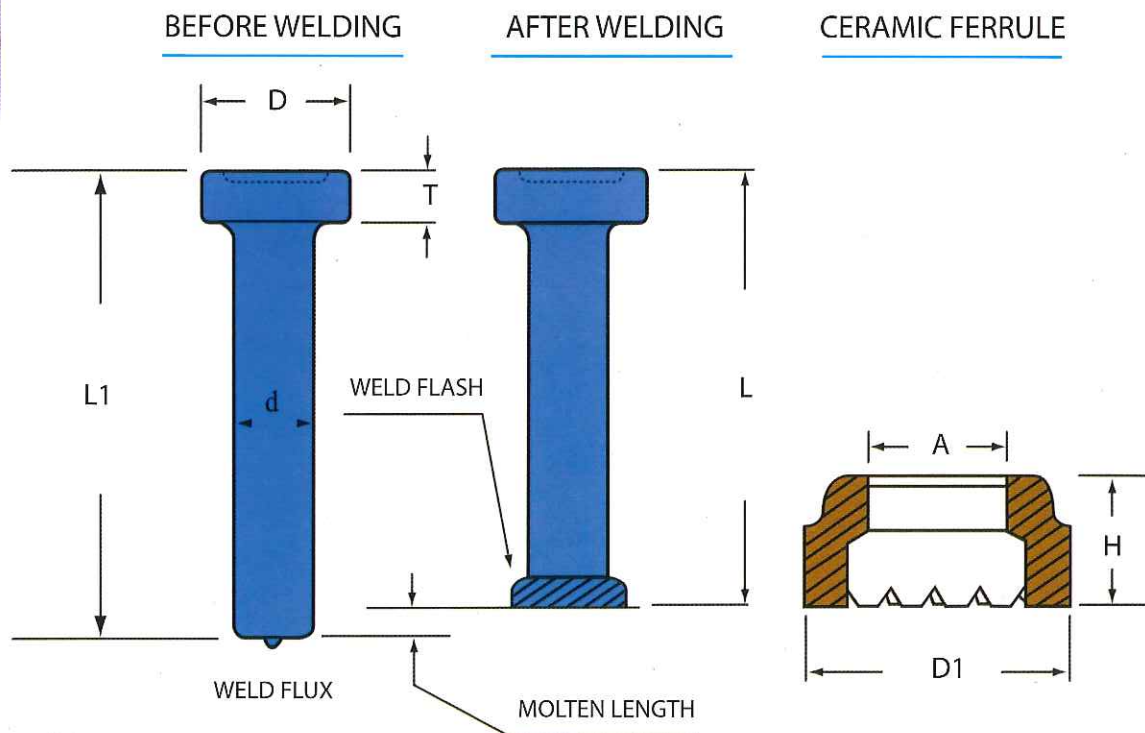


INDUSTRIAL HARDWARE SUPPLY SDN. BHD. (21382-M)



WELDING STUD

STANDARDS OF STUD & CERAMIC FERRULE



MECHANICAL PROPERTY REQUIREMENTS

TENSILE STRENGTH (PSI) Mpa	YIELD STRENGTH (PSI) Mpa (0.2% OFFSET)	ELONGATION %	REDUCTION AREA %	SPECIFICATION
450 MIN (65,000)	350 MIN (51,000)	MIN 20	MIN 50	AWS D1.1 : 2000 DIN 17100 ST37-3 BS 5950 pt.3 JIS B1198
495 MIN (72,000)	385 MIN (56,000)	MIN 18	-	BS 5400 pt.5

DIMENSION IN MM

STUD DIA.	BODY DIAMETER (d)	BEFORE WELD LENGTH (L1)	HEAD DIA. (D)	HEAD HEIGHT (T)	FERRULE TYPE	A	D1	H
(1/2) 13	0 12.95 -0.25	L1±1.6	25.4±0.4	8	VERTICAL	14.0	21.0	10.0
					WELD-THRU	-	-	-
(5/8) 16	0 15.95 -0.25		31.7±0.4	8	VERTICAL	17.0	30.0	14.5
					WELD-THRU	17.0	30.0	18.0
(3/4) 19	0 19.0 -0.38		31.7±0.4	9.5	VERTICAL	20.5	32.0	16.5
					WELD-THRU	20.5	36.0	16.5
(7/8) 22	0 22.1 -0.38		34.9±0.4	9.5	VERTICAL	23.5	36.0	18.0
					WELD-THRU	23.5	40.0	21.0
(1) 25	0 25.4 -0.38		41.3±0.4	12.7	VERTICAL	26.5	41.0	21.0
					WELD-THRU	-	-	-

- WHEN ORDERING, USE L1 LENGTH (BEFORE WELD)
- L DIMENSION IS AFTER WELD, 3-5mm SHORTER THAN L1
- ALL DIMENSIONAL TOLERANCES OF FERRULE ARE APPROX. REF. VALUE



WELDING STUD

WELDING CONDITIONS

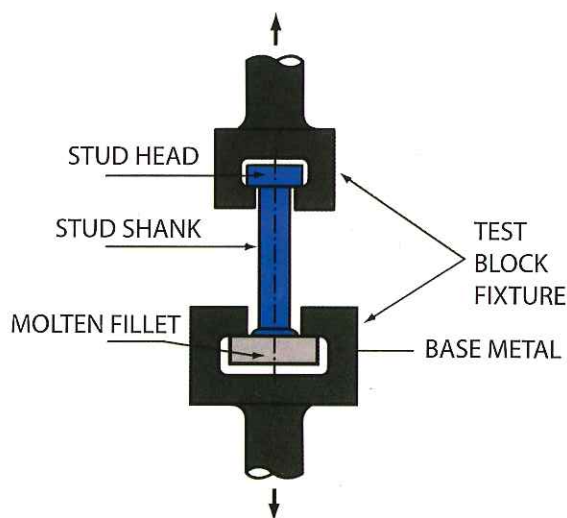
STUD DIA.	13 (1/2)	16 (5/8)		19 (3/4)		22 (7/8)	25 (1)
TYPE WELDING	VERTICAL	VERTICAL	WELD-THRU	VERTICAL	WELD-THRU	VERTICAL	VERTICAL
TIME WELDING (SECOND)	0.55 - 0.75	0.65 - 0.85	0.90 - 1.10	0.80 - 1.00	1.20 - 1.40	1.0 - 1.3	1.2 - 1.5
CURRENT WELDING (AMPERE)	750 - 950	1100 - 1300	1350 - 1600	1350 - 1600	1500 - 1750	1500 - 1750	1900 - 2050

DEPENDS ON FIELD CONDITION ADJUST WELD TIME / AMPERE IF NEEDED,
OR REFER APPLICATION BROCHURE IF WELD EQUIPMENT DIFFERENT.

MOLTEN AREA TEST

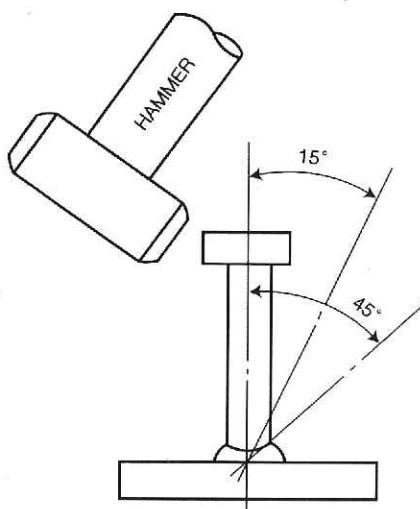
TENSILE TEST

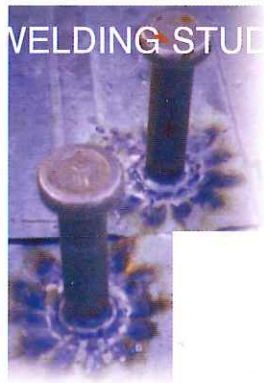
TESTED & CONSIDERED
AS QUALIFIED IF
SPECIMENS DO
NOT FAIL IN THE
WELD AREA



HAMMER TEST

ALTERNATIVELY,
15° OR 45° HAMMER,
FRACTURE DOES NOT
OCCUR IN WELD AREA.

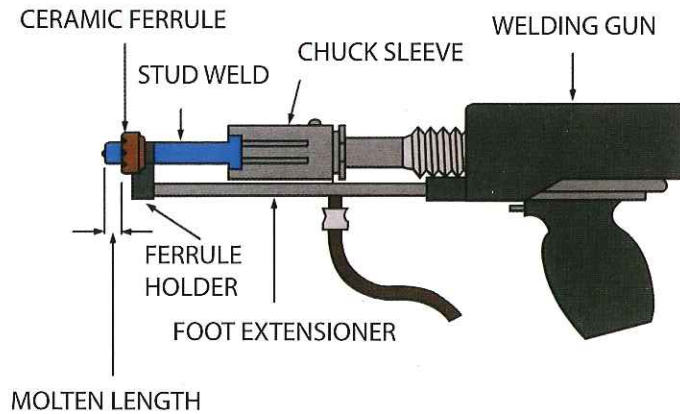




WELDING STUD

PATTERN

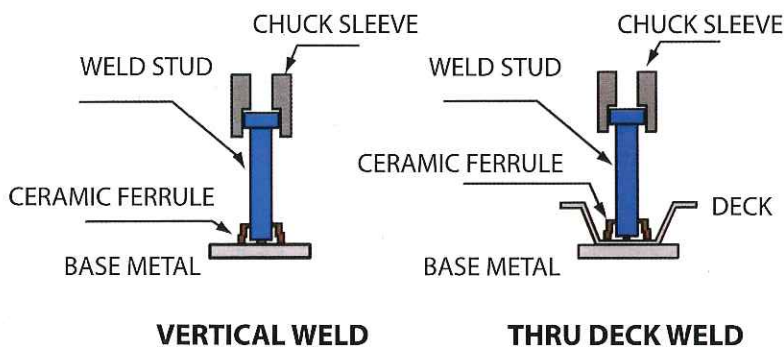
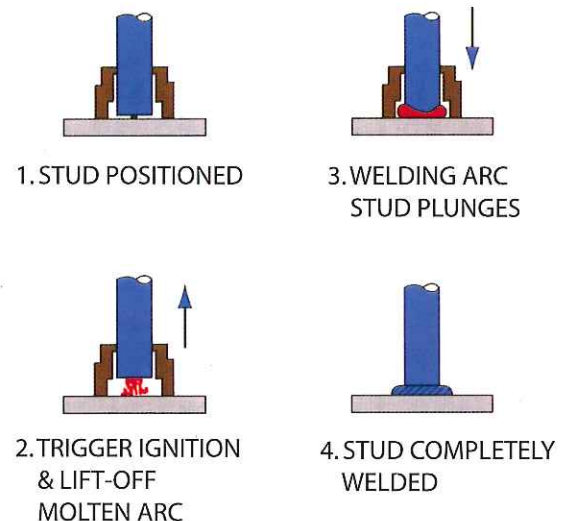
GUN SET-UP APPLICATION



MOLTEN LENGTH

1. VERTICAL WELD - 4mm APPROX.
2. WELD-THRU DECK - 8mm APPROX.

WELDING RETRACT IGNITION



APPLICATIONS:

1. Studs should be free from rust, rust pits, oil, moisture.
2. The arc shields or ferrules should be kept dry and free from broken knots in concrete.
3. Should moisture occur in any of the ferrule or shield, studs and base metal during its operation may possibly cause welding defects.
4. The areas to which the studs are to be welded shall be free to the necessary extent to obtain satisfactory welds and prevent objectionable fumes.
5. Studs shall be welded with automatic equipment connected to a suitable power source with proper voltage, current time and gun settings for lift and plunge optimum settings.
One gun only at a time.
6. First two studs tested for each start of new production shift or change in size are required.
7. A stud on which not being well welded could be welded an additional stud just right beside it.
8. Any stud that does not show a full 360 weldind flash shall be made by bending test at opposite direction.
9. Striking away ferrule right after welding with visual inspection.

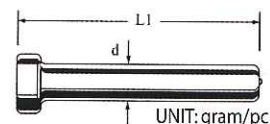


WELDING STUD



工业五金有限公司
INDUSTRIAL HARDWARE
SUPPLY SDN. BHD.

STUD WEIGHT TABLE (without FERRULE)



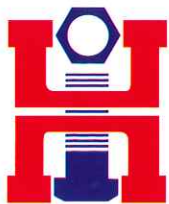
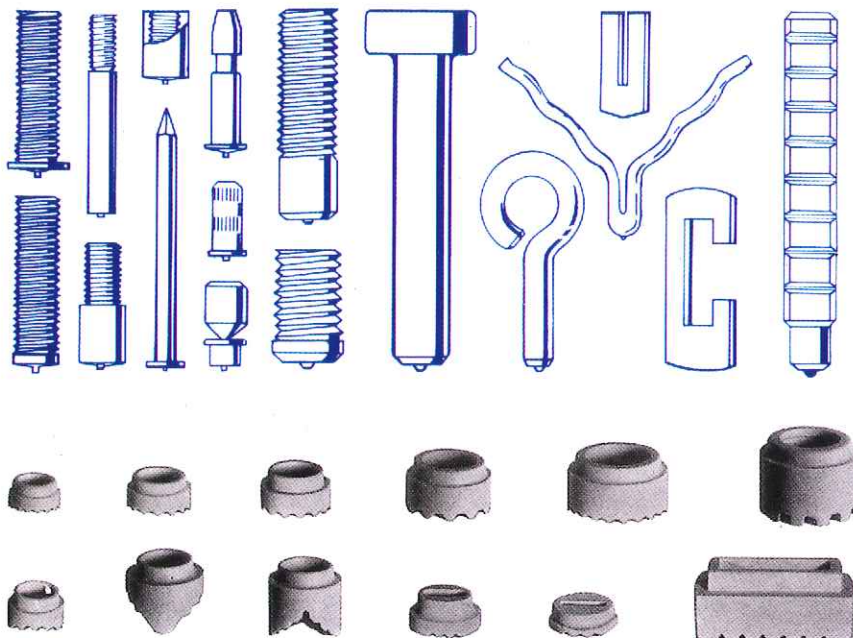
DIA(d) LENGHT(L1)	13mm(1/2)	16mm(5/8)	19mm(3/4)	22mm(7/8)	25mm(1)
50	74	-	-	-	-
55	79	121	161	-	-
60	83	130	173	-	-
64	87	136	182	237	-
70	94	146	195	255	364
76	99	155	208	273	388
80	104	161	217	285	404
85	109	169	227	300	424
90	114	176	238	314	444
95	119	184	248	329	464
100	124	192	259	342	484
106	-	199	271	358	508
110	-	207	281	373	524
115	-	214	292	388	544
120	-	222	303	402	564
125	-	230	313	417	584
130	-	238	324	432	604
140	-	-	346	462	644
150	-	-	368	490	684
160	-	-	390	520	724
165	-	-	400	535	744
180	-	-	433	595	804

PROJECT REFERENCE

JUST TO NAME FEW

1999 - 2002	
UITM / METRIKULASI PROJECT	3,000,000 pcs
2000	
SERDANG HOSPITAL	400,000 pcs
PUTRAJAYA WAWASAN BRIDGE (BR6)	40,000 pcs
2001	
PUTRAJAYA CONVENTION CENTRE	37,000 pcs
2003	
KASTAM COMPLEX KELANA JAYA	450,000 pcs
IKANO POWER CENTRE	154,000 pcs
ASIAN INSTITUTE OF MEDICINE, SCIENCE & TECHNOLOGY	180,000 pcs
PROTON CITY	40,000 pcs
2004	
PUTRAJAYA AUDITORIUM PROJECT	20,000 pcs
MENARA PRIME	10,000 pcs
NAZA KIA AUTOMOTIVE PLANT	15,000 pcs
KLCC CONVENTION CENTRE	90,000 pcs
2005 - 2007	
Tanjung Bin Power Plant	A380 NEW MAS HANGAR
Jimah Power Plant	Nippon Electric Glass - Extension
PD2 Tuanku Jaafar Power Plant	Seagate. Senai, Johor
Mukah Power Plant	Bank Negara
Mukah Bridge	Menara Commerce (CIMB Building)

Dubai Racing Circuit. UAE
Seef Mall Service Apartment. Kingdom of Bahrain
GNPOC Head Office Building. Khartoum, Sudan
Sidra Trees Project. Doha, Qatar



INDUSTRIAL HARDWARE SUPPLY SDN. BHD. (21382-M)

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