Indian Standard IS 13352:1992 - Stock for forgings produced from continuously cast blooms, billets and slabs - Specification

Continuous casting has revolutionized the steel industry by providing a more efficient and cost-effective method of producing semi-finished steel products like blooms, billets, and slabs. These products serve as excellent stock for forgings, offering several advantages including improved metallurgical properties, enhanced forgeability, and increased productivity. By carefully selecting the appropriate grade of steel and controlling the forging process, manufacturers can produce high-quality forged components with consistent properties and reduced costs.

The Indian Standard IS 13352:1992 specifies the requirements including delivery conditions for plain carbon and low alloy grade steels as a raw material for the manufacture of automobile or other engineering components generally intended for use by the forging industry to supply steels with excellent combination of strength, toughness, and wear resistance. Common Alloying Elements for low alloy steels include Chromium, Nickel, Molybdenum, Vanadium and Tungsten. Steels specified in the standard can be ordered on basis of various delivery conditions either singly or in a combination which include Chemical Composition (including combination of sulphur and phosphorus), Hardenability, as-rolled, Mechanical properties, Special cleanliness and crack testing.

Also, the requirements specified include cleanliness of steel in the form of Surface and Sub-Surface Defects, internal defects, inclusion rating both for air melted quality and secondary refined quality. Besides, sulphur print test, transverse section of the rolled stock may also be suitably inspected by macro etching. For surface defects, permissible limits for seams are specified and requirement of hot upset test is also mentioned.

The tests for mechanical properties mentioned in the standard include tensile test, impact test and hardness test. As for enhancing mechanical properties like strength, toughness, and ductility, Fine Grain Structure is desired, the requirement for the same is also covered in the standard. Additional tests mentioned include Ultrasonic test, blank hardening and Microstructure for machinability banding.

Testing frequency including re-test and sampling procedures are detailed for consistency and compliance, ensuring that product meet the requirements.