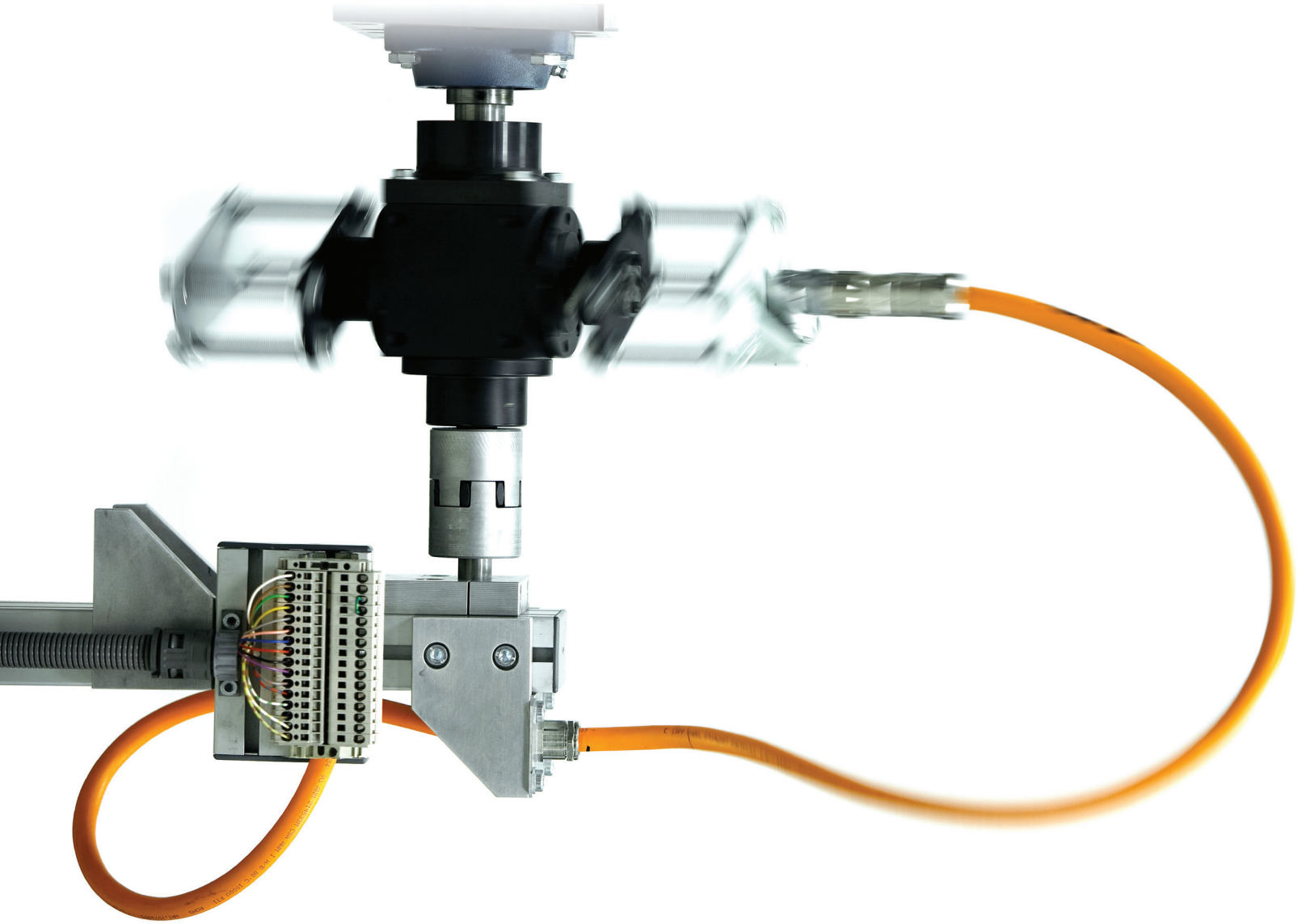
ÖLFLEX® SERVO 7DSL

One Connection Between Drive, Motor & Feedback



LAPP TANNEHILL

hybrid servo cables do more for less

If you design servo systems, you may not pay much attention to the cost of the cabling. But you should. The costs associated with power and signal cables can represent a significant portion of expenditure for a servo system. Fortunately, there's an up-and-coming control architecture that can reduce the lifetime costs of servo cabling by more than 35%.

It is common practice to connect servo motors and controllers with two separate cables: servo cable and encoder/resolver cable. This no longer has to be the case. New digital servo architecture called HIPERFACE DSL® allows hybrid cables to transmit both power and data, combining servo and encoder cables into one solution. A single hybrid servo cable contains a shared signal pair for motor feedback and temperature signals, both of which are modulated for transmission. This streamlined approach to cabling eliminates the need to buy, install, and maintain stand-alone encoder and resolver cables.

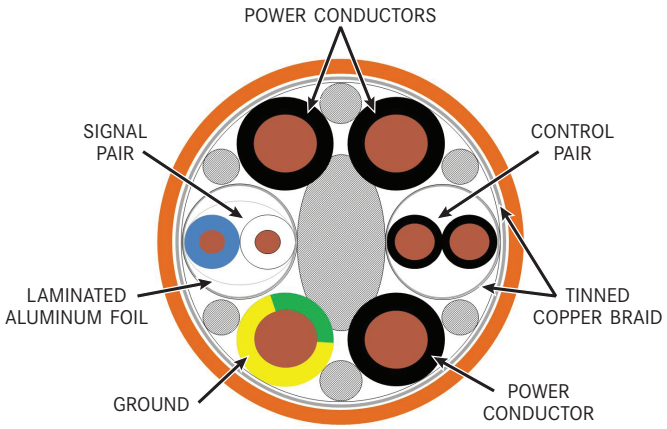
Using only one cable for both power and data results in significant savings; the separate rotary encoder cable – and its relevant connector – can now be omitted. The relative cost structure for a feedback cable and an M23 connector should not be underestimated, particularly for smaller drives. Decreased space requirements in cable track applications is also a great benefit, especially as conventional servo and encoder cables must have a certain minimum distance between each other to avoid electromagnetic interference.

Benefits of this new architecture

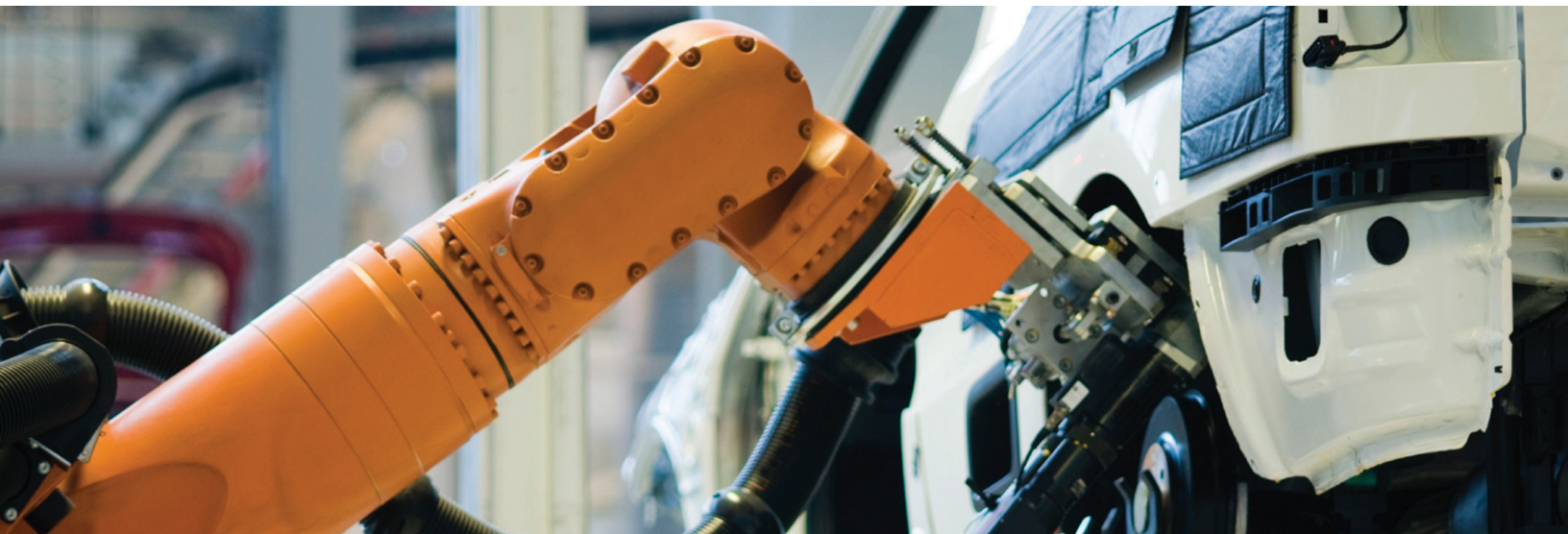
- Only one connection line between drive and motor-feedback system
- Fewer cables, reduced connection costs

Additional ÖLFLEX® SERVO 7DSL benefits

- Low capacitance design due to polypropylene insulation
- UV-resistant (PUR version), flame resistant, and oil resistant
- UL AWM and c(UL) AWM approvals



Hiperface DSL® is a registered trademark of SICK AG.



ÖLFLEX® SERVO 7DSL

Flexible Hybrid Cable: One Connection Between Drive, Motor & Feedback System

ÖLFLEX® SERVO 7DSL is a specially designed hybrid cable suitable for fixed or stationary installations in Hiperface DSL® motor-feedback systems. It is EMC compliant. For continuous flexing installations, ÖLFLEX® SERVO FD 7DSL is the right cable.

Recommended Applications

Power drive systems in automation engineering, connecting cable between servo controller and motor, assemblies, pick & place machinery, machine tools, transfer lines, fixed or stationary applications

Approvals

Construction

Conductors: Finely stranded bare copper; Signal pair: tinned copper

Insulation: Polypropylene

Pairs: Signal pair: shielded with foil tape and tinned copper braid (85% coverage); Control pair: shielded with tinned copper braid (85% coverage)

Shielding: Overall non-woven wrapping; overall tinned copper braid (85% coverage)

Jacket: Specially formulated PVC; orange

Application Advantage

- Only one cable needed for power and feedback circuits
- Available with or without additional control pair
- Low capacitance design
- Suitable for damp, wet, or dry areas
- Oil and flame resistant

Cable Attributes

OR-01	FR-02	FL-01	MP-02
OIL	FLAME	MOTION	MECHANICAL

Info

- **Suitable for Hiperface DSL® motor feedback systems**
- **EMC compliant**

Technical Data

Minimum Bend Radius:	5 x cable diameter	**Test Voltage:**	
		- Power & control:	4000V
Temperature Range:	-40°C to +80°C	- Signal pair:	1000V
Conductor Stranding:	Class 5 fine wire	**Color Code:**	Black with white printing:
- Signal pair:	7 wires	- Power conductors:	U/L1/C/L+
- Control pair (optional):	Class 5 fine wire		V/L2
			W/L3/D/L-
Nominal Voltage:			plus green/yellow ground
- Power & control:		- Signal pair:	White & blue
- UL:	1000V	- Control pair (optional):	Black with white numbers: 5, 6
- IEC U_0/U:	600/1000V		
- Signal pair:	300V (not for power)	**Approvals:** UL:	AWM Style 2570 (80°C, 1000V)
		Canada:	cRU AWM I/II A/B FT1 80°C, 1000V
		Additional:	Based on VDE specifications
			CE & RoHS

Part Number	Size/Number of Conductors	Nominal Outer Diameter (in)	Nominal Outer Diameter (mm)	Copper Weight (lbs/mft)	Approx. Weight (lbs/mft)	SKINTOP® MS-SC PG Thread	SKINTOP® MS-M BRUSH Metric Thread
1023290	16 AWG/4c + (22 AWG/1pr)	0.441	11.2	74	130	53112240	53112676
1023291	14 AWG/4c + (22 AWG/1pr)	0.496	12.6	99	170	53112240	53112676
1023292	12 AWG/4c + (22 AWG/1pr)	0.551	14.0	140	223	53112250	53112676
1023293	16 AWG/4c + (18 AWG/1pr) + (22 AWG/1pr)	0.520	13.2	94	168	53112240	53112676
1023294	14 AWG/4c + (18 AWG/1pr) + (22 AWG/1pr)	0.551	14.0	124	191	53112250	53112676
1023295	12 AWG/4c + (18 AWG/1pr) + (22 AWG/1pr)	0.622	15.8	166	262	53112250	53112677

ÖLFLEX® SERVO FD 7DSL

Continuous Flex Hybrid Cable: One Connection Between Drive, Motor & Feedback System

LAPP KABEL STUTTGART ÖLFLEX® SERVO FD 7DSL

ÖLFLEX® SERVO FD 7DSL is a specially designed continuous flexing hybrid cable suitable for Hiperface DSL® motor-feedback systems. It is EMC compliant. For fixed or stationary applications, ÖLFLEX® SERVO 7DSL is the right cable.

Recommended Applications

Power drive systems in automation engineering, connecting cable between servo controller and motor, assemblies, pick & place machinery, machine tools, transfer lines, cable track applications

Approvals

Construction

Conductors: Super fine stranded bare copper; Signal pair: tinned copper

Insulation: Polypropylene

Pairs: Signal pair: shielded with foil tape and tinned copper braid (85% coverage); Control pair: shielded with tinned copper braid (85% coverage)

Shielding: Overall non-woven wrapping; overall tinned copper braid (85% coverage)

Jacket: Halogen-free polyurethane; orange

Application Advantage

- Only one cable needed for power and feedback circuits
- Available with or without additional control pair
- Low capacitance design
- Suitable for damp, wet, or dry areas
- Oil, UV, and flame resistant

Cable Attributes

OR-05	FR-02	CF-04	MP-05
OIL	FLAME	MOTION	MECHANICAL

Info

- **Suitable for Hiperface DSL® motor feedback systems**
- **EMC compliant**

Technical Data

Minimum Bend Radius:
- for continuous flexing: 7.5 x cable diameter
- for stationary use: 5 x cable diameter

Temperature Range:
- for continuous flexing: -40°C to +80°C
- for stationary use: -50°C to +80°C

Conductor Stranding: Class 6 super fine wire
- Signal pair: 19 wires
- Control pair (optional): Class 6 super fine wire

Nominal Voltage:
- Power & control:
  - UL: 1000V
  - IEC U_0/U: 600/1000V
- Signal pair: 300V (not for power)

Test Voltage:
- Power & control: 4000V
- Signal pair: 1000V

Color Code: Black with white printing:
- Power conductors: U/L1/C/L+, V/L2, W/L3/D/L-, plus green/yellow ground
- Signal pair: White & blue
- Control pair (optional): Black with white numbers: 5, 6

Approvals:
- UL: AWM Style 21223 (80°C, 1000V)
- Canada: cRU AWM I/II A/B FT1 80°C, 1000V
- Additional: Based on VDE specifications, CE & RoHS

Part Number	Size/Number of Conductors	Nominal Outer Diameter (in)	Nominal Outer Diameter (mm)	Copper Weight (lbs/mft)	Approx. Weight (lbs/mft)	SKINTOP® MS-SC PG Thread	SKINTOP® MS-M BRUSH Metric Thread
1023275	16 AWG/4c + (22 AWG/1pr)	0.441	11.2	115	128	53112240	53112676
1023276	14 AWG/4c + (22 AWG/1pr)	0.496	12.6	160	263	53112240	53112676
1023277	12 AWG/4c + (22 AWG/1pr)	0.551	14.0	218	313	53112250	53112676
1023278	16 AWG/4c + (18 AWG/1pr) + (22 AWG/1pr)	0.520	13.2	152	256	53112240	53112676
1023279	14 AWG/4c + (18 AWG/1pr) + (22 AWG/1pr)	0.551	14.0	185	393	53112250	53112676
1023280	12 AWG/4c + (18 AWG/1pr) + (22 AWG/1pr)	0.622	15.8	268	407	53112250	53112677