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碳纤维材料加固π型混凝土梁抗弯试验研究

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Title: Test research on bending capacity of π-type concrete beam strengthened with carbon fiber reinforced plastic

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关键词: 碳纤维增强材料; 加固; π型混凝土梁; 抗弯试验

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摘要: 通过对27根钢筋混凝土梁的静载试验,研究了不同加固方式、不同嵌贴数量对CFRP材料加固普通混凝土梁及π型混凝土梁的破坏形态、极限承载力及刚度等的影响,研究了被加固(π型)混凝土梁的弯曲特性,比较了表层嵌入法和表层外贴法加固普通混凝土梁和π型混凝土梁的加固效果.结果表明,CFRP材料加固π型混凝土梁的效果稍次于加固普通混凝土梁;无论是普通混凝土梁还是π型混凝土梁,表层嵌入法的加固效果明显优于表层外贴法.

Abstract: Based on static tests on 27 RC beams, the influence of different strengthening patterns and different number of near-surface mount/external bond reinforcements on the failure mode, ultimate bearing capacity and stiffness of carbon fiber reinforced plastic (CFRP)-strengthened common concrete beams and π-type concrete beams was studied. The flexural behavior of the strengthened concrete beams (π-type concrete beams) was explored and the strengthening effects of near-surface mounted (NSM) method and external bond reinforced (EBR) method on

common concrete beams and π-type beams were compared. Results indicate that, the reinforcing effect of π beams is slightly weaker than that of common concrete beams. Despite common concrete beams or π concrete beams, NSM technique has better