Hyster-Yale Group, Inc. **Title:** SURFACE HARDENING HEAT TREATMENT	**Document Control Number:** **HC-702**
Page 1 of **1** **Document Author:** Caitlin Toohey	**Effective Date:** 03-Mar-2017 **Revision No.** 2017-03

1.0 SCOPE

A case hardening heat treatment for medium carbon steels to develop a fatigue or wear-resistant surface which is normally obtained by induction hardening.

2.0 CITED

See Master Index for a complete list of Citing & Cited Documents.

3.0 REQUIREMENTS

Hardness

Medium as-quenched surface hardness	HRC 55
Surface hardness after tempering	HRC 55 min.

Case depth will be as shown on the engineering part drawing to the hardness of HRC 45.

Microstructure

Microstructure of the hardened case to consist of a minimum of 80% tempered martensite.

A ferrite network or decarburization in the hardened case is cause for rejection.

Tempering temperature shall not be in the range of 500°F to 750°F (260°C to 399°C).

Certification

The supplier shall include with each material lot shipped to Hyster-Yale Group a statement certifying compliance with the HC-702 requirements signed by an authorized representative of the supplier.

4.0 ENGINEERING INFORMATION (Not Part of Requirement)

Application

These heat treatment requirements are generally specified for parts highly stressed in bending and/or torsion or for parts which require only localized hardening of specific areas.

The heat treatment is applicable to medium carbon steels used typically in the production of axle shafts, gears, spindles, and pins.

Method of Specifying

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Minimum Case Depth _____ Inches

Note: A phantom line sketch showing the etched case depth contour and dimensional limits shall be included on the part drawing.