


|         |                                |  |
|---------|--------------------------------|--|
| 0036910 | <b>DATA SHEET</b>              |  |
|         | <b>ÖLFLEX® SERVO FD 798 CP</b> |  |

## Application


ÖLFLEX® SERVO FD 798 CP cables are high-flexible, screened, oil-resistant, halogen free, signal (encoder and resolver) cables with an outer sheath of Polyurethane. They are designed for use in high-dynamic applications with acceleration up to 50 m/s<sup>2</sup> in power chains as well as for fixed installation. They are also suitable for use in dry, damp or wet areas. They are suitable for outdoor use if the indicated temperature range is observed.

ÖLFLEX® SERVO FD 798 CP cables are increased resistant to oils and at room temperature largely resistant to acids and alkalis. The outer sheath withstands high mechanical stresses, in particular abrasion and dragging. It is also cut proof and resists microbes and hydrolysis. They are especially suitable for increased requirements (Extended Line) in power chains and in permanently moved machine parts. They are suitable for linear, automated movements. The maximum tensile load is 15 N/mm<sup>2</sup> of conductor cross-section during installation and operation. Compulsory guidance is not permitted.

The screening braid protects against interference from electrical fields.


Application range:

Connecting cable between servo controller and encoder/resolver / speed generators, in power chains or moving machine parts, particularly in wet areas of machine tools and transfer lines, assembly lines, production lines, in all kinds of machines.



Use acc. to : Style 20236: External interconnection or internal wiring.

Style 21165: Internal wiring

Style 20549: Internal wiring of electronic equipment and appliances


Use acc. to : Internal or external interconnection with or without mechanical load conditions.

## Design

|                              |   |
|------------------------------|---|
| Design                       | dimension dependent, see table 1<br>acc. to UL AWM Style 20236, UL 758 (UL 30 V)<br>UL AWM Style 21165 (20549), UL 758 (UL 300V)<br>CSA 22.2 No. 210  |
| Certification                | dimension dependent, see table 1<br> : AWM Style 20236 (30 V), UL 758 (File No. E63634)<br>AWM Style 21165 (20549) (300 V), UL 758 (File No. E63634)<br>AWM I/II A/B (File No. E63634): exception Art. Nr. 0036939<br> : Art. Nr. 0036939 |
| Conductor                    | tinned copper stranded  |
| Core insulation              | PP Polypropylen-based compound  |
| Core identification          | coloured, details see below   |
| Wrapping                     | fleece tape wrapping over core stranding  |
| Screen (dimension dependent) | braid of tinned copper wires, coverage = 85% (nominal value)  |
| Outer sheath                 | TPU, Polyurethane-compound TMPU acc. to EN 50363-10-2<br>UL 758, CSA C22.2 No.210<br>colour: green, similar RAL 6018  |

## Electrical properties

|                 |  |
|-----------------|--|
| Nominal voltage | EN: 30 V   |
| Rated voltage   | UL/CSA: dimension dependent, see table 1   |
| Test voltage    | <b>30 V version (UL/CSA):</b><br>core / core: 1500 V rms<br>core / overall screen: 750 V rms |

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**300 V version (UL/CSA):**


core / core: 2000 V rms  
 core / overall screen: 2000 V rms

**Mechanical and thermal properties**

|   |   |
|---|---|
| Min. bending radius                                 | flexing: up from 7.5 x outer diameter<br>fixed installation: 4 x outer diameter   |
| Bending cycles and power chain operation parameters | See Selection Table A2-1 in the appendix of our online catalogue<br>For use in power chains: Please comply with assembly guideline Appendix T3  |
| Temperature range                                   | flexing (EN): -40 °C up to +90 °C max. conductor temp.<br>flexing (UL/CSA): up to +80 °C max. conductor temp.<br>fixed installation (EN): -50 °C up to +90 °C max. conductor temp.<br>fixed installation(UL/CSA): up to +80 °C max. conductor temp.                                     |
| Flammability  | flame retardant acc. to IEC 60332-1-2 resp. EN 60332-1-2<br>UL: dimension dependent, see table 1<br>HFT acc. to UL 1581, Section 1090 or VW-1 acc. to UL 1581, Section 1080<br>CSA: FT1 acc. to CSA C22.2 No. 2556 § 9.3 (exception 0036939)  |
| Halogen-free  | acc. to IEC 60754-1 resp. EN 60754-1  |
| UV-resistance                                       | acc. to EN 50618<br>acc. to EN 50620<br>acc. to EN ISO 4892-2-2006, method A (change of colour allowed)   |
| Ozone resistance                                    | acc. to EN 50396, method B  |
| Oil resistance                                      | acc. to EN 50363-10-2   |
| MUD resistance                                      | acc. to IEC 60092-360, Annex C+D  |
| Transfer impedance at 30 MHz (screened versions)    | max. 250 mΩ/m   |
| Tests   | acc. to IEC 60811 resp. EN 60811, EN 50395, UL 1581, CSA 22.2 No. 210   |
| General requirements                                | These cables are conform to the EU-Directives 2011/65/EU (RoHS, Restriction of the use of certain hazardous substances).<br>As this product is designed for appropriate use in a voltage range of < 50 V AC resp. < 75 V DC, it is not subject to the Low Voltage Directive 2014/35/EU. |
| Environmental information                           | These cables meet the substance-specific requirements of the EU Directive 2011/65/EU (RoHS).  |

**Core-Identification-Code for ÖLFLEX® SERVO FD 798 CP**

|                |   |
|----------------|---|
| <b>0036910</b> | Dimension: <b>(4 x 2 x 0.34 + 4 x 0.5)</b>  |
|                | Pairs: 0.34: BN/BK; RD/OG, YE/GN, BU/VT<br>Cores: 0.5: BU-WH, BK-WH, RD-WH, YE-WH   |
|                | Overall screen: Tinned copper braid, coverage = 85 % (nominal value)  |
| <b>0036911</b> | Dimension: <b>(3 x (2 x 0.14) + 2 x (0.5))</b>  |
|                | Pairs: 0.14: YE/GN, RD/BU, GY/PK<br>Pair shield: Drain wire: Tinned copper wire strands<br>Wrapped with tinned copper wires<br>Covering: Polyolefin |

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Cores: 0.5: WH, BN  
Core shield: Wrapped with tinned copper wires  
Covering: Polyolefin

Overall screen: Tinned copper braid, coverage = 85 % (nominal value)

**0036912** Dimension: **(3 x (2 x 0.14) + 4 x 0.14 + 2 x 0.5)**

Pairs: 0.14: YE/GN, BK/BN, RD/OG  
Pair shield: Drain wire: Tinned copper wire strands  
Wrapped with tinned copper wires

Cores: 4-conductor bundle: 0.14: GY, BU, WH-YE, WH-BK  
Pair: 0.5: BN-RD/BN-BU

Overall screen: Tinned copper braid, coverage = 85 % (nominal value)

**0036913** Dimension: **(3 x (2 x 0.14) + 4 x 0.14 + 2 x 0.5 + 4 x 0.22)**

Pairs: 0.14: YE/GN, BK/BN, RD/OG  
Pair shield: Drain wire: Tinned copper wire strands  
Wrapped with tinned copper wires

Cores: 4-conductor bundle: 0.14: GY, BU, WH-YE, WH-BK  
Pair: 0.5: BN-RD/BN-BU  
Cores: 4-conductor bundle: 0.22: BN-YE, BN-GY, GN-BK, GN-RD

Overall screen: Tinned copper braid, coverage = 85 % (nominal value)

**0036914** Dimension: **(9 x 0.5)**

Cores: BU, WH, RD, PK, GN, YE, BN, BK, GY

Overall screen: Drain wire: Tinned copper wire strands  
Tinned copper braid, coverage = 85 % (nominal value)

**0036915** Dimension: **(4 x 2 x 0.25 + 2 x 1.0)**

Pairs: 0.25: BN/GN, GY/PK, BU/VT, RD/BK  
Cores: 1.0: WH, BN

Overall screen: Drain wire: Tinned copper wire strands  
Tinned copper braid, coverage = 85 % (nominal value)

**0036916** Dimension: **(6 x 2 x 0.25 + 2 x 0.5)**


Pairs: 0.25: WH/BN, GN/YE, GY/PK, BU/RD, BK/VT, GY-PK/RD-BU  
Cores: 0.5: WH, BN

Overall screen: Drain wire: Tinned copper wire strands  
Tinned copper braid, coverage = 85 % (nominal value)

**0036917** Dimension: **(10 x 0.14 + 2 x 0.5)**

Cores: 0.14: WH, BN, GN, YE, GY, PK, BU, RD, BK, VT  
Pair: 0.5: WH/BN

Overall screen: Tinned copper braid, coverage = 85 % (nominal value)

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**0036918** Dimension: **(10 x 0.14 + 4 x 0.5)**

Cores: 0.14: WH, BN, GN, YE, GY, PK, BU, RD, BK, VT  
Cores: 0.5: WH, BN, BU, BK

Overall screen: Tinned copper braid, coverage = 85 % (nominal value)

**0036920** Dimension: **(4 x 2 x 0.14 + 4 x 0.5)**

Pairs: 0.14: RD/BK, BN/GN, YE/VT, GY/PK  
Cores: 0.5: WH, BU, WH-GN, BN-GN

Overall screen: Tinned copper braid, coverage = 85 % (nominal value)

**0036921** Dimension: **(4 x 2 x 0.25)**

Pairs: WH/BN, GN/YE, GY/PK, BU/RD

Overall screen: Tinned copper braid, coverage = 85 % (nominal value)

**0036923** Dimension: **(8 x 2 x 0.18)**

Pairs: WH-YE/WH-GN, WH-RD/WH-OG, WH-BK/WH-BN, GY/WH, BU/VT, YE/GN, RD/OG, BK/BN

Overall screen: Tinned copper braid, coverage = 85 % (nominal value)

**0036924** Dimension: **(4 x 2 x 0.18)**

Pairs: BK/BN, RD/OG, YE/GN, BU/VT

Overall screen: Tinned copper braid, coverage = 85 % (nominal value)

**0036926** Dimension: **(12 x 0.22)**

Cores: BK, BN, RD, OG, YE, GN, BU, VT, GY, WH, WH-BK, WH-BN

Overall screen: Tinned copper braid, coverage = 85 % (nominal value)

**0036927** Dimension: **(4 x 2 x 0.25 + 2 x 0.5)**

Pairs: 0.25: BN/GN, GY/PK, BU/VT, RD/BK  
Cores: 0.5: WH, BN


Overall screen: Drain wire: Tinned copper wire strands  
Tinned copper braid, coverage = 85 % (nominal value)

**0036928** Dimension: **(2 x 2 x 0.14 + 2 x (2 x 0.14) + 4 x 0.5 + (4 x 0.14))**

Pairs: 0.14: BU/RD, GY/PK  
Pairs: 0.14: WH/BN, GN/YE  
Pair shield: Wrapped with tinned copper wires

Cores: 0.5: WH, BN, GN, YE  
Cores: 4-conductor bundle 0.14: WH, BN, GN, YE  
Wrapped with tinned copper wires

Overall screen: Tinned copper braid, coverage = 85 % (nominal value)

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**0036929** Dimension: **(2 x (2 x 0.25) + 2 x 0.5)**

Pairs: 0.25: WH/BN, GN/YE  
 Pair shield: Aluminium-laminated foil, wrapped with tinned copper wires  
 Cores: 0.5: PK, GY  
 Overall screen: Drain wire: Tinned copper wire strands  
 Tinned copper braid, coverage = 85 % (nominal value)

**0036930** Dimension: **(2 x 2 x 0.25 + 2 x 0.5)**

Pairs: 0.25: RD/BK, GY/PK  
 Cores: 0.5: WH, BN  
 Overall screen: Drain wire: Tinned copper wire strands  
 Tinned copper braid, coverage = 85 % (nominal value)

**0036931** Dimension: **(3 x (2 x 0.14) + 2 x (1.0))**

Pairs: 0.14: GN/YE, GY/PK, RD/BU  
 Pair shield: Wrapped with tinned copper wires  
 Covering: Polyolefin  
 Cores: 1.0: WH, BN  
 Core shield: Wrapped with tinned copper wires  
 Covering: Polyolefin  
 Overall screen: Tinned copper braid, coverage = 85 % (nominal value)

**0036932** Dimension: **(4 x 2 x 0.14 + 4 x 0.5 + (4 x 0.14))**

Pairs: 0.14: BU/BK, BN/GN, VT/YE, GY/PK  
 Cores: 0.5: WH, BU, WH-GN, BN-GN  
 Cores: 4-conductor bundle 0.14: YE-BK, RD-BK, GN-BK, BU-BK  
 Shield: Wrapped with tinned copper wires  
 Overall screen: Tinned copper braid, coverage = 85 % (nominal value)

**0036933** Dimension: **(3 x 2 x 0.25 + 2 x 0.5)**


Pairs: 0.25: WH/BN, GN/YE, GY/PK  
 Cores: 0.5: BU, RD  
 Overall screen: Drain wire: Tinned copper wire strands  
 Tinned copper braid, coverage = 85 % (nominal value)

**0036934** Dimension: **(5 x 2 x 0.25 + 2 x 0.5)**

Pairs: 0.25: GN/YE, GY/PK; WH/BN, GY-PK/RD-BU, BK/VT  
 Cores: 0.5: BU, RD  
 Overall screen: Drain wire: Tinned copper wire strands  
 Tinned copper braid, coverage = 85 % (nominal value)

**0036935** Dimension: **(3 x 2 x 24AWG)**

Pairs: WH/BN, GN/YE, GY/PK  
 Overall screen: Tinned copper braid, coverage = 85 % (nominal value)

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**0036936** Dimension: **(5 x 2 x 0.14 + 2 x 0.5)**

Pairs: 0.14: WH/VT, BN/GN, YE/GY, PK/BU, RD/BK  
 Cores: 0.5: WH/RD; WH/GN  
 Overall screen: Tinned copper braid, coverage = 85 % (nominal value)

**0036937** Dimension: **(2 x 2 x 0.18 + 5 x 0.5)**

Pairs: 0.18: WH/BN, BK/VT  
 Cores: 0.5: GN, YE, GY, PK, BU  
 Overall screen: Drain wire: Tinned copper wire strands  
 Tinned copper braid, coverage = 85 % (nominal value)

**0036938** Dimension: **(5 x 2 x 0.18 + 6 x 0.5)**

Pairs: 0.18: BK/OG, BK/GY, WH/YE, WH/GY, WH/BN  
 Cores: 0.5: 3xBK with No. 1-3  
 3xRD with No. 4-6  
 Overall screen: Drain wire: Tinned copper wire strands  
 Tinned copper braid, coverage = 85 %

**0036939** Dimension: **(10 x 2 x 28AWG)**

Pairs: WH/BU, WH/YE, WH/GN, WH/RD, WH/VT, BN/BU, BN/YE, BN/GN, BN/RD, BN/VT  
 Overall screen: Drain wire: Tinned copper wire strands  
 Tinned copper braid, coverage = 85 % (nominal value)

**0036940** Dimension: **(6 x 2 x 0.25)**

Pairs: WH/BN, GN/YE, GY/PK, BU/RD, BK/VT, GY-PK/RD-BU  
 Overall screen: Tinned copper braid, coverage = 85 % (nominal value)

**0036941** Dimension: **3 x (2 x 0.14) + (3 x 0.14)**


Pairs: 0.14: BK/YE, BK/GN, BK/RD  
 Pair shield: Tinned copper braid, coverage = 85 % (nominal value)  
 Cores: 3-conductor bundle 0.14: BK, GY, PK  
 Shield: Tinned copper braid, coverage = 85 % (nominal value)

**0036942** Dimension: **(2 x 2 x 0.18)**

Pairs: RD/OR, BK/BN  
 Overall screen: Tinned copper braid, coverage = 85 % (nominal value)

**0036943** Dimension: **(4 x 1 + 4 x 2 x 0.14 + (4 x 0.14))**

Cores: 1: WH, BU, WH-GN, BN-GN  
 Pairs: 0.14: GY/PK, VT/YE, BN/GN, RD/BK  
 Cores: 4-conductor bundle 0.14: GN-BK, BU-BK, YE-BK, RD-BK  
 Shield: Wrapped with tinned copper wires  
 Overall screen: Tinned copper braid, coverage = 85 % (nominal value)

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**0036944** Dimension: **(3 x (2 x 0.25) + 3 x 0.25 + 2 x 1.0)**

Pairs: 0.25: BN/GN, GY/PK, RD/BK  
Pair shield: Wrapped with tinned copper wires  
Cores: 3-conductor bundle 0.25: YE, BU, VT  
Cores: 1.0: BN, WH  
Overall screen: Tinned copper braid, coverage = 85 % (nominal value)

**0036945** Dimension: **4 x (2 x 0.14) + 2 x (1.0)**

Pairs: 0.14: GN/YE, RD/BU, BK/VT, PK/GY  
Pair shield: Tinned copper braid, coverage = 85 % (nominal value)  
Cores: 1.0: WH, BN  
Core shield: Tinned copper braid, coverage = 85 % (nominal value)

**0036946** Dimension: **3 x (2 x 0.14) + (2 x 0.5)**

Pairs: 0.14: GN/YE, PK/GY, RD/BU  
Pair shield: Tinned copper braid, coverage = 85 % (nominal value)  
Pair: 0.5: WH/BN  
Pair shield: Tinned copper braid, coverage = 85 % (nominal value)

**0036947** Dimension: **(5 x 2 x 0.25)**


Pairs: WH/BN, GN/YE, GY/PK, BU/RD, BK/VT  
Overall screen: Tinned copper braid, coverage = 85 % (nominal value)

**0036948** Dimension: **(5 x 2 x 22AWG)**

Pairs: BK/WH-BK; RD/WH-RD; GN/WH-GN; GR/WH-GR; OR/WH-OR  
Overall screen: Tinned copper braid, coverage = 85 % (nominal value)

**0036949** Dimension: **(3 x (2 x 0.14) + 2 x (0.5))**

Pairs: 0.14: YE/GN, BK/BN, RD/OR  
Pair shield: Drain wire: Tinned copper wire strands  
Wrapped with tinned copper wires  
Covering: Polyolefin  
Cores: 0.5: BK, RD  
Core shield: Wrapped with tinned copper wires  
Covering: Polyolefin  
Overall screen: Tinned copper braid, coverage = 85 % (nominal value)

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**Table 1**

| Art.-No. | Number of cores<br>x<br>Cross section<br>n x [mm <sup>2</sup> ] | AWM<br>Style | UL/CSA<br>Rated<br>voltage | UL/CSA<br>flammability |
|----------|---|--------------|----------------------------|------------------------|
| 0036910  | (4x2x0.34+4x0.5)  | 20236        | 30 V                       | VW-1; FT1              |
| 0036949  | (3x(2x0.14)+2x(0.5))  | 20236        | 30 V                       | VW-1; FT1              |
| 0036912  | (3x(2x0.14)+4x0.14+2x0.5)                                       | 20236        | 30 V                       | VW-1; FT1              |
| 0036913  | (3x(2x0.14)+4x0.14+2x0.5+4x0.22)                                | 20236        | 30 V                       | VW-1; FT1              |
| 0036942  | (2x2x0.18)  | 20236        | 30 V                       | VW-1; FT1              |
| 0036924  | (4x2x0.18)  | 20236        | 30 V                       | VW-1; FT1              |
| 0036923  | (8x2x0.18)  | 20236        | 30 V                       | VW-1; FT1              |
| 0036926  | (12x0.22)   | 20236        | 30 V                       | VW-1; FT1              |
| 0036915  | (4x2x0.25+2x1)  | 20236        | 30 V                       | VW-1; FT1              |
| 0036927  | (4x2x0.25+2x0.5)  | 20236        | 30 V                       | VW-1; FT1              |
| 0036943  | (4x1+4x2x0.14+(4x0.14))   | 21165        | 300 V                      | HFT; FT1               |
| 0036944  | (3x(2x0.25)+3x0.25+2x1)   | 21165        | 300 V                      | HFT; FT1               |
| 0036929  | (2x(2x0.25)+2x0.5)  | 20236        | 30 V                       | VW-1; FT1              |
| 0036930  | (2x2x0.25+2x0.5)  | 20236        | 30 V                       | VW-1; FT1              |
| 0036914  | (9x0.5)   | 20236        | 30 V                       | VW-1; FT1              |
| 0036946  | 3x(2x0.14)+(2x0.5)  | 21165        | 300 V                      | HFT; FT1               |
| 0036941  | 3x(2x0.14)+(3x0.14)   | 21165        | 300 V                      | HFT; FT1               |
| 0036945  | 4x(2x0.14)+2x(1)  | 21165        | 300 V                      | HFT; FT1               |
| 0036916  | (6x2x0.25+2x0.5)  | 20236        | 30 V                       | VW-1; FT1              |
| 0036917  | (10x0.14+2x0.5)   | 20236        | 30 V                       | VW-1; FT1              |
| 0036918  | (10x0.14+4x0.5)   | 20236        | 30 V                       | VW-1; FT1              |
| 0036928  | (2x2x0.14+2x(2x0.14)+4x0.5+(4x0.14))                            | 20236        | 30 V                       | VW-1; FT1              |
| 0036921  | (4x2x0.25)  | 20236        | 30 V                       | VW-1; FT1              |
| 0036947  | (5x2x0.25)  | 21165        | 300 V                      | HFT; FT1               |
| 0036948  | (5x2x22AWG)   | 21165        | 300 V                      | HFT; FT1               |
| 0036940  | (6x2x0.25)  | 21165        | 300 V                      | HFT; FT1               |
| 0036920  | (4x2x0.14+4x0.5)  | 20236        | 30 V                       | VW-1; FT1              |
| 0036911  | (3x(2x0.14)+2x(0.5))  | 20236        | 30 V                       | VW-1; FT1              |
| 0036931  | (3x(2x0.14)+2x(1))  | 21165        | 300 V                      | HFT; FT1               |
| 0036932  | (4x2x0.14+4x0.5+(4x0.14))                                       | 21165        | 300 V                      | HFT; FT1               |
| 0036933  | (3x2x0.25+2x0.5)  | 21165        | 300 V                      | HFT; FT1               |
| 0036934  | (5x2x0.25+2x0.5)  | 21165        | 300 V                      | HFT; FT1               |
| 0036935  | (3x2x24AWG)   | 21165        | 300 V                      | HFT; FT1               |
| 0036936  | (5x2x0.14+2x0.5)  | 21165        | 300 V                      | HFT; FT1               |
| 0036937  | (2x2x0.18+5x0.5)  | 20549        | 300 V                      | HFT; FT1               |
| 0036938  | (5x2x0.18+6x0.5)  | 20549        | 300 V                      | HFT; FT1               |
| 0036939  | (10x2x28AWG)  | 20236        | 30 V                       | VW-1                   |