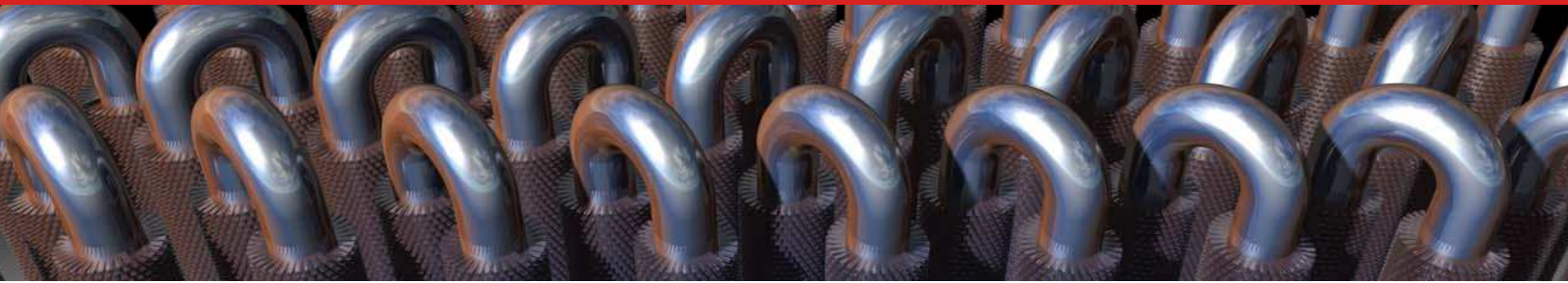


FIN TUBE STUD FIN

EXPERIENCE, QUALITY, AND CONSISTENCY FROM THE HEAT RECOVERY EXPERTS



Manufacture

STUDFIN IS MADE BY ELECTRICAL RESISTANCE WELDING SPECIALLY FORMED STUDS IN ROWS AROUND THE TUBE. THE STUDS CAN BE SUPPLIED IN A VARIETY OF SIZES AND SHAPES. THE PATTERN IN WHICH THE STUDS ARE ARRANGED ON THE TUBE CAN ALSO BE VARIED BY CHANGING THE NUMBER OF STUDS PER ROW AROUND THE TUBE, THE SPACING BETWEEN THE ROWS, AND WHETHER THE STUDS IN ADJACENT ROWS ARE OFFSET. IT IS ALSO POSSIBLE TO APPLY STUDS TO JUST ONE SIDE OF THE TUBE, OR TO APPLY SEVERAL DIFFERENT HEIGHT STUDS IN THE SAME ROW. THE STUDS ARE HAND LOADED INTO THE ELECTRODES AND THEN AUTOMATICALLY WELDED.

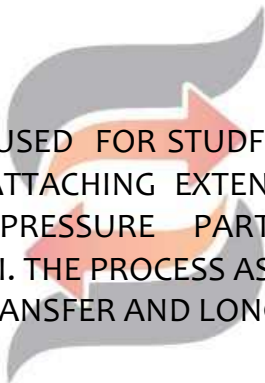
Strength

BECAUSE OF THEIR RELATIVELY THICKER CROSSSECTION AS COMPARED TO FINNS, STUDFIN IS ONE OF THE MECHANICALLY STRONGEST EXTENDED-SURFACES AVAILABLE. ALTHOUGH STRENGTH MAY NOT BE A CONSIDERATION FOR HEAT TRANSFER PERFORMANCE, IT MAY BE IMPORTANT WHEN THE APPLICATION REQUIRES THE EXTENDED SURFACE TO CARRY THE WEIGHT OF THE TUBE AT SUPPORTS, OR WHERE SEVERE MECHANICAL ABUSE IS EXPECTED IN SERVICE OR DURING CLEANING.

**CERTIFIED TO ISO
STANDARDS**

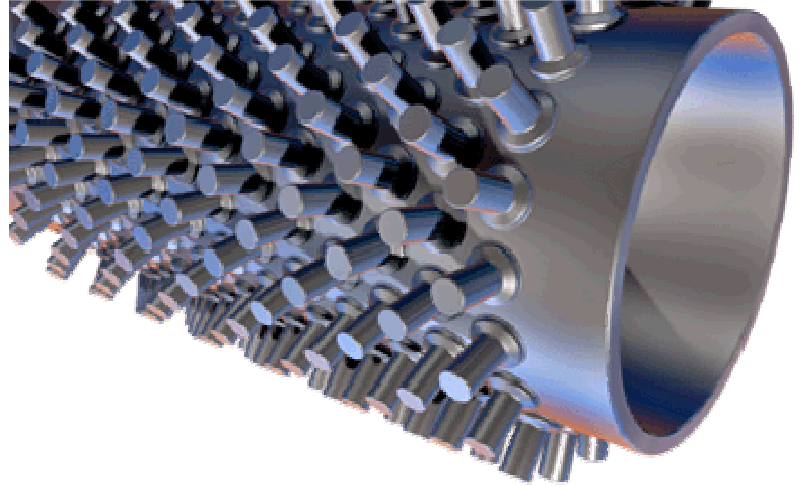
Greater Surface

THE AUTOMATIC WELDING PROCESS USED FOR STUDFIN IS RECOGNIZED BY THE ASME BOILER AND PRESSURE VESSEL CODE FOR USE IN ATTACHING EXTENDED HEATING SURFACE HAVING ESSENTIALLY NO LOAD CARRYING FUNCTION TO PRESSURE PARTS FOR USE IN EQUIPMENT BUILT IN ACCORDANCE WITH SECTION I AND VIII. THE PROCESS ASSURES A STRONG BOND BETWEEN THE STUD AND THE TUBE FOR EFFICIENT HEAT TRANSFER AND LONG LIFE.



The Weld

THE PRE-FORMED STUD HAS A SPECIAL CONICAL HEAD DESIGN THAT SERVES TO ENSURE THAT THE POINT AT WHICH THE HEATING STARTS WILL BE IN THE CENTER OF THE STUD. AS THE STUD TIP AND THE TUBE SURFACE AT THE POINT OF CONTACT ARE HEATED BY FLOW OF ELECTRIC CURRENT THRU THEM, THE ELECTRODE IN WHICH THE STUD IS HELD, FORCES THE STUD AGAINST THE TUBE. PLASTIC METAL IS FORCED FROM BETWEEN THE TWO SURFACES REMOVING THE OXIDES AND ALLOWING THE STUD AND TUBE TO BOND. BECAUSE OF THE RELATIVELY LARGE CROSS-SECTION OF THE STUD, THE HEAT AFFECTED ZONE IN THE TUBE WALL WILL BE SIGNIFICANT. FOR THIS REASON, CHROME ALLOY TUBES WILL USUALLY BE HEAT TREATED AFTER THE STUDS ARE APPLIED.



Cleanability

YEARS OF OPERATING EXPERIENCE ON THE MOST FOULING FUELS HAVE DEMONSTRATED THE CLEANIBILITY OF STUDFINS. THE OPEN ARRANGEMENT OF THE STUDS SLOWS THE BUILDUP OF FOULING DEPOSITS AND MAKES THE CLEANING OPERATION FASTER AND MORE EFFICIENT. BECAUSE OF THE STRENGTH OF THE STUDS, MORE AGGRESSIVE CLEANING TECHNIQUES CAN BE USED THAN MIGHT BE SUITABLE FOR FINS.

**TAKING A STAND
FOR
EXCELLENCE**



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