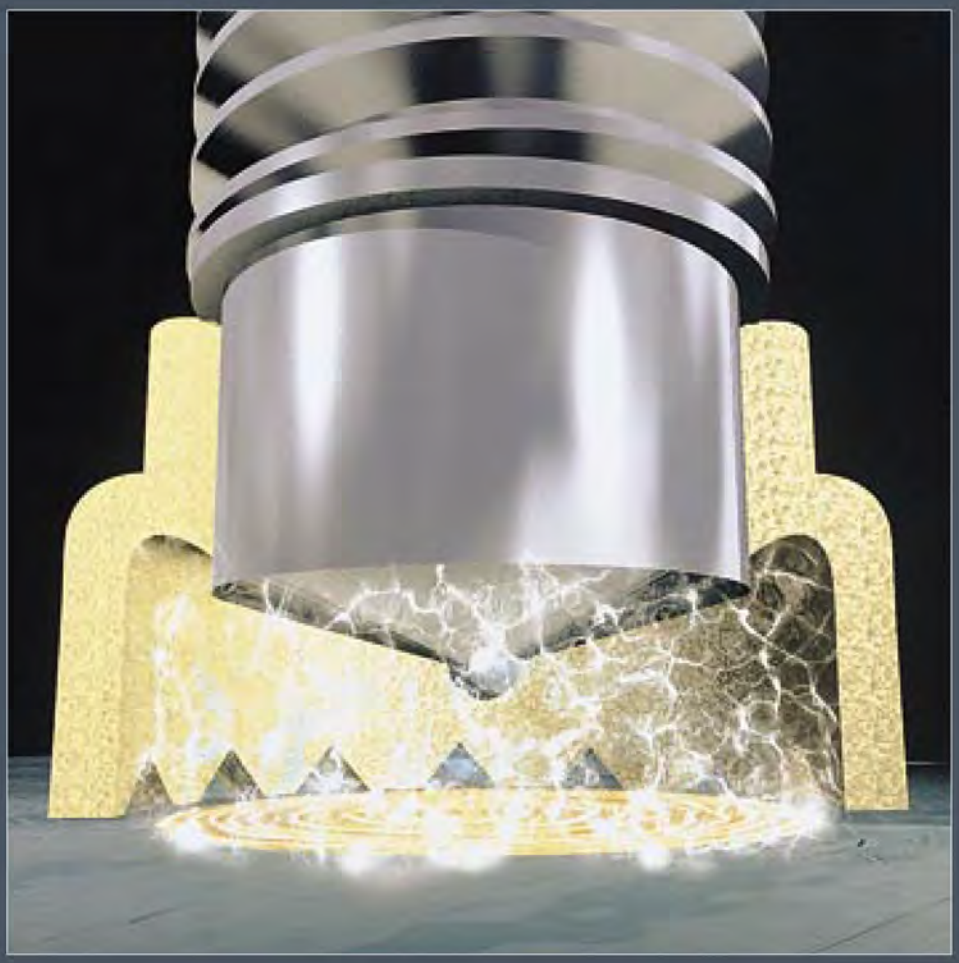
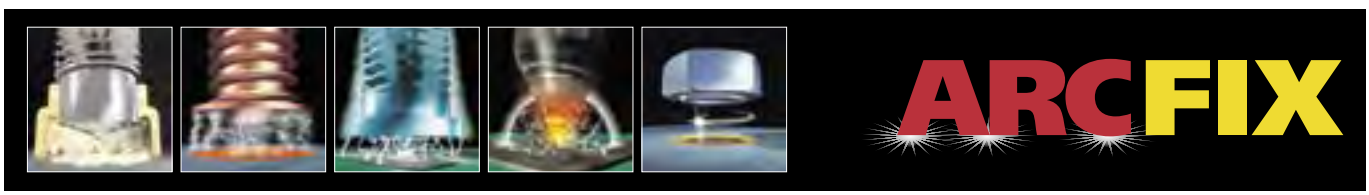


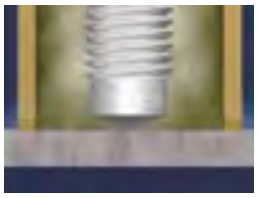
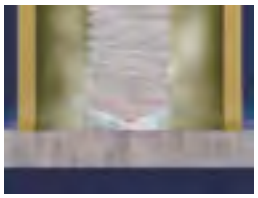
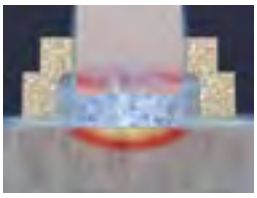
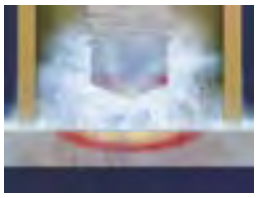
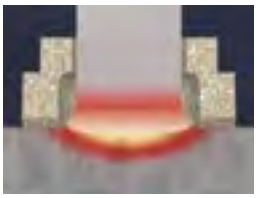
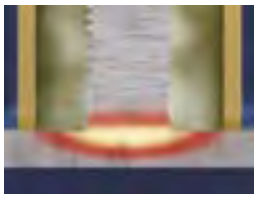
ARCFIX

ARC STUD WELDING

TABLE OF CONTENTS

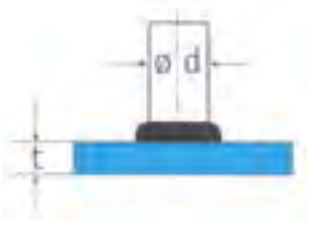


Drawn Arc
Stud Welding

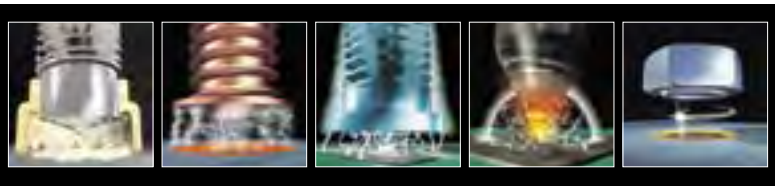
	Stud welding with ceramic ferrule	Stud welding with shielding gas	Short-cycle stud welding with or without shielding gas
The stud is placed against the workplace.			
The stud is lifted off, while current is flowing, thus creating an arc.			
The arc melts the surfaces of stud and workpiece.			
The stud is plunged into the weld pool.			
A cross-sectional joint is achieved.			

The Selection of the Process

Process	Stud welding with ceramic ferrule	Stud welding with shielding gas	Short-cycle stud welding	Stud welding with tip ignition
minimum sheet thickness t	1/4 d	1/8 d	1/8 d	1/10 d, min. 0,5 mm
maximum stud diameter d for welding from different positions	↓ 25 ← 16 ↑ 20	↓ 12 (16) ← 6 ↑ 8	↓ 12 ← 8 ↑ 10	↓ 8 ← 8 ↑ 8 (for aluminium 6 in all cases)
suitable surface conditions [1]	bright metal, rolling skin, primer suitable for welding, surface rust, thin layer of oil.	bright metal, rolling skin, primer suitable for welding, surface rust, thin layer of oil zinc coating.	bright metal, rolling skin, surface rust, thin layer of oil, zinc coating.	bright metal, thin layer of oil, galvanised (with a possible limit to the stud diameter.
unsuitable surface conditions [1]	hot dip-galvanising, loose layers of scaling, heavily corroded, protective coating.	loose layers of scaling, heavily corroded, protective coating.	loose layers of scaling, heavily corroded, coating with organic material.	zinc coating of more than 15 µm, coating with organic material, coating with insulating material (e. g. anodised aluminium.
common applications	studs with more than 8 mm ø in steel and boiler construction, and shipbuilding, on surfaces only coarsely cleaned, deep penetration, suitable for field welding.	studs from M 6 to M 12 in downhand position, especially with automatic feeding of studs.	studs from 5 to 10mm ø without shielding of the weld pool in case of average quality requirements for the shape of the weld collar. In case of high-grade requirements, shielding gas should be used.	for thin metal sheets, especially stainless steel and aluminium, and in case of high-grade requirements for an undamaged visible reverside side.



[1] Here, we can give only general hints without any commitment or warranty on our part. The conditions must be tested in each individual case. Basically, a higher degree of surface cleanliness is required for shorter welding times. The best results are always achieved on bright metal surfaces.



ArcFix
Wear Studs

Applications for this cost cutting technique:

- **Deep Mining Industry**
- **Open Pit Mines**
- **Quarries**
- **Tunneling**
- **Steelworks**
- **Ore Preparing**
- **Repair-shops for building machines**
- **Manufacturers of mining and building machines**

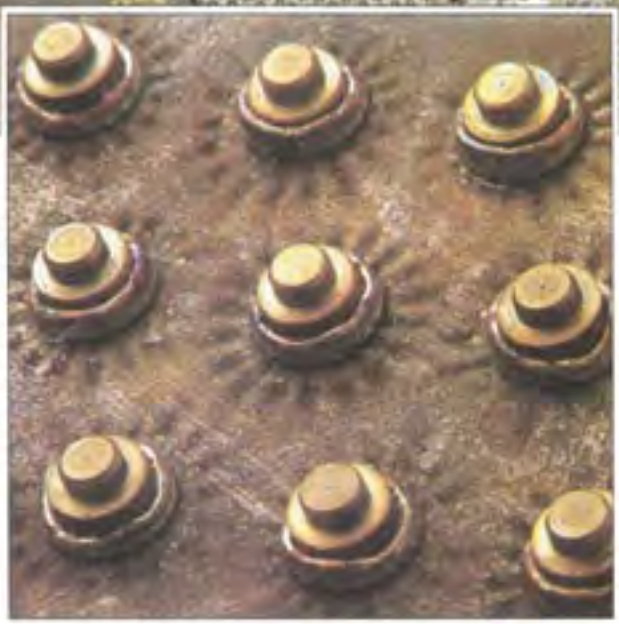
Main benefits:

- **High abrasion resistance**
- **Quick application on site**
- **Permanent protection**

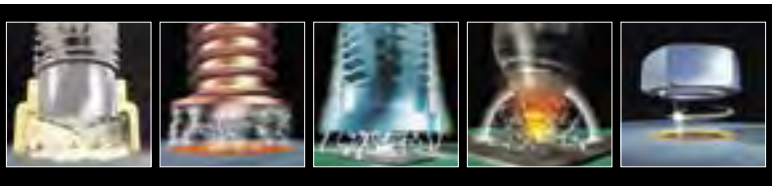
Studs will not pop off, even when shovels or plates buckle.

- **Cost cutting**

In comparison with conventional welding, stud welding takes only a quarter of the time for the same surface. Therefore, you save on electric power, and reduce heat with the consequence of less risk of warping.



M16 Diameter
M20 Diameter
Hardness: 56 - 60 HRc.



ARCFIX

ArcFix – Wear Studs

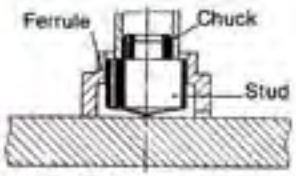
Welding gun, light and easy to handle

Insert Abrasion Resistant Stud

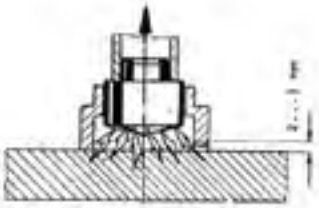
Put on ferrule

Place welding gun
pull trigger — finished

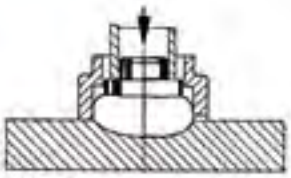
Welding process



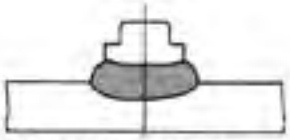
1. Application of stud



2. Lifting and igniting of electric arc.



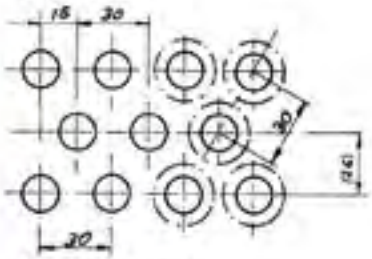
3. Immersion into liquid welding pool



4. Section of welded stud (homogeneous joining over entire surface)

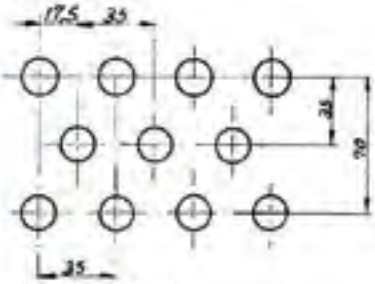
Examples of stud arrangement

Grid measure

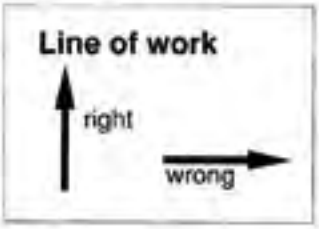


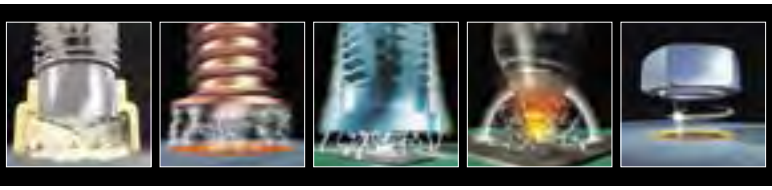
1250 studs per m²
= 22.5 kg welded weight per m²

Grid measure



780 studs per m²
= 14.0 kg welded weight per m²





PRIMARY DESIGN CONSIDERATIONS

PARENT METAL ANALYSIS

ARC stud welding can only be considered if the parent metal is weldable. Proper results can be produced with standard techniques only when low carbon or low alloy steel or austenitic stainless steels are used as parent metals. Other steel alloys can be welded, but may require heat treatment or other special techniques to develop full weld strength.

Some brass, copper and aluminium alloys can also be stud welded. However, brass, copper and exotic metals are best welded by the CD method.

Because there are so many alloys, it is difficult to cover all variations here. When parent metal analysis is questionable, call your ARCFIX sales engineer for help.

Quite often, for instance, weld qualities can only be determined through actual mechanical testing of a prototype sample. We maintain facilities for this purpose and your ARCFIX sales engineer should be called upon to provide sampling and test data service whenever necessary.

Fastener Design Ratio

Our experience has shown that to assure complete fastener strength development, the parent metal thickness should be at least 1/3 of the weld base diameter of the stud.

For application where strength is not the primary requirement, the parent metal thickness may be reduced to a minimum of 1/5 the weld base diameter. By staying above this minimum ratio, complete cross-sectional-area weld fusion without burn-through or excessive distortion of the parent metal, is achievable.

Selecting the Proper Stud

It is impossible to include specifications of all the various styles and sizes that have been produced and are readily available. Therefore, the purchaser is not limited in choice to those shown in the following pages. In order to achieve lowest fastener cost, first consideration should always be given to:

Ordering Studs

Follow “To Order” instructions.

1. Standard stud types
2. Standard lengths and diameters
3. Standard material composition

Standard Studs

Each of the following specification sheets detail stud styles that have been developed through a long history of usage and manufacturing experience. These specifications were developed to establish economical, useful, standard dimensions. The dimensional limits given do not, however, preclude our ability to manufacture stud welding fasteners with dimensions outside the established figures.

Special Studs

Most normal machining operations – cross drilling, slotting, bending, swaging, piercing, etc – are available in combination with many of the studs detailed on the specification sheets. Infinite styles of studs can be produced through these secondary machining operations. Depending upon the application, a special stud may provide even greater in-use economies than a standard stud. Consult your ARCFIX sales engineer: we may already have designed your “special”.

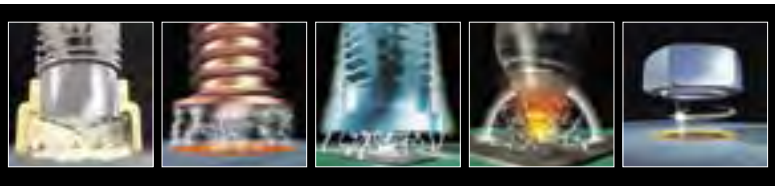
There are many critical dimensions in manufacturing. ARCFIX welding studs give consistent welding results.

One important note: After weld (AWL) length is the length the fastener has been engineered for. However, arc welding studs up through 16mm diameter reduce approximately 3mm in length in the welding process; larger diameters will reduce 5mm. The studs, as shipped, will be correspondingly longer than the desired AW length.

Follow “To Order” instructions given for specific studs ordered:

“To Order”: Specify type of stud; quantity; TxL (AWL) dimensions; type of material and arc shields or any other dimensions necessary.

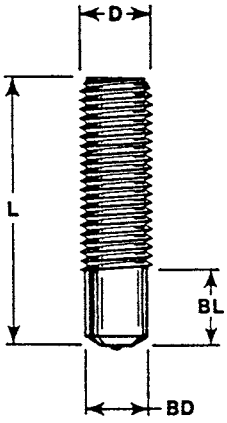
“ARCFIX ALSO SUPPLY ALUMINIUM ARC STUDS TO ORDER. P.O.A.”

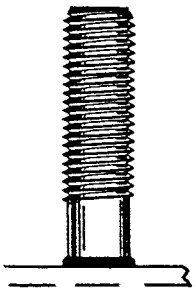


ARCFIX

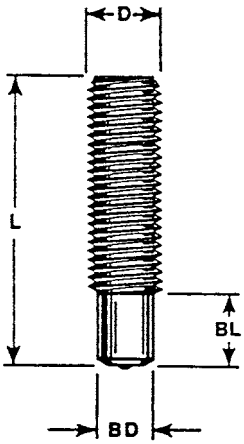
STANDARD ARC STUDS

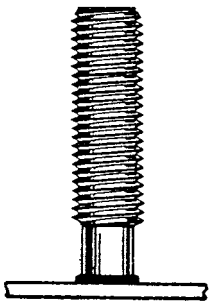
FULL THREAD (FT)



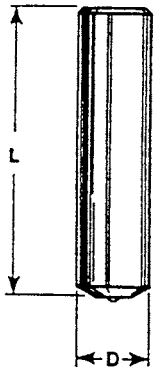


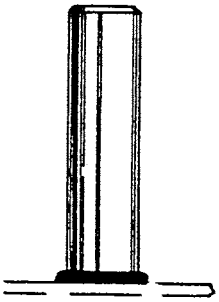
REDUCED BASE (FRB)



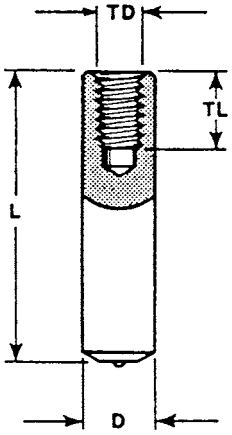


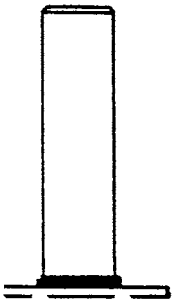
NO THREAD





TAPPED THREAD

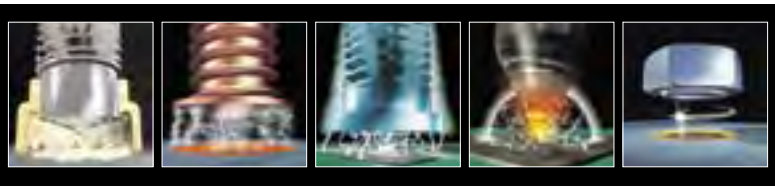




Arcfix Standard Arc Stud Load Strengths

Thread Size	LOW CARBON STEEL			STAINLESS STEEL		
	Fastening Torque (Nm)	Ultimate Tensile (kn)	Ultimate Shear Load (kn)	Fastening Torque (Nm)	Ultimate Tensile (kn)	Ultimate Shear Load (kn)
6mm	5.8	8.9	6.7	8.5	12.8	9.6
8mm	12.6	14.4	10.8	14.9	20.8	15.6
10mm	20.8	21.4	16.1	26.7	30.8	23.1
12mm	45.8	38.9	29.2	58.4	56.9	42.7
16mm	98.3	63.2	47.4	125.4	92.5	68.4
20mm	123.2	93.0	69.7	172.9	133.4	100.1
24mm	187.6	129.0	97.6	263.1	185.6	138.8
Material	C – 0.23% max Mn – 0.60% max		P – 0.04% max S – 0.05% max	AISI grade – 304 Other grades available on request		
Mechanical Properties	Tensile.....380MPa (min) Elongation.....10%			Values for various grades available on request		

These values should be used as a guide only, it is impractical to provide precise torque loadings for all conditions.



ARCFIX

STANDARD – ARC STUDS & PART NUMBERS

Mild Steel Arc Studs

Length	M6	M8	M10
20mm	AS11-06-020	AS11-08-020	AS11-10-020
25mm	AS11-06-025	AS11-08-025	AS11-10-025
30mm	AS11-06-030	AS11-08-030	AS11-10-030
35mm	AS11-06-035	AS11-08-035	AS11-10-035
40mm	AS11-06-040	AS11-08-040	AS11-10-040
45mm	AS11-06-045	AS11-08-045	AS11-10-045
50mm	AS11-06-050	AS11-08-050	AS11-10-050
55mm	AS11-06-055	AS11-08-055	AS11-10-055
60mm	AS11-06-060	AS11-08-060	AS11-10-060
65mm	AS11-06-065	AS11-08-065	AS11-10-065
70mm			AS11-10-070
75mm			AS11-10-075
80mm			AS11-10-080
85mm			AS11-10-085
90mm			AS11-10-090
95mm			AS11-10-095
100mm			AS11-10-100

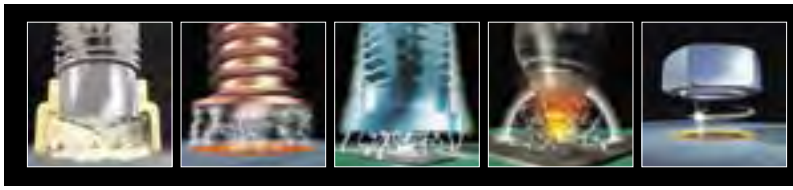
Length	M12	M16	M20
20mm	AS11-12-020	AS11-16-020	AS11-20-020
25mm	AS11-12-025	AS11-16-025	AS11-20-025
30mm	AS11-12-030	AS11-16-030	AS11-20-030
35mm	AS11-12-035	AS11-16-035	AS11-20-035
40mm	AS11-12-040	AS11-16-040	AS11-20-040
45mm	AS11-12-045	AS11-16-045	AS11-20-045
50mm	AS11-12-050	AS11-16-050	AS11-20-050
55mm	AS11-12-055	AS11-16-055	AS11-20-055
60mm	AS11-12-060	AS11-16-060	AS11-20-060
65mm	AS11-12-065	AS11-16-065	AS11-20-065
70mm	AS11-12-070	AS11-16-070	AS11-20-070
75mm	AS11-12-075	AS11-16-075	AS11-20-075
80mm	AS11-12-080	AS11-16-080	AS11-20-080
85mm	AS11-12-085	AS11-16-085	AS11-20-085
90mm	AS11-12-090	AS11-16-090	AS11-20-090
95mm	AS11-12-095	AS11-16-095	AS11-20-095
100mm	AS11-12-100	AS11-16-100	AS11-20-100

Add Suffix to Part Number to Indicate Stud Type.

FT = Full Tread **Eg. AS11-12-050FT**

RB = Reduced Base **Eg. AS11-12-050RB**

PT = Part Thread (as per customer request)



STANDARD – ARC STUDS & PART NUMBERS

Stainless Steel Arc Studs

Length	M6	M8	M10
20mm	AS12-06-020	AS12-08-020	AS12-10-020
25mm	AS12-06-025	AS12-08-025	AS12-10-025
30mm	AS12-06-030	AS12-08-030	AS12-10-030
35mm	AS12-06-035	AS12-08-035	AS12-10-035
40mm	AS12-06-040	AS12-08-040	AS12-10-040
45mm	AS12-06-045	AS12-08-045	AS12-10-045
50mm	AS12-06-050	AS12-08-050	AS12-10-050
55mm	AS12-06-055	AS12-08-055	AS12-10-055
60mm	AS12-06-060	AS12-08-060	AS12-10-060
65mm	AS12-06-065	AS12-08-065	AS12-10-065
70mm			AS12-10-070
75mm			AS12-10-075
80mm			AS12-10-080
85mm			AS12-10-085
90mm			AS12-10-090
95mm			AS12-10-095
100mm			AS12-10-100

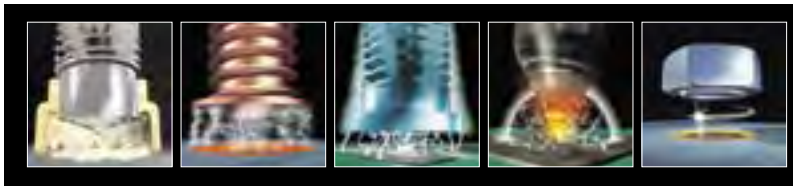
Length	M12	M16	M20
20mm	AS12-12-020	AS12-16-020	AS12-20-020
25mm	AS12-12-025	AS12-16-025	AS12-20-025
30mm	AS12-12-030	AS12-16-030	AS12-20-030
35mm	AS12-12-035	AS12-16-035	AS12-20-035
40mm	AS12-12-040	AS12-16-040	AS12-20-040
45mm	AS12-12-045	AS12-16-045	AS12-20-045
50mm	AS12-12-050	AS12-16-050	AS12-20-050
55mm	AS12-12-055	AS12-16-055	AS12-20-055
60mm	AS12-12-060	AS12-16-060	AS12-20-060
65mm	AS12-12-065	AS12-16-065	AS12-20-065
70mm	AS12-12-070	AS12-16-070	AS12-20-070
75mm	AS12-12-075	AS12-16-075	AS12-20-075
80mm	AS12-12-080	AS12-16-080	AS12-20-080
85mm	AS12-12-085	AS12-16-085	AS12-20-085
90mm	AS12-12-090	AS12-16-090	AS12-20-090
95mm	AS12-12-095	AS12-16-095	AS12-20-095
100mm	AS12-12-100	AS12-16-100	AS12-20-100

Add Suffix to Part Number to Indicate Stud Type.

FT = Full Tread **Eg. AS12-12-050FT**

RB = Reduced Base **Eg. AS12-12-050RB**

PT = Part Thread (as per customer request)



KÖCO – Compact Stud Welding Equipment

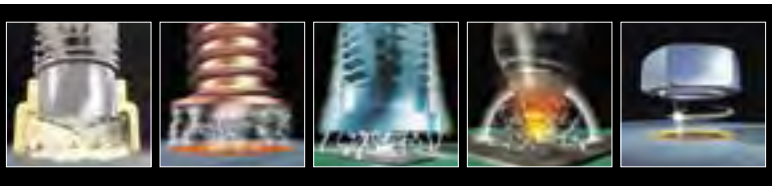
ELOTOP

All models of the ELOTOP compact stud welding equipment series are laid out for top performance as well as highly cost-effective drawn-arc stud welding. Through their special features they are designed for rough wear on building sites and continuous operation.

Microprocessor controls, current regulation and high performance ensures precise repeatability and optimum welding results, even under a great variety of conditions.

The intelligent self-diagnosis system increases productivity through minimizing machine downtime.

ELOTOP COMPACT STUD WELDING EQUIPMENT



KÖCO – Compact Stud Welding Equipment

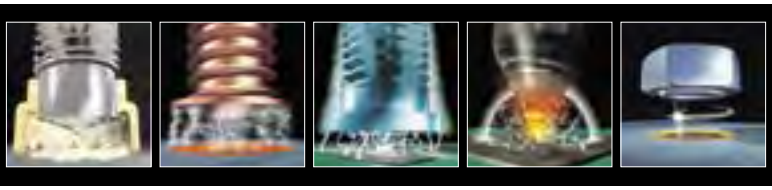
SERIES ELOTOP

Technical data	502	802	1002	1702	2002	3002
Stud welding with ceramic ferrule						
Weldable stud range Ø (mm)	3 - 8	3 - 12	3 - 14	3 - 20	3 - 22	6 - 25
Short cycle stud welding						
Weldable stud range Ø (mm)	3 - 6	3 - 8	3 - 10	3 - 12	3 - 12	6 - 12
Stud welding with shielding gas						
Weldable stud range Ø (mm)	3 - 8	3 - 10	3 - 12	3 - 16	3 - 16	3 - 16
Max: current (A)	450	800	1100	1800	2300	3500
Current setting range (A)	450	50 -750	150 - 1000	150 - 1600	300 - 2000	300 -2600
Time setting range (ms)	20 - 450	20 -600	20 - 1000	20 - 1500	20 - 1500	20 -2000
Max. stud/min. at ... Ø (mm)	15/3	32/3	49/3	50/3	52/3	50/6
	4/8	3/12	4/14	2/20	4/22	6/25
Self-diagnosis: overheating	•	•	•	•	•	•
short circuit control	-	-	-	-	-	-
mains phase failure	•	•	•	•	•	•
malfunction of pilot arc	-	•	•	•	•	•
Fully controlled thyristor bridge	-	•	•	•	•	•
Microprocessor control	•	•	•	•	•	•
Constant current regulation	-	•	•	•	•	•
Repeat cycle lock	•	•	•	•	•	•
Mains connection 50/60 Hz 3-phase (V)	400	230/400	230/400	230/400	230/400	230/400
Mains connection special voltages (V)	○	○	○	○	○	○
Mains plug at 400 V (A)	16	32	32	63	63/125	125
4-wire mains cable at 400 V (m/mm²)	5/2.5	5/4	5/4	5/10	5/16	5/16
Mains fusing time-lag at 230/400 V (A)	35/16	35/25	50/35	100/63	160/80	200/125
Mains power consumption at ...% ED (kVA)	1	1.4/3.2/100	2.5/7/100	2.25/9/100	2.5/7/100	8/13/100
	29	55/38/7	73/43/12	121/59/17	156/93/25	187/145/52
Tolerance range mains voltage (%)	-15/+6	-15/+6	-15/+6	-15/+6	-15/+6	-15/+6
Dust and moisture protection of control unit	•	•	•	•	•	•
Class of protection	IP 23	IP 23	IP 23	IP 23	IP 23	IP 23
Cooling	F	F	F	F	F	F
Steel housing, powder-coated	•	•	•	•	•	•
Housing dimensions (L x W x H) mm	375x220x285	530x305x350	600x325x370	700x415x460	805x430x530	960x610x625
Swivel castors/fixed castors	-	2/2	2/2	2/2	2/2	2/2
Handle	1	2	1	1	1	1
Lifting eye	-	1	1	1	1	1
Weight (abt. kg)	28	50	87	160	185	355
Shielding gas equipment	•	•	•	○	○	○
Stud counter	-	○	○	○	○	○
Interface for automatic components	-	○	○	○	○	○
Stud welding guns: SK 14	•	•	○	○	○	○
K 22	○	○	•	○	○	○
K 22-D	○	○	○	•	○	○
K 24	-	-	-	-	•	○
K 26	-	-	-	-	-	•

• = standard, ○ = optional, - = not available

S Welding under increased electrically hazardous conditions permissible, CE-Labelling according to EN 60974-1 etc.

Upadate 31.3.2006. Subject to technical modifications.



KÖCO – Stud Welding Guns

CLASSIC

The CLASSIC series of stud welding guns are technologically advanced high performance tools for drawn arc stud welding. They are designed for comfortable operation and known for their sturdiness and reliability. The range includes guns for every application, matching accessories are available.

The precision technology of KÖCO stud welding guns ensures repeatability and produces first-class welding results, even under difficult operating conditions.

An adjustable hydraulic plunge damper is standard in the K 22-D, K 24 and K 26 guns, to damp the stud movement when it plunged into the welding pool (recommended for welding studs approx. 14 mm ø).

All guns are compatible with most commercially available stud welding systems.

CLASSIC STUD WELDING GUNS

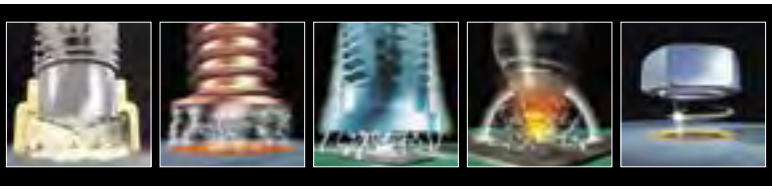
KÖCO – Stud Welding Guns

SERIES CLASSIC

Technical data	SK 14	K 22	K 22-D	K 24	K 26
Stud welding with ceramic ferrule					
Weldable stud range Ø (mm)	4 - 12	4 - 14	4 - 19	13 - 22	13 - 25
Short cycle stud welding					
Weldable stud range Ø (mm)	3 - 12	6 - 12	○	-	-
Stud welding with shielding gas					
Weldable stud range Ø (mm)	3 - 12	3 - 16	○	-	-
Adjustable hydraulic plunge damper					
for studs from app. 14 mm Ø	-	○	•	•	•
Lifting ring system with length compensation	-	•	•	•	•
Compensation for stud					
length variations up to ... (mm)	-	8	8	8	8
Standard support with ... legs	2	2	2	2	3
Lifting range from ... to ... (mm)	1 - 4.5	1 - 4.5	1 - 4.5	2.5 - 6	2.5 - 6
Input voltage lifting coil (V=)	60 - 90	60 - 90	60 - 90	60 - 90	60 - 90
Welding cable (m/mm^2)	5/35	2/50	2/50	2/95	2/120
Welding cable plug (mm^2)	35	50/70	50/70	95	120
Control cable (m/mm^2)	5/4x1.0	2/4x1.0	2/4x1.0	2/4x1.0	2/4x1.0
Control cable pulg (4 wire)	•	•	•	•	•
Body:					
fibre-glass reinforced polyamide (black)	•	•	•	•	•
Length (excluding chuck) (mm)	185	175	175	250	300
Body Ø approx. (mm)	50	60	60	60	63
Height (including handle) (mm)	150	165	165	220	240
Weight excluding cables app. (kg)	0.9	1.3	1.3	1.4	2.6

• = standard, ○ = optional, - = not available

Upadate 31.3.2006. Subject to technical modifications.



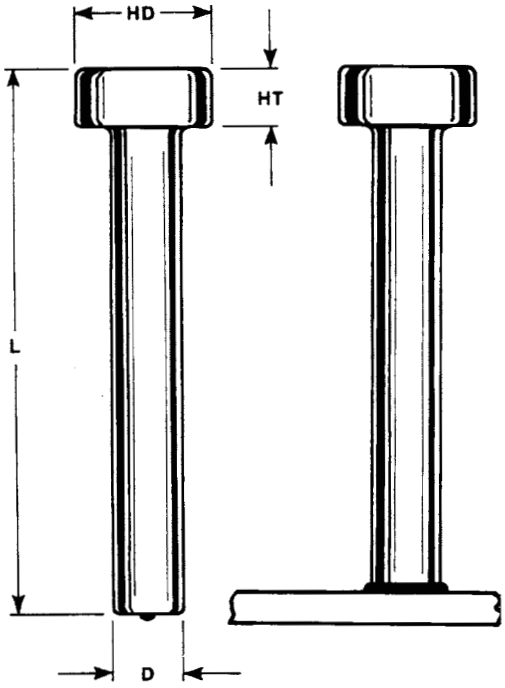
HEADED CONCRETE ANCHOR

General Purpose Studs used for other than shear transfer in composite beam design and construction.

NOTE: L = manufactured length before welding

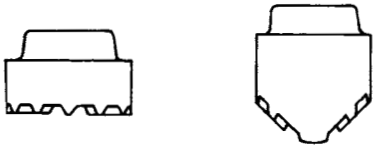
Shank Diameter (d)	Length (L) tolerance	Head Diameter tolerance	Minimum head height HT
12.7 +0.00 -0.25	±1.6	25.4±0.4	7.1
15.9 +0.00 -0.25	±1.6	31.7±0.4	7.1

DIMENSIONS IN MILLIMETRES



MATERIAL	LOW CARBON STEEL AS1443 S1010 to S1020 or K1010 to K1020
MECHANICAL PROPERTIES	Tensile.....380MPa (min) Elongation.....10%

FERRULE

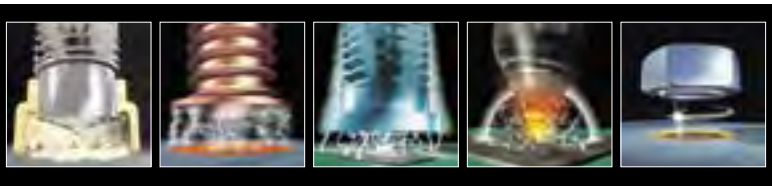


NOTE: Ferrules are component parts of studs

NOT SOLD SEPARATELY

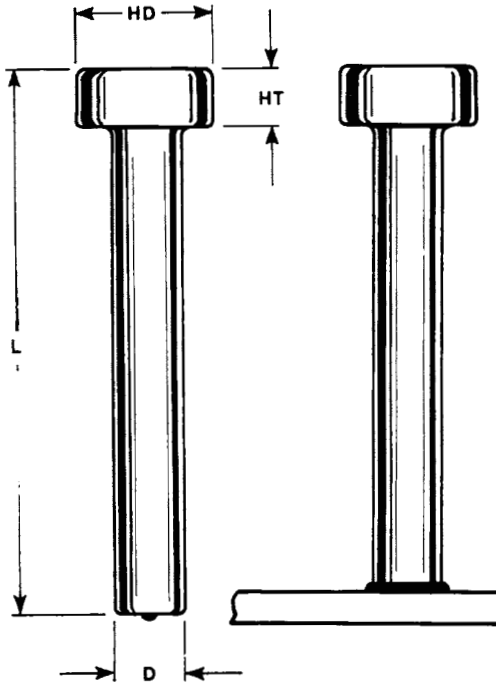
HEADED CONCRETE ANCHORS are available for welding to flat surfaces, inside angles, and outside angles. Each of these applications requires the proper style stud and ferrule, so please specify your application when ordering studs.

Ferrule exterior dimensions available on request.



HEADED SHEAR CONNECTORS

Headed Shear Connector are used as an essential component in composite beam design and construction.



NOTE: L = manufactured length before welding

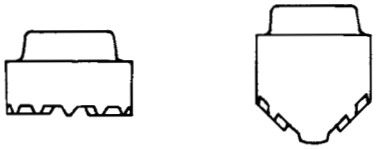
Shank Diameter (d)	Length (L) tolerance	Head Diameter tolerance	Minimum head height HT
19.0 +0.00 -0.38	±1.6	31.7±0.4	9.5
22.2 +0.00 -0.38	±1.6	34.9±0.4	9.5

DIMENSIONS IN MILLIMETRES

MATERIAL	LOW CARBON STEEL AS1445 S1010 to S1020 or K1010 to K1020
MECHANICAL PROPERTIES	Tensile.....410MPa (min) Yield.....345MPa (min) Elongation.....12% Reduction of area.....50% (min)

SPECS: All ARCFIX STUDS MEET AUSTRALIAN STANDARD, AS1554
Test reports available upon request

FERRULE

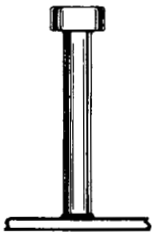


NOTE: Ferrules are component parts of studs

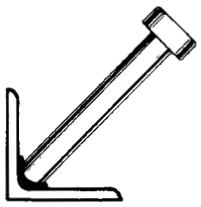
NOT SOLD SEPARATELY

****HEADED SHEAR CONNECTORS*** are available for welding to flat surfaces, inside angles, and outside angles. Each of these applications require the proper style stud and ferrule, so please specify your application when ordering studs. Ferrule exterior dimensions available upon request.

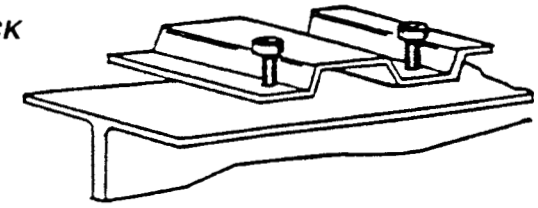
FLAT SURFACE



INSIDE ANGLE

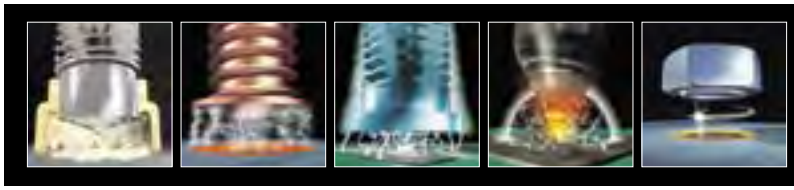


WELD THRU DECK



TO ORDER OR SPECIFY GIVE

1. Product Code
2. Diameter
3. Length
4. Material
5. Welding Application



Headed Concrete Anchors and Shear Connectors Standard Sizes

(Dimensions in millimeters)

CONCRETE ANCHORS

Part Number	Size	Weight Ea	Pack Qty
SC11-13-050	12.7 x 50	.079	250
SC11-13-075	12.7 x 75	.104	150
SC11-13-100	12.7 x 100	.129	125
SC11-16-075	16 x 75	.161	125
SC11-16-100	16 x 100	.199	100
SC11-16-150	16 x 150	.278	75

SHEAR CONNECTORS

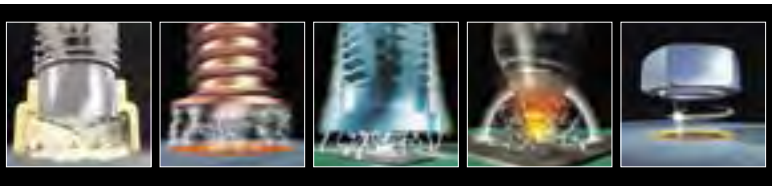
Part Number	Size	Weight Ea	Pack Qty
SC11-19-075	19 x 75	.217	100
SC11-19-095	19 x 95	.259	75
SC11-19-100	19 x 100	.271	75
SC11-19-105	19 x 105	.281	75
SC11-19-115	19 x 115	.303	60
SC11-19-120	19 x 120	.313	60
SC11-19-125	19 x 125	.329	60
SC11-19-150	19 x 150	.379	50
SC11-19-175	19 x 175	.441	45
SC11-19-200	19 x 200	.485	40
SC11-22-100	22 x 100	.358	50
SC11-22-125	22 x 125	.435	50
SC11-22-150	22 x 150	.505	40
SC11-22-175	22 x 175	.589	40
SC11-22-200	22 x 200	.649	35

ALL THE ABOVE STUDS ARE MANUFACTURED AND NATA TESTED TO AS1554.

CERTIFICATES AVAILABLE ON REQUEST

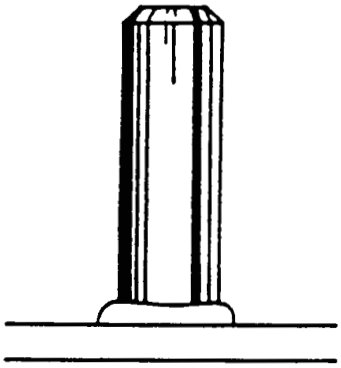
LENGTHS INDICATED ARE AFTER WELD LENGTHS

ACTUAL LENGTH IS 3 – 5mm LONGER



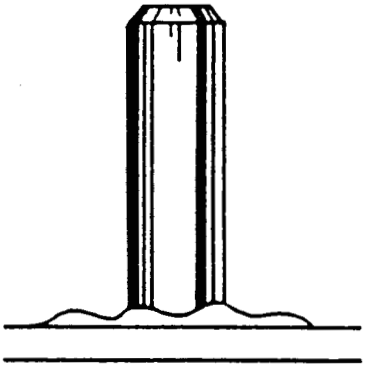
ARC STUD WELD INSPECTION *(VISUAL)*

The ARC stud weld can be visually inspected by observing the fillet at the base of the stud.
The illustrations and comments below will assist you in visually judging the quality of the weld.



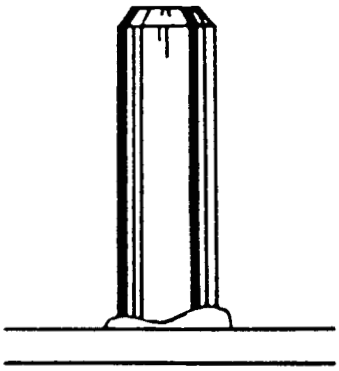
GOOD WELD

Full, even shiny fillet all around stud.



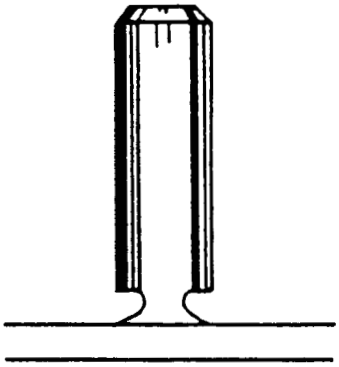
HOT WELD

Very shiny, low profile fillet extruding beyond outside of ferrule.



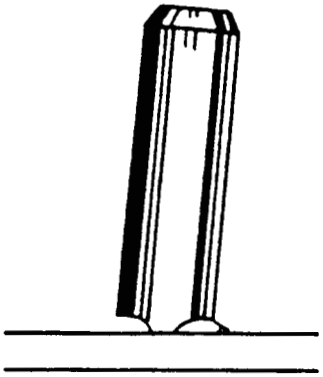
COLD WELD

Small, uneven, dull appearing fillet with fingers of metal extending through vents of ferrule.



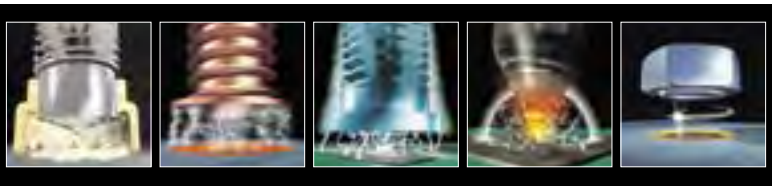
SHORT PLUNGE OR HANG-UP

No fillet, no stud burn-off, or metal.



MISALIGNMENT

Partial or no fillet, undercut, stud not perpendicular to base, undercut base.



COMPOSITE-BEAM CONSTRUCTION

Even without the use of metal decking, composite beam construction is, in several ways, superior to slab-on-beam construction.

Composite design reduces steel weight.

Live load deflection is reduced because of the concrete's mass and thickness and the steel beam's depth.

Overall building height can be reduced because the beams are shallower – saving on heating, air-conditioning and exterior and interior wall costs.

Longer spans can be used with fewer columns, beams and connections. The results are larger rooms, more useable bay area, and more flexible floor plans. The structure goes up faster; fabrication costs come down.

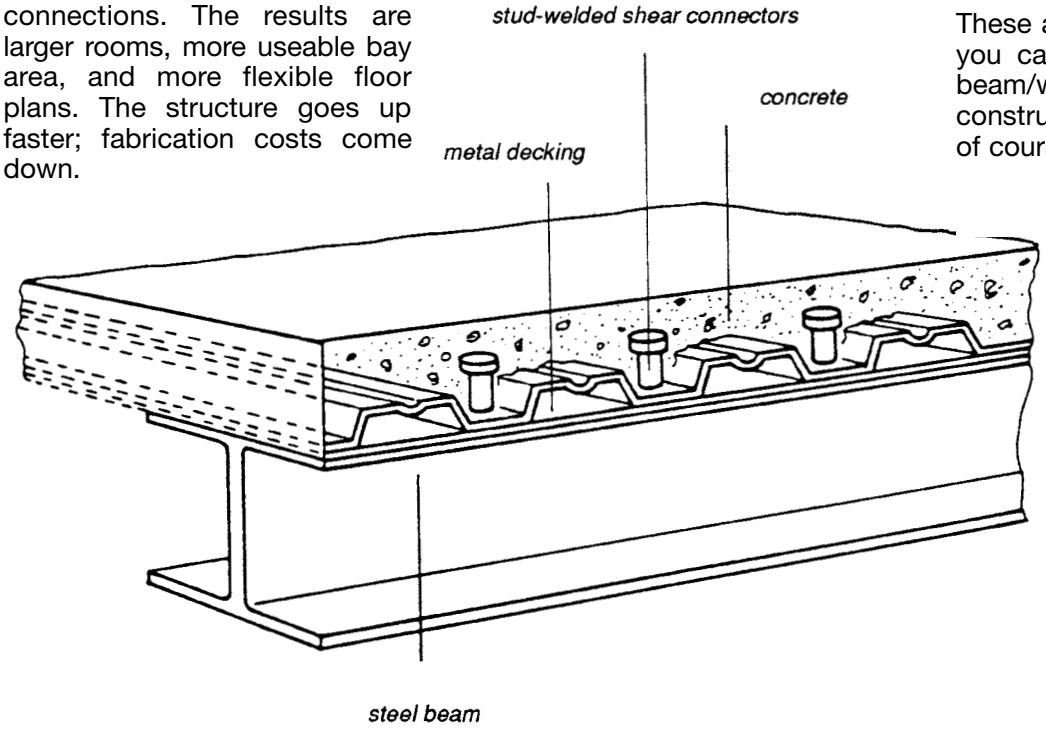
As stated, these benefits are attainable whether you use metal deck or through-deck welding. Consider, however, how much better composite beam construction is when you DO use metal deck and ARCFIX through-deck welding.

The job costs less. You don't have to erect wood forms then strip them away, then re-erect them. The metal deck which provides a permanent form for the concrete, can also incorporate cellular sections for electrical cables. Ceilings are easier to hang.

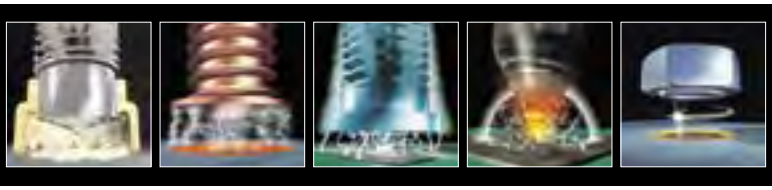
You build better. Metal deck provides restraint for supporting members, stiffening the structure and giving better load distribution. The deck minimises deflection, reducing the amount of concrete needed. The concrete, itself, is better because the steel retains hydration needed for proper curing. You'll have fewer cracks, easier inspection.

You build safer. The metal deck provides a safer, more stable platform for workmen of all trades. Metal deck also eliminates a major construction headache – fire in the forms and shoring. Insurance rates are usually lower.

These are typical of the benefits you can look for in composite beam/weld-through metal deck construction. Actual savings will, of course, vary with the job.



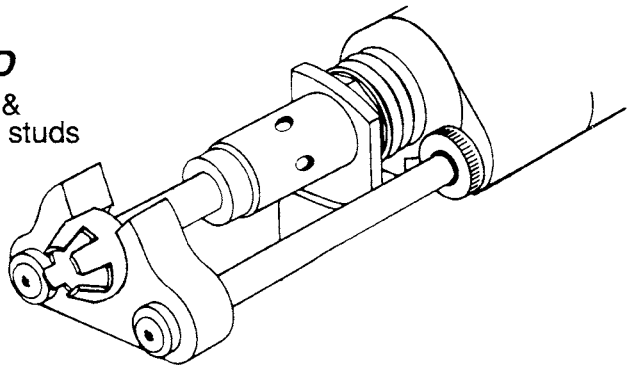
Cross section of a true composite beam: stud welded shear connectors transfer horizontal shear from slab to beam for maximum strength and load-bearing capacity. With most systems, as shown here, the metal deck provides a positive bond because of the "keying" of the concrete with the deck ribs. Accordingly, the deck itself can replace all or part of the bottom layer of reinforcing steel, for further economy.



CONSUMABLES

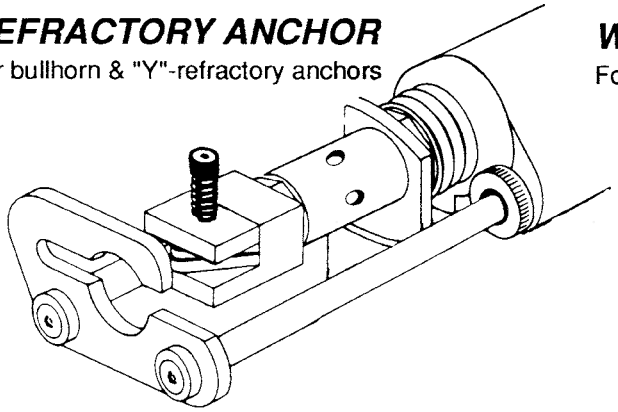
SET-UPS STANDARD

For threaded &
non-threaded studs



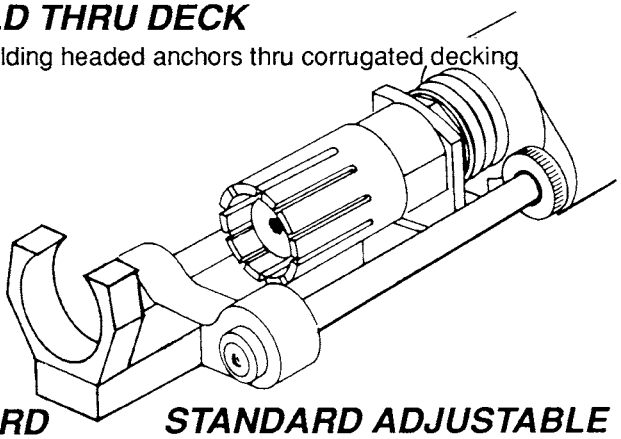
REFRACTORY ANCHOR

For bullhorn & "Y"-refractory anchors

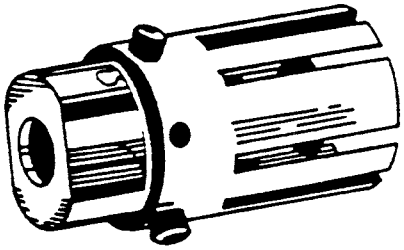


WELD THRU DECK

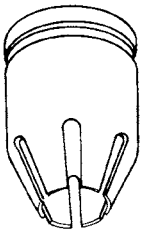
For welding headed anchors thru corrugated decking



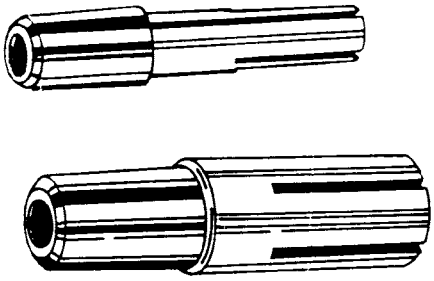
HEADED CONCRETE ANCHOR & SHEAR CONNECTOR CHUCKS



STANDARD FERRULE GRIPS

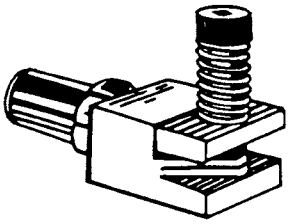


STANDARD ADJUSTABLE ARC CHUCKS



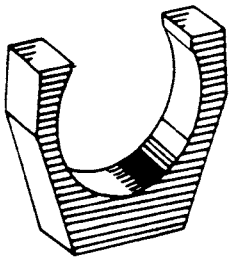
RA-Y CHUCKS

These chucks are used for stud welding "y" style refractory anchors with an 80° bend angle, such as Positgrip, Bullhorn, and Y-Anchors

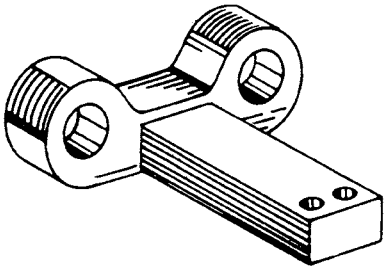


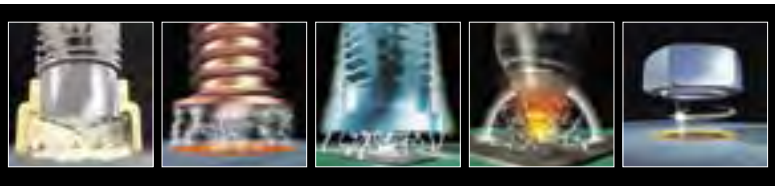
WELD THRU DECK FERRULE GRIP

(For use with weld thru deck extension foot)



WELD THRU DECK EXTENSION FOOT





ARCFIX

Stud Welding

Shear Connectors

Threaded Arc Studs

CD Studs

CD Pins & Clips

CD Welding Machines

Arc Stud Welding Machines

Stud Welding Machine Spares & Repairs

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VIC: 03 8645 3222
QLD: 07 3420 4099
WA: 08 6350 9600
SA: 08 8162 8700