

## 软土地区嵌岩连续墙与非嵌岩连续墙支护性状对比分析

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## COMPARISON OF SUPPORTING CHARACTERISTICS OF ROCK-SOCKETED DIAPHRAGM WALLS AND NON ROCK-SOCKETED DIAPHRAGM WALLS IN SOFT SOILS

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摘要

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**摘要** 随着城市地下空间的不断开发,大型深基坑的开挖问题也随之出现,嵌岩连续墙由于端部处于强度较高的岩层中,其支护性状不同于连续墙端部处于土层时。通过对嵌岩连续墙和非嵌岩连续墙的侧向位移、竖向位移、支撑轴力等监测资料的对比分析发现,嵌岩部分连续墙的最大侧向位移小于非嵌岩部分连续墙的最大侧向位移,最大位移分别为0.20%He和0.32% He,其中,He为墙高。随着连续墙系统刚度的提高,墙身侧向位移呈减小的趋势,嵌岩部分连续墙最大侧向位移的减小幅度小于非嵌岩部分连续墙减小幅度。连续墙后土体的沉降呈先增大后减小的趋势,x/He<2.0时(主影响区域),土体沉降较大,x/He>2.0时(次影响区域)土体沉降较小。非嵌岩连续墙在第一道混凝土支撑和第四道钢支撑上的支撑轴力要远大于嵌岩连续墙,且支撑轴力总和比非嵌岩连续墙的大44.9%。

**关键词:** [桩基础](#) [嵌岩墙](#) [墙体位移](#) [沉降](#) [轴力](#)

**Abstract:** More and more deep excavations have been constructed to meet the increasing demands of underground infrastructure. The supporting characteristic of rock-socketed diaphragm is different from that of clay-socketed diaphragm due to the different strengths of the bearing layer. Based on the analysis of field data including diaphragm wall deflections, wall settlements and axial forces of struts, the following main findings are obtained. The diaphragm wall deflections using the intermediary weathered rock as bearing layer are larger than those using clay as bearing layer. The maximum lateral displacements of rock-socketed and non rock-socketed diaphragm walls are 0.20%He and 0.32%He, respectively. The diaphragm wall deflections decrease with increasing system stiffness, and more obvious for the rock-socketed diaphragm. The settlement behind the diaphragm wall is large when the value of x/He is smaller than 2.0(primary influence zone), but small while the value of x/He is larger than 2.0(secondary influence zone). The axial forces of the first and fourth struts of rock-socketed diaphragm wall are larger than those using clay as bearing layer. In addition, the total support axial force of rock-socketed diaphragm wall is larger 44.9% than that of clay-socketed diaphragm wall.

**Keywords:** [pile foundations](#) [rock-socketed diaphragm wall](#) [diaphragm wall deflections](#) [settlements](#) [axial forces](#)

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