

## UNBRAKO ARC WELDING STUD

### PRODUCT RANGE

- M13, M16, M19, M22, M25 Any length
- Dia 1/2", 5/8", 3/4", 7/8", 1" Any length



The UNBRAKO ARC Welding Stud ( also known as shear stud or shear connector) is designed to operate in conjunction with steel plate, welding steel mesh and cement modeled objects which are used in the construction of tall buildings, bridges and a variety of steel structures. It functions as a mechanism to **Prevent** the slip between two objects, **Improve** the strength of the structure and **Efficiently** combine the floor plate with the steel beam.

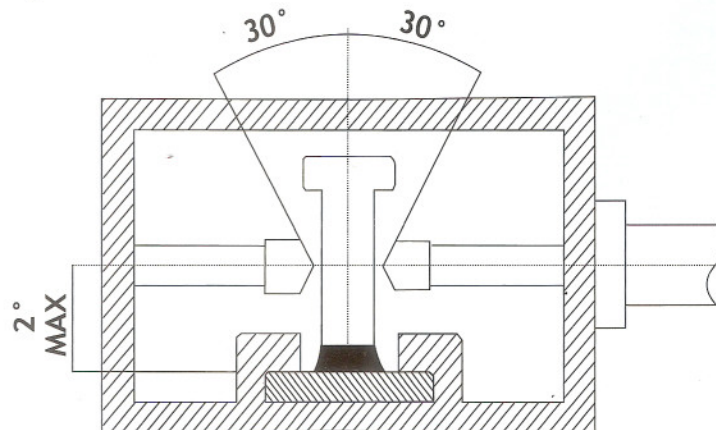
## ADVANTAGES OF UNBRAKO ARC WELDING STUD

UNBRAKO ARC Welding Stud provides excellent welding success under a broad range of conditions. It produces a full cross-sectional weld, forming a bond that is stronger than the surrounding metal.

- **IMPROVED QUALITY :-**  
Weld Strength  
Aesthetic Appeal  
Ample Design Freedom  
Tamper-Proof
- **INCREASED PRODUCTIVITY :-**  
Faster, Easier Installation  
Fewer Installation Steps
- **ECONOMIC ADVANTAGES :-**  
Labor Savings  
Fabrication Savings

## THE BENDING TEST

When the UNBRAKO ARC Welding Stud is subjected to the Bending Test, no crack in the welding part of the UNBRAKO ARC Welding Stud is observed after the UNBRAKO ARC Welding Stud is struck at 90 degree angle of bend. No crack or rupture in the bar part and welding part of the UNBRAKO ARC Welding Stud is observed after the UNBRAKO ARC Welding Stud is struck at 30 degree angle of bend. This is in accordance with the standard AWS D1.1 (American Welding society)



## THE TENSILE TEST

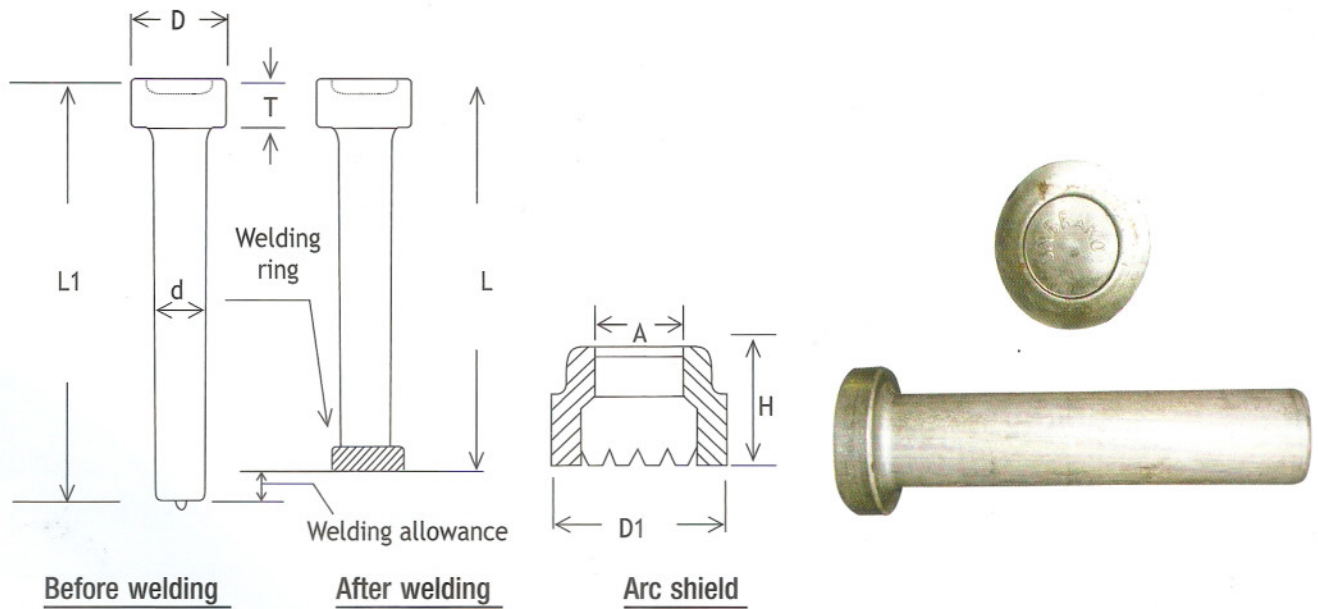
Standard Diameter		13(1/2)	16(5/8)	19(3/4)	22(7/8)
Tensile	Min	5400	8200	11600	15600
Loading	Max	7400	11300	15900	21300
The position of rupture		The bar part of the welding stud (No rupture in welding part was permitted)			

The tests are conducted in accordance with the test conditions of JIS B1198



# Unbrako Arc Welding Stud

## SPECIFICATIONS & DIMENSIONS OF THE UNBRAKO ARC WELDING STUD



Diameter / Size (d)	Producing length (L1)	Diameter of head (D)	Thickness of the head (T) MIN	Type of the arc shield	A	D1	H
(½) 13	L1±1.6	25.4±0.4	7.1	Vertical	13.2	22.0	10.0
				Weld-vertical	-	-	-
(5/8) 16		31.7±0.4	7.1	Vertical	17.0	30.0	13.4
				Weld-vertical	17.0	30.0	18.0
(¾) 19		31.7±0.4	9.5	Vertical	20.5	31.0	17.0
				Weld-vertical	20.5	36.0	16.0
(7/8) 22		34.9±0.4	9.5	Vertical	23.0	36.0	18.6
				Weld-vertical	23.0	-	-

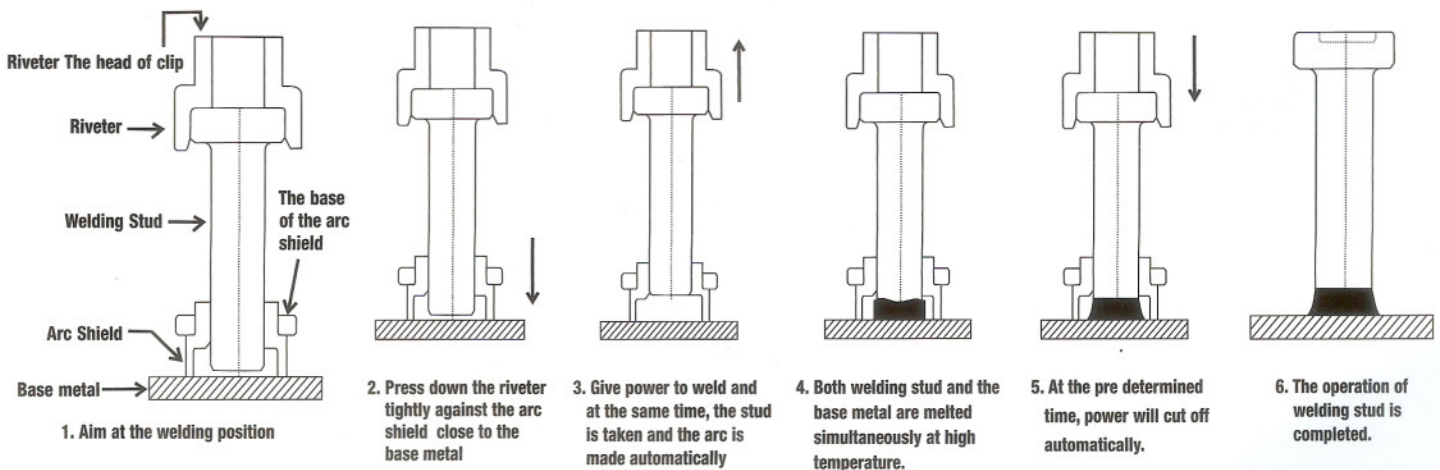
- Notes:**
1. Our indicated length for packing is 'L1'; the customers should take the length 'L1' as standard for ordering.
  2. The indicated length 'L' is the length of the stud after welding and it will be 3-5mm shorter than 'L1'.
  3. All dimensions and errors of the arc shields are approximate values (for reference only).

## The Mechanical Characteristics of the UNBRAKO ARC Welding Stud

Tensile Strength kgf/mm <sup>2</sup>	Yield Strength kgf/mm <sup>2</sup>	Elongation rate (%)	Percentage reduction of area (%)	Material
≥ 45.7	≥ 35.9	≥ 20%	≥ 50%	ASTM-A108

The tests are conducted in accordance with the test conditions of ASTM A370

## THE OPERATIONAL INSTRUCTIONS FOR UNBRAKO ARC WELDING STUD



## RECOMMENDED PROCEDURES & TECHNIQUES

- ① The operator should make sure that the electric current can smoothly flow through the contact between the wire solder and the base metal before welding (Prevent the poor contact caused by the heavy current).
- ② The operator should regulate the gap between the base metal and the chuck of the welding gun after the UNBRAKO Arc Welding Stud is inserted, ensuring that sufficient salient has occurred in the melted matter of UNBRAKO arc welding in contact with the base metal.
- ③ After completing the welding, the operator should knockout the magnetic base (arc shield) & check that the terminal surface of the UNBRAKO Arc Welding Stud is welded to the base metal completely and is surrounded by the salient.
- ④ The welding operation should not be performed in wet conditions. All surfaces should be fully dry (the surface temperature of the steel plate should be between 0° C and 50° C) before carrying out the operation of welding.
- ⑤ The operator should check that the aluminum flux at the end of the UNBRAKO Arc Welding Stud is clean and intact. The operator should remove any impurities such as moisture and rust which could have a negative influence on the quality of the weld.
- ⑥ The operator should remove any mill scale, rust and paint on the rolled steel while preparing the surface of the base metal.
- ⑦ The operator should prevent any influence from magnetic force while welding (magnetic force will cause partially excess salient or undercut).
- ⑧ The variation of the current and voltage rate for the welding procedure should be within 5%.
- ⑨ The operator should confirm the welding conditions (arc time, current and the length of the UNBRAKO Arc Welding Stud) and carry out the bending test of 30 degree angle during everyday operation, in order to ensure consistent quality of the weld.
- ⑩ If any exterior defect occurs after welding, the operator should make a supplementary weld according to the regulation in the AWS D1.1 Section 7 Stud Welding 7.7.3 Repair of Studs.