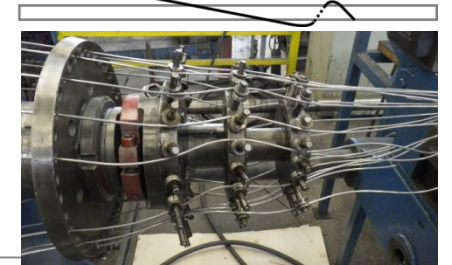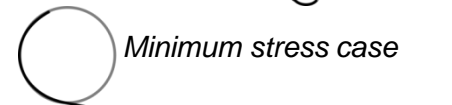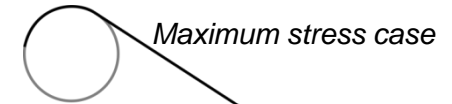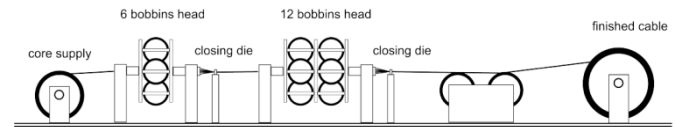# Conductor structural integrity
Non-linear 3D-FEM: Sag creep calculation

- **Prediction of creep extension**
  - *E-AlSiMg constitutive models from results of wire tests*
  - *assuming constant homogeneous temperature*
  - *with consideration of internal residual stress state generated during manufacture*
- **To underpin spreadsheet based sag calculation tool**

Maximum stress case

Minimum stress case

Time	Minimum stress case	Maximum stress case
After storage, before load		
t=0, load and temperature are applied		
t=20h		
t=3'000h		

S, S33
(Avg: 75%)
```
+4.305e+02
+3.000e+02
+2.500e+02
+2.000e+02
+1.500e+02
+1.000e+02
+5.000e+01
+0.000e+00
-5.000e+01
-1.000e+02
-1.500e+02
-2.000e+02
-2.500e+02
-3.000e+02
```


80°C, 50MPa

— Minimum stress case
— Maximum stress case
— Measurement

CREEP STRAIN, %

TIME, h

Empa
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