

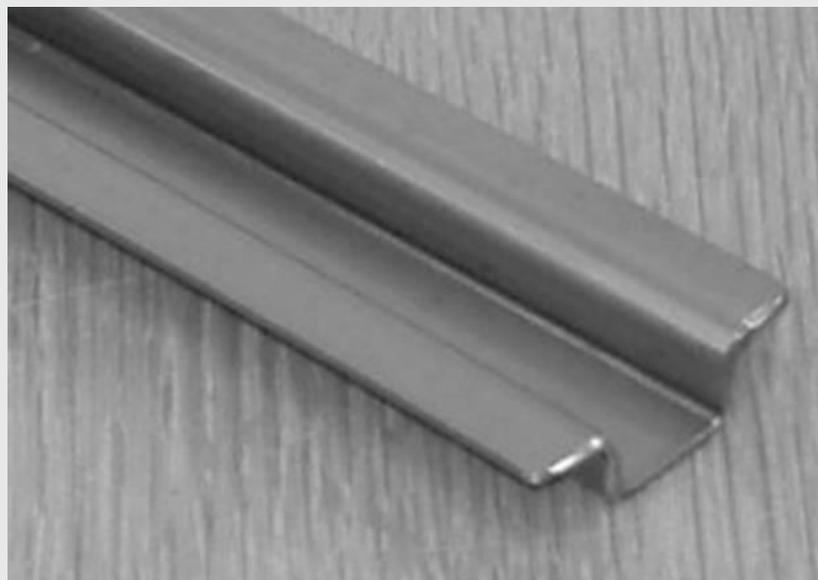
Roll Forming of Ultra High strength steel

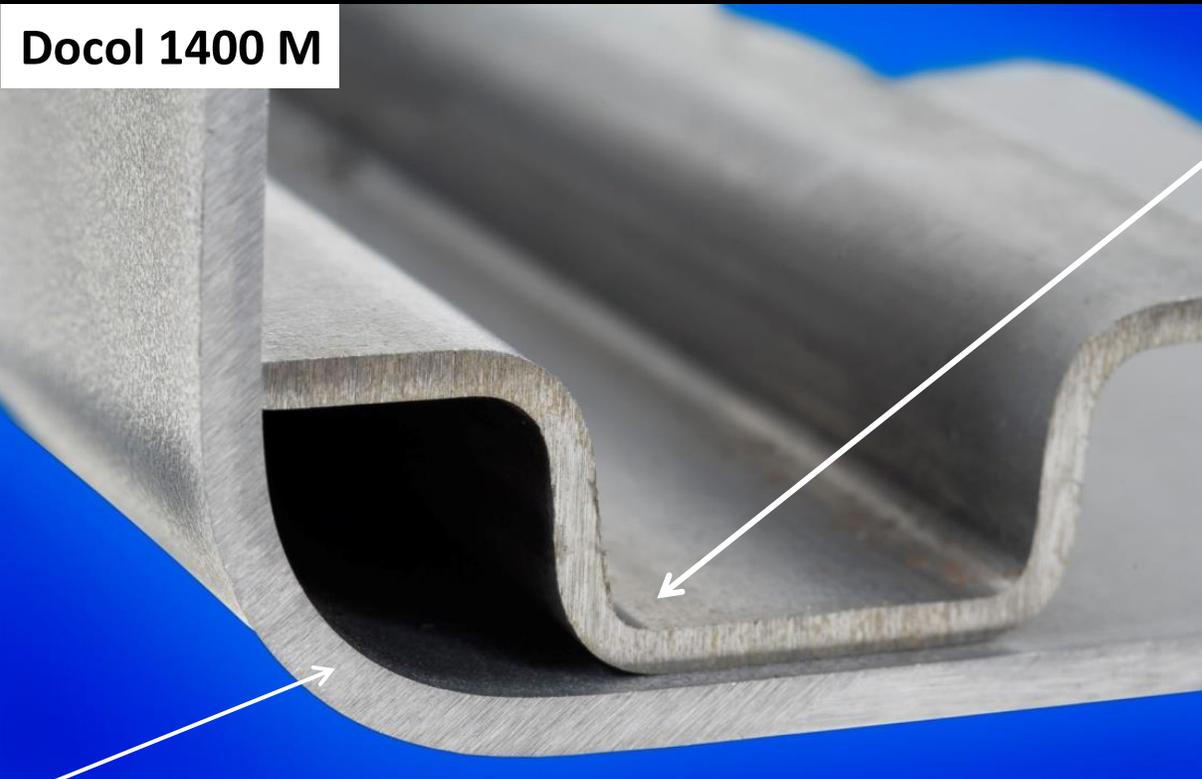
Gustav Olsson





SWEDISH
STEEL PRIZE





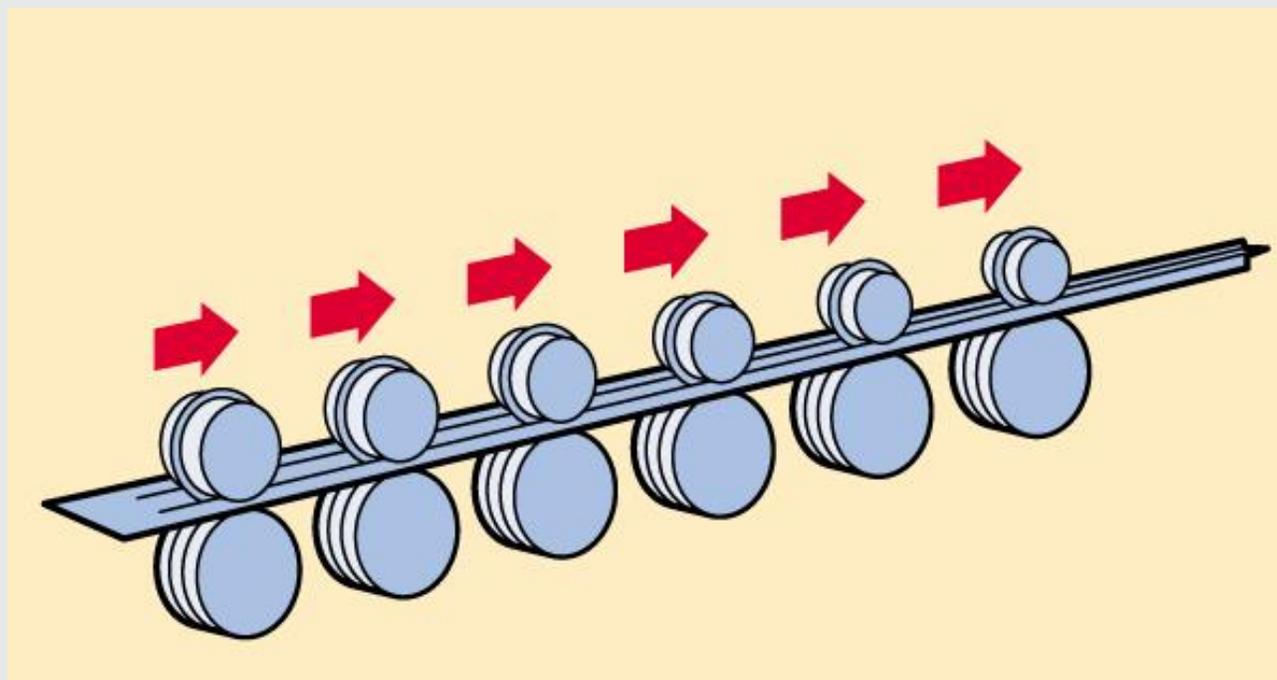
Docol 1400 M

INNER RADIUS
OBTAINED
IN ROLL FORMING

MINIMUM INNER RADIUS
IN BENDING 4XT



SWEDISH
STEEL PRIZE





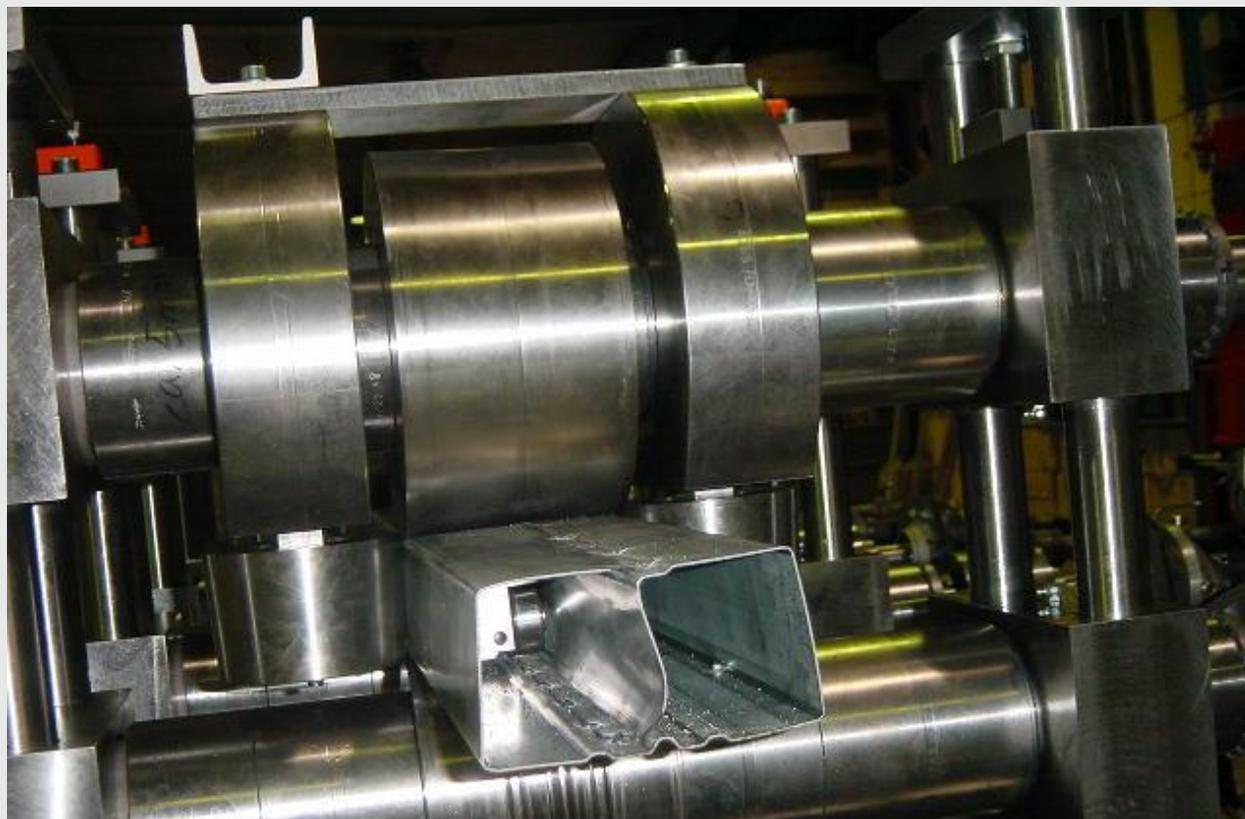
SWEDISH
STEEL PRIZE

Cost

Part

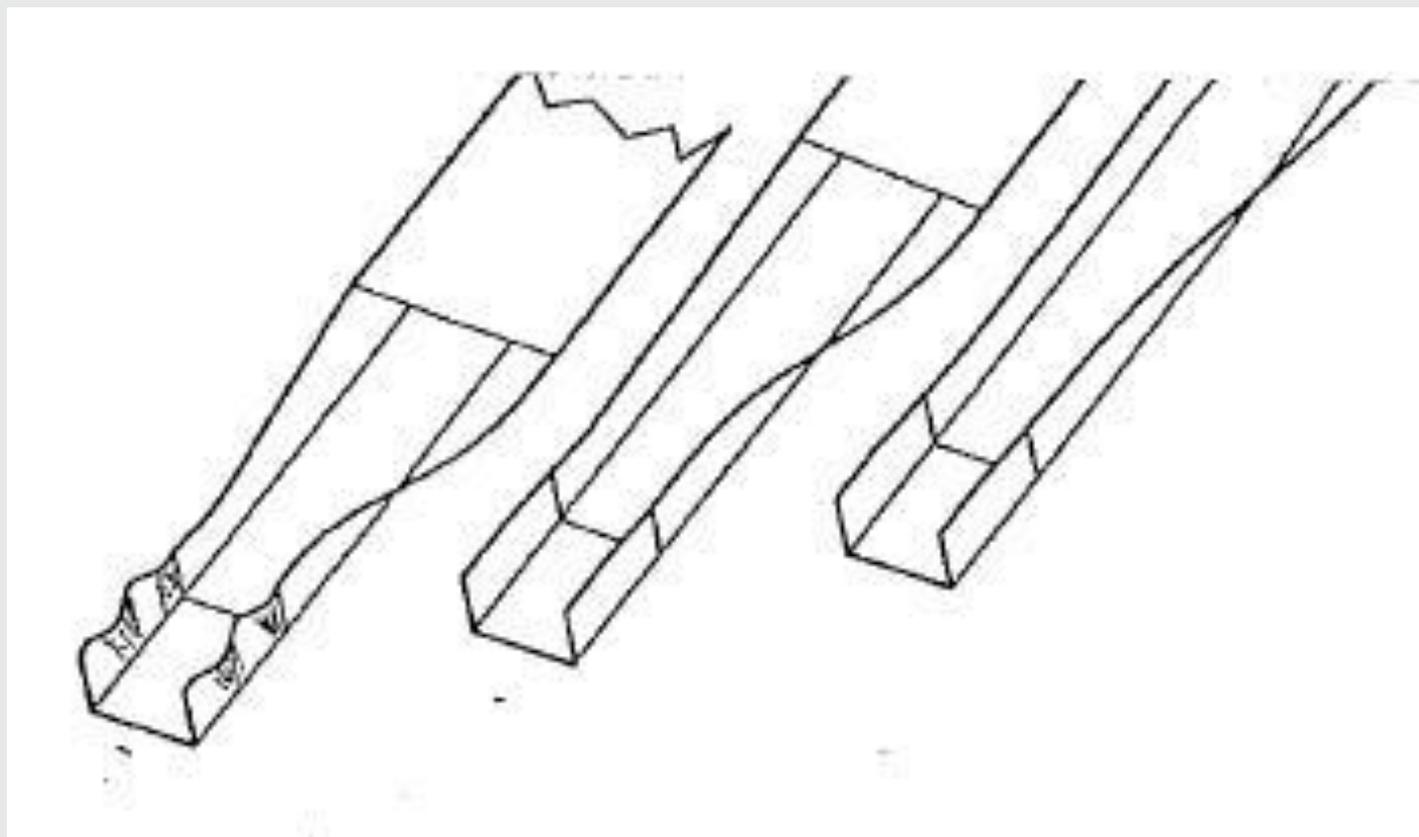


SWEDISH
STEEL PRIZE



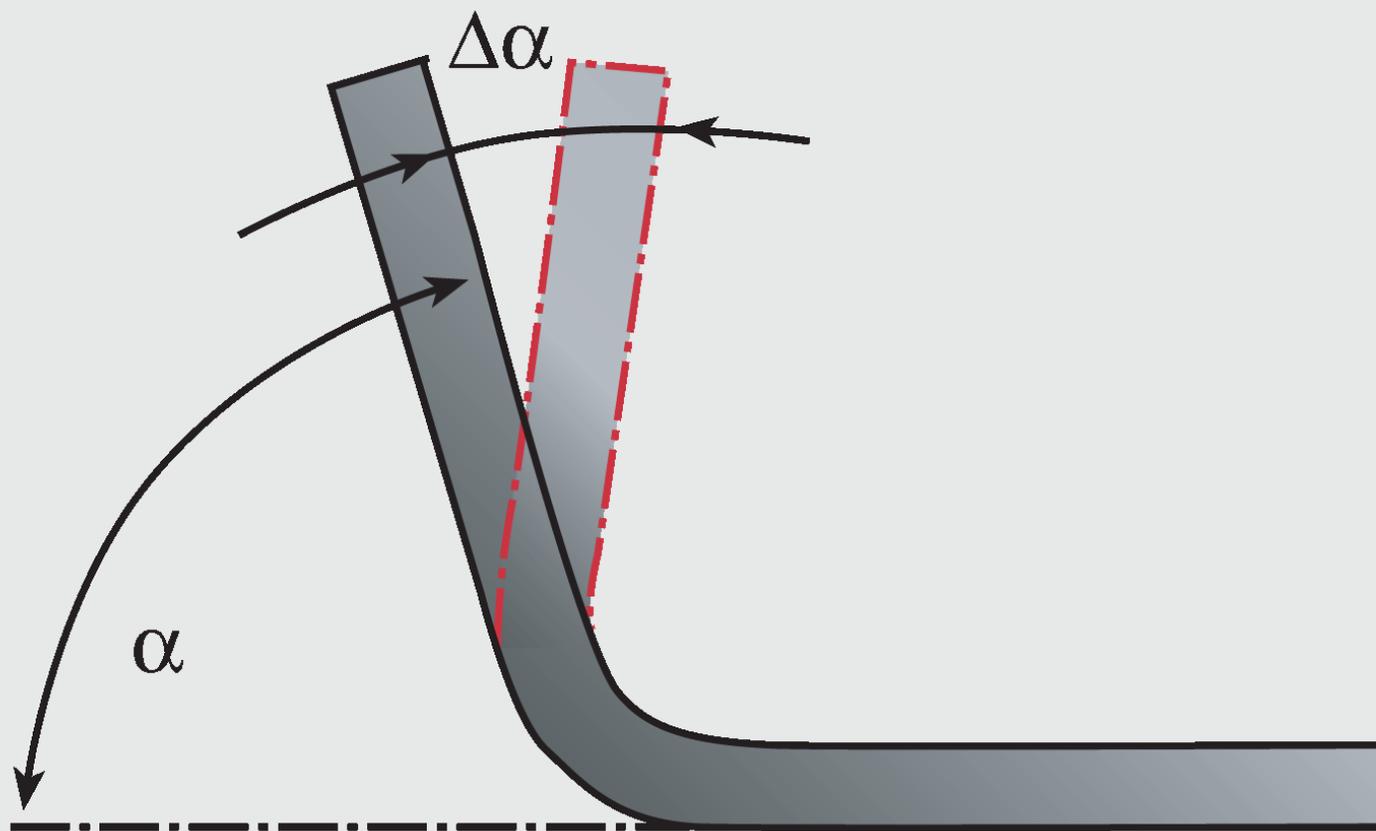


SWEDISH
STEEL PRIZE



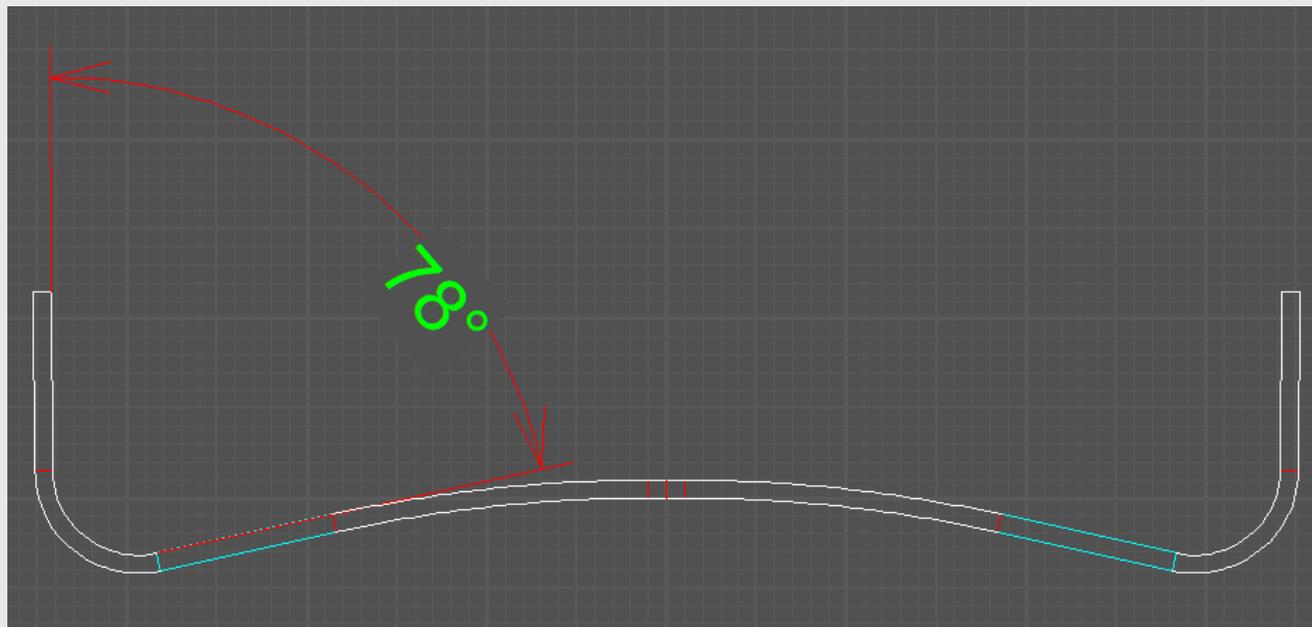
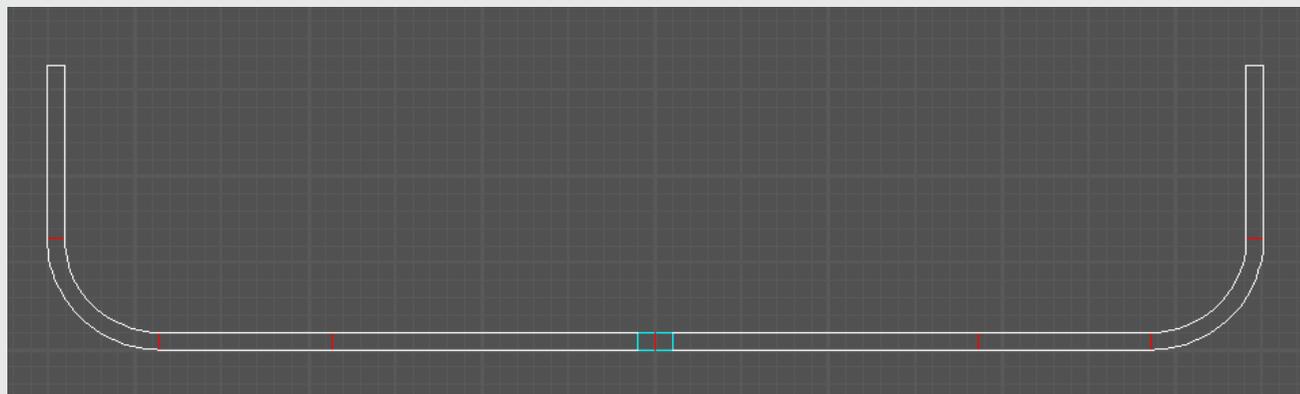


SWEDISH
STEEL PRIZE



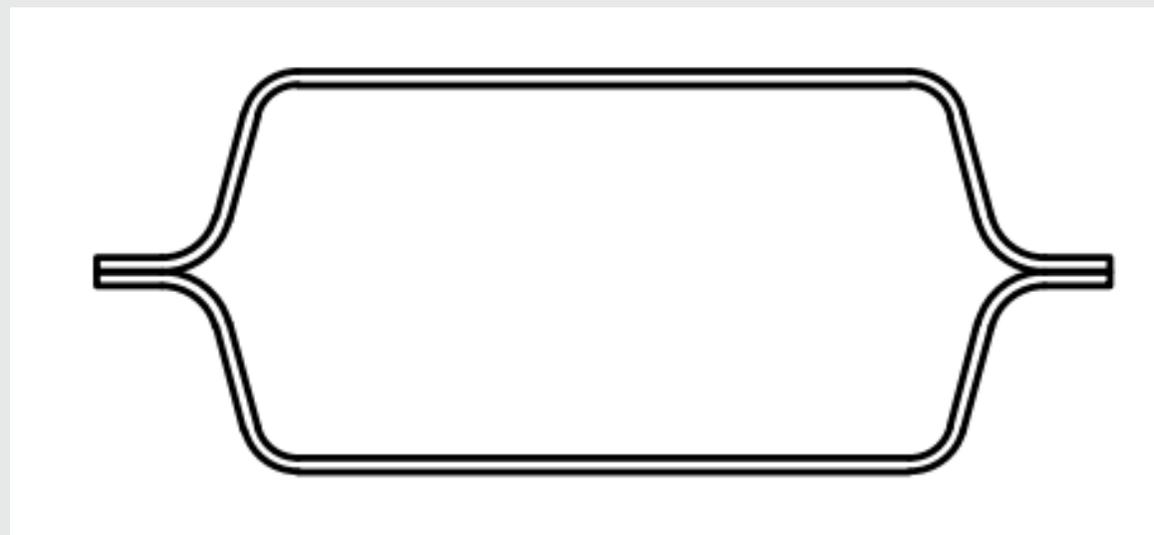
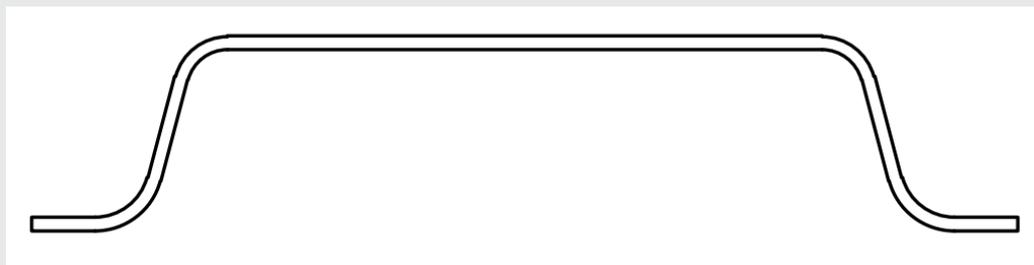


SWEDISH
STEEL PRIZE





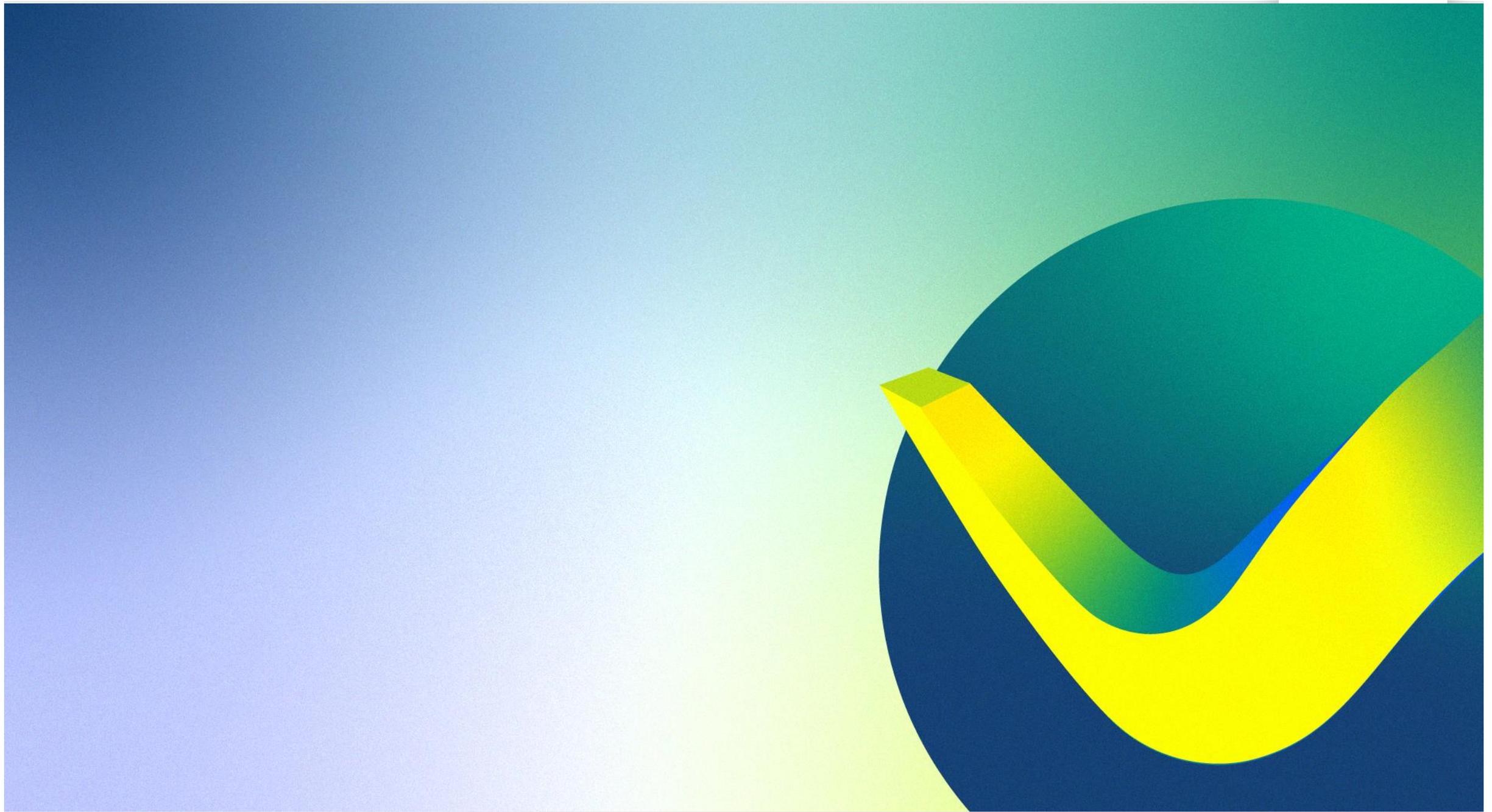
SWEDISH
STEEL PRIZE





SWEDISH
STEEL PRIZE

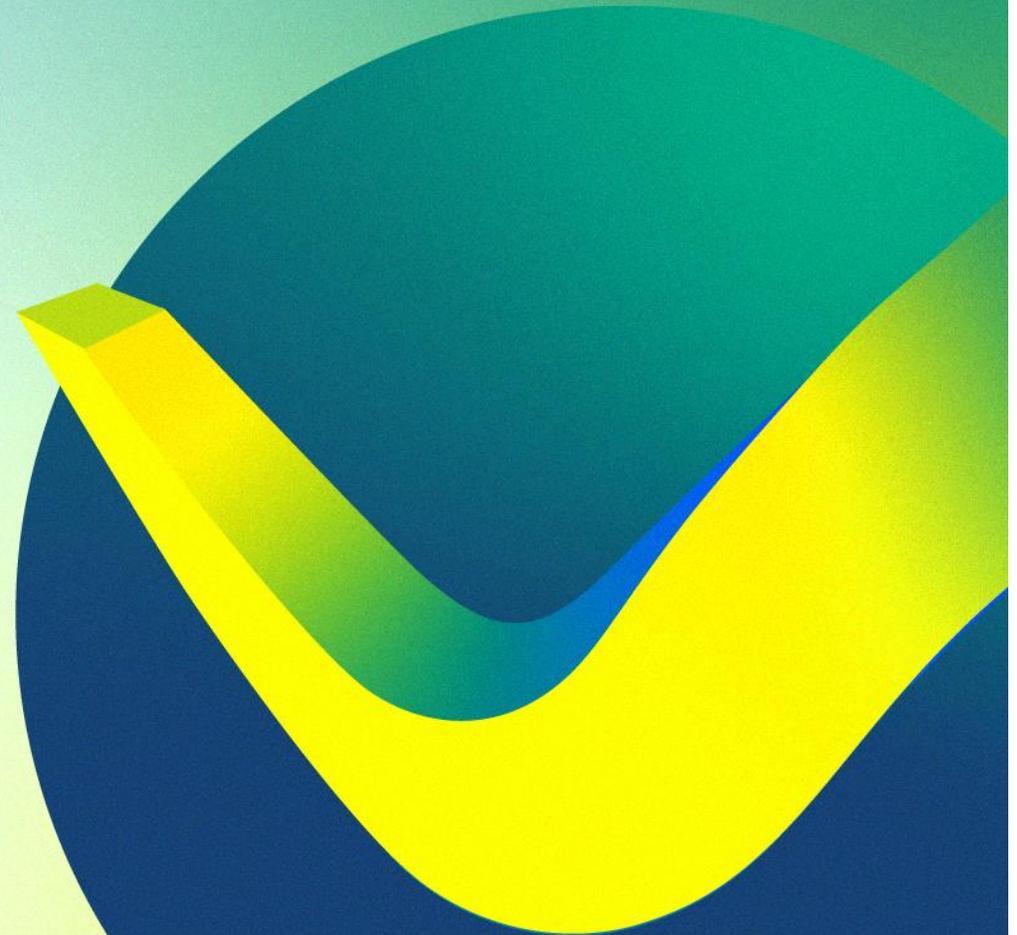


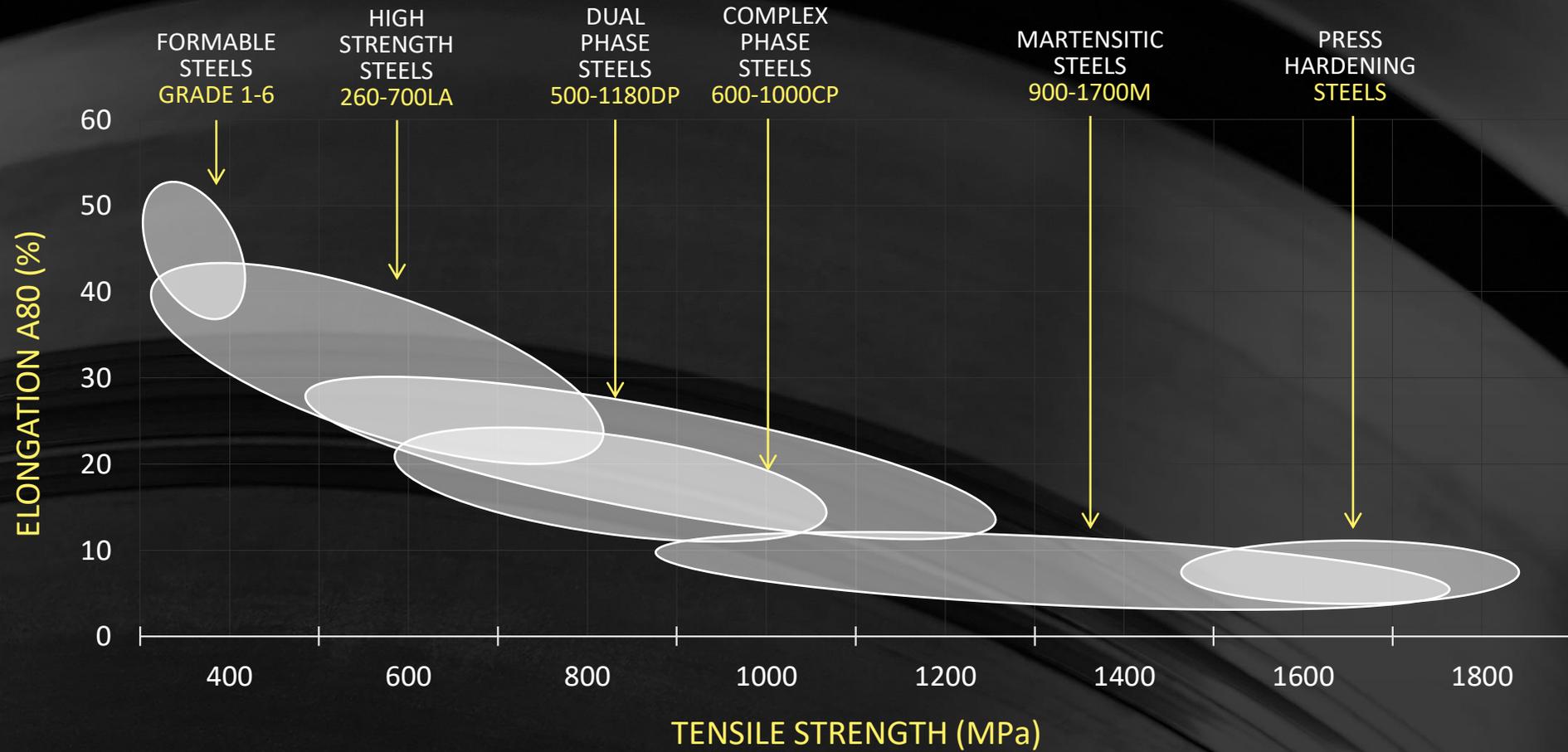


Stamping of HR1000CP

Peter Alm

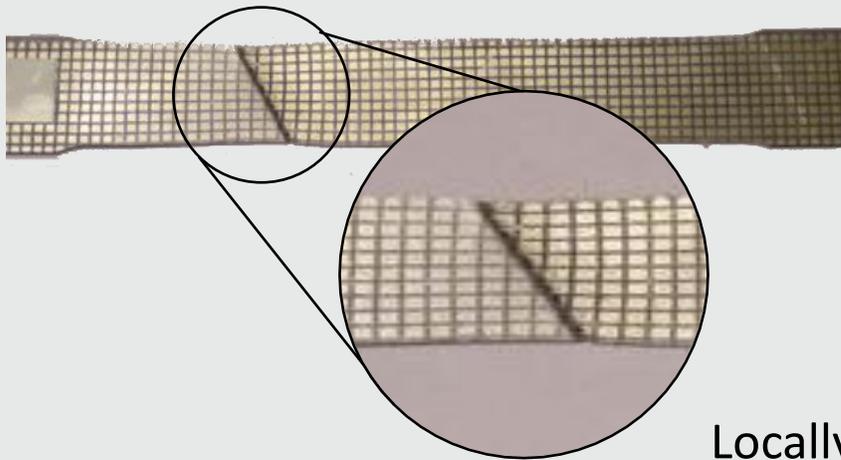
Knowledge Service Center





TENSILE TEST

Measuring Length original tensile specimen 80mm
After tensile test 88mm → Elongation A_{80} 10%

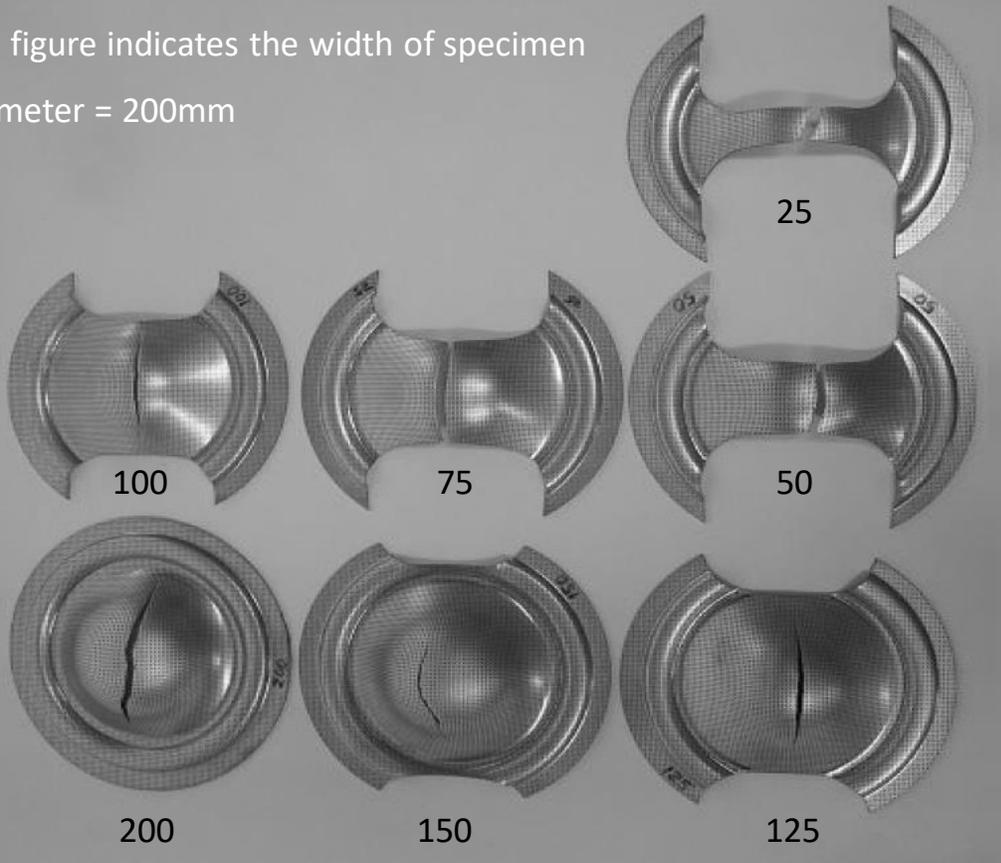


SWEDISH
STEEL PRIZE



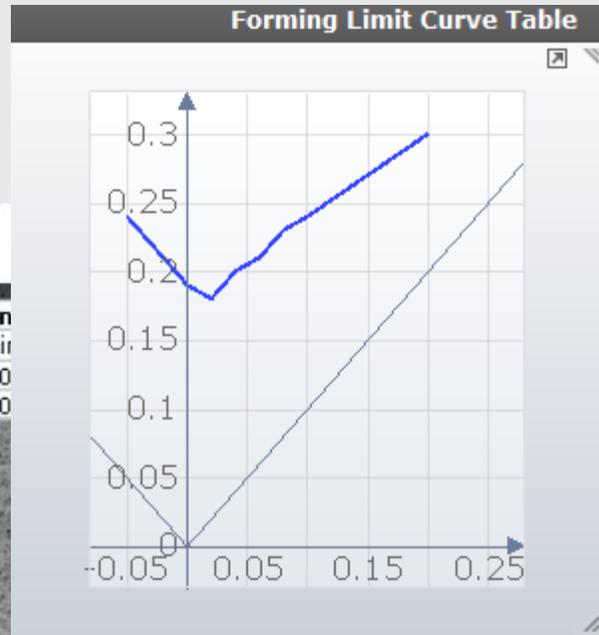
FORMING LIMIT CURVE

The figure indicates the width of specimen
Diameter = 200mm



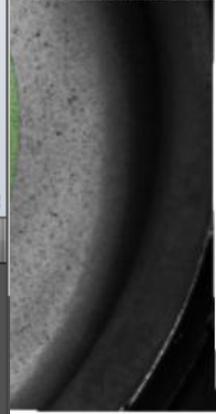
SWEDISH
STEEL PRIZE

Surface compon	
eps1Value	Nomin
eps2Value	+0.0
	+0.0



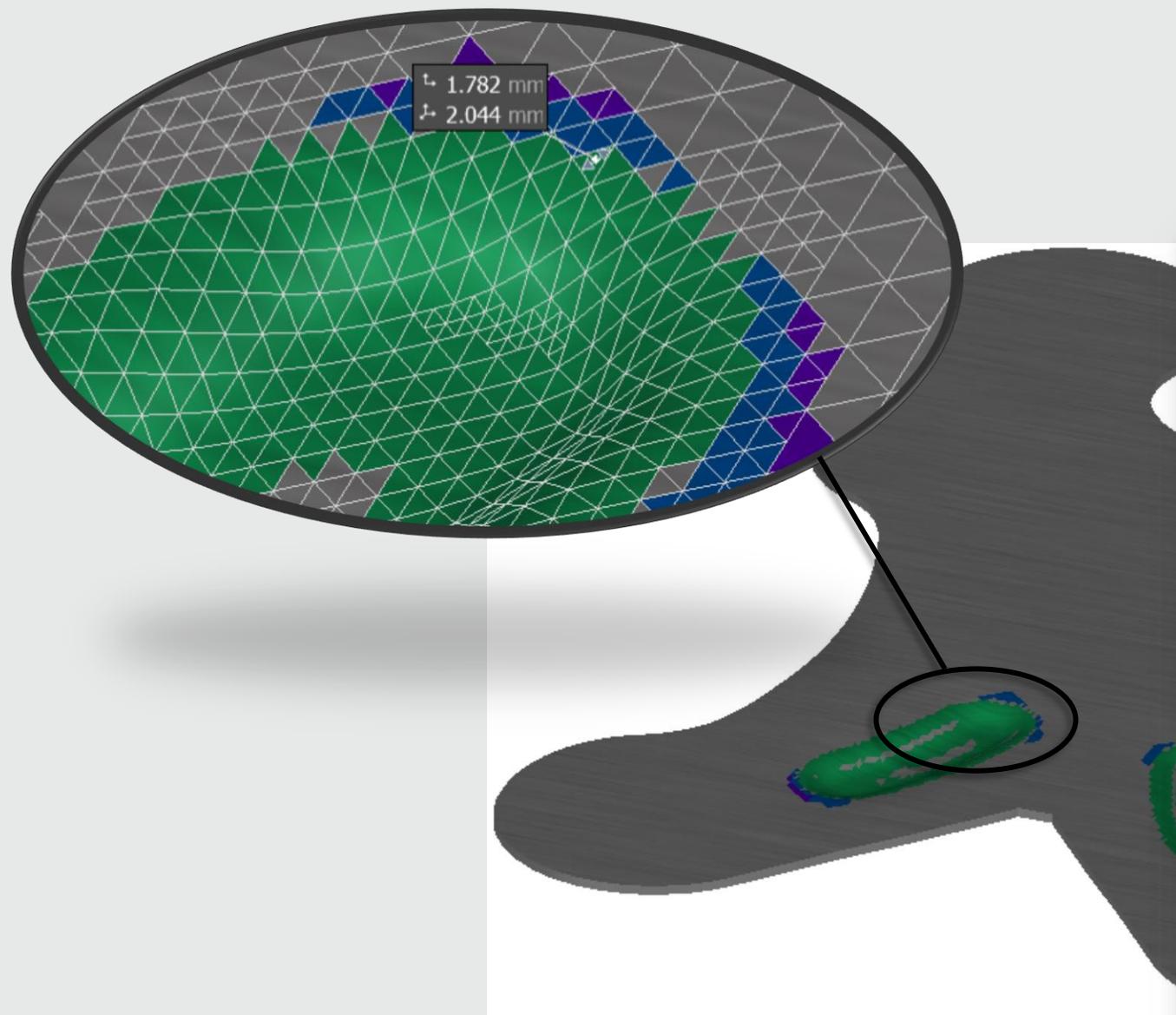
Minor Strain	Major Strain
-0.0500	0.2400
0.0000	0.1900
0.0200	0.1800
0.0400	0.2000
0.0600	0.2100
0.0800	0.2300
0.1000	0.2400
0.1500	0.2700
0.2000	0.3000

neck
(necking zone.eps1Value)
(necking zone.eps2Value)

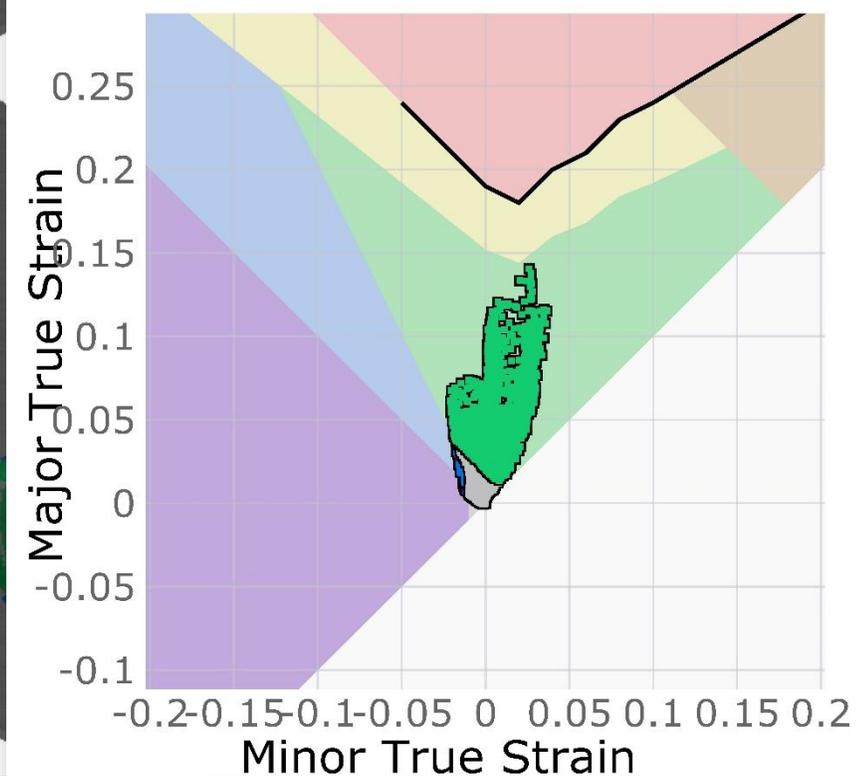




SWEDISH
STEEL PRIZE



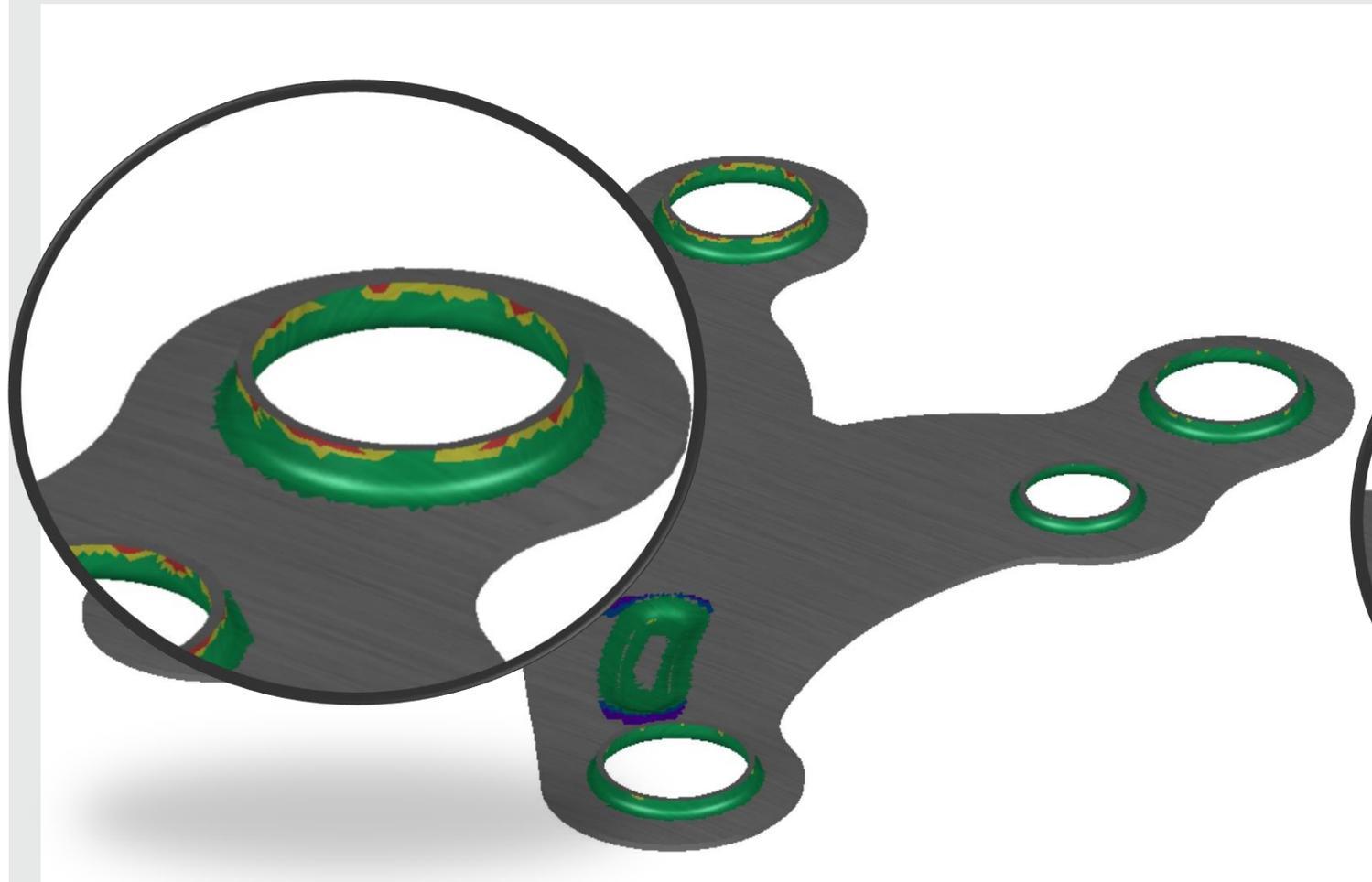
Advanced Forming Limit Diagram



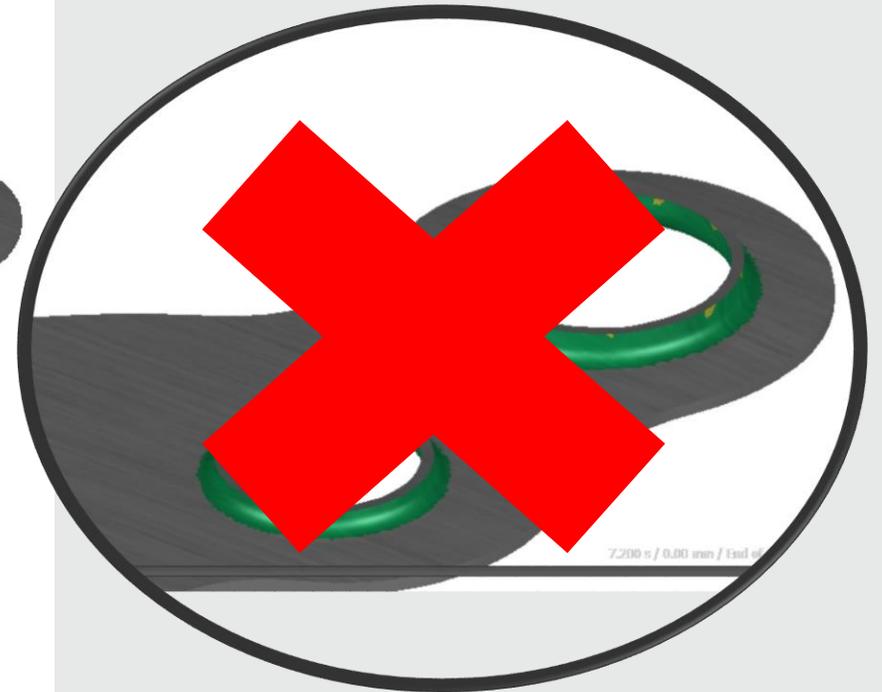
STRETCHED EDGES



SWEDISH
STEEL PRIZE



Reduce height



STRETCHED EDGES PRE-PIERCING



SWEDISH
STEEL PRIZE

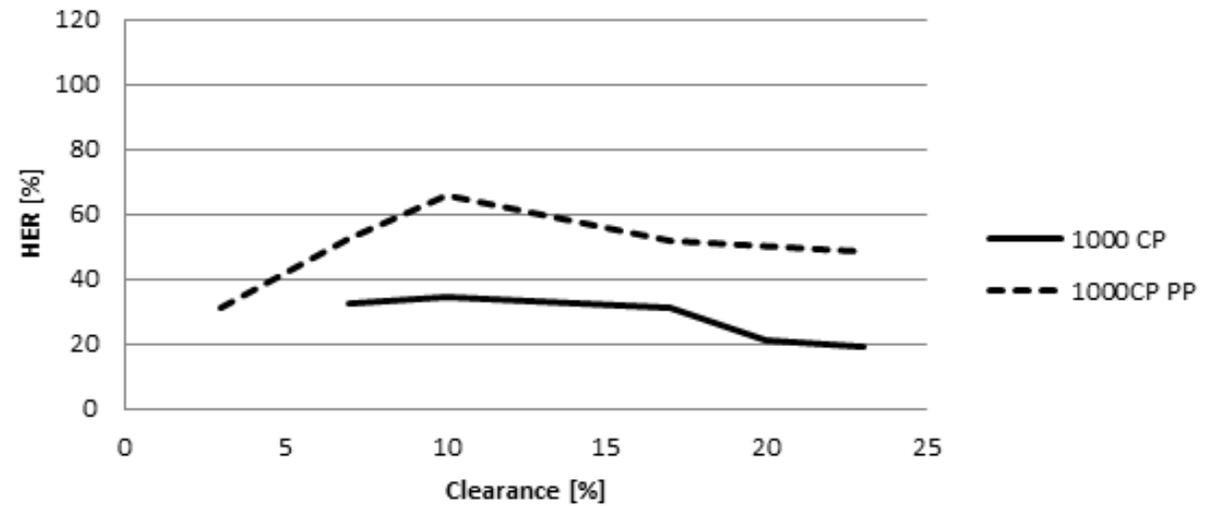
Punched



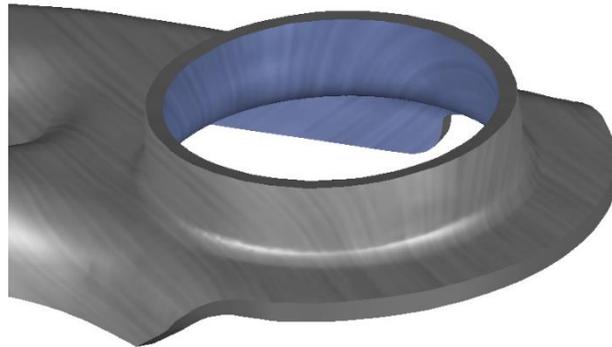
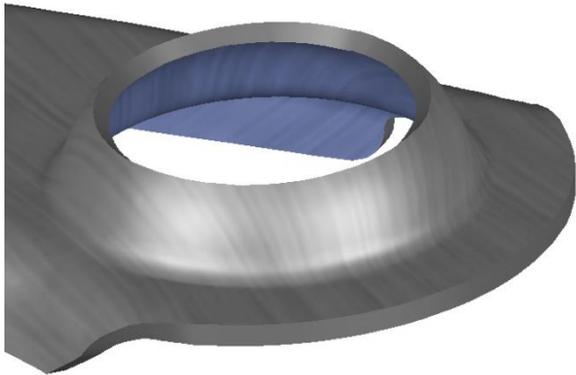
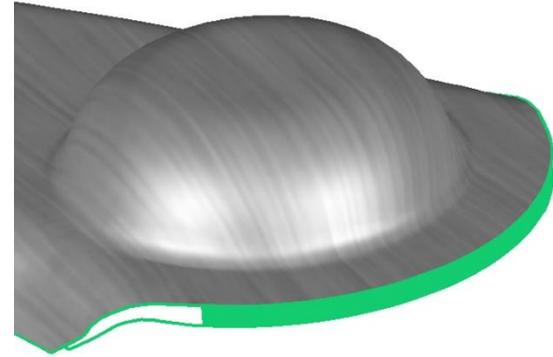
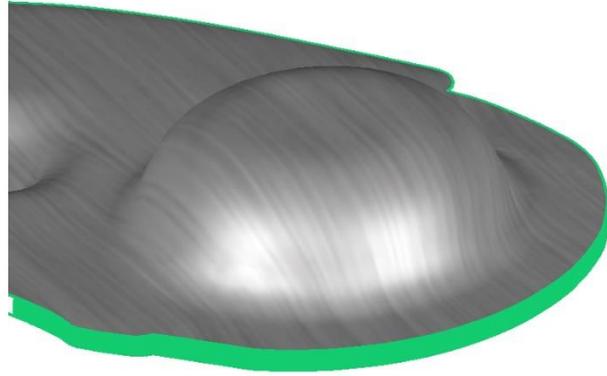
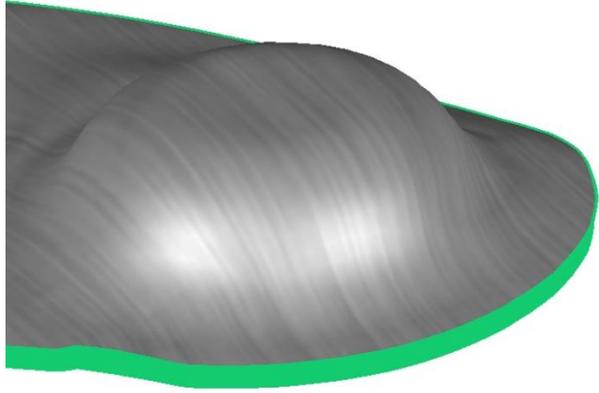
Pre-pierced



1000 CP



STRETCHED EDGES MULTISTEP



SWEDISH
STEEL PRIZE

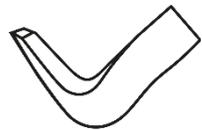
STRETCHED EDGES MULTISTEP



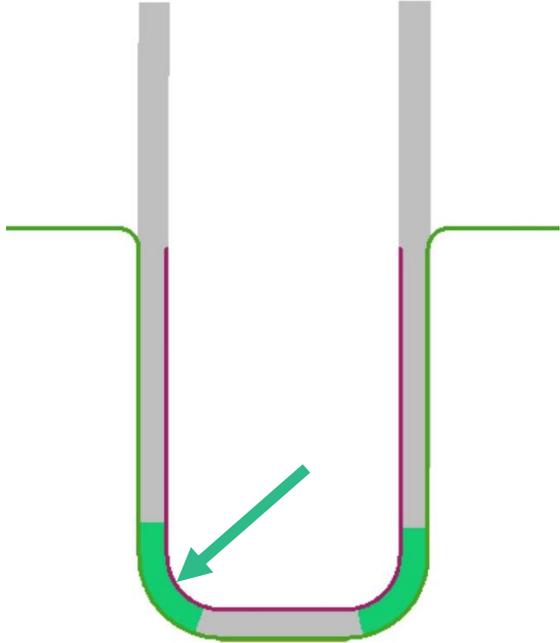
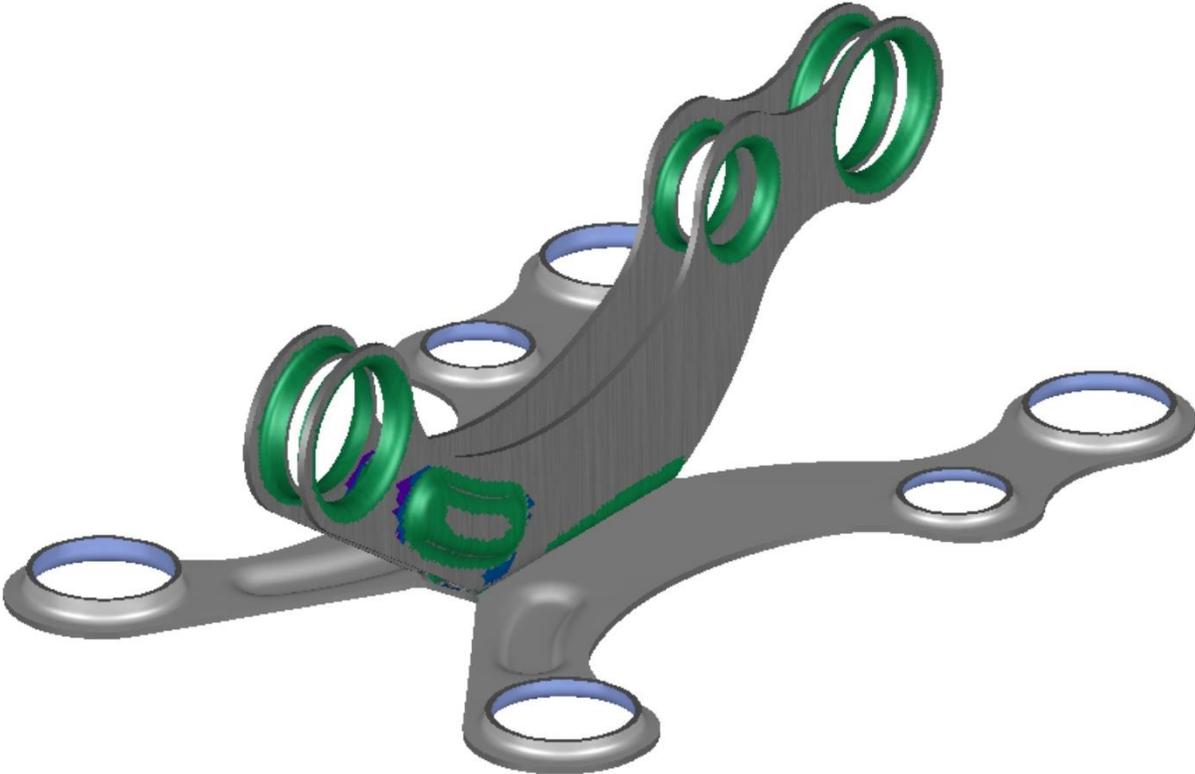
SWEDISH
STEEL PRIZE



BENDING



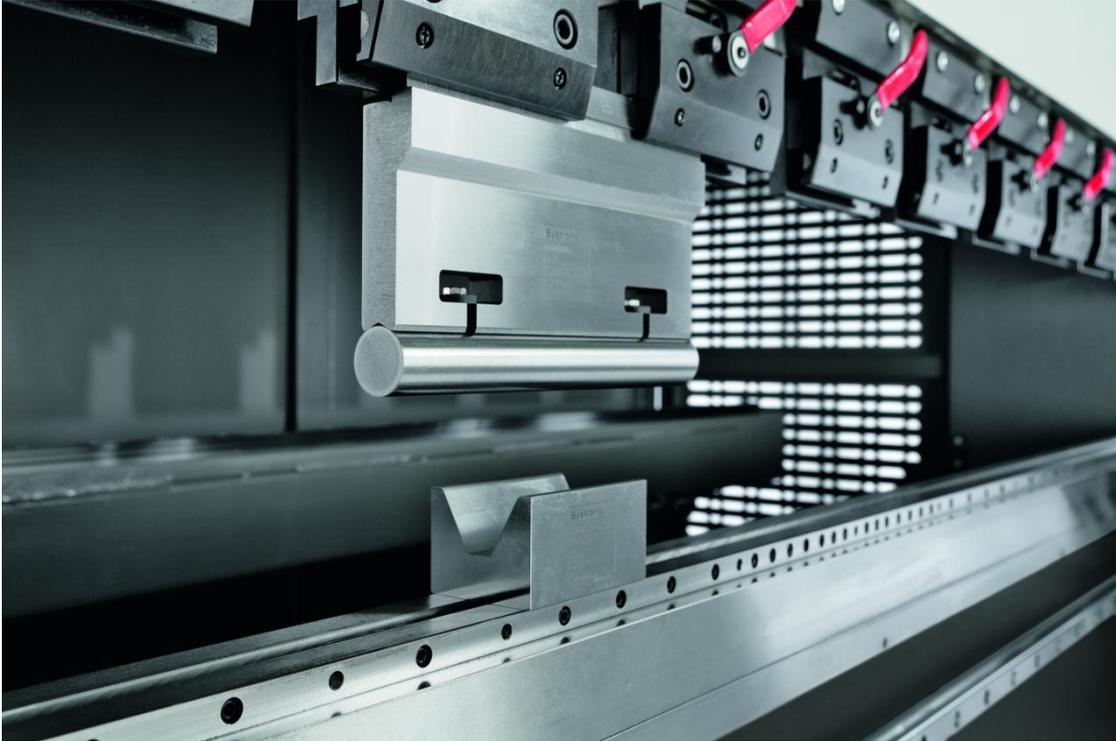
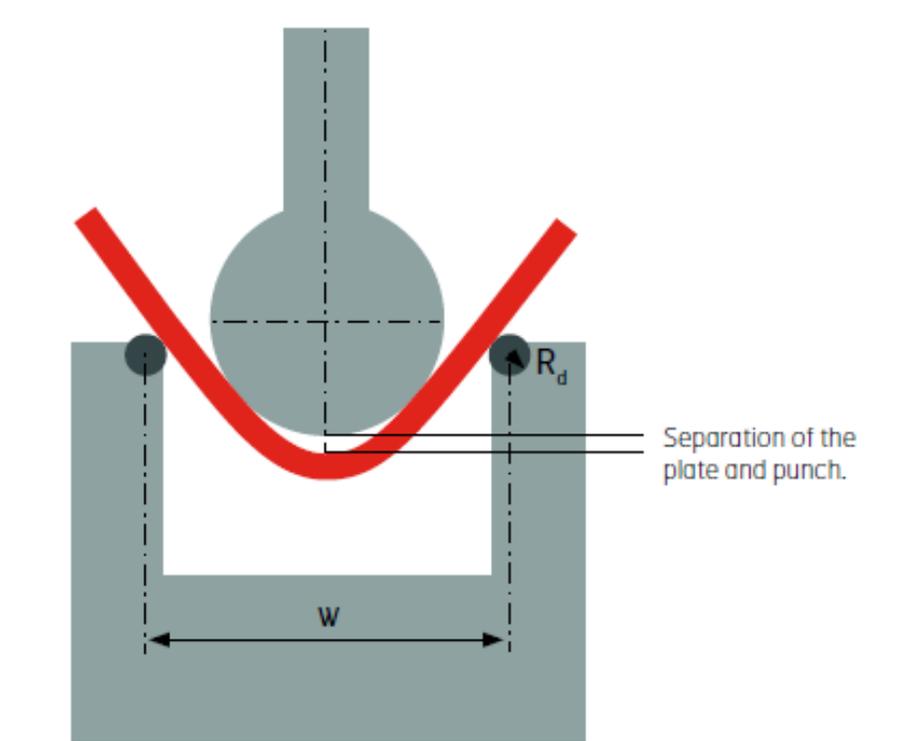
SWEDISH
STEEL PRIZE



BENDING TEST PRESSBRAKE



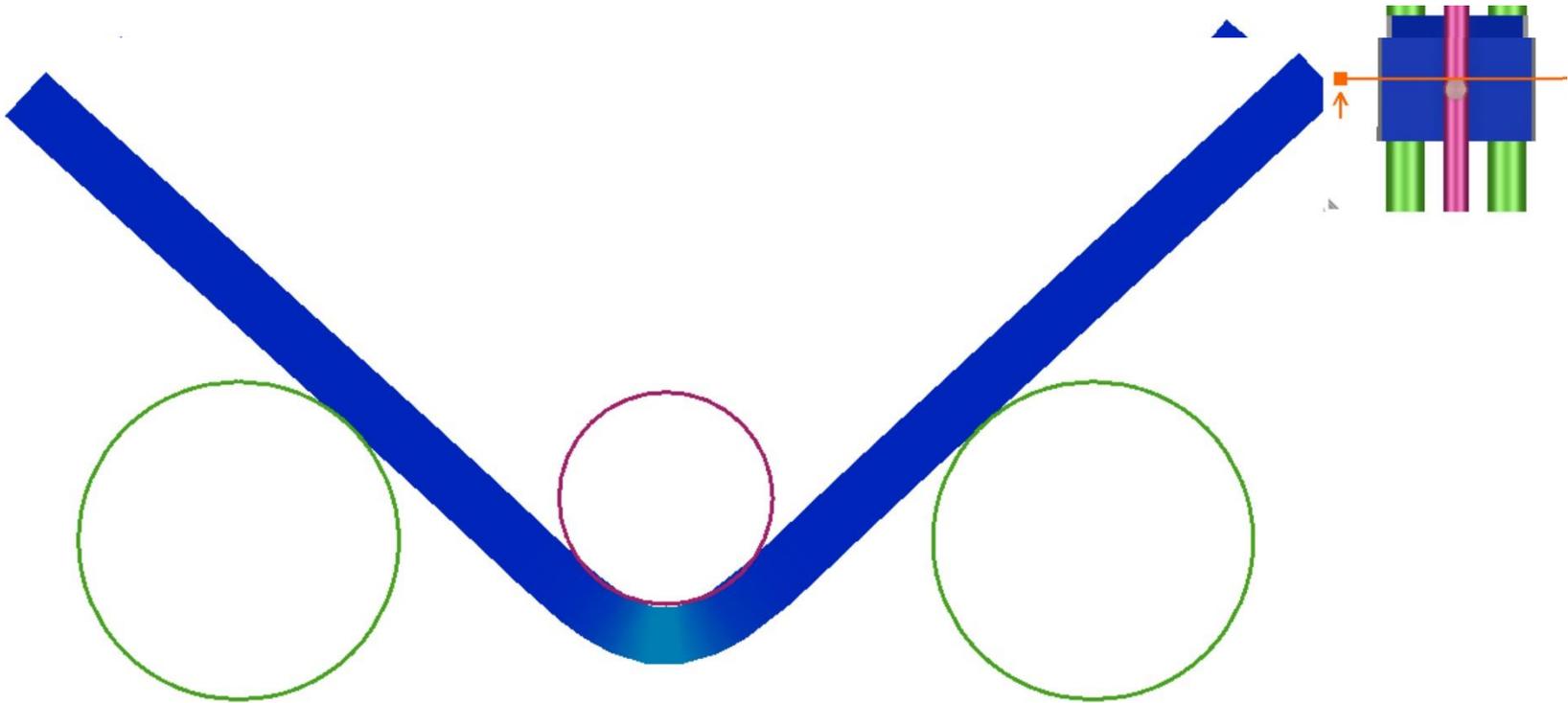
SWEDISH
STEEL PRIZE



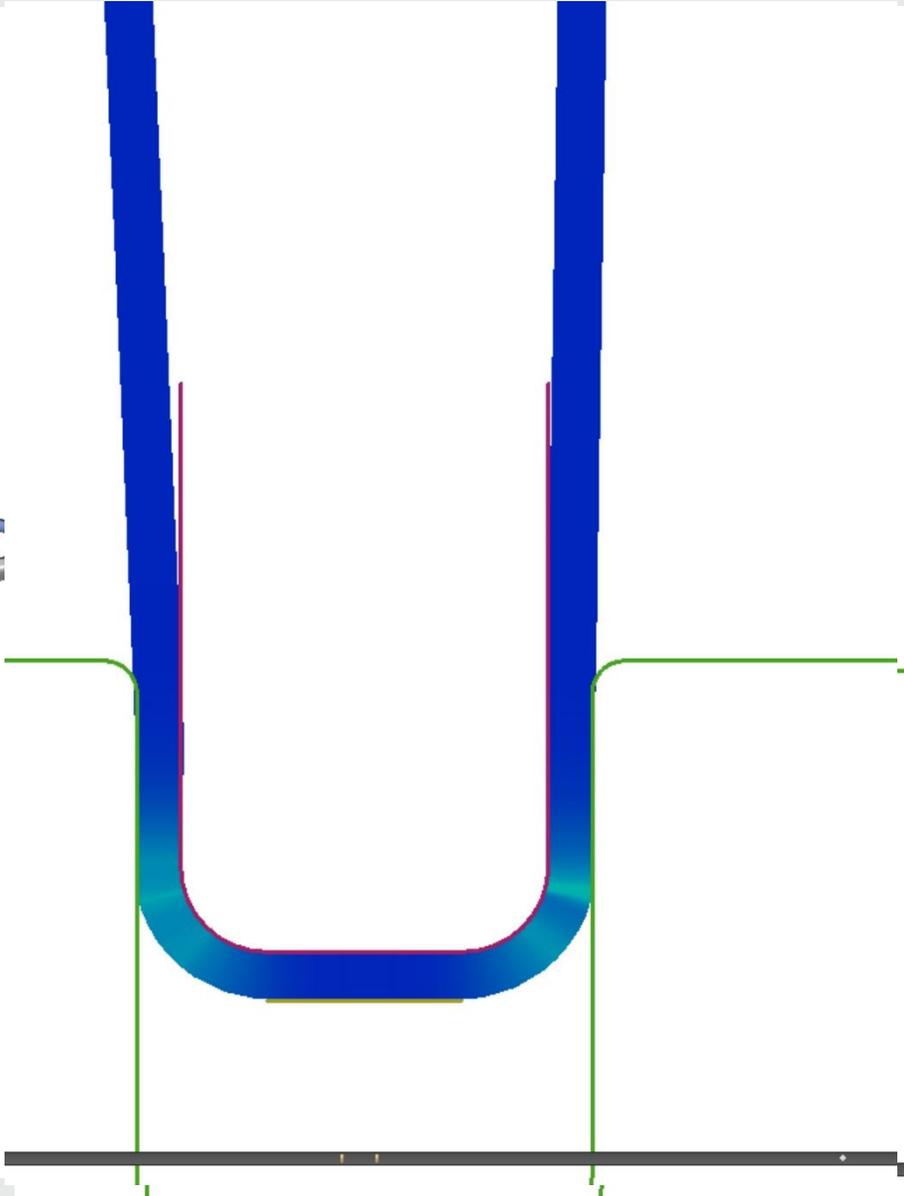
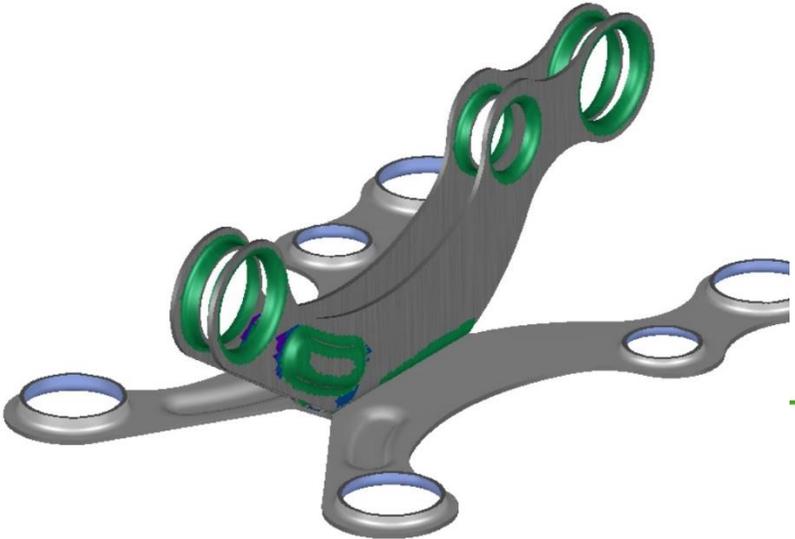
BENDING TEST PRESSBRAKE



SWEDISH
STEEL PRIZE



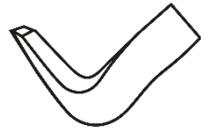
BENDING



SWEDISH
STEEL PRIZE

Conclusions

- Use forming limit curve not elongation.
- Stretch flanges with high deformation can be solved.
- Bending recommendations is conservative.
- We can help you to get out the full potential of the material.



SWEDISH
STEEL PRIZE

