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三轴压缩试验冻结试样横截面积变化研究

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摘要　根据砂土和粉质粘土试样在－4 ℃和－6 ℃的轴对称三轴压缩原始试验资料，在数据整理过程中采取考虑和不考虑试样横截面积变化2种方式，讨论了剪切过程中试样横截面积变化与轴向应变和围压的关系；分析了横切面积变化对土的应力－应变曲线形式及抗压强度的影响。研究结果表明：考虑试样横切面积变化是很重要的。

关键词　土力学　横截面积　应力－应变曲线　抗压强度

分类号

STUDY ON CROSS-SECTION AREA CHANGE OF FROZEN SPECIMENS FOR TRIAXIAL COMPRESSION TEST

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Abstract

Based on initial data of axial-symmetrically triaxial compression test of silty and sandy clays with temperatures of －4 ℃ and －6 ℃，respectively，two methods are adopted with/without considering the cross-section area change of specimens. The relationships among the cross-section area change of specimens，axial strain and confining pressure are discussed. According to the results，it is found that the specimens increase nonlinearly with the axial strain increase. However，it is also seen that the cross-section area increases when the confining pressure increases to about 3.0 MPa below which the area change basically keeps constant；and it was not varied with the soil type and temperature. Moreover，the patterns of stress-strain curves and compressive strength values，when the revised area is considered，are obviously different from the corresponding ones without considering the revised area.

Key words　soil mechanics　cross-section area　stress-strain curve　compressive strength

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