



abaqus C3D8 单元 计算中采用了多少个积分点?

How many integration points are used in the calculation of the ABAQUS C3D8 element?



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按照正常的理解,毫无疑问, abaqus 全积分一定是采用了 $2 \times 2 \times 2 = 8$ 个积分点。

According to normal understanding, without any doubt, ABAQUS full integration must use $2 \times 2 \times 2 = 8$ integration points.

从后处理结果来看,似乎也是如此,每个单元存在8个积分点。

From the post-processing results, it seems so as well, each element has 8 integration points.

然而,如果自己动手跑一遍程序,就会发现事实远非如此,采用全积分计算得到的结果与abaqus 存在差异,原因何在?

However, if you run the program yourself, you will find that the reality is far from this. The results obtained from full integration calculation differ from those of ABAQUS, what is the reason for this?

事实是, abaqus C3D8 采用的选择积分方式 (selective integration schema), 即对于偏应变, 采用8个积分, 对于球应变, 采用中心点积分。这样计算得到的结果才能与abaqus 完全对标, 亦可从abaqus 帮助文档得到答案。

事实上, the selective integration schema adopted by abaqus C3D8, that is, for the principal strain, 8 integrations are used, and for the spherical strain, central point integration is used. The results obtained in this way can be fully consistent with abaqus, and the answer can also be found in the abaqus help document.

推荐阅读 Recommended Reading

【专题课程】ANSA HEXABLOCK六面体网格划分专题(完结)...

非局部均值滤波和MATLAB程序详解视频算法及其保留图形细节应用...

车身设计系列视频之车身钣金顶盖横梁正向设计实例教程...

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