

NAS NM17

NAS Nonmagnetic Soft Stainless Steel

NAS NM17 is a high manganese austenitic stainless steel with a 17Cr-17Mn-7.3Ni composition. Featuring improved workability, NAS NM17 was developed by Nippon Yakin by softening the conventional nonmagnetic austenitic stainless steel. Nippon Yakin supplies this product in plate, sheet and strip forms.

Steel Grade/Standard

| NAS | JIS | ASTM |
|----------|-----|------|
| NAS NM17 | — | — |

Chemical Composition

| | C | Si | Mn | P | S | Ni | Cr | N |
|--------------------------|-------|-------|-------------|--------|--------|-----------|-------------|-------|
| Specification (NAS NM17) | ≤0.10 | ≤1.00 | 16.00~17.00 | ≤0.045 | ≤0.015 | 7.00~8.00 | 16.00~18.00 | ≤0.20 |

Physical Properties

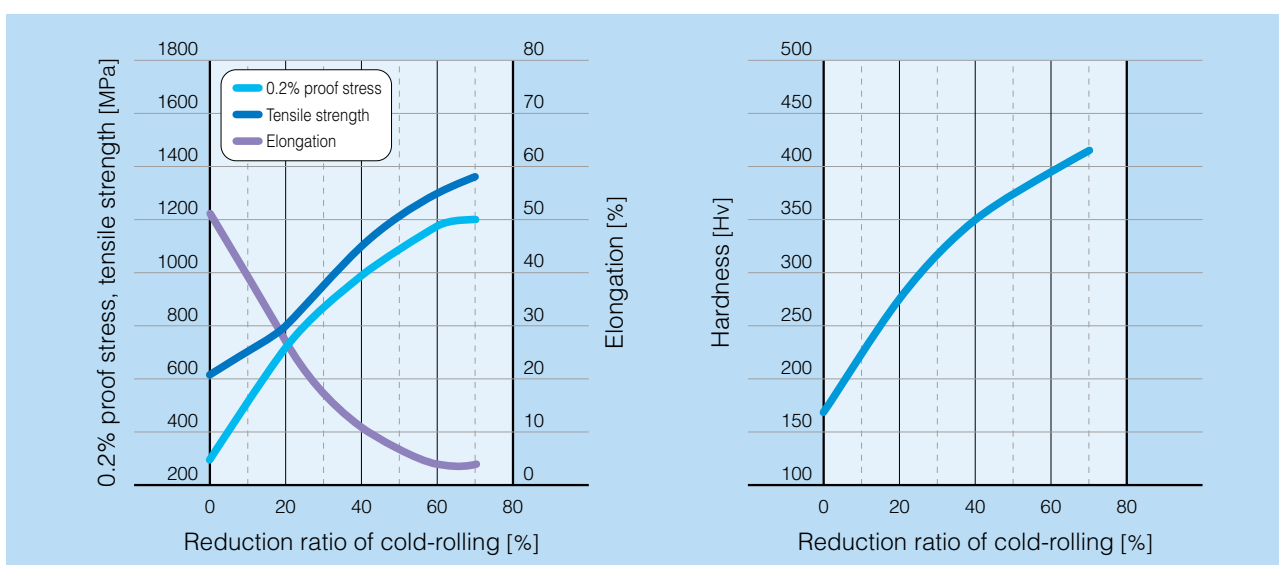
| | | |
|---|----------------------|------------------------|
| Density | [g/cm ³] | 7.80 |
| Specific heat | [J/kg · K] | 500 |
| Electrical resistivity | [μΩ · cm] | 75 |
| Thermal conductivity | [W/m · K] | 14.5 |
| Average coefficient of thermal expansion [10 ⁻⁶ /°C] | 30~100°C | 16.0 |
| | 30~300°C | 18.5 |
| | 30~500°C | 19.5 |
| | 30~700°C | 20.4 |
| Young's modulus | [MPa] | 19.4 × 10 ⁴ |
| Magnetism | | None |
| Melting range | [°C] | 1340~1400 |

Mechanical Properties

Mechanical Properties at Room Temperature

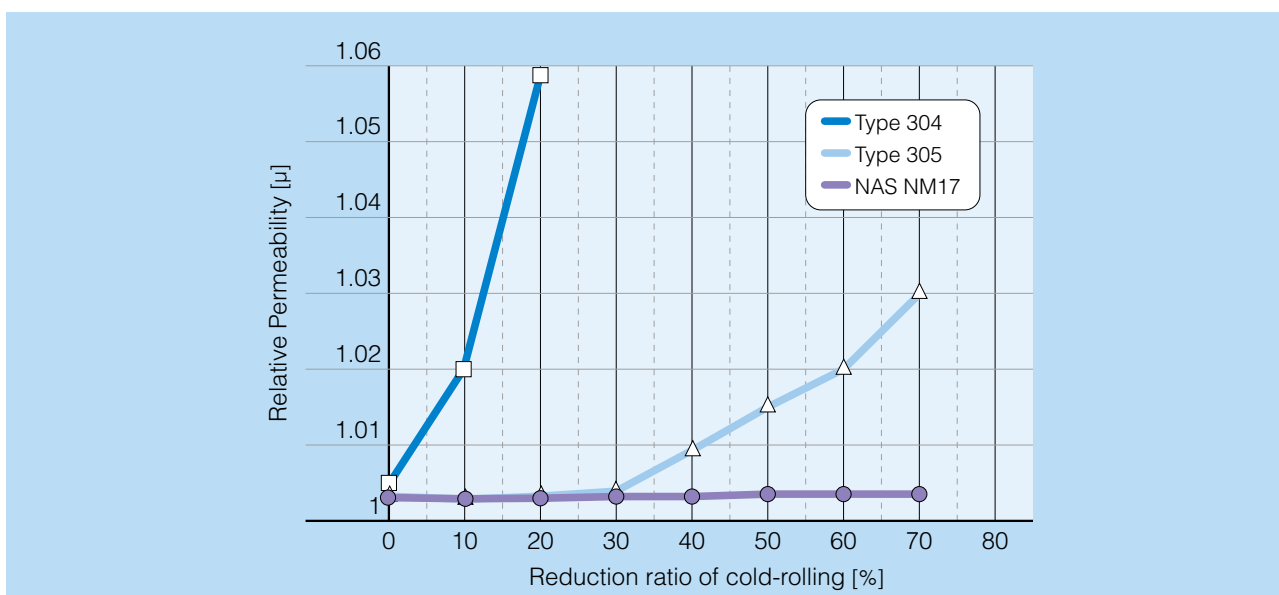
| | | 0.2% proof stress [MPa] | Tensile strength [MPa] | Elongation [%] | Hardness [Hv] |
|--------------------------|-------------------|-------------------------|------------------------|----------------|---------------|
| Specification (NAS NM17) | | ≥ 250 | ≥ 550 | ≥ 40 | ≤ 180 |
| Example | Cold-rolled sheet | 313 | 615 | 52 | 160 |

Work Hardening



Permeability

Relative permeability of the product will not change after the cold-working and will not be magnetized as well.



Corrosion Resistance

NAS NM17 provides corrosion resistance equal to standard austenitic stainless steel Type 304. Corrosion resistance is virtually unchanged even after heavy cold working.

Atmospheric Corrosion Resistance in Salt Spray Test

Test conditions: 5% NaCl, 30°C for 7 days

| | |
|-----------------------------|---------|
| Solution treatment material | No rust |
| 65% cold-rolled material | No rust |

Formability

Formability is basically equal to that of Type 304.

| | Erichsen value (mm) | LDR (Limit Drawing Ratio) |
|----------|---------------------|---------------------------|
| NAS NM17 | 11.5 | 2.0 |
| NAS 304 | 12.0 | 2.1 |

*Sheet thickness: 0.7mm

Heat Treatment

Heat treatment of NAS NM17 is similar to that of conventional austenitic stainless steels. Typical heat treatment conditions are as follows:

Solution heat treatment: 1100~1150°C; rapid cooling

Applications

Ornamental metal parts, electronic components, and other types of components in which a nonmagnetic property is required.

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Note regarding the handling of property data:

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