HELUKABEL® VFD Cable

Variable-frequency drives (VFDs) control the speed and torque of AC motors by varying the frequency of the voltage to the motor; however, the VFD does not send a pure sine-wave frequency to the motor. They more accurately use a series of pulses which varies in frequency in a technique called pulse-width modulation (PWM). While PWM is an excellent way to control a motor, it creates several issues that can affect the motor's life and power quality, as well as create Electromagnetic Interference (EMI) and reduce the life of the cable. By using a cable designed for use with VFDs, it is possible to limit the effect of high frequencies on the surrounding equipment and possibly prevent costly machine downtime. AutomationDirect is pleased to introduce our new line of Variable-frequency drive (VFD) cable manufactured by Helukabel.

Helukabel's TOPFLEX® 600 VFD cable is a Flexible, extremely oil-resistant, thermoset-insulated motor supply cable. The double-shielding with special aluminum foil and tinned copper braid provides effective protection against electrical disturbances. XLPE insulation makes it compliant with the requirements of NFPA 79 Chapter 4. The PVC jacket is extremely resistant to oil, coolants, and solvents, making it the perfect solution for most industrial applications. The TC-ER rating allows for installation in cable trays and from cable trays to the machine saving money on installation cost. TOPFLEX® can also be used in conduit and is direct-burial approved.

Features

- Special Cross-linked Polyethylene (XLPE) conductor insulation
- Class K, flexible stranded tinned copper conductors according to AWG standards
- Green ground conductor with yellow stripe, cross-linked Polyethylene (XLPE) insulation
- Special aluminum foil shield
- 85% coverage tinned copper braid shield
- Separator
- Black special PVC outer jacket
- Self-extinguishing and flame retardant according to CSA FT4
- UV-resistant
- Direct-burial rated
- Resistant to cleaning and disinfecting agents according to ECOLAB
- Minimum cut lengths as low as 10 feet
- Cut to length in 1 foot increments
- Made in USA

Please Note: Our prices on VFD Cable are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

Click on the above thumbnail or go to https://www.automationdirect.com/VID-WD-0016 for a short introduction on our cut to length cable

TOPFLEX® 600 VFD 4-Conductor Cable Specifications

Conductors Gauge & Stranding	tinned copper 4 conductors (includes ground)	***Approvals****	UL: TC-ER (1277), WTTC (2277), ITC-ER & PLTC-ER (18-12 AWG), 44 (14-2 AWG), NFPA 79 Ch, 4, Class I Div. 2 per NEC Art. 501, NEC Art. 336 & 392, Oil Res I/II, 90°C Dry/Wet, -40°C Cold Bend CSA: C22.2 No. 230 & 239 - c(UL) CIC-TC FT4 C22.2 No. 210 - AWM I/II A/B FT4
Voltage Rating	600V (Type TC), 1000V (Type WTTC, Flexible Motor Supply Cable)		
Outer Jacket Material	PVC		
Outer Jacket Color	black with white numbers and green/ yellow ground		
Temperature Ratings	UL/CSA TC -40°C to +90°C flexing +5°C to +50°C static -40°C to +105°C	***Sample Print Legend***	HELUKABEL® TOPFLEX® VFD P/N XXXXX XX AWG (X.XXmm2)/4C (UL) TC-ER 90C DRY/WET 600V SUN RES DIR BUR OIL RES I/II E330430 OR WTTC OR FLEXIBLE MOTOR SUPPLY CABLE 1000V OR ITC-ER** OR PLTC-ER** OR c(UL) CIC-TC XLPE FT4 --- 257839 CSA AWM I/II A/B 90C 1000V FT4 --- CE
Conductor Insulation	XLPE		

** To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com*

*** ITC-ER and PLTC-ER ratings only appear on 18-12 AWG SKUs*

HELUKABEL® VFD Cable

TOPFLEX® 600 VFD 4-Conductor Cable Selection

Part Number	Number of Conductors (includes ground)	AWG	Strand	Insulaton Thickness (millimeters)	Jacket Thickness (millimeters)	Nominal OD (inches)	Min. Bend Radius (inches)	Approximate Weight (lb/ft)	Price per foot
									
H63137-1	4 conductors (includes ground)	14 AWG	41-stranded	0.045	0.053	0.579	5	0.160	$3.51
H63140-1		16 AWG	26-stranded		0.070	0.492	5.8	0.220	$2.61
H63141-1		12 AWG	65-stranded			0.618	6.2	0.280	$4.44
H63142-1		10 AWG	105-stranded			0.697	6.95	0.360	$6.31
H63143-1		8 AWG	168-stranded	0.090	0.090	0.906	9.05	0.570	$10.18
H63144-1		6 AWG	266-stranded			0.972	9.71	0.760	$17.62
H63145-1		4 AWG	420-stranded			1.090	10.92	1.020	$24.98
H63146-1		2 AWG	665-stranded			1.252	12.5	1.420	$40.66

** See web store for maximum cut lengths*

TOPFLEX® 600 VFD 4-Conductor Cable Specifications Continued

Part Number	Nom. Capacitance Conductor to Shield (pF/ft.)	Nom. Capacitance Conductor to Conductor (pF/ft.)	Nom. Conductor DC Resistance @ 20ºC (Ohm/1000 ft.)	Nominal Outer Shield DC Resistance @ 20ºC (Ohm/1000 ft.)	Impedance (ohms)
H63137-1	35.7	21	2.930	2.01	77
H63140-1	30.4	16.95	4.580	3.30	90
H63141-1	40.3	23	1.880	1.86	68
H63142-1	47.1	27	1.140	1.58	59
H63143-1	46.8	28	0.700	1.41	56
H63144-1	53.7	29	0.457	0.80	54
H63145-1	57.9	32	0.233	0.10	46
H63146-1	66	38	0.183	1.05	41

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