

This page is mainly introduced the 13? Datasheet, including chemical information, mechanical properties, physical properties, mechanical properties, heat treatment, and Micro structure, etc. It also contains the use of 13?, such as it is commonly used in bars, sheet, plates, steel coils, steel pipes, forged and other materials application.

Datasheet for Steel Grades Tool Steel And Hard Alloy 13X

13? Standard Number:

| ITEM | Standard Number | Descriptions |
|------|-----------------|--------------|
|------|-----------------|--------------|

13? Chemical composition(mass fraction)(wt.%)

| Chemical | | | Min.(%) | | | | Max.(%) | | |
|-----------|-----------|-----------|---------|--------|-----------|-------|---------|-------|-------|
| C | Si | Mn | P | S | Cr | Ni | Mo | V | Ta |
| 1.25-1.40 | 0.10-0.40 | 0.15-0.45 | ≤0.030 | ≤0.030 | 0.40-0.70 | ≤0.35 | ≤0.20 | ≤0.15 | |
| W | N | Cu | Co | Pb | B | Nb | Al | Ti | Other |
| ≤0.20 | | ≤0.30 | | | | | | ≤0.03 | |

13? Physical Properties

| | | |
|------------------|---------|------------------------|
| Tensile strength | 115-234 | σ _b /MPa |
| Yield Strength | 23 | σ _{0.2} ≥/MPa |
| Elongation | 65 | δ ₅ ≥ (%) |
| ψ | - | ψ ≥ (%) |
| A _k v | - | A _k v ≥/J |
| HBS | 123-321 | - |
| HRC | 30 | - |

13? Mechanical Properties

| | | |
|------------------|---------|------------------------|
| Tensile strength | 231-231 | σ _b /MPa |
| Yield Strength | 154 | σ _{0.2} ≥/MPa |

| | | |
|------------|---------|----------------------|
| Elongation | 56 | $\delta 5 \geq (\%)$ |
| ψ | - | $\psi \geq (\%)$ |
| Akv | - | $Akv \geq /J$ |
| HBS | 235-268 | - |
| HRC | 30 | - |

13? Heat Treatment Regime

| Annealing | Quenching | Tempering | Normalizing | Q & T |
|-----------|-----------|-----------|-------------|-------|
| √ | √ | √ | √ | √ |

13? Range of products

| Product type | Products | Dimension | Processes | Deliver Status |
|-----------------|--|----------------------------|---|---|
| Plates / Sheets | Plates / Sheets | 0.08-200mm(T)*W*L | Forging, hot rolling and cold rolling | Annealed, Solution and Aging, Q+T, ACID-WASHED, Shot Blasting |
| Steel Bar | Round Bar, Flat Bar, Square Bar | Φ8-1200mm*L | Forging, hot rolling and cold rolling, Cast | Black, Rough Turning, Shot Blasting, |
| Coil / Strip | Steel Coil /Steel Strip | 0.03-16.0x1200mm | Cold-Rolled & Hot-Rolled | Annealed, Solution and Aging, Q+T, ACID-WASHED, Shot Blasting |
| Pipes / Tubes | Seamless Pipes/Tubes, Welded Pipes/Tubes | OD:6-219mm x WT:0.5-20.0mm | Hot extrusion, Cold Drawn, Welded | Annealed, Solution and Aging, Q+T, ACID-WASHED |

We can produce Tool Steel And Hard Alloy the specifications follows: