



P.Za 16 marzo 1948 n° 2 - 10080 – BORGIALLO (TO)

Phone +39 0124 690011 – Mobile +39 392 1267718 – Fax. +39 0124 690011

e-mail : ***info@teknocam.com*** - ***commerciale@teknocam.com***

Web Site: ***www.teknocam.com***



Attività:

Nuova Teknocam nasce nel 1992 come studio di progettazione CAD e generazione precorsi utensile CAM in ambito automotive.

Nel corso degli anni, le competenze si sono evolute ed ora le principali attività consistono in:

- **FATTIBILITA', VALIDAZIONE FINALE, VIRTUAL TRY-OUT (Su tutto il ciclo, con verifica del particolare teorico finale su calibro e viziatura forme per recupero errore.)**
- **SIMULAZIONI DI GRAFFATURA**

Chi siamo:

La ditta è una società di professionisti, include n° 8 specialisti nel campo della lamiera ed altri lavoratori esterni.

Software utilizzati:

- **Cad 2D/3D, compensazione**
- **Solutore**



MORPHING: match of tolerances

Distance between objects (numerical)



Errors after springback with deformed shapes on gauge without clamps

MAX 6 mm

Errors after springback with non-deformed shapes on gauge without clamps

Blu teorical
Red deformed

MAX 1 mm

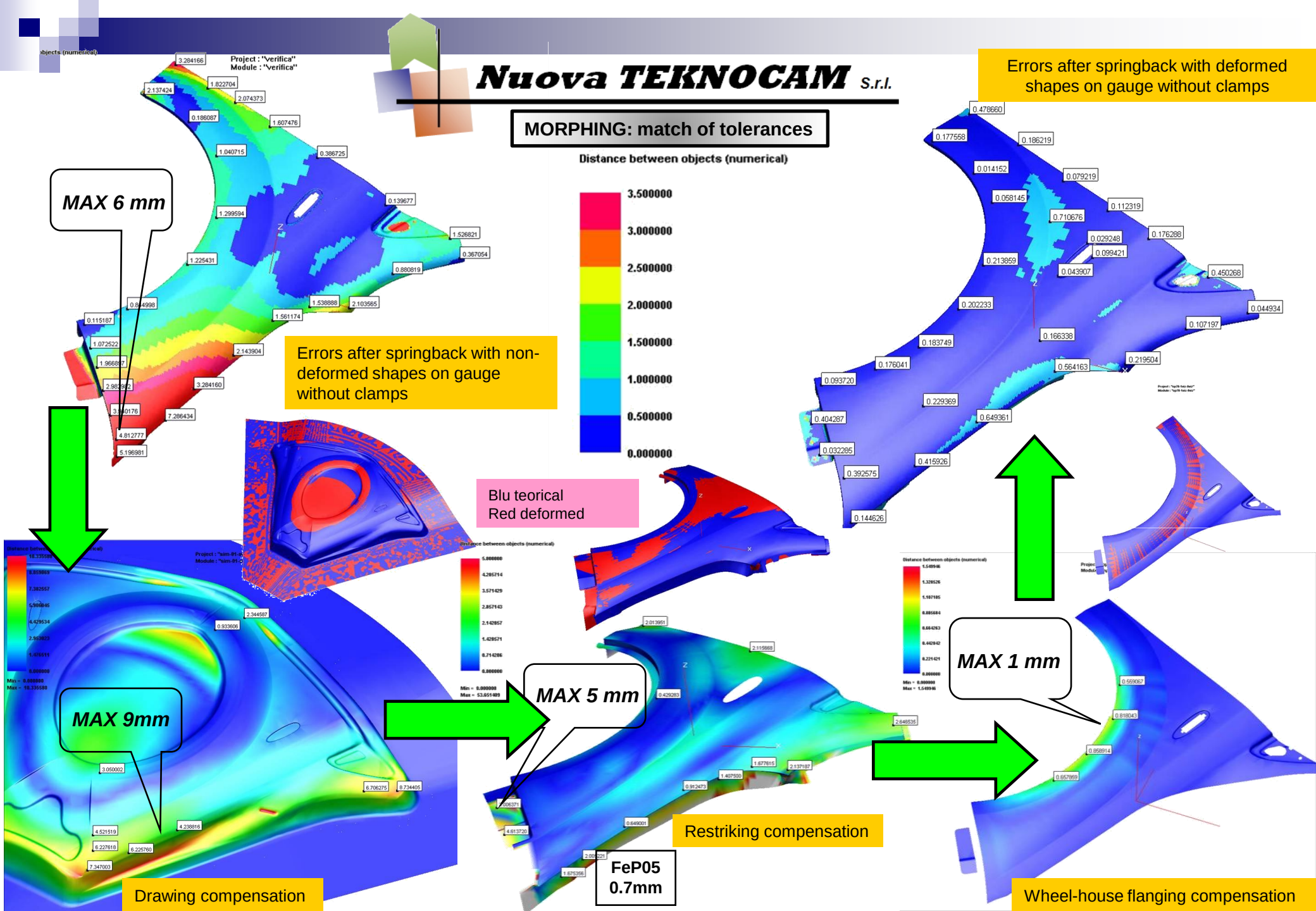
MAX 5 mm

Restriking compensation

FeP05
0.7mm

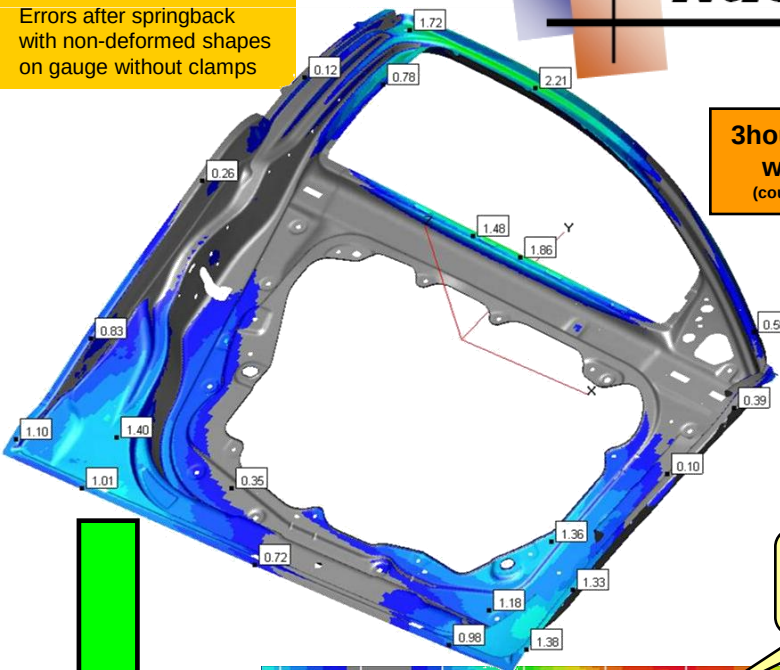
Wheel-house flanging compensation

Drawing compensation

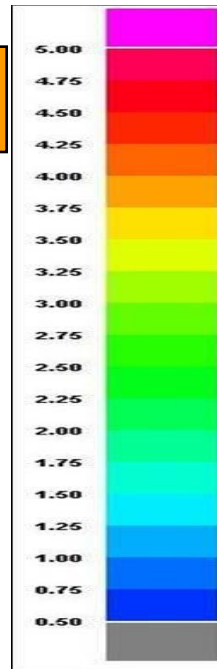


Nuova TEKNOCAM S.r.l.

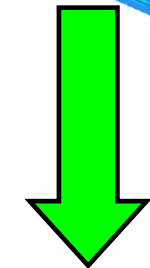
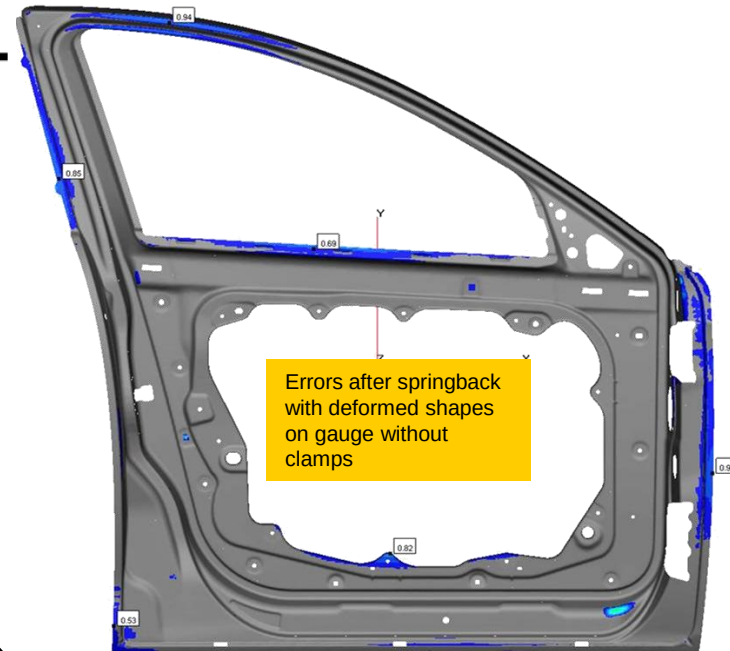
Errors after springback
with non-deformed shapes
on gauge without clamps



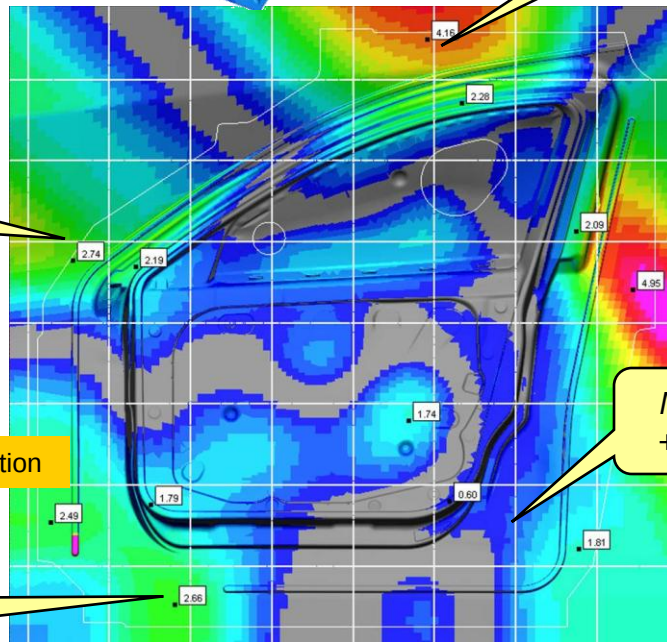
3hours under press
without cracks
(coupling blank holder-die)



Errors after springback
with deformed shapes
on gauge without
clamps



Max
+2.5

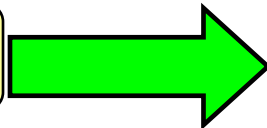


Drawing compensation

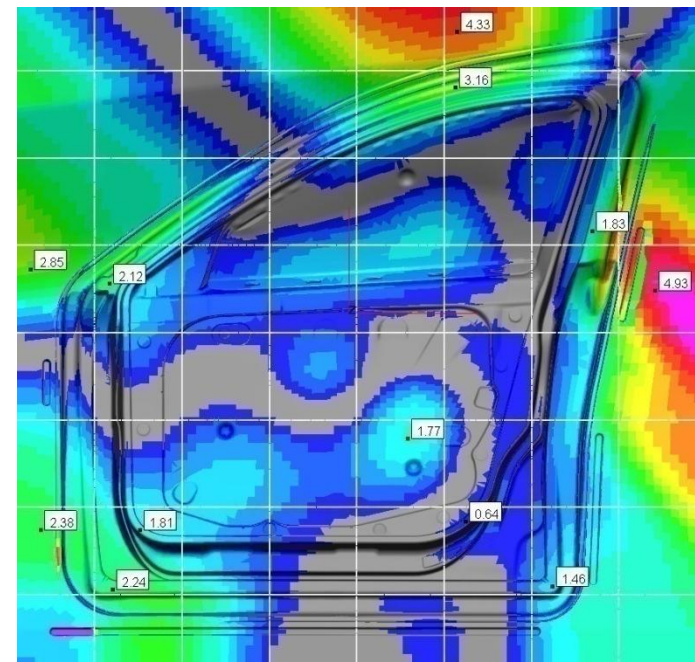
Max
-2.5

1° drawing compensation
same as 2° drawing

Max
+1.8

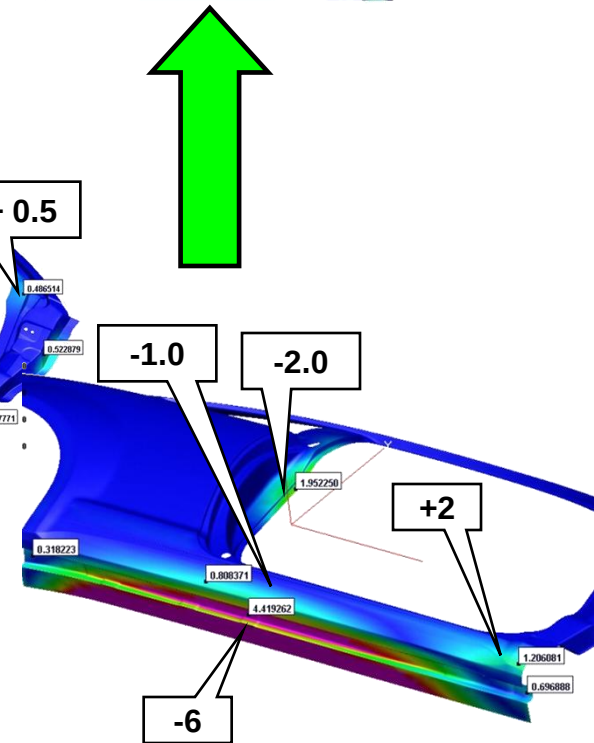
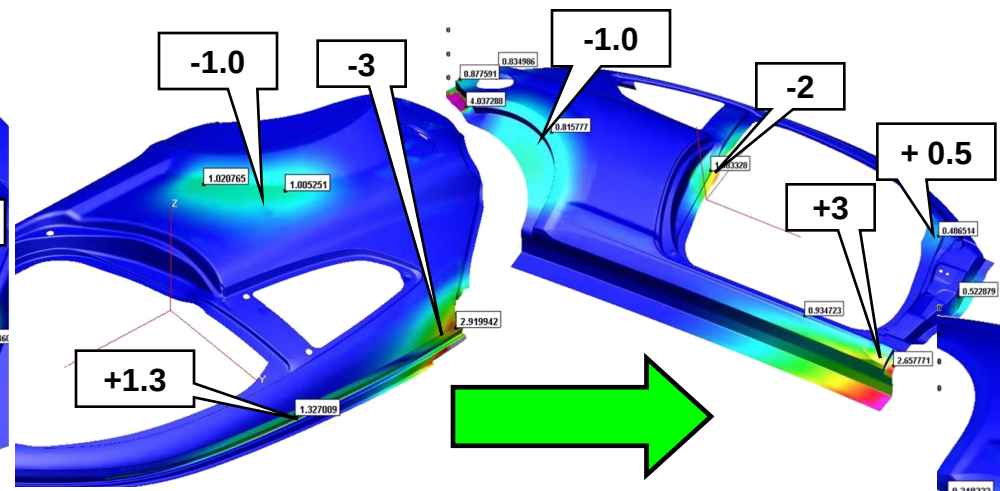
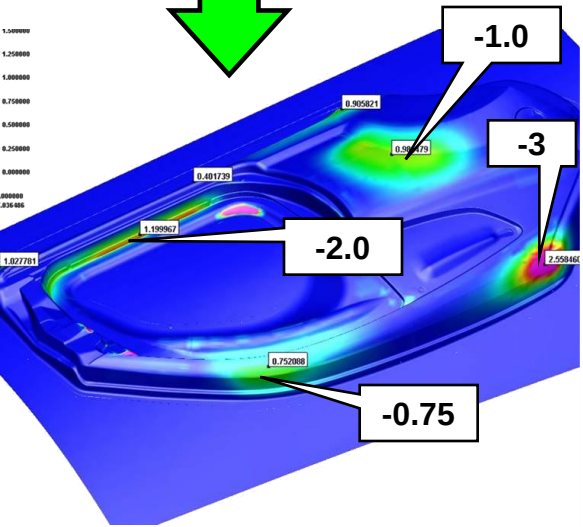
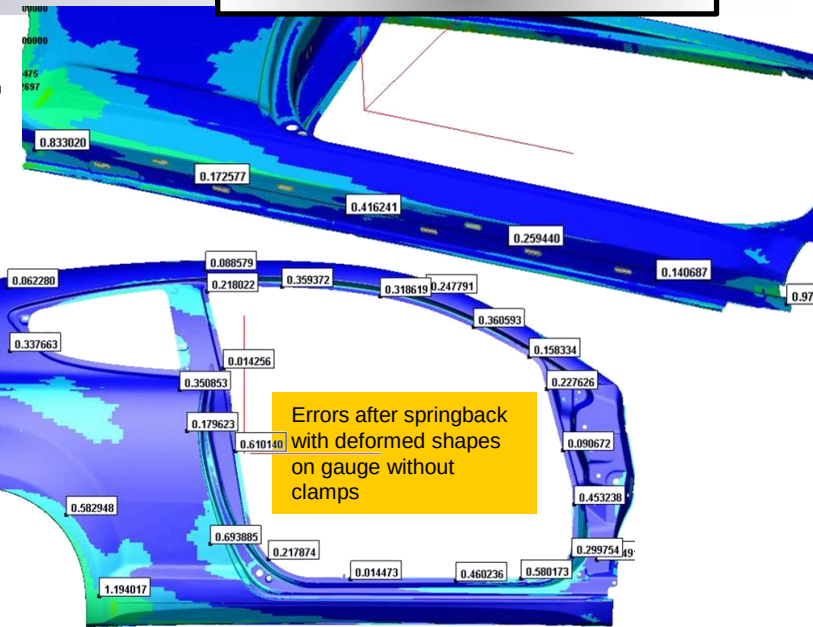
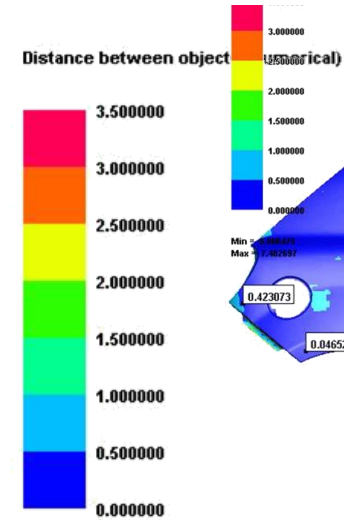
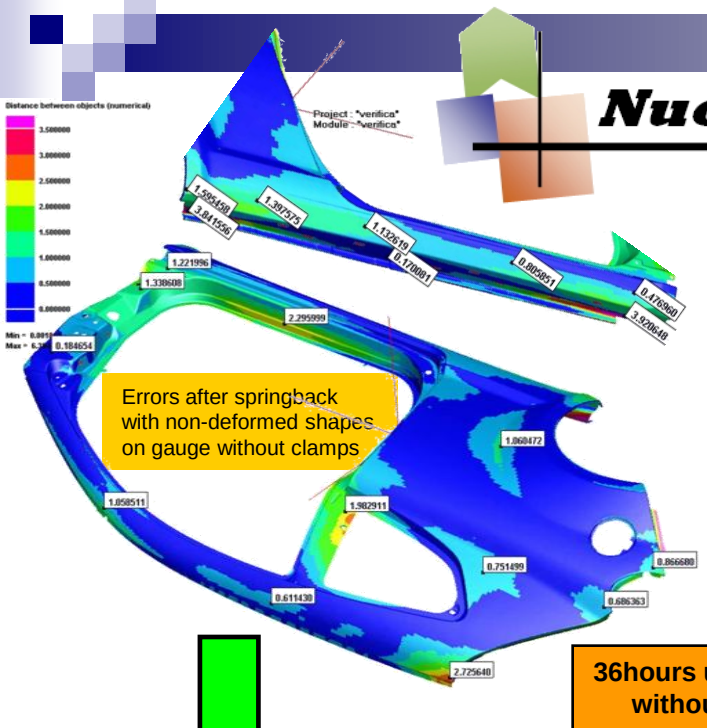


FeP05
0.7mm



Nuova TEKNOCAM S.r.l.

MORPHING: match of tolerances



Flanging and restriking compensation

FeP05
0.7mm

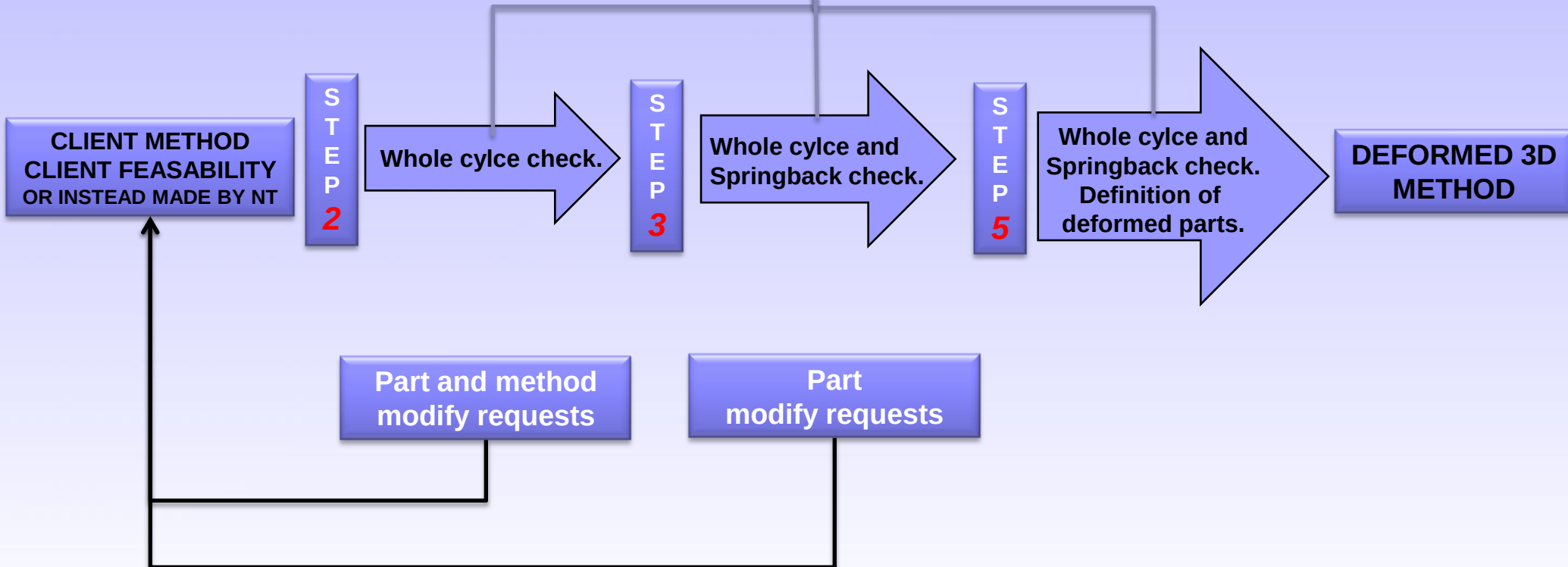
Drawing compensation

NT USUAL WORKING METHOD FULL CYCLE SIMULATION

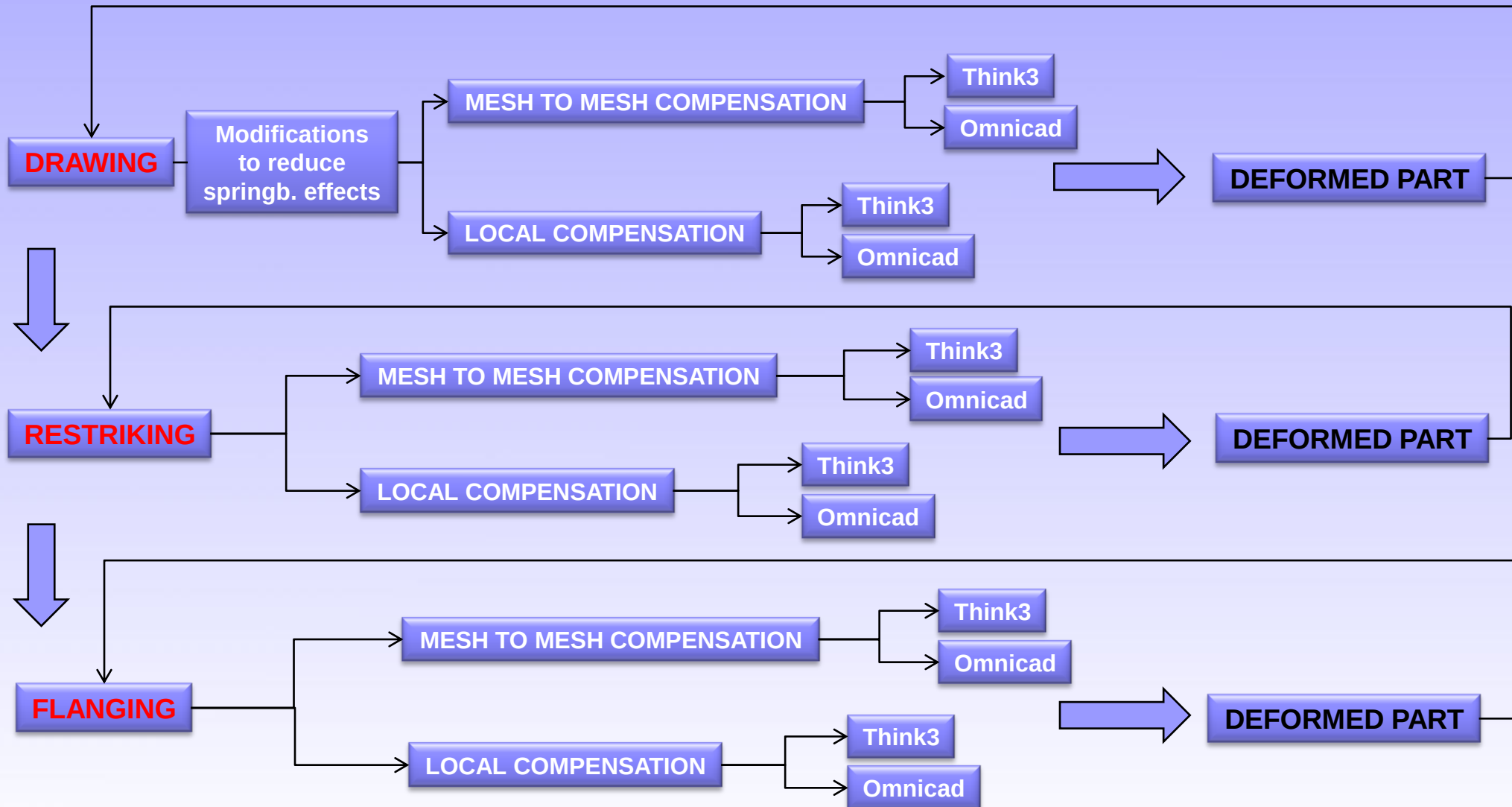
BASED ON FIAT USUAL EMISSION OF PARTS:

- STEP1: not visible
- STEP2: feasibility
- STEP3: validation
- STEP4: not visible
- STEP5: compensation and milling

NT need to dialogue
with
PM and WS tune up

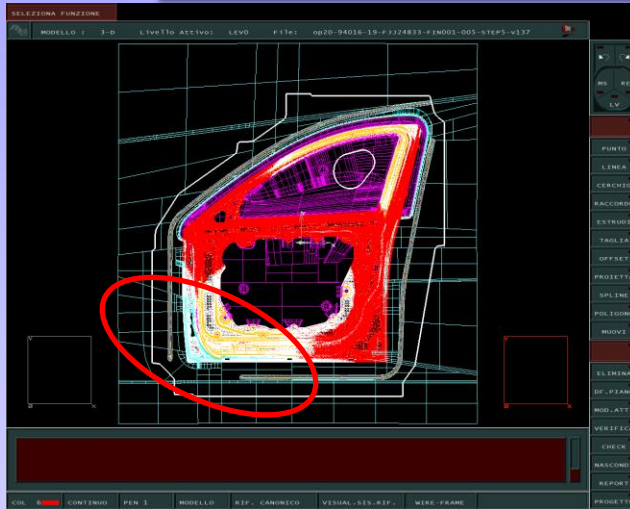


SIMULATION, SPRINGBACK AND PART GRAVITY ON GAUGE PART DEFORMATION ANALYSIS

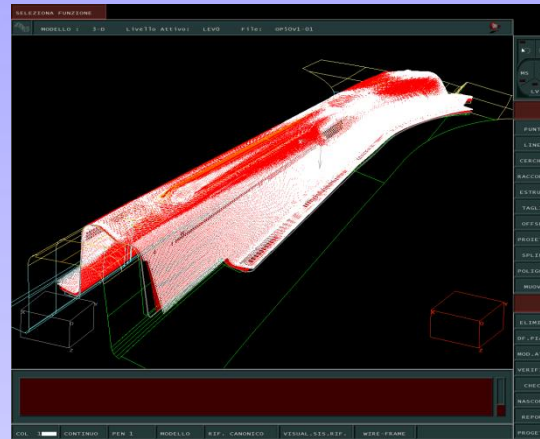


NT DEFORMATION METHOD EXAMPLES

MESH TO MESH COMPENSATION



OMNICAD



LOCAL COMPENSATION

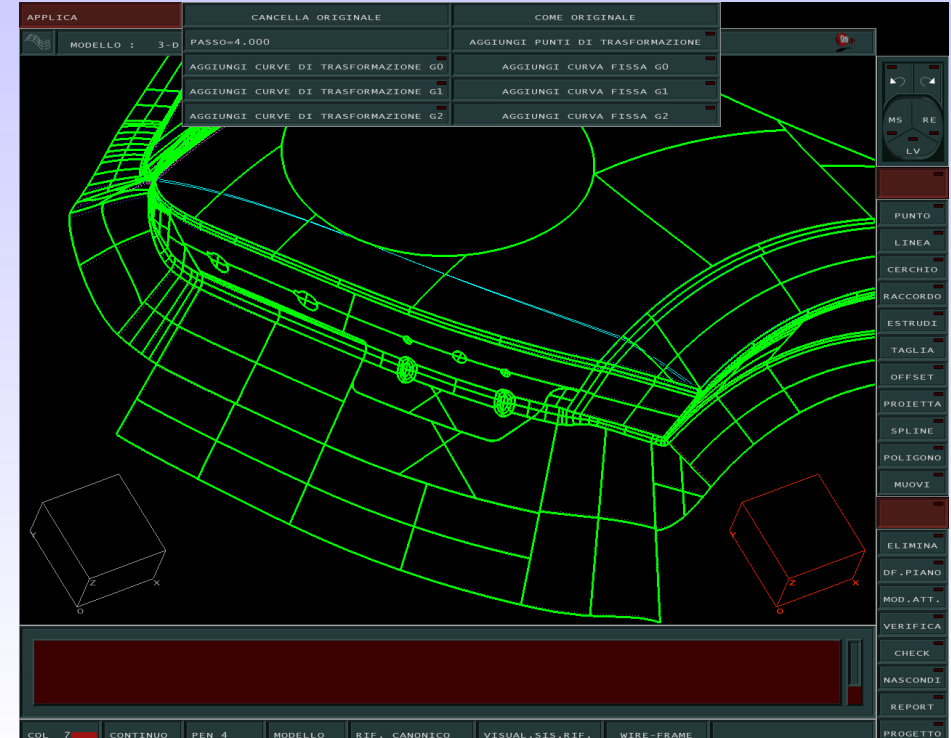
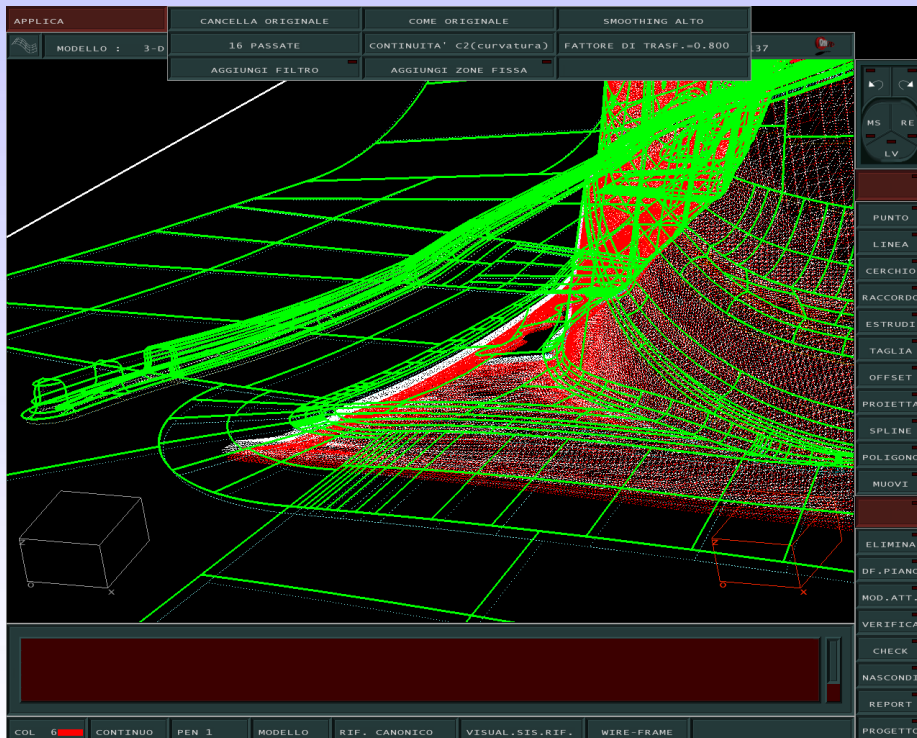
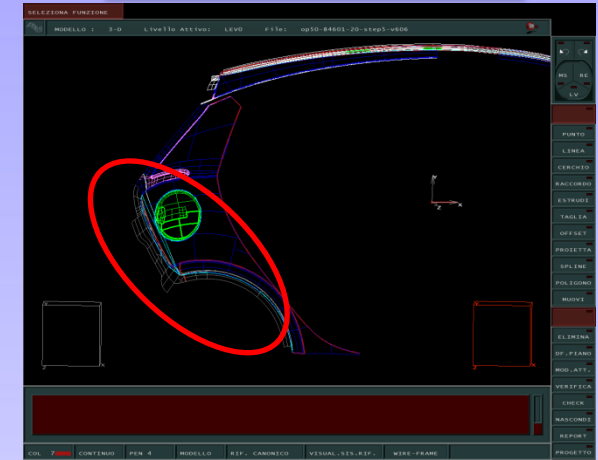
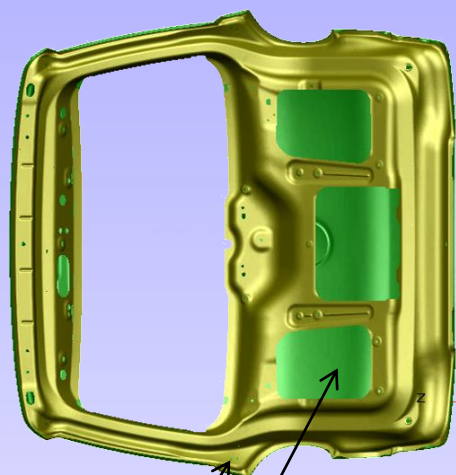




TABLE-TOP HEMMING



Inner tailgate

Outer tailgate

Pre-hemming

HEMMING: assembly simulation

Hemming 45°

Hemming 90°

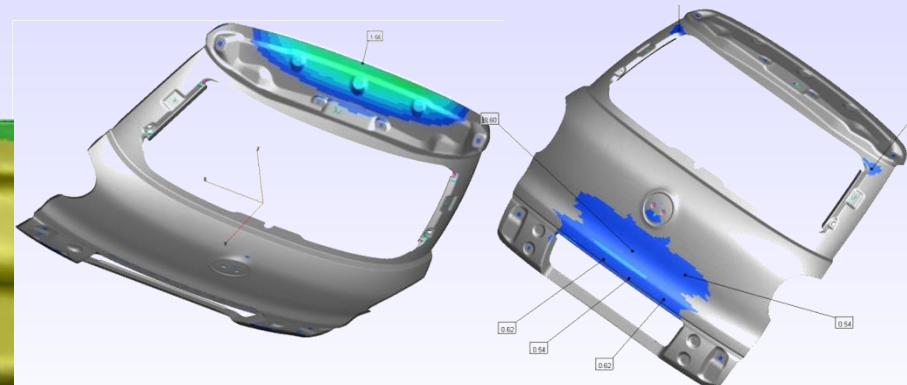
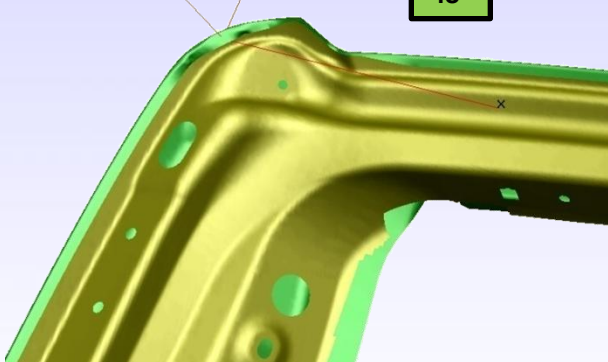
SPRINGBACK ANALYSIS

Single element error

Assembly error

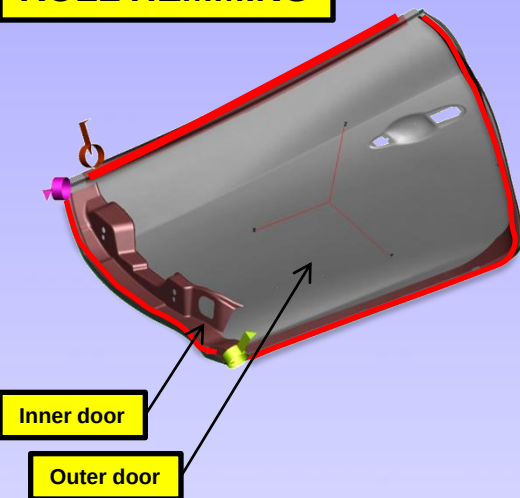
45°

90°

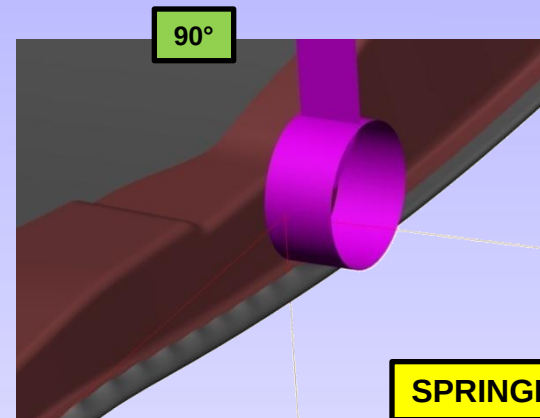
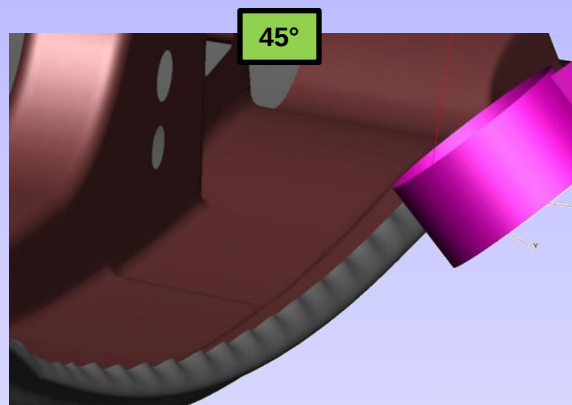


Single element morph is necessary?

ROLL HEMMING

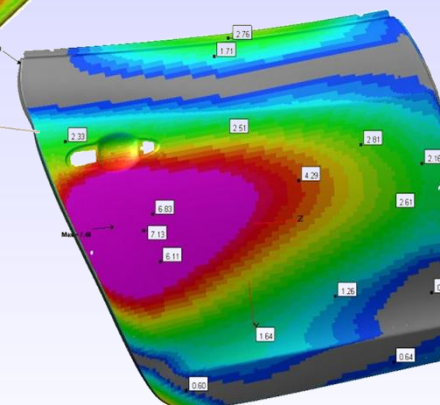


HEMMING: assembly simulation

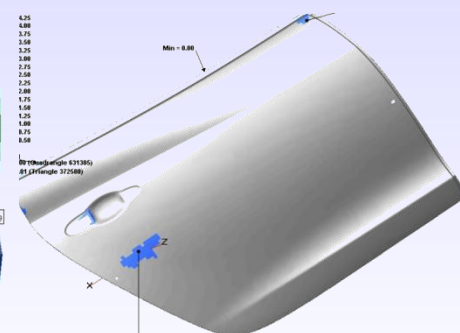


SPRINGBACK ANALYSIS

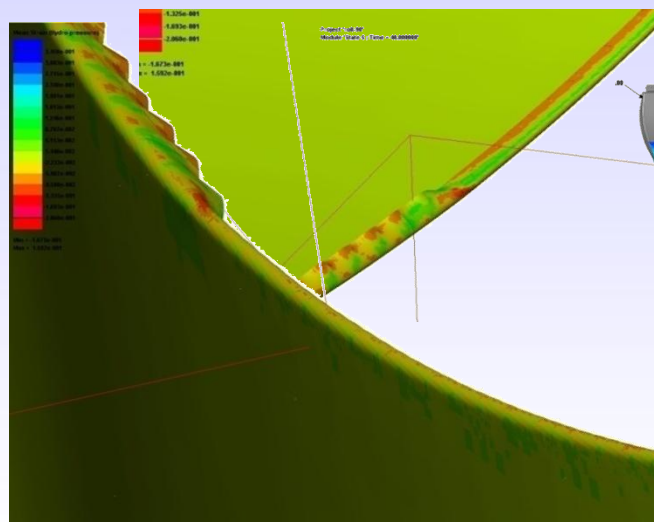
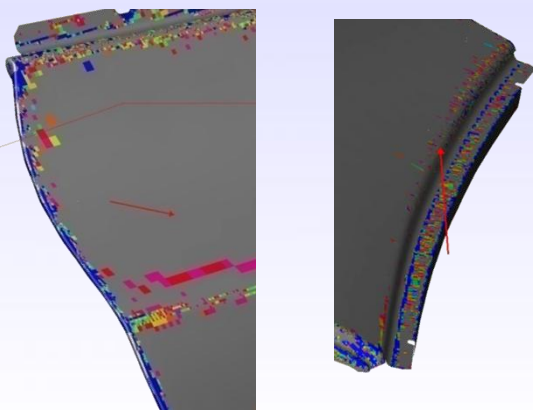
Single element error



Assembly error



SURFACE DEFECTS ANALYSIS



Single element morph is necessary?

HEMMING: assembly simulation

CORRISPONDENCE WITH REAL WORLD

