

## ÖLFLEX® SERVO 9YSLCY-B

DB 0037000

valid from: 13.01.2014

**Application**

ÖLFLEX® SERVO 9YSLCY-B are flexible motor supply cables having special EMC-performance due to double shield, with low capacitance design and PVC sheath. The cables feature UL-AWM approval for USA and Canada.

Construction 9YSLCY has a special concentric conductor array design, where protective conductor is split into 3 individual cores with reduced overall cross-section. This design avoids that from all cable-relevant parts high frequency discharge currents can pass lubrication film of motor bearings. This effect may damage motor bearings, especially if switching frequency of the frequency converter is very high and/ or long cable lengths are required. This design also improves EMC noise situation of the whole drive system. Contrary to usage of PVC insulated cables, PP insulated cables show significant reduction of useless reactive power always needed for charging and discharging the cable during operating of the frequency converter. The cables are designed for use in dry, damp and wet conditions.

Construction 9YSLCY Black is UV-resistant and suitable for outdoor use inclusive direct burial. Approval terms of USA or Canada don't include outdoor use. At room temperature they are widely resistant to acids, alkali-resistant and resistant to certain oils. They are suitable for free, non-continuously recurring movements without tensile load or compulsory guidance and also for fixed installation. Furthermore the cables are flame retardant and self-extinguishing.

Application range:

Connecting cable between frequency converter and three-phase motors, with small and large sizes, in the range of paper industry, chemical industry, heavy industry.

**Design**

Approval	UL AWM Style 2570 (File No. E63634) cRU AWM I A/ B, II A/ B (File No. E63634)
Conductor	fine wire strands of bare copper, acc. to IEC 60228 resp. VDE 0295, Class 5
Core insulation	Polypropylen (PP) Type 9Y, low capacity acc. to DIN EN 50290-2-25, 90°C (VDE 0819-105) and UL AWM Style 10492, 80°C, 1000V.
Core identification	coloured acc. to HD 308 S2 resp. VDE 0293-308
Stranding	9YSLCY: 4 conductors twisted together in one layer  9YSLCY BK: 3+3 cores twisted concentrically, protective conductor divided into three, positioned in the gusset
Wrapping	insulating foil
Screening	double screening with aluminium-laminated foil (metal-side outwards) and braid of tinned copper wires, coverage = 85 % (nominal value)
Outer sheath	9YSLCY: transparent PVC sheath, 80°C, TM2 acc. to EN 50363-4-1 bzw. VDE 0207-363-4-1 flame retardant and self-extinguishing acc. to IEC 60332-1-2 bzw. VDE 0482-332-1-2  9YSLCY BK: black PVC sheath, 90°C, TM 3 acc. to EN 50363-4-1 bzw. VDE 0207-363-4-1 flame retardant and self-extinguishing acc. to IEC 60332-1-2 bzw. VDE 0482-332-1-2, UV-resistant, cold flexible, outdoor and direct burial use

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**Electrical properties at 20 °C**

Rated voltage $U_0/ U$	IEC UL/ CSA	600 / 1000 V 1000 V
Test voltage	core/ core, core/ screen	4000 V AC
Specific insulation resistance		> 20 G $\Omega$ x cm
Surface transfer impedance	at 30 MHz	$\leq$ 250 $\Omega$ / km

**Mechanical and thermal properties**

Min. bending radius	occasional flexing: fixed installaion:	15 x cable diameter 4 x cable diameter
Temperature range	Part No. 0037000 up to 0037014 ÖLFLEX SERVO 9YSLCY-JB, TRANSPARENT	
occasional flexing:	IEC/ VDE UL/ CSA	-5 °C up to +80 °C max. conductor temp. -5 °C up to +80 °C max. conductor temp.
fixed installaion:	IEC/ VDE UL/ CSA	-40 °C up to +80 °C max. conductor temp. -40 °C up to +80 °C max. conductor temp.
Temperature range	Part No. 0036998, 0037015 up to 0037028 ÖLFLEX SERVO 9YSLCY-JB, BLACK	
occasional flexing:	IEC/ VDE UL/ CSA	-5 °C up to +90 °C max. conductor temp. -5 °C up to +80 °C max. conductor temp.
fixed installaion:	IEC/ VDE UL/ CSA	-40 °C up to +90 °C max. conductor temp. -40 °C up to +80 °C max. conductor temp.
Flammability	flame retardant in acc. with IEC 60332-1-2 resp. VDE 0482-332-1-2 UL: Vertical flame test VW-1 CSA: FT1	
Tests	acc. to IEC 60811 resp. VDE 0473, VDE 0472, EN 50395, EN 50396	
EC Directives	These cables are conform to the EC-Directives 2006/ 95/ EC (Low Voltage Directive) and 2011/ 65/ EU (RoHS, Restriction of the use of certain hazardous substances).	

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<b>USA &amp; Canada</b>		<b>IEC</b>	
U 1000 V		U0/ U 0,6/ 1kV	
TRANSPARENT	80°C	TRANSPARENT	80°C
BLACK	80°C	BLACK	90°C

ÖLFLEX® SERVO 9YSLCY-B

UL AWM Approvals for USA & Canada

Table technical data

U. I. Lapp part number	Products short name	No of cores & conductor cross section	Conductor cross section meets minimum	Cond. Spec. No of wires (nominal) x wire diameter (max. value)	Core-identification-code HD 308 S2 / VDE 0293-308	Feature PVC jacket	EMC Copper braid wire diameter (max)	Copper braid: Nominal cross section (min)	Outer diameter (nominal)	(IEC) Ampacity per line conductor at +30 °C	Inductance per conductor	Capacitance Cond/ Cond			Transfer Impedance		
												ca. mH/ km	ca. µF/ km	ca. µF/ km	at 1 MHz Ohm/ km max.	at 10 MHz Ohm/ km max.	at 30 MHz Ohm/ km max.
		mm²	AWG/ kcmil	x mm			mm	mm²	mm	A							
<b>ÖLFLEX SERVO 9YSLCY 4 Conductor design: Transparent</b>																	
0037000	9YSLCY-B	4G1.5	16AWG	29x0.25	GNYE, BN, BK, GY	TM2 transparent	0.2	2.5	10.5	18	0.37	0.07	0.11	18	90	230	
0037001	9YSLCY-B	4G2.5	14AWG	50x0.25	GNYE, BN, BK, GY	TM2 transparent	0.2	4	11.8	26	0.34	0.08	0.13	11	80	210	
0037002	9YSLCY-B	4G4	12AWG	54x0.3	GNYE, BN, BK, GY	TM2 transparent	0.2	4	13.3	34	0.34	0.09	0.15	6	50	210	
0037003	9YSLCY-B	4G6	10AWG	82x0.3	GNYE, BN, BK, GY	TM2 transparent	0.2	6	14.9	44	0.32	0.12	0.15	7	60	150	
0037004	9YSLCY-B	4G10	8AWG	78x0.4	GNYE, BN, BK, GY	TM2 transparent	0.25	6	17.7	61	0.30	0.14	0.2	9	80	180	
0037005	9YSLCY-B	4G16	6AWG	126x0.4	GNYE, BN, BK, GY	TM2 transparent	0.25	6	21.5	82	0.29	0.12	0.23	4	32	190	
0037006	9YSLCY-B	4G25	4AWG	196x0.4	GNYE, BN, BK, GY	TM2 transparent	0.25	16	26.3	108	0.28	0.15	0.21	3	26	95	
0037007	9YSLCY-B	4G35	2AWG	276x0.4	GNYE, BN, BK, GY	TM2 transparent	0.3	16	29.7	135	0.27	0.19	0.26	2	13	85	
0037008	9YSLCY-B	4G50	1AWG	396x0.4	GNYE, BN, BK, GY	TM2 transparent	0.3	16	34.1	168	0.27	0.19	0.32	2	18	40	
0037009	9YSLCY-B	4G70	2/ 0AWG	532x0.4	GNYE, BN, BK, GY	TM2 transparent	0.3	16	40.9	207	0.26	0.25	0.32	2	18	45	
0037010	9YSLCY-B	4G95	3/ 0AWG	722x0.4	GNYE, BN, BK, GY	TM2 transparent	0.3	25	45.4	250	0.26	0.26	0.41	2	18	45	
0037011	9YSLCY-B	4G120	4/ 0AWG	931x0.4	GNYE, BN, BK, GY	TM2 transparent	0.3	25	49.8	292	0.26	0.11	0.18	2	18	45	
0037012	9YSLCY-B	4G150	250kcmil	1160x0.4	GNYE, BN, BK, GY	TM2 transparent	0.4	35	56.1	335	0.26	0.11	0.18	2	18	45	
0037013	9YSLCY-B	4G185	350kcmil	1420x0.4	GNYE, BN, BK, GY	TM2 transparent	0.4	35	61.4	382	0.26	0.11	0.18	2	18	45	
0037014	9YSLCY-B	4G240	450kcmil	1924x0.4	GNYE, BN, BK, GY	TM2 transparent	0.4	35	67.9	453	0.25	0.11	0.18	2	18	45	
<b>ÖLFLEX SERVO 9YSLCY BK 3+3 Conductor design: Symmetrical. Black</b>																	
0037015	9YSLCY-B BK	3X1.5+3G0.25	16AWG/ 24AWG	29x0.25	3xGNGE, BN, BK, GY	TM3 black	0.2	2.5	11.1	18	0.37	0.07	0.11	18	90	230	
0037016	9YSLCY-B BK	3X2.5+3G0.5	14AWG/ 21AWG	50x0.25	3xGNGE, BN, BK, GY	TM3 black	0.2	4	12.9	26	0.34	0.08	0.13	11	80	210	
0037017	9YSLCY-B BK	3X4+3G0.75	12AWG/ 19AWG	54x0.3	3xGNGE, BN, BK, GY	TM3 black	0.2	4	13.6	34	0.34	0.09	0.15	6	50	210	
0037018	9YSLCY-B BK	3X6+3G1.0	10AWG/ 18AWG	82x0.3	3xGNGE, BN, BK, GY	TM3 black	0.2	6	15.2	44	0.32	0.09	0.15	7	60	150	
0037019	9YSLCY-B BK	3X10+3G1.5	8AWG/ 16AWG	78x0.4	3xGNGE, BN, BK, GY	TM3 black	0.25	6	17.4	61	0.30	0.12	0.2	9	80	180	
0037020	9YSLCY-B BK	3X16+3G2.5	6AWG/ 14AWG	126x0.4	3xGNGE, BN, BK, GY	TM3 black	0.25	6	20.0	82	0.29	0.14	0.23	4	32	190	
0037021	9YSLCY-B BK	3X25+3G4	4AWG/ 12AWG	196x0.4	3xGNGE, BN, BK, GY	TM3 black	0.25	16	24.3	108	0.28	0.12	0.21	3	26	95	
0037022	9YSLCY-B BK	3X35+3G6	2AWG/ 10AWG	276x0.4	3xGNGE, BN, BK, GY	TM3 black	0.3	16	27.5	135	0.27	0.15	0.26	2	13	85	
0037023	9YSLCY-B BK	3X50+3G10	1AWG/ 8AWG	396x0.4	3xGNGE, BN, BK, GY	TM3 black	0.3	16	31.1	168	0.27	0.19	0.32	2	18	40	
0037024	9YSLCY-B BK	3X70+3G10	2/ 0AWG/ 8AWG	532x0.4	3xGNGE, BN, BK, GY	TM3 black	0.3	16	37.1	207	0.26	0.19	0.32	2	18	45	
0037025	9YSLCY-B BK	3X95+3G16	3/ 0AWG/ 6AWG	722x0.4	3xGNGE, BN, BK, GY	TM3 black	0.3	25	40.0	250	0.26	0.25	0.41	2	18	45	
0037026	9YSLCY-B BK	3X120+3G16	4/ 0AWG/ 6AWG	931x0.4	3xGNGE, BN, BK, GY	TM3 black	0.3	25	42.6	292	0.26	0.11	0.18	2	18	45	
0037027	9YSLCY-B BK	3X150+3G25	250kcmil/ 4AWG	1160x0.4	3xGNGE, BN, BK, GY	TM3 black	0.4	35	50.0	335	0.26	0.11	0.18	2	18	45	
0037028	9YSLCY-B BK	3X185+3G35	350kcmil/ AWG2	1420x0.4	3xGNGE, BN, BK, GY	TM3 black	0.4	35	55.6	382	0.26	0.11	0.18	2	18	45	
0036998	9YSLCY-B BK	3X240+3G50	450kcmil/ AWG1	1924x0.4	3xGNGE, BN, BK, GY	TM3 schwarz	0.4	35	59.0	453	0.25	0.11	0.18	2	18	45	