

Alpha Wire Company

Alpha Wire

INDUSTRIAL SERIES



When It Comes To
Variable Frequency
Drive (VFD)
Cables..

..Round Is
Definitely Better



Manufactured in the U.S.A.

SERIES **V**

**SERIES V Enhanced Design Variable
Frequency Drive (VFD) Cables**



1-800-52 ALPHA
www.alphawire.com

When It Comes to Superior Performance, Round Is Definitely Better.

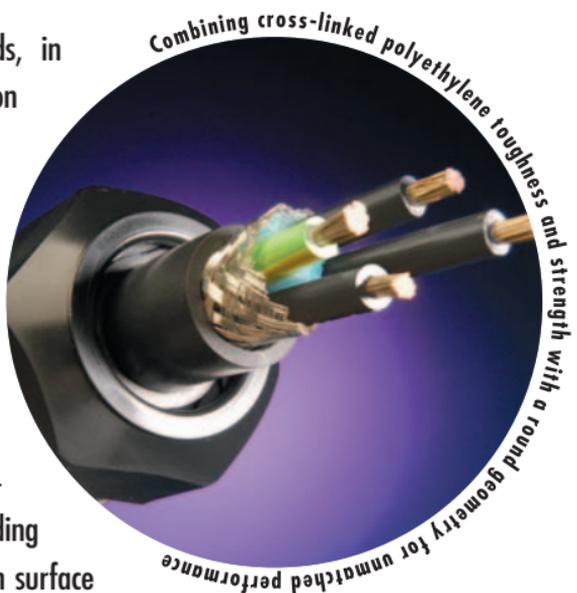
Alpha Wire INDUSTRIAL SERIES - SERIES V VFD Cables deliver superior performance and extended service life for today's sophisticated VFD drive systems.

The key to unmatched performance is better materials and better design... a round, symmetrical geometry that improves cable mechanical and electrical characteristics, making installation easier, secure and air/water tight.

In addition, the cable's round geometry ensures a symmetrical profile and a corresponding roundness to the foil/braid shield to promote a low capacitance profile, which allows for increased length cable runs. And while typical convoluted cables are difficult to seal, Alpha's new **SERIES V** Cables fit easily into grommets offering superior cable-to-electrical junction/control box sealing. The result is a tighter installation that is protected from dirt, dust, oil, water and pollutants, and contributes to meeting IP 67 and NEMA 6 installation standards requirements.

And talk about tough... **Alpha Wire INDUSTRIAL SERIES - SERIES V** Enhanced Design Variable Frequency Drive (VFD) Cables deliver optimum performance and durability in the most challenging manufacturing environments. **SERIES V** Cables incorporate several critical design features that help safeguard motors and system components, these include a thermoset cross-linked polyethylene (XLPE) insulation to help prevent meltdown in the event of corona discharge or voltage spikes.

Round, tightly-fitted shields, in concert with large insulation walls, aid in providing Alpha Wire's **SERIES V** VFD Cables with a low capacitance profile that translates into greater run lengths. In addition, Alpha Wire's **SERIES V** Cables are built with a state-of-the-art foil/braid shielding system to ensure maximum surface transfer impedance.



Alpha Wire INDUSTRIAL SERIES

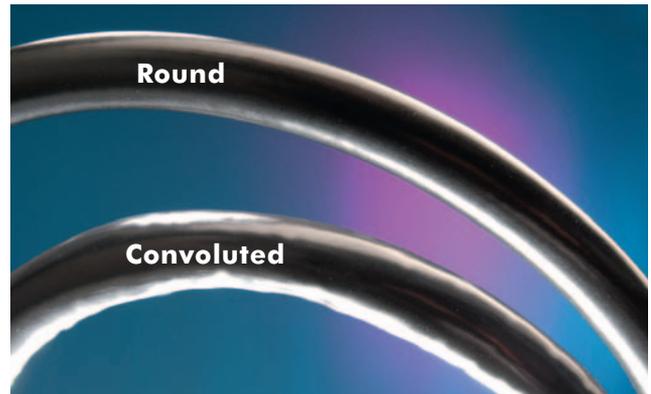
Alpha Wire INDUSTRIAL SERIES - SERIES V Enhanced Design Variable Frequency Drive (VFD) Cables virtually eliminate premature cable failure and maximize system up-time.

Alpha Wire INDUSTRIAL SERIES - SERIES V Enhanced Design VFD Cables are easy to install, esthetically pleasing, and built to combat the continuous dielectric stresses that cause other cables to fail.

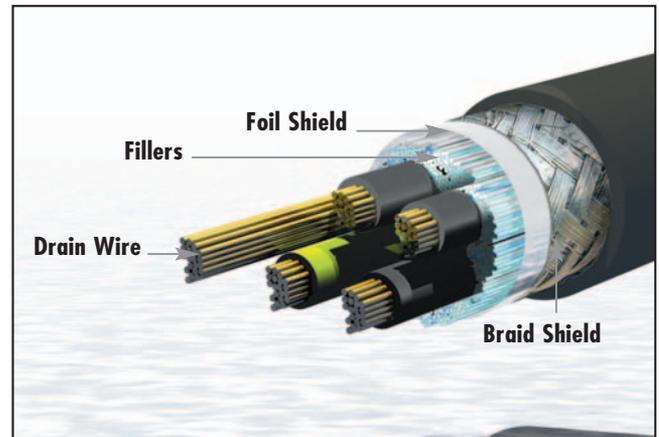
Specially formulated cross-linked polyethylene (XLPE) insulated conductors improve performance - delivering consistent pulsed width modulation (PWM) and excellent low capacitance properties that insure system performance. Ultimately, **SERIES V** Cables will not degrade under heavy electrical load and easily cope with voltage irregularities such as, harmonics, corona discharges, and power distortion.

Plus, Alpha Wire's **SERIES V** unique shielding system helps contain device-to-device EMI by preventing extraneous noise currents from polluting either the external environment in immediate proximity or other control circuits in common trays or conduits.

Cables should not be the weak link in the system. Alpha Wire **INDUSTRIAL SERIES - SERIES V Enhanced Design VFD Cables** are engineered to withstand the unique rigors of VFD environments. With **SERIES V** Cables motors last longer, connections are sealed, and components are protected. System up-time is maximized so users realize the full cost savings of variable speed drives.



The **SERIES V** round, symmetrical design offers cable attributes that typical convoluted cables do not.



Alpha Wire
INDUSTRIAL SERIES

SERIES V

Jacket:
Oil Resistant PVC, Specially Formulated

Conductors:
Finely Stranded Tinned Copper with XLPE Insulation

Foil Shield:

Fillers:

Shield:
Aluminum/Polyester/Aluminum with 85% TC Braid

This diagram shows a cross-section of the cable with labels pointing to various layers: 'Conductors' (finely stranded tinned copper with XLPE insulation), 'Foil Shield', 'Fillers', and 'Shield' (aluminum/polyester/aluminum with 85% TC braid). The outermost layer is the 'Jacket' (oil resistant PVC, specially formulated).



**Enhanced Design
High Performance
Small Diameter Variable
Frequency Drive (VFD) Cable**

**UL TYPE TC-ER 600 VOLT
DIRECT BURIAL, SUNLIGHT RESISTANT
UL 1000 VOLT FLEXIBLE MOTOR SUPPLY CABLE
UL TYPE XHHW-2, RHW-2 (2-14 AWG)
CSA AWM I/II A/B FT-4
CE-LVD, 73/68/EEC AMEND. 93/68/EEC**

CHOOSE SERIES V ENHANCED DESIGN SMALL DIAMETER VARIABLE FREQUENCY DRIVE CABLES FOR:

- Interconnection of Variable Frequency Drive Systems and Motors For Extended Duty Cycle Performance Requirements
- Low Capacitance for Improved Signal Transmission
- Elimination of Downtime from Cable Failure
- Oil Resistance
- Improved Cable Life
- Longer Cable Runs

SERIES V ENHANCED DESIGN SMALL DIAMETER VARIABLE FREQUENCY DRIVE CABLE APPLICATIONS:

- UL Exposed Run (-ER) Compliant to NEC Section 725.61 (D) (4) and NEC Section 336.10 (7)
- Multi-Axis Control Systems
- Automotive Assembly Equipment
- Factory Equipment Interconnects
- Robotics
- Machine Tools
- Stationary Track/Tray
- Conveyor Systems
- Control Panels

AVAILABILITY

- Bulk, Cut to Length

FIT® TUBING RECOMMENDATION

FIT®-221 – General Purpose Irradiated Polyolefin

FIT®-321V – Low Shrink Temp., Flame Retardant, Irradiated Polyolefin

CHARACTERISTICS

OPERATING TEMPERATURE:

- -25°C to 90°C (UL: Wet or Dry)

VOLTAGE RATING:

- UL Listed Type TC 600 Volt
- UL 1000 Volt Flexible Motor Supply Cable

COLOR DESCRIPTION:

- Color Code: Conductors 1, 2, and 3: Black Insulation with Alpha Numeric Printing (Example: 1 - One) Conductor 4: Green/Yellow for Ground (IEC Standard)
- Brake Pair Color Code: Black and White without Numeric Print
- Jacket Color: Black

PRODUCT DESCRIPTION:

- Conductor: Stranded Tinned Copper
- Insulation: XLPE (Cross-Linked Polyethylene)
- Drain Wire: Stranded Tinned Copper
- Shield: Aluminum/Polyester/Aluminum, Drain Wires, Plus Overall Tinned Copper Braid 85%. Four Symmetrical Drain Wires on 8, 6, 4 and 2 AWG Cable
- Jacket: Specially-Formulated, Oil Resistant PVC

SPECIFICATIONS

- UL Standard 1277, Type TC-ER, 90°C, 600 Volt
- CE-LVD: 73/68/EEC Amend. 93/68/EEC
- UL Exposed Run (-ER)
- UL Sunlight Resistant
- UL 1581 Vertical Tray
- UL FT-4 Vertical Tray
- UL Direct Burial
- UL Type XHHW-2, RHW-2 (2-14 AWG Only)
- UL 1000 Volt Flexible Motor Supply Cable
- CSA AWM I/II A/B XHHW-2 RHW-2 Singles



SERIES V – VARIABLE FREQUENCY DRIVE CABLE WITHOUT BRAKE PAIR

Alpha Part No.	No. of Cond.	Conductor		Drain Wire Equiv. AWG Size [Physical Drains - AWG - (Strand)]	Nominal Diameter		Capacitance (Est.)		Continuous Current Per Conductor, Max. @30C (NEC)	Bend Radius	
		AWG	Strand		Inches	mm	Conductor To Conductor, pF/Ft	Conductor To Shield, pF/Ft		Inches	mm
V16016	4	16	26/30	16 [1-16 (26/30)]	0.535	13,6	21	38	12	4.3	34
V16014	4	14	41/30	14 [1-14 (41/30)]	0.575	14,6	23	42	25	4.6	37
V16012	4	12	65/30	12 [1-12 (65/30)]	0.627	15,9	26	47	30	5.0	40
V16010	4	10	105/30	10 [1-10 (105/30)]	0.728	18,5	29	53	40	5.8	47
V16008	4	8	7x19/29	8 [4 No. 14 (41/30)]	0.920	23,4	30	54	55	7.4	59
V16006	4	6	7x19/27	6 [4 No. 12 (65/30)]	1.017	25,8	33	60	75	8.1	65
V16004	4	4	7x19/25	4 [4 No. 10 (105/30)]	1.157	29,4	37	67	95	9.3	74
V16002	4	2	7x19/23	2 [4 No. 8 (133/30)]	1.317	33,5	40	72	130	10.5	84

SERIES V – VARIABLE FREQUENCY DRIVE CABLE WITH BRAKE PAIR

Alpha Part No.	No. of Cond.	No. of Pairs	Conductor		Brake Pair		Drain Wire Equiv. AWG Size [Physical Drains - AWG - (Strand)]	Nominal Diameter		Capacitance (Est.)		Continuous Current Per Conductor, Max. @30C (NEC)	Bend Radius	
			AWG	Strand	AWG	Strand		Inches	mm	Conductor To Conductor, pF/Ft	Conductor To Shield, pF/Ft		Inches	mm
V16116	4	1	16	26/30	14	7/22	16 [1-16 (26/30)]	0.710	18,0	21	38	8	5.7	45
V16114	4	1	14	41/30	14	7/22	14 [1-14 (41/30)]	0.740	18,8	23	42	20	5.9	47
V16112	4	1	12	65/30	14	7/22	12 [1-12 (65/30)]	0.780	19,8	26	47	30	6.2	50
V16110	4	1	10	105/30	14	7/22	10 [1-10 (105/30)]	0.880	22,4	29	53	40	7.0	56
V16108	4	1	8	7x19/29	14	7/22	8 [4 No. 14 (41/30)]	1.030	26,2	30	54	55	8.2	66



The **Alpha Wire INDUSTRIAL** SERIES - **SERIES V** Enhanced Design Variable Frequency Drive (VFD) Cables are acceptable for use with Allen-Bradley® ArmorStart Distributed Motor Controller Series with integrated variable frequency AC drives manufactured by Rockwell Automation. For more information on Allen-Bradley® drives, visit www.rockwellautomation.com.



Alpha Wire INDUSTRIAL SERIES - **SERIES V** Enhanced Design Variable Frequency Drive (VFD) Cables are also suitable for use with drives manufactured by the following companies:

- AA Electric
- ABB
- Baldor
- Cutler-Hammer
- Fivestar Electric Motors
- General Electric
- Hitachi
- Magnetek
- Mitsubishi Electric Automation
- Motion Industries
- Quality Drive Systems
- Robicon
- Square D
- Toshiba
- TB Woods

UL EXPOSED RUN (-ER) COMPLIANT

SERIES



SERIES V Enhanced Design High Performance Small Diameter Variable Frequency Drive (VFD) Cables for long

service life performance in Variable Frequency Drive Motor applications requiring resistance to voltage spikes caused by reflected waves, harmonic distortion and voltage irregularities which could result in a potential corona discharge and ultimately conductor insulation breakdown. **SERIES V Enhanced Design VFD** cables are designed to provide Drive System reliability to reduce or eliminate downtime. Specially formulated XLPE (Cross-Linked Polyethylene) insulated conductors provide excellent low capacitance and thermoset properties that ensure excellent system performance. **SERIES V** is UL Listed Type TC-ER (600 Volt), UL 1000 Volt Flexible Motor Supply Cable and Exposed Run (-ER) compliant for use in and outside of cable carrying trays without the use of conduit or expensive metal clad cables, Direct Burial, Sunlight Resistant, CSA AWM I/II A/B 90°C XHHW-2, FT-4 and CE compliant.



Alpha Wire
INDUSTRIAL SERIES

XTRA•GUARD®
High Performance Electronic Cables

FIT®
Preferred Heat Shrink Products



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