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REQUEST A QUOTATION

Temper

TEMPER

Temper is a measure of a metal's resistance to bending or kinking. It does not refer to how hard the metal is. Low temper, such as H-1 (also referred to as "1/8 Hard"), indicates a tendency to bend or kink permanently when subjected to very little force. High temper, such as H-8 or "Full Hard", indicates a tendency to spring back upon bending.

TEMPER LETTERS

The letters that appear after each alloy number refer to the "temper" of the alloy itself and are independent of the alloy. This means that a single alloy can be available in a variety of tempers and a variety of alloys can be available in the same temper.

F temper (as fabricated tempers)

This letter indicates that there has been no effort to control the temper of the material - you receive it "as is".

O temper (annealed temper)

Annealing is a process of heating up metal past a critical temperature whereby the material is relieved of the internal stresses from production or fabrication. It is the lowest temper available (the most easily bent).

W temper (solution heat treated temper)

This letter refers to metal that has undergone a specific procedure to produce a temper for a particular batch of metal in order to comply with some specific need of the customer.

H tempers (strain-hardened tempers)

This letter designates a process of stretching or compressing in order to impart a particular temper. The H is always followed by 2 or more digits.

H1 - Strain hardened only.
H2 - Strain hardened and partially annealed.
H3 - Strain hardened and stabilized.

The Second digit after the “H” indicates the degree of strain hardening that has occurred.

1 = 1/8 hard
2 = 1/4 hard
3 = 3/8 hard
4 = 1/2 hard
5 = 5/8 hard
6 = 3/4 hard
7 = 7/8 hard
8 = Full Hard
9 = Extra Hard

R2.03.10.2014

T tempers (thermally treated tempers)

These tempers are imparted by heating, quenching, or cooling in a controlled way. The “T” is always followed by 1 or more digits.

T1 Cooled after being shaped to its final dimensions during a process involving a lot of heat (such as extrusion), then naturally aged to a stable condition.

T2 Cooled after being shaped to its final dimensions during a process involving a lot of heat (such as extrusion), then cold worked.

T3 Solution heat treated and cold worked and naturally aged to a stable condition.

T4 Solution heat treated and naturally aged to a stable condition

T5 Cooled after being shaped to its final dimensions during a process involving a lot of heat (such as extrusion), then artificially aged. T5 is T1 that has been artificially aged.

T6 Solution heat treated and artificially aged to a stable condition. T6 is T4 that has been artificially aged.

T7 Solution heat treated and naturally aged past the point of a stable condition. This process provides control of some special characteristics.

T8 Solution heat treated and cold worked and artificially aged. T8 is T3 that has been artificially aged.

T9 Solution heat treated and artificially aged and cold worked A stable temper T9 is T6 that has been cold worked.

T10 Cooled after being shaped to its final dimensions during a process involving a lot of heat (such as extrusion), then cold worked and artificially aged. T10 is T2 that has been artificially aged.