

## 14NiCrMo13-4 All

### General Information

14NiCrMo13-4 or 9315 as also named in US standards is a case hardening steel used in forgings to eg rock drilling tools.

### Similar designations

1.6657, AMS 6263, SAE 9315

### Chemical composition

| Variant | Cast | Weldability             |     | C %  | Si % | Mn % | P %   | S %   | Cr % | Ni % | Mo % | DI % |
|---------|------|-------------------------|-----|------|------|------|-------|-------|------|------|------|------|
| 253D    | IC   | CEV 0.87 <sub>max</sub> | Mn  | 0.12 | 0.15 | 0.40 | -     | -     | 1.00 | 2.95 | 0.08 | 2.40 |
|         |      | Pcm 0.38 <sub>max</sub> | Max | 0.17 | 0.35 | 0.70 | 0.035 | 0.040 | 1.45 | 3.35 | 0.15 | 7.20 |

## Mechanical Properties

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### Variant

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$R_{p0.2}$  \*  $R_{eh}$ , \*\*  $R_{el}$

### Transformation temperatures

|     | Temperature °C |
|-----|----------------|
| AC1 | 692            |
| AC3 | 805            |

## Other properties (typical values)

| Youngs module (GPa)           | Poisson's ratio (-)                      | Shear module (GPa)                               | Density (kg/m <sup>3</sup> )                     |
|-------------------------------|--|--|--|
| 210                           | 0.3                                      | 80   | 7800   |
| Average CTE 20-300°C (µm/m°K) | Specific heat capacity 50/100°C (J/kg°K) | Thermal conductivity Ambient temperature (W/m°K) | Electrical resistivity Ambient temperature (µΩm) |
| 12                            | 460 - 480                                | 40 - 45  | 0.20 - 0.25                                      |

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