MATERIAL DATA SHEET

# AISI 301 1/2 hard sheet/strip (MIL-HDBK-5H)

Historical public-release A-basis reference for cold-worked AISI 301 1/2 hard sheet and strip.

| Field | Value |
|---|---|
| Material ID | milhdbk-aisi301-half-hard-sheet |
| Category | Metal |
| Condition | AISI 301; 1/2 hard; sheet or strip \| sheet or strip |
| Unit system | Common SI |
| Unit contract | Material properties stored in SI engineering units. |
| Generated | 2026-11-15 23:20 |

## Source and Validity

| Field | Value |
|---|---|
| Quality | Catalog record |
| Design release allowed | No |
| Source family | Government materials handbook |
| Confidence | Reference-grade |
| License | Open |
| Source note | Independent transcription from an official public-release U.S. government handbook. |
| Citation | U.S. Department of Defense, MIL-HDBK-5H, Metallic Materials and Elements for Aerospace Vehicle Structures, 1 December 1998, Table 2.7.1.0(b)-(c), PDF page(s) 271-272 (handbook page(s) 2-217 to 2-218); official DLA document record https://quicksearch.dla.mil/qsDocDetails.aspx?ident_number=53876. The official PDF carries Distribution Statement A: Approved for public release; distribution is unlimited. |
| Valid temperature | 21 ... 21 degC (Room-temperature historical handbook values. Applicability is limited to the exact alloy, temper/condition, product form, size band, material axis, statistical basis, and specification identified by the cited table.) |
| Valid pressure | Pressure dependence is not represented by these solid-material reference values. |
| Valid phase / condition | AISI 301; 1/2 hard; sheet or strip |
| Uncertainty | Values are historical handbook table transcriptions with explicit SI conversion. They are not a substitute for a current material specification, supplier certificate, drawing allowable, or project approval. |
| Last reviewed | 2026-08-02 |
| Reviewer | scripts/import_milhdbk5h_public_metals.py |
| Review status | Checked |
| Review scope | Checked official DLA document identity, Distribution Statement A, PDF hash, table/page location, alloy/condition/form/size scope, basis semantics, and SI conversions. |

| Field | Value |
|---|---|
| Notes | Historical reference only; design release is explicitly disabled. |
| License ID | US-DOD-DISTRIBUTION-STATEMENT-A |
| License URL | https://www.dodcui.mil/Distribution-Statements/ |
| Attribution | U.S. Department of Defense |

## Material Condition

| Field | Value |
|---|---|
| Condition | AISI 301; 1/2 hard; sheet or strip |
| Temper | 1/2 hard |
| Heat treatment | cold worked to 1/2 hard condition |
| Product form | sheet or strip |
| Thickness / diameter range | strength table does not state a condition-specific bound; elongation covers <=0.015 and >=0.016 in bands where listed |
| Test direction | L strength; minimum elongation from the LT table |
| Processing route | cold-worked austenitic stainless sheet or strip |
| Temperature range | 21 ... 21 degC |
| Notes | Room-temperature historical handbook values. Applicability is limited to the exact alloy, temper/condition, product form, size band, material axis, statistical basis, and specification identified by the cited table. Historical reference only; confirm the current procurement specification and material test report. |

## Properties

### Physical

| Property | Value | Unit | Type | Applies to |
|---|---|---|---|---|
| Density | 7916 | kg/m^3 | Historical Nominal | AISI 301; 1/2 hard; sheet or strip; A-basis strengths; S-basis minimum elongation |

## Mechanical

| Property | Value | Unit | Type | Applies to |
|---|---|---|---|---|
| Ultimate tensile strength, L | 972.161 | MPa | Historical Public Release Table Value | AISI 301; 1/2 hard; sheet or strip; A-basis strengths; S-basis minimum elongation; L direction |
| Tensile yield strength, L | 641.212 | MPa | Historical Public Release Table Value | AISI 301; 1/2 hard; sheet or strip; A-basis strengths; S-basis minimum elongation; L direction |
| Compressive yield strength, L | 420.58 | MPa | Historical Public Release Table Value | AISI 301; 1/2 hard; sheet or strip; A-basis strengths; S-basis minimum elongation; L direction |
| Ultimate shear strength | 530.896 | MPa | Historical Public Release Table Value | AISI 301; 1/2 hard; sheet or strip; A-basis strengths; S-basis minimum elongation |
| Elongation, LT | 15 | % | Historical Public Release Table Value | AISI 301; 1/2 hard; sheet or strip; A-basis strengths; S-basis minimum elongation; LT direction |
| Young's modulus, L | 179.264 | GPa | Historical Nominal | AISI 301; 1/2 hard; sheet or strip; A-basis strengths; S-basis minimum elongation; L direction |
| Young's modulus | 193.053 | GPa | Historical Nominal | AISI 301; 1/2 hard; sheet or strip; A-basis strengths; S-basis minimum elongation; LT direction |
| Compression modulus | 186.158 | GPa | Historical Nominal | AISI 301; 1/2 hard; sheet or strip; A-basis strengths; S-basis minimum elongation; LT direction |
| Shear modulus | 72.395 | GPa | Historical Nominal | AISI 301; 1/2 hard; sheet or strip; A-basis strengths; S-basis minimum elongation |
| Poisson's ratio | 0.27 | - | Historical Nominal | AISI 301; 1/2 hard; sheet or strip; A-basis strengths; S-basis minimum elongation |

Engineering note: seed solid-material values are reference values only. Verify against the project material specification or supplier data sheet before release.