Die simulation for MINERVA

Presented by Victor Rykalin

Simulation team

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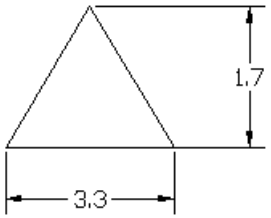
Outline

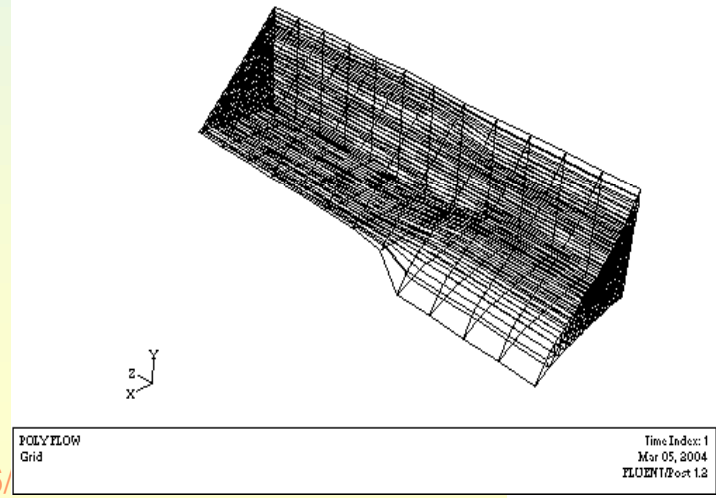
- Simulations of the triangle die
- Current status
- Summary and Plans

Triangle die simulation (isothermal case)

isosceles triangle (two sides are same)

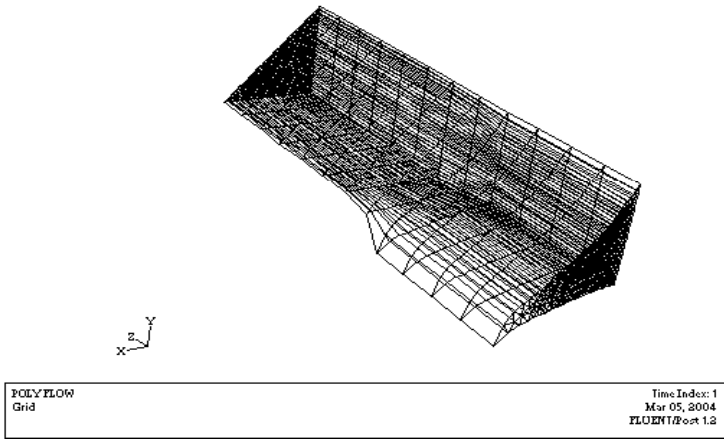


Case 1: Mesh Size 8064 Elements

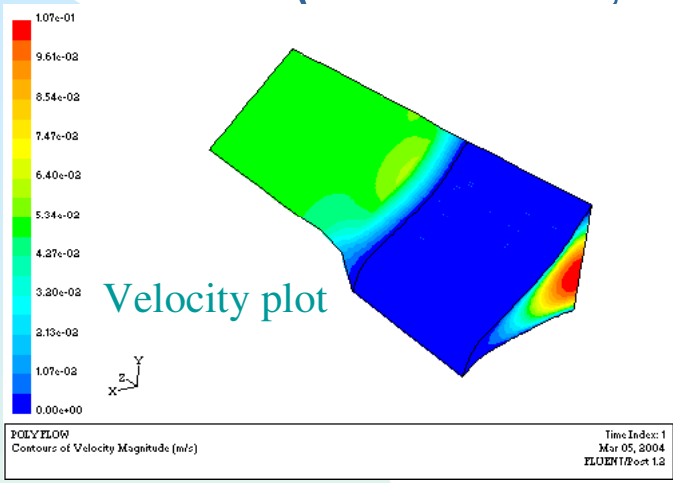


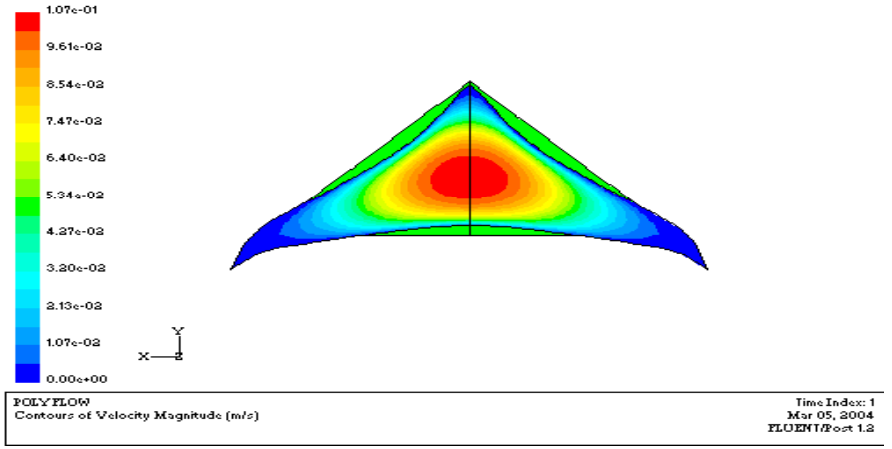
Case 2: Mesh Size 11160 Element

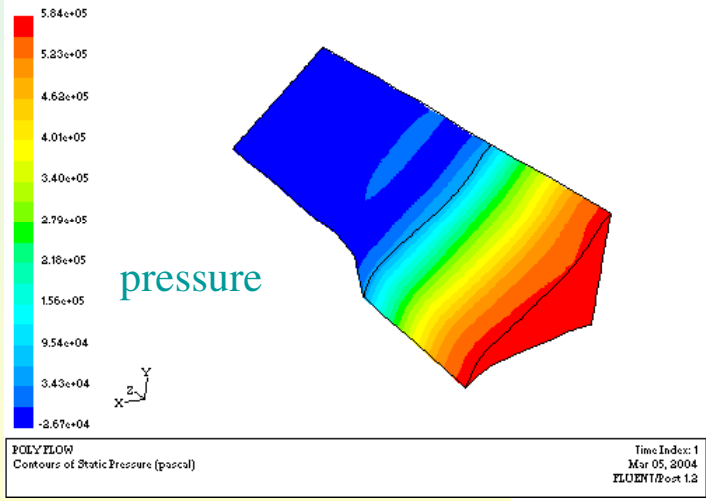
Mesh plot



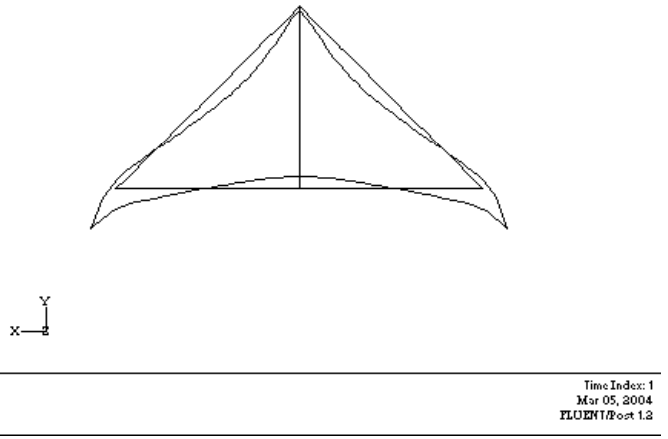
Triangle die simulation
(8064 elements, isothermal case)





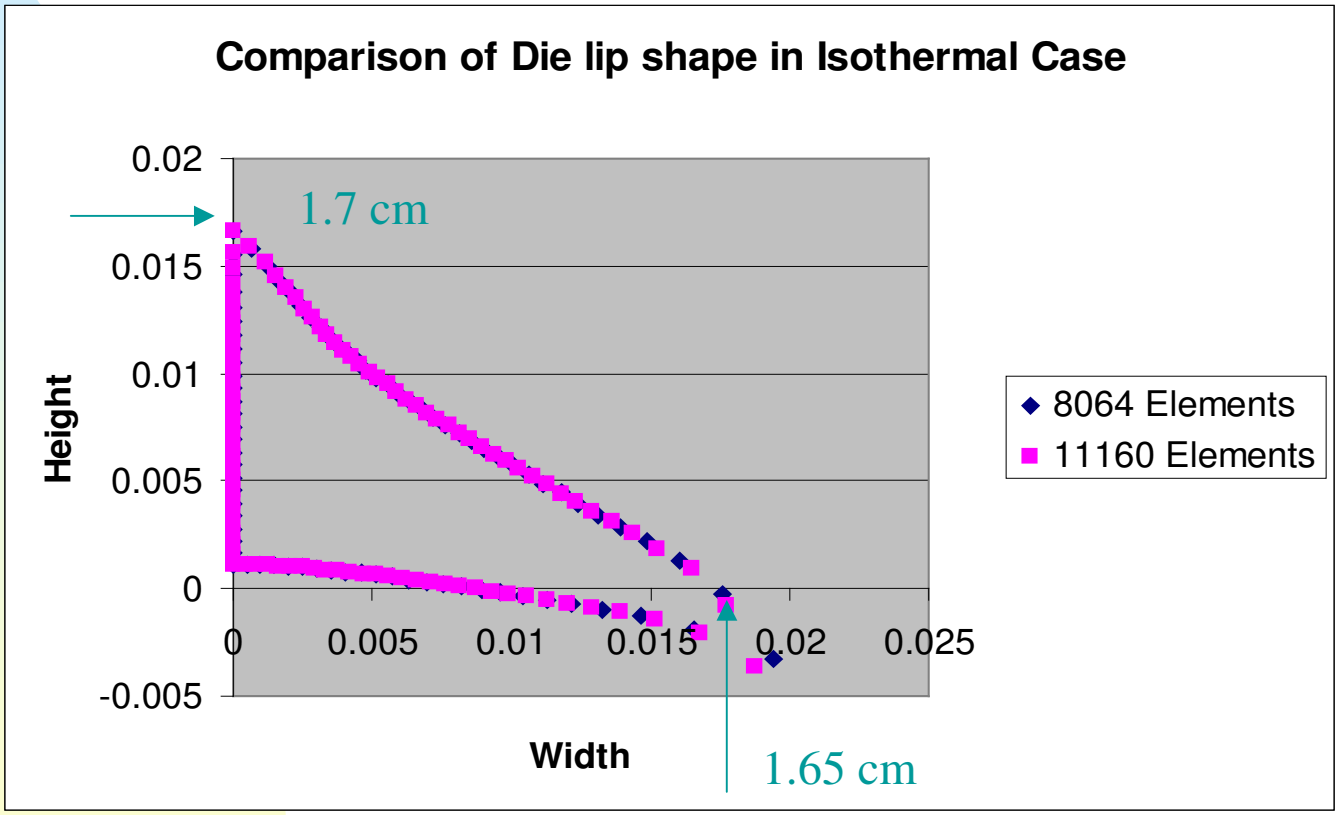


Front view of die lip and constant section

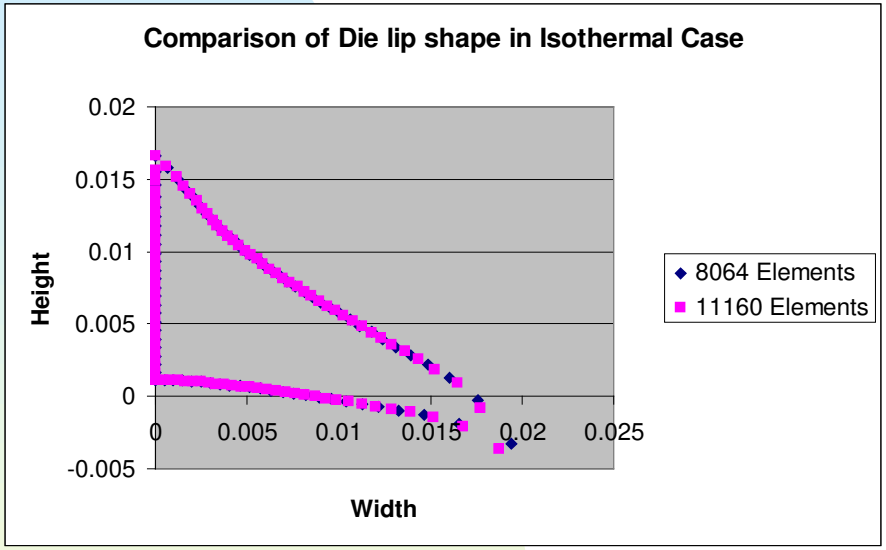


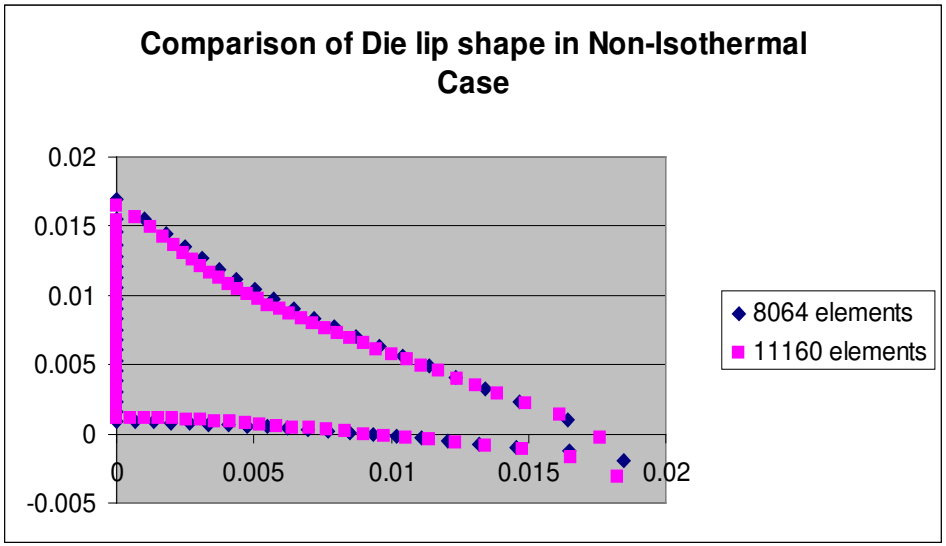
Triangle die simulations

(effect of the mesh size)

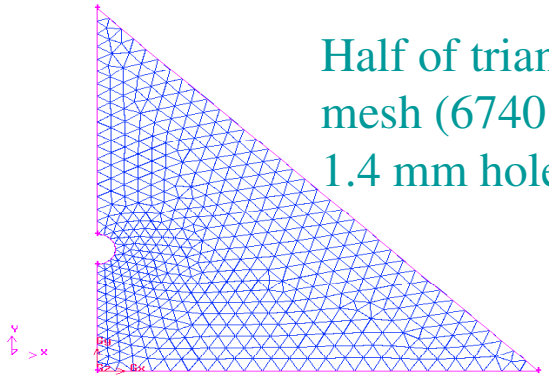


Isothermal and non-isothermal case

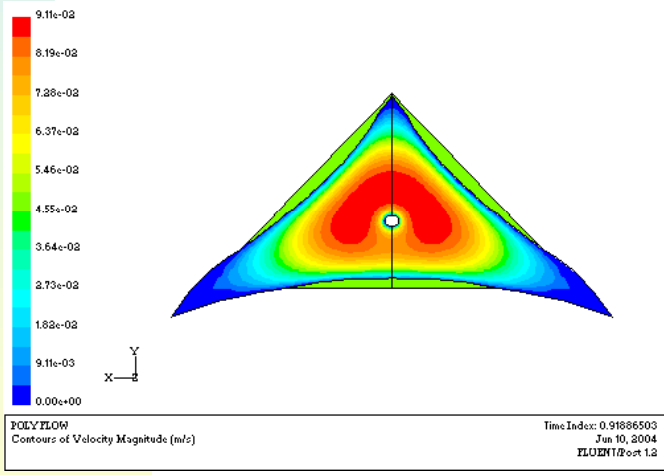




Triangle die simulation , hole added, isosceles case.



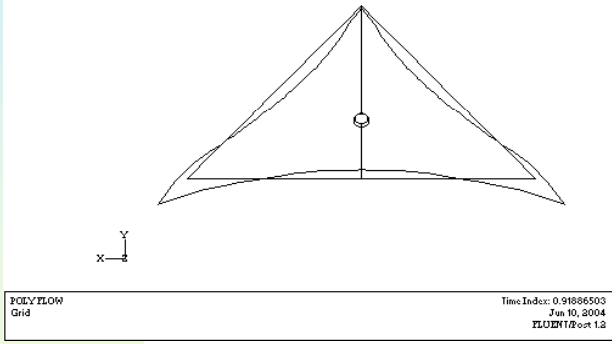
Half of triangle with a mesh (6740 elements), 1.4 mm hole diameter

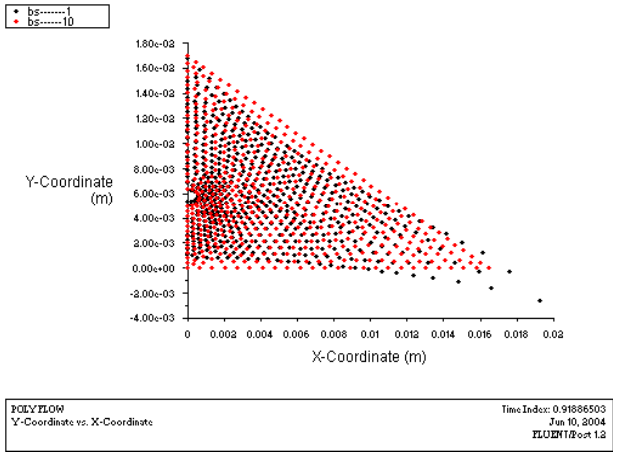


Velocity plot , front view of the die lip and of the constant section.

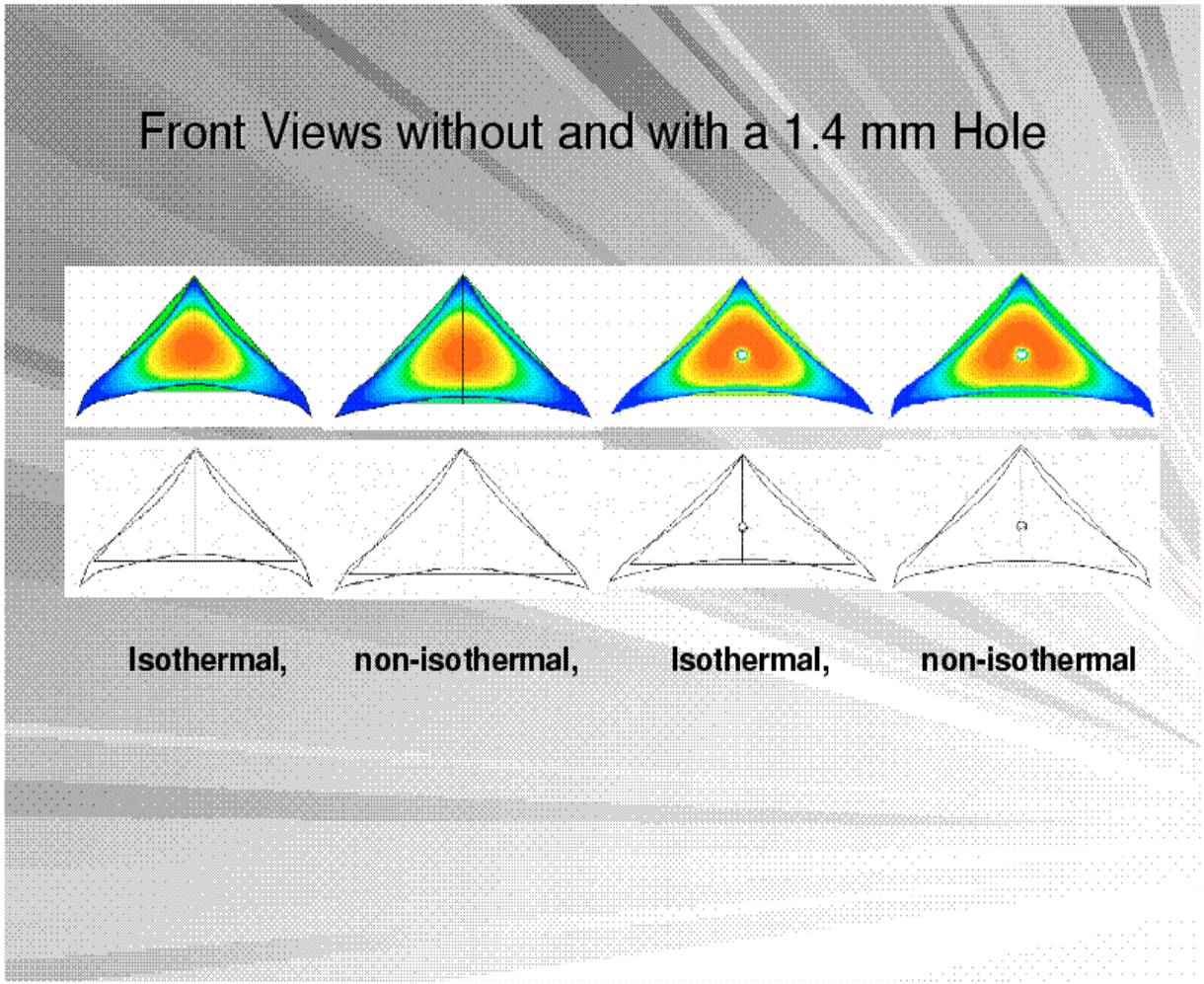
Die lip and constant section

2D Wire frame of the Die lip and Constant sections and graph plot.

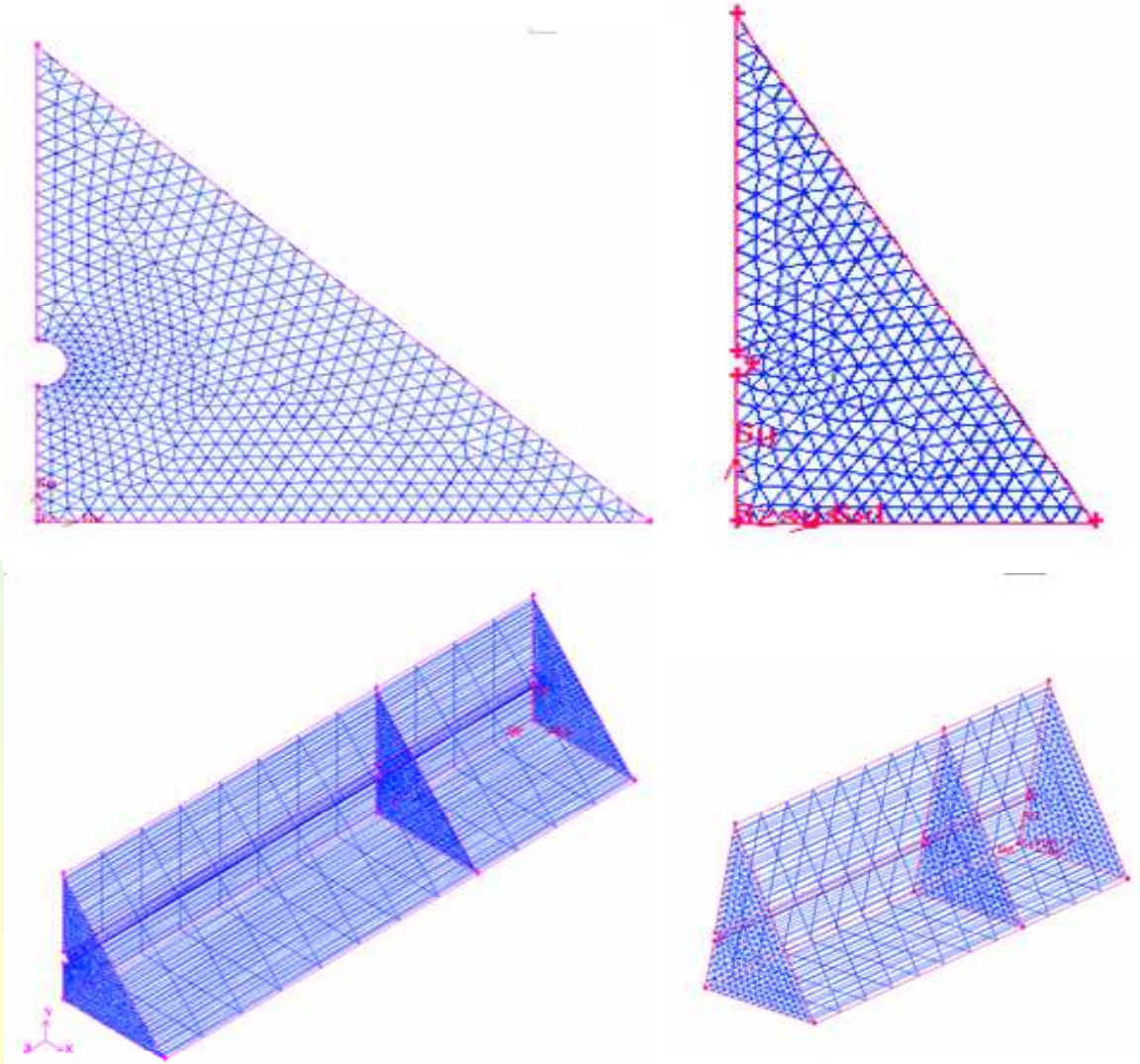




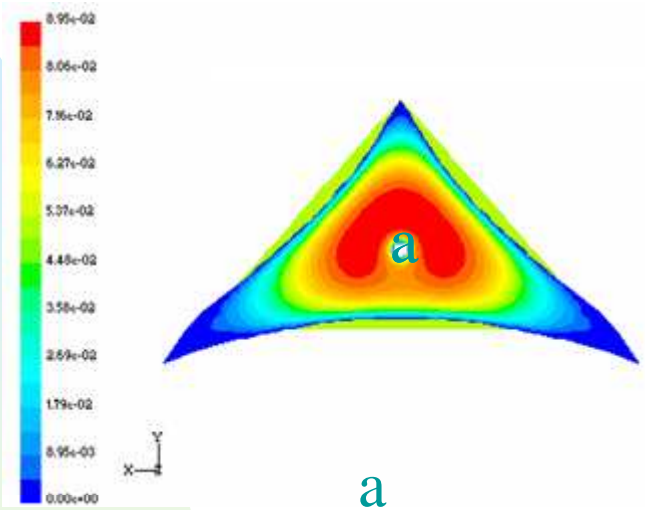
Comparison no hole / with hole



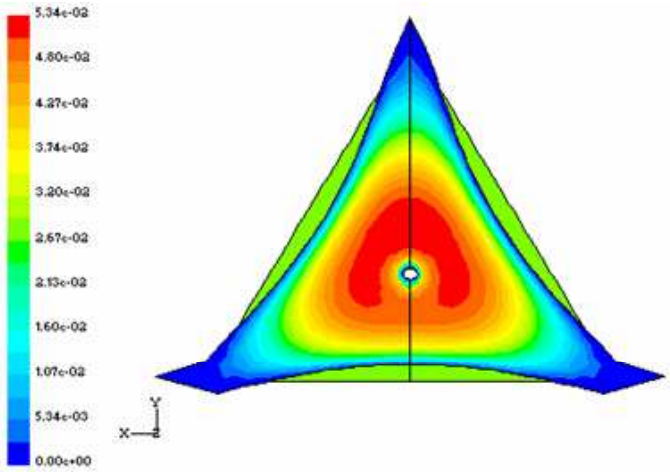
Equilateral case, (12120 elements mesh).



Velocity plot, front view



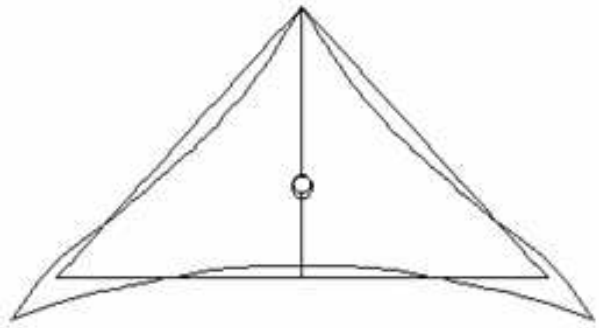
a

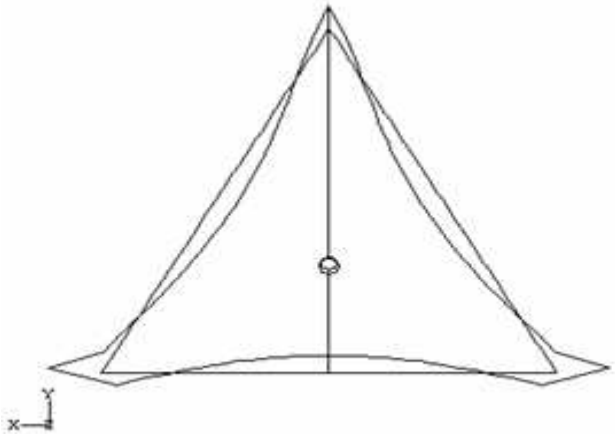


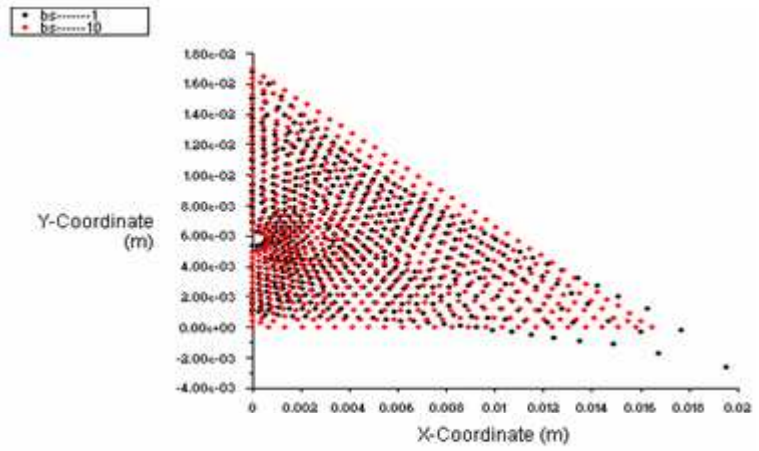
b

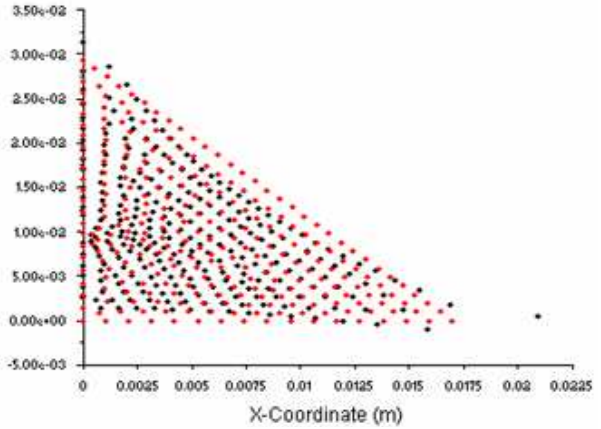
Front views of the Die lip and the Constant sections (Velocity plot) of (a) isosceles and (b) equilateral dies (mirrored for viewing)

Die lip and constant section









Current status

1. Without hole and with hole triangle die profiles were simulated (Isosceles and Equilateral cases)

2. Different mesh size was used

3. Non-isothermal and isothermal case were simulated

Summary and recommendations

- The simulation on the triangle die profiles was performed
- Both cases outcome looks odd
- We recommend to continue the simulation with some corrections within one month(have to be discussed with simulation team).
- If we should keep up with a schedule the money issue should be clarified in order to proceed with outside vendor (talk to Kevin).