



# DAIKOFCW 1006LC



COBALT ALLOYS

Gr. 6

## DESCRIPTION

### Cobalt based cored wire for hardfacing

This flux cored wire provides resistance to many forms of chemical and mechanical degradation over a wide temperature range. It bonds well with all weldable grade steels, including stainless. Suitable for coatings resistant to wear combined with corrosion and oxidation up to 900 °C. It is used to surface valves and valve seats, hot shear blades, cold and hot forming rolls, equipment for handling hot steel and for applications in a very wide range of industries. Specially formulated with lower carbon content in order to be less crack sensitive and easier to machine than standard grade.

## SPECIFICATIONS

|                |                  |                  |           |
|----------------|------------------|------------------|-----------|
| ISO 14700      | TCo2             | AWS A5.21        | ERCCoCr-A |
| DIN 8555       | MF 20-MF-40-CKTZ | Werkstoff Number | -         |
| Certifications | -                | Shielding        | I1, I3    |
| Positions      | PA, PB, PC       | Current          | DC+       |

## ASME QUALIFICATIONS

|              |    |
|--------------|----|
| F-No (QW432) | 72 |
| A-No (QW442) | -  |

## FERRITE

|         |   |
|---------|---|
| Ferrite | - |
|---------|---|

## PREN

|      |   |
|------|---|
| PREN | - |
|------|---|

## HARDNESS

|          |               |
|----------|---------------|
| Hardness | 36HRC - 38HRC |
|----------|---------------|

## CHEM. COMP. %

| CHEM. COMP. % | DEFAULT |
|---------------|---------|
| C             | 0.8     |
| Mn            | 1       |
| Ni            | 2.5     |
| Cr            | 28.5    |
| Si            | 1       |
| Fe            | 3.5     |
| W             | 5       |

## MECHANICAL PROPERTIES

| MECHANICAL PROPERTIES                             | MIN | VARIANT |
|---|-----|---------|
| Tensile strength R <sub>m</sub> MPa               | -   | -       |
| Yield strength R <sub>p0.2</sub> MPa              | 0   | -       |
| Elongation A (L <sub>0</sub> =5d <sub>0</sub> ) % | 0   | -       |
| Impact Charpy ISO-V                               | -   | -       |
| Impact Charpy ISO-V                               | -   | -       |

## WELDING PARAMETERS

| WELDING PARAMETERS | 1.2 mm      | 1.6 mm      |
|--------------------|-------------|-------------|
| Ampere             | 100A - 250A | 140A - 350A |
| Voltage            | 16V - 29V   | 26V - 30V   |
| Packaging          | Ø 1,2÷1,6mm | Ø 1,2÷1,6mm |
| Packaging Type     | BS300 spool | BS300 spool |

## ANTI-WEAR CHARACTERISTICS

|               |           |
|---------------|-----------|
| Adhesive wear | ▲ ▲ ▲ ▲ ▲ |
| Abrasive wear | ▲ ▲ ▲ ▲ ▲ |
| Impact        | ▲ ▲ ▲ ▲ ▲ |
| Corrosion     | ▲ ▲ ▲ ▲ ▲ |
| Heat          | ▲ ▲ ▲ ▲ ▲ |

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The information in this datasheet is the result of detailed research and is considered accurate as of the publication date. However, we cannot guarantee its complete accuracy, and it is subject to change without notice. Actual results may vary due to many factors like welding procedures, material composition, temperature conditions, bevel configuration, and specific manufacturing techniques. We accept no liability for any errors or omissions in this datasheet. For the most current information, please visit [www.daikowelding.com](http://www.daikowelding.com).





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## APPLICATION

This cobalt-based alloy is widely recognized as the most extensively used type, offering abrasion resistance, along with robust defenses against corrosion, erosion, and thermal shock. It excels in resisting galling, sliding friction, and compression across various temperatures. The alloy's distinctive features include a hypereutectic structure comprising roughly 13% eutectic chromium carbides distributed within a solid solution matrix of cobalt, chromium, and tungsten. It is extensively employed for surfacing valves, valve seats, hot shear blades, punches and dies, ingot tong ends, and equipment utilized in handling hot steel. Noteworthy applications include its use for cat cracker slide valves in the petrochemical industry, as well as across a broad spectrum of sectors such as steel, cement, marine, and power generation. Preheating within the range of 100-300°C, or even higher, along with slow cooling, may be necessary to mitigate the risk of cracking in multi-run deposits and/or highly restrained conditions. The deposits are machinable using carbide tools and can be refined through grinding as needed. Importantly, these alloys remain impervious to allotropic transformation, ensuring that their properties endure even after subsequent heat treatment of the base metal.

## ALLOY TYPE

Cobalt based alloy composed of 27%-32% Chrome, 4%-6% Tungsten, 1%-2% Carbon, 3%-4% Nickel, 1%-2% Silicon and 3%-4% Iron.

## MICROSTRUCTURE

In the as-welded condition the microstructure consists of a cobalt based austenite with a number of carbides and other complex phases.

## MATERIALS

Used for surfacing mild, low alloy and stainless steels, and also for nickel base alloys. Can also be used for the repair of UNS R30006, Stellite 6 (Deloro Stellite).

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