

SPECIFICATIONS FOR CONSTRUCTION STUDS

SHEAR CONNECTOR

SHEAR CONNECTOR STUDS are designed to tie concrete to the steel beams and to resist shear loadings between the concrete slab and steel beam in composite construction. All orders for studs include required ferrules.

LENGTH: Length is before weld. Studs when welded to base metal will be approximately $\frac{3}{16}$ " shorter after weld and when welded thru-deck $\frac{3}{8}$ " shorter after weld. Lengths for shear connector studs are generally set by governing specifications. Consult your SWA representative for other lengths available for specific applications.

Mechanical Property Requirements

	Type B ²
Tensile strength	65,000 psi min
Yield strength (0.2% offset)	51,000 psi min (350 MPa)
Elongation (% in 2 in.)	20% min
Elongation (% in 5x dia.)	15% min
Reduction of area	50% min

MATERIAL: Low carbon steel ASTM A108
stainless steel (except Type 303)

HEADED ANCHOR

HEADED ANCHOR STUDS are used in all types of concrete connections. They can be welded on a flat surface or in the fillet, or on the heel of an angle. **When ordering, specify if studs are to be welded to flat surfaces or in fillet or to heel of angle.** All orders for studs include required ferrules.

LENGTH: Length is before weld. Stud diameters (D) $\frac{1}{2}$ " and below will be approximately $\frac{1}{8}$ " shorter after welding. $\frac{5}{8}$ " will be approximately $\frac{3}{16}$ " shorter after welding. Maximum length available for cold headed product is $10\frac{3}{16}$ ". Prices on hot formed studs over $10\frac{3}{16}$ " available upon request.

Mechanical Property Requirements

	Type A ¹	Type B ²
Tensile strength	61,000 psi min (420 MPa)	65,000 psi min (450 MPa)
Yield strength (0.2% offset)	49,000 psi min (340 MPa)	51,000 psi min (350 MPa)
Elongation (% in 2 in.)	17% min	20% min
Elongation (% in 5x dia.)	14% min	15% min
Reduction of area	50% min	50% min

MATERIAL: Low carbon steel ASTM A108
stainless steel (except Type 303)

DEFORMED ANCHOR

LENGTH: Length is before weld. Stud diameters (D) $\frac{1}{2}$ " and below will be approximately $\frac{1}{8}$ " shorter after welding. $\frac{5}{8}$ " and $\frac{3}{4}$ " will be approximately $\frac{3}{16}$ " shorter after welding.

MATERIAL: Low carbon steel ASTM: A-496

Mechanical Property Requirements for

	Type C ³
Tensile strength	80,000 psi min (552 MPa)
Yield strength (0.2% offset) (0.5% offset)	70,000 psi min (485 MPa)

¹ Type A studs shall be general purpose of any type and size used for purposes other than shear transfer in composite beam design and construction.

² Type B studs shall be studs that are headed, bent, or of other configuration in $\frac{1}{2}$ in. (12 mm), $\frac{5}{8}$ in. (16mm), $\frac{3}{4}$ in. (20 mm), $\frac{7}{8}$ in. (22 mm) and 1 in. (25 mm) diameter that are used as an essential component in composite beam design and construction.

³ Type C studs are cold-worked deformed steel bars manufactured in accordance with specification ASTM A496 having a nominal diameter equivalent to the diameter of a plain wire having the same weight per foot as the deformed wire. ASTM A496 specifies a maximum diameter of 0.628 in. (16 mm) maximum. Any bar supplied above that diameter must have the same physical characteristics regarding deformations as required by ASTM A496.

