

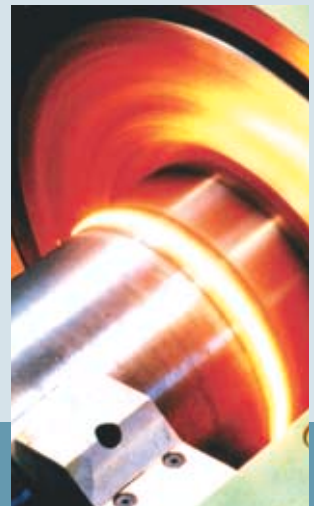


FRICTION WELDING PROCESS

Friction welding is a completely mechanical solid-phase process in which heat generated by friction is used to create the ideal conditions for a high-integrity welded joint between similar or dissimilar metals. In its simplest form, friction welding involves holding two components in axial alignment.

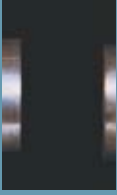
Under British Standard 6223:1990, friction welding is a method for making welds in which one component is rotated relative to, and in pressure contact, with the mating component to produce heat at the faying surfaces. The weld is completed by the application of a forge force during or after the cessation of relative motion.

FRICTION WELDING
PROCESS



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A step-by-step view of the friction welding process



1. One component is rotated while the other is advanced into pressure contact with it.



2. Heat is produced at the faying surfaces. Overheating of metals cannot occur as the weld zone temperature is always stabilised below melting point.



3. Softened material begins to extrude in response to the applied pressure, creating an annular upset.



4. Heat is conducted away from the interfacial area for forging to take place.

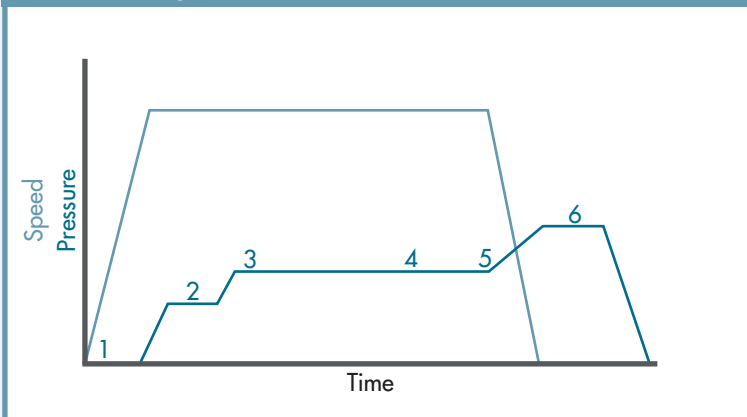


5. Rotation is stopped and a forge force is applied to complete the weld.



6. The joint undergoes hot working to form a homogenous, full surface, full diameter, high-integrity weld.

Friction Welding Pressure Speed and Displacement Graph



Thompson specialise in providing friction welding solutions and are the longest established supplier of friction welding equipment, boasting over 40 years' experience in developing advanced manufacturing processes for a wide variety of industrial components. The Thompson friction welding machine range offers forge capacities from 4 - 300 tons.

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