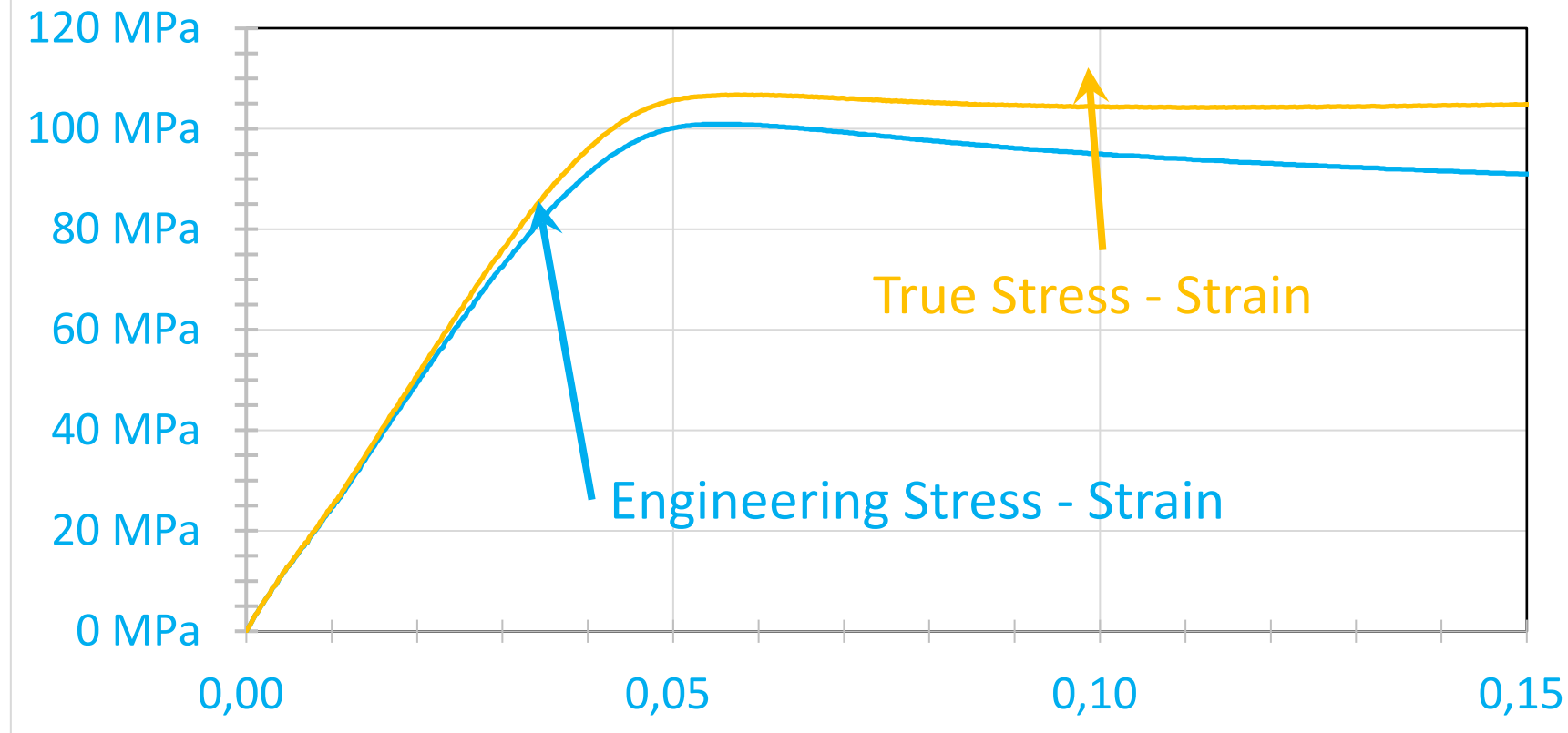


# PTFE Engineering A/S



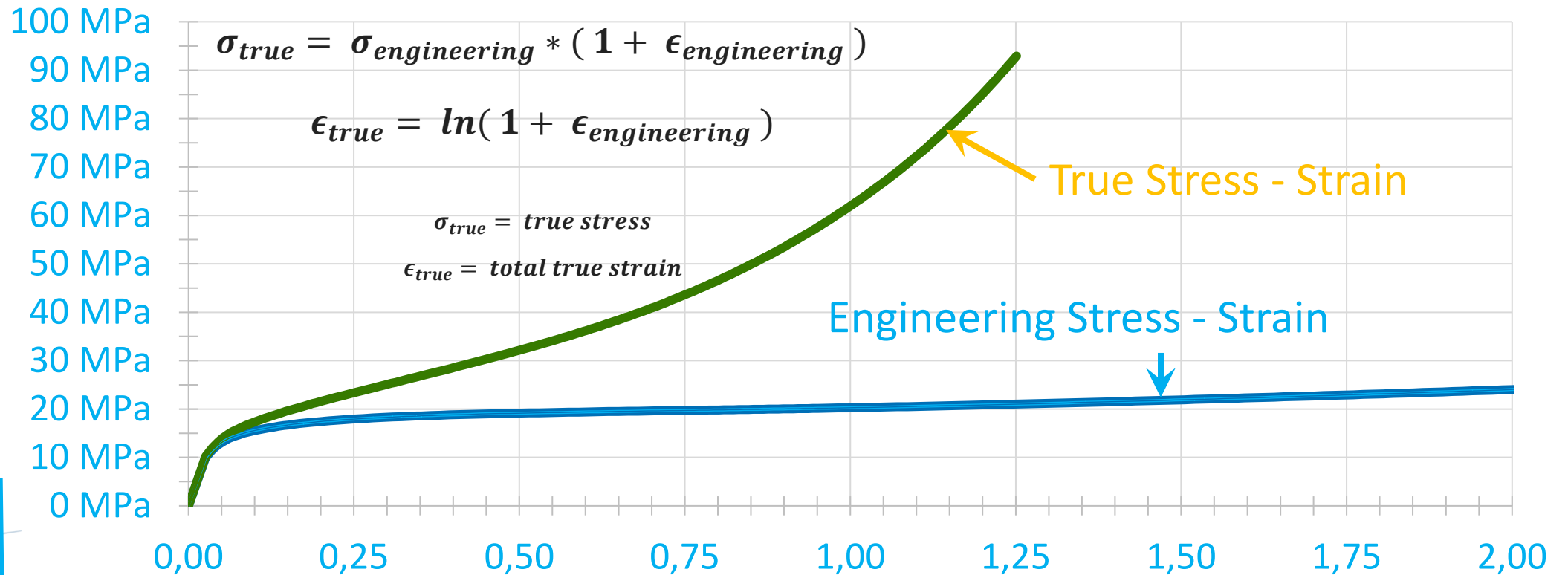
# PTFE Engineering A/S

## VICTREX™ PEEK 450G



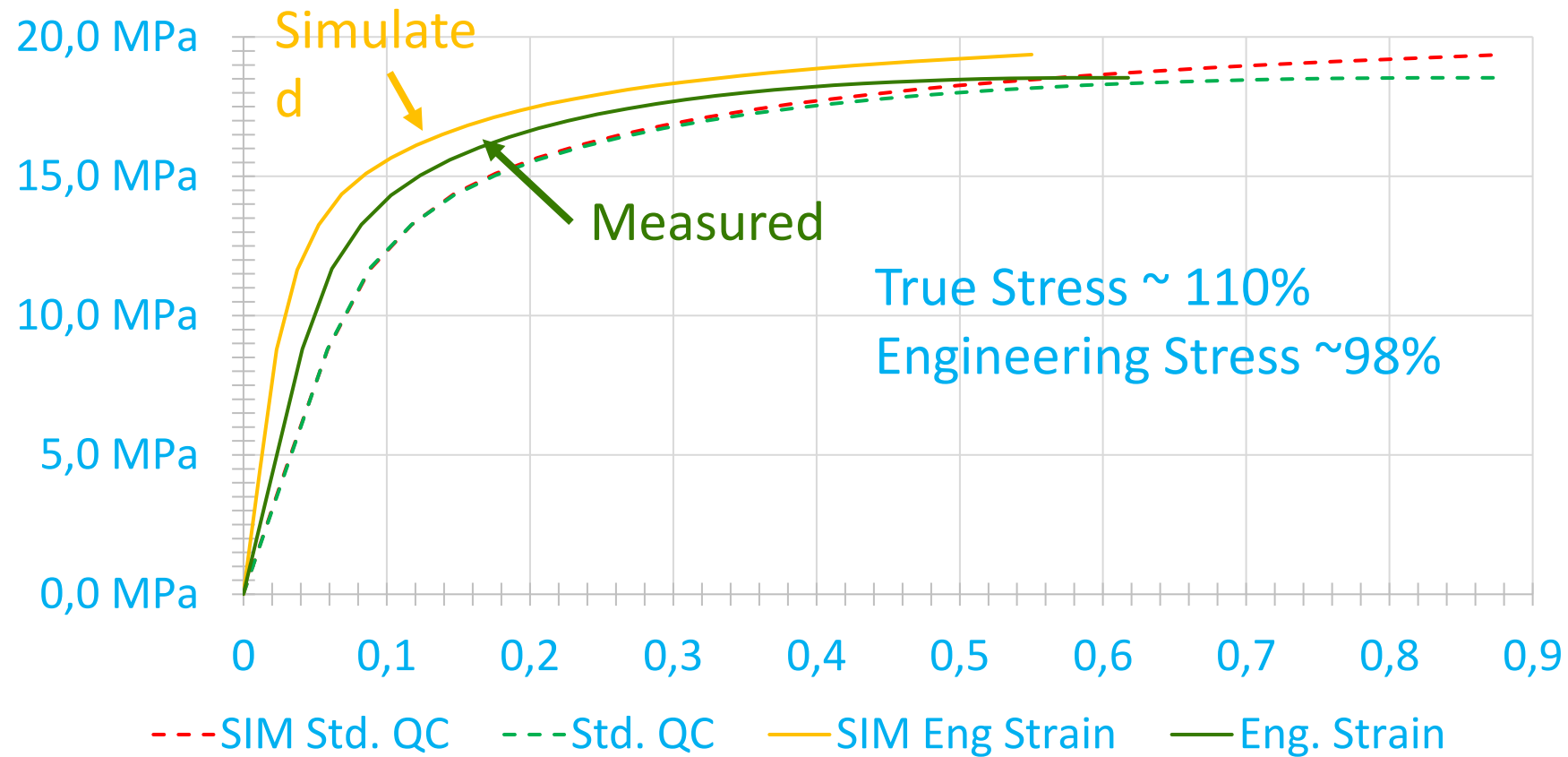
# PTFE Engineering A/S

Tensile Test PTFE CF10 03A Eng / True Stress – Strain [MPa]

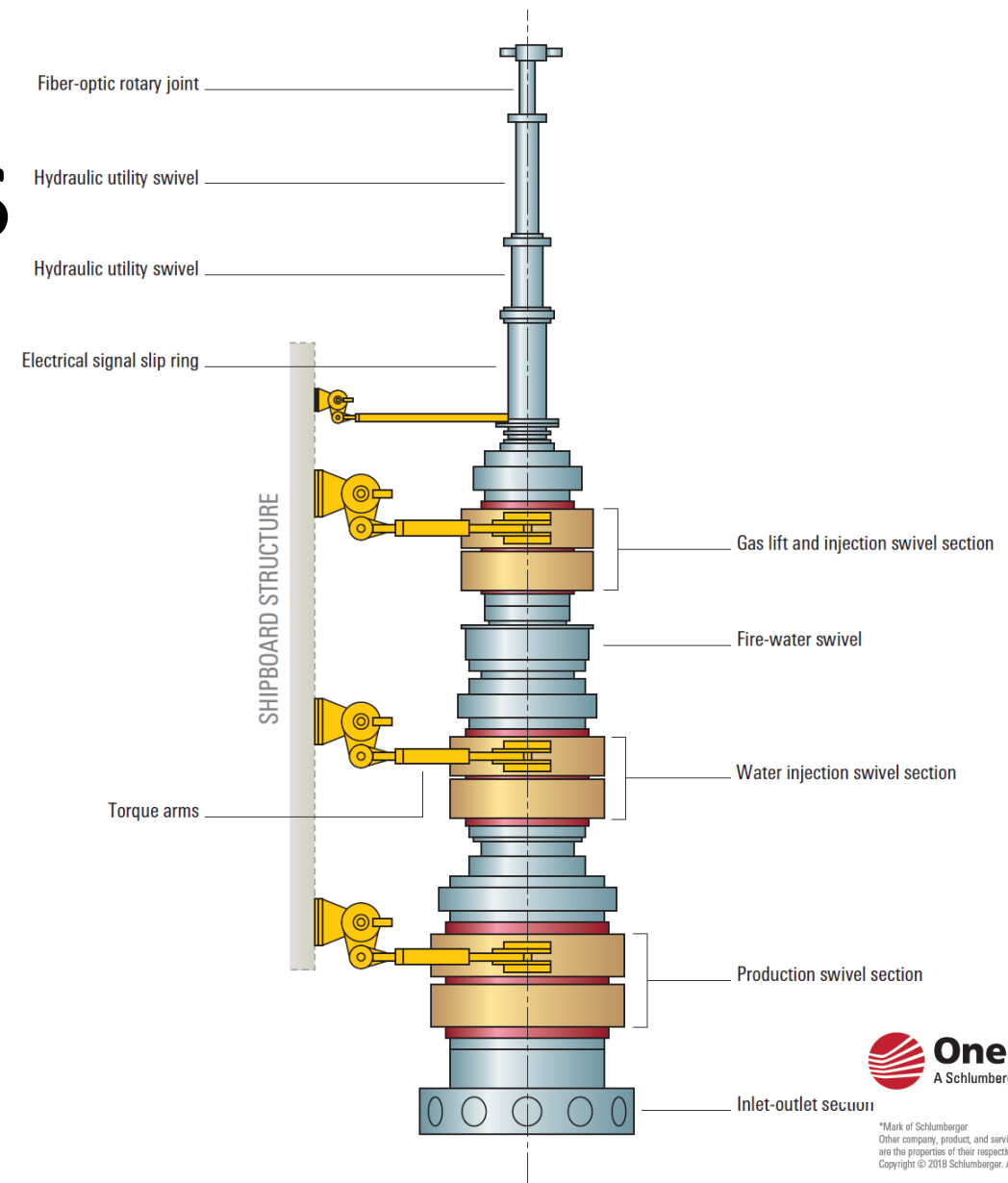


# PTFE Engineering A/S

Tensile Test True Stress PTFE CF10 04A



# PTFE Engineering A/S

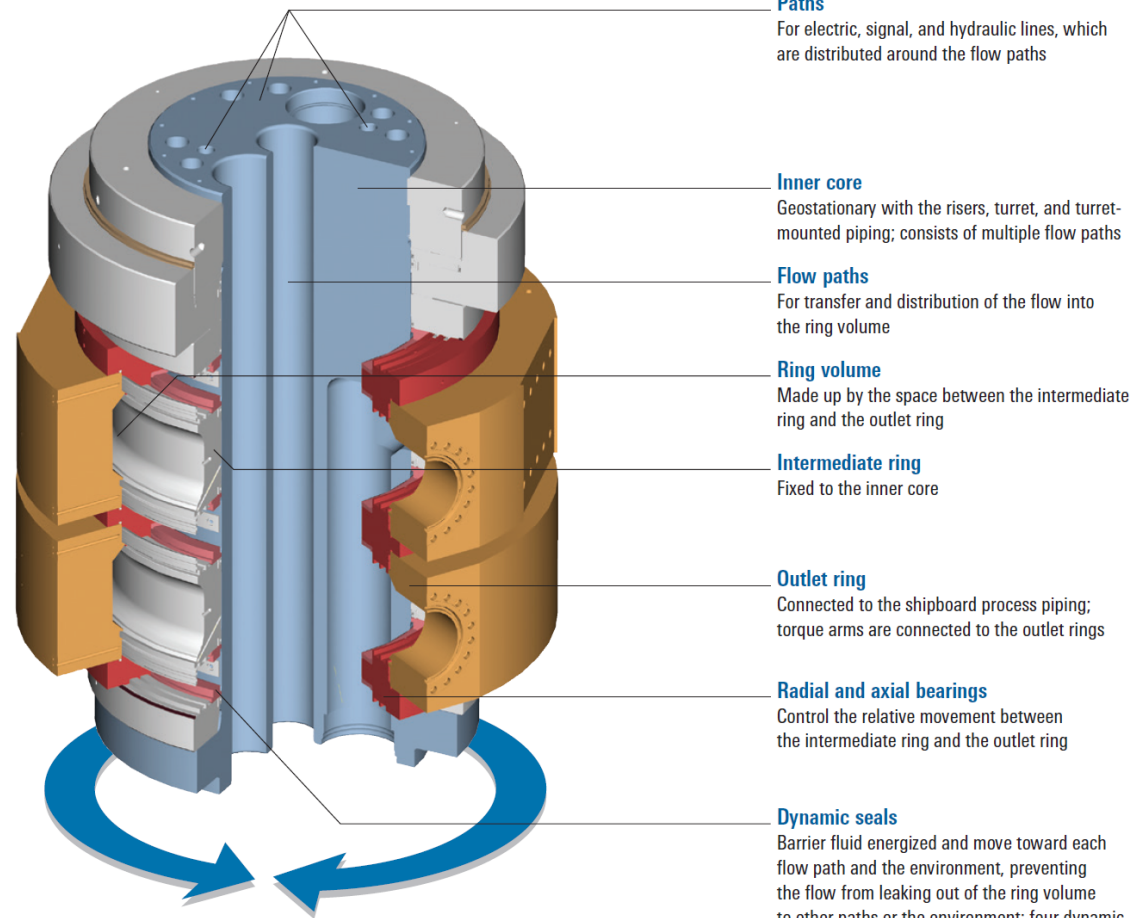
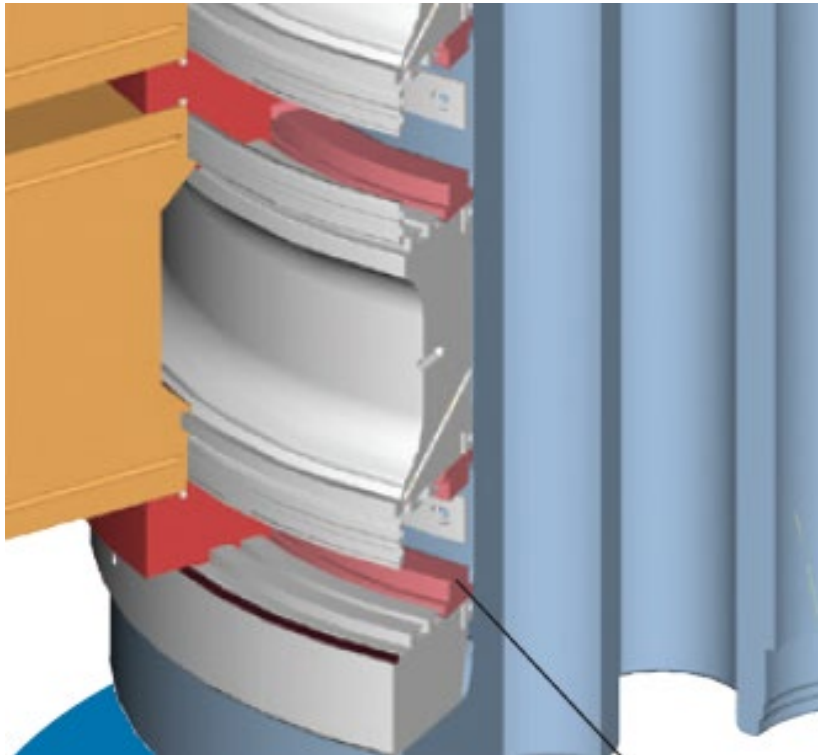


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# PTFE Engineering A/S

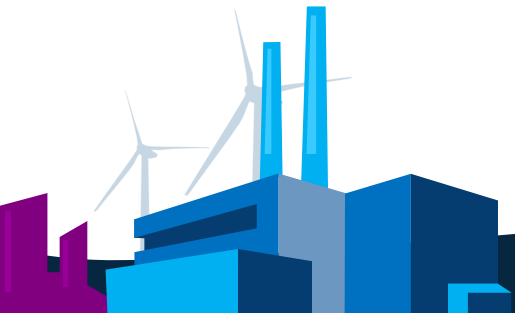
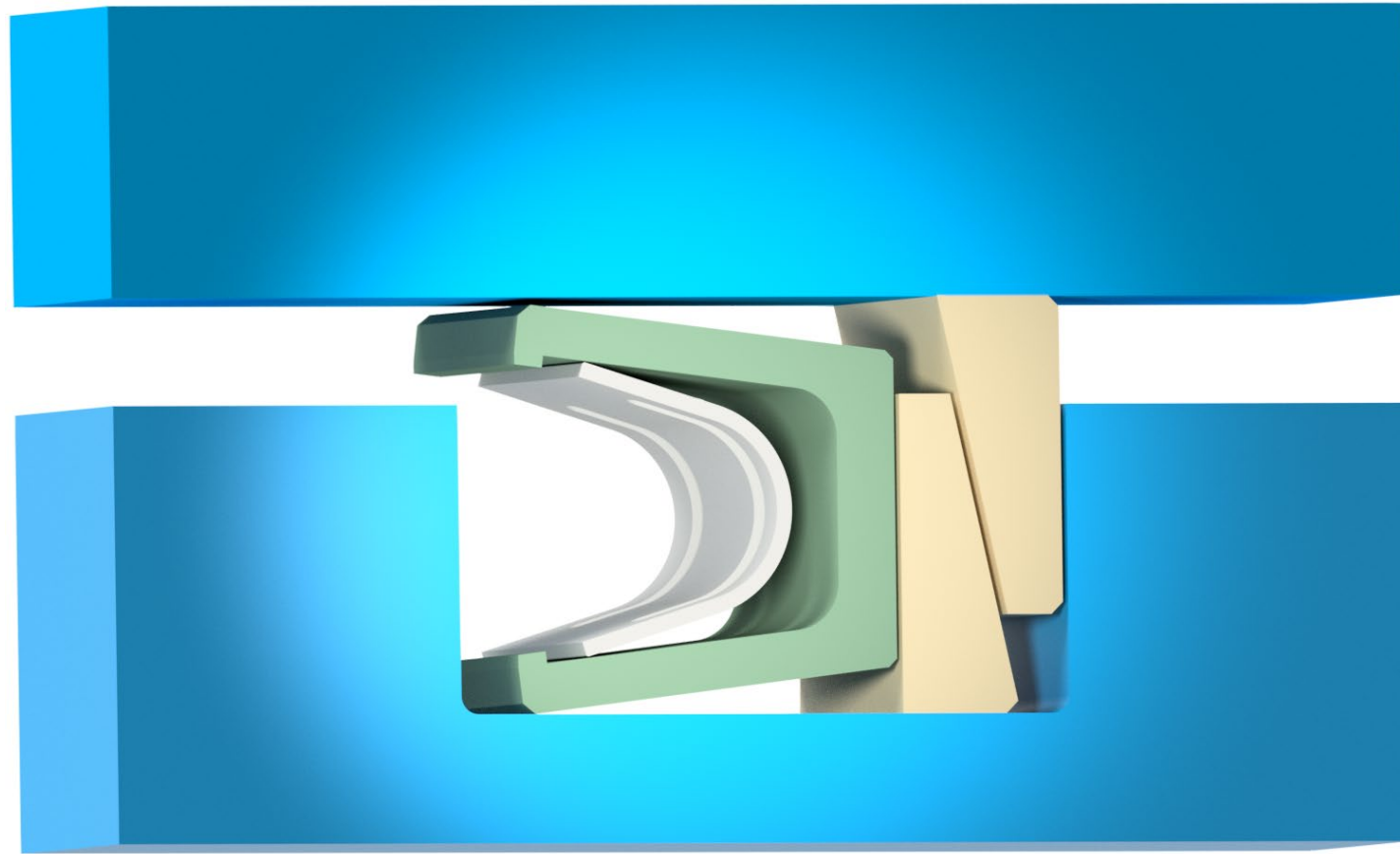


*The outlet rings and parts of the bearing follow the rotation of the vessel.*

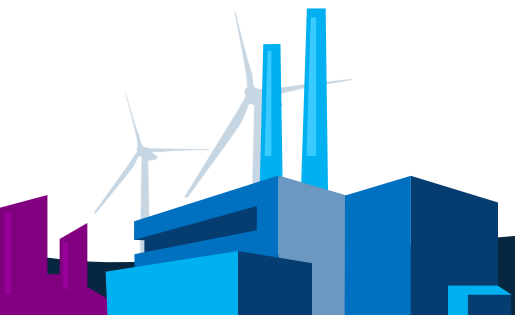
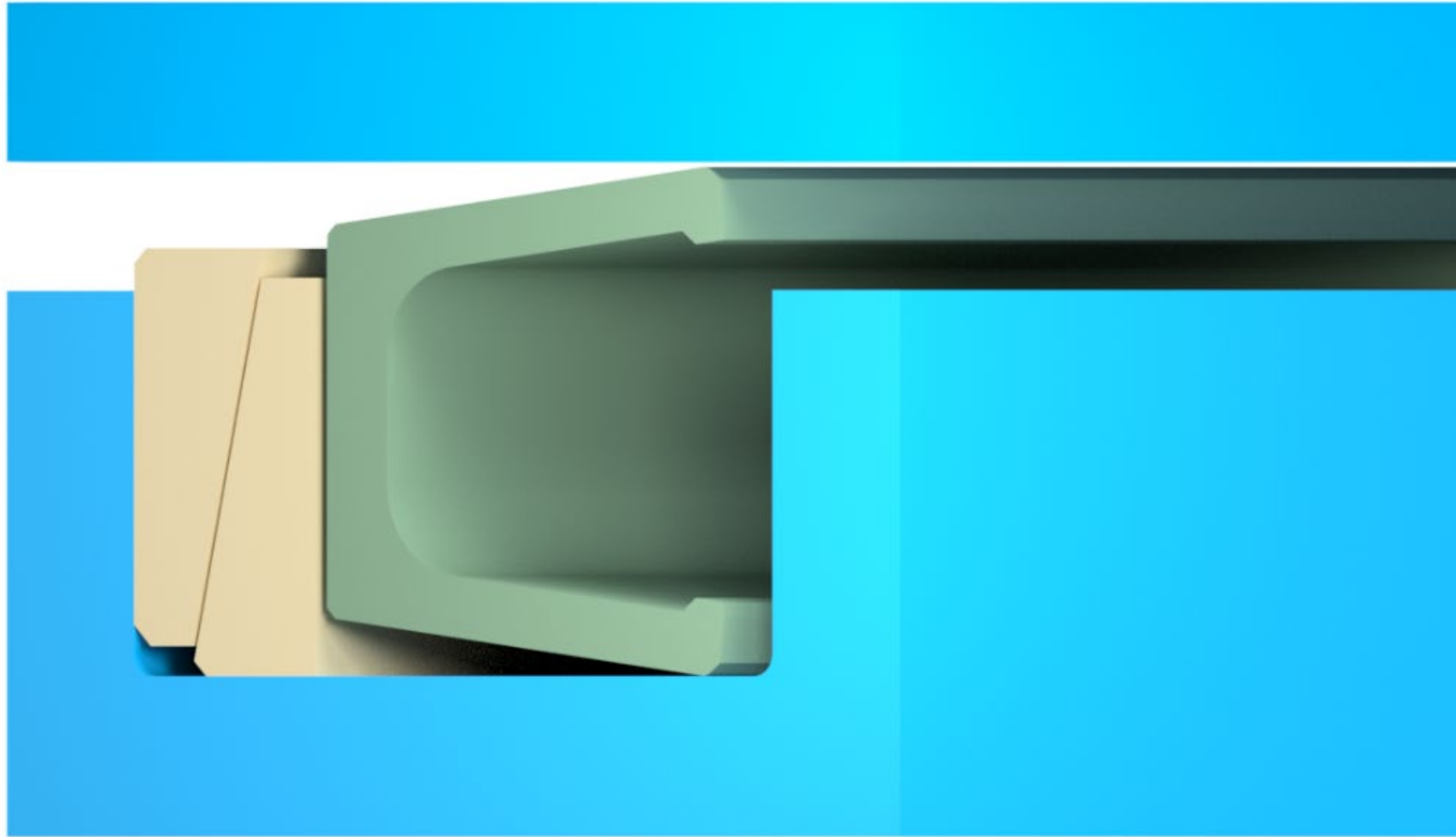


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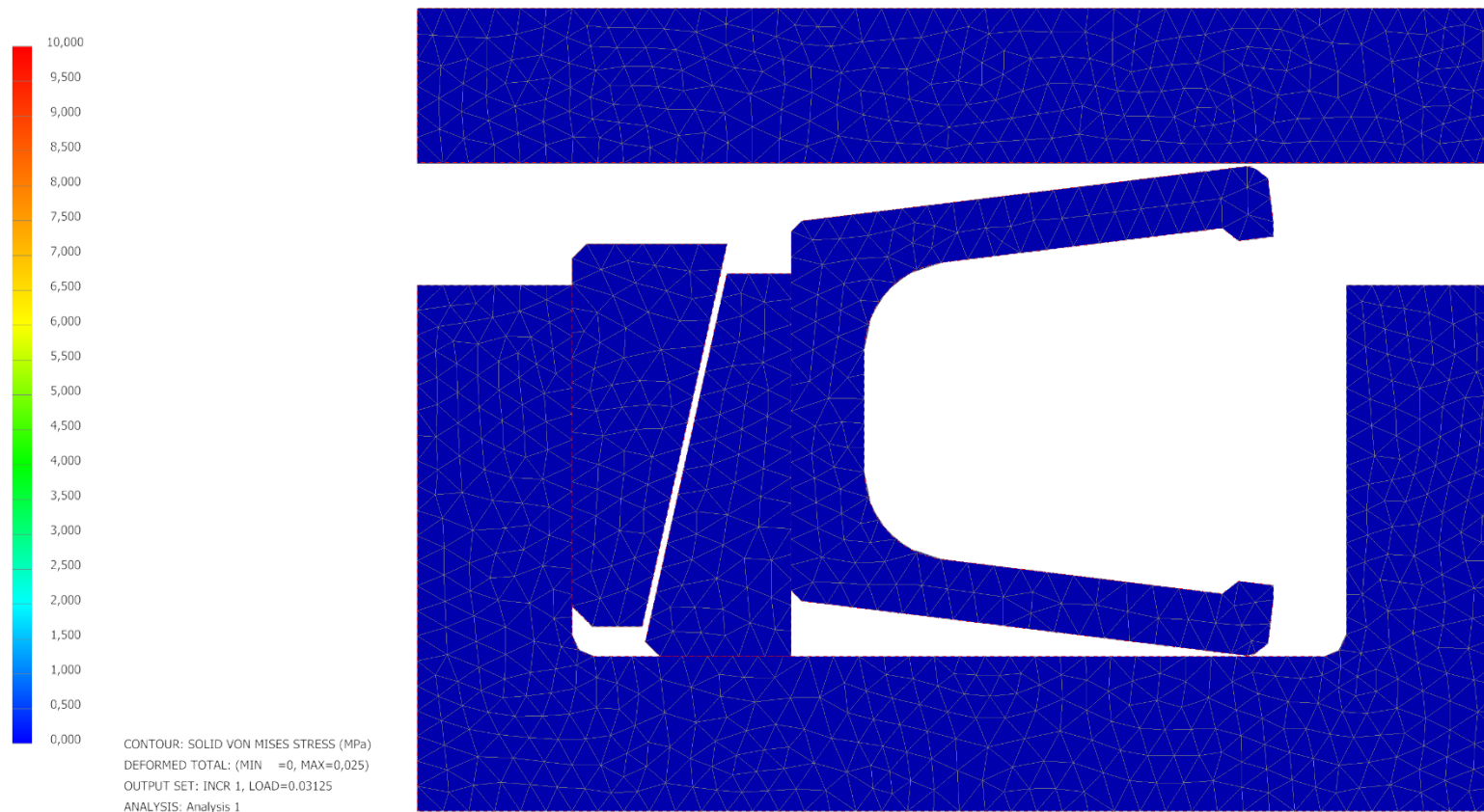
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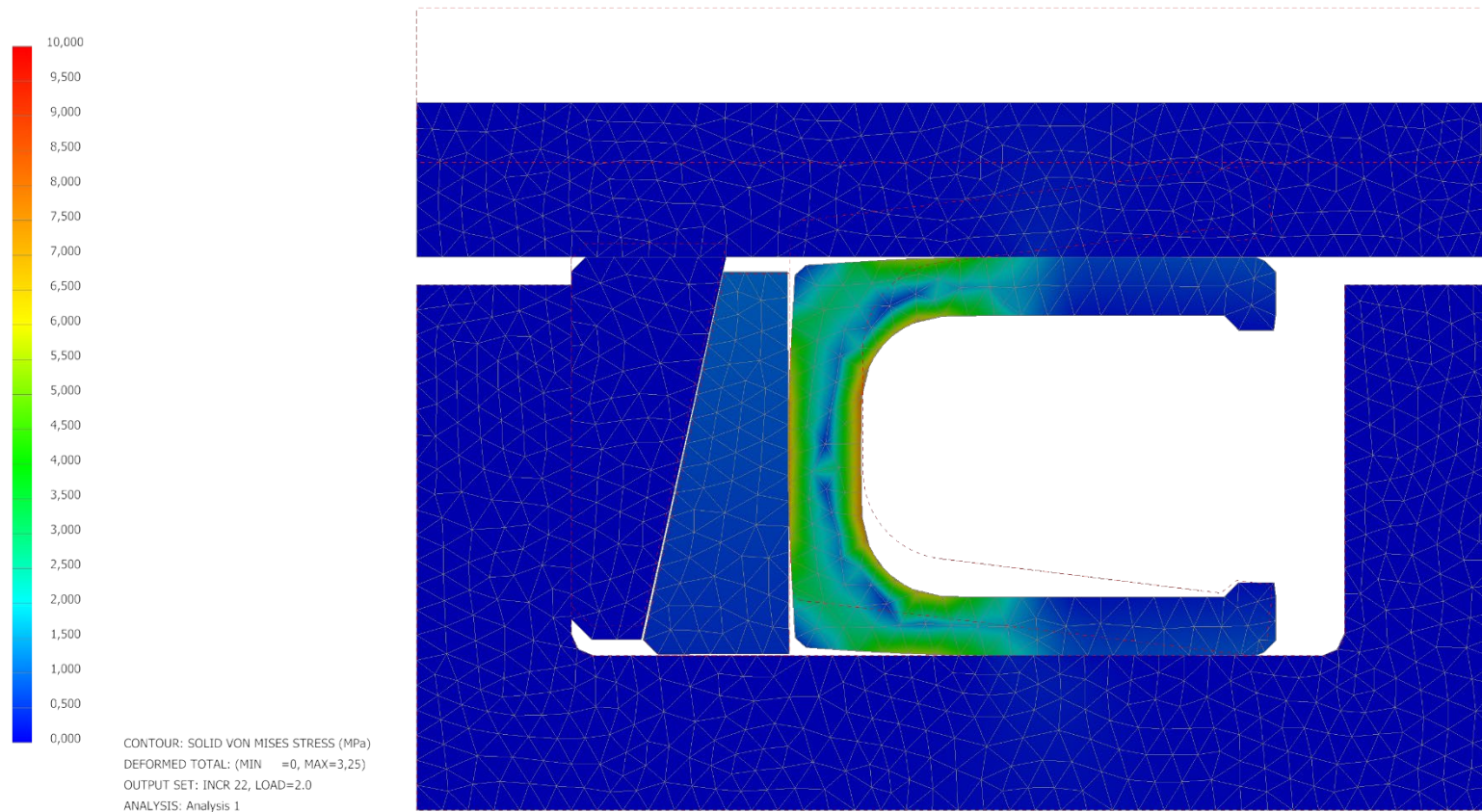
# PTFE Engineering A/S



# PTFE Engineering A/S

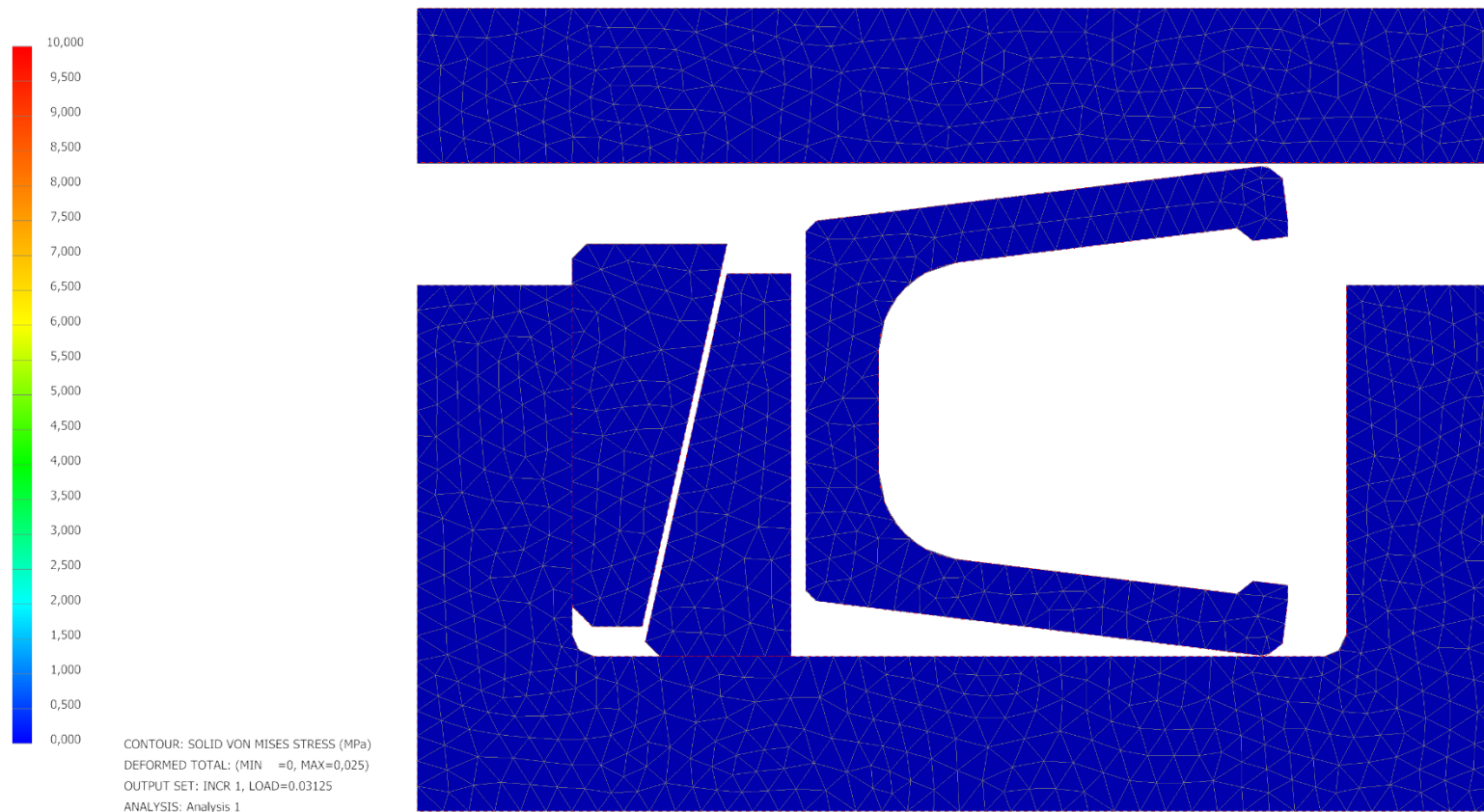


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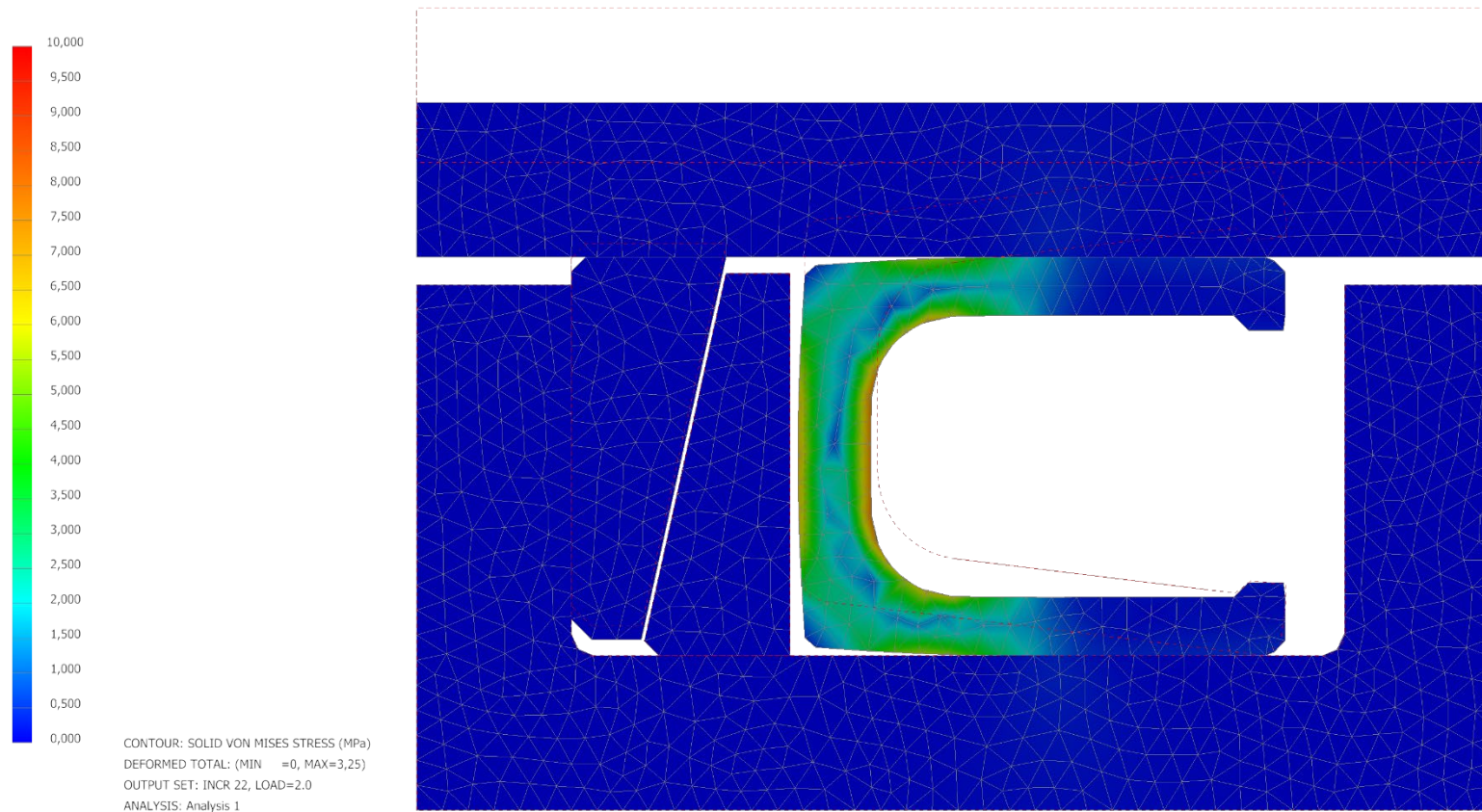




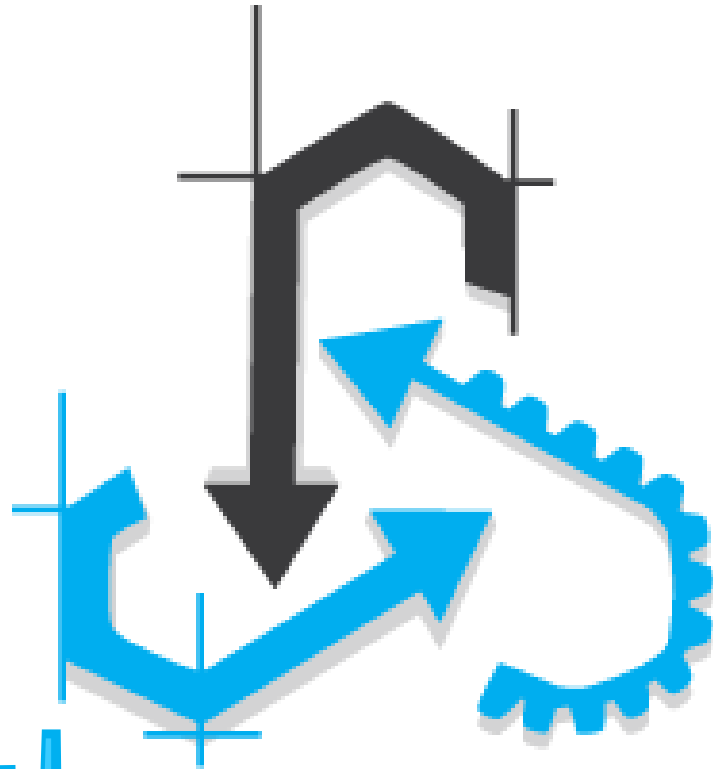
# PTFE Engineering A/S



# PTFE Engineering A/S



# Spørgsmål..??



# PTFE

## Engineering A/S

PTFE cutting edge technology



# SPOR 5

13:00 – 13:50

- *Af Arne Kjær*  
*CEO, PTFE Engineering*

*Oplev hvordan du udnytter Inventor Nastran til at vurdere forskellige materialevalg og effekten af forskellige designforslag. Der vil blive vist eksempler fra pneumatik- og hydraulikindustrien, hvor forskellige funktionsparametre simuleres ved at benytte forskellige funktioner, der er til rådighed i Inventor Nastran 2023. Du vil også få vist forskellige muligheder for at måle og benytte sig af data fra plastindustrien.*

