

Information about the content

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|--------------------|-------------|--------------------------|-----------------|
| Scope: | Plansee SE | Prepared/Updated: | Abenthung Peter |
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Molybdenum spray wires are mainly applied in metal spray technology. The surface of gear parts which have to withstand great stress is sprayed with a thin layer of molybdenum to make the parts more resistant to wear. Molybdenum is also used as an intermediate layer when coating steel parts.

1 Dimensions and tolerances

1.1 Diameter and guaranteed production tolerances

| Diameter [mm] | Ø Tolerance [mm] |
|--------------------|---------------------|
| 2,31 ^{a)} | ± 0,025 |
| 3,17 ^{a)} | + 0/ - 0,05 |
| 1,00 – 1,99 | ± 0,020 |
| 2,00 – 2,99 | ± 0,025 |
| 3,00 – 3,90 | ± 0,030 |

2 Physical and mechanical product properties

| Diameter [mm] | Tensile strength [MPa] | Elongation [%] |
|--------------------|---------------------------|-------------------|
| 2,31 ^{a)} | > 800 | > 5 |
| 3,17 ^{a)} | > 700 | > 5 |

a) Standard dimensions.

Density: ^{a)} 10,20 g/cm³

Cracks: 100 % Eddy current tested



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a) theoretical density

2.1 Surface condition

Surface: Black (graphitized surface)
Chemically cleaned (metallic dull surface)



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3 Chemical composition

| Main and minor components | Plansee | | Standard ASTM B387 (361) | EU-Directive RoHS ^{a)} |
|---|------------------------------|------------------|--------------------------------|------------------------------------|
| | Min. content [%] | | | |
| Mo | 99,97 % ^{b)} | | balance | - |
| Impurities | Max. values [µg/g] | | Max. values [µg/g] | Max. values [µg/g] |
| | Typical | Guaranteed | | |
| Al | 5 | 10 | - | - |
| Cr | 16 | 40 | - | - |
| Cu | 4 | 20 | - | - |
| Fe | 17 | 50 | 100 | - |
| K | 5 | 20 | - | - |
| Ni | 21 | 50 | 50 | - |
| Si | 5 | 20 | 100 | - |
| W | 155 | 300 | - | - |
| C | 13 | 50 | 100 | - |
| H | 1 | 10 | - | - |
| N | 5 | 10 | 20 | - |
| O | 12 | 40 | 70 | - |
| Cd | 1 | 5 | - | 100 |
| Hg ^{c)} | - | 1 | - | 1000 |
| Pb | 5 | 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.

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



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4 Packaging, labelling, storage and certification

4.1 Packaging, labelling and storage

Standard individual packing:

| Coil without spool: | |
|---------------------|----------------------|
| Inner diameter: | 560 mm ^{a)} |
| Total width: | 56 mm |
| Max. coil weight: | 24 kg |

a) Upon request, spray wire in the diameter range < 1,75 mm can also be wound on coils without spool with inner diameter 300 mm or on plastic spool (SD300K).

Fiber-drums with a layer of cardboard between each coil

- “Small”, capacity approx. 120 kg
- “Large”, capacity approx. 250 kg

Cardboard packaging: approx. 24 kg/package.

Special packing: upon request, the spools can be packed in PE bags (with desiccant).

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 kg |
| 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.

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, ...).



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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.

5 Order instructions

Please quote following information when ordering:

- Product description
- Diameter
- Quality (standard coil or special spool)
- Coil weight
- Surface quality (chemically cleaned or lubricated with graphite)
- Quantity in kg
- 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-IHR 114

- **Regular content review** conducted by Thomas Friedrich on 16.04.2021 no changes of content
- New Document numbering key
- New Document layout
- Straightness removed
- Section 2: Data reduced to standard dimensions
- Section 2: Test description replaced by adding theoretical density
- Section 3: RoHS Directive appellation updated
- Section 4.2: Description of Test Report / Inspection Certificate eliminated



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