

Information about the content

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|--------------------|-------------|--------------------------|-----------------|
| Scope: | Plansee SE | Prepared/Updated: | Abenthung Peter |
| | | Released: | Ostheimer Josef |
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Molybdenum-wire is used in a wide variety of high temperature applications. Typical applications are the lighting industry, conductor elements and fabric components in furnace construction and special applications.

1 Dimensions and tolerances

| Diameter [mm] | Ø-Tolerance [%] | Max. value out of roundness |
|------------------|--------------------|-----------------------------|
| 0,30 - 0,79 | ± 2,0 | within Ø-tolerance |
| 0,80 - 1,49 | ± 1,5 | 0,010 mm |
| 1,50 - 3,99 | ± 1,0 | 0,025 mm |
| 4,00 - 10,0 | ± 1,0 | 0,050 mm |

2 Physical and mechanical product properties

| Diameter [mm] | Tensile strength [MPa] |
|------------------|---------------------------|
| 0,30 - 0,49 | 1000 - 1300 |
| 0,50 - 0,79 | 800 - 1200 |
| 0,80 - 1,49 | 750 - 1100 |
| 1,50 - 3,99 | 650 - 1000 |
| 4,00 - 10,0 | > 600 |

We are certified according to:

- ISO 9001 (all production plants / PSE since 1993)
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| | |
|--------------------------------|---|
| Elongation: | ≥ 10% |
| Density: a) | 10,20 g/cm ³ |
| Non destructive tests : | 100 % Eddy current test, split value max. 0,5 % |

a) The density in case cannot be determined with sufficient accuracy because of small material diameter. Due to the high degree of deformation during production, it is assumed that the theoretical density (above given value) is achieved.

2.1 Surface condition

| | | |
|-----------------|------------------|--|
| Surface: | Ø 0,30 - 1,00 mm | Electropolished (bright surface) |
| | Ø 0,30 - 10,0 mm | Chemically cleaned (metallic dull surface) |

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3 Chemical composition

| Main and minor components | Plansee | | Standard | EU-Directive |
|---|------------------------------|------------------|--------------------|--------------------|
| | Min. content [%] | | ASTM B387 (361) | RoHS ^{a)} |
| Mo | 99,97 % ^{b)} | | balance | - |
| Impurities | Max. values [µg/g] | | Max. values [µg/g] | Max. values [µg/g] |
| | Typical | Guaranteed | | |
| Al | 1 | 10 | - | - |
| Cr | 3 | 20 | - | - |
| Cu | 2 | 20 | - | - |
| Fe | 5 | 20 | 100 | - |
| K | 6 | 20 | - | - |
| Ni | 1 | 10 | 50 | - |
| Si | 2 | 20 | 100 | - |
| W | 169 | 300 | - | - |
| C | 13 | 30 | 100 | - |
| H | - | 10 | - | - |
| N | 5 | 10 | 20 | - |
| O | 6 | 40 | 70 | - |
| Cd | 1 | 5 | - | 100 |
| Hg ^{c)} | - | 1 | - | 1000 |
| Pb | - | 5 | - | 1000 |
| Cr (VI) | | | - | 1000 |
| Organic impurities (e.g. PBB, PBDE, PFOS, PFOA) | - ^{**)} | - ^{**)} | - | 1000 |

a) EU-directives 2015/863/EU, 2011/65/EU and 2000/53/EC

b) Metallic purity without W

c) Initial value

^{**)} The presence of Cr (VI) and organic impurities can definitely be excluded because of the production process (multiple heat treatments at temperatures above 1000 °C in H₂-atmosphere).

The chemical composition is checked by means of random sampling. The sampling inspection plan, analysis and evaluation methods are determined in the internal instruction PSE-020-WI-003. The application of the measured values for the chemical analysis is defined in PSE-680-WI-001.

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Remarks: The specified physical and chemical characteristics are disclosed not regarding measurement accuracy.

4 Packaging, labelling, storage and certification

4.1 Packaging, labelling and storage

Standard individual packing:

Dimension of standard reels

| Spool: | SD300K | SH253K |
|-------------------|------------------|----------|
| Outer diameter: | 300 mm | 253,5 mm |
| Coil diameter: | 180 resp. 210 mm | 221,5 mm |
| Inner diameter: | 51 mm | 215,0 mm |
| Total width: | 103 mm | 37,0 mm |
| Coil width: | 90 mm | 30,0 mm |
| Max. coil weight: | 23 kg | 2,5 kg |







Shipping dimensions

| Diameter [mm] | Spool or coil | Fiber drums with cardboard layer | Cardboard | Desiccant, airtight packaging |
|---------------|---|-------------------------------------|-------------------------------------|-------------------------------------|
| 0,30 - 0,49 | SH253K | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 0,50 - 1,00 | SD300K | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 1,01 - 2,00 | STR ^{a)} Ø 300mm ^{*)} | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2,01 - 3,50 | STR ^{a)} Ø 560mm ^{*)} | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | |
| 3,51 - 10,0 | | | | Special packaging |

a) Coils without carrier spools

*) Other form of delivery upon request

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Each package will be provided with a label with the following information:

| | |
|--------------------------------|---------------------------|
| Producer's name: | Plansee |
| Plansee order number: | |
| Lot number: | |
| Material number: | |
| Material: | Mo |
| Dimension: | Wire diameter |
| Surface: | |
| Quantity: | Total quantity in m or kg |
| Tensile strength range: | |
| Elongation range: | |
| Date: | |

The material must be kept in a dry place and protected from mechanical damage. It is best to keep the material in the original packing until used. It is recommended to store the spools vertical.

Special packing: (extra costs will be invoiced)

Special packing should be used if the material is stored under unusual conditions or aggressive atmosphere (e.g. sea air, ...).

4.2 Inspection documents

Following inspection documents will be supplied upon customer request according to EN 10 204:

Test report 2.2

Plansee confirms with this test report that the delivered product meets the specification and gives details of the material properties according to ongoing production surveillance, not directly related to the particular production batch.

Inspection certificate 3.1 (extra costs will be invoiced)

An inspection officer from Plansee confirms with this inspection certificate that the delivered product meets the specification and gives test results related to the particular production batch.

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5 Order instructions

Please quote following information when ordering:

- Product description
- Quality (the number of this specification must be mentioned)
- Diameter
- Material number
- Quantity in m or kg
- Surface
- Required spool
- Required certificate and content in case of a 3.1 inspection certificate
- *For special packing:* Specification of packaging

For further information on our delivery possibilities, please look into our <http://www.plansee.com>

6 Referenced standards

The standards applied for the test methods are listed in the Plansee standard InfoBase and are made available upon request.

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Changes to last version:

Replacement for PS-MPR-102

- **Regular content review** conducted by Thomas Friedrich on 16.04.2021 no changes of content
- New Document numbering key
- New Document layout
- Section 2: Description text in view of test parameter removed
- Section 2: description text in view of using the theoretical material density
- Section 3: RoHS Directive appellation updated
- Section 4.2: Description of Test Report / Inspection Certificate eliminated

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