PROCESS SPECIFICATION
DELPHI SAGINAW STEERING SYSTEMS

TITLE Tool Material Heat Treatment – 1.2367 DIN NUMBER E-2653
ISSUED BY D. Nicholas DATE 1/24/01 APPROVED BY
REVISION B REV. DATE 08JL03 SHEET 1 OF 1

A. Material to be heat treated: **1.2367 DIN**

B. Heat treatment method: **Salt Bath.**

C. Stress relieve after rough machining, if necessary, at 535°C. Hold for 2 hours, then slow cool to room temperature.

D. Heat treat as specified:
1. Preheat slowly to 650°C and equalize.
2. Continue pre-heat to 850°C and equalize.
3. Austenitize at 1050°C (+/- 5°C). Equalize temperature and hold for 30 minutes.
3. Air quench to 65°C or below
4. Triple temper immediately, 4 hours minimum for each temper, air cooling to room temperature between tempers.
   First temper - at approximately 550°C, but at least 25°C less than final temper.
   Second temper - at 550°C minimum.
   Final temper - at 570 - 700°C to obtain desired hardness.

E. Stress relieve after final machining at 25°C below the final tempering temperature.

F. Using heat treatment shown above will give a hardness range of 36 to 54 Rockwell C. Required hardness will be noted on print. Heat treat accordingly.

G. No carburization or decarburization allowed.

H. If tool is to be nitrided, nitriding temperature shall be 25-50°C below the highest tempering temperature used. Preferred method is plasma ion nitriding.

I. Heat treatment certification, when requested, shall include:
1. Heat treat shop number
2. P.O. number accompanying job
3. Type of material heat treated
4. Size and quantity of tooling batch heat treated
5. Resulting hardness
6. Xerox copy of material tracking chart containing furnace times and temperatures.
7. Date when hardness tester last calibrated.

J: Heat treatment per this specification is to be carried out only by approved sources as listed in specification E-2600.

K: All printed copies of this specification are FOR REFERENCE ONLY. The latest revision can be viewed on-line at: http://www.delphisuppliers.com/vendor_documents/delphi-s/index.html

Revision	Revision Description	By	Date
A	Method changed to salt bath, Heating and tempering temperatures revised, hardness range revised, nitriding note added.	DN	19JL02
B	Note J revised. Note K added.	DN	08JL03