APDL 程序建立立–平轧制过程有限元模型

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/PREP7
ET, 1, SOLID164                                    ! 选择单元类型
MP, DENS, 1, 7850                                  ! 定义材料模型
MP, EX, 1, 1.17e11
MP, NUXY, 1, 0.36
TB, BISO, 1, , , ,
TBDAT, 1, 80e6
TBDAT, 2,
EDMP, RIGI, 2, 7, 7
MP, DENS, 2, 7850
MP, EX, 2, 2.1e11
MP, NUXY, 2, 0.3
* CSET, 1, 2,          2, 3,
MPCOPY, , 2, 3
TBCOPY, ALL, 2, 3
BLOCK, , 0.6, , 0.125, , - 1,                      ! 建立几何模型
K, , 0.6- 0.025, - 0.1, ,
K, , 0.6- 0.025, 0.3, ,
KGEN, 2, 9, 10, 1, 0.025, , , , 0
KGEN, 2, 9, 10, 1, 0.49, , , , 0
A, 10, 9, 11, 12
VROTAT, 7, , , , , , 14, 13, 360, 4K, , - 0.05, 0.125- 0.005, ,
K, , 0.6, 0.125- 0.005, ,
KGEN, 2, 27, 28, 1, , 0.05, , , 0
KGEN, 2, 27, 28, 1, , 0.575, , , 0
A, 27, 28, 30, 29
VROTAT, 27, , , , , , 31, 32, 360, 4
VGEN, , 6, 9, 1, , , 1.5, , , 1
VGEN, , 2, 5, 1, , , 0.25, , , 1
VSEL, S, , , 1, , ! 给体赋予属性(材料、单元)
VATT, 1, 1, 1,
VSEL, S, , , 2, 5, 1
VATT, 2, 1, 1,
VSEL, S, , , 6, 9
VATT, 3, 1, 1, ,
ALLSEL
/PNUM, LINE, 1                                     ! 网格划分
LESIZE, 1, , , 6, , , , , 1
LESIZE, 12, , , 40, , , , , 1
LESIZE, 7, , , 30, , , , , 1
VMESH, 1, , ,
LESIZE, 21, , , 30, , , , , 1
LESIZE, 29, , , 30, , , , , 1
LESIZE, 40, , , 30, , , , , 1
LESIZE, 44, , , 30, , , , , 1
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LESIZE, 16, , , 1, , , , , 1
LESIZE, 15, , , 6, , , , , 1
VMESH, 2, 5, 1
LESIZE, 59, , , 15, , , , , 1
LESIZE, 50, , , 1, , , , , 1
LESIZE, 61, , , 30, , , , , 1
LESIZE, 72, , , 30, , , , , 1
LESIZE, 76, , , 30, , , , , 1
LESIZE, 55, , , 30, , , , , 1
VMESH, 6, 9, 1
ALLSEL
EDPART, CREATE                          !生成 PART
EDCGEN, ASTS, 1, 2, 0.35, 0.3,          !定义接触类型和摩擦系数
EDCGEN, ASTS, 1, 3, 0.35, 0.3,
VSEL, S, MAT, , 1                       !施加约束
ALLSEL, below, volu
NSEL, R, LOC, Y, 0
D, ALL, UY, 0
ALLSEL, BELOW, VOLU
NSEL, R, LOC, X, 0
D, ALL, UX, 0
ALLSEL, BELOW, VOLU                     !定义集合，定义轧件初速度
NSLV, S, 1
CM, SLAB, NODES
EDVE, VELO, SLAB, 0, 0, 3.5, 0, 0, 0, , , , , ,
ALLSEL
/SOL
* DIM, TIME, ARRAY, 2, 1, 1, , ,        !定义参数，给轧辊施加转速
* DIM, VV, ARRAY, 2, 1, 1, , ,
* DIM, VH, ARRAY, 2, 1, 1, , ,
* SET, TIME(2, 1, 1), 10
* SET, VH(1, 1, 1), - 8.1632653061224
* SET, VH(2, 1, 1), - 8.1632653061224
* SET, VV(1, 1, 1), 6.9565217391304
* SET, VV(2, 1, 1), 6.9565217391304
EDLOAD, ADD, RBOY, 0, 2, TIME, VV, 0, ,
EDLOAD, ADD, RBOX, 0, 3, TIME, VH, 0, ,
EDENERGY, 1, 1, 1, 0                    !定义能量模式
EDHGLS, 0.1,                            !定义沙漏参数
TIME, 0.8,
EDOPT, ADD, blank, BOTH                 !定义输出结果文件
EDRST, 40,
EDHTIME, 100,
SOLVE
SAVE
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