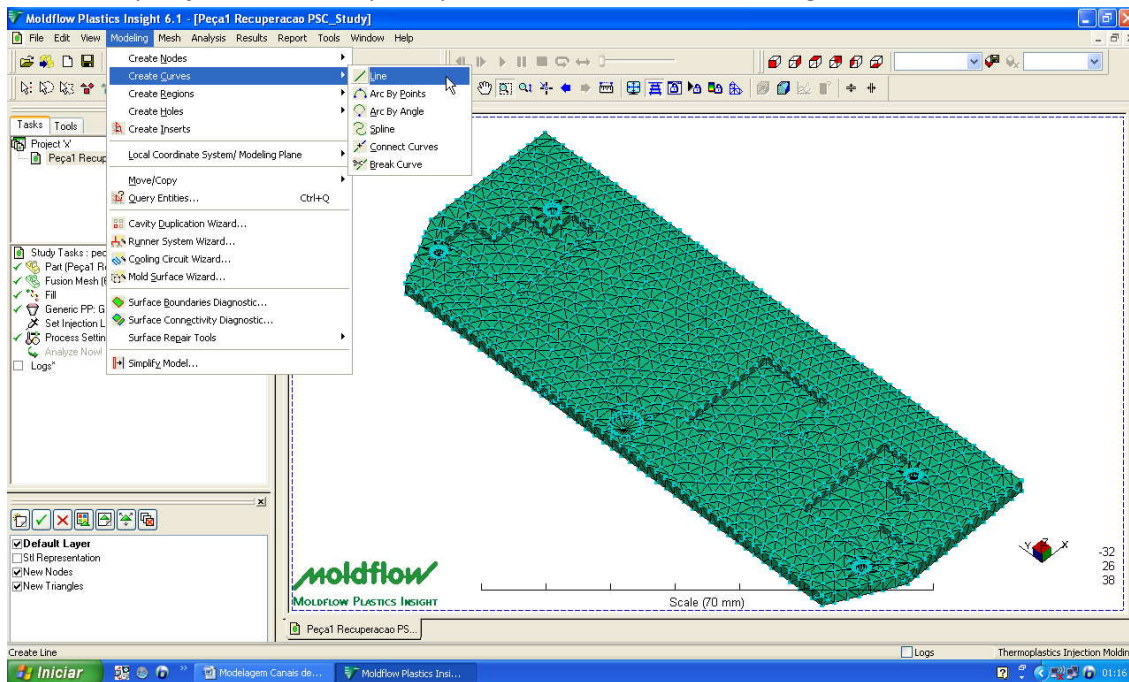


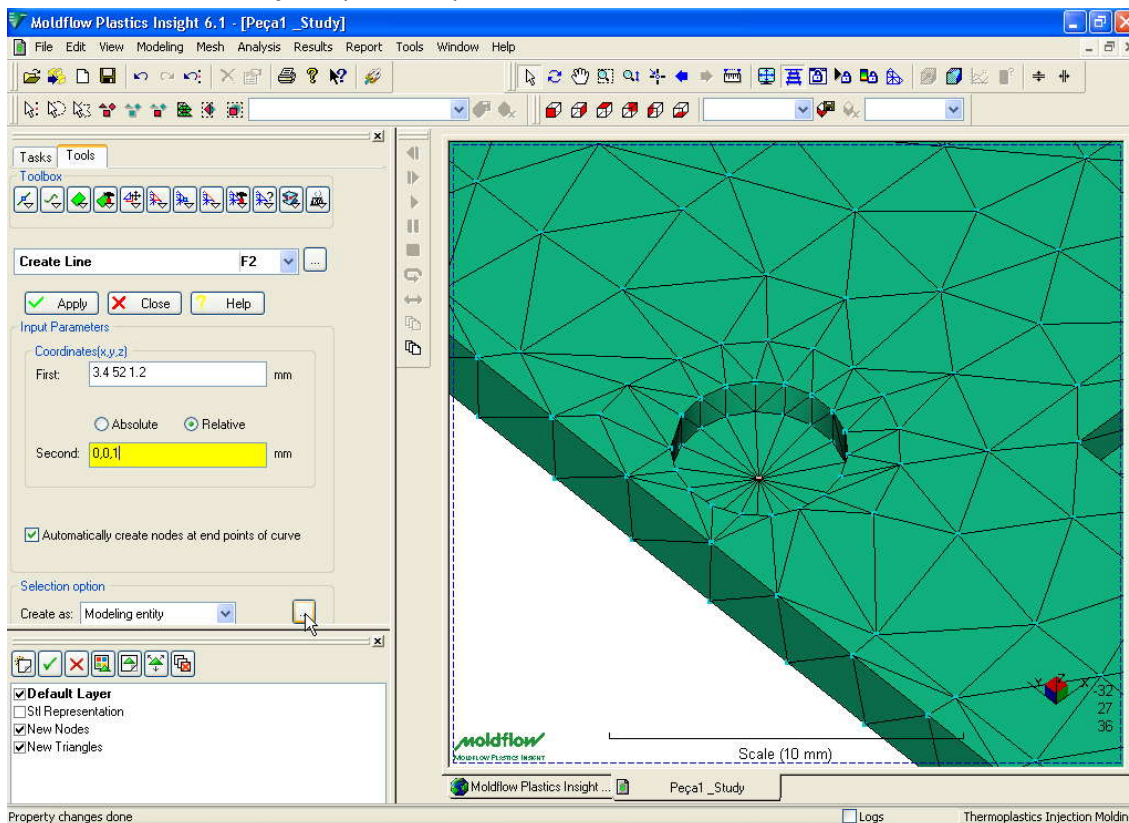
Após importar geometria, gerar a malha e fazer correção parte para o modelamento dos canais de alimentação.

Inicialmente se observa se a posição do fechamento esta no plano XY e se a direção positiva de Z esta para o lado fixo (lado da injeção)

Definida a posição da entrada parte para o modelamento. Modeling – Create Curve - Line



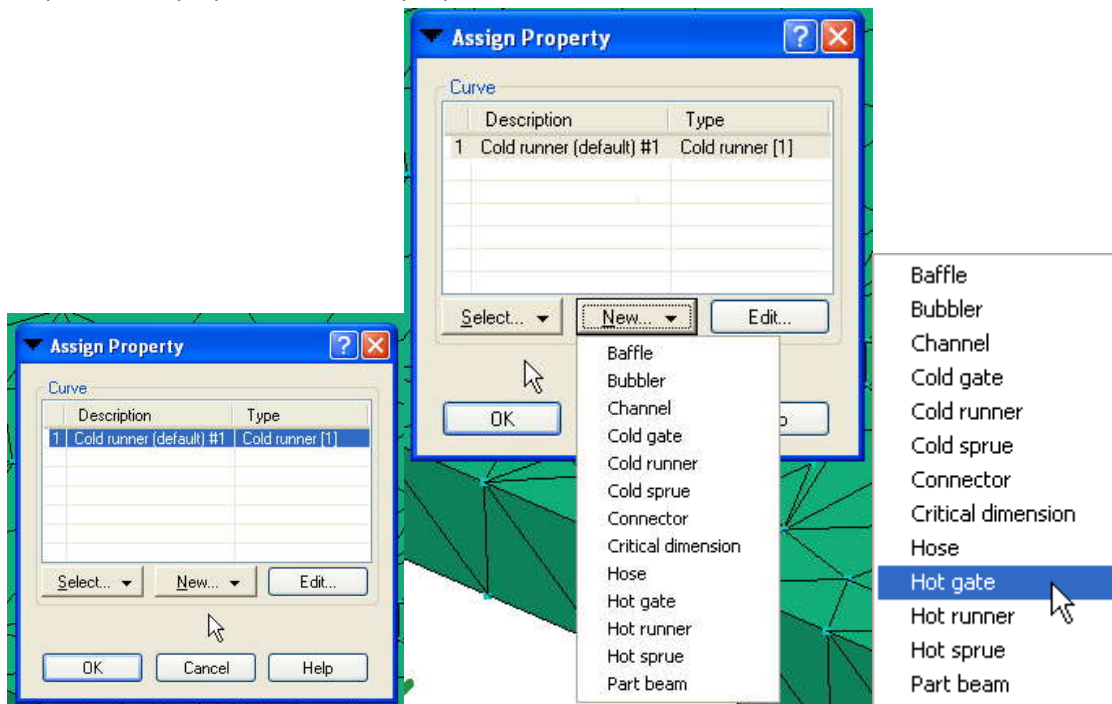
Primeiro ponto na peça onde vai ser a entrada, o segundo ponto marca-se a opção relative e quanto vai ser deslocamento em relação a primeiro ponto no caso de altura 1mm da entrada 0,0,1



Dentro da opção selection option – Create as: clica-se no botão com 3 “...” para dar propriedades para a linha a ser criada – tipo de elemento se é entrada (gate), canal (runner) ou bucha (sprue) ainda se o canal de alimentação é hot (tipo câmara quente – bico quente) ou cold (frio).



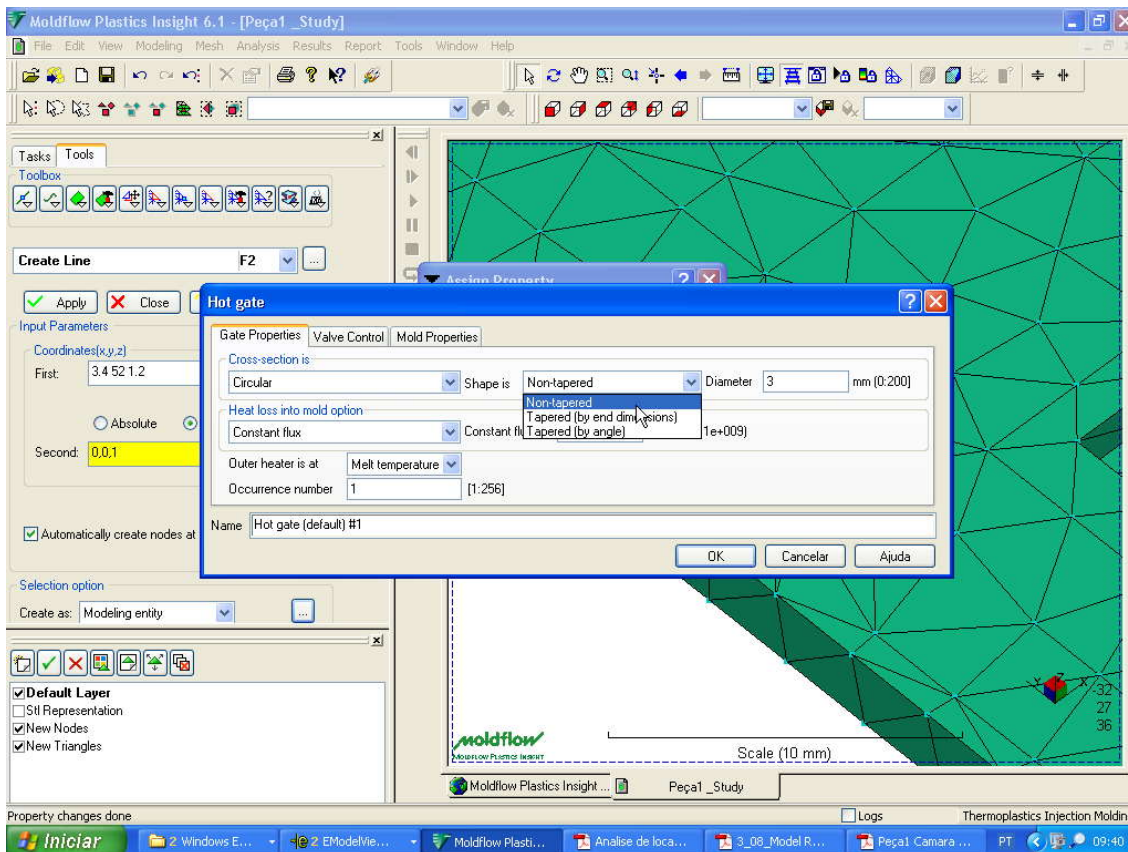
Clique no campo para atribuir as propriedades



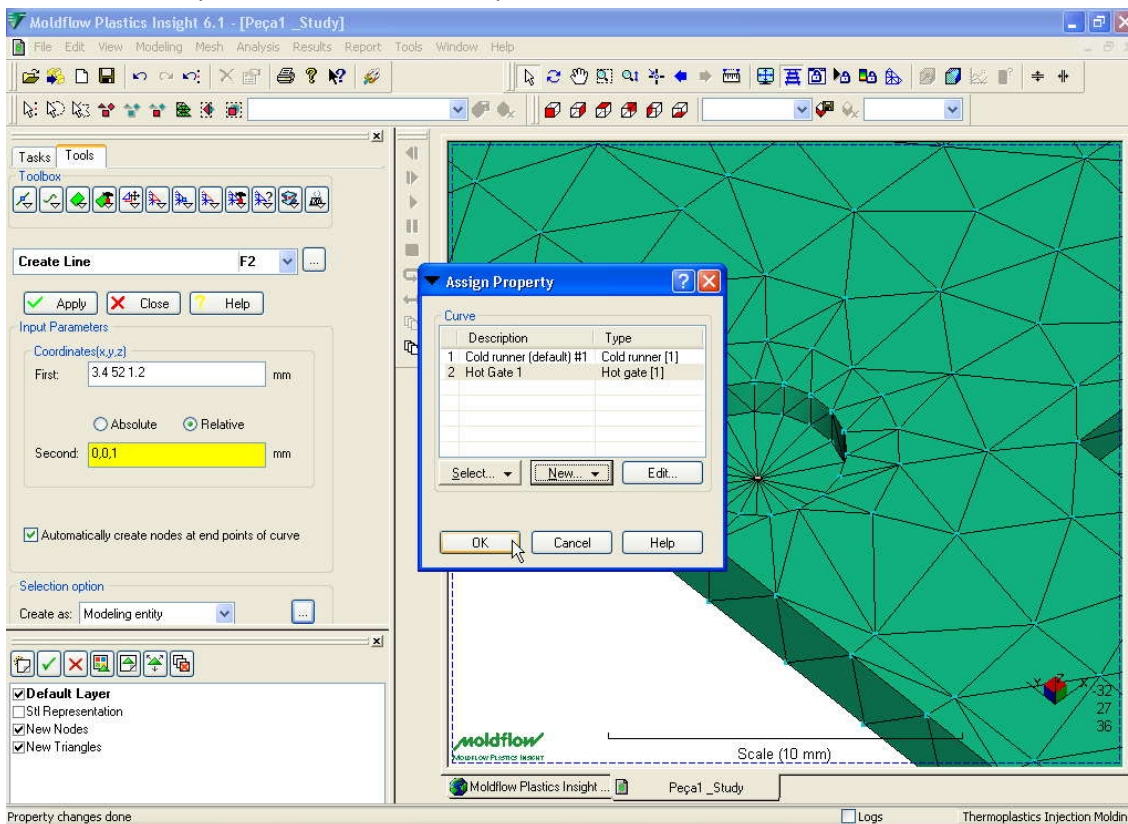
Hot Gate – para molde com câmara quente entrada também com bico quente

Abre-se uma guia para se informar propriedades para entrada tipo Cross-section is (seção transversal da entrada seleccione – Circular, Shape is – forma da entrada com ângulo (Tapered) ou sem ângulo (Non-tapered), se com ângulo as medidas a serem informadas vão ser Tapered (by end dimensions – medida inicial e final da entrada) ou Tapered (by angle – medida inicial e ângulo do cone).

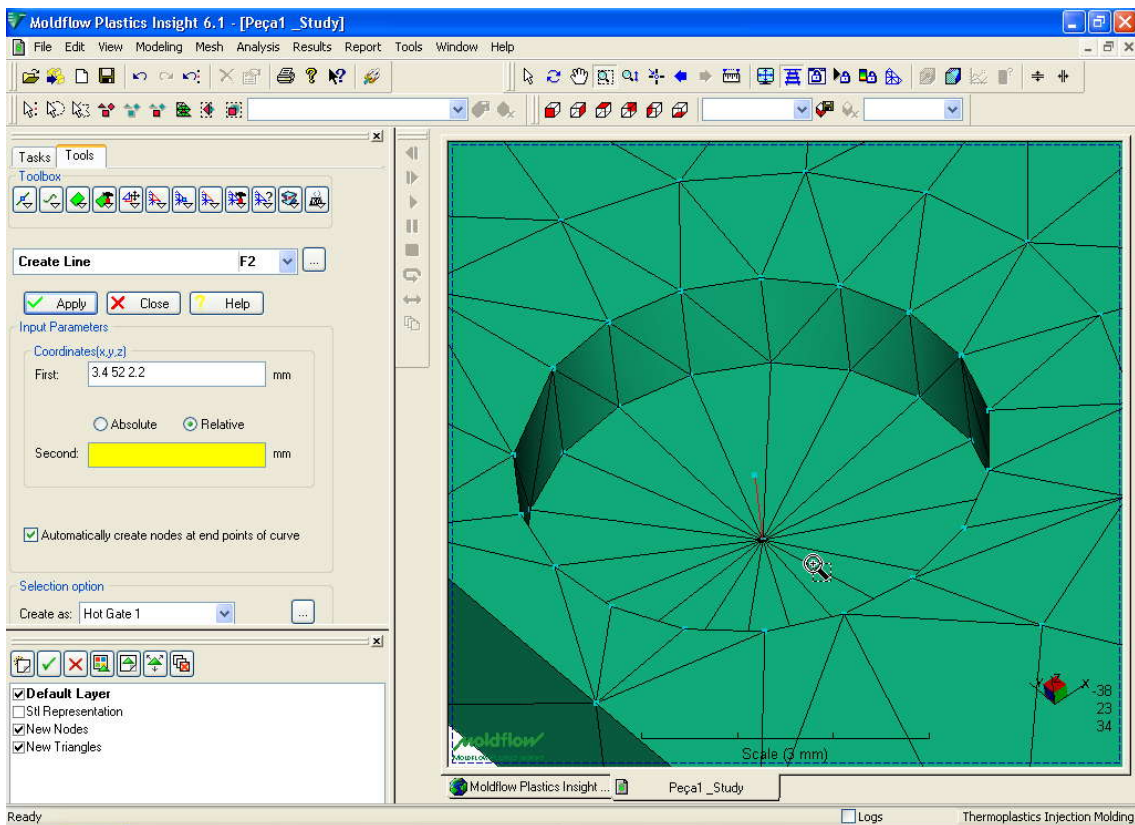
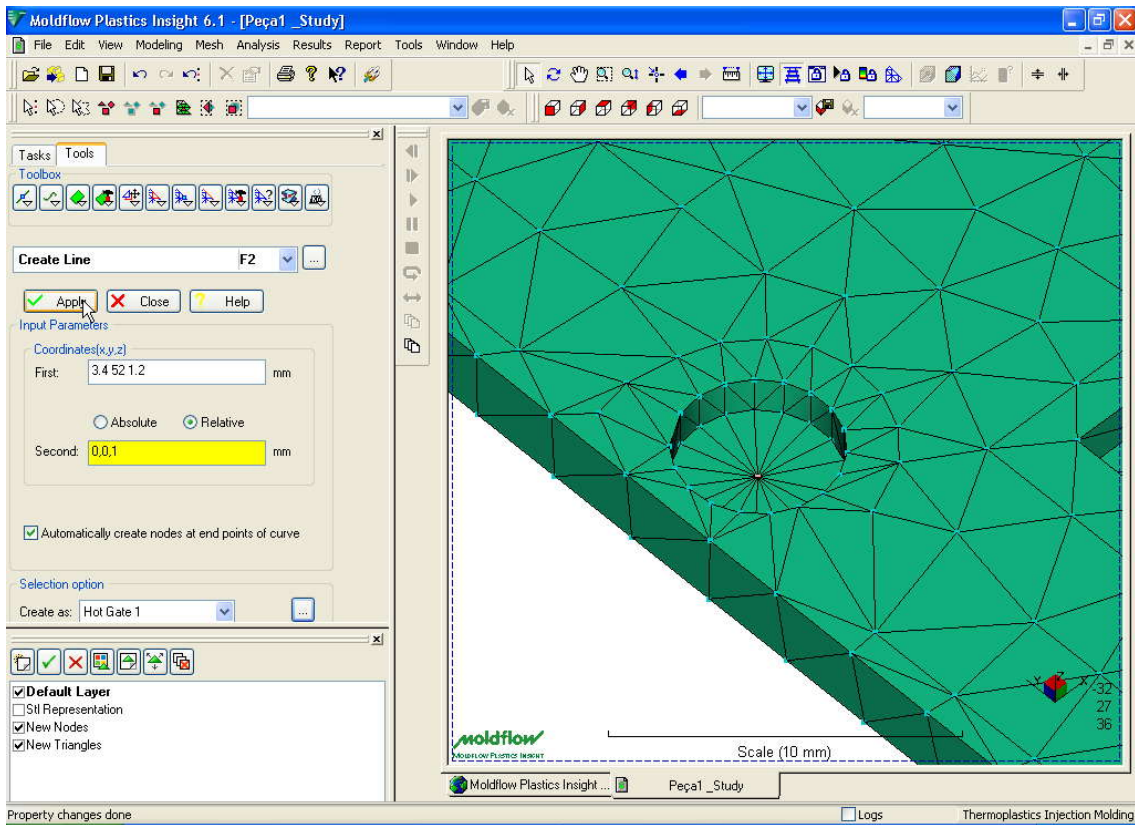
Selecione a opção – Non-Tapered.



Informe o valor para o diâmetro 1mm depois OK

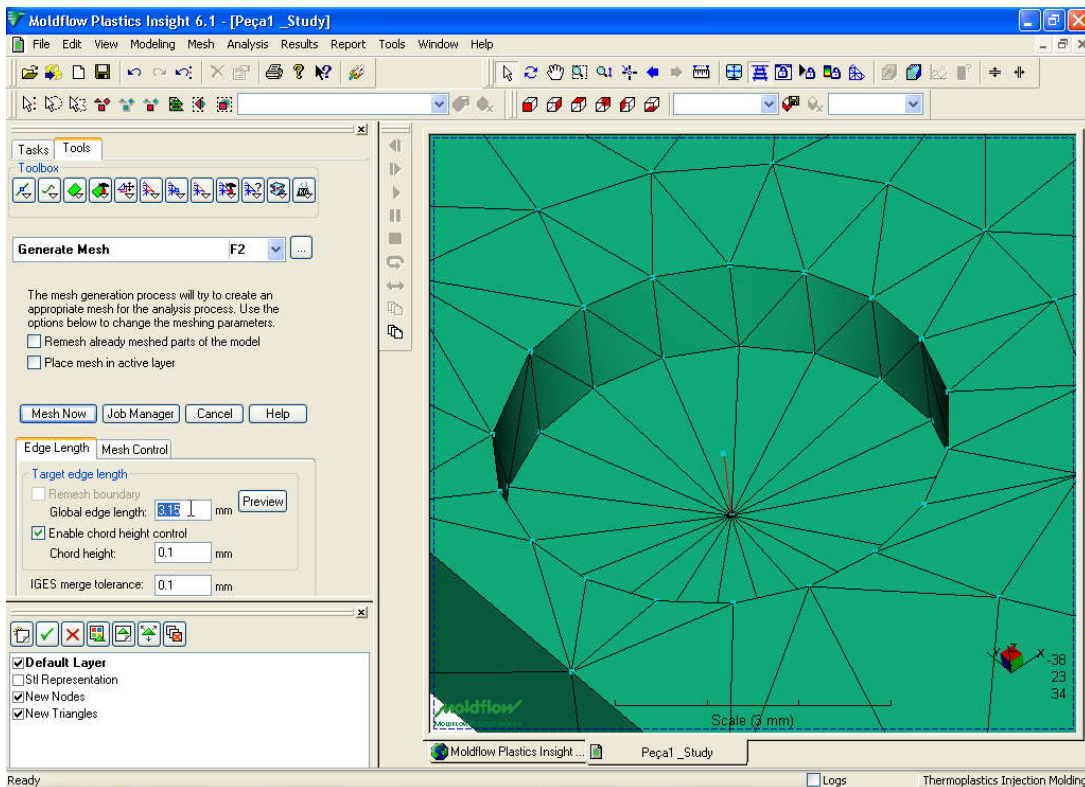
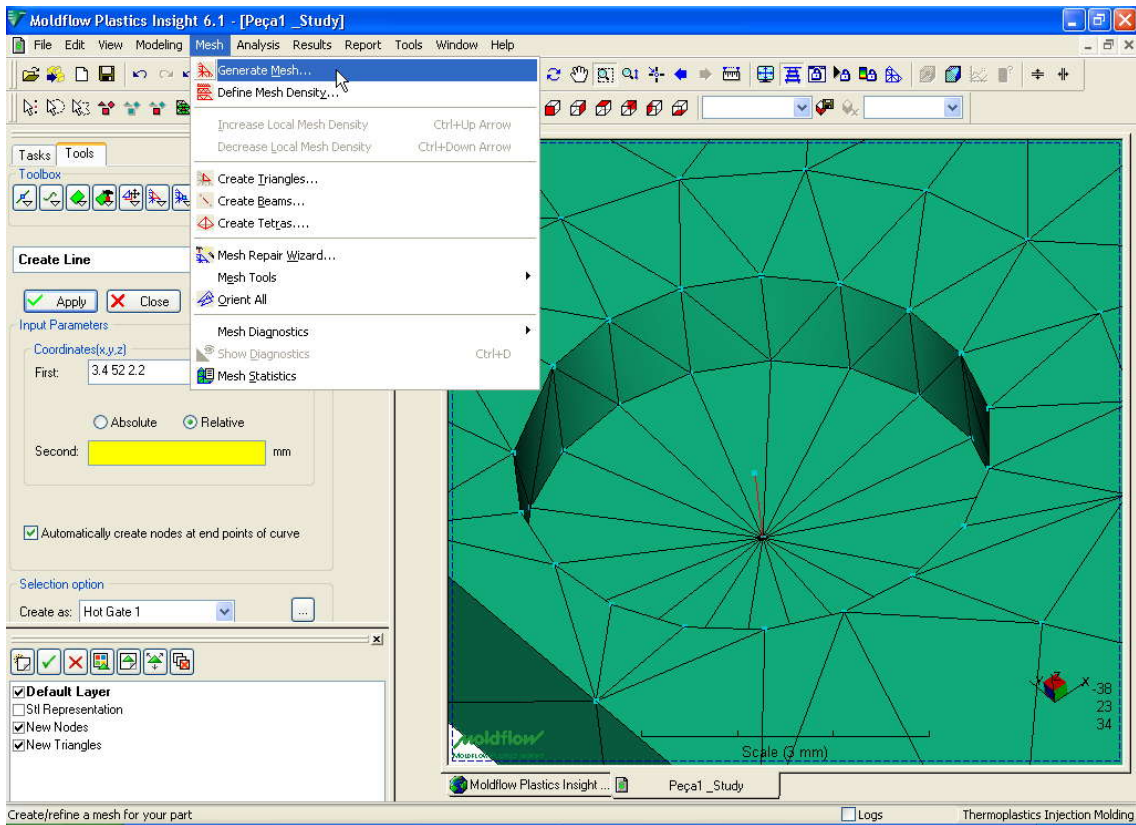


Novamente OK e depois Apply



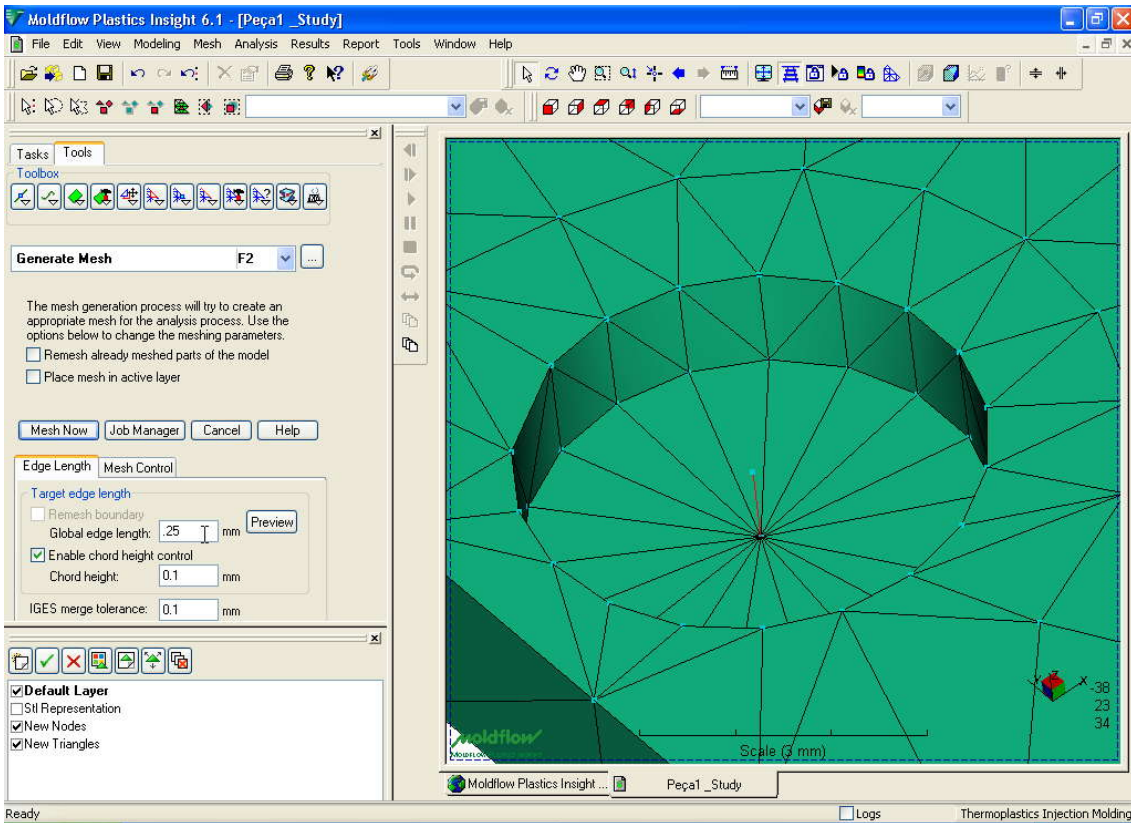
Observe que a linha foi criada

Gera-se a malha de elementos para entrada Menu – Mesh – Generate Mesh

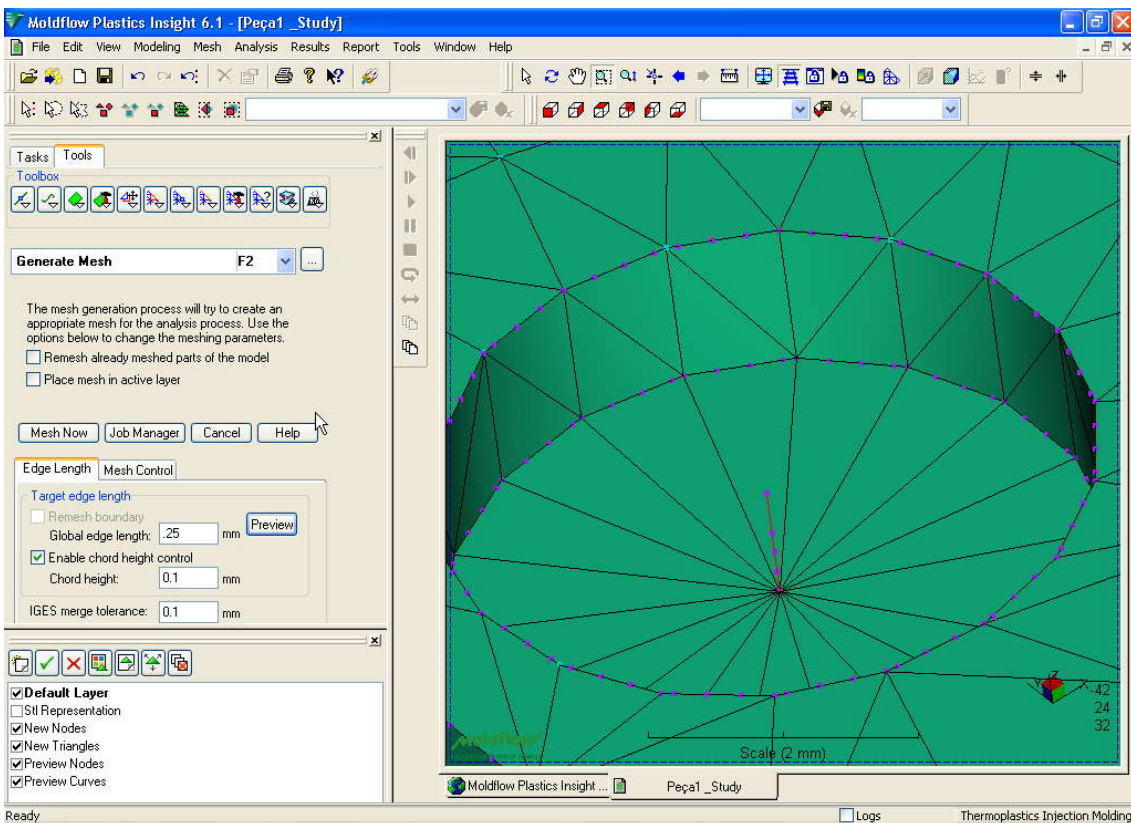


Deve-se informa o valor Global edge length (valor para o tamanho do elemento a ser criado) deve-se observar duas condições a serem satisfeitas: 1 – numero de elementos a serem criados deve ficar não menos que 3 e o tamanho do elemento deve satisfazer a condição L/D ser menor que 2.5, onde L e o tamanho do elemento e D o diâmetro do canal ou entrada. Logo temos um comprimento da entrada de 1mm, o diâmetro da entrada 1mm para criarmos 3 elementos $1/3 = 0.33$ – vamos usar para Global edge

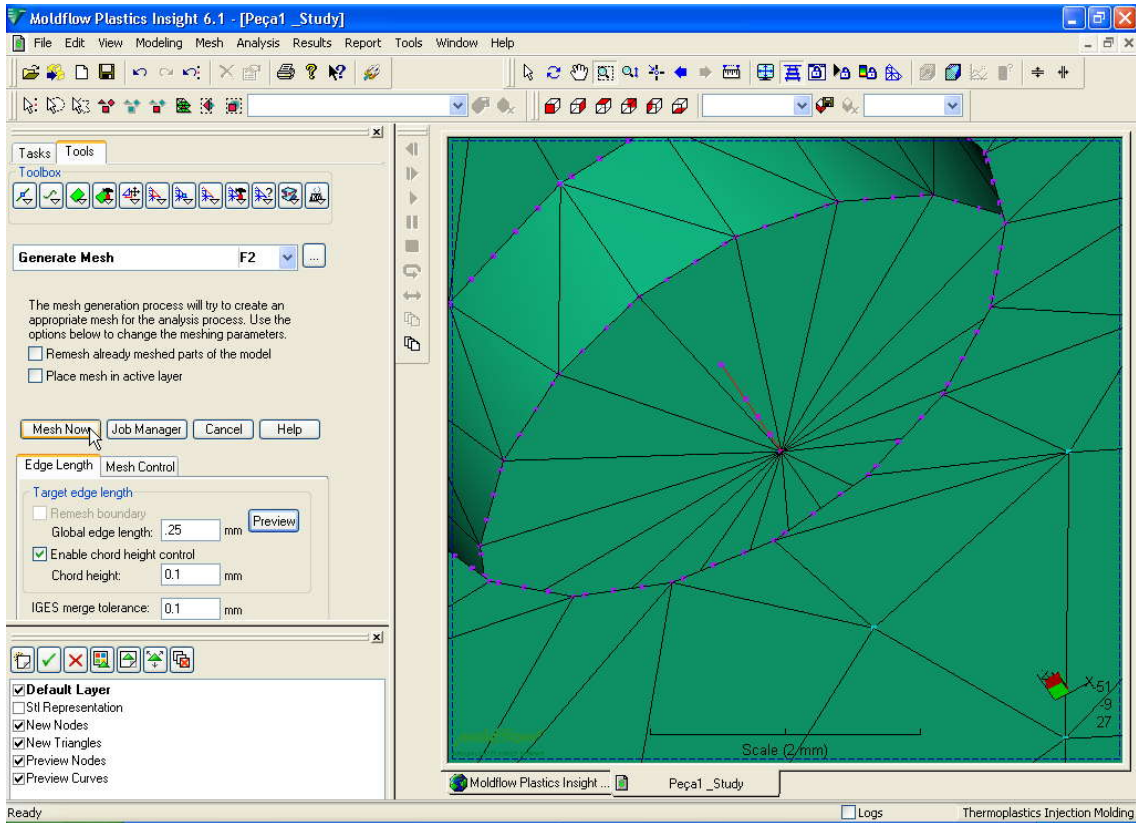
length 0.25 para criar 4 elementos. No caso a segunda condição a satisfazer L/D fica 0.25/1 logo muito menor que 2.5



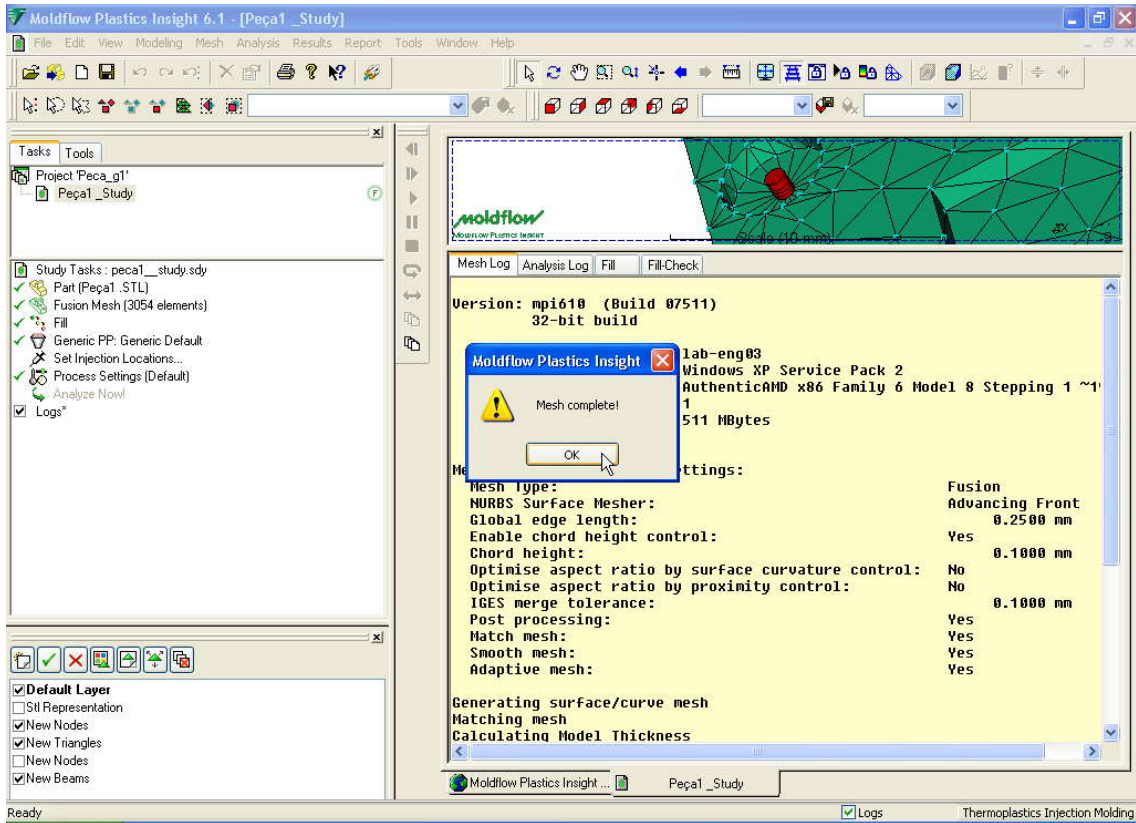
Defina 0.25 e clique em Preview para visualizar a quantidade de elementos a serem criados na Linha

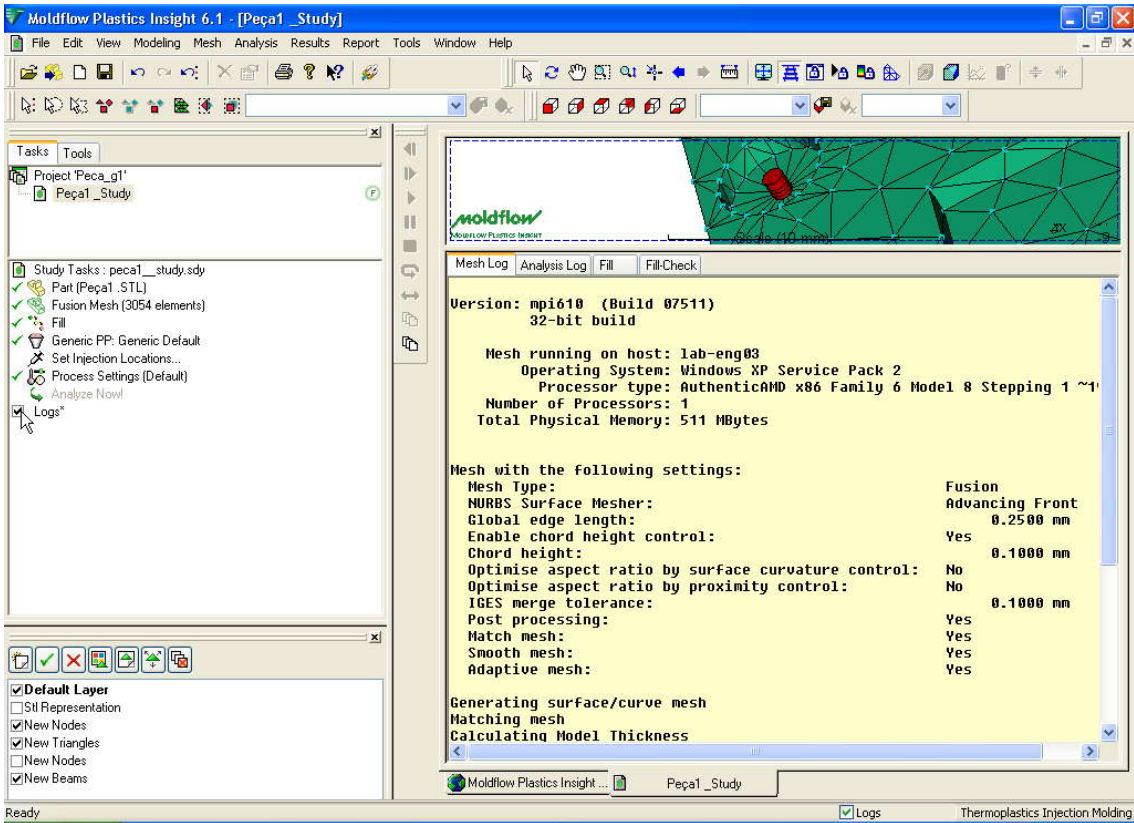


Clique em Mesh Now para criar a malha

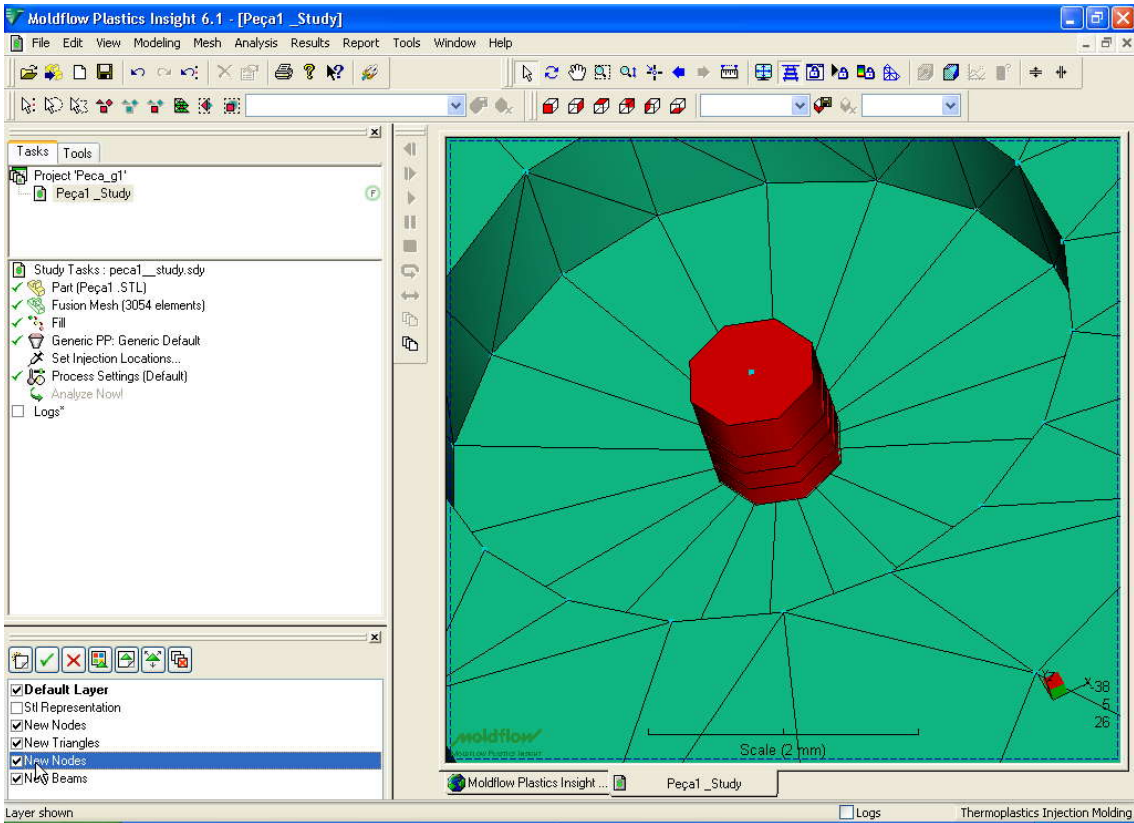


Malha completa – OK



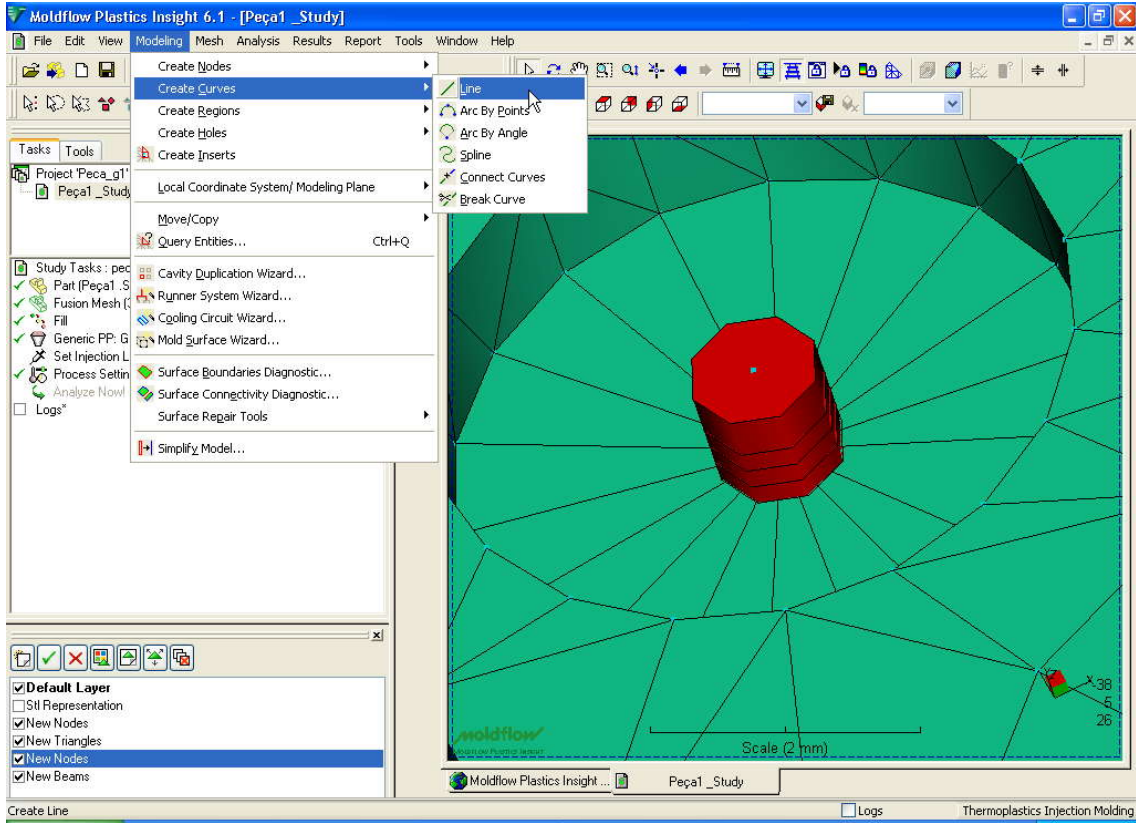


Desmarque Logs para retirar a caixa de informações com relação a malha que foi criada

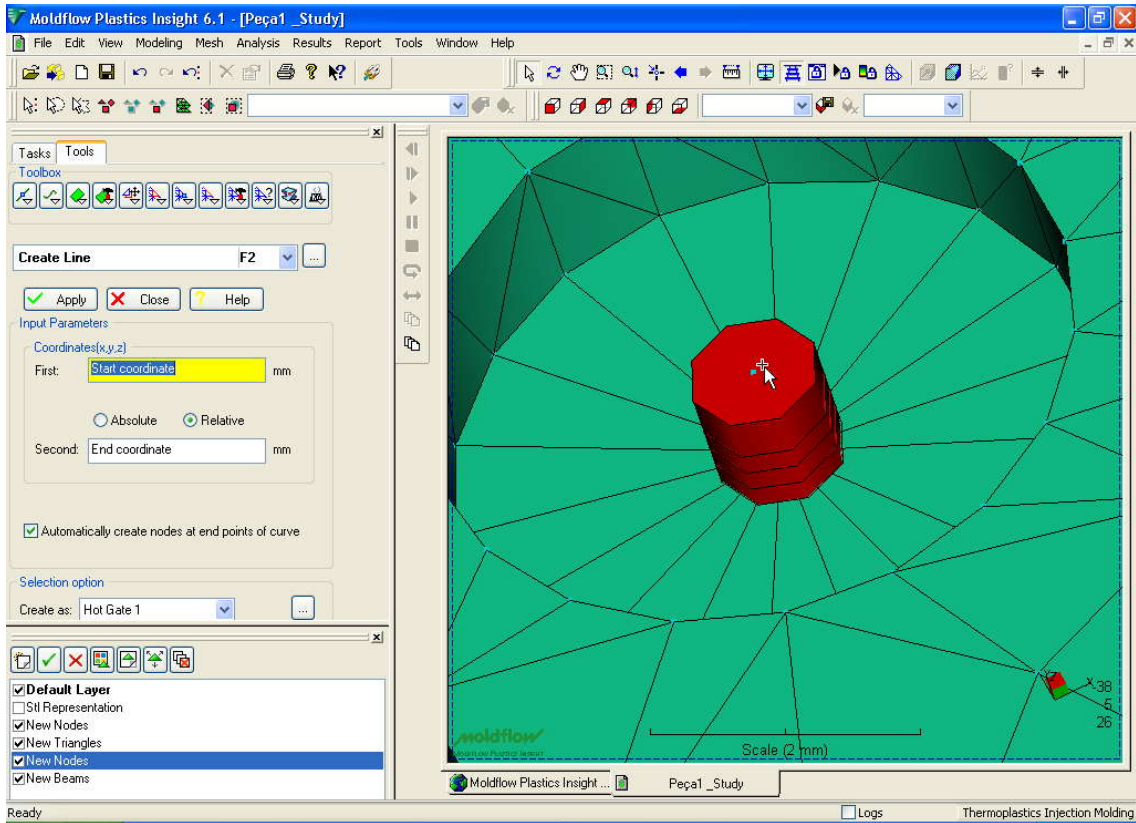


Marque em Layers - New Nodes – novos nos criados

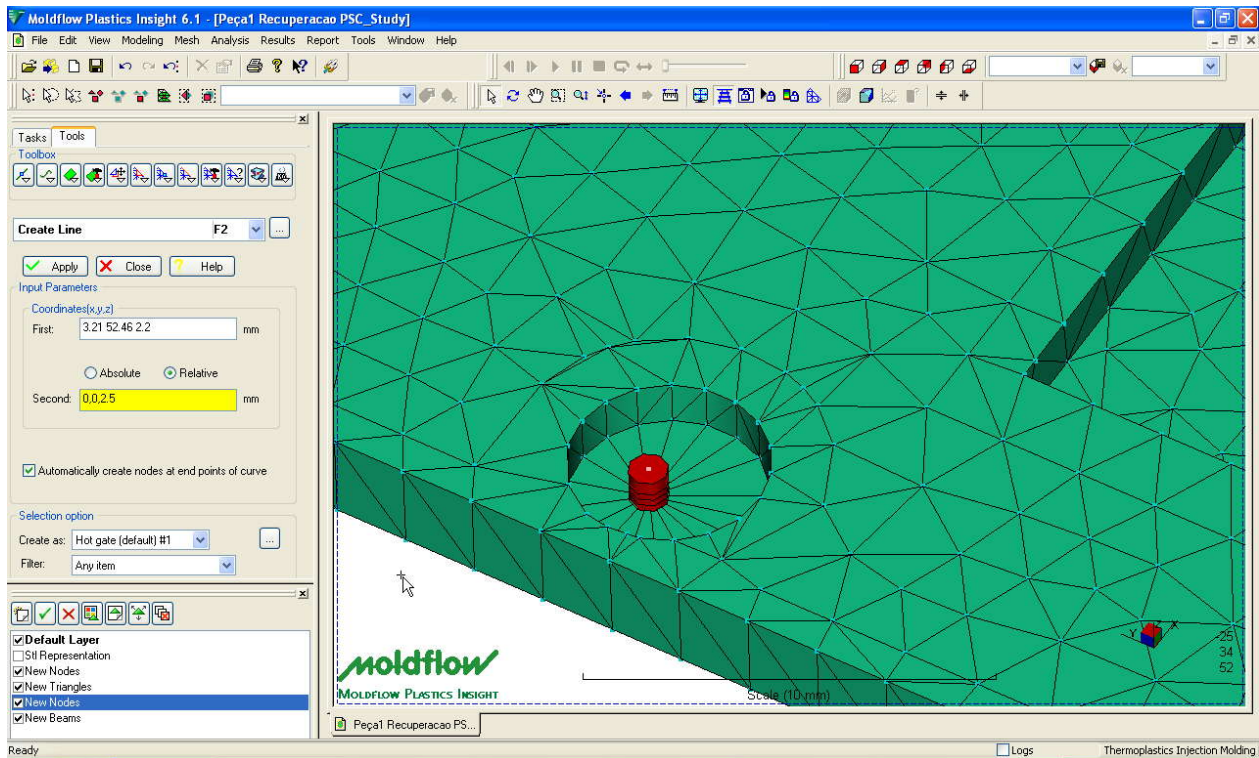
Modelamento do Canal – parte cônica. Menu – Modeling – Create Curves - Line



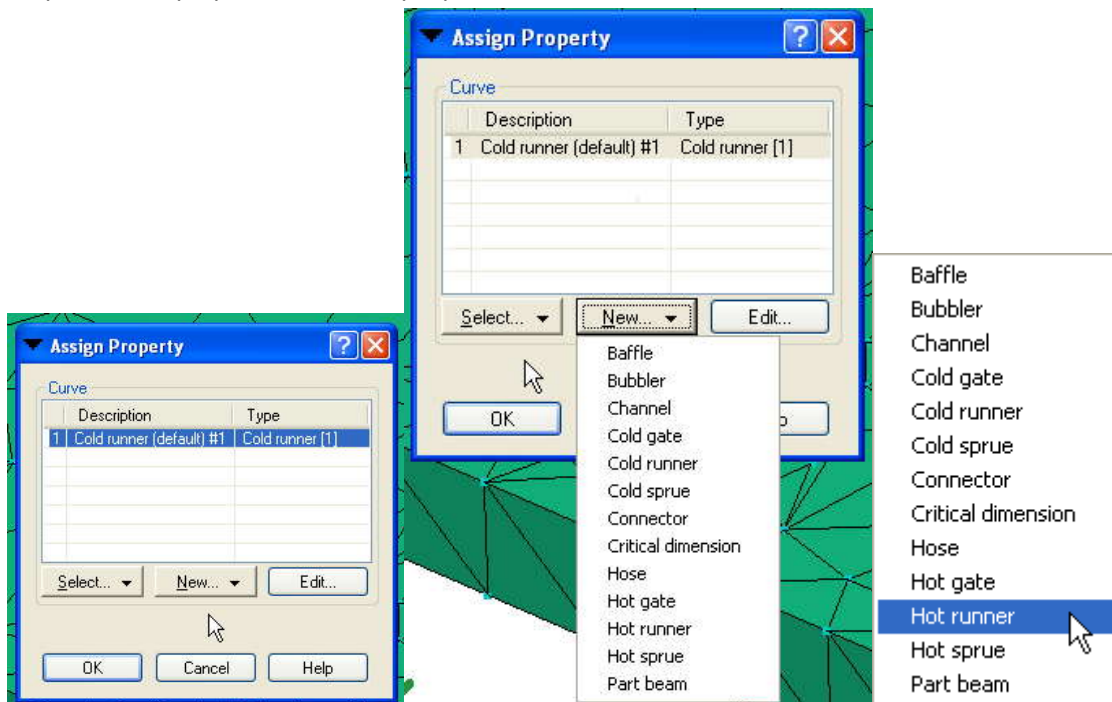
Defina primeiro ponto na peça no final da entrada,



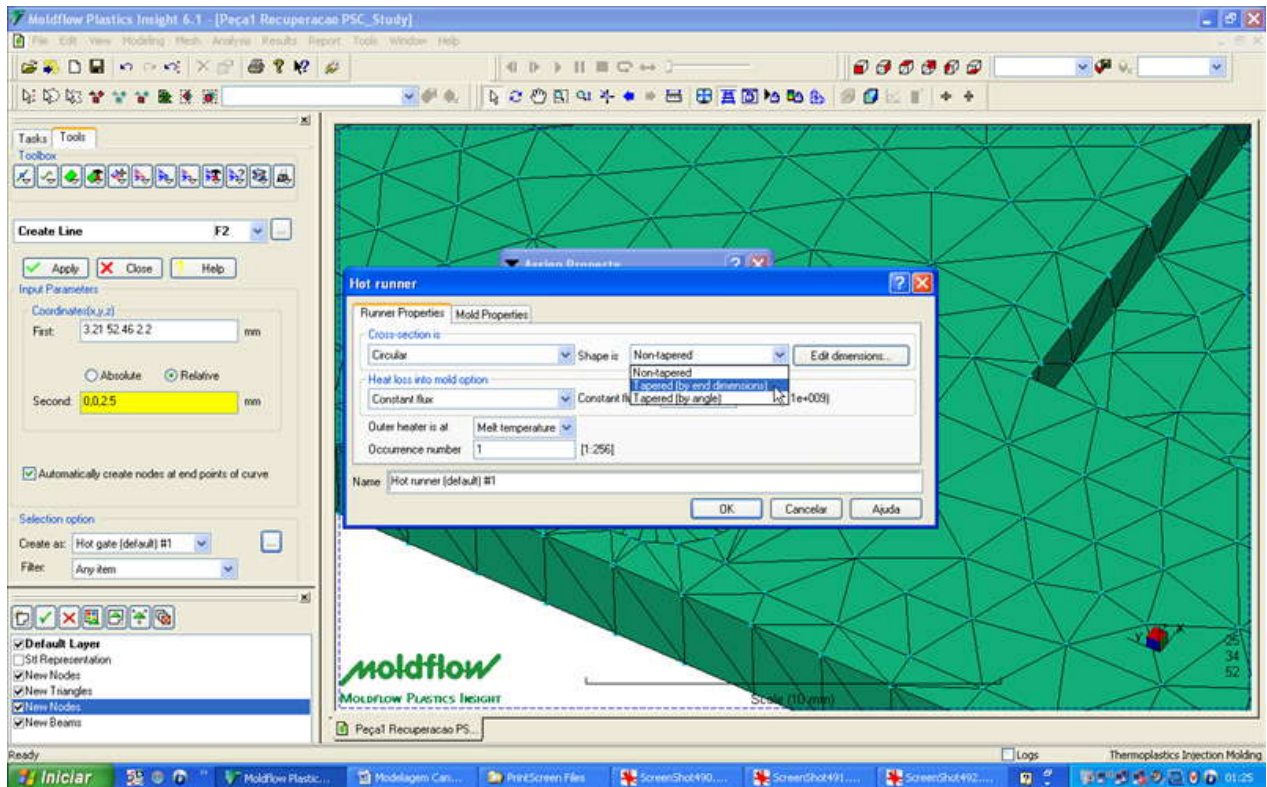
marque opção Relative e informe segundo ponto 0,0,2.5



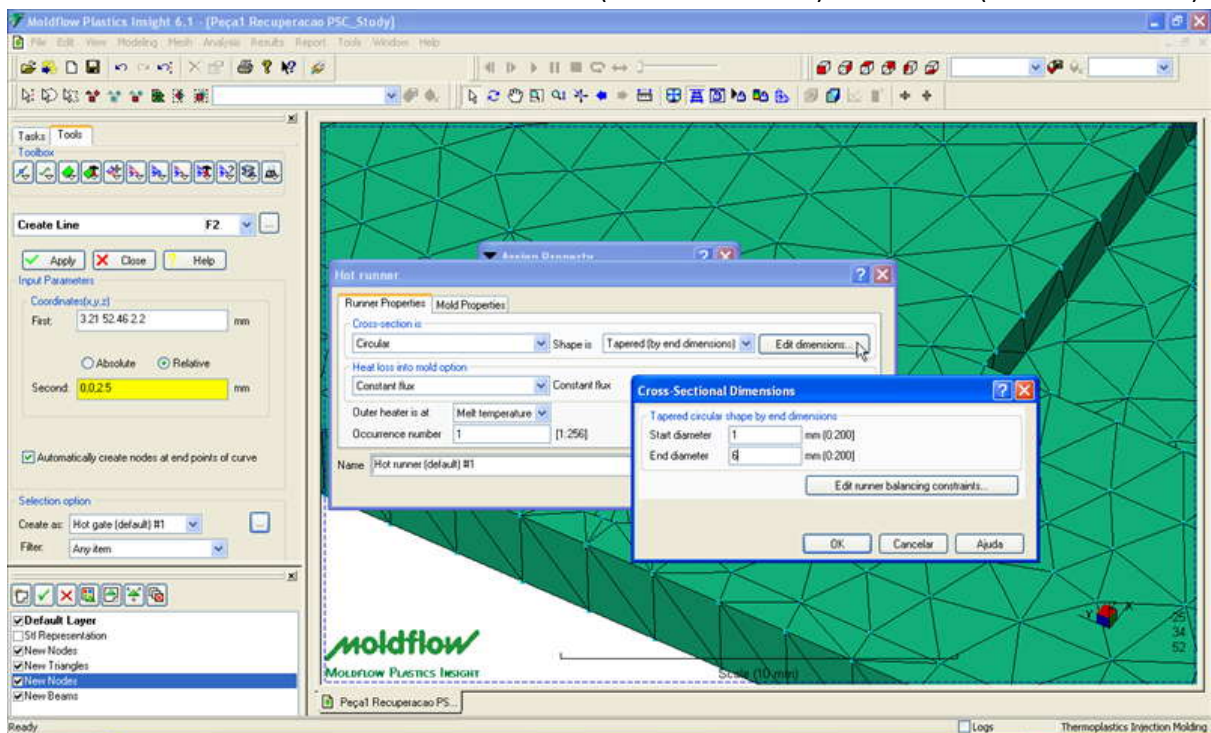
Clique no campo para atribuir as propriedades

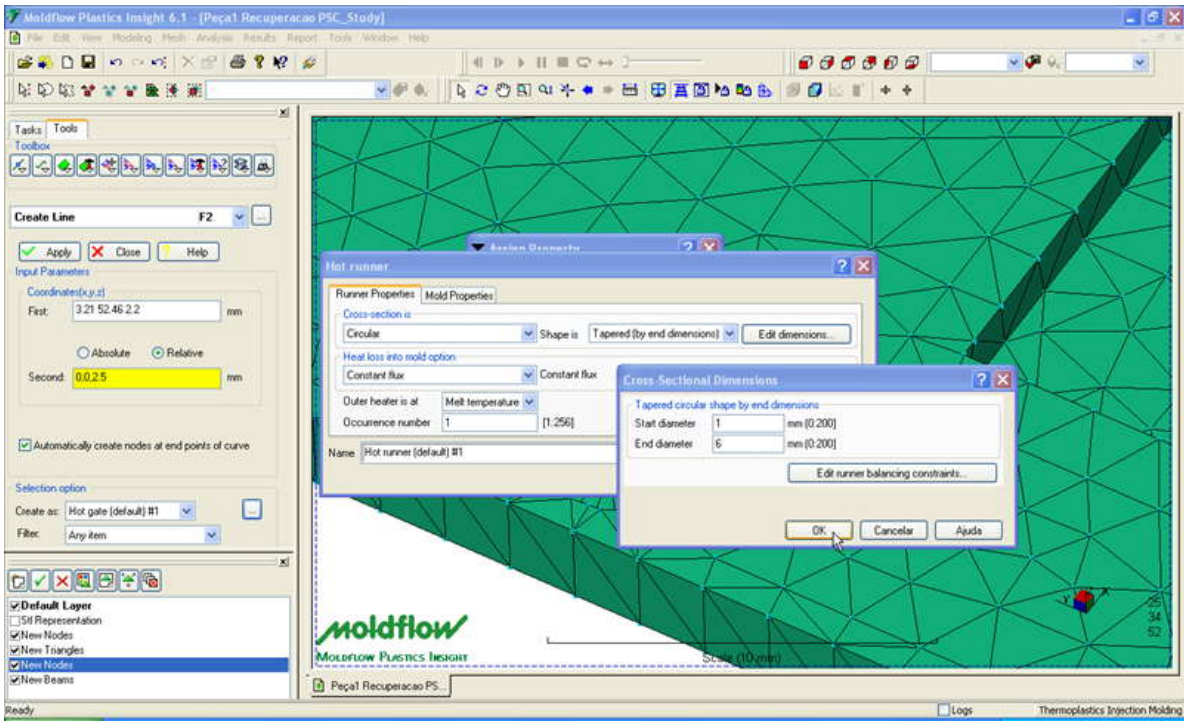


Escolha opção Tapered (by end dimensions) em shape is

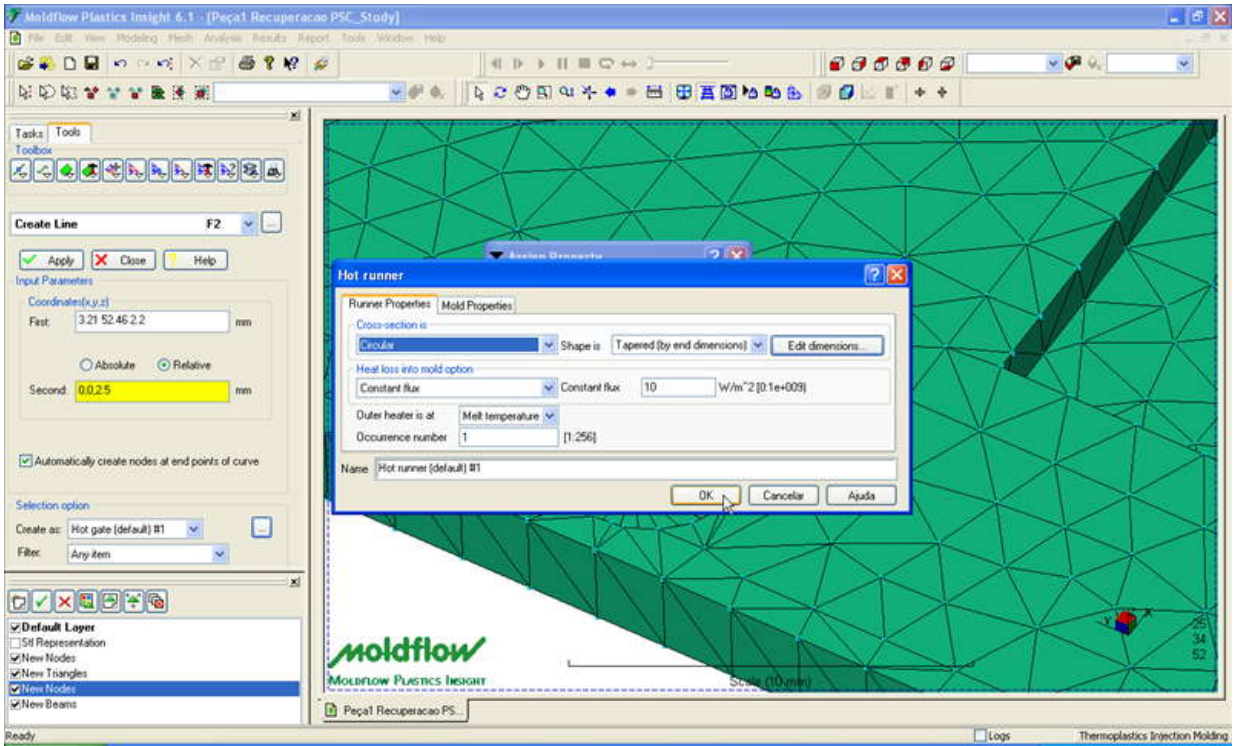


Editar dimensões Valor inicial no final da entrada (Start diameter =1) e valor final (End diameter = 6)



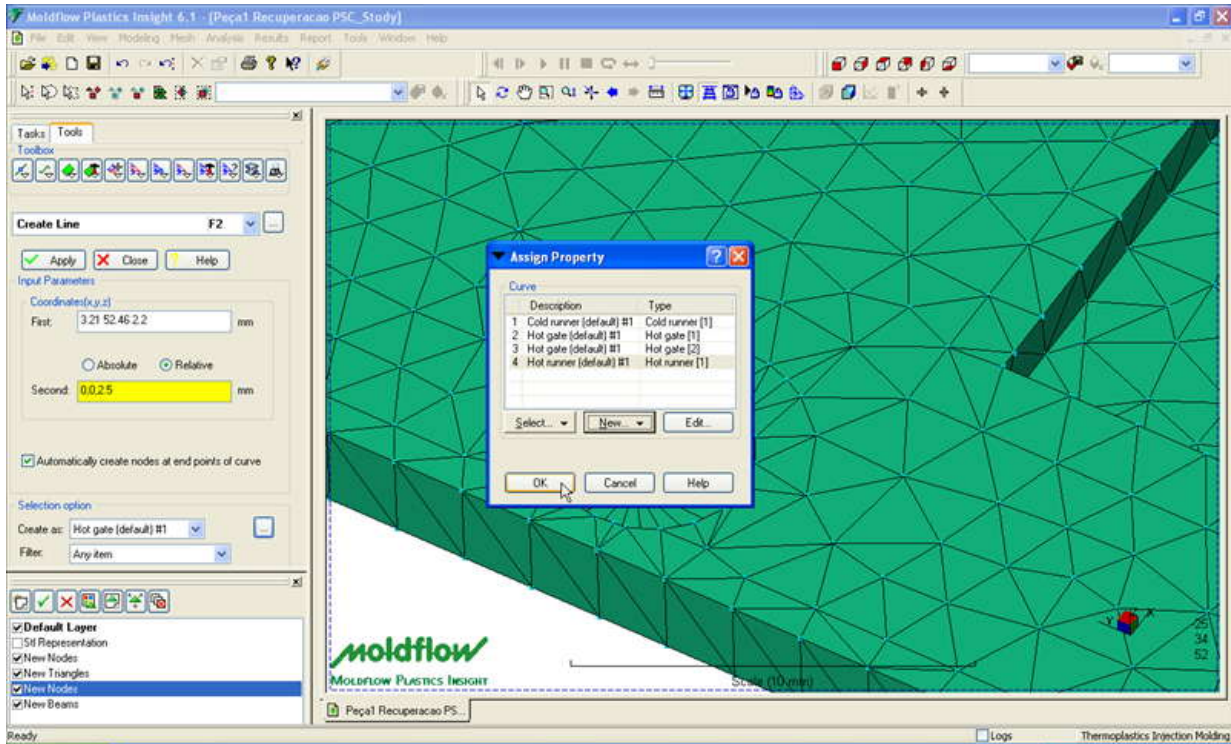


OK

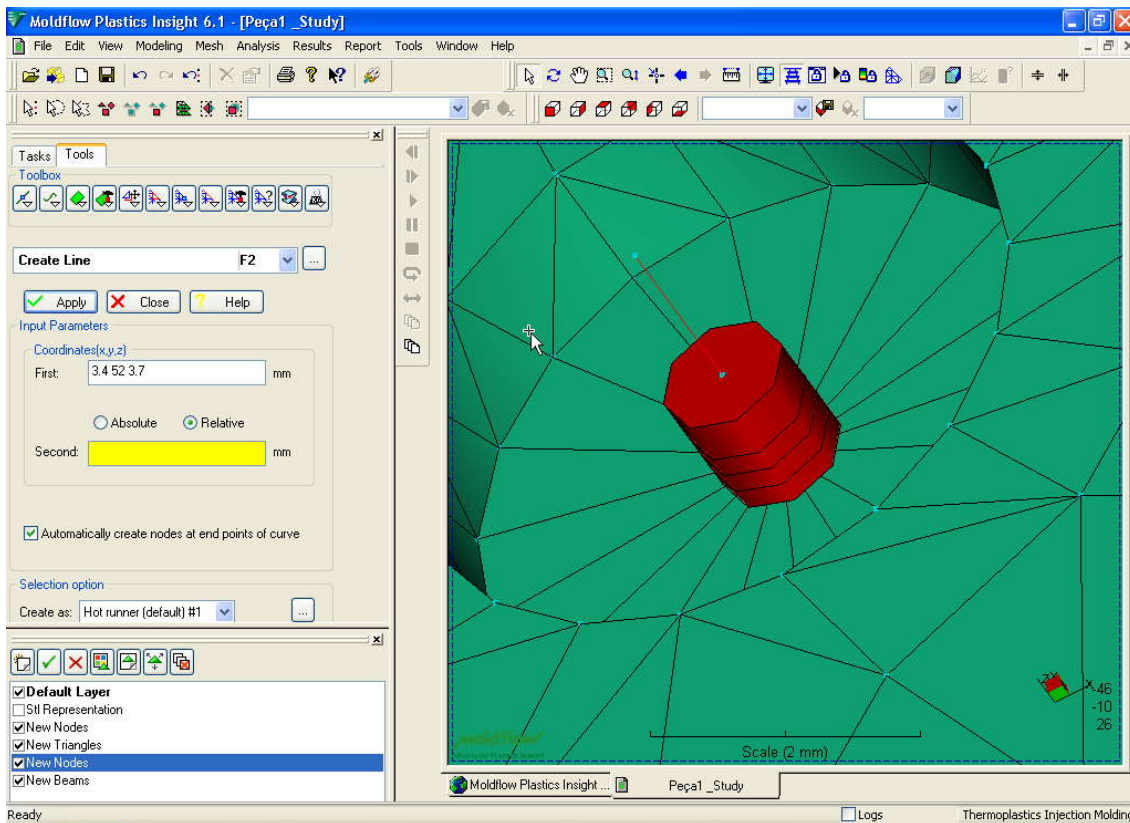


OK

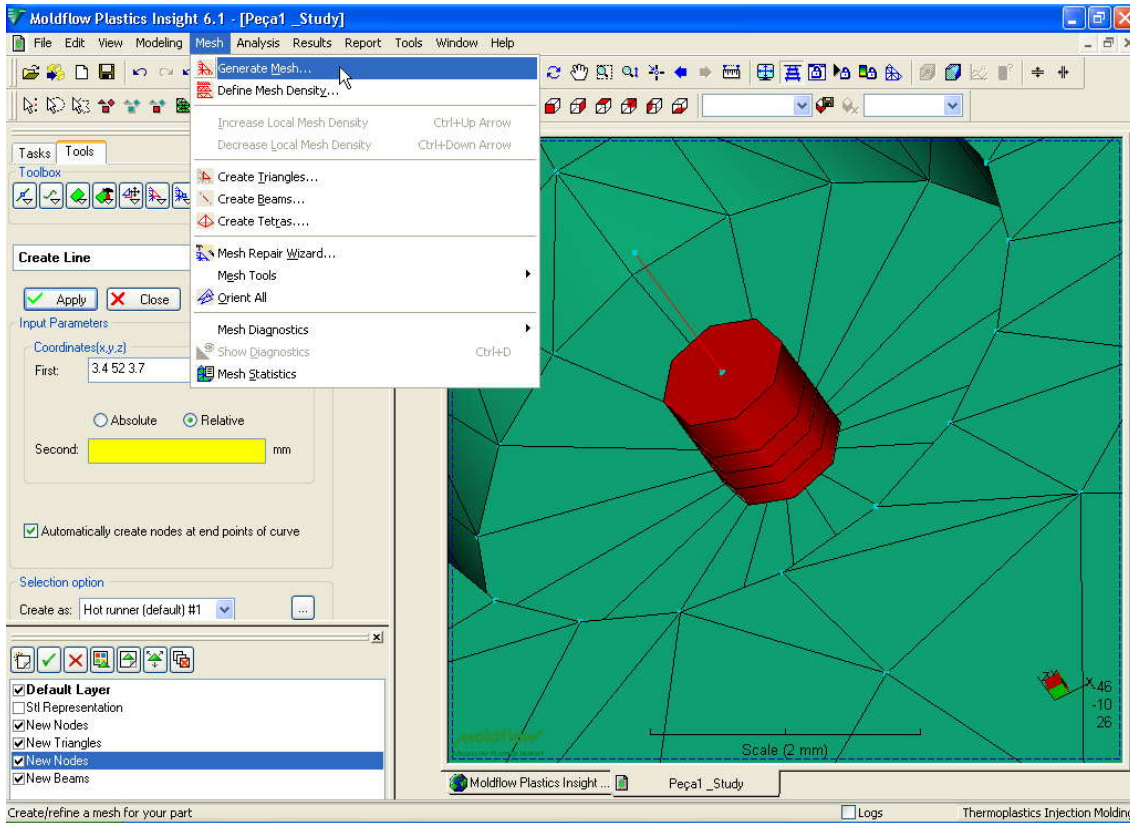
OK



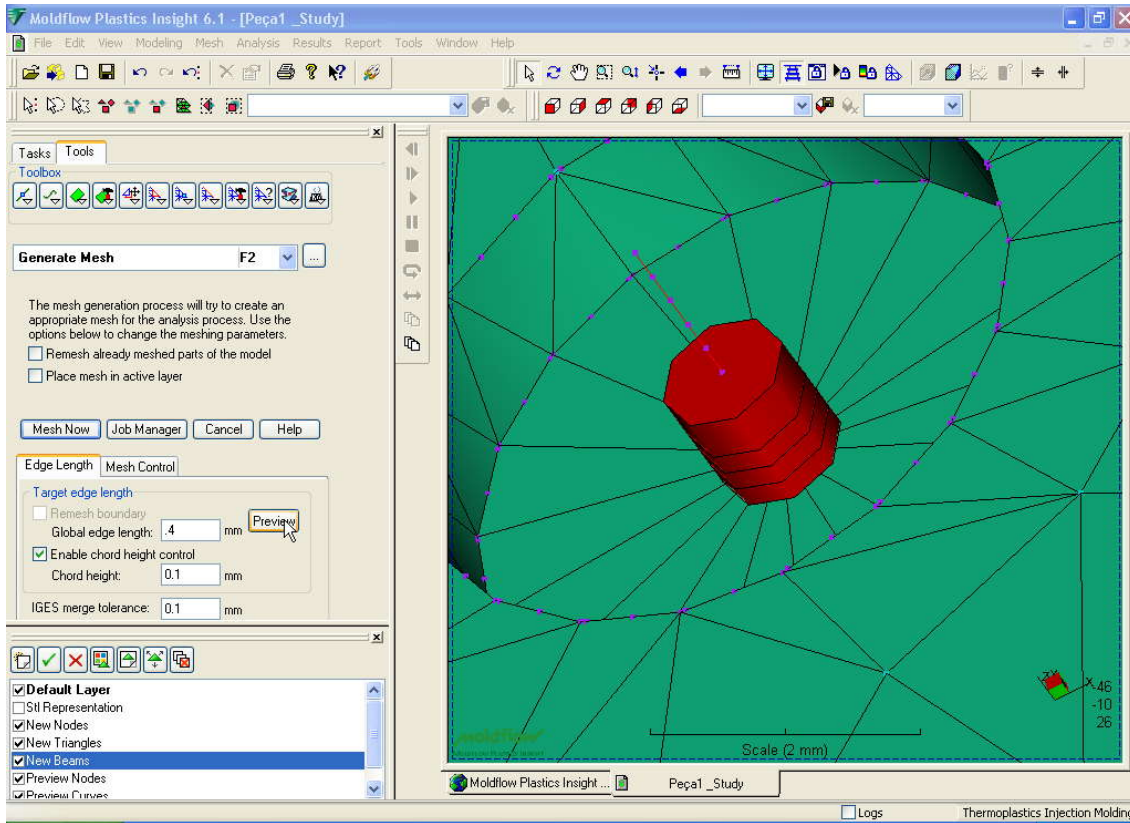
Linha criada



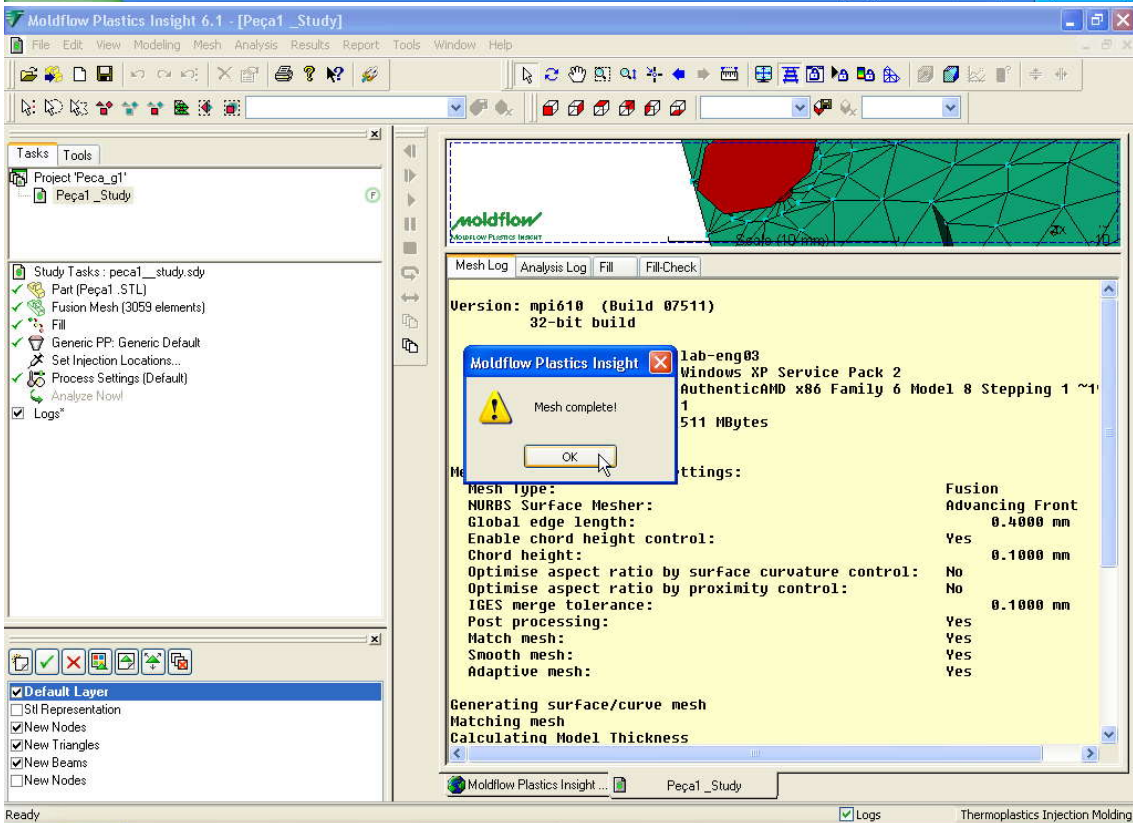
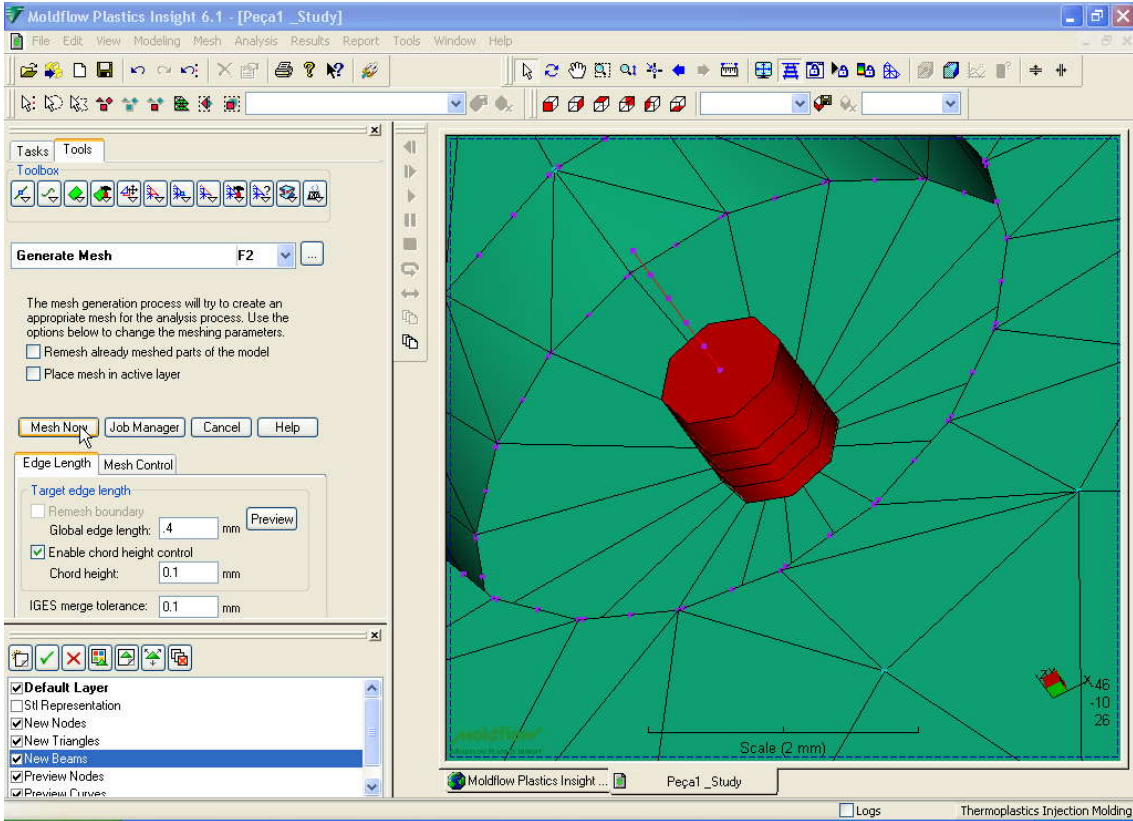
Gerar malha – Menu -> Mesh – Generate Mesh

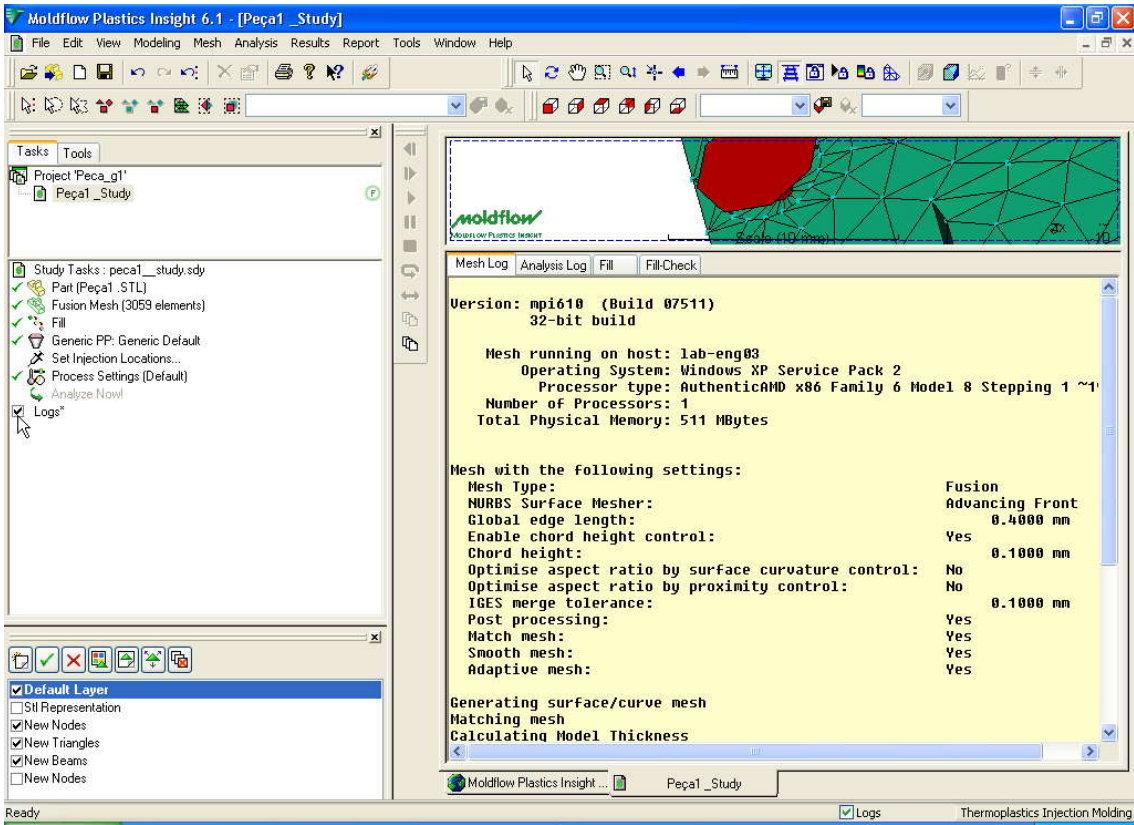


Defina 0.4 para Global edge length clique em Preview para verificar quantos elementos estão sendo criados

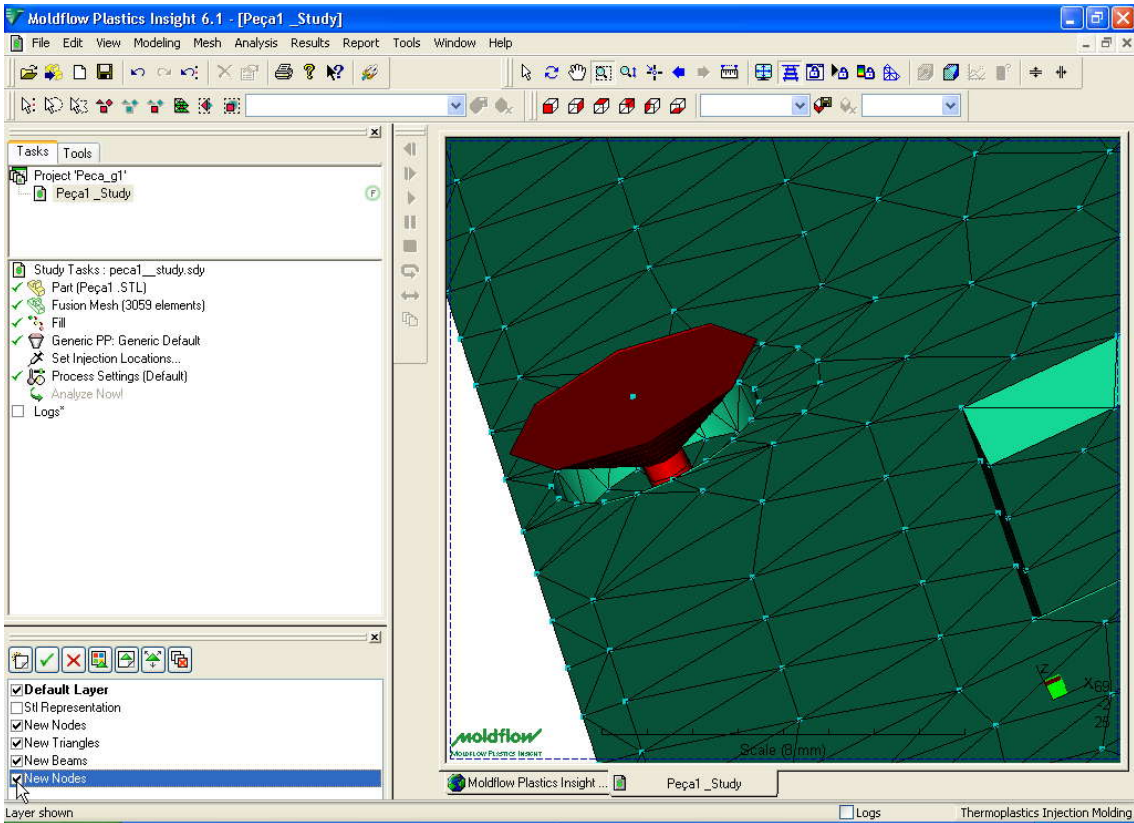


Clique em Mesh Now para Gerar a Malha



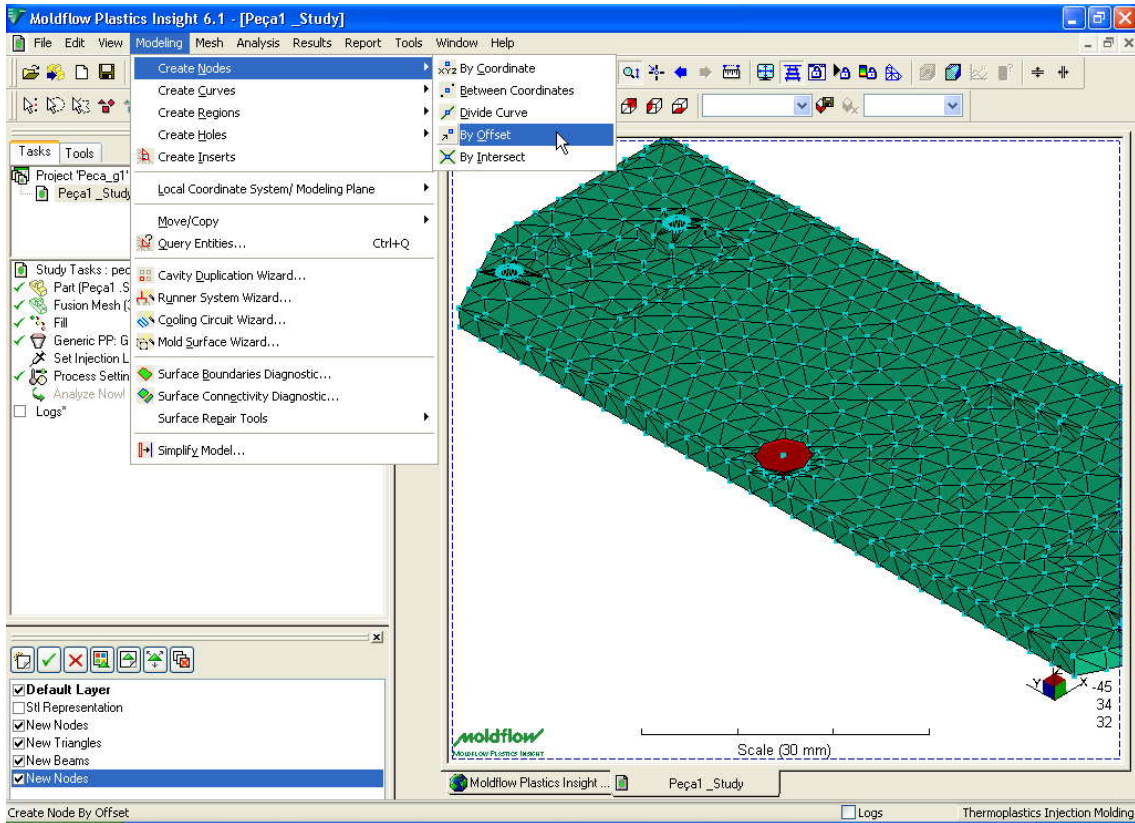


Desmarque Logs

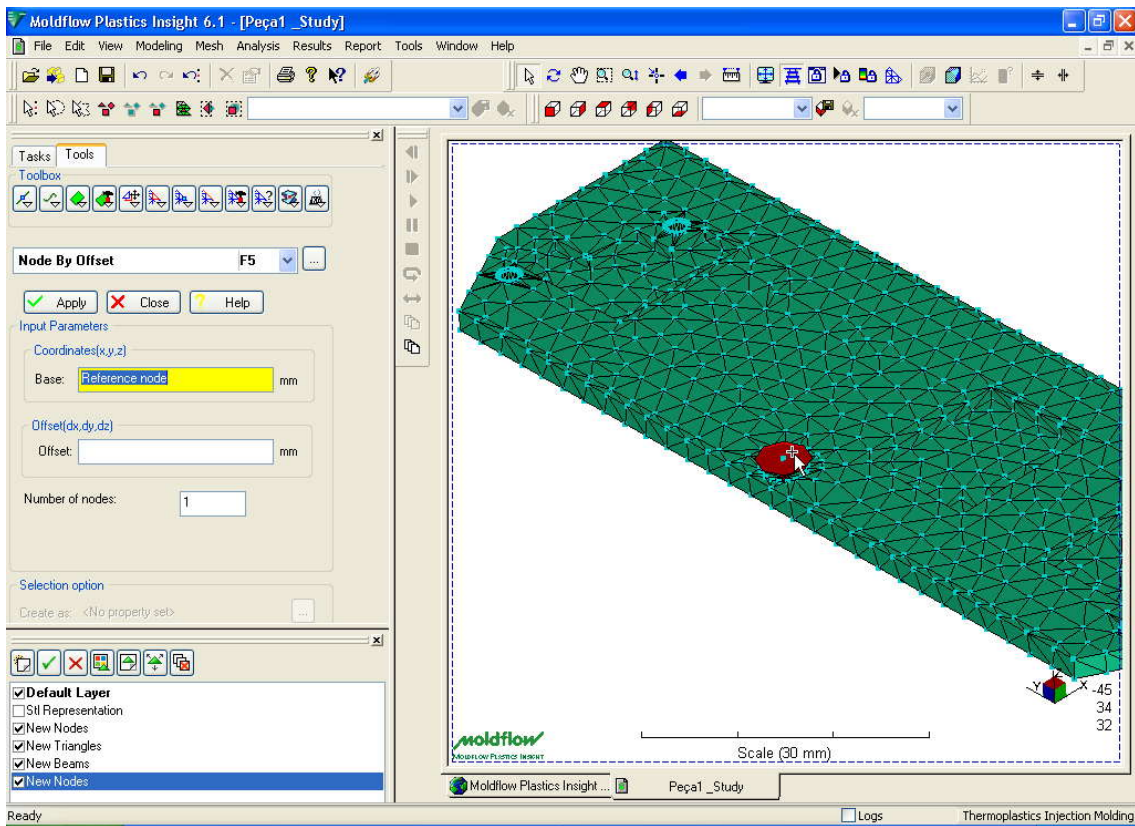


Marque o Layer New nodes

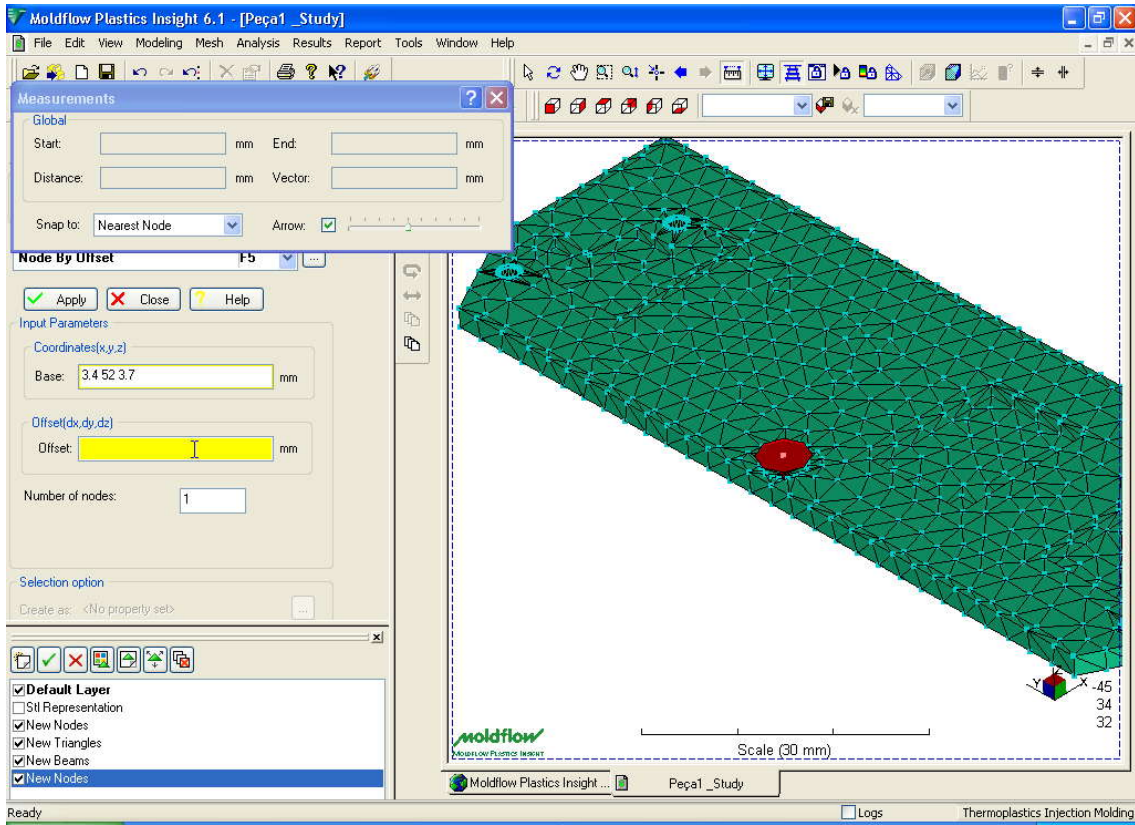
Modelar segunda parte do canal – criar nó por offset a partir do nó final do canal



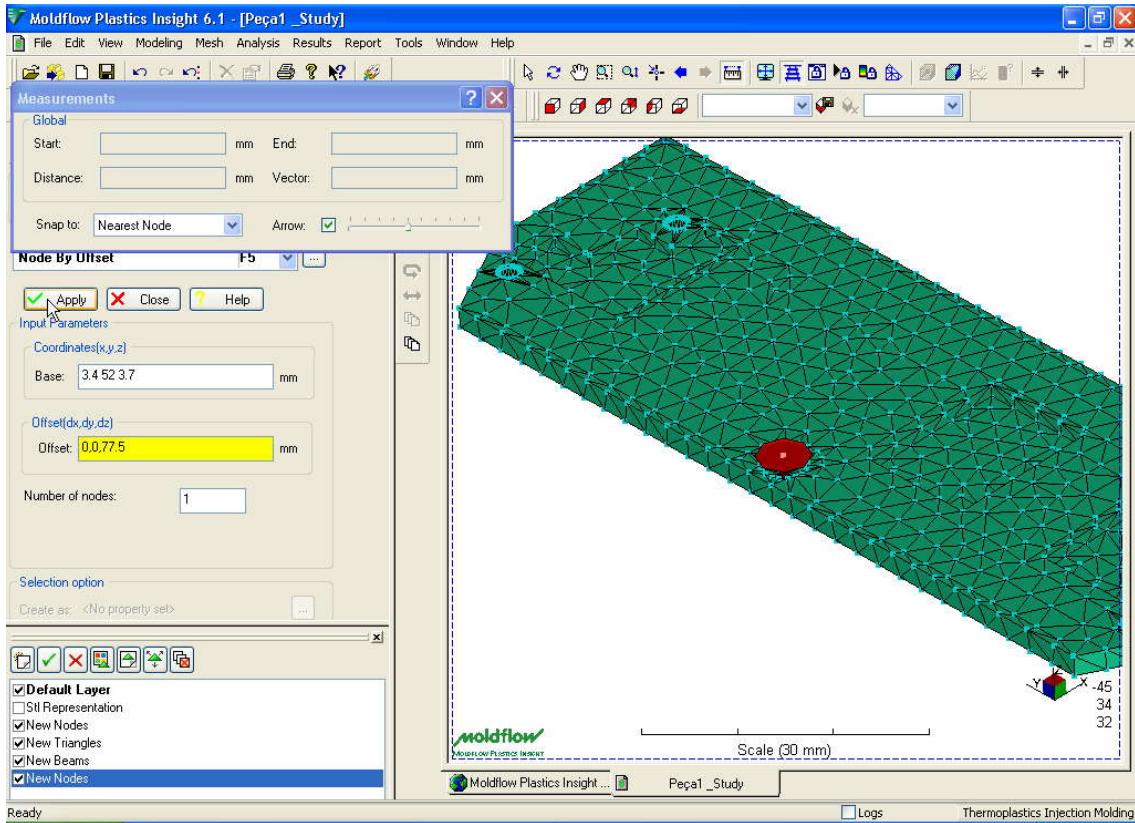
Selecione o nó



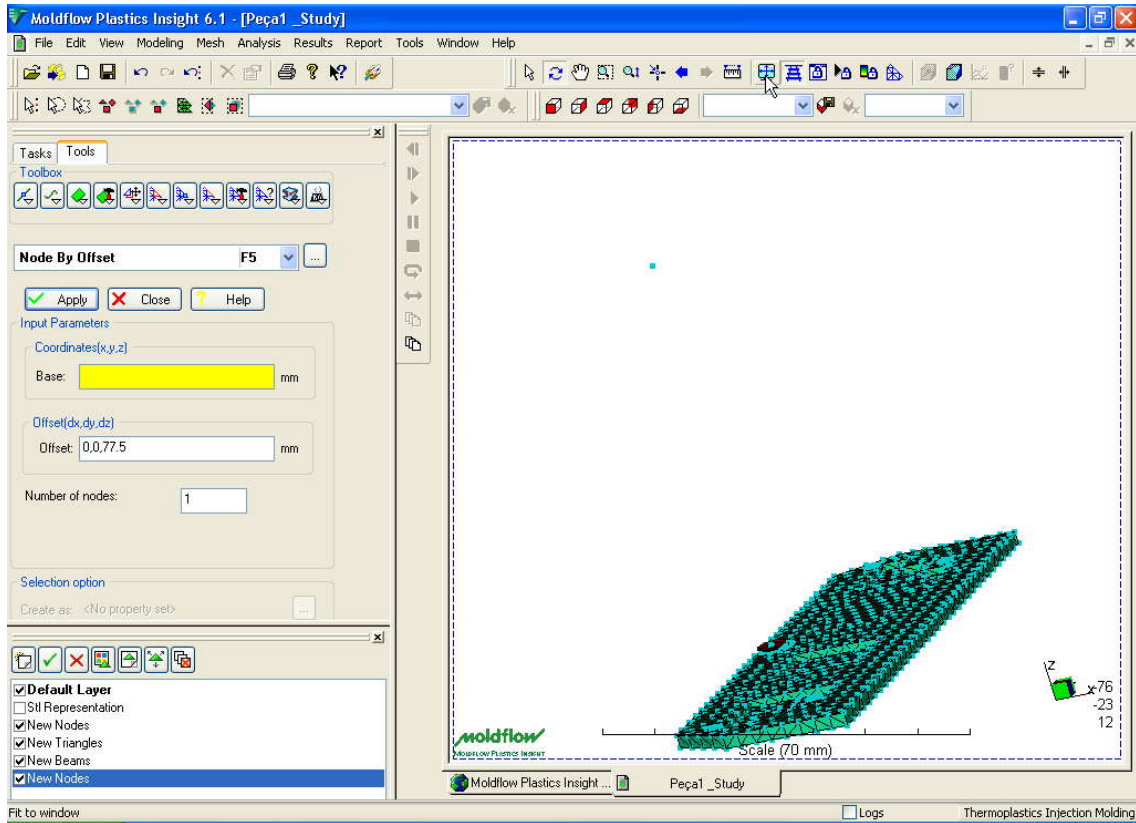
Defina o segundo ponto, deslocamento em relação ao ponto base



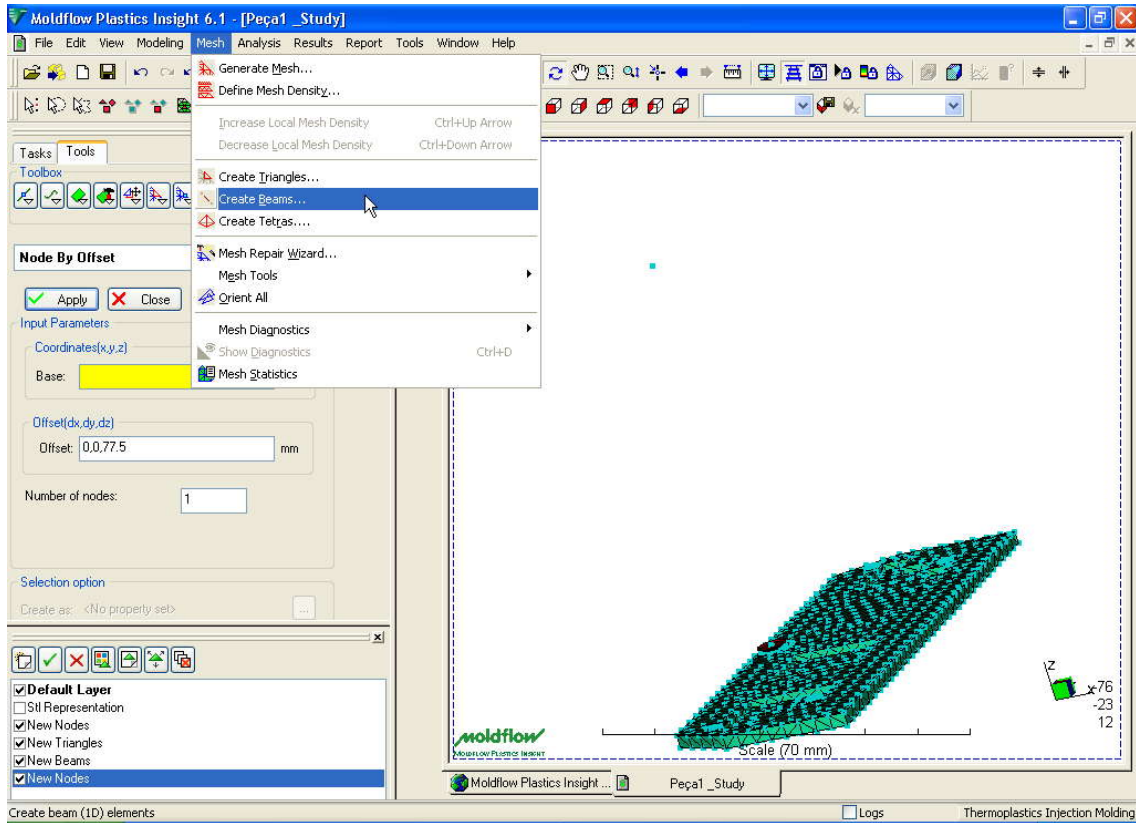
0,0,77.5 e Apply



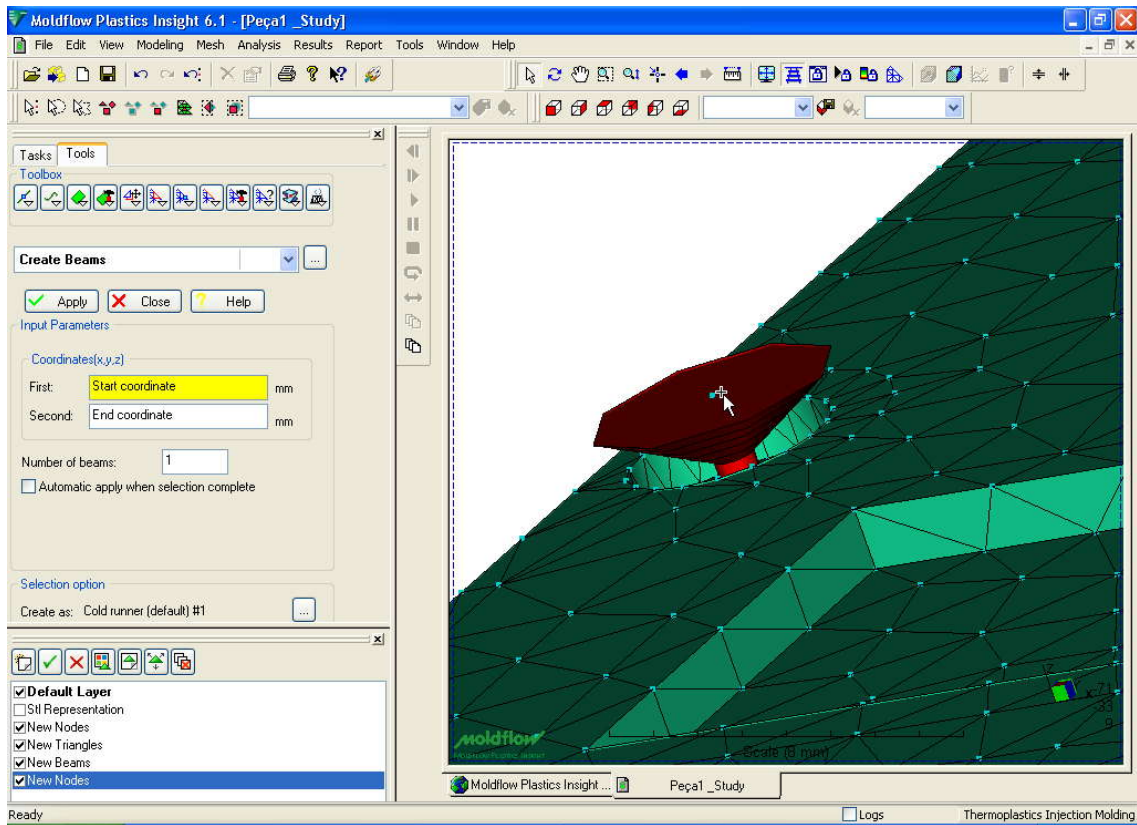
Clique em Fit to Windows para visualizar o nó criado



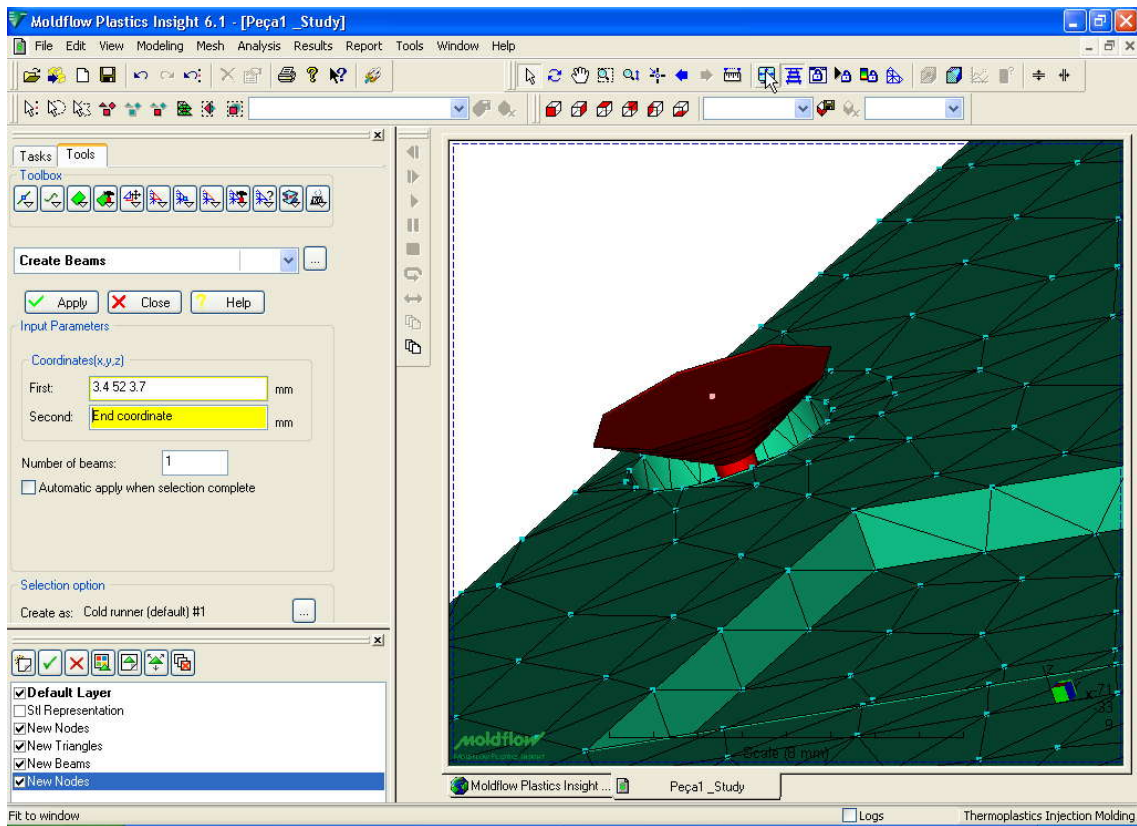
Modelar o canal a partir de elementos de viga – Menu – Mesh – Create Beams



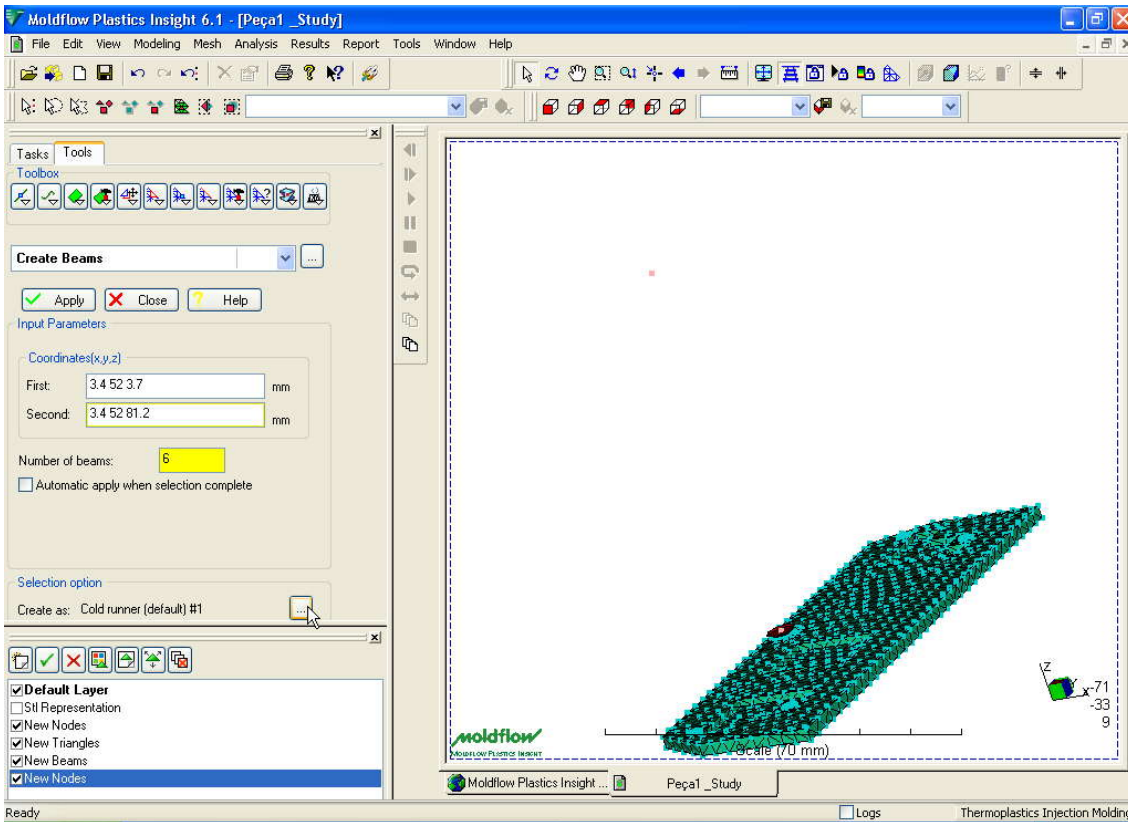
Selecione o primeiro nó para definir a Beam



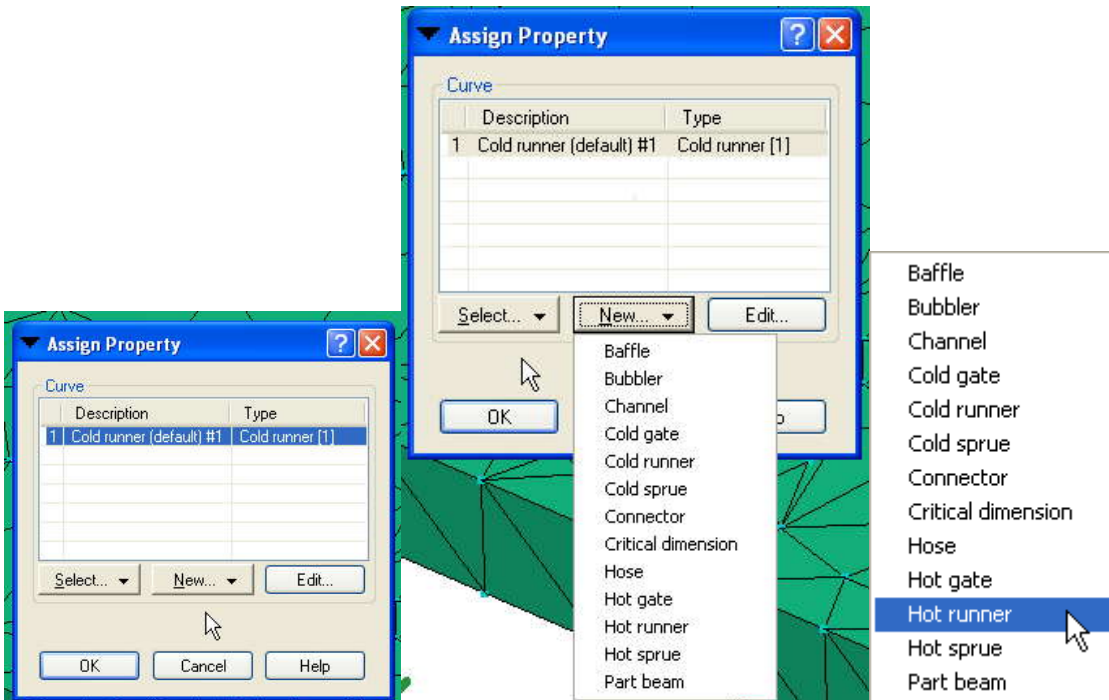
De um Zoom to Fit para visualizar segundo nó



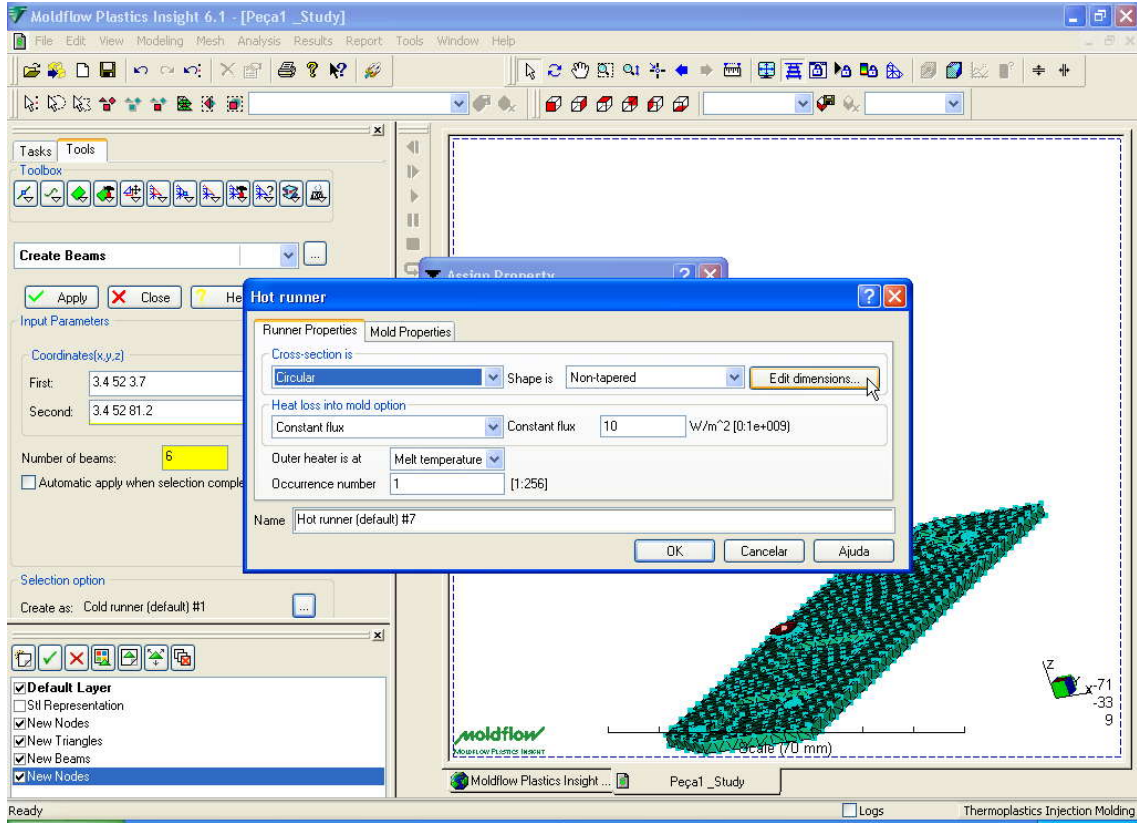
Selecione segundo nó e o número de Beam a criar . O número de Beam deve ser definido através da relação $L/D < 2.5$ onde L é o comprimento de cada elemento a ser criado e D o diâmetro do canal então para um comprimento de 77.5 vamos criar 6 Beams cada elemento vai ficar com comprimento de 12.9. Efetuando a divisão de L/D temos: $12.9/6 = 2.15$ que é menor que 2.5



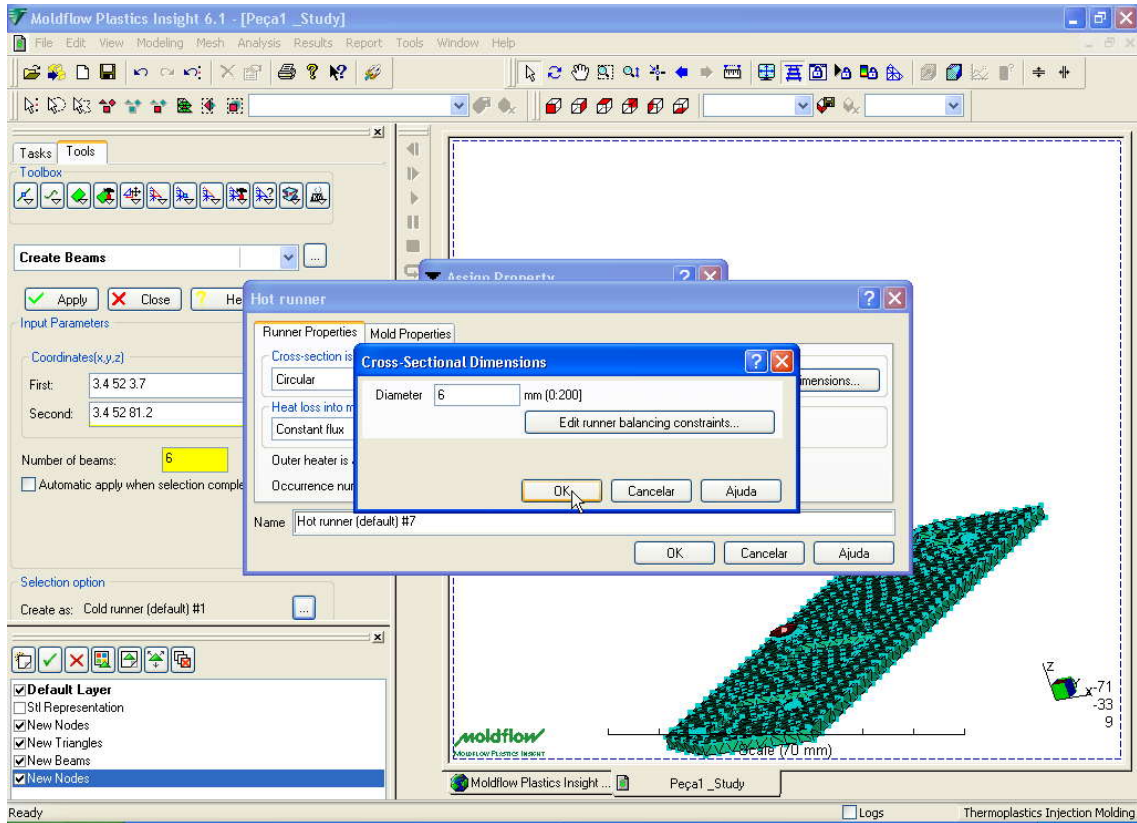
Atribuir propriedade para Beam

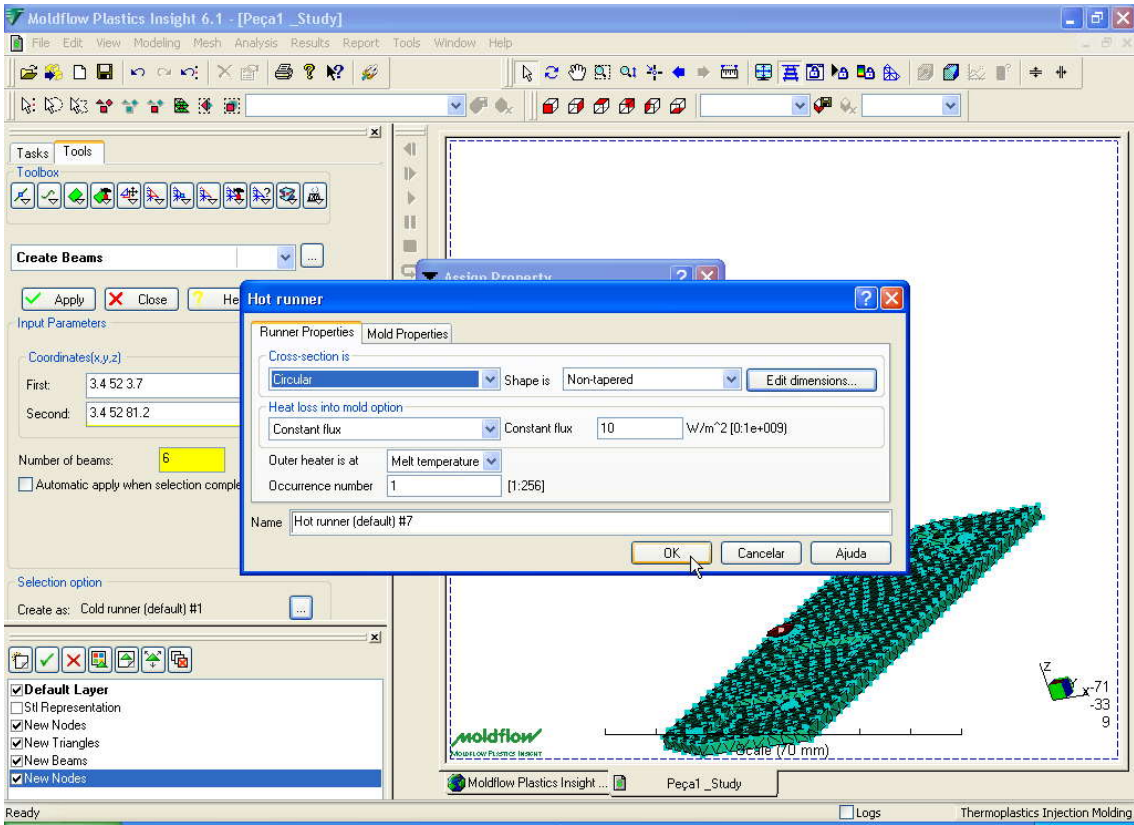


Clique em Edite dimensions para atribuir medida para o diâmetro do bico quente

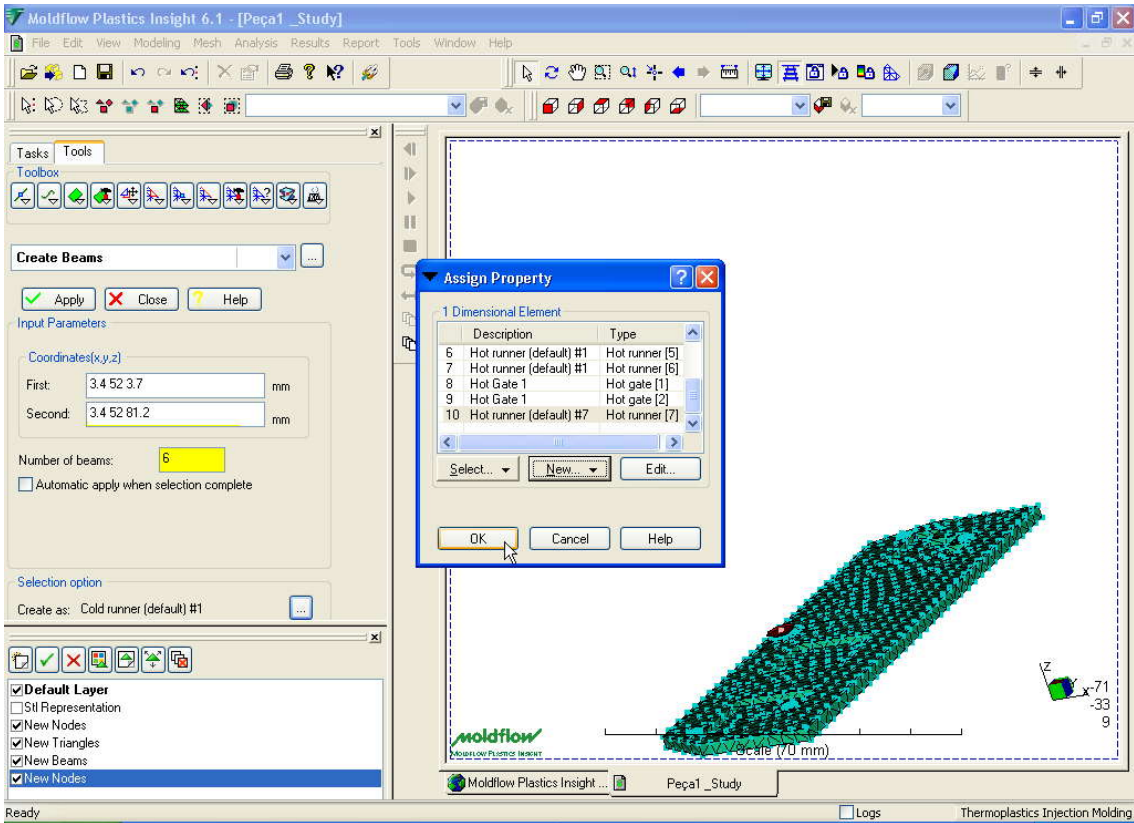


6mm OK



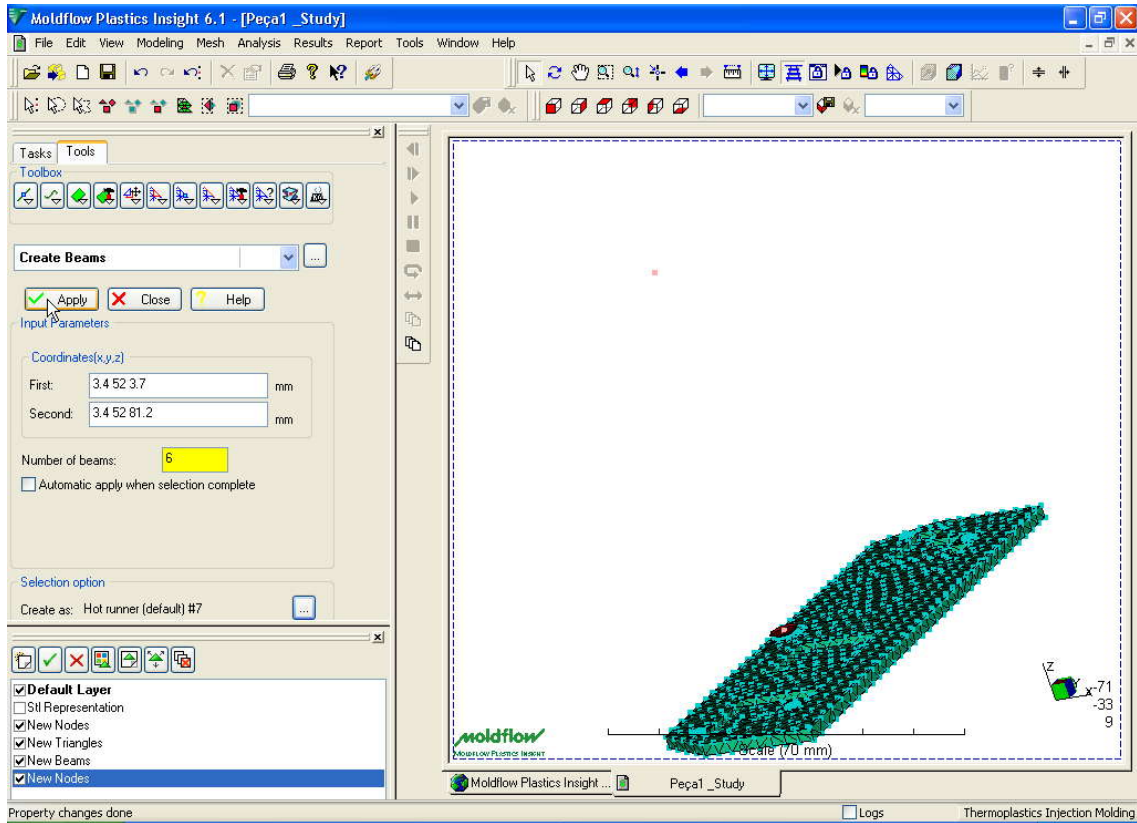


OK



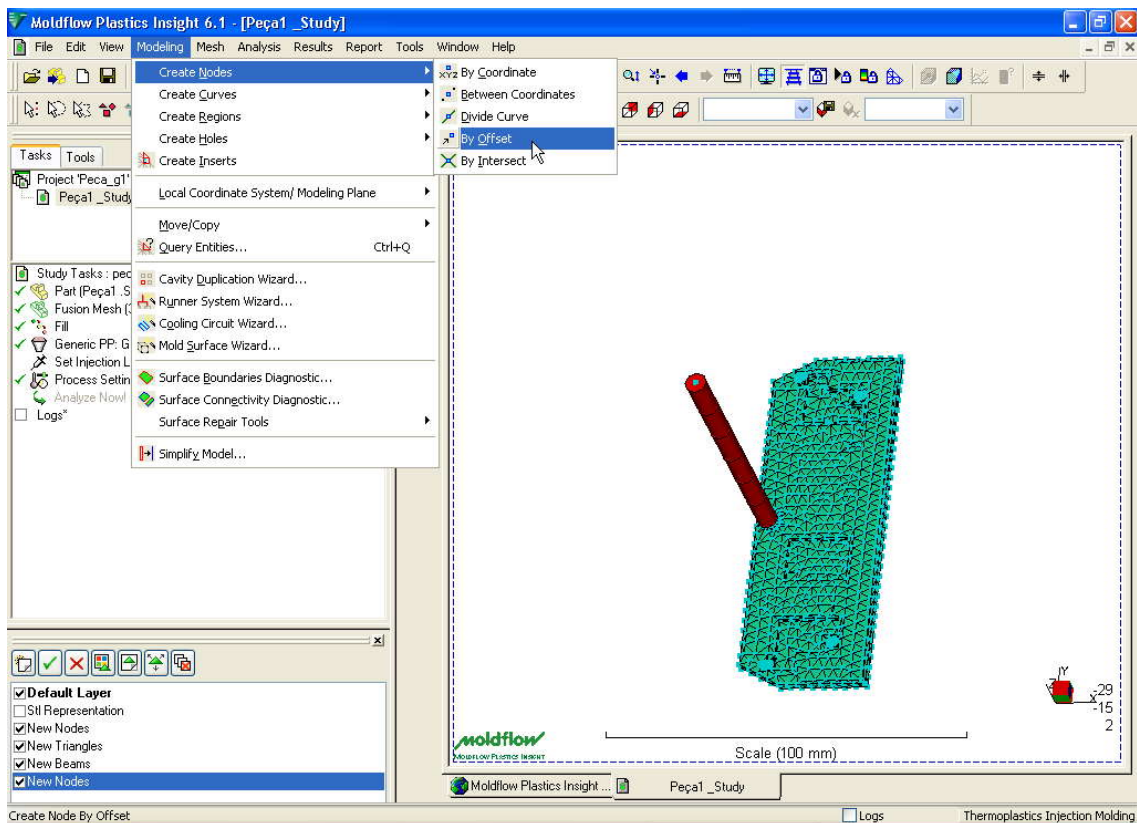
OK

Apply

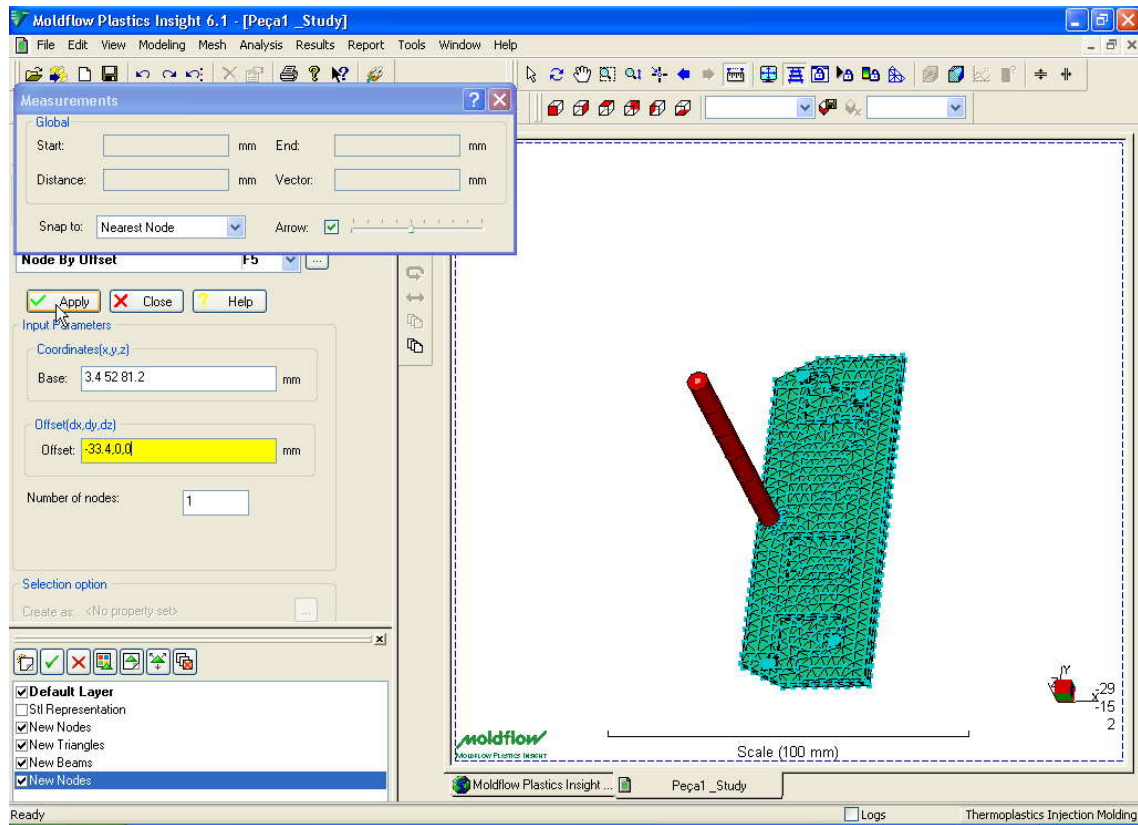


Após criado o parte para criar próximo trecho

Criar nó por offset

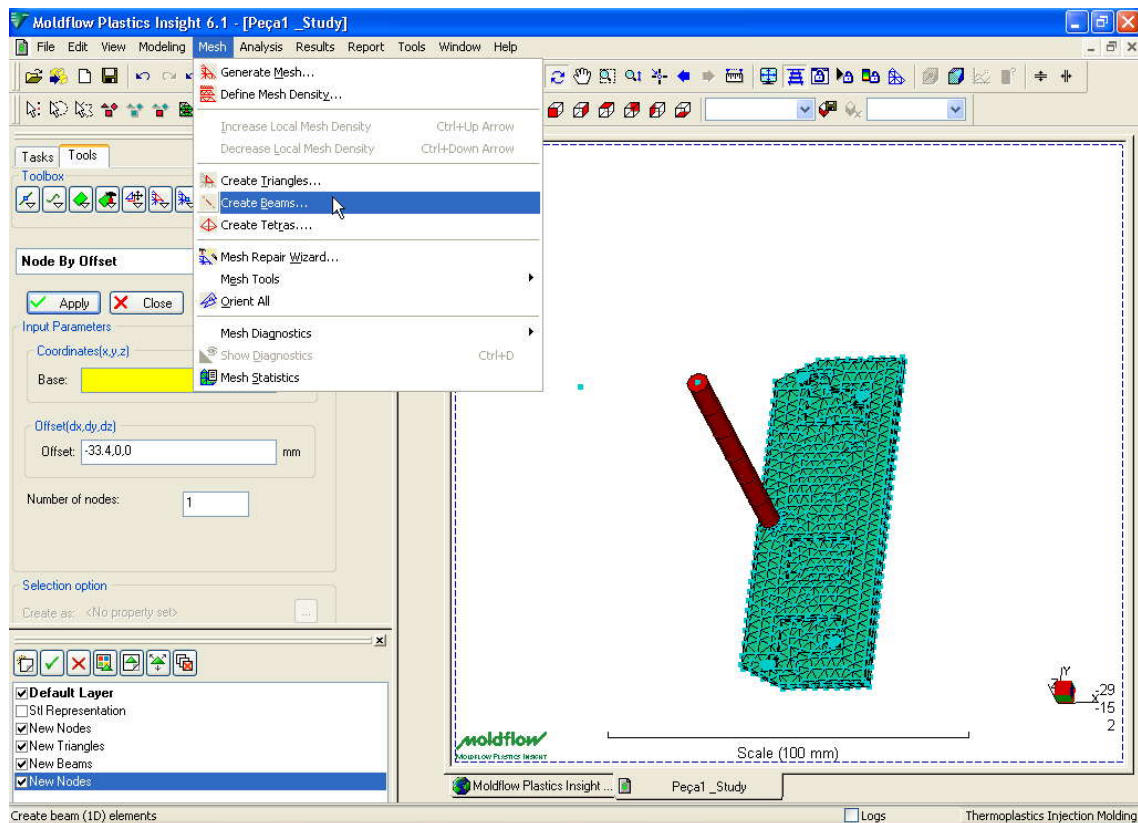


Selecione o primeiro nó no final do canal

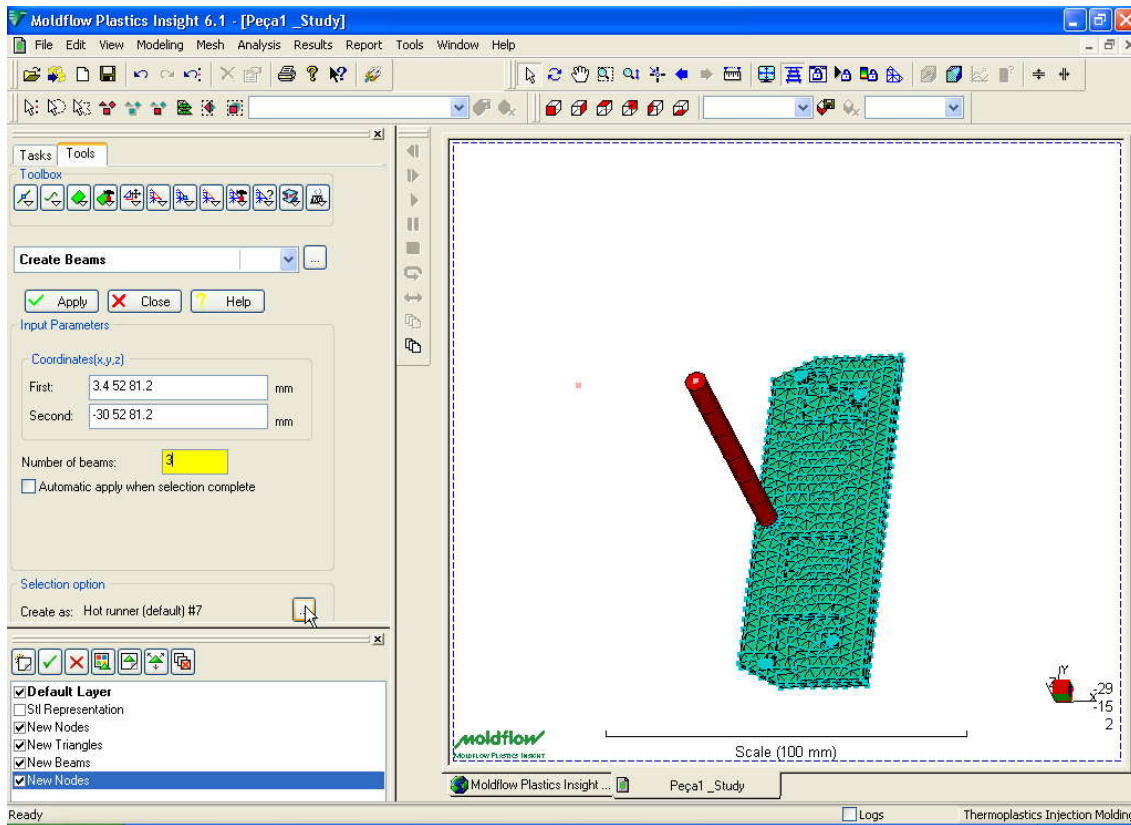


Valor para criar o segundo nó -33.4,0,0 e Apply

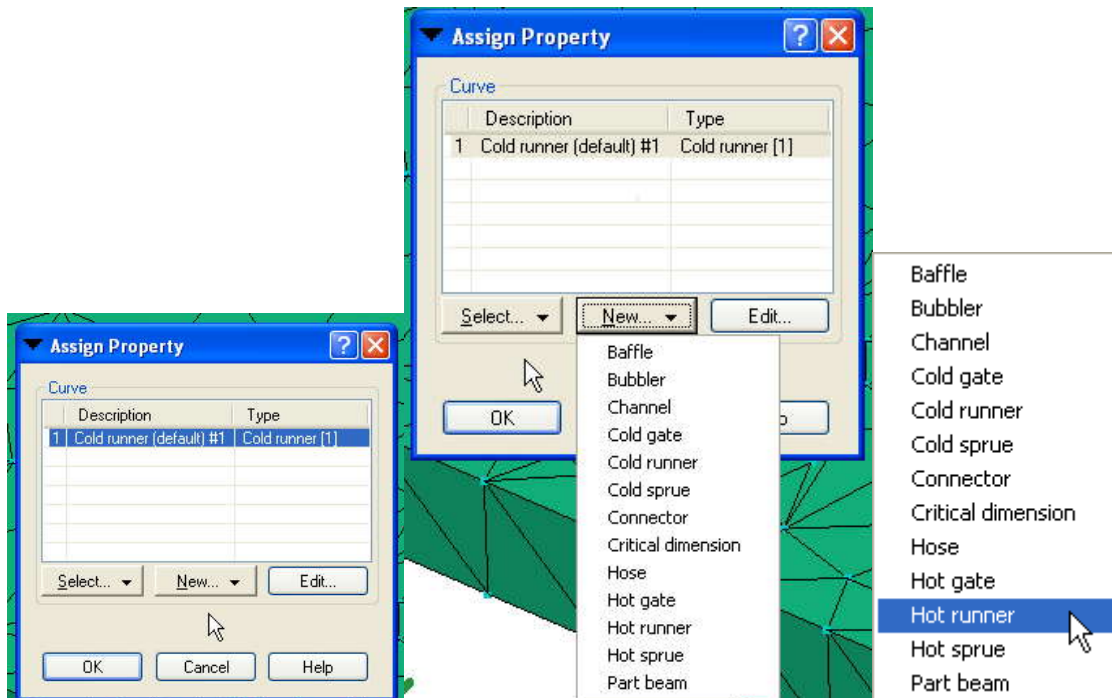
Criar Beam para o trecho do canal



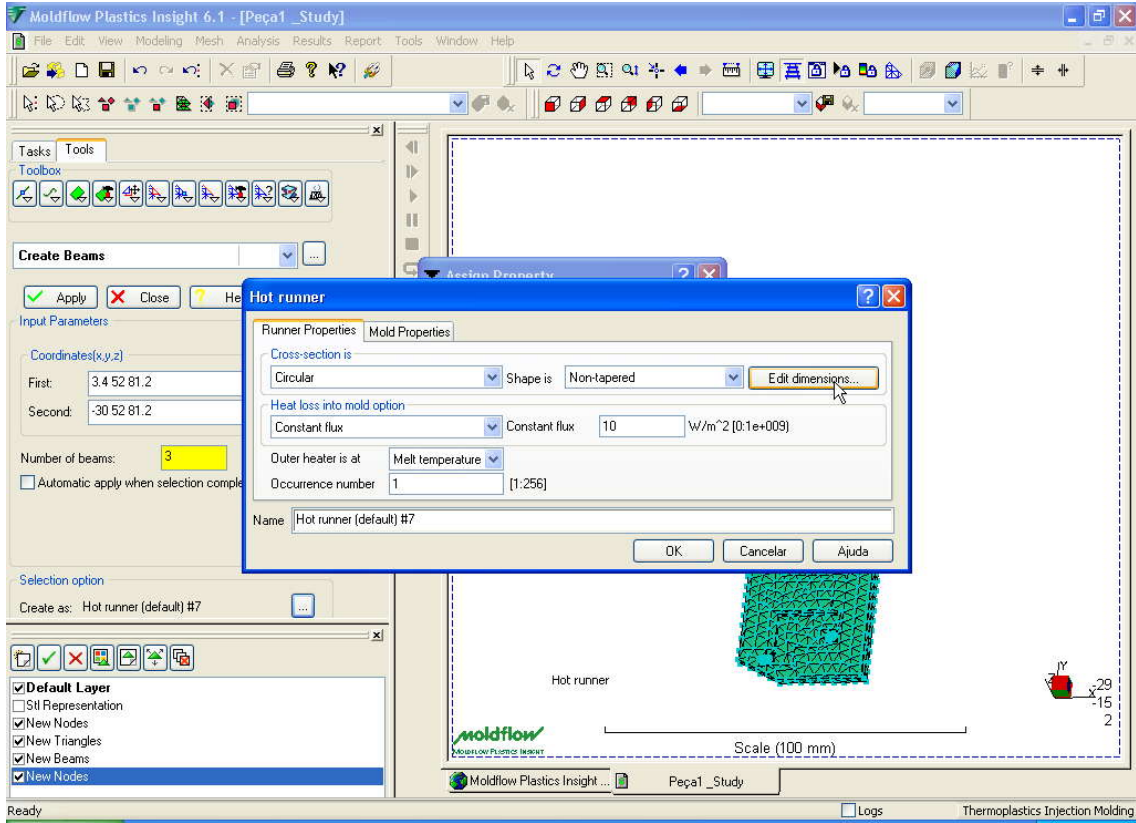
Selecione os dois nós e informe o numero de Beam 3 para o trecho



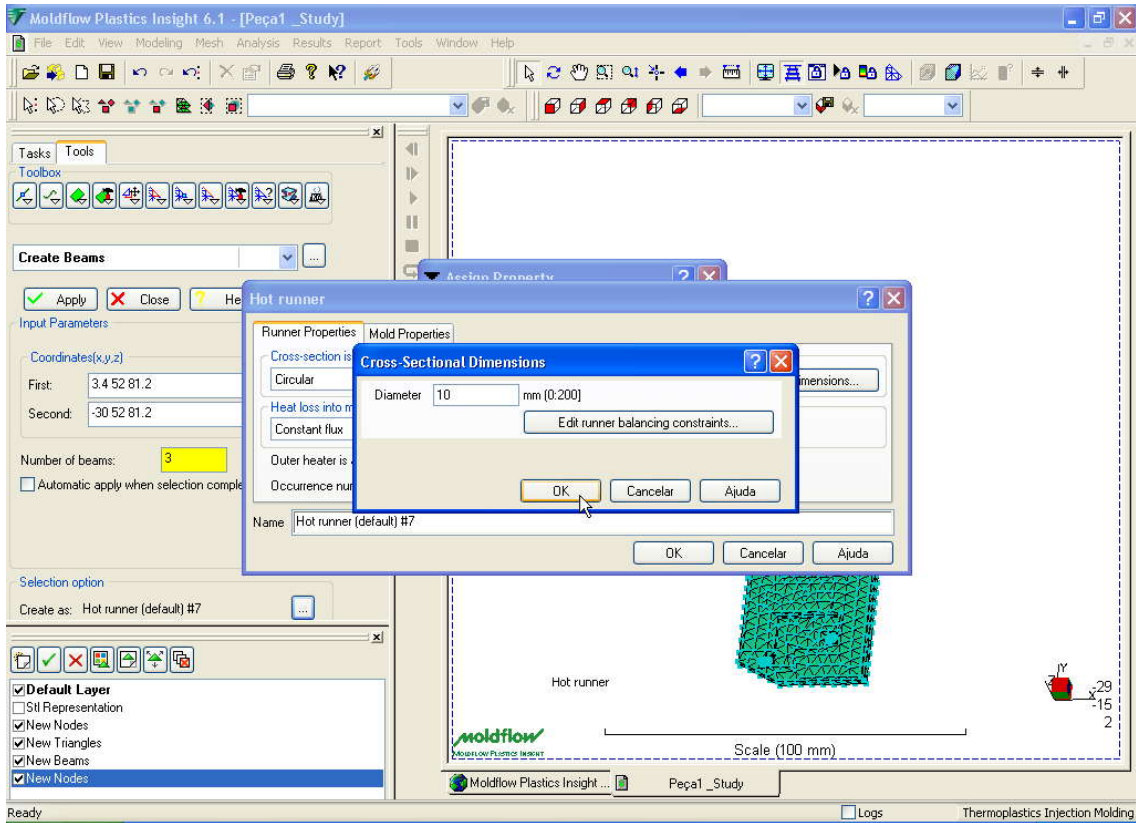
Atribuir propriedade para Beam



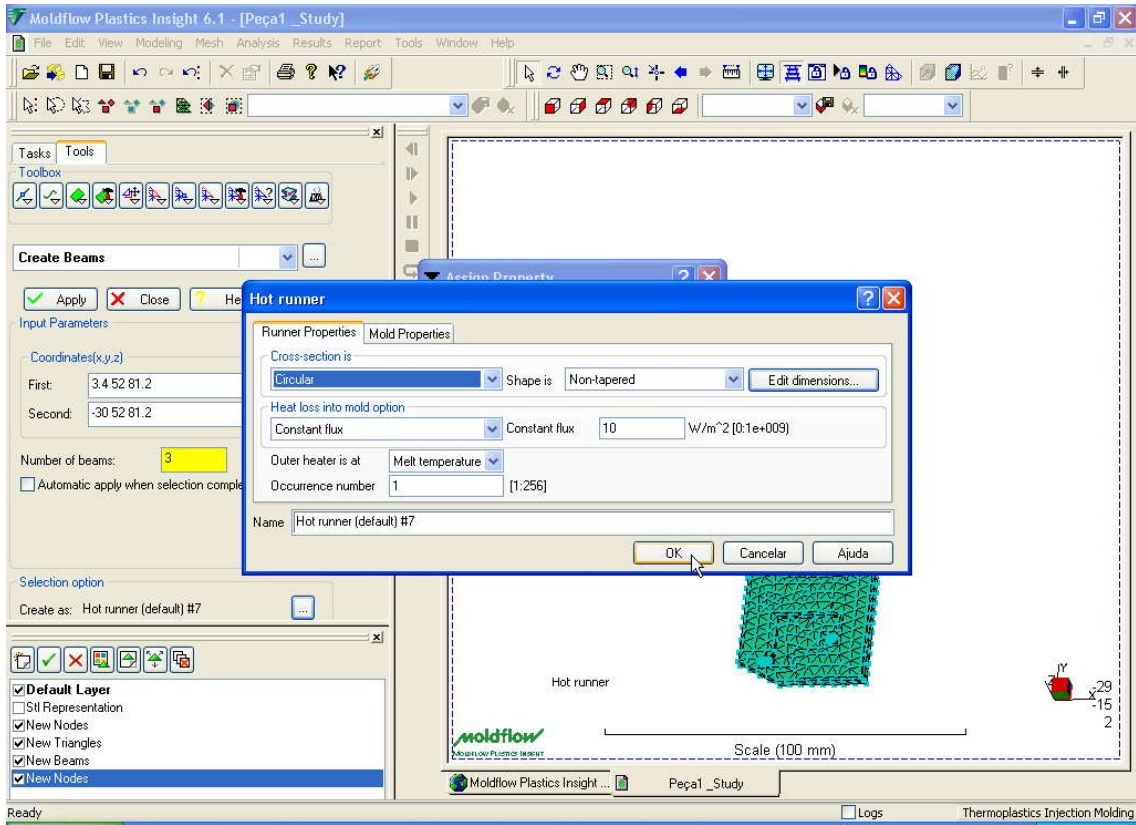
Edit Dimensions valor para o diâmetro do canal do Manifold



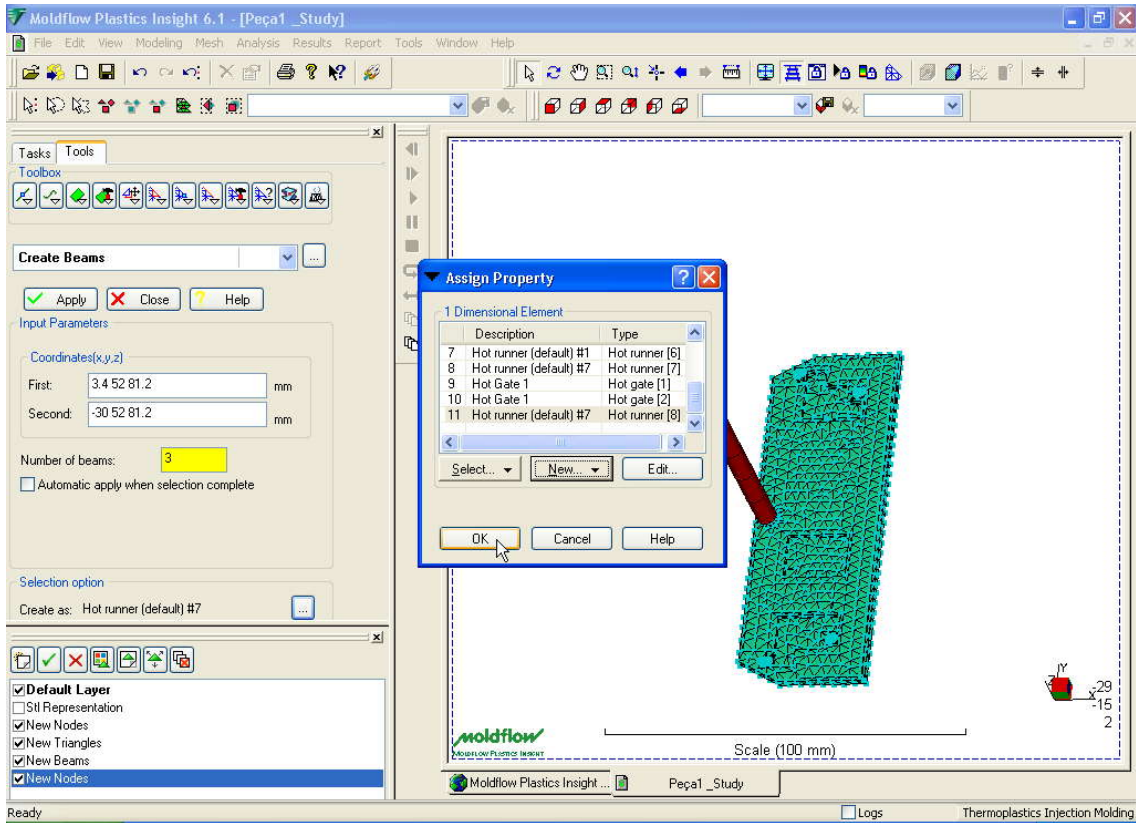
Diametro 10mm e OK



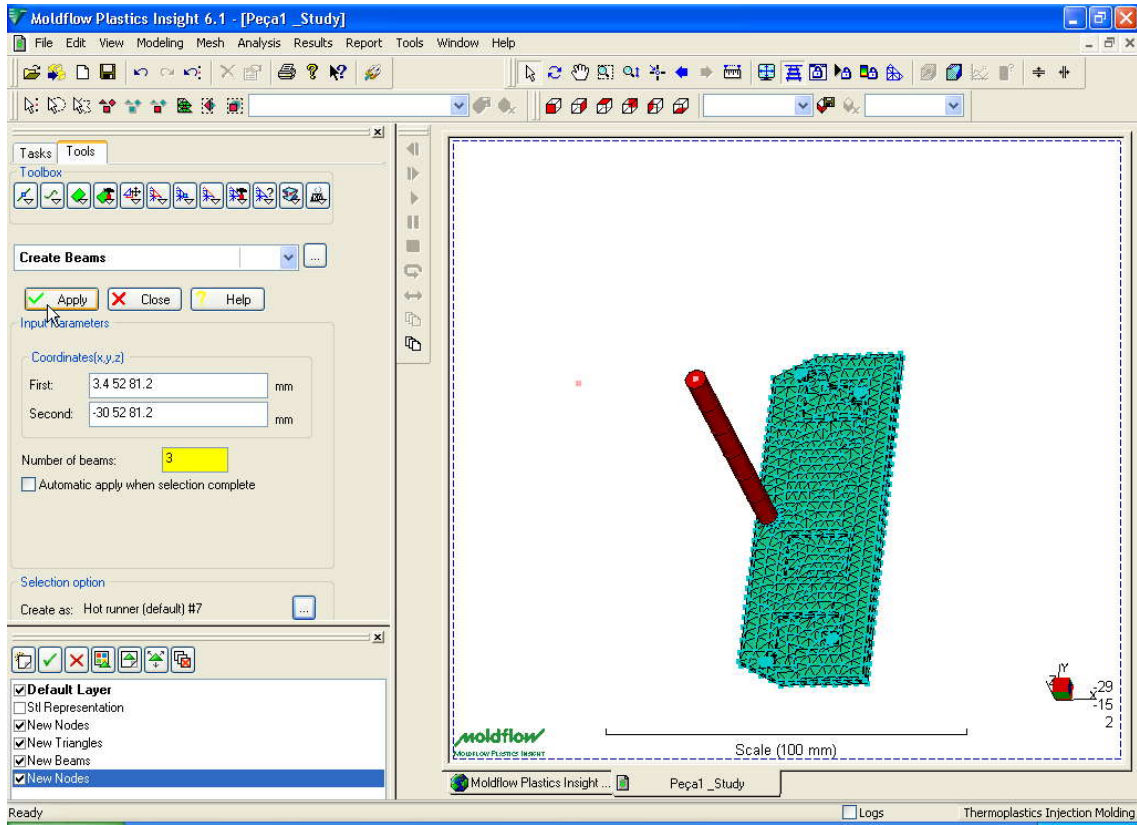
OK



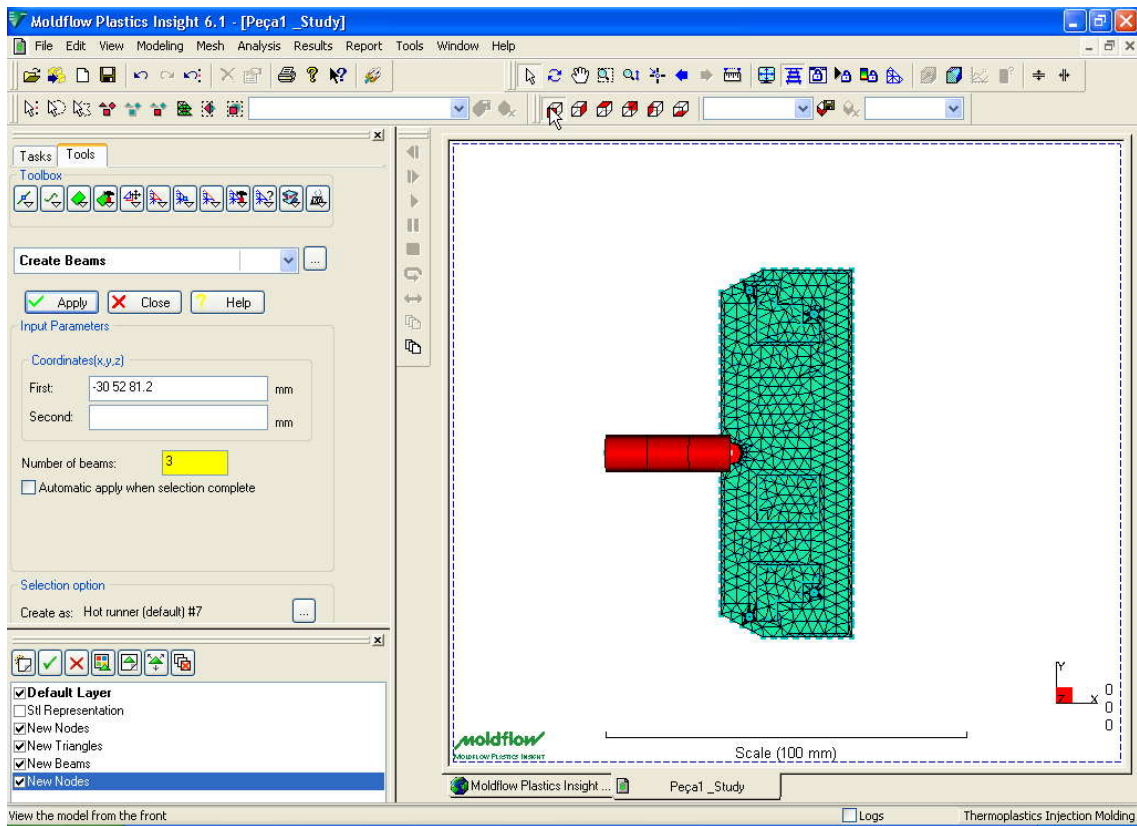
OK



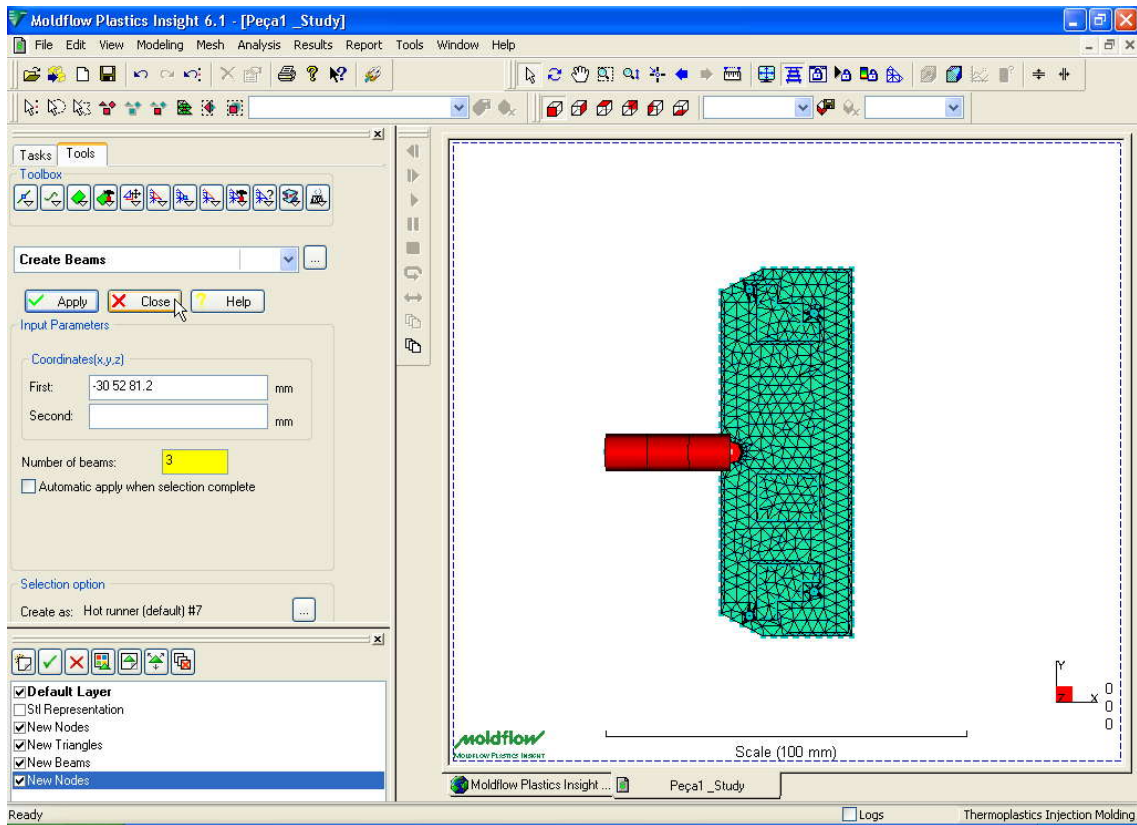
Apply



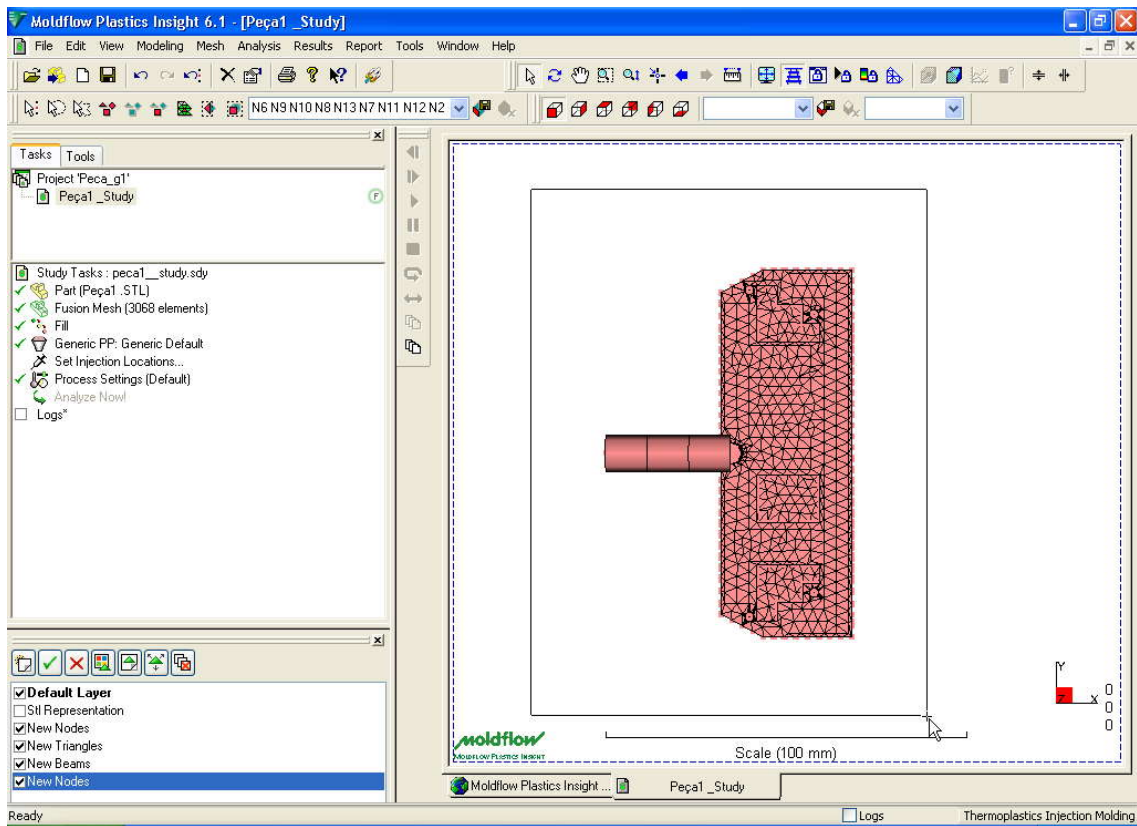
Trecho criado



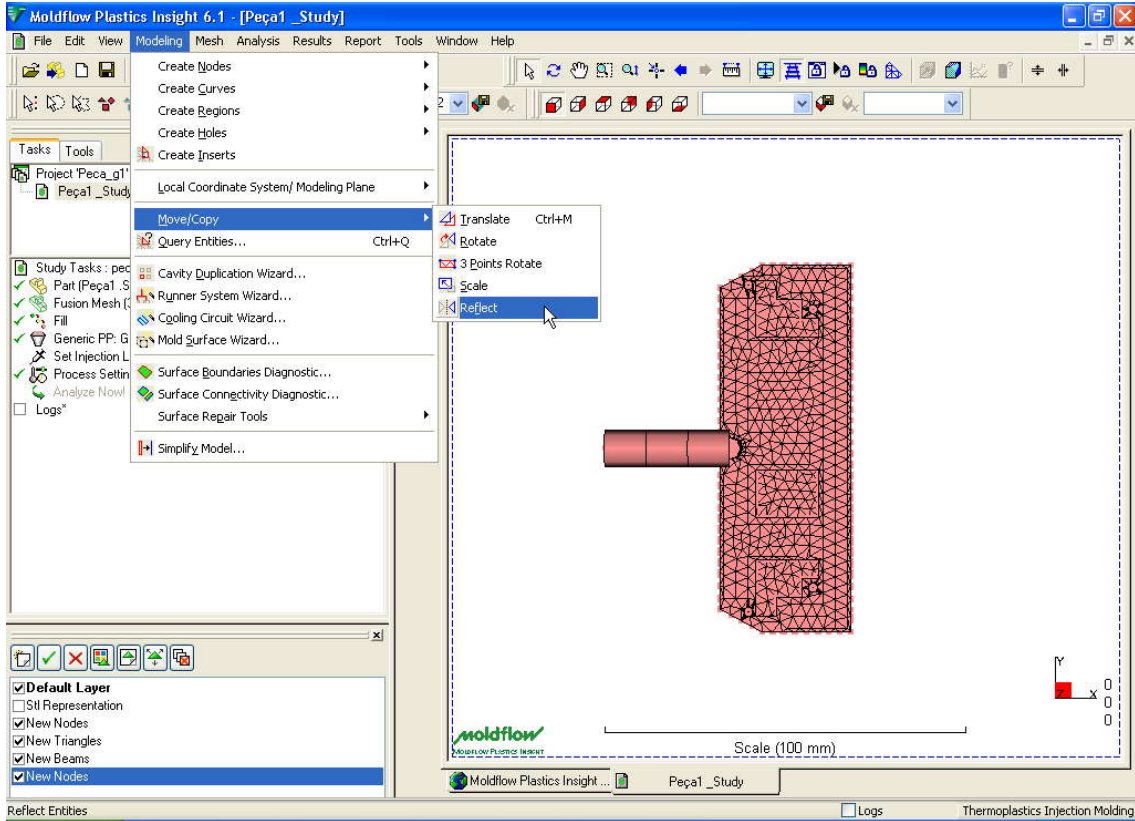
Clique em Close para fechar janela



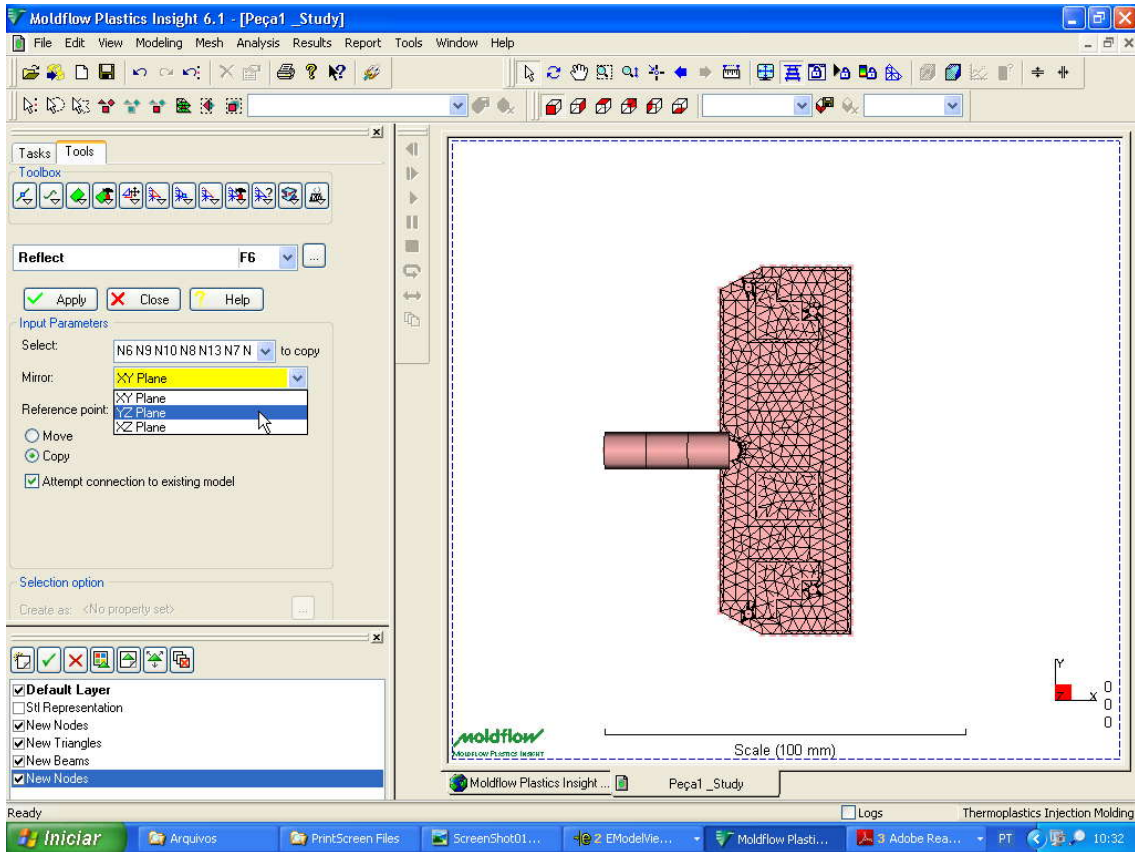
Selecionar peça e canais para espelhar



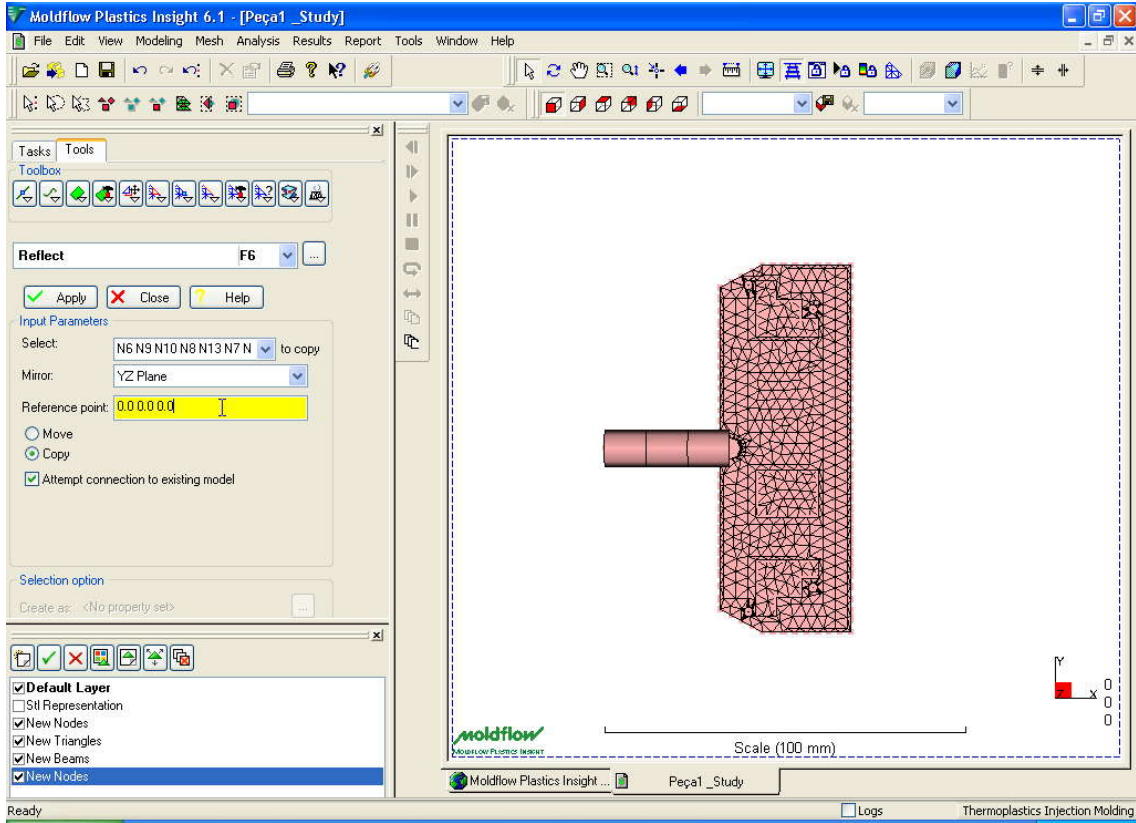
Menu – Modeling – Move/Copy – Reflect



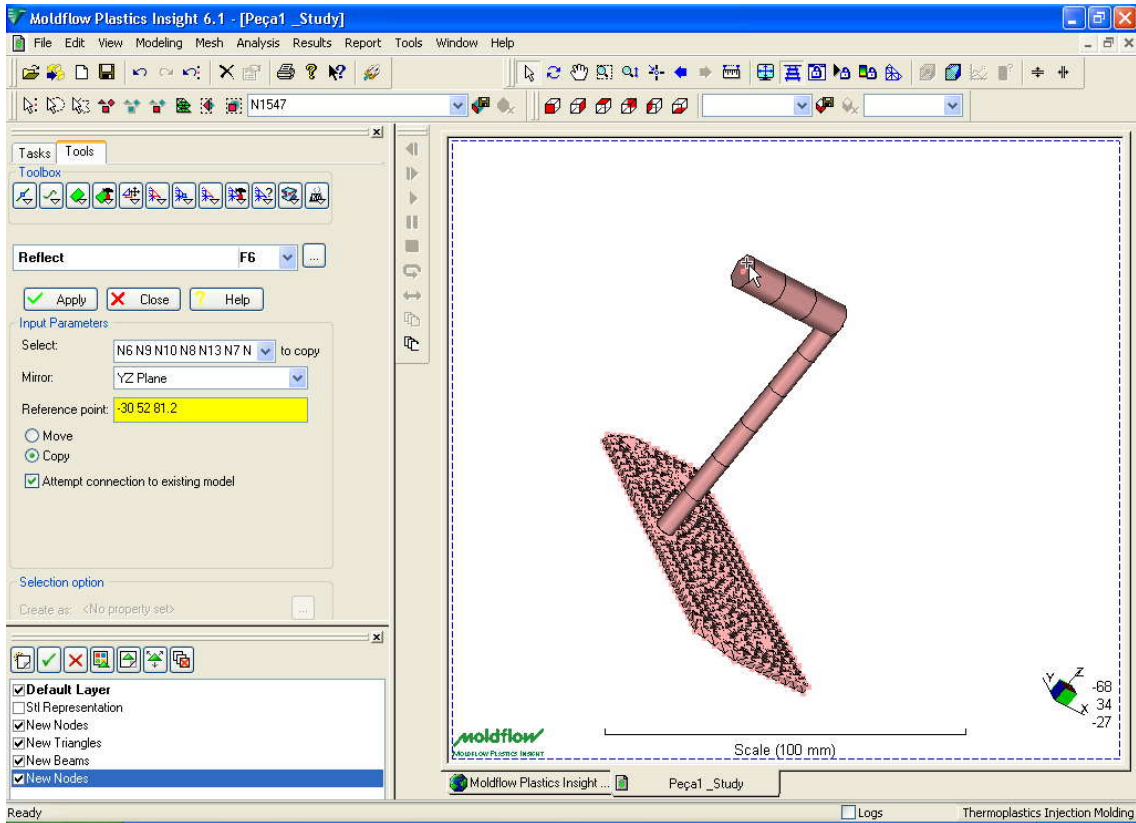
Escolha o plano para fazer espelhamento YZ marque Copy e Attempt connection to existing model



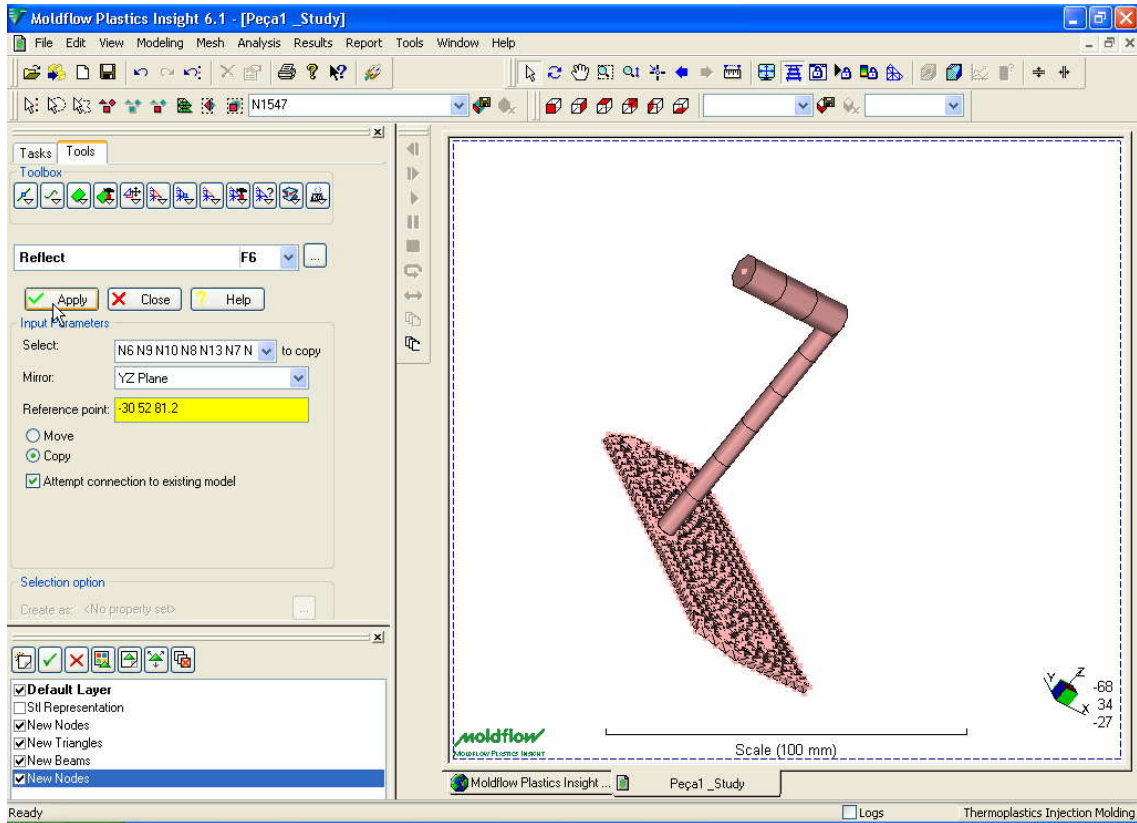
Nó de referência para fazer espelhamento



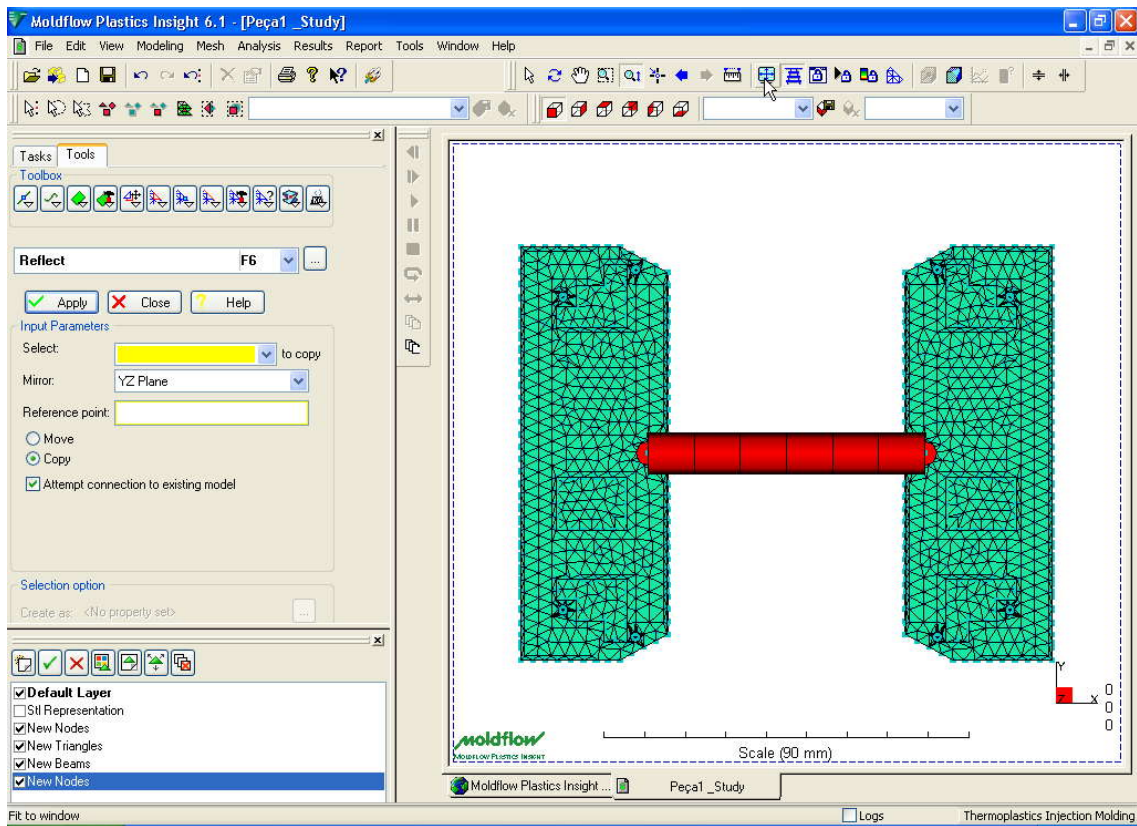
Selecione o nó no final do canal



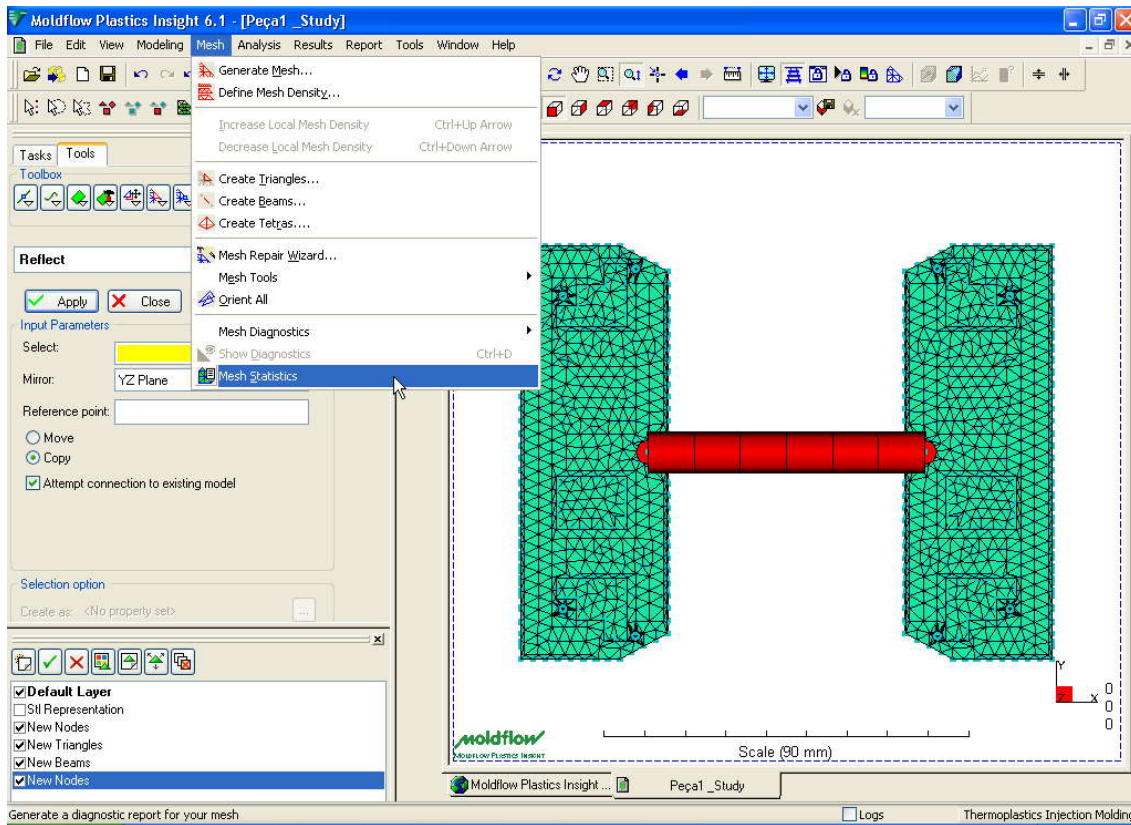
Apply



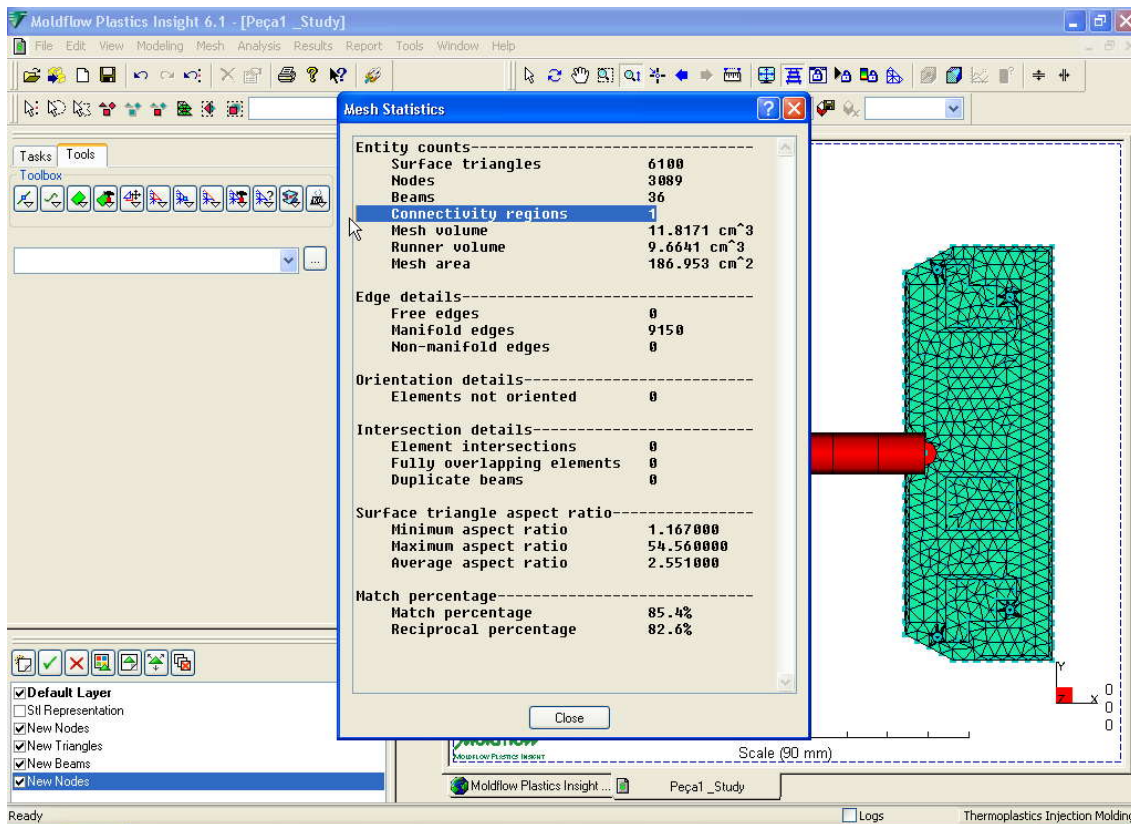
Espelhamento feito



Cheque se o espelhamento manteve unido os dois trechos através do Mesh Statistics

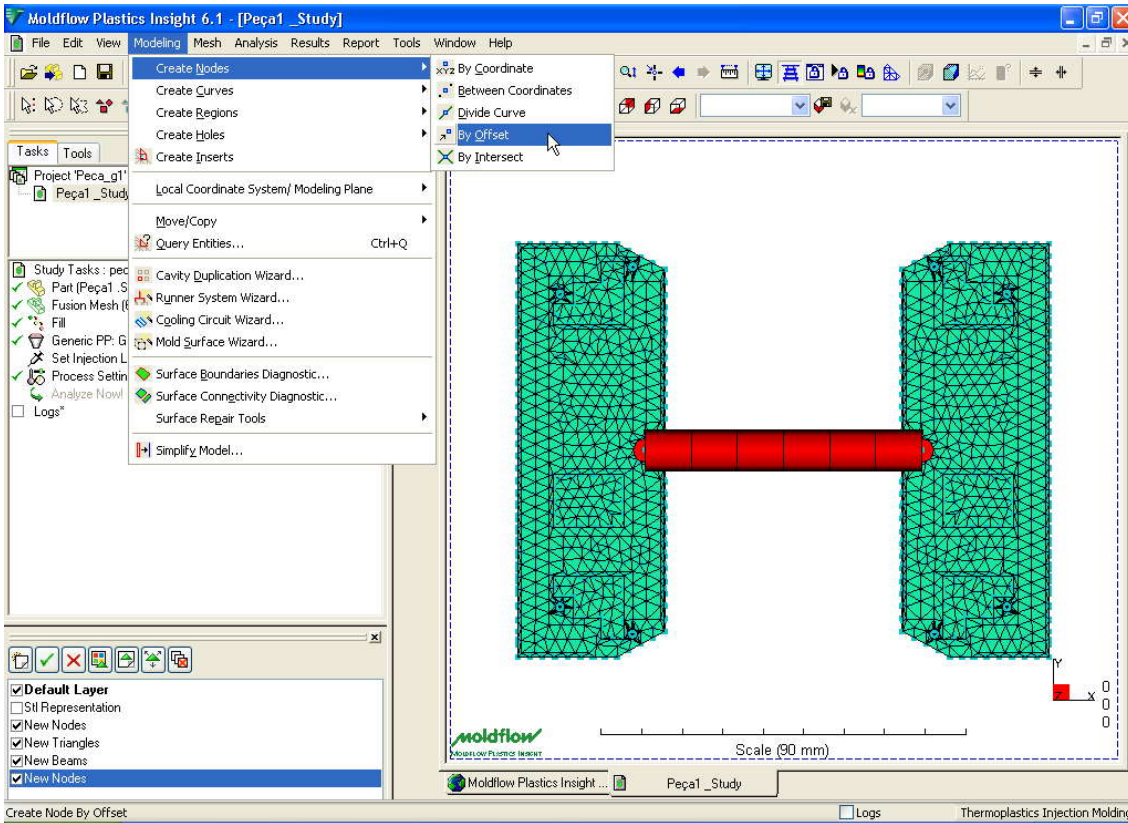


Verifique se a Connectivity regions é igual a 1

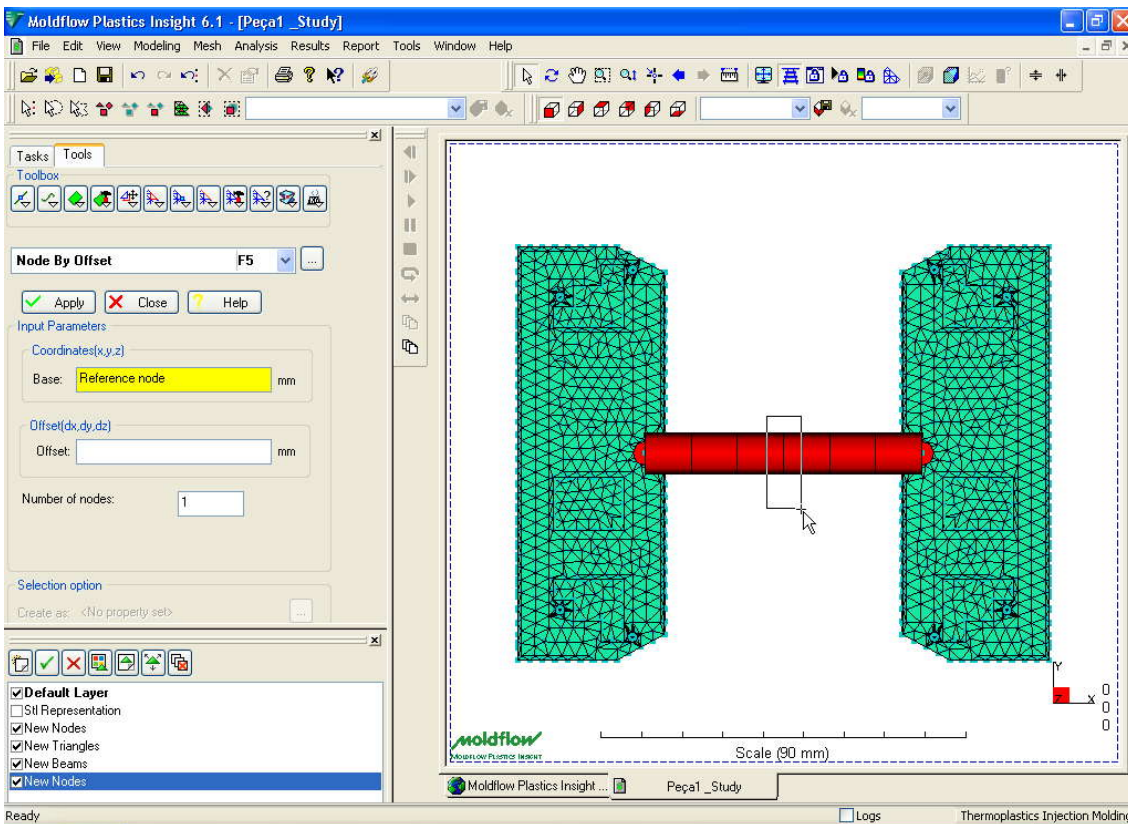


OK – Close para fechar janela.

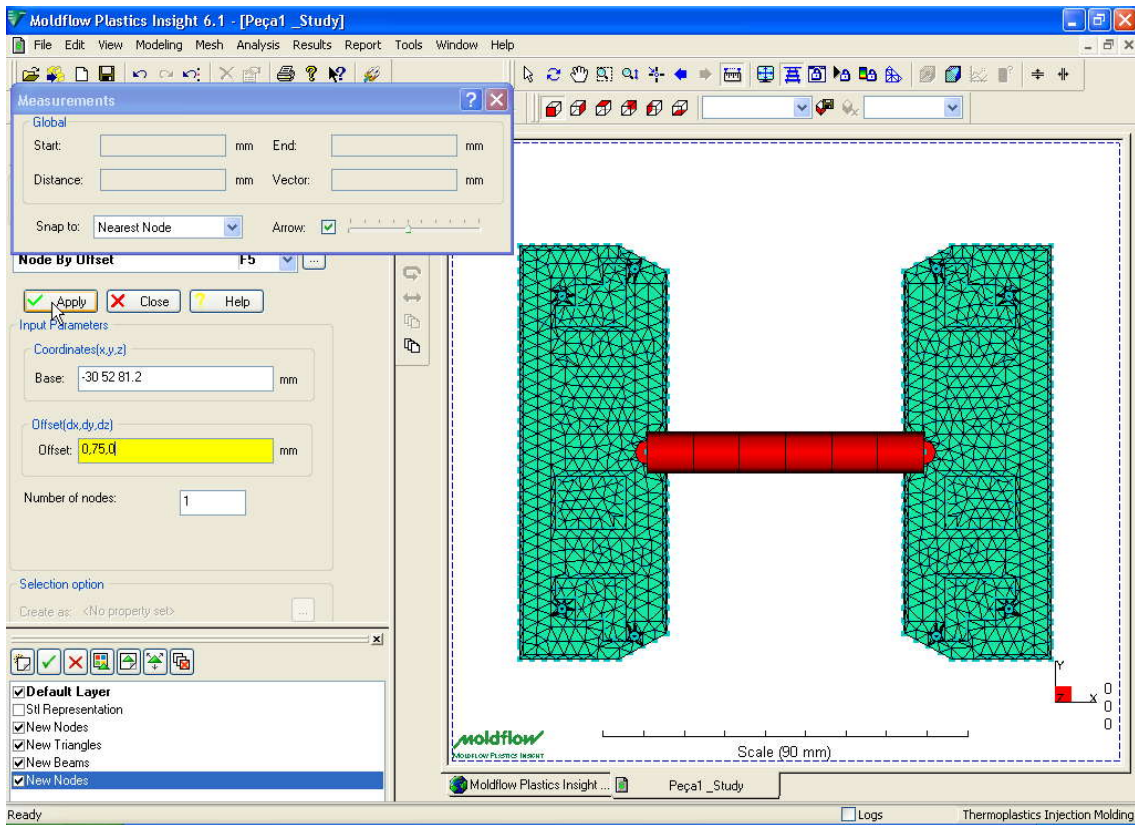
Criar nó por offset para modelar próximo trecho



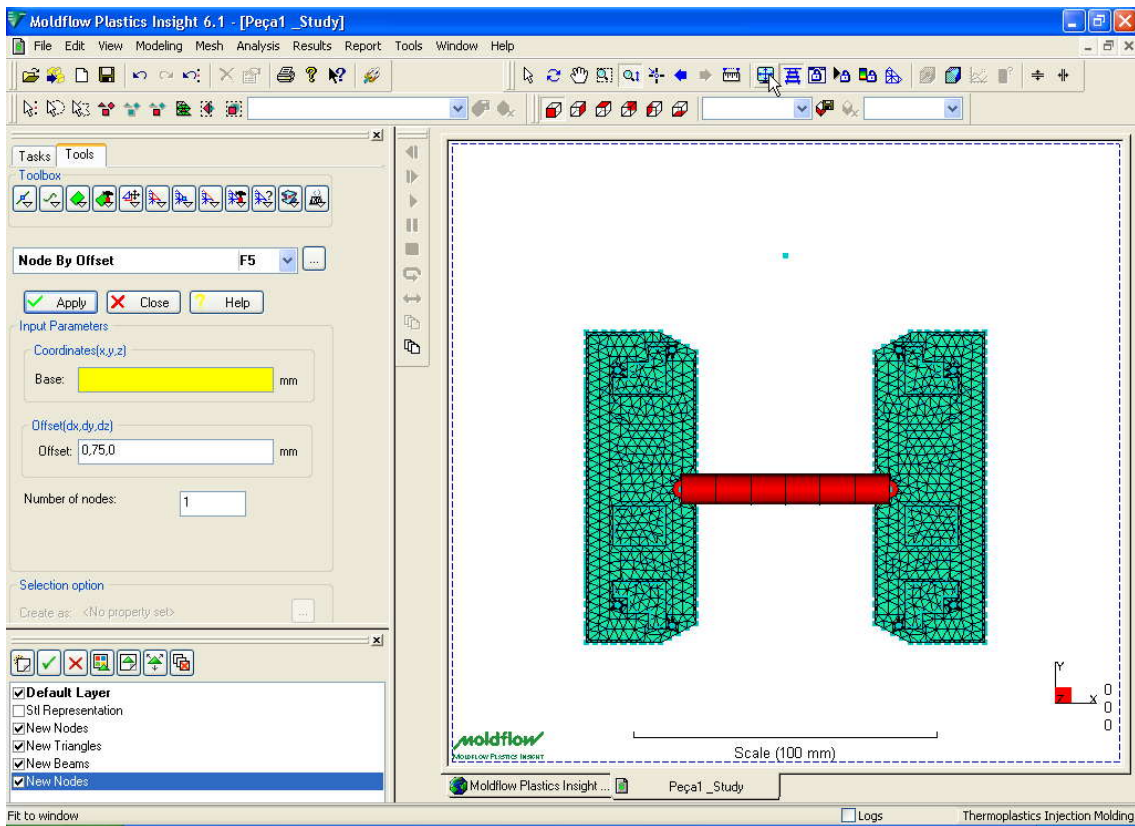
Para selecionar nó para o próximo trecho coloque na vista frontal e selecione por janela o nó de referência



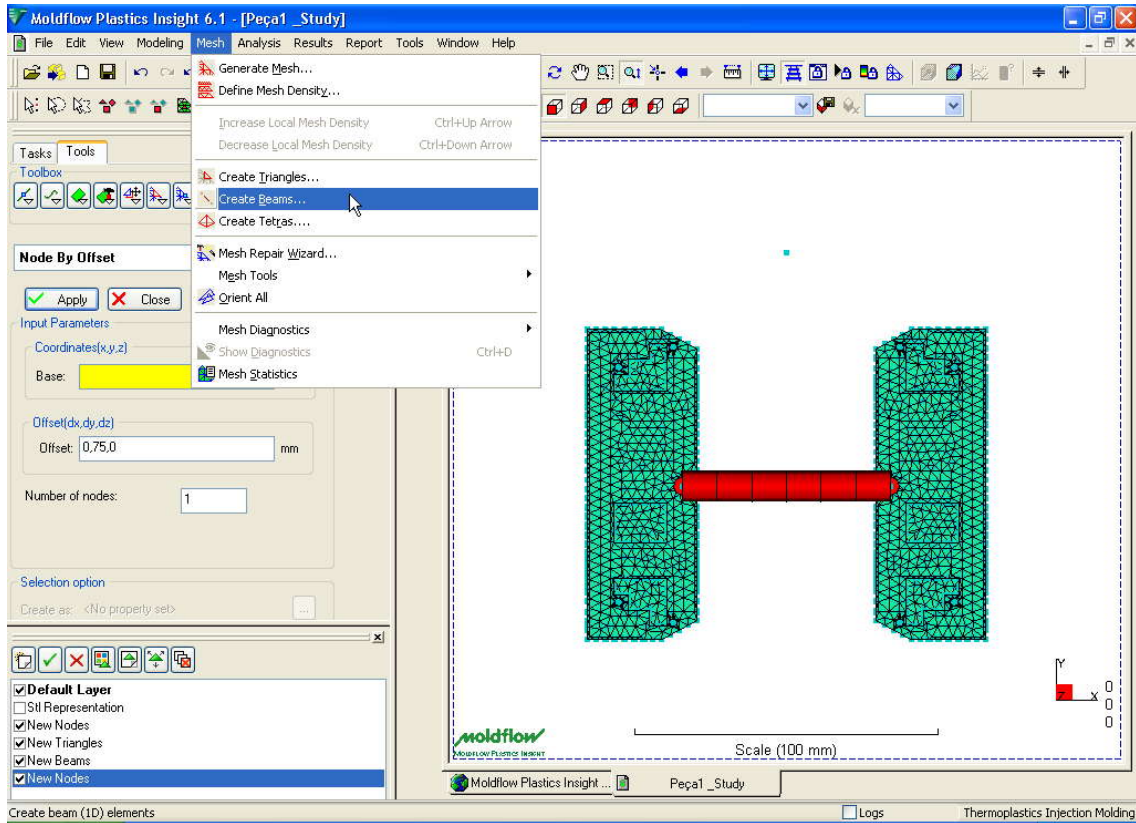
Informe deslocamento para criar próximo nó 0,75,0 e Apply



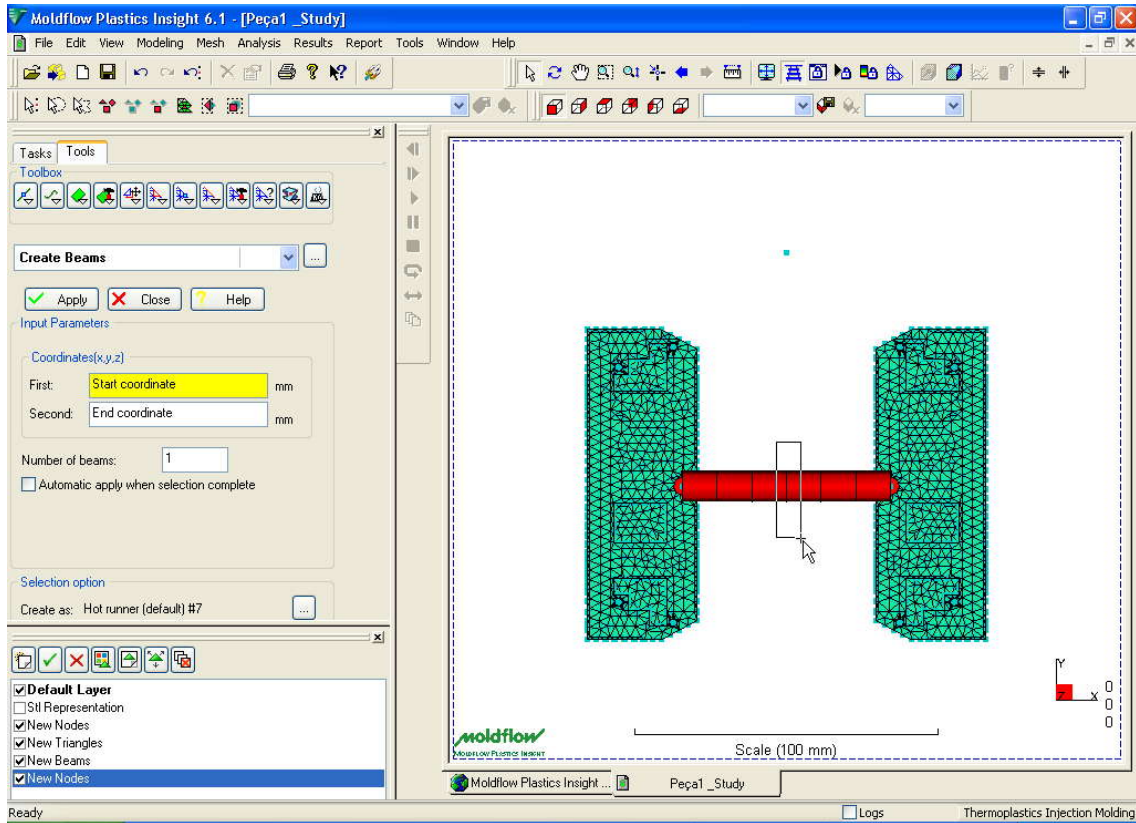
Clique em Fit to windows para visualizar nó criado



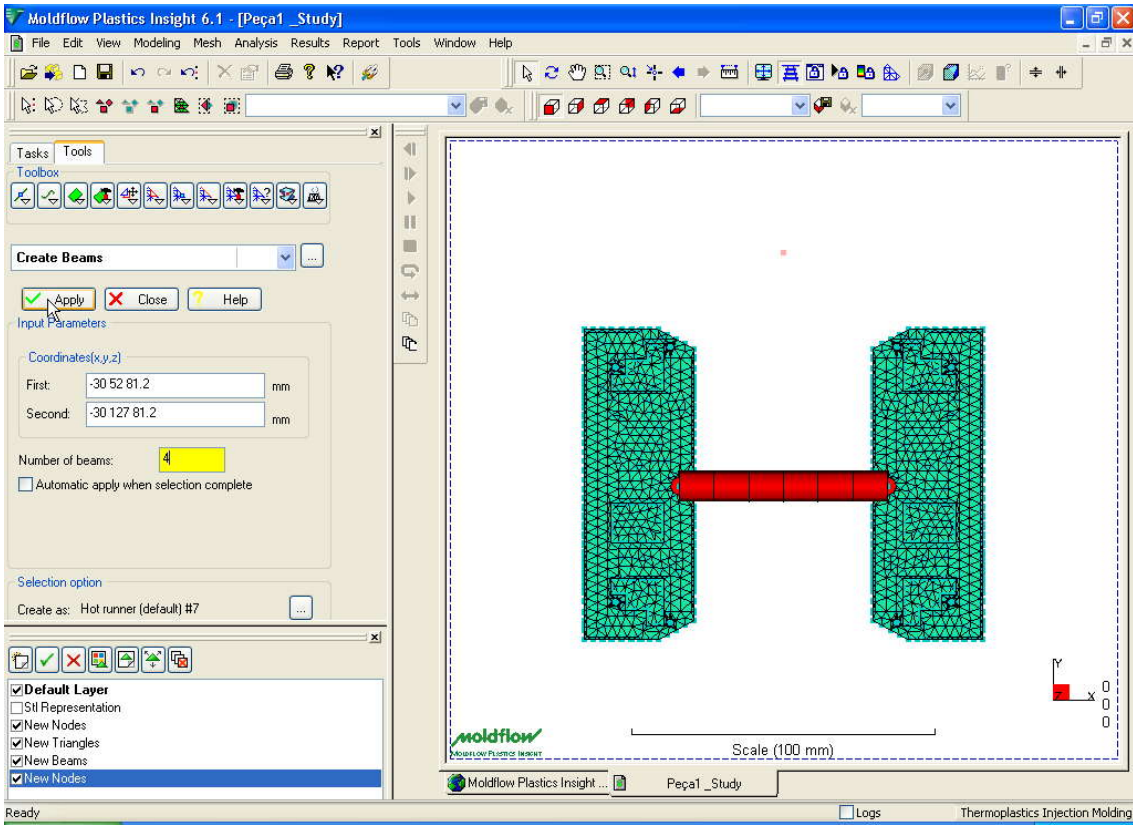
Criar Beam para o trecho



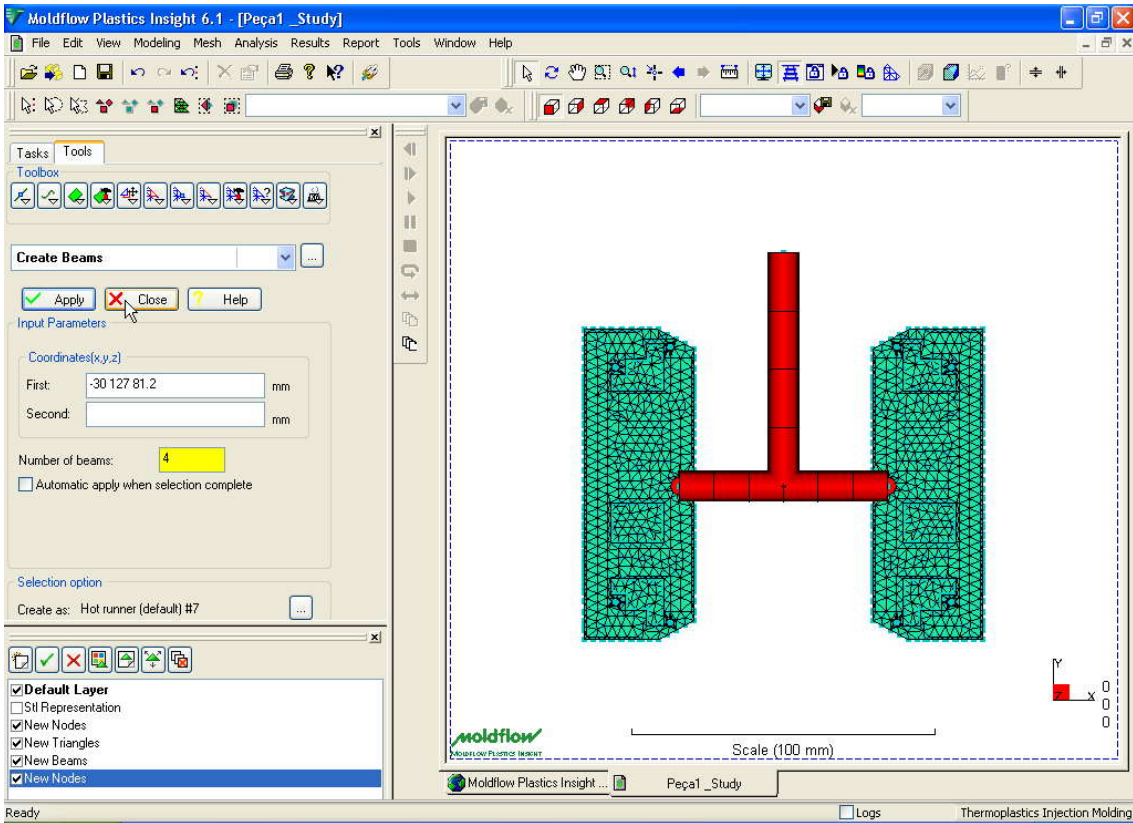
Selecione primeiro nó



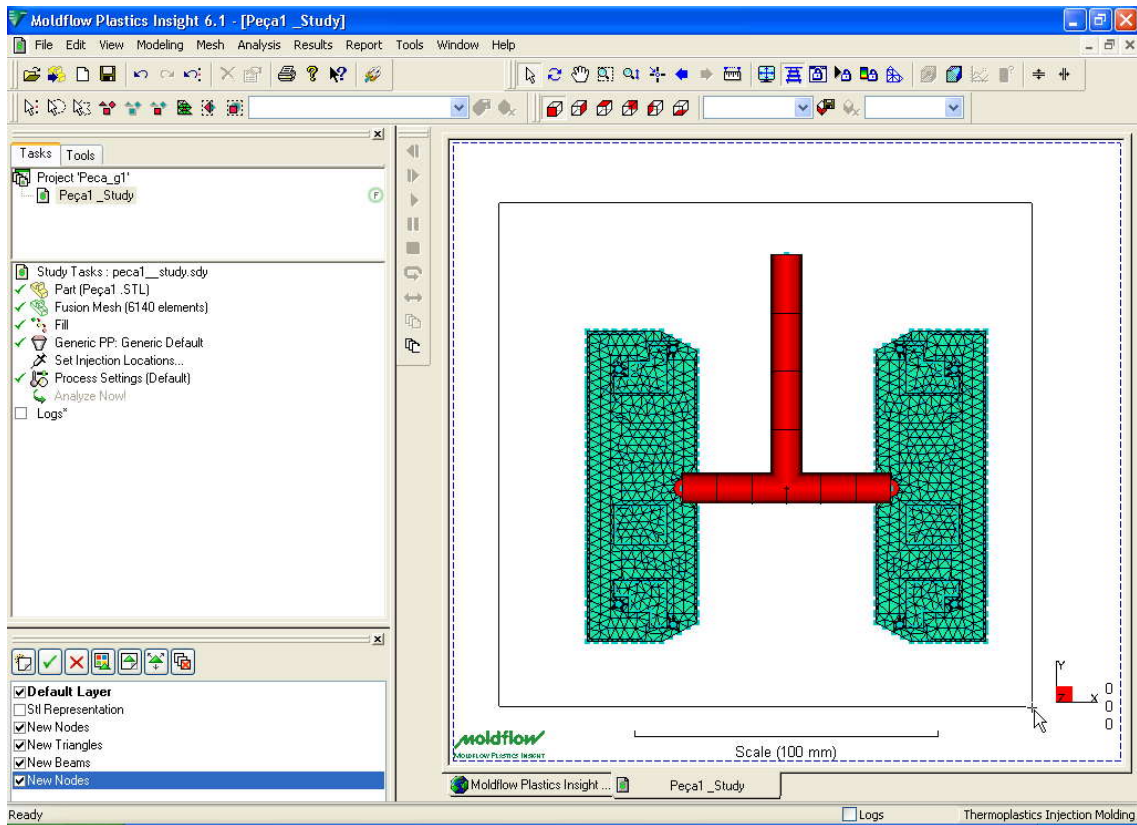
Selecione segundo nó e defina o número de Beam 4 para o trecho e Apply



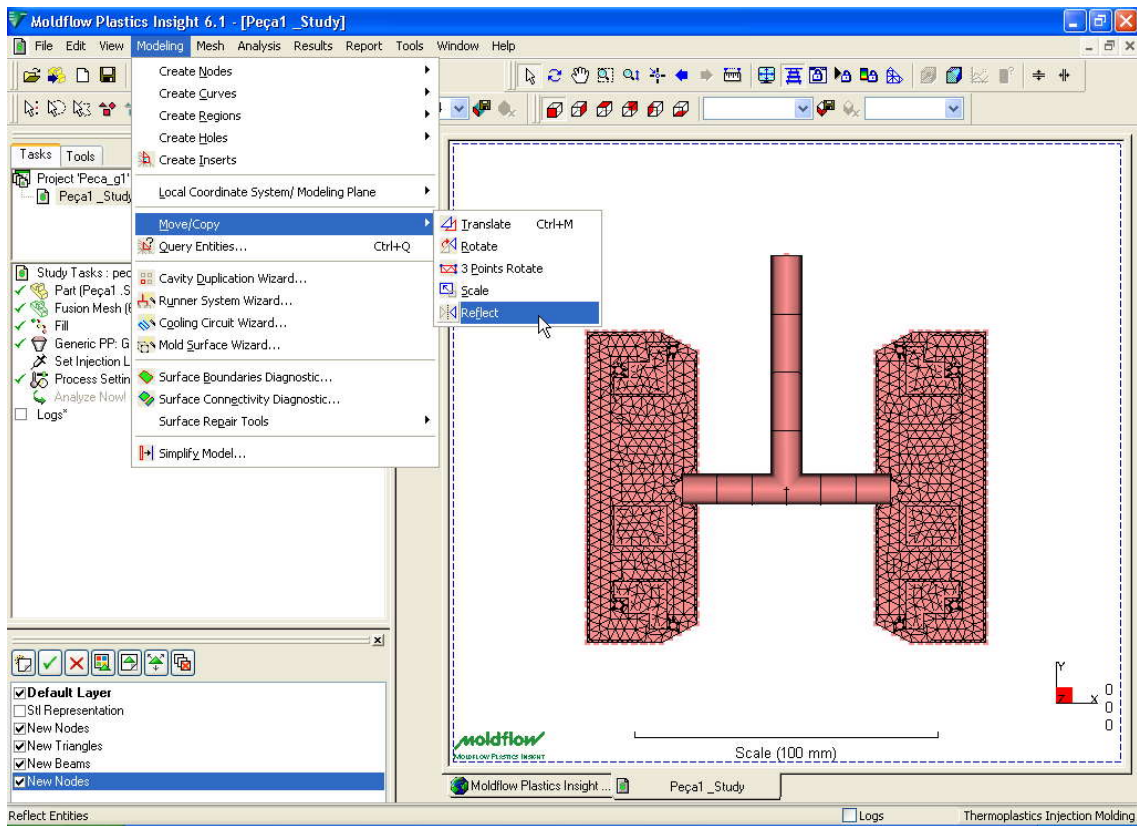
Close para fechar janela



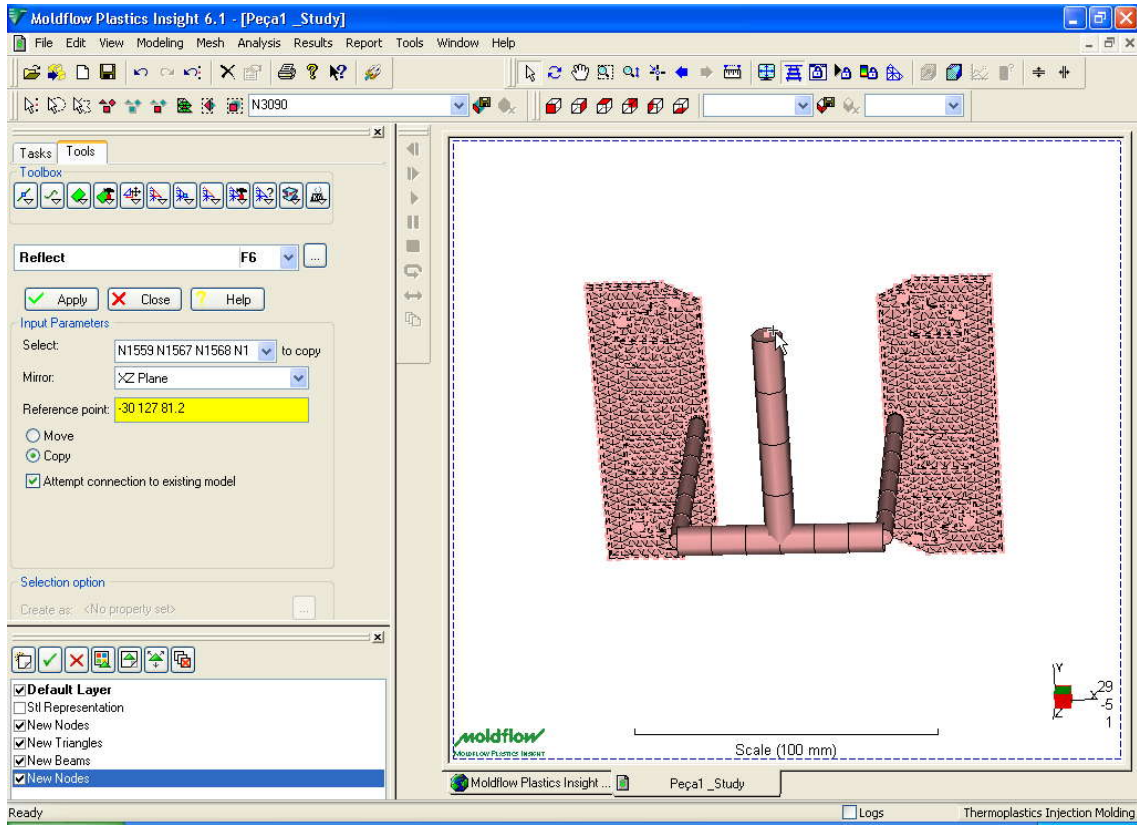
Selecione tudo para espelhar novamente



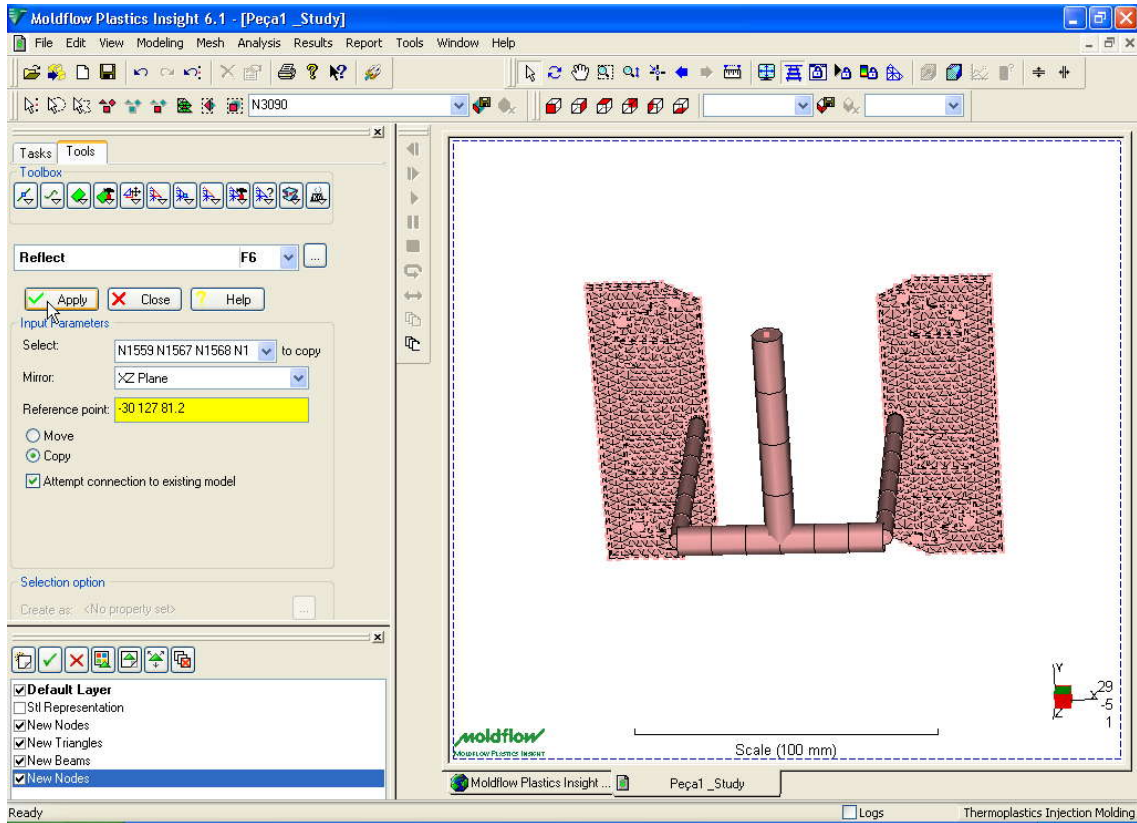
Modelig = Move/Copy - Reflect



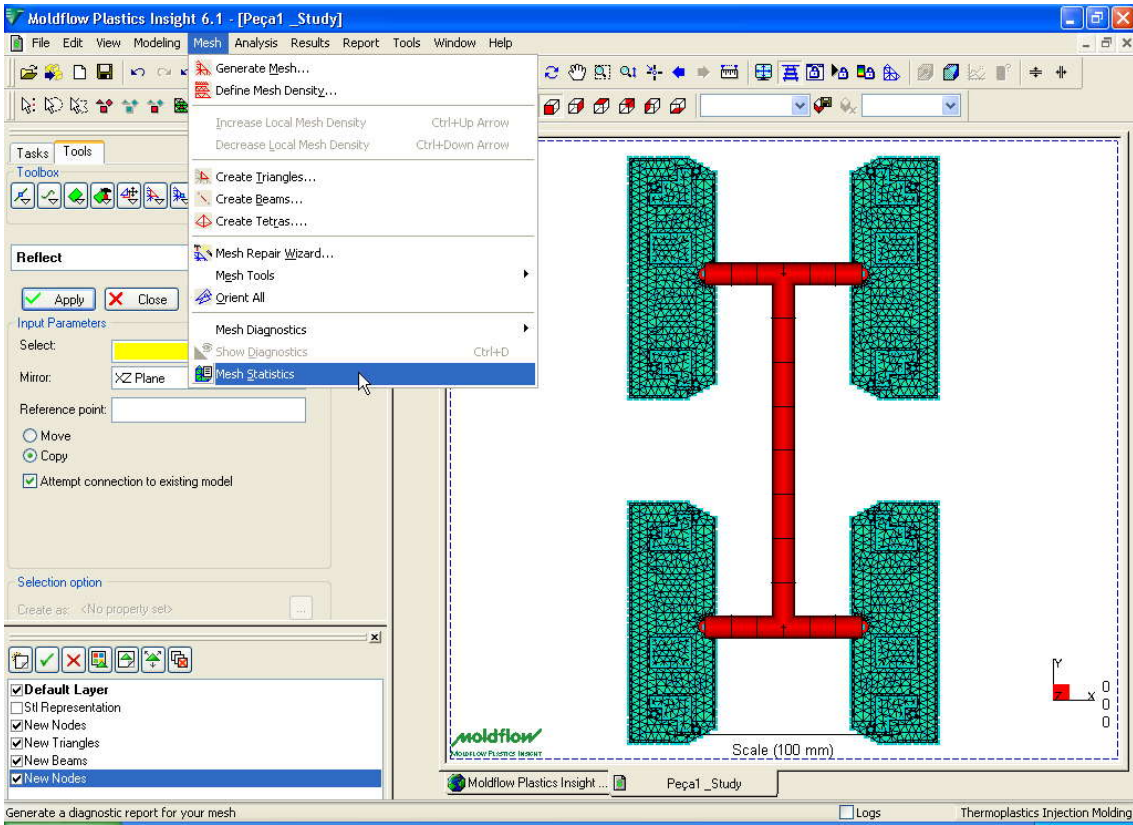
Selecione plano XZ Plane e ponto de referência no final do canal



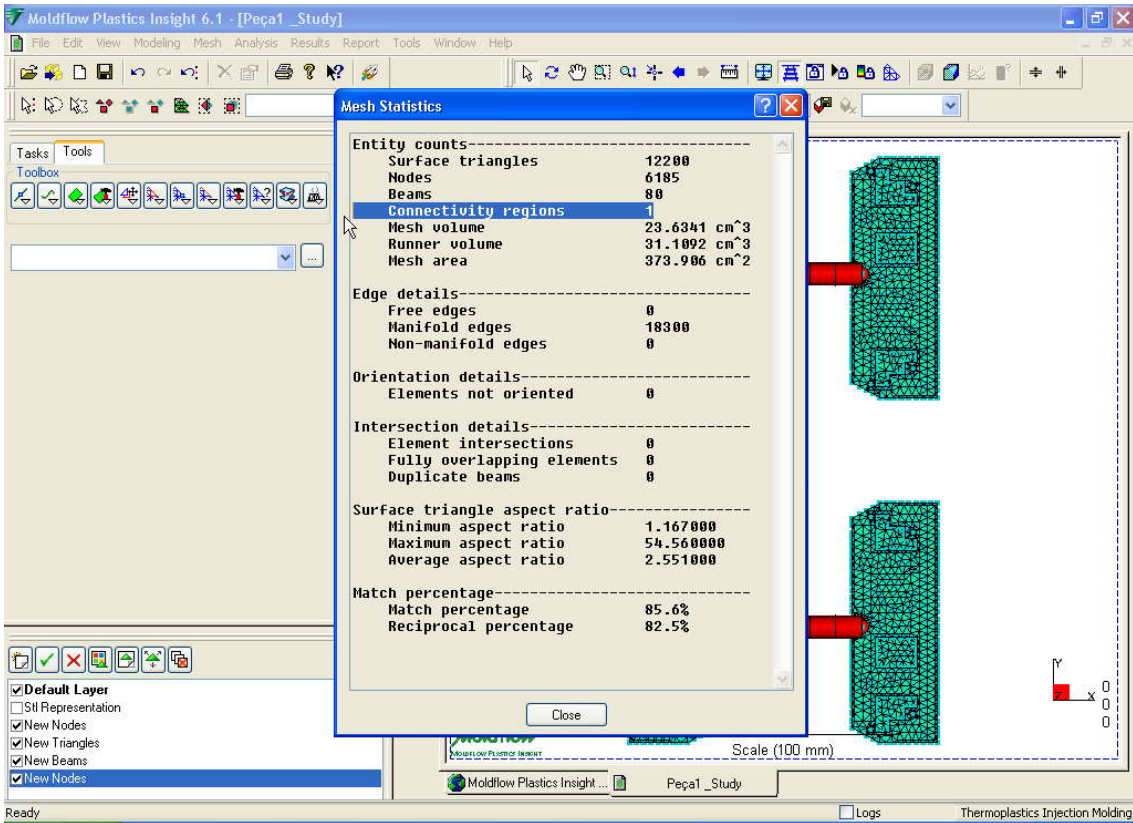
Apply para espelhar



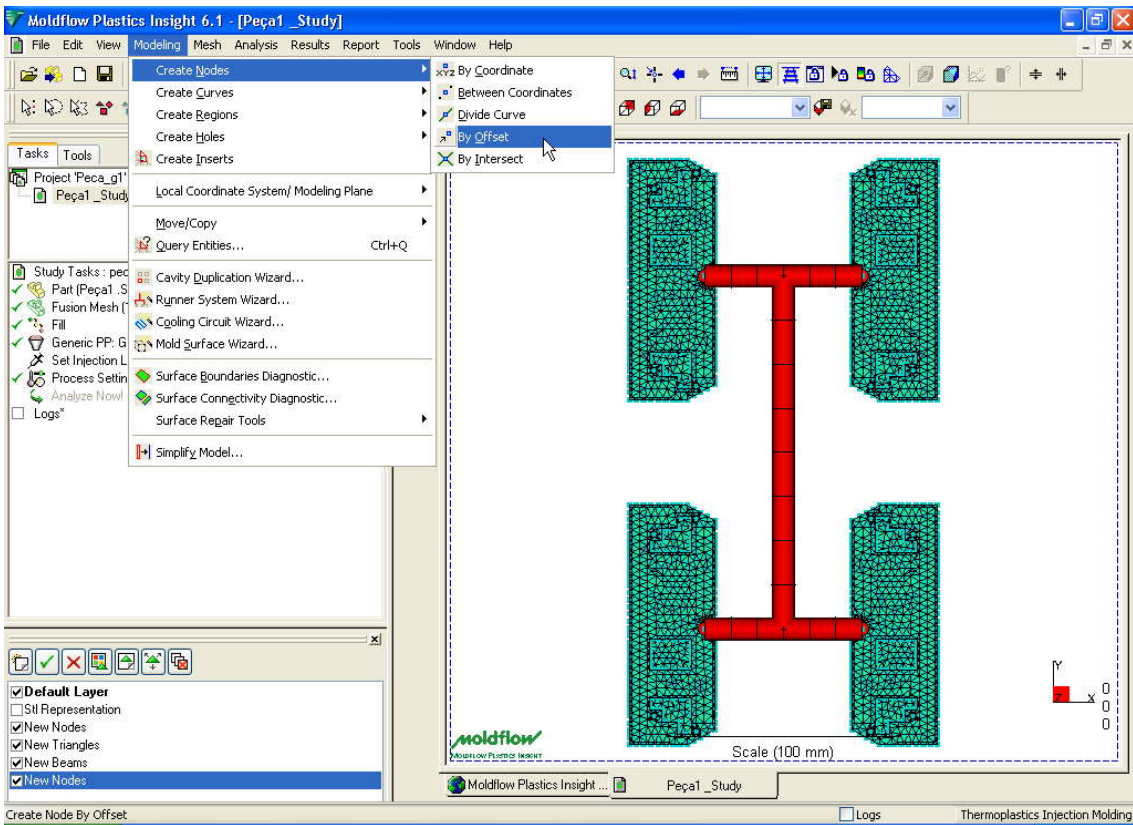
Verificar a conectividade – Mesh Statistics



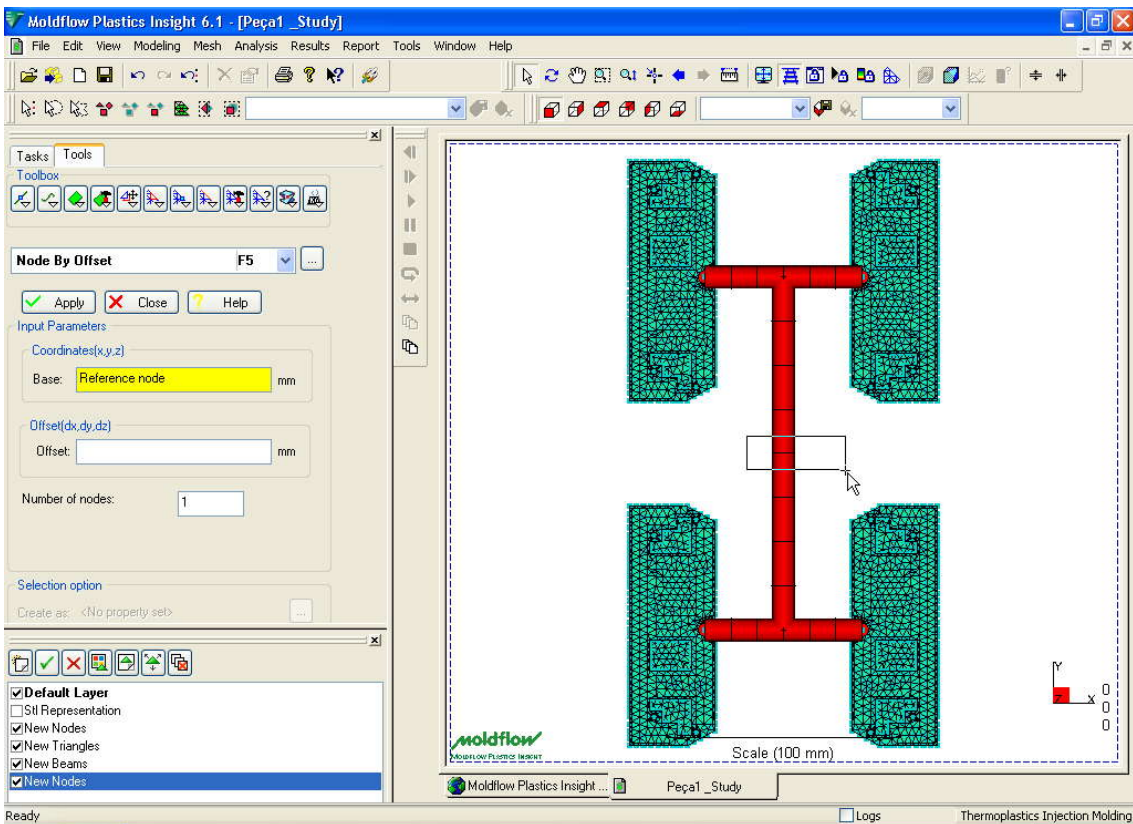
OK - Close



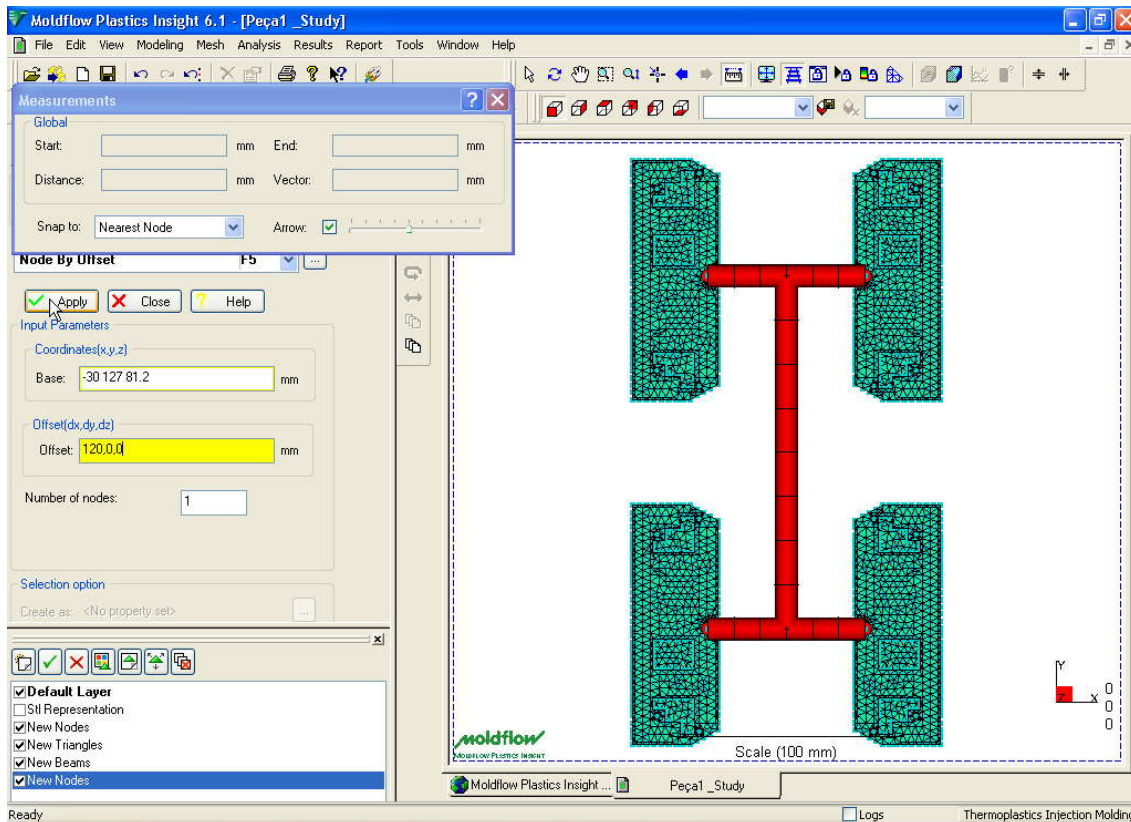
Segue procedimento para próximo trecho Nó por offset



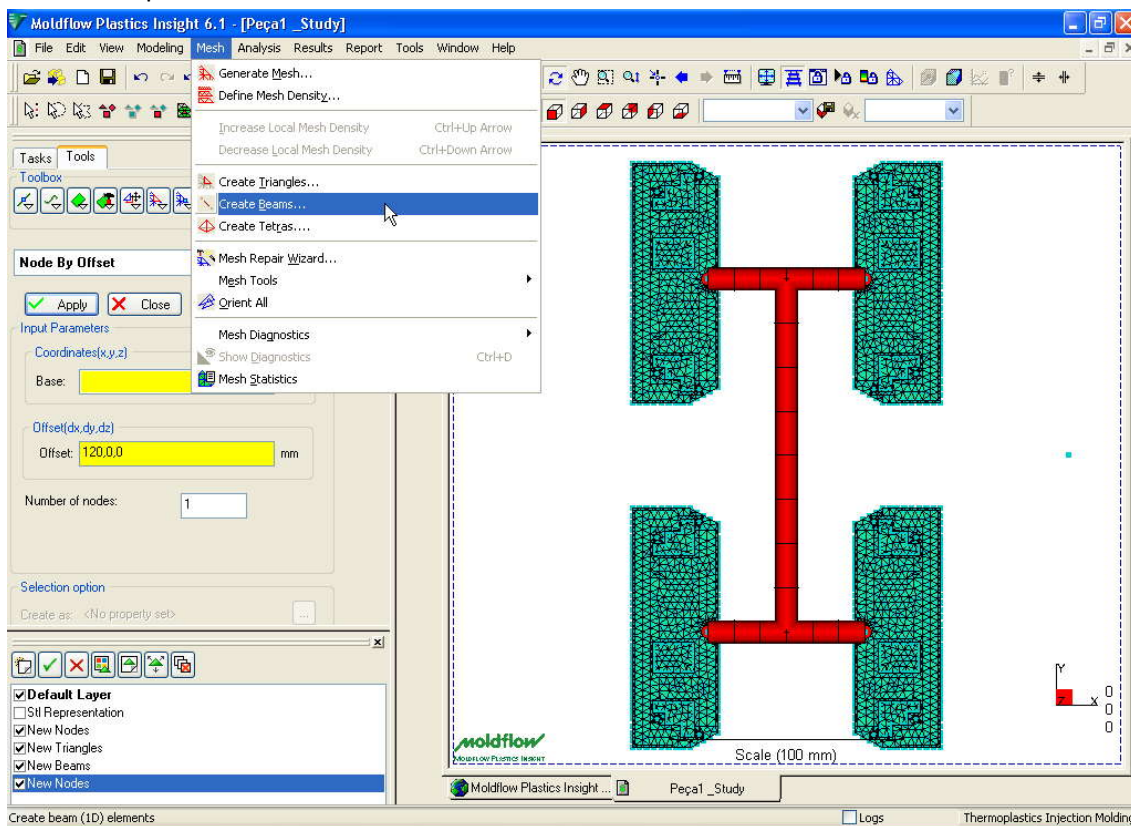
Selecione nó de referência



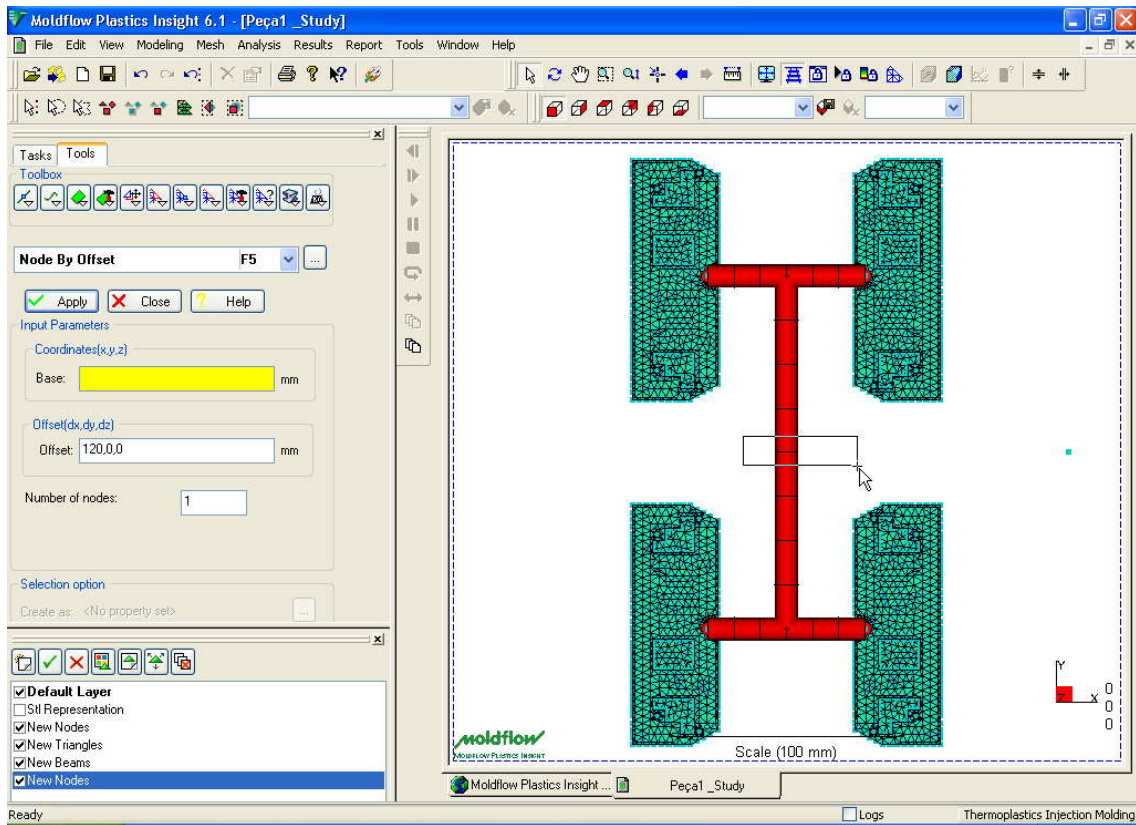
Defina valor para criar o Nó 120,0,0 e Apply



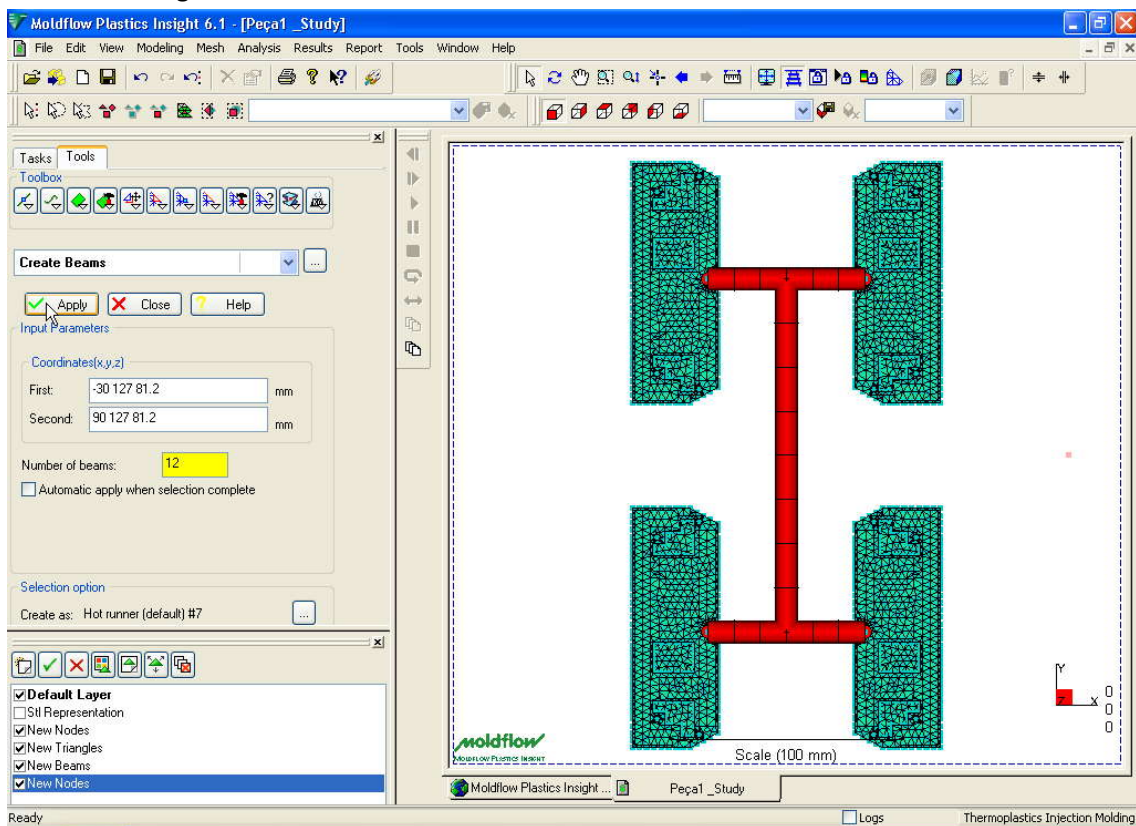
Criar Beam para o trecho



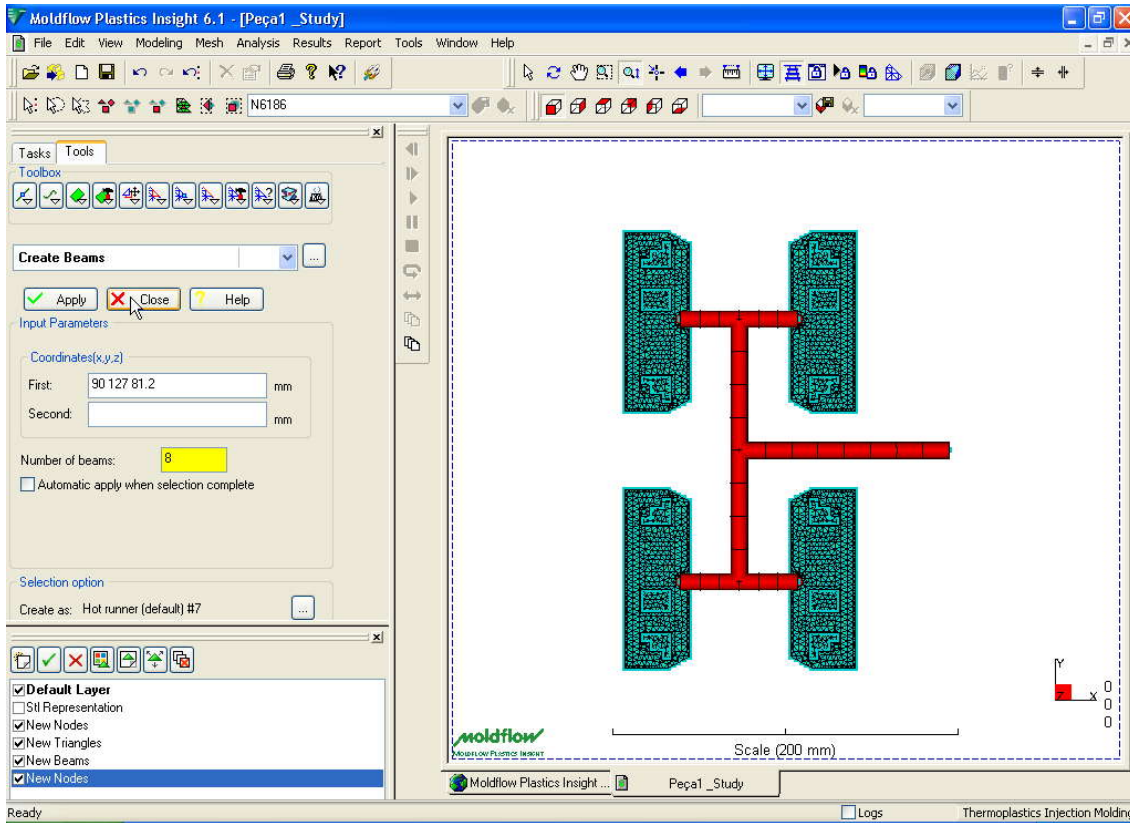
Selecione o primeiro nó



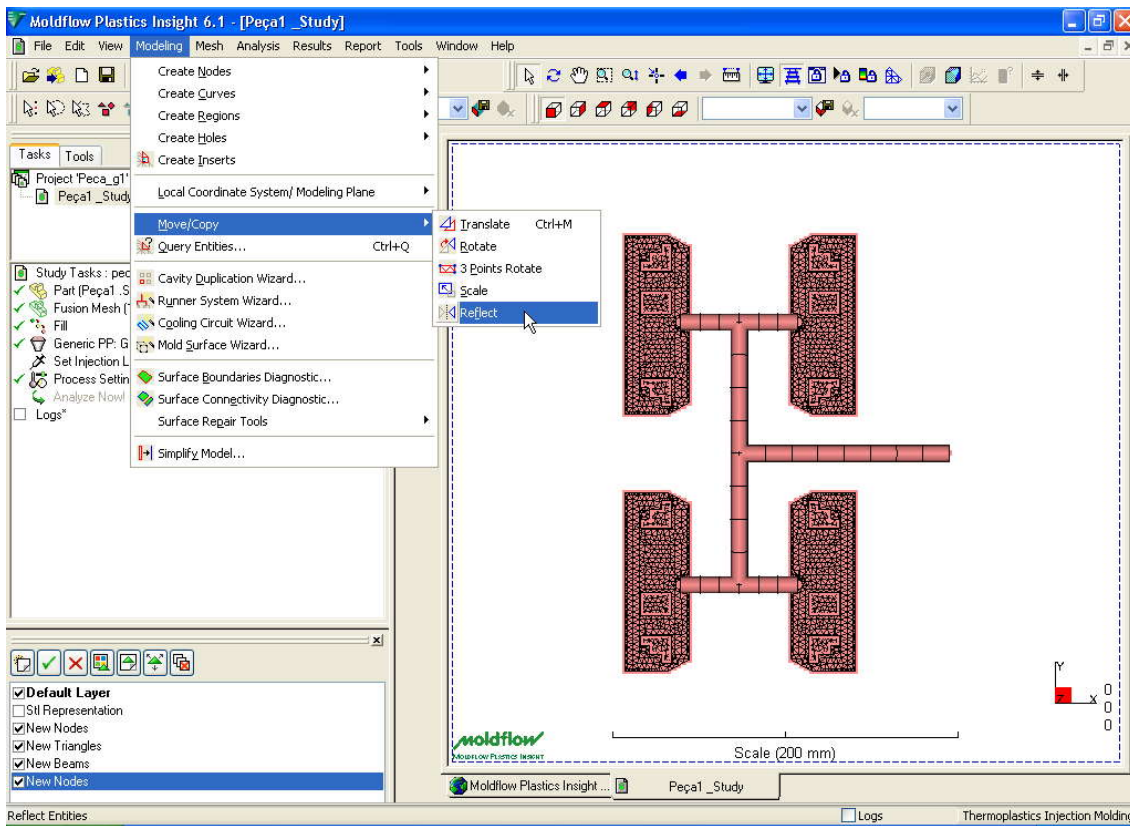
Selecione o segundo nó



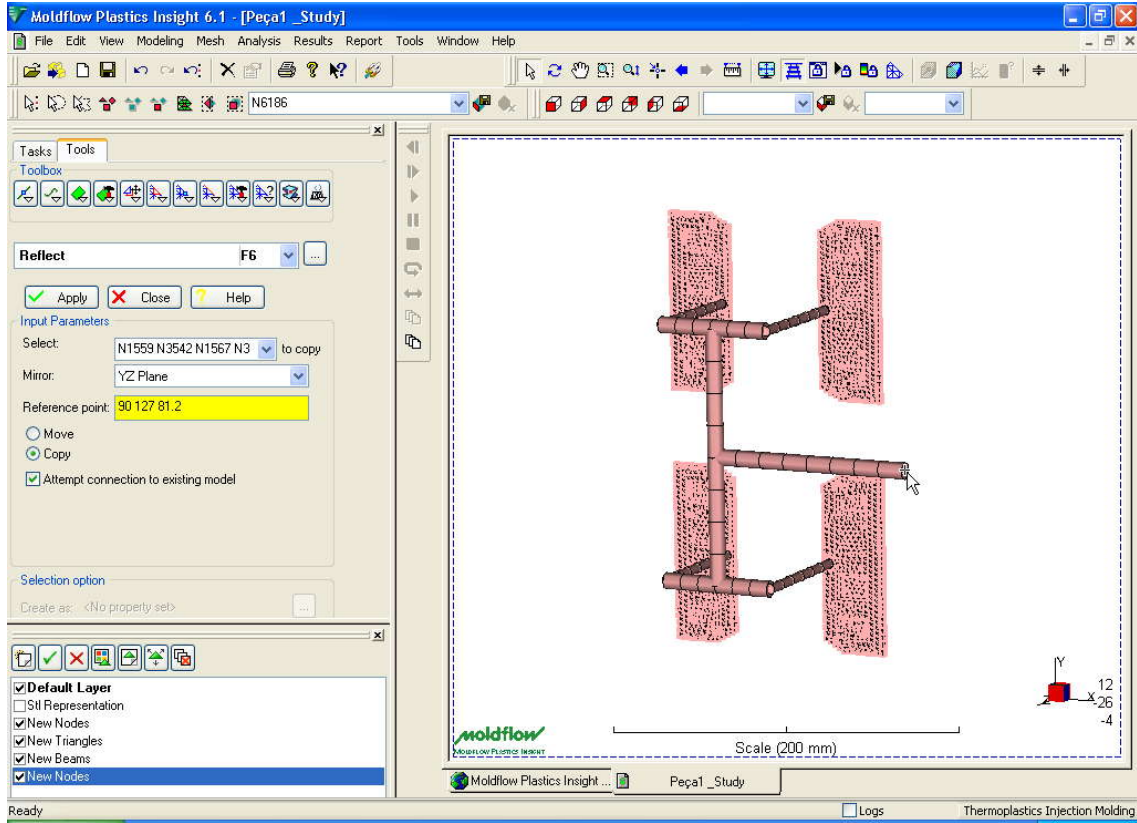
defina 8 Beam para o trecho sempre observado a relação de L/D. Apply e Close



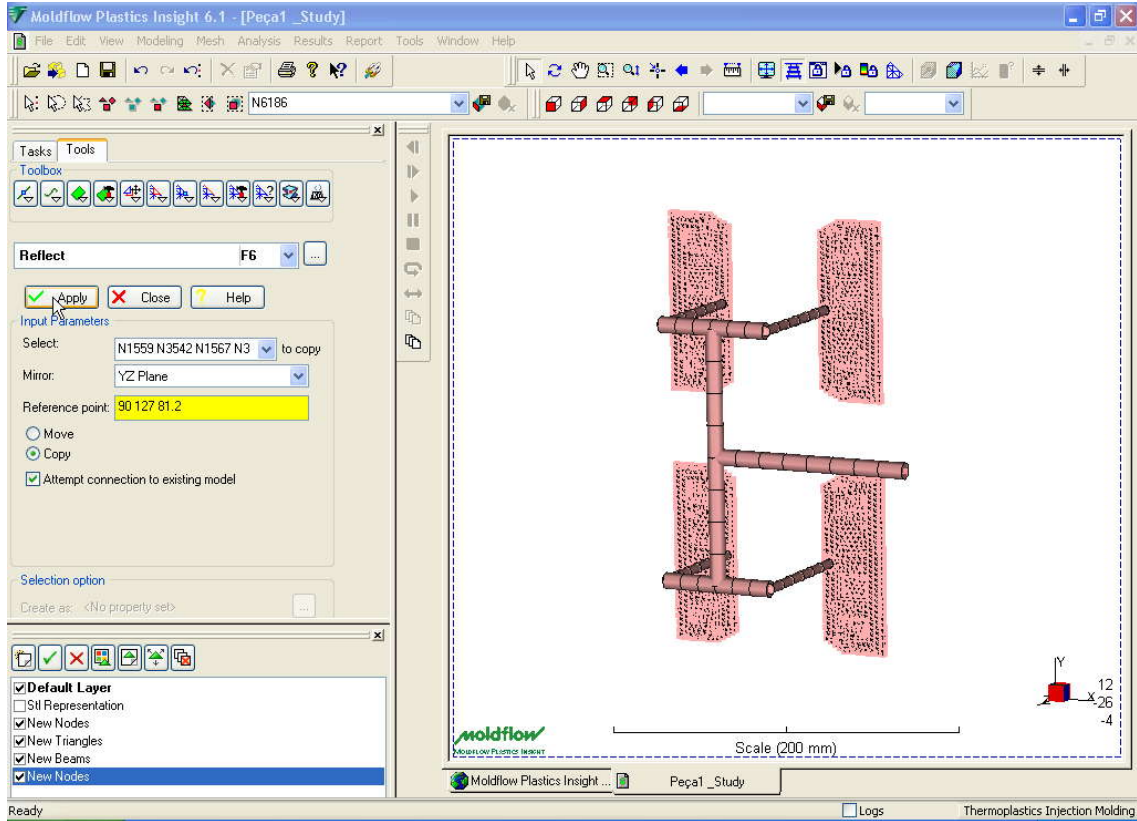
Selecionar tudo para espelhar

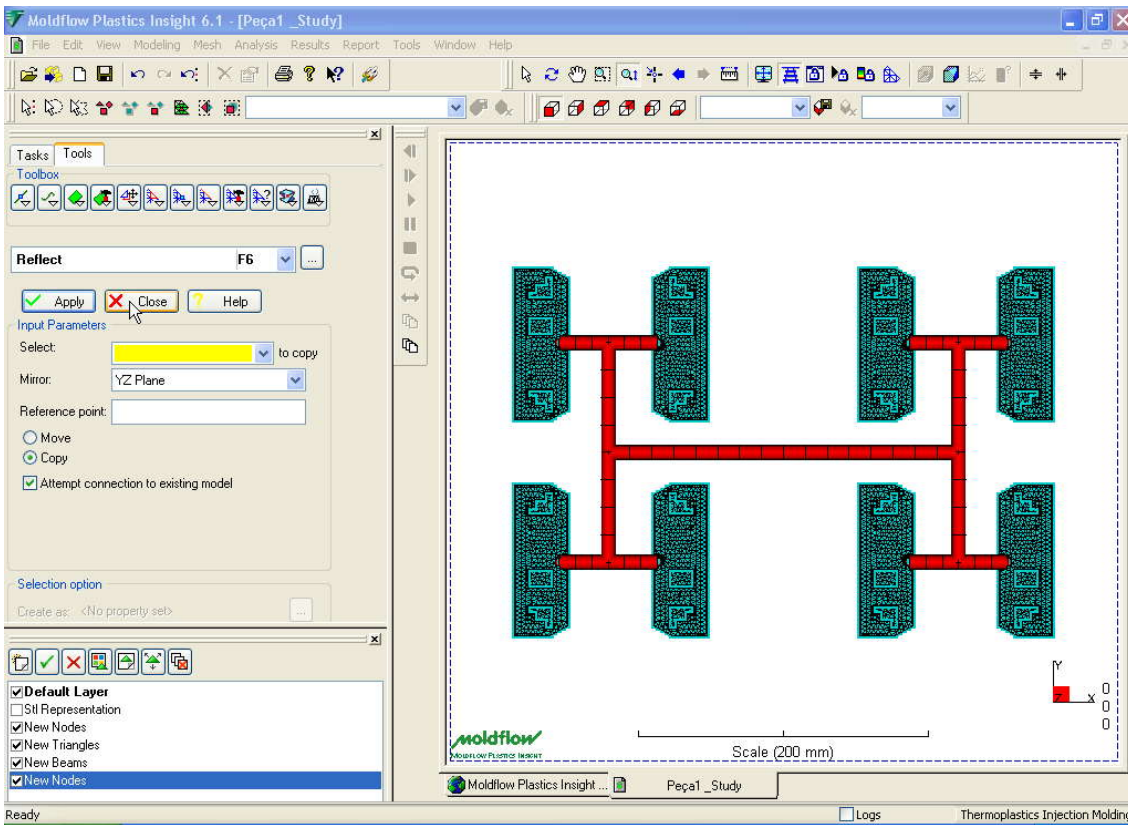


Selecione plano para espelhar YZ Plane e o nó de referência

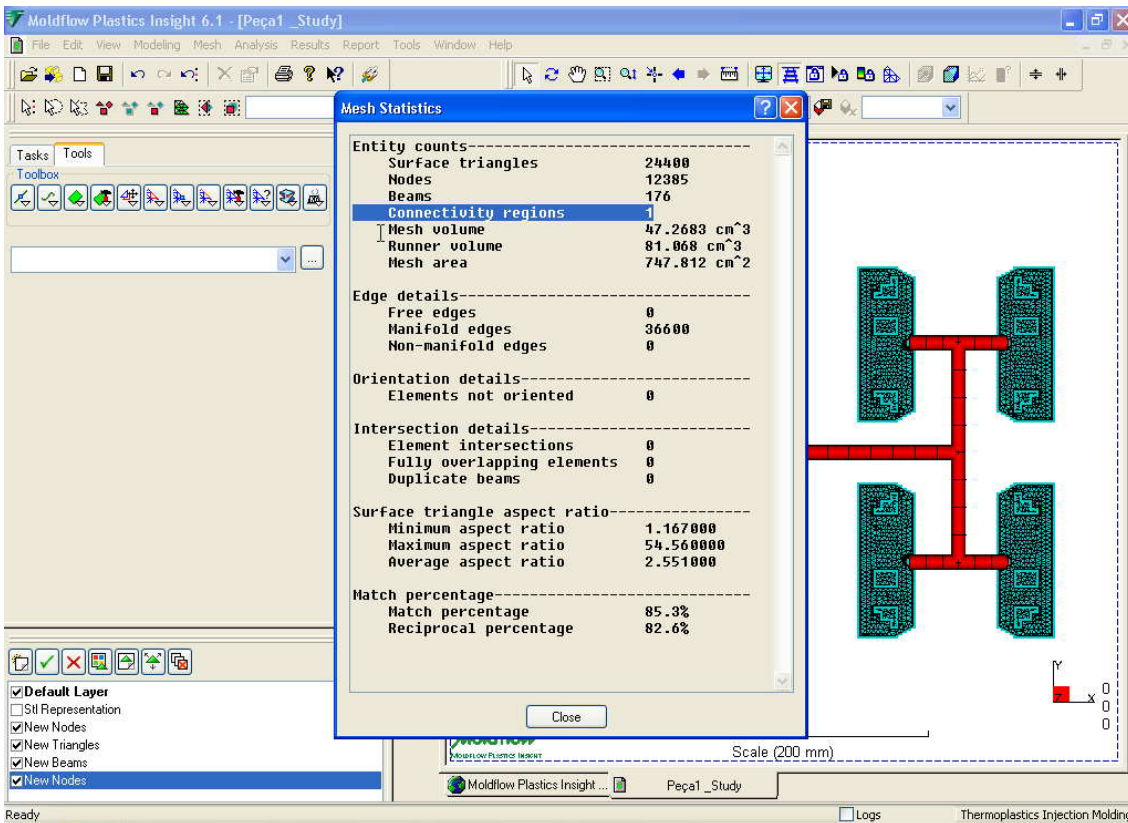


Apply



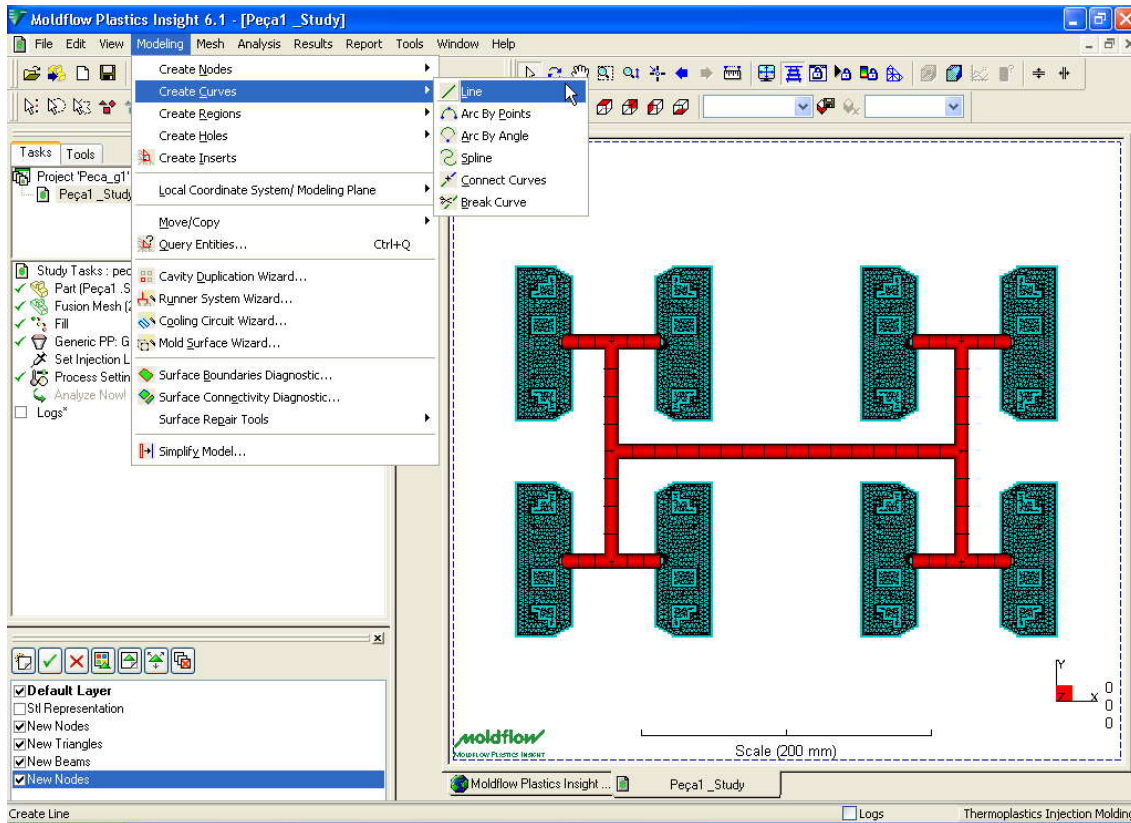


Verificar a conectividade

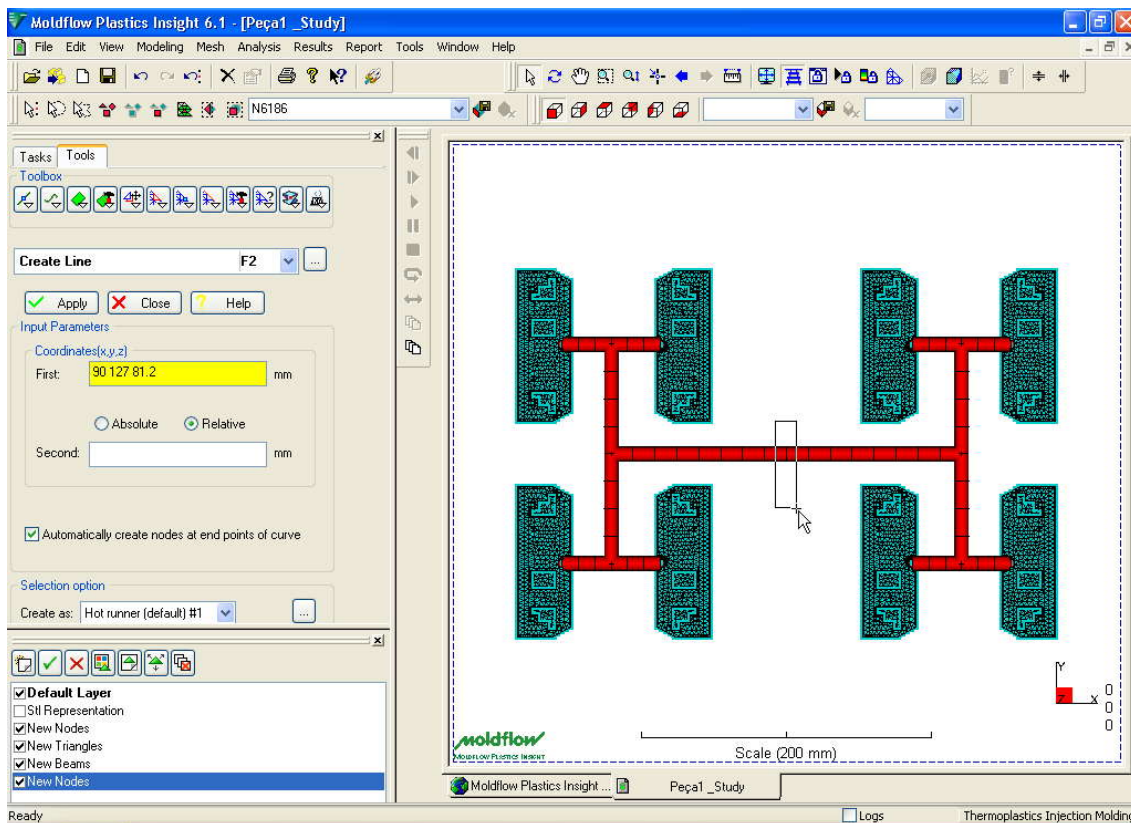


Criar bucha de injeção

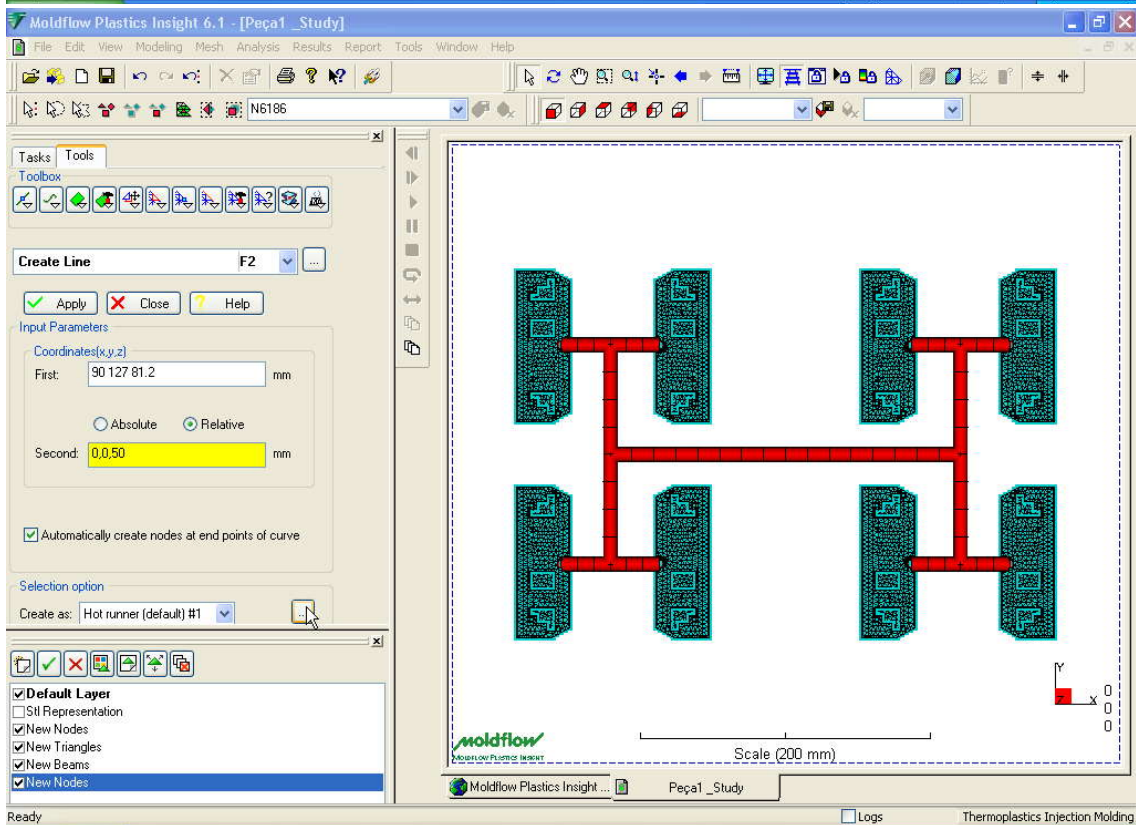
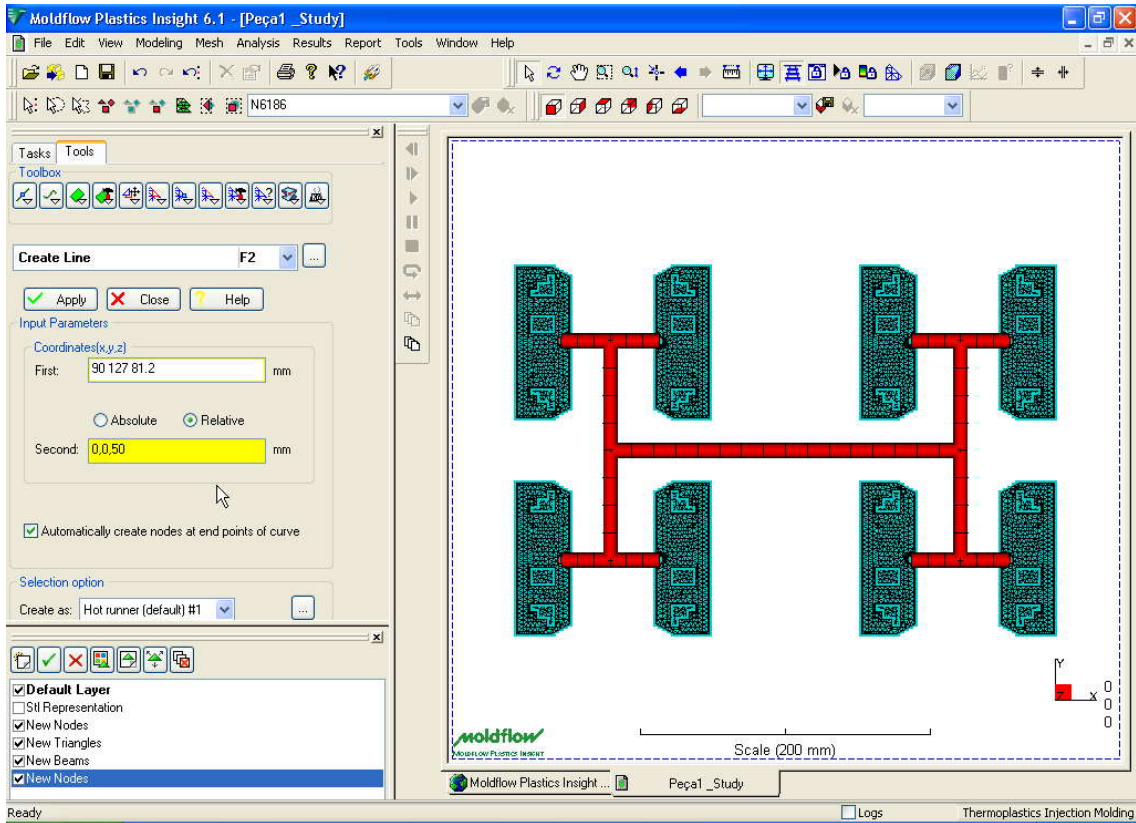
Devido a conicidade deve ser criada por linha



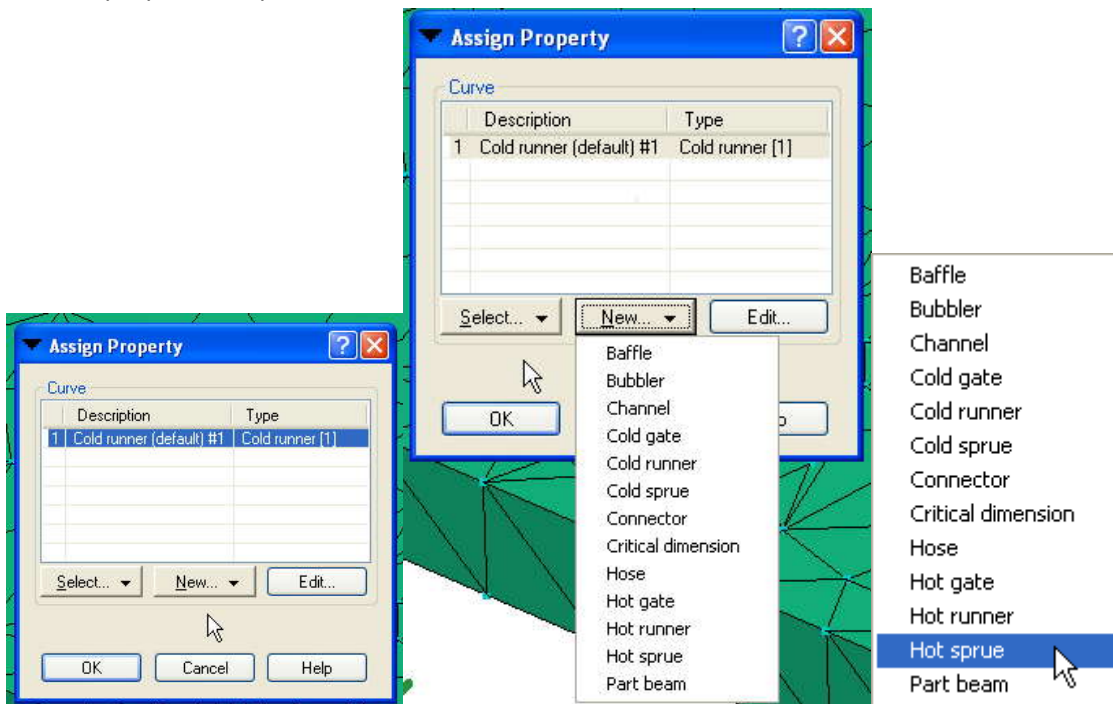
Selecione primeiro ponto



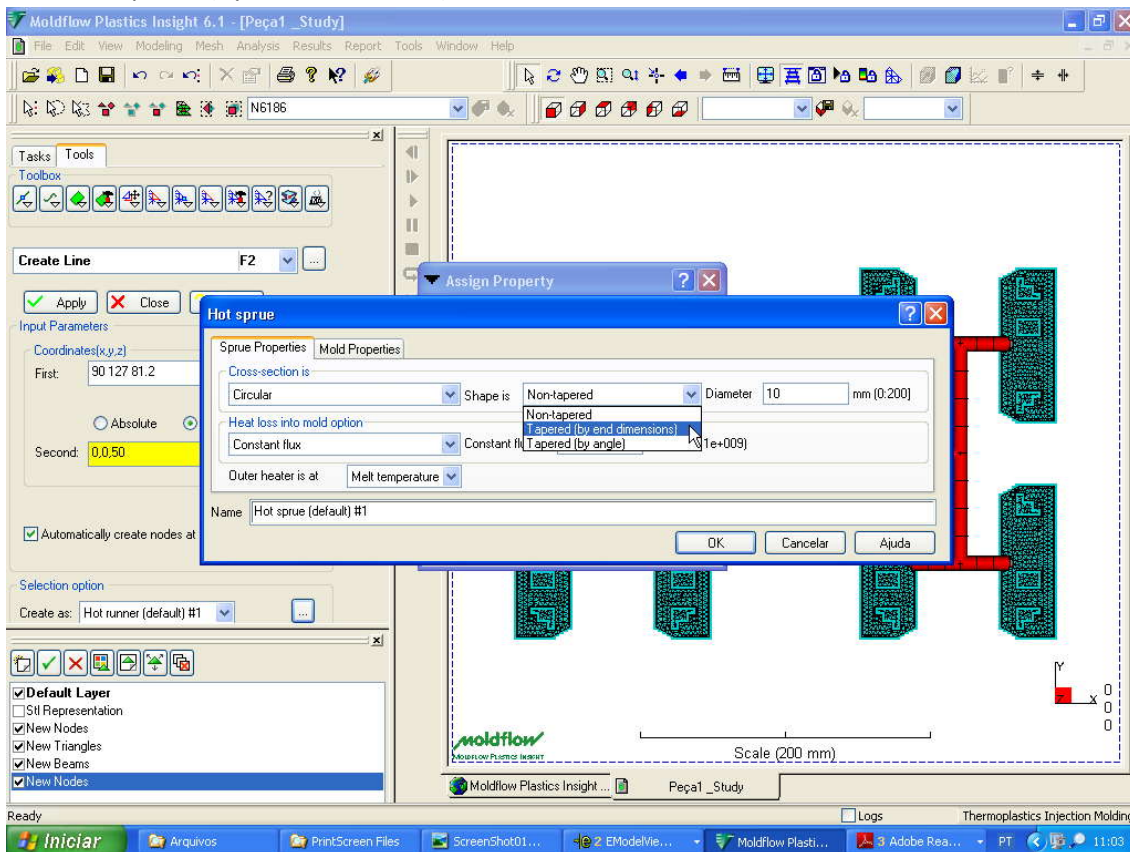
Marque Relative e defina valor para o segundo ponto 0,0,50



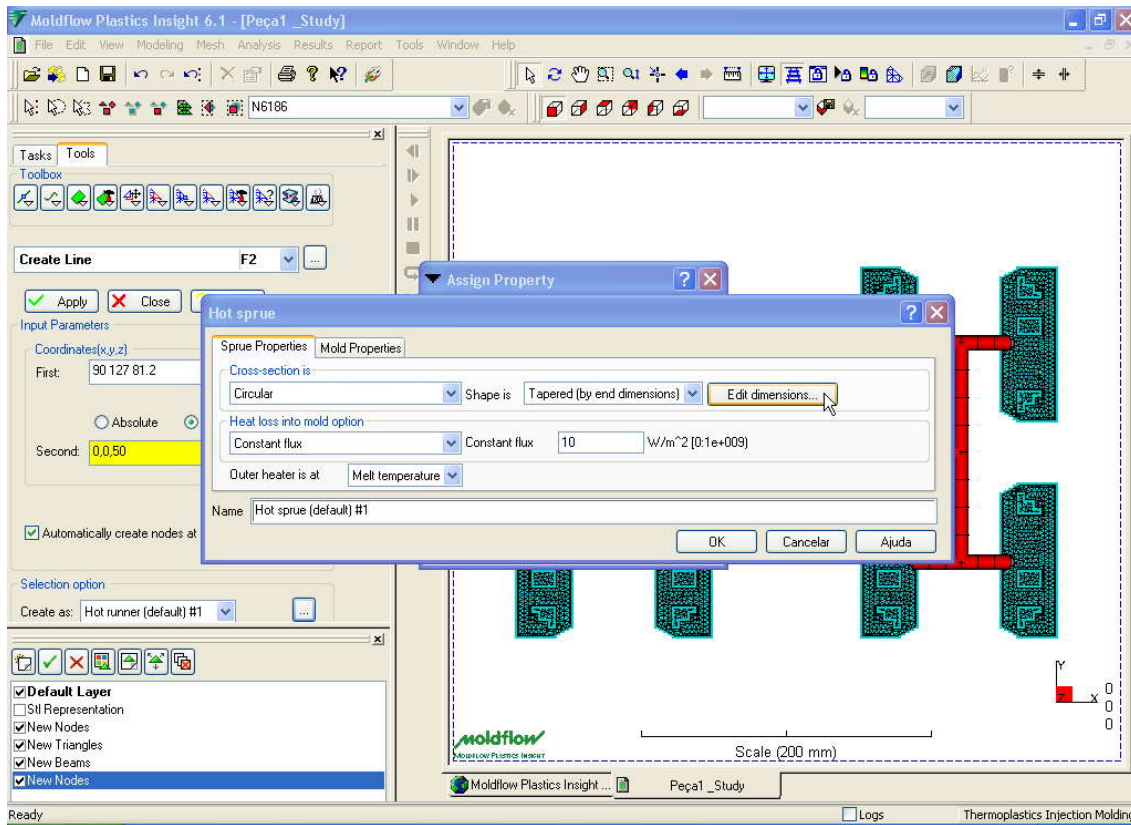
Atribuir propriedade para Curva



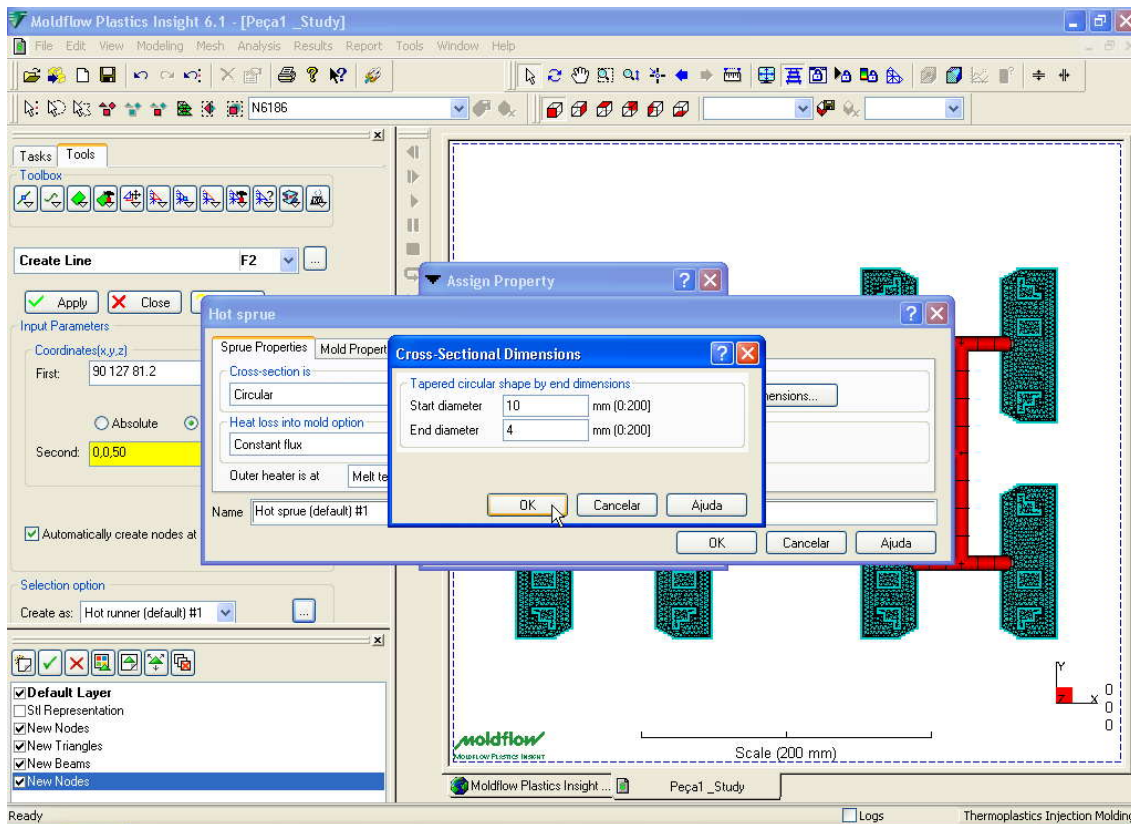
Escolha Tapered (by end dimensions)



Edit dimensions

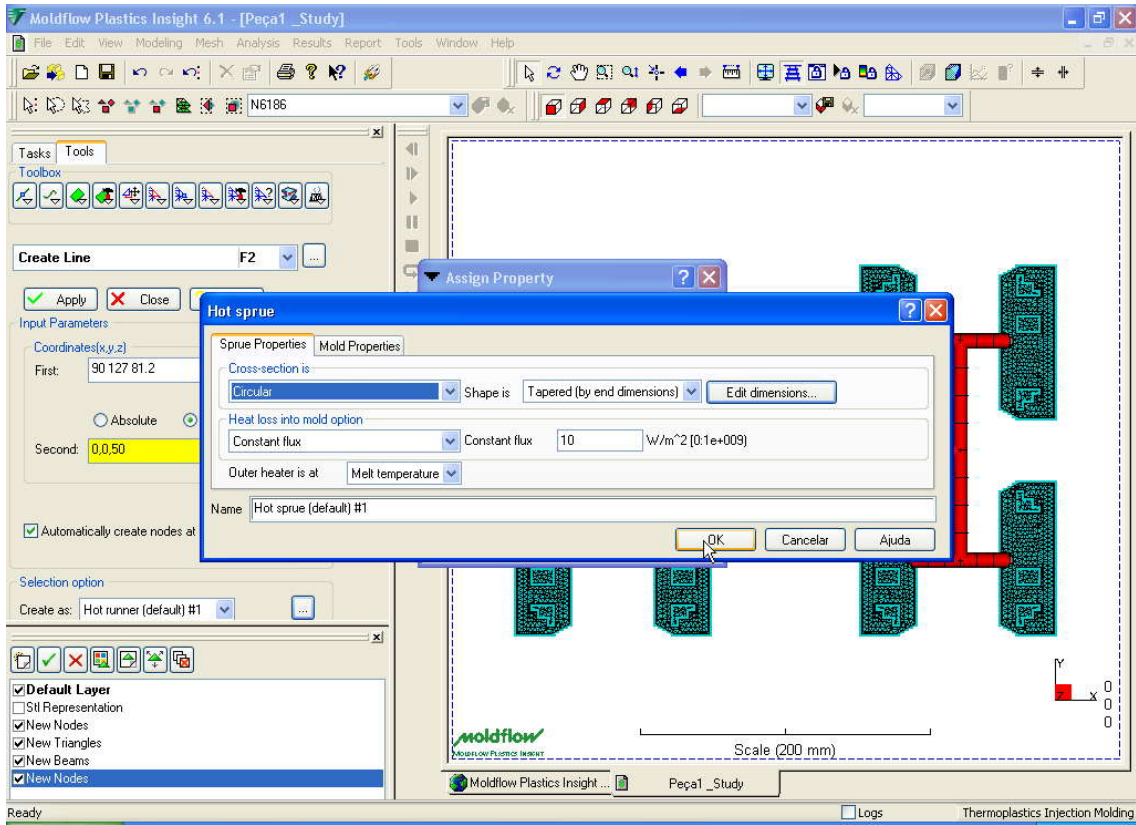


Valor inicial junto ao canal 10 e 4 para medida junto ao bico da injetora

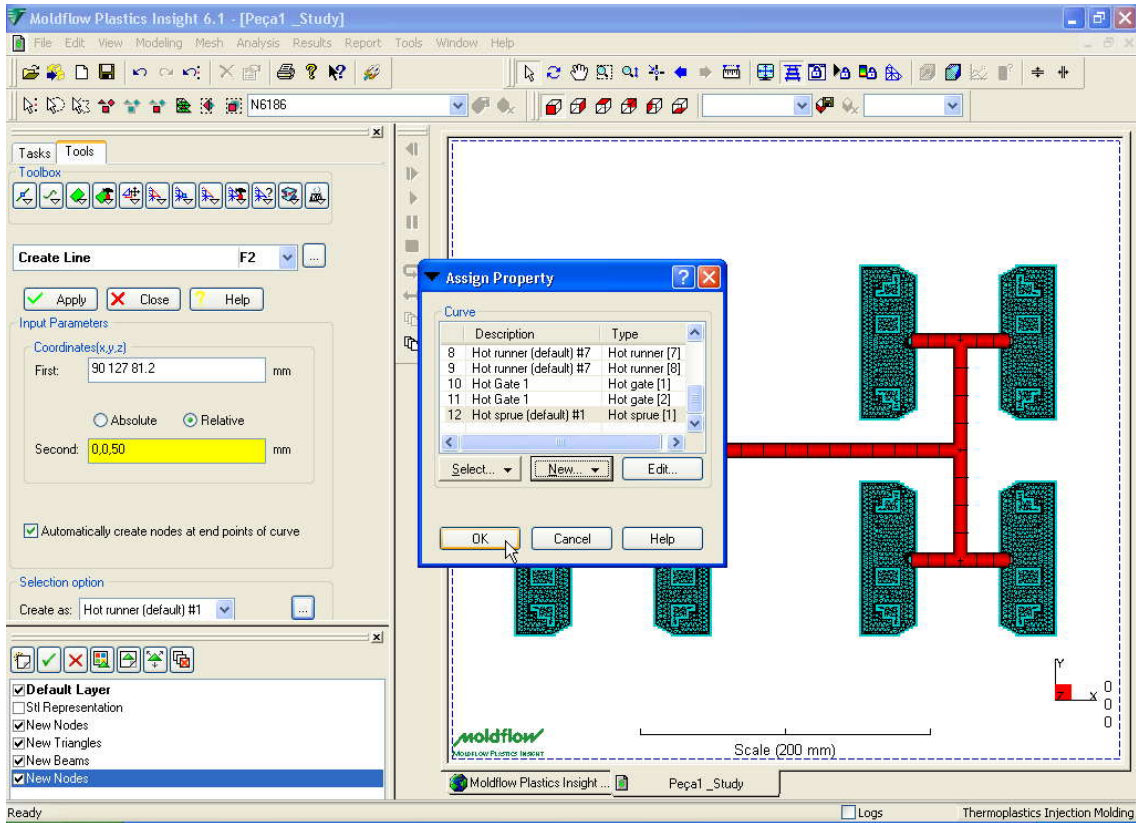


OK

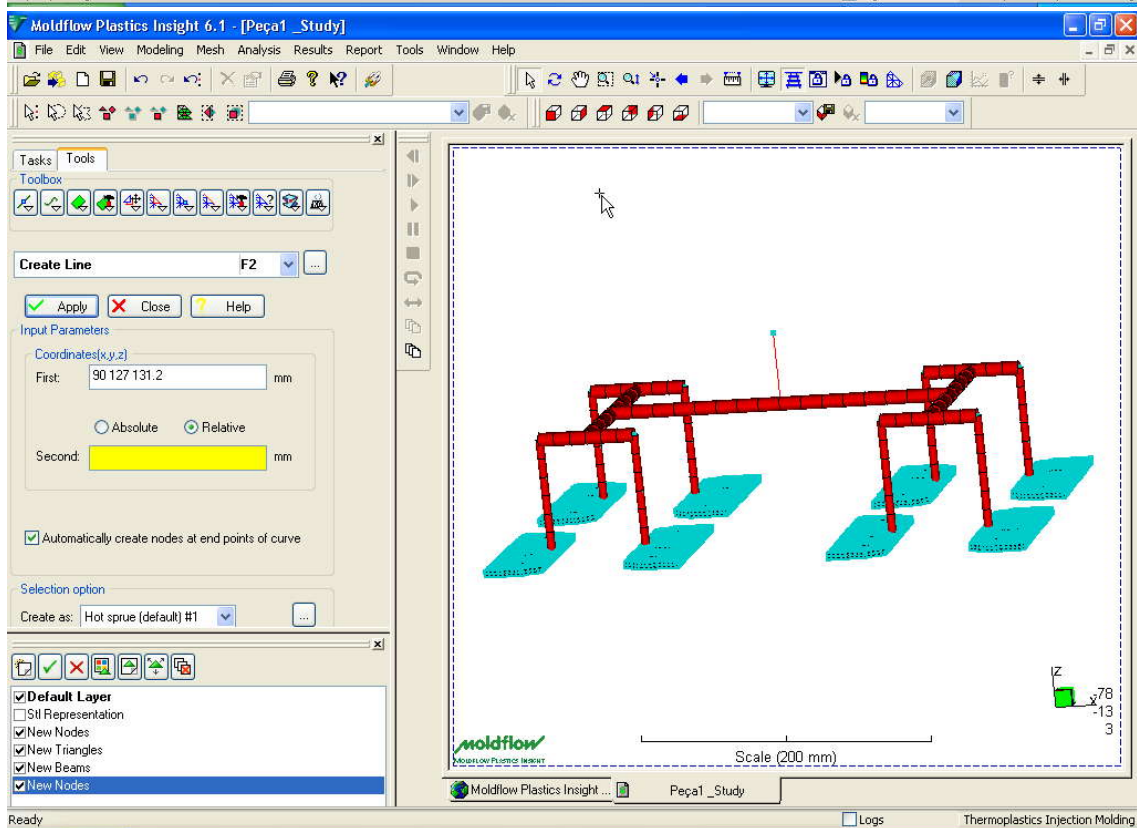
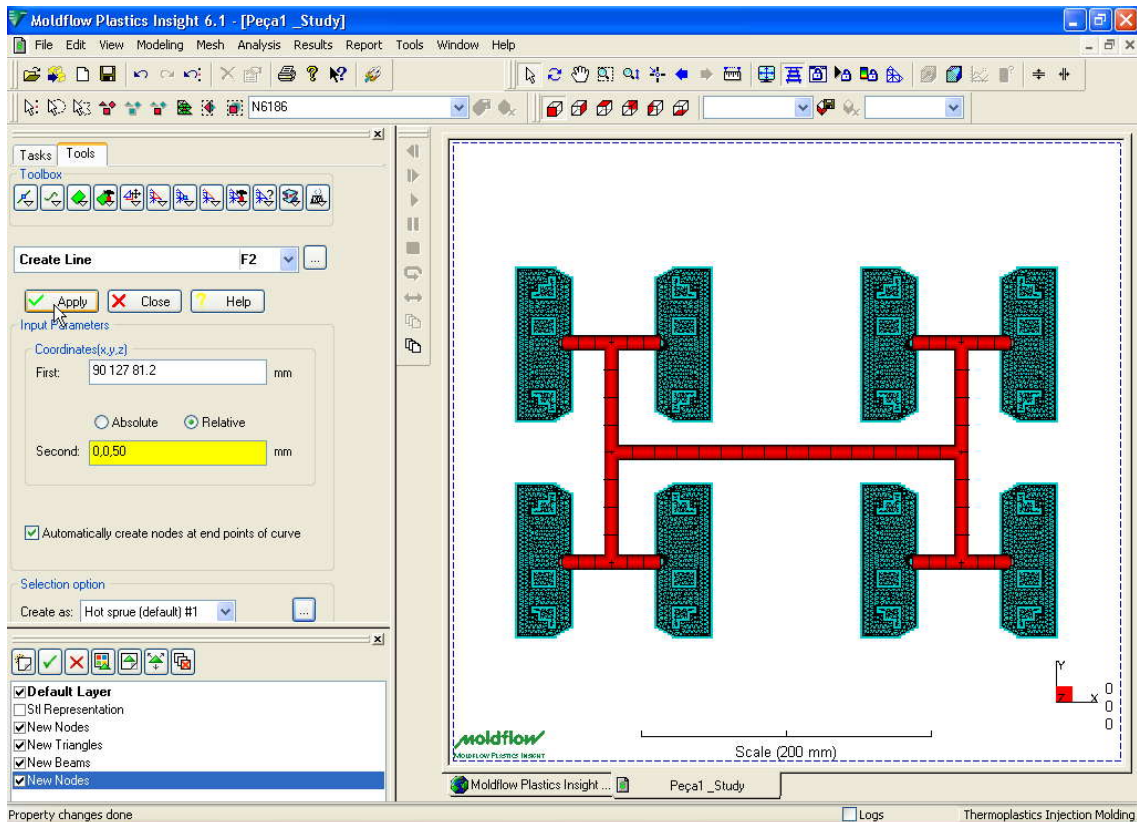
Ok novamente



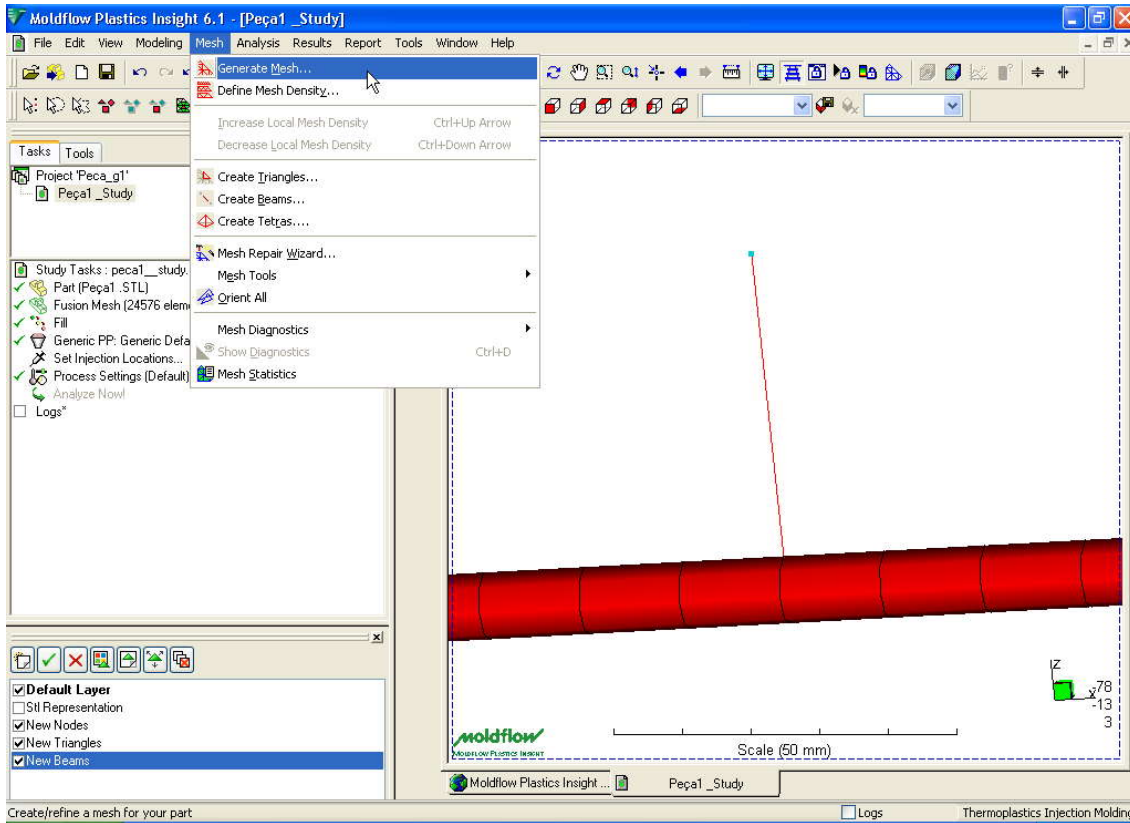
OK



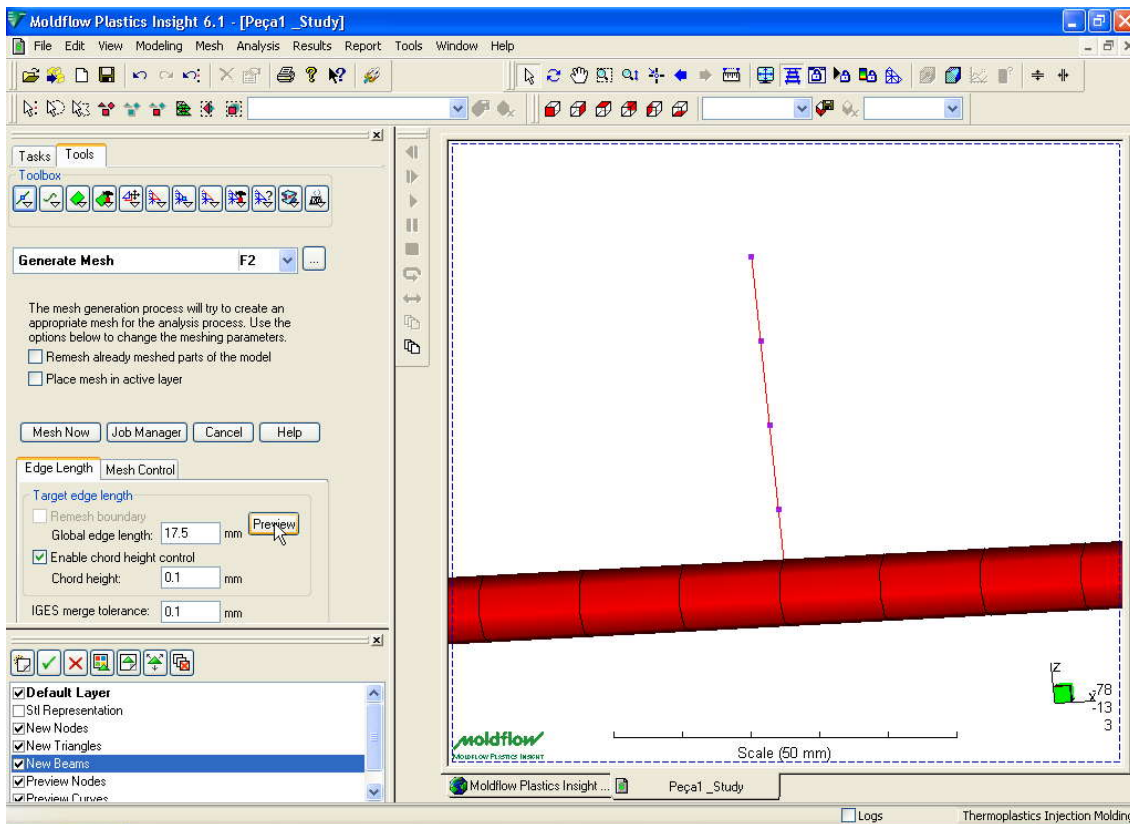
Apply para criar a curva



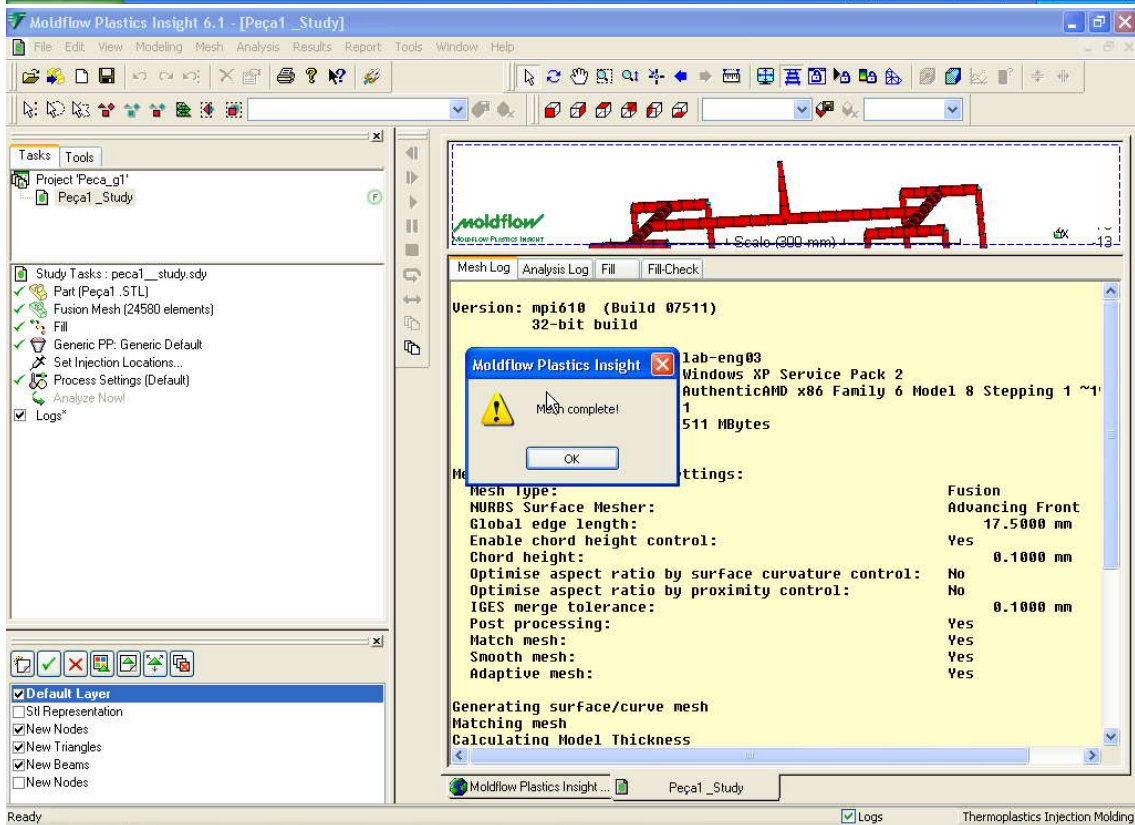
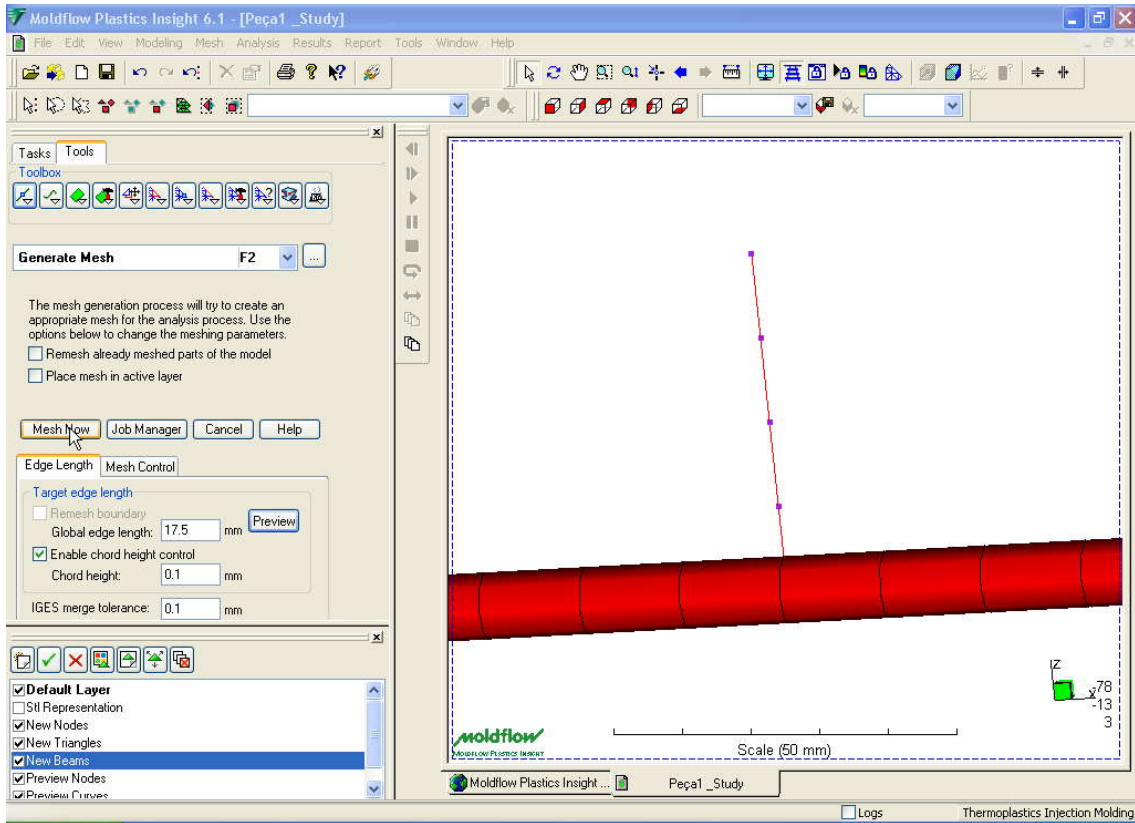
Gerar malha para curva criada



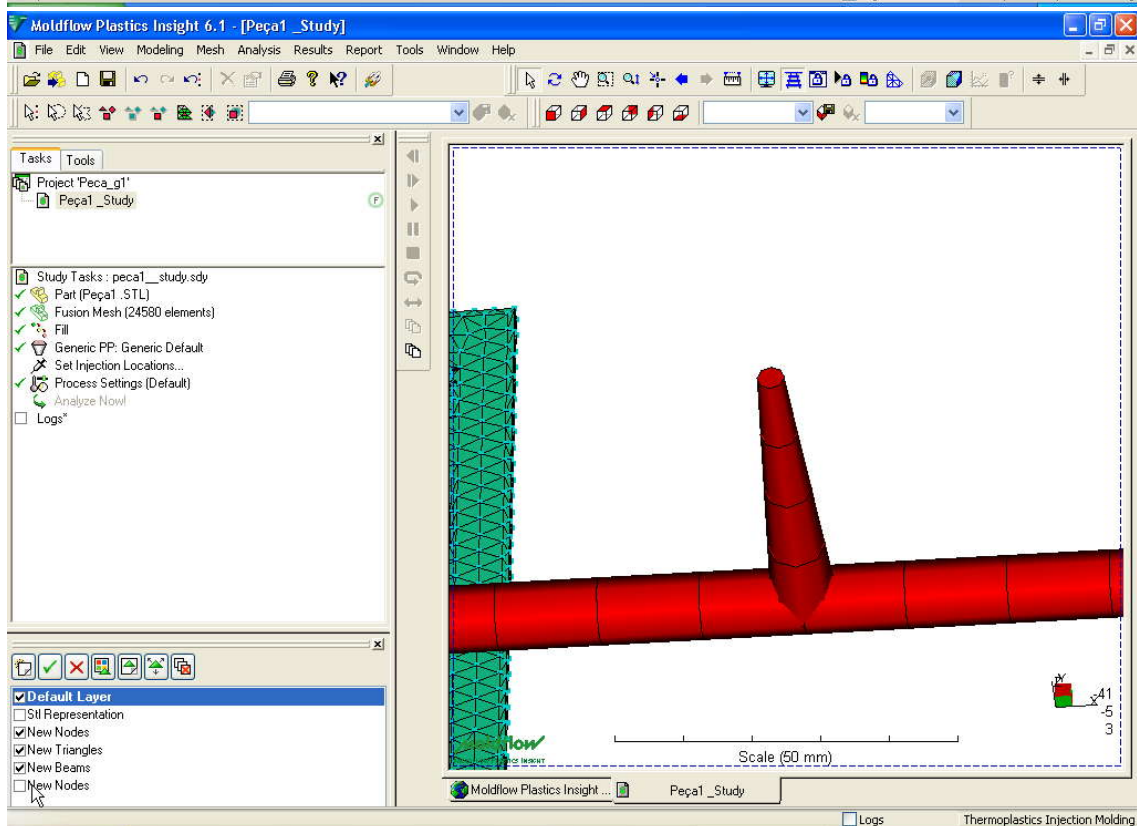
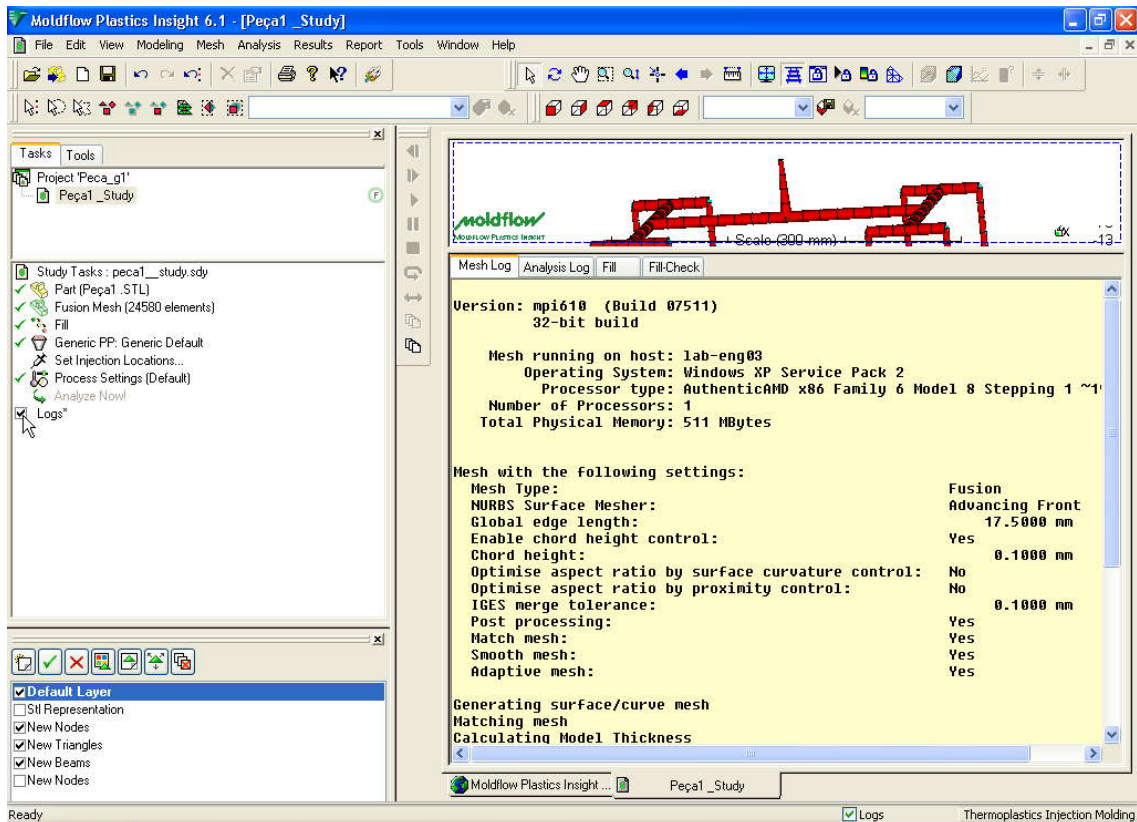
Definir o tamanho para cada elemento a serem criados Global edge length 17.5 Preview



Mesh Now para criar a malha



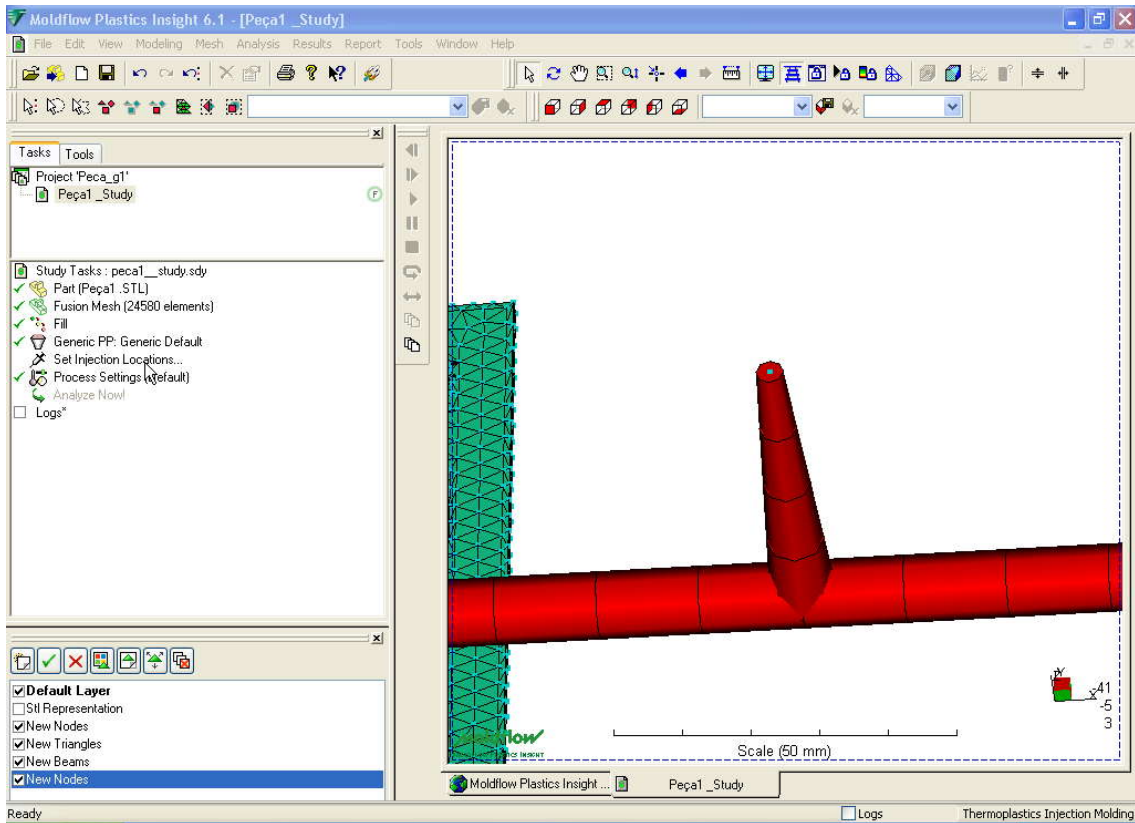
Feche a janela no Logs



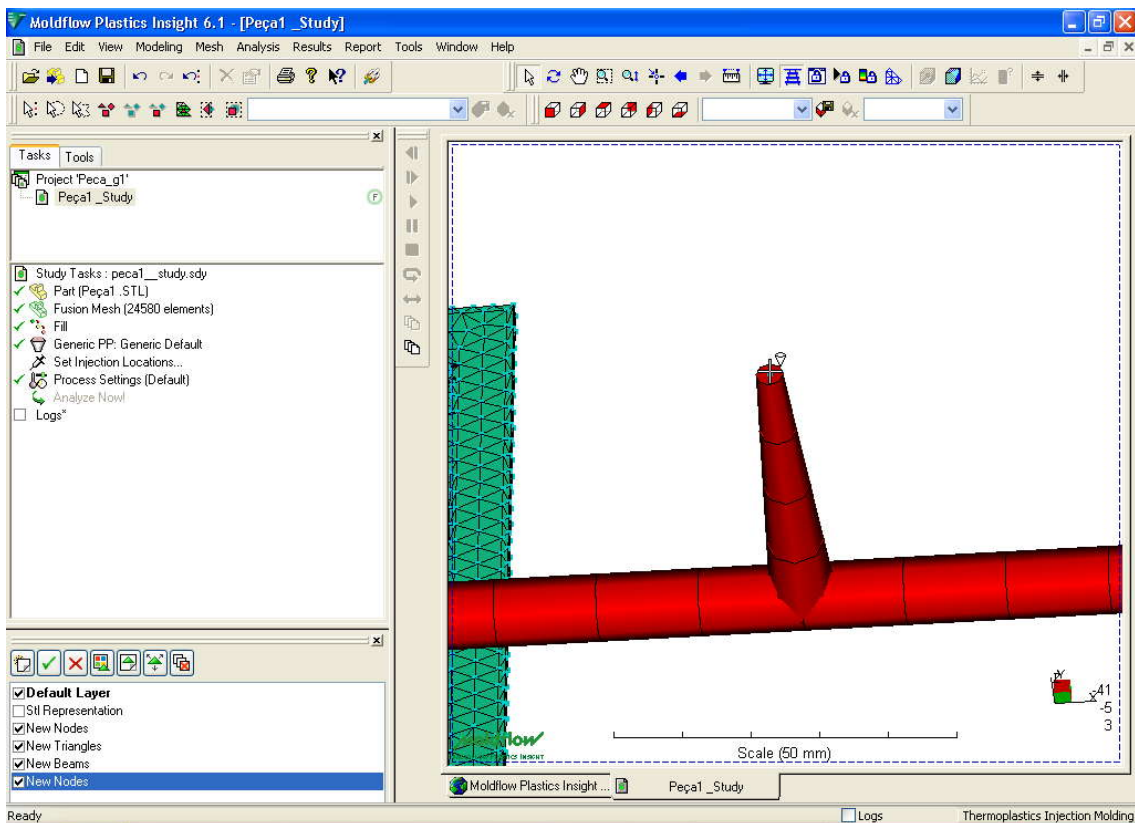
Marque o layer New Nodes

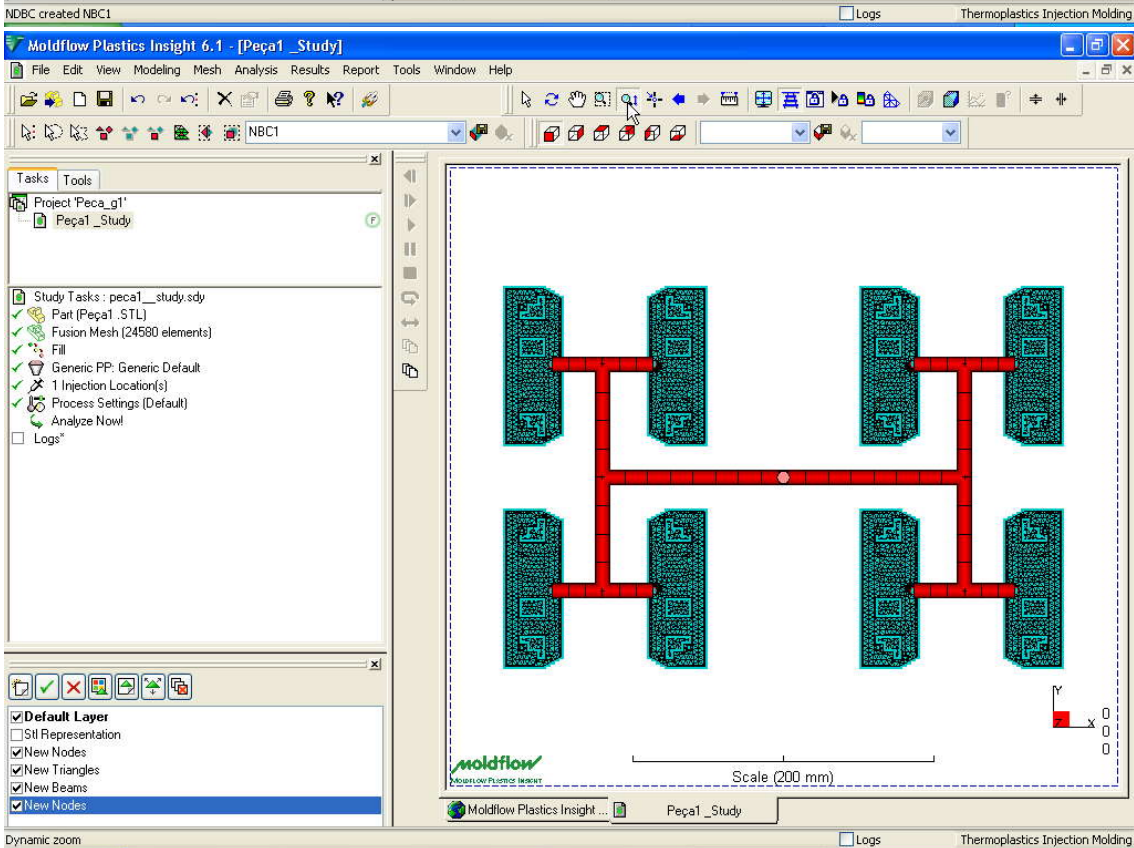
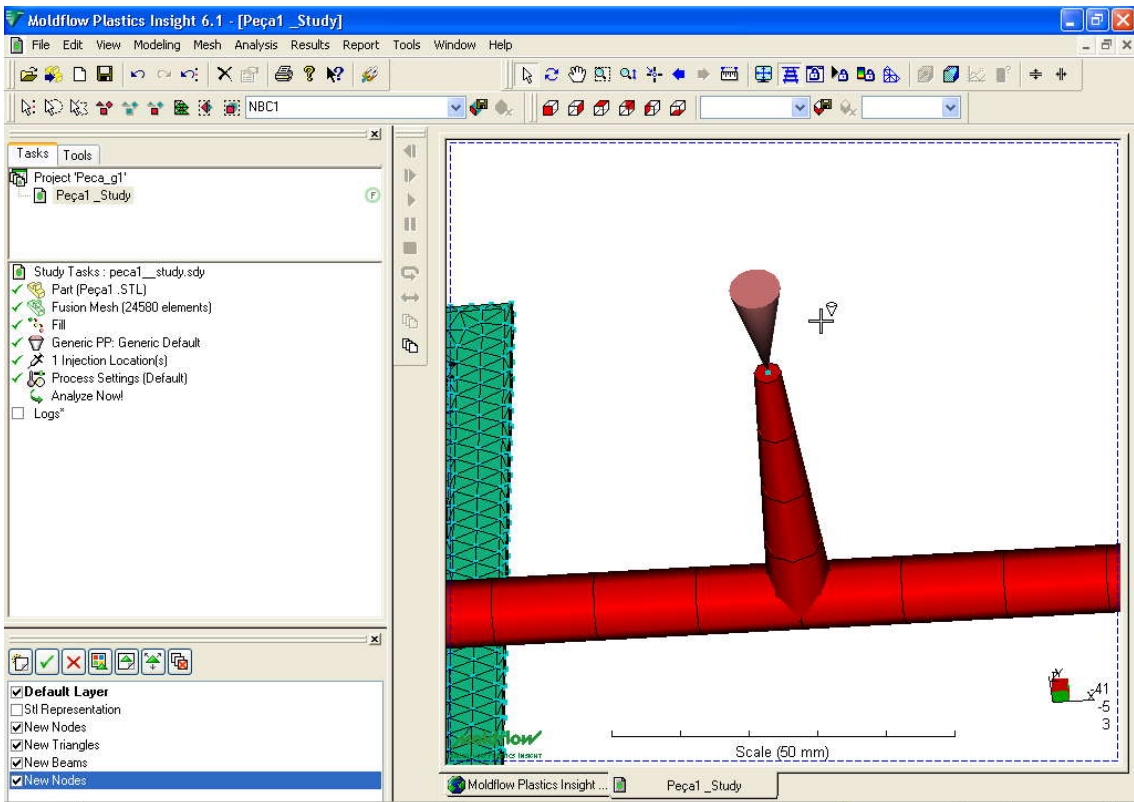
Setar ponto de injeção na bucha

2 Cliques em Set Injection locations



Clique no nó





Quase pronto para rodar análise