

SX-55HC SX-60HC

Growing demand for larger and taller buildings has increased the use of thicker structural steel plates, creating new challenges for welding productivity.

To meet these demands, Nippon Steel Welding & Engineering has developed the SX-55HC and SX-60HC seamless metal-cored wires for high heat input welding of structural steel, delivering improved productivity without compromising weld quality.

Specifications of SX-55HC and SX-60HC

Brand Name	JIS Z 3313 Specification	Flux Type	Shielding Gas	Size mm
SX-55HC	T550T15-0CA-3M2-UH5	Metal-Cored	CO ₂	1.4
SX-60HC	T59J1T15-0CA-4M2-UH5	Metal-Cored	CO ₂	1.4

Welding Performance and Mechanical Properties in High Heat Input Welding

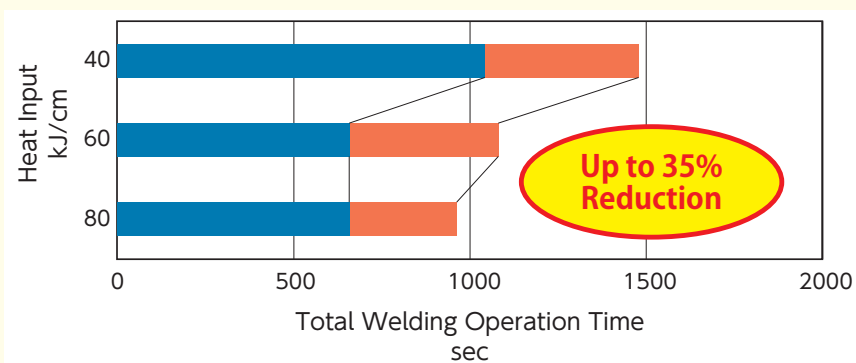
Welding Conditions for Weld Joint Test in High Heat Input						
Brand Name	Heat Input kJ/cm	Welding Current A	Arc Voltage V	Travel Speed cm/min	Base Metal	Groove Geometry
SX-55HC	60	450	46	20	SN490B 25 mm	Single-Bevel Groove 20°, Root Gap 11 mm
	80	450	46	15	SN490B 25 mm	Single-Bevel Groove 20°, Root Gap 11 mm
SX-60HC	60	400	39	15	BT-HT™385B 25 mm	Single-Bevel Groove 35°, Root Gap 7 mm

Cross-Section of Weld Joint Test

YM-55C Conventional Welding	SX-55HC High Heat Input Welding	
Max. Heat Input Limit: 40 kJ/cm	Heat Input: 60 kJ/cm	Heat Input: 80 kJ/cm
		

BT-HT is a product name of NIPPON STEEL CORPORATION's steel plate.

Relationship Between Heat Input and Welding Operation Time



Typical Mechanical Properties of Weld Joint Test in High Heat Input

Brand Name	Heat Input kJ/cm	Tensile Test of Weld Metal			Joint Tensile Test		Impact Test
		YS MPa	TS MPa	El %	TS MPa	Fracture Location	vE0°C J
SX-55HC	60	503	646	30	576	Base Metal	206
	80	442	599	27	569	Base Metal	201
SX-60HC	60	535	649	26	—	—	105

Fractured Joint Tensile Test Specimens (SX-55HC)



Typical Mechanical Properties of All-Weld Metal under JIS Standards (JIS Z 3313)

Brand Name	Welding Conditions			Tensile Test			Impact Test	
	Heat Input kJ/cm	Interpass Temp. °C	Shielding gas (Flow Rate)	YS MPa	TS MPa	El %	Temp. °C	vE J
SX-55HC	20	150±15	CO ₂ (25L/min)	624	691	24	0	143
SX-60HC	20	150±15		686	743	23	-20	125

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Fumes and gas may be hazardous to your health. Please take appropriate preventive measures such as the implementation of ventilation as well as wearing a protector for breathing. Arc light is harmful to the eyes and skin. Please use appropriate shielding measures. Please do not touch anything where electricity is activated. It may cause death.

Request to Customers

- Various data of distinctive features such as welding consumables, all-weld metal, weld metal, etc. shown in this catalog are provided for general information only and represent typical values. They do not constitute any representation or guarantee of performance, quality, or suitability for any specific application unless expressly agreed as specifications.
- The properties and performance of welded structures, which cannot be determined by welding consumables alone, may vary depending on various factors such as structural design, chemical composition of base materials, fabrication method, welding conditions, environment, and operator skill. Users are solely responsible for evaluating and determining the suitability of the products for their intended applications, and appropriate verification and testing are recommended prior to use.
- All information provided herein is based on available data at the time of publication and is subject to change without notice. We shall not be liable for any direct or indirect damages arising from the use of or any reliance upon the technical information contained in this catalog.

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