

XTRA•GUARD® Flexible Cables

PERMANENT SOLUTIONS FOR CRITICAL FLEXING APPLICATIONS

Manufactured In The U.S.A. 

Choose **XTRA•GUARD® Flexible Cables** to deliver high speed dependability along with the flexibility needed in cases of difficult and/or complex cable positioning. **XTRA•GUARD® Flexible Cables** feature unsurpassed flame and moisture resistance, outstanding oil and chemical resistance, premium grade PVC and Polyurethane jackets. **XTRA•GUARD® Flexible Cables** are UL Recognized or Listed, CSA certified, tested to MIL-C-13777G for flex life and are **CE** marked. Product performance is verified with certified test reports. Call or visit our web site at www.alphawire.com for up-to-date cable test information.



COMMON FLEXING APPLICATIONS

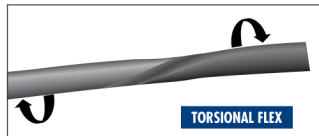
There are four common types of cable flexing movements to consider when designing and applying a high-flex cable. They are rolling flex, bending flex or "tic-toc", torsional flex and variable/random motion flex (see illustrations at right).

Different cable construction methods and materials are used depending on the cable flexing movement. For example: torsional cables will have a different lay length and cabling method than a rolling flex cable. Cable performance is evaluated using physical test data and statistical analysis to produce flex life and overall system reliability.

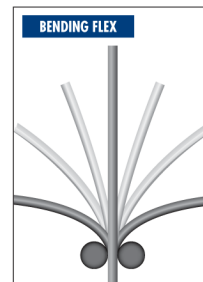
An understanding of the cables' application will allow the designer to choose the correct cable and reliably predict the products' lifetime and performance.



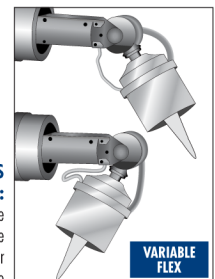
For ROLLING FLEX APPLICATIONS SPECIFY AND CHOOSE:
XTRA•GUARD® High-Flex Control Cable
XTRA•GUARD® High-Flex Mini Diameter Data Cable



For TORSIONAL FLEX APPLICATIONS SPECIFY AND CHOOSE:
XTRA•GUARD® High-Flex Torsion Robotic Cable



For BENDING FLEX APPLICATIONS SPECIFY AND CHOOSE:
XTRA•GUARD® Standard-Flex Control Cable
XTRA•GUARD® High-Flex Control Cable
XTRA•GUARD® High-Flex Mini Diameter Data Cable



For VARIABLE FLEX APPLICATIONS SPECIFY AND CHOOSE:
XTRA•GUARD® Standard-Flex Control Cable
XTRA•GUARD® High-Flex Control Cable
XTRA•GUARD® High-Flex Mini Diameter Data Cable

APPLICATIONS

- Applications Requiring Increased Flexibility
- Machine Tools
- CNC Machine Centers
- Data Processing Equipment
- Automation Equipment
- Material Handling Equipment
- Applications Requiring Continuous Flexing
- Robotics
- Installation in Cable Track
- Assembly Lines
- Industrial Electronic Processing Equipment
- DataComm Connections
- Connecting Sensors & Actuators to Controllers
- Sensor & I/O Interconnects
- Automation Networking
- PLC, Microprocessor & Computer Interconnects
- Twisting & Random Robotic Flexing Applications
- Power Supply to Welding, Painting & Articulating Robots

UL AWM STYLE 2661
 CSA AWM II A/B FT4
 UL TYPE CM, CSA TYPE CMG
 RoHS COMPLIANT
 300 VOLT

XTRA·GUARD® Flexible Cables

HIGH-FLEX MINI DIAMETER DATA CABLE
 CONTINUOUS FLEXING, OIL RESISTANT, MULTIPAIR, SHIELDED

CHOOSE XTRA·GUARD HIGH-FLEX MINI DIAMETER MULTIPAIR DATA CABLES FOR:

- Extreme Flexibility in Small Spaces
- Continual Flexing in Cable Tracks
- High Speed Digital Data Transmission
- UL Listed, UL Recognized, CSA Certified and CE Marked
- Outstanding EMI Protection
- Superior Oil Resistance

XTRA·GUARD HIGH-FLEX MINI DIAMETER MULTIPAIR DATA CABLE APPLICATIONS:

- Industrial Electronic Processing Equipment
- DataComm Connections
- Automation Networking
- PLC, Microprocessor and Computer Interconnects
- Connecting Sensors and Actuators to Controllers

CHARACTERISTICS

OPERATING TEMPERATURE:

- 5°C to 105°C (Flexing)
- -10°C to 105°C (Stationary)

VOLTAGE RATING:

- 300 Volt

COLOR DESCRIPTION:

- Color Code: See Chart A Page 374
- Jacket Color: Gray

PRODUCT DESCRIPTION:

- Conductor: Super Finely Stranded Tinned Copper
- Insulation: Lubricated Semi-Rigid PVC
- Drain Wire: 26 AWG, 7/34 Stranded Tinned Copper
- Shielding: Foil and 85% Tinned Copper Braid
- Jacket: Oil Resistant PVC

SPECIFICATIONS

- Bend Radius: 15X Cable Diameter, Min.
- UL Type CM
- UL AWM 2661
- CSA AWM II A/B FT4
- CSA Type CMG
- VDE 0472, Section 803 Oil Test (Jacket)
- CE LVD-CD 73/23/EEC Modified by CD 93/68/EEC
- RoHS Compliant



AVAILABILITY

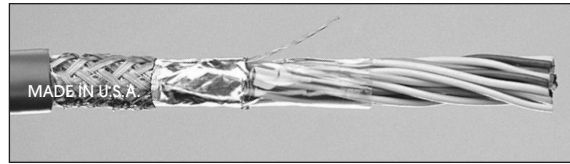
- In Stock: Bulk, Cut to Length

FIT® TUBING RECOMMENDATION

FIT FLEX – Highly Flexible, Irradiated Silicone Rubber (See Page 134 for Product Specifications)

FIT®-650 – Chemical and Temperature Resistant Irradiated Viton® (See Page 132 for Product Specifications)

Viton® is a registered trademark of DuPont Dow Elastomers



28 AWG (0,09mm²), **7/36** (7/0,13mm), Insulation Thickness: **0.010"** (0,25mm)

Alpha Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
86401CY	1	0.040	1,0	0.185	4,70
86402CY	2	0.040	1,0	0.230	5,84
86403CY	3	0.040	1,0	0.240	6,10
86404CY	4	0.040	1,0	0.254	6,45
86405CY	5	0.040	1,0	0.271	6,88
86406CY	6	0.040	1,0	0.296	7,52
86408CY	8	0.040	1,0	0.331	8,41
86410CY	10	0.040	1,0	0.381	9,68
86414CY	14	0.040	1,0	0.410	10,41

26 AWG (0,14mm²), **7/34** (7/0,16mm), Insulation Thickness: **0.010"** (0,25mm)

Alpha Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
86501CY	1	0.040	1,0	0.192	4,88
86502CY	2	0.040	1,0	0.242	6,15
86503CY	3	0.040	1,0	0.252	6,40
86504CY	4	0.040	1,0	0.268	6,81
86505CY	5	0.040	1,0	0.287	7,29
86506CY	6	0.040	1,0	0.312	7,92
86508CY	8	0.040	1,0	0.347	8,81
86510CY	10	0.040	1,0	0.397	10,08
86514CY	14	0.045	1,1	0.442	11,23

24 AWG (0,23mm²), **10/34** (10/0,16mm), Insulation Thickness: **0.010"** (0,25mm)

Alpha Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
86601CY	1	0.040	1,0	0.202	5,13
86602CY	2	0.040	1,0	0.258	6,55
86603CY	3	0.040	1,0	0.270	6,86
86604CY	4	0.040	1,0	0.288	7,32
86605CY	5	0.040	1,0	0.308	7,82
86606CY	6	0.040	1,0	0.338	8,59
86608CY	8	0.040	1,0	0.373	9,47
86610CY	10	0.045	1,1	0.439	11,15
86614CY	14	0.053	1,3	0.469	11,91

22 AWG (0,38mm²), **19/34** (19/0,16mm), Insulation Thickness: **0.010"** (0,25mm)

Alpha Part No.	No. of Pairs	Jacket Thickness		Nominal Diameter	
		Inches	mm	Inches	mm
86701CY	1	0.040	1,0	0.214	5,44
86702CY	2	0.040	1,0	0.278	7,06
86703CY	3	0.040	1,0	0.291	7,39
86704CY	4	0.040	1,0	0.312	7,92
86705CY	5	0.040	1,0	0.335	8,51
86706CY	6	0.040	1,0	0.368	9,35
86708CY	8	0.045	1,1	0.423	10,74
86710CY	10	0.053	1,3	0.499	12,67
86714CY	14	0.053	1,3	0.513	13,03

95



TECHNICAL DATA

COLOR CODE CHARTS

MULTIPAIR CABLES

374

CHART A

Pair No.	Color Combination	Pair No.	Color Combination	Pair No.	Color Combination	Pair No.	Color Combination
1	Black paired with Red	14	Green paired with Blue	27	Brown paired with Yellow	40	Slate paired with Blue
2	Black paired with White	15	Green paired with White	28	Purple paired with Red	41	Slate paired with Brown
3	Black paired with Green	16	Green paired with Brown	29	Purple paired with White	42	Slate paired with Yellow
4	Black paired with Blue	17	Green paired with Orange	30	Purple paired with Green	43	Slate paired with Orange
5	Black paired with Brown	18	Green paired with Yellow	31	Purple paired with Blue	44	Slate paired with Black
6	Black paired with Yellow	19	White paired with Blue	32	Purple paired with Brown	45	White/Black paired with Red
7	Black paired with Orange	20	White paired with Brown	33	Purple paired with Yellow	46	White/Black paired with Green
8	Red paired with Green	21	White paired with Orange	34	Purple paired with Orange	47	White/Black paired with Blue
9	Red paired with White	22	White paired with Yellow	35	Purple paired with Slate	48	White/Black paired with Brown
10	Red paired with Blue	23	Blue paired with Brown	36	Purple paired with Black	49	White/Black paired with Yellow
11	Red paired with Yellow	24	Blue paired with Orange	37	Slate paired with Red	50	White/Black paired with Orange
12	Red paired with Brown	25	Blue paired with Yellow	38	Slate paired with White	51	White/Black paired with Purple
13	Red paired with Orange	26	Brown paired with Orange	39	Slate paired with Green		

CHART B

Pair No.	Color Combination	Pair No.	Color Combination	Pair No.	Color Combination	Pair No.	Color Combination
1	White paired with Black	27	Red paired with Green	53	White/Black paired with Violet	78	White/Orange paired with Green
2	White paired with Brown	28	Red paired with Blue	54	White/Black paired with Gray	79	White/Orange paired with Blue
3	White paired with Red	29	Red paired with Violet	55	White/Brown paired with Black	80	White/Orange paired with Violet
4	White paired with Orange	30	Red paired with Gray	56	White/Brown paired with Brown	81	White/Orange paired with Gray
5	White paired with Yellow	31	Orange paired with Yellow	57	White/Brown paired with Red	82	White/Yellow paired with Black
6	White paired with Green	32	Orange paired with Orange	58	White/Brown paired with Orange	83	White/Yellow paired with Brown
7	White paired with Blue	33	Orange paired with Blue	59	White/Brown paired with Yellow	84	White/Yellow paired with Red
8	White paired with Violet	34	Orange paired with Violet	60	White/Brown paired with Green	85	White/Yellow paired with Orange
9	White paired with Gray	35	Orange paired with Gray	61	White/Brown paired with Blue	86	White/Yellow paired with Yellow
10	Black paired with Brown	36	Yellow paired with Green	62	White/Brown paired with Violet	87	White/Yellow paired with Green
11	Black paired with Red	37	Yellow paired with Blue	63	White/Brown paired with Gray	88	White/Yellow paired with Blue
12	Black paired with Orange	38	Yellow paired with Violet	64	White/Red paired with Black	89	White/Yellow paired with Violet
13	Black paired with Yellow	39	Yellow paired with Gray	65	White/Red paired with Brown	90	White/Yellow paired with Gray
14	Black paired with Green	40	Green paired with Blue	66	White/Red paired with Red	91	White/Green paired with Black
15	Black paired with Blue	41	Green paired with Violet	67	White/Red paired with Orange	92	White/Green paired with Brown
16	Black paired with Violet	42	Green paired with Gray	68	White/Red paired with Yellow	93	White/Green paired with Red
17	Black paired with Gray	43	Blue paired with Violet	69	White/Red paired with Green	94	White/Green paired with Orange
18	Brown paired with Red	44	Blue paired with Gray	70	White/Red paired with Blue	95	White/Green paired with Yellow
19	Brown paired with Orange	45	Violet paired with Gray	71	White/Red paired with Violet	96	White/Green paired with Violet
20	Brown paired with Yellow	46	White/Black paired with Black	72	White/Red paired with Gray	97	White/Green paired with Blue
21	Brown paired with Green	47	White/Black paired with Brown	73	White/Orange paired with Black	98	White/Green paired with Violet
22	Brown paired with Blue	48	White/Black paired with Red	74	White/Orange paired with Brown	99	White/Green paired with Gray
23	Brown paired with Violet	49	White/Black paired with Orange	75	White/Orange paired with Red	100	White/Blue paired with Black
24	Brown paired with Gray	50	White/Black paired with Yellow	76	White/Orange paired with Orange	101	White/Blue paired with Brown
25	Red paired with Orange	51	White/Black paired with Green	77	White/Orange paired with Yellow	102	White/Blue paired with Red
26	Red paired with Yellow	52	White/Black paired with Blue				

CHART C

Pair No.	Color Combination	Pair No.	Color Combination	Pair No.	Color Combination	Pair No.	Color Combination
1	Blue paired with White	14	Orange/Slate paired with White	27	Blue/Orange paired with Red	40	Slate/White paired with Red
2	Orange paired with White	15	Green/White paired with White	28	Blue/Green paired with Red	41	Blue paired with Black
3	Green paired with White	16	Green/Brown paired with White	29	Blue/Brown paired with Red	42	Orange paired with Black
4	Brown paired with White	17	Green/Slate paired with White	30	Blue/Slate paired with Red	43	Green paired with Black
5	Slate paired with White	18	Brown/White paired with White	31	Orange/White paired with Red	44	Brown paired with Black
6	Blue/White paired with White	19	Brown/Slate paired with White	32	Orange/Green paired with Red	45	Slate paired with Black
7	Blue/Orange paired with White	20	Slate/White paired with White	33	Orange/Brown paired with Red	46	Blue/White paired with Black
8	Blue/Green paired with White	21	Blue paired with Red	34	Orange/Slate paired with Red	47	Blue/Orange paired with Black
9	Blue/Brown paired with White	22	Blue paired with Red	35	Green/White paired with Red	48	Blue/Green paired with Black
10	Blue/Slate paired with White	23	Green paired with Red	36	Green/Brown paired with Red	49	Blue/Brown paired with Black
11	Orange/White paired with White	24	Brown paired with Red	37	Green/Slate paired with Red	50	Blue/Slate paired with Black
12	Orange/Green paired with White	25	Slate paired with Red	38	Brown/White paired with Red	51	Orange/White paired with Black
13	Orange/Brown paired with White	26	Blue/White paired with Red	39	Brown/Slate paired with Red		