

COMPRESSION TESTS ON HIGH STRENGTH S690 WELDED SECTIONS WITH VARIOUS HEAT ENERGY INPUT

K. F. CHUNG^{1,2*}, H. C. HO^{1,2}, X. LIU², K. WANG² and Y. F. HU^{1,2}

¹Chinese National Engineering Research Centre for Steel Construction (Hong Kong Branch),
The Hong Kong Polytechnic University, Hong Kong SAR

²Department of Civil and Environmental Engineering,
The Hong Kong Polytechnic University, Hong Kong SAR

Emails: kwok-fai.chung@polyu.edu.hk, hc.ho@polyu.edu.hk, leo-xiao.liu@connect.polyu.hk,
leon.kai@connect.polyu.hk, yi-fei.hu@polyu.edu.hk

*Corresponding author

Abstract. *Over the past twenty years, conflicting research findings have been reported on mechanical properties of high strength S690 welded sections due to different welding procedures and parameters adopted during welding. In order to quantify adverse effects on mechanical properties of these S690 steel welded sections, a total of 12 spliced S690 welded H-sections with different heat input energy adopted in the welding processes have been conducted to examine their deformation characteristics under compression, in particular, their cross section resistances. It is demonstrated that by a proper control on the heat input energy during welding, it is possible to control or even eliminate any reduction to the mechanical properties of these spliced S690 welded H-sections under compression.*

Keywords: *High strength steels; welding; welded H-sections; heat input energy.*