Verwendung

ÖLFLEX® SERVO 3D 7DSL cables for one cable systems are highly flexible, screened, oil resistant and low capacitive servo motor cables with polyurethane outer sheath for use on European and North American market. All of the motor's feedback signals are transmitted by just one integrated data pair. The additional control pair can be optionally used to connect e.g. the electromagnetic break.
They are designed for use in high-dynamic industrial robotic applications with simultaneous bending and torsional stress with torsion angles up to ±180 ° as well as for static use with medium mechanical load. They are among others designed for use in dry, damp and wet conditions. They are suitable for outdoor use if the indicated temperature range is observed.
They are increased oil resistant and at room temperature widely resistant to acids and alkaline solutions. The outer sheath is resistant to high mechanical load, particularly to abrasion and rubbing, cut resistant, microbe-proof and hydrolysis resistant.
The screening of spiralized tinned copper wires protects against interference from electrical fields, the control and DSL data pair are individually screened.
Application range:
Connecting cable between servo controller and motor for increased requirements in robots or moving machine parts, for use in assembling- & pick-and –place machines, machine tools and transfer lines, for assembly lines or production lines in all kind of machines. The maximum tensile load is 15 N/mm^2 of conductor cross-section during installation and operation.
Compulsory guidance is not permitted.

Use acc. to UL:	PUR sheathed cable for external interconnection of electronic equipment.
Use acc. to cRUus:	PUR sheathed cable for external interconnection of electronic equipment with or mechanical load conditions.

Design

Design	acc. to UL AWM 758, Style 21223, CSA C22.2 No. 210-15 and in compliance to EN 50525-2-51 resp. VDE 0285-525-2-51
Approvals	UL AWM 758, Style 21223 (File No. E63634) cRUus AWM I A/B II A/B (File No. E63634)
Conductor	extra-fine wire strand of tinned copper acc. to IEC 60228 resp. EN 60228, class 6
Core insulation	Power cores and control pair: Polypropylen-based compound DSL data pair: Fluoropolymer-based compound
Core identification	Power cores: black with white marking U/L1/C/L+; V/L2; W/L3/D/L- and GN/YE Control pair: black, white DSL data pair: blue, white
Pair screen	Control pair: Special tape wrapping, Spiralized tinned copper wires, coverage ≥ 90% (nominal value) Special tape wrapping DSL data pair: Special tape wrapping, Spiralized tinned copper wires, coverage ≥ 90% (nominal value) Aluminium metallized textile tape wrapping Inner sheath of special polymer
Stranding	4 power cores stranded together with control pair and data pair as well as filler cords
Screen	Spiralized tinned copper wires, coverage ≥ 90% (nominal value)
Outer sheath	Polyurethane compound TMPU acc. to EN 50363-10-2 UL AWM 758, CSA AWM C22.2 No. 210-15 Colour: black, similar RAL 9005

Electrical properties at 20 °C

Nominal voltage	Power cores and control pair: VDE U_0/U: 600 V/1000 V UL/CSA: 1000 V DSL data pair: VDE U_0/U 300 V/300 V UL/CSA: 600 V
Test voltage	Power cores and control pair: C/C 4000 V AC C/S 2000 V AC DSL data pair: C/C 2000 V AC C/S 1000 V AC

Mechanical, thermal and chemical properties

Temperature range	flexing (VDE):	-40 °C up to +80 °C max. conductor temp.
	flexing (UL/CSA):	up to +80 °C max. conductor temp.
	fixed installation (VDE):	-50 °C up to +80 °C max. conductor temp.
	fixed installation (UL/CSA):	up to +80 °C max. conductor temp.
Min. bending radius	flexing:	up from 10 x cable diameter
	fixed installation:	5 x cable diameter
Torsion load	max. torsion angle:	± 180 °/m
Flammability	acc. to IEC 60332-1-2 resp. VDE 0482-332-1-2 UL &CSA: Vertical flame test VW-1 resp. FT1	
UV resistance	According to EN 50525-1 (VDE 0285-525-1) all cables with black outer sheath are suitable for permanent outdoor use. UV resistant according to ASTM-D-2565-16	
Ozone resistance	acc. to EN 50396 resp. VDE 0473-396, method B	
Oil resistance	acc. to EN 50363-10-2 resp. VDE 0207-363-10-2	
Tests	acc. to EN 60811, EN 50395, EN 50396, UL 1581 and CSA C22.2	
EU Directives	The cable is conform to the EU-Directive 2014/35/EU (Low Voltage Directive)	
Environmental information	The cable meets substance-specific requirements of EU Directive 2011/65/EU (RoHS)	

Dynamic performance in power chains

Max. pulling force	≤ 15 N/mm²
Max. acceleration	30 m/s²
Max. velocity	4 m/s
Max. travel (horizontal)	20 m
Bending cycles and power chain operation parameters	See selection table A2-1 in online catalogue appendix For use in power chains: Please comply with assembly guideline appendix T3