

MODERN WORKSHOP TECHNOLOGY

Steel castings to be used in plant and equipment which operate at high temperatures and pressures should be made from carbon-molybdenum steel conforming to B.S. 1398: 1957. This specification covers steels which operate at temperatures up to 450°C . (842°F .), and also exhibit a good measure of resistance to creep. Alternatively, the 1.25 per cent chromium-molybdenum steel (B.S. 1504-621: 1958), the 3 per cent chromium-molybdenum steel (B.S. 1461: 1957), the 9 per cent chromium-molybdenum steel (B.S. 1463: 1957) should be used for progressively increasing severity of conditions.

When a casting must exhibit both a high yield strength as well as a high ductility a 1.5 per cent manganese steel conforming to B.S. 1456: 1957 should be used.

Components such as dredger and excavator buckets, jaw crushers, etc., which are subject to very severe abrasive conditions in service should be made from austenitic manganese steels conforming to B.S. 1457: 1957. Alternatively, in the case of such applications as rolling and cement-crushing plant a 1 per cent chromium steel is more suitable such as that conforming to B.S. 1956: 1957 (Grade C).

Where castings have to encounter severe corrosive conditions a 13 per cent chromium steel should be used such as that laid down in B.S. 1630: 1957. In the case of those applications in which a steel casting must exhibit corrosion-resisting characteristics as well as resistance to creep and corrosion at temperatures above 400°C . (750°F .) either an austenitic chromium-nickel steel (B.S. 1631: 1957), or an austenitic chromium-nickel-molybdenum steel (B.S. 1632: 1957) should be employed. When resistance to scaling at high temperatures is of importance the steel should comply with B.S. 1648: 1957. Typical applications include furnace hearths, electric furnace heating elements, economizer parts, and many types of chemical plant.