

This page is mainly introduced the HR5 Datasheet, including chemical information, mechanical properties, physical properties, mechanical properties, heat treatment, and Micro structure, etc. It also contains the use of HR5, such as it is commonly used in bars, sheet, plates, steel coils, steel pipes, forged and other materials application.

Datasheet for Steel Grades Specialsteel HR5

| HR5 Standard Number: | | |
|----------------------|-----------------|--|
| ITEM | Standard Number | Descriptions |
| 1 | BS 2HR 5 (2010) | Specification for nickel-chromium-titanium heat-resisting alloy billets, bars, forgings and parts (nickel base, Cr 19.5, Ti 0.4) |
| 2 | BS HR 5 | Specification for nickel-chromium-titanium heat-resisting alloy billets, bars, forgings and parts (nickel base, Cr 19.5, Ti 0.4) |

| HR5 Chemical composition (mass fraction) (wt.%) | | | | | | | | | |
|---|----|---------|---|---|-----------|----|----|---|----|
| Chemical | | Min.(%) | | | Max.(%) | | | | |
| C | | 0.08 | | | 0.15 | | | | |
| Si | | | | | 1.00 | | | | |
| Mn | | | | | 1.00 | | | | |
| P | | | | | | | | | |
| S | | | | | 0.020 | | | | |
| Cr | | 18.00 | | | 21.00 | | | | |
| Ni | | | | | remaining | | | | |
| Mo | | | | | | | | | |
| Co | | | | | 5.00 | | | | |
| Ti | | 0.20 | | | 0.60 | | | | |
| Fe | | | | | 5.00 | | | | |
| Al | | | | | | | | | |
| Cu | | | | | 0.50 | | | | |
| B | | | | | | | | | |
| Bi | | | | | | | | | |
| Pb | | | | | 0.0050 | | | | |
| Ag | | | | | | | | | |
| C | Si | Mn | P | S | Cr | Ni | Mo | V | Ta |
| | | | | | | | | | |

| W | N | Cu | Co | Pb | B | Nb | Al | Ti | Other |
|---|---|----|----|----|---|----|----|----|-------|
| | | | | | | | | | |

Specification for nickel-chromium-titanium heat-resisting alloy billets, bars, forgings and parts

(nickel base, Cr 19.5, Ti 0.4)

| HR5 Physical Properties | | |
|-------------------------|---------|--------------------------|
| Tensile strength | 115-234 | σ_b /MPa |
| Yield Strength | 23 | $\sigma_{0.2} \geq$ /MPa |
| Elongation | 65 | $\delta_5 \geq$ (%) |
| ψ | - | $\psi \geq$ (%) |
| Akv | - | Akv \geq /J |
| HBS | 123-321 | - |
| HRC | 30 | - |

| HR5 Mechanical Properties | | |
|---------------------------|---------|--------------------------|
| Tensile strength | 231-231 | σ_b /MPa |
| Yield Strength | 154 | $\sigma_{0.2} \geq$ /MPa |
| Elongation | 56 | $\delta_5 \geq$ (%) |
| ψ | - | $\psi \geq$ (%) |
| Akv | - | Akv \geq /J |
| HBS | 235-268 | - |
| HRC | 30 | - |

HR5 Heat Treatment Regime

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

HR5 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 Specialsteel the specifications follows: