

Overview of the conventional conditions as per DIN EN 515

| condition* | meaning |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| O | soft-annealed – this condition can be used for products where the properties required for the soft-annealed condition are achieved by soft annealing |
| H12 | strain-hardened – 1/4 hard |
| H14 | strain-hardened – 1/2 hard |
| H16 | strain-hardened – 3/4 hard |
| H18 | strain-hardened – 4/4 hard (fully hardened) |
| H19 | strain-hardened extra-hard |
| H111 | annealed and slightly strain-hardened by subsequent stages, e.g. stretching or flattening – (less than H11) |
| H22 | strain-hardened and partially aged – 1/4 hard |
| H24 | strain-hardened and partially aged – 1/2 hard |
| H26 | strain-hardened and partially aged – 3/4 hard |
| H28 | strain-hardened and partially aged – 4/4 hard (fully hardened) |
| H32 | strain-hardened and stabilised – 1/4 hard |
| H34 | strain-hardened and stabilised – 1/2 hard |
| H36 | strain-hardened and stabilised – 3/4 hard |
| H38 | strain-hardened and stabilised – 4/4 hard (fully hardened) |
| T3 | solution annealed, cold formed and artificially aged |
| T39 | solution annealed and cold formed by a certain degree to achieve the specified mechanical properties; cold forming can take place before or after natural ageing |
| T4 | solution annealing and naturally aged |
| T6 | solution annealed and artificially aged |
| T7 | solution annealed and overhardened (artificially aged) |
| T73 | solution annealed and overhardened (artificially aged) to achieve an optimum resistance to stress corrosion cracking |
| T8 | solution annealed, cold formed and artificially aged |
| T89 | solution annealed, cold formed by a certain degree to achieve the specified mechanical properties and artificially aged |
| T9 | solution annealed, artificially aged and cold formed |

* interim conditions or conditions outside the norm are possible on request



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Heat treatment

Solution heat treatment
and water quenching

Homogenising
(heat treatment)

Soft annealing

Recovery heat treatment

Artificial ageing /
natural ageing

Stabilising heat treatment

Development of custom tailored multistage
heat treatment processes with our small scale
laboratory furnace in the prototype phase.