

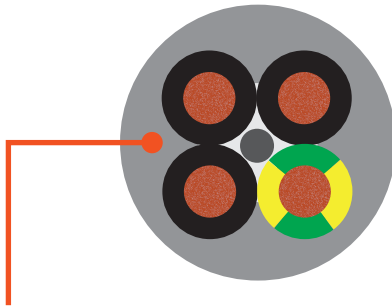
ÖLFLEX® 409 P

Heavy duty control cable with PUR jacket



LAPP GROUP

It's what's inside that counts



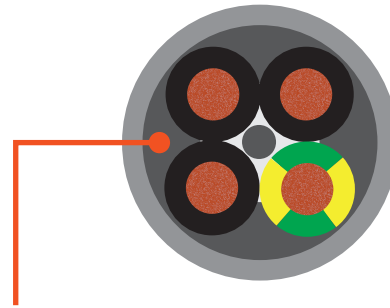
Standard PUR cable Press extruded with filler

In order to produce a cable that is as round and as stable under pressure as possible, the jacket of control cables is mostly 'press' extruded along the bunch of conductors under high pressure. In the process, the gaps – known as interstices – are filled with jacketing material.

If the jacket is made of highly robust, cut- and notch-resistant polyurethane, the filled interstices can make stripping more difficult. The tear-resistant filler should remain intact when cutting the jacket. This means that the blade setting of the processing equipment must be aligned with even greater precision in order to cut as deep as possible yet without damaging the conductors.

It is not uncommon for the conductor insulation to be damaged by blades with a setting that is too deep. On the other hand, a cutting depth that is not too shallow presents the risk that the jacket can only be removed under very high tensile forces and in an uncontrolled manner, or that the blades will slip off during the removal process and only scrape along the surface of the jacket instead of cutting.

As a result, this often causes increased machine downtime, more manual processing time, and material waste.



ÖLFLEX® 409 P Press extruded with functional layer

The unique design of ÖLFLEX® 409 P control cable utilizes jacket co-extrusion technology. The abrasion-resistant and notch-resistant polyurethane outer jacket is fully connected to the functional interstice filler layer made of special PVC.

The improved mechanical tear characteristics of the new filler can counteract problems that typically occur during cable processing. The cut depth can be reduced in order to protect the conductor insulation. The functional layer's improved tear characteristics prevent the cable jacket from fraying when it is torn off in an uncontrolled manner. This delivers significant improvements for mechanical and manual stripping.

The processing benefits in detail

The innovative functional layer of the new ÖLFLEX® 409 P provides a range of benefits, particularly in the context of mechanical processing:

- Improved stripping characteristics
- Reduced damage to conductor insulation
- Less subsequent manual processing
- Reduced material waste
- Saves time and costs

ÖLFLEX® 409 P

Oil and Abrasion-Resistant Control Cable with PUR Jacket & UL/CSA AWM

LAPP KABEL STUTTGART ÖLFLEX® 409 P

ÖLFLEX® 409 P is a flexible control cable with a rugged, highly abrasion-resistant polyurethane jacket. It is UV-resistant and performs very well in mineral oils, cutting oils, and areas with high mechanical abuse. The innovative functional layer allows for easier stripping of the cable jacket compared to other PUR cables.

Recommended Applications

Machine tool equipment; handheld controls; any areas where the cable can be cut and damaged by sharp objects

Approvals



Lapp Cable Attributes			
OIL	OR-05	FLAME	FR-02
MOTION	FL-01	MECH.	MP-05

Complete the Installation	
SKINTOP® Strain Relief	EPIC® Connectors

Technical Data

Minimum Bend Radius: - for installation: 4 x cable diameter - for flexible use: 12.5 x cable diameter	Test Voltage: 4000V
Temperature Range: - for stationary use: -40°C to +80°C - for flexible use: -5°C to +80°C	Conductor Stranding: Class 5 fine wire
Nominal Voltage: - UL/CSA: 1000V - U ₀ /U: 300/500V	Color Code: Black with white numbers, plus green/yellow ground
	Approvals: UL: AWM 20234 Attributes: VW-1 NFPA 79 Canada: cRU AWM I/II AB FT1 Additional: CE & RoHS

Part Number	Number of Conductors (incl. ground)	Nominal Outer Diameter (in) (mm)	Copper Weight (lbs/mft)	Approx. Weight (lbs/mft)	SKINTOP® Non-Metallic PG Thread	Part Number	Number of Conductors (incl. ground)	Nominal Outer Diameter (in) (mm)	Copper Weight (lbs/mft)	Approx. Weight (lbs/mft)	SKINTOP® Non-Metallic PG Thread
19 AWG (0.75 mm²)						16 AWG (1.5 mm²)					
1311852*	2	0.272 6.9	10	41	S2111	1311305	5	0.374 9.5	48	101	S2111
1311103	3	0.283 7.2	15	48	S2111	1311307	7	0.402 10.2	68	126	S2113
1311104	4	0.303 7.7	19	56	S2111	1311312	12	0.512 13.0	116	211	S2116
1311105	5	0.327 8.3	24	67	S2111	1311318	18	0.591 15.0	174	296	S2121
1311107	7	0.35 8.9	34	82	S2111	1311325	25	0.677 17.2	242	401	S2121
1311110	10	0.425 10.8	48	121	S2113	14 AWG (2.5 mm²)					
1311112	12	0.437 11.1	58	133	S2113	1311403	3	0.374 9.5	48	101	S2111
1311118	18	0.504 12.8	87	185	S2116	1311404	4	0.402 10.2	65	124	S2113
1311125	25	0.571 14.5	121	245	S2121	1311405	5	0.437 11.1	81	151	S2113
18 AWG (1.00 mm²)						1311407	7	0.472 12.0	113	190	S2116
1311902*	2	0.283 7.2	13	46	S2111	1311412	12	0.61 15.5	194	323	S2121
1311203	3	0.295 7.5	19	54	S2111	12 AWG (4 mm²)					
1311204	4	0.315 8.0	26	65	S2111	1311504	4	0.465 11.8	103	179	S2116
1311205	5	0.343 8.7	32	79	S2111	1311505	5	0.508 12.9	129	218	S2116
1311207	7	0.366 9.3	45	95	S2111	10 AWG (6 mm²)					
1311210	10	0.449 11.4	65	142	S2113	1311604	4	0.516 13.1	155	241	S2116
1311212	12	0.461 11.7	77	157	S2116	1311605	5	0.563 14.3	194	294	S2121
1311218	18	0.531 13.5	116	220	S2121	8 AWG (10 mm²)					
1311225	25	0.606 15.4	161	294	S2121	1311704	4	0.65 16.5	258	393	S2121
16 AWG (1.5 mm²)						1311705	5	0.717 18.2	323	485	S2129
1311952*	2	0.307 7.8	19	58	S2111	6 AWG (16 mm²)					
1311303	3	0.323 8.2	29	70	S2111	1311804	4	0.752 19.1	413	579	S2129
1311304	4	0.346 8.8	39	85	S2111	1311805	5	0.87 22.1	516	744	S2129

* 2c cable does not include ground

Versatile and tough

Mechanically robust

Polyurethane is an ideal material for use in harsh indoor or outdoor processing. It provides a high level of resistance to notches, cuts, and abrasion caused by machine parts, sharp edges, or other abrasive surfaces. Specially selected cable jacket compounds made of high-resistance polyurethane ensure cables' robustness and durability in such harsh industrial conditions. Certain products like ÖLFLEX® 590 P and 590 CP feature safety-enhancing yellow jackets, making them easier to identify in low-light environments.



Chemical resistant

Polyurethane jackets offer very good chemical resistance, especially when in contact with mineral oil-based lubricants or other chemicals. Therefore, the entire range of polyurethane ÖLFLEX® and UNITRONIC® cables is perfectly suited to applications in particularly oily areas of industrial machinery, machine tools, production lines, and CNC processing centers.

Wide application range

Polyurethane is suitable for a wide range of applications thanks to its flexibility at temperatures as low as -40°C, good resistance to microbes and hydrolysis, and even UV and ozone resistance in accordance to international standards.

- Device and apparatus construction
- Industrial machines and machine tools, cooling technology
- Assembly and production lines
- Measuring technology, control and electrical engineering
- Dry, damp, or wet interiors
- Outdoor use within operating temperature range
- Oily and wet areas within industrial machinery
- Stationary installations or applications with occasional flexing



Polyurethane products for when things get tough

ÖLFLEX® Power & Control Cable

ÖLFLEX® 409 P

Oil and abrasion-resistant control cable; UL/CSA AWM

ÖLFLEX® 490 P / 490 CP

Highly abrasion-resistant control cable; UL/CSA AWM

ÖLFLEX® 590 P / 590 CP

Heavy duty, LSLH, indoor/outdoor flexible cable

ÖLFLEX® CHAIN 896 P

High-acceleration continuous flex power & control cable

ÖLFLEX® FD 855 P / 855 CP

Halogen-free continuous flex control cable

ÖLFLEX® SERVO FD 796 CP

High-acceleration continuous flex servo cable

ÖLFLEX® SERVO FD 798 CP

High-acceleration continuous flex encoder & resolver cable

ÖLFLEX® SERVO FD 7DSL

Continuous flex hybrid cable: one connection between drive, motor & feedback system

ETHERLINE® Industrial Ethernet Cable

ETHERLINE® CAT.5/5e & CAT.6A/7

Industrial Ethernet cables for stationary, flexible, or continuous flex applications



UNITRONIC® Data Communication Cable

UNITRONIC® BUS DeviceNet™ FD, Violet

For DeviceNet bus systems; continuous flex applications; 120 Ω

UNITRONIC® BUS PB FD

For PROFIBUS-DP/FMS/FIP bus systems; continuous flex applications; 150 Ω

UNITRONIC® BUS CAN FD

For CAN bus systems; continuous flex applications; 120 Ω

UNITRONIC® BUS LD FD P

For RS485/RS422 bus systems; continuous flex applications; 100–120 Ω

UNITRONIC® BUS ASi FD

For actuator sensor interface (ASi) bus systems; continuous flex applications; 140 Ω

UNITRONIC® BUS INTERBUS FD

For INTERBUS bus systems (IBS); continuous flex applications; 100 Ω

UNITRONIC® BUS Genius™

Genius I/O twinaxial bus cable; continuous flex applications; 100 Ω

UNITRONIC® BUS CC-Link FD

For CC-Link bus systems; continuous flex applications; 110 Ω

UNITRONIC® SENSOR FD

Multi-conductor continuous flex communication cable; 300V

UNITRONIC® FD P plus

Multi-conductor shielded continuous flex industrial communication cable; 250V

UNITRONIC® FD CP P plus

Multi-conductor unshielded continuous flex industrial communication cable; 250V

UNITRONIC® FD CP (TP) plus

Multi-pair shielded continuous flex industrial communication cable; 250V



ÖLFLEX®

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SKINTOP®

ETHERLINE®

HITRONIC®

SILVYN®

FLEXIMARK®

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