

Raw Materials Specifications

Early in the design of a firearm, the designer and process engineers select the materials to be used for each component. This selection includes evaluation of strength, ductility, durability and appearance. Without sacrificing quality, the two groups optimize the material selection by considering price, ease of quality control and machinability or equivalent manufacturing ease. Following selection of a raw material, if a component affects customer safety or product function, a formal material specification is prepared (Exhibit A). This specification satisfies both the basic raw material industry standards and our own legal requirements. In cases requiring interpretation of acceptance test techniques, the specification refers to AISI or ASTM standards (Exhibit B).

Raw Materials Inspection and Control

All raw materials and most production supplies are statistically sampled by the Chemical and Metallurgical Control Department before release to production. Rejected material is disposed of in accordance with contract agreements, either as scrap or returned to the vendor. Test procedures are either according to Ilion Test Methods (Exhibit C) or ASTM standards.

Heat Treat Inspection and Control

Heat treat specifications are an integral part of the materials specification. However, standard practices have been established to assure uniform quality (Exhibit D). Furnace control settings and heat treat cycles are tailored for each lot of steel to satisfy specifications. The Production Section, using the process record, statistically samples each load of work from each furnace. Hardness testing machines used by Production are calibrated bi-weekly. Verification hardness tests and destructive strength tests are performed by P E & C. P E & C instruments are calibrated by the manufacturers semi-annually. Inspection results are entered in a permanent record by Production and acceptable product is approved by P E & C.

Purchased Parts Control

Most firearms components are purchased. These include large quantities of non-critical springs, screws and firearms attachments. Critical purchased components such as pistons, seals, action bars and magazines are statistically sampled. Disposition of a rejected lot is negotiated.

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