



CALMONT



WIRE AND CABLE

Instrumentation
Wire and Cable

Instrumentation





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Calmont manufactures a variety of instrumentation cables used for a wide spectrum of industries. These constructions are as varied as the industries they serve. The major types of instrumentation cables Calmont manufactures are:

Robotic Cables

Robotic Cables applications pose an increasing challenge for Calmont. The increased functionality of today's robotic equipment require the use of smaller conductors in order to fit more conductors in the same space. At the same time, high technology manufacturing cannot tolerate downtime. Cables are expected to function for the lifetime of the equipment. The flexibility and long life requirements typically call for the use of high strand high strength alloy conductors and thin walled Teflon wires for size reduction. Silicone or chemical resistant polyurethane is commonly used for jacketing. Cable constructions may be used with or without cable track and may be flat or round constructions.

APPLICATIONS

- ▲ Robotic
- ▲ Sensor
- ▲ Test and Measurement
- ▲ Low Noise

FEATURES

- ▲ High Flexural Fatigue Life
- ▲ Chemical Resistant
- ▲ High Tensile Strength

FluoroFlex FEP/Silicone Robotic Cables

PART NUMBER See How to Order Page for Information	AWG Size	Strands No./Size	Uninsulated Conductor Diameter	Insulated Conductor Diameter	Diameter Over Shield (Nominal)	Overall Diameter (Nominal)	Weight (lbs./M Ft.)
TWO CONDUCTOR							
3006-029-24-2-C-CCC-S	24	41/40	.023	.031	.073	.103	8.0
3006-029-26-2-C-CCC-S	26	66/44	.019	.024	.059	.079	5.2
3006-029-28-2-C-CCC-S	28	41/44	.015	.020	.052	.072	4.1
FOUR CONDUCTOR							
3006-029-24-4-C-CCC-S	24	41/40	.023	.031	.088	.112	12.2
3006-029-26-4-C-CCC-S	26	66/44	.019	.024	.072	.096	8.6
3006-029-28-4-C-CCC-S	28	41/44	.015	.020	.062	.082	6.2
SIX CONDUCTOR							
3006-029-24-6-C-CCC-S	24	41/40	.023	.031	.107	.137	17.5
3006-029-26-6-C-CCC-S	26	66/44	.019	.024	.086	.110	11.6
3006-029-28-6-C-CCC-S	28	41/44	.015	.020	.074	.098	8.6

Please see Calmont High Flex Product Section for complete specifications and additional sizes.
Please contact Calmont for information about integrating pneumatic and hydraulic tubing into your custom design.



Instrumentation Wire and Cable

FluoroFlex FEP/Polyurethane Robotic Cables

PART NUMBER See How to Order Page for Information	AWG Size	Strands No./Size	Uninsulated Conductor Diameter	Insulated Conductor Diameter	Diameter Over Shield (Nominal)	Overall Diameter (Nominal)	Weight (lbs./M Ft.)
THREE CONDUCTOR							
3006-052-26-3-C-CCC-S	26	66/44	.019	.024	.065	.089	6.9
3006-052-28-3-C-CCC-S	28	41/44	.015	.020	.057	.081	5.3
3006-052-29-3-C-CCC-S	29	51/46	.014	.019	.055	.075	4.6
3006-052-30-3-C-CCC-S	30	41/46	.012	.017	.050	.070	4.0
FOUR CONDUCTOR							
3006-052-26-4-C-CCC-S	26	66/44	.019	.024	.072	.096	8.6
3006-052-28-4-C-CCC-S	28	41/44	.015	.020	.062	.082	6.2
3006-052-29-4-C-CCC-S	29	51/46	.014	.019	.060	.080	5.6
3006-052-30-4-C-CCC-S	30	41/46	.012	.017	.055	.075	4.9
SIX CONDUCTOR							
3006-052-26-6-C-CCC-S	26	66/44	.019	.024	.086	.110	11.6
3006-052-28-6-C-CCC-S	28	41/44	.015	.020	.074	.098	8.6
3006-052-29-6-C-CCC-S	29	51/46	.014	.019	.071	.091	7.3
3006-052-30-6-C-CCC-S	30	41/46	.012	.017	.065	.085	6.4

Please see Calmont High Flex Product Section for complete specifications and additional sizes. Please contact Calmont for information about integrating pneumatic and hydraulic tubing into your custom design.

SiliFlex Ribbon Cable

SiliFlex Ribbon cable is used where saving space, and possibly eliminating the need for cable track is a consideration. With the ability to mix component conductor sizes and conductor configurations, this cable offers the ultimate in design flexibility. Choose from shielded or unshielded singles, conductor pairs, triads or overall shields.

SiliFlex Ribbon Cable Robotic Cables

PART NUMBER	Number of Conductors Strand	Conductor Size Dimensions	Conductor Stranding	Overall	
				Thick	Width
SRC-4-28-C-BC	4	28	41/44	0.038	0.152
SRC-6-28-C-BC	6	28	41/44	0.038	0.228
SRC-4-26-C-BC	4	26	66/44	0.042	0.168
SRC-6-26-C-BC	6	26	66/44	0.042	0.252
SRC-4-24-C-BC	4	24	41/40	0.047	0.188
SRC-6-24-C-BC	6	24	41/44	0.047	0.282

Please see Calmont High Flex product section for complete sizes and specifications.

Instrumentation Wire and Cable

Sensor Cables

Sensor wires and cables use the widest range of materials of all the products manufactured by Calmont, insulation material other than standard insulations are required because of their unique operating environment. At Calmont, we often say, "if it can be melt processed, we probably have used it to insulate a cable." Unusual materials such as Valox, Ultem, Siltem, Cellulose Acetate, Delrin, and Lexan have been utilized to meet demanding customer requirements. These include applications such as vacuum chamber environments, zero halogen requirements, low water absorption requirements and requirements for extreme rigidity. More traditional materials such as PVC and Polyurethane are quite often used as well.

SuperFlex PVC/PVC Sensor Cables

PART NUMBER See How to Order Page for Information	AWG Size	Strands No./Size	Uninsulated Conductor Diameter	Insulated Conductor Diameter	Diameter Over Shield (Nominal)	Overall Diameter (Nominal)	Weight (lbs./M FT.)
THREE CONDUCTOR							
3006-023-26-3-C-CCC-S	26	66/44	.019	.042	.104	.128	12.1
3006-023-28-3-C-CCC-S	28	41/44	.015	.038	.096	.119	10.0
3006-023-29-3-C-CCC-S	29	51/46	.014	.030	.078	.100	7.7
3006-023-30-3-C-CCC-S	30	41/46	.012	.028	.074	.095	7.1
FOUR CONDUCTOR							
3006-023-26-4-C-CCC-S	26	66/44	.019	.042	.115	.145	14.5
3006-023-28-4-C-CCC-S	28	41/44	.015	.038	.106	.136	12.1
3006-023-29-4-C-CCC-S	29	51/46	.014	.030	.086	.116	9.2
3006-023-30-4-C-CCC-S	30	41/46	.012	.028	.081	.111	8.5
SIX CONDUCTOR							
3006-023-26-6-C-CCC-S	26	66/44	.019	.042	.140	.170	19.5
3006-023-28-6-C-CCC-S	28	41/44	.015	.038	.128	.158	16.0
3006-023-29-6-C-CCC-S	29	51/46	.014	.030	.104	.134	12.1
3006-023-30-6-C-CCC-S	30	41/46	.012	.028	.098	.128	10.9

Please see Calmont High Flex Product Section for complete specifications and additional sizes.



Instrumentation Wire and Cable

Test and Measurement Cables

Test and measurement equipment designed for high-end critical applications typically require long life and high flexibility. Often copper alloys or even stainless alloys are used for these cables. Insulations range from flexible PVC and silicone rubber to thermoplastic elastomer. Shield may be served or braided constructions.

FluoroFlex FEP/TPE Sensor Cables

PART NUMBER See How to Order Page for Information	AWG Size	Strands No./Size	Uninsulated Conductor Diameter	Insulated Conductor Diameter	Diameter Over Shield (Nominal)	Overall Diameter (Nominal)	Weight (lbs./M FT.)
TWO CONDUCTOR							
3006-032-24-2-C-CCC-S	24	41/40	.023	.031	.073	.103	7.8
3006-032-26-2-C-CCC-S	26	66/44	.019	.024	.059	.079	5.1
3006-032-28-2-C-CCC-S	28	41/44	.015	.020	.052	.072	4.0
3006-032-29-2-C-CCC-S	29	51/46	.014	.019	.050	.070	3.6
3006-032-30-2-C-CCC-S	30	41/46	.012	.017	.046	.066	3.3
THREE CONDUCTOR							
3006-032-24-3-C-CCC-S	24	41/40	.023	.031	.081	.111	10.1
3006-032-26-3-C-CCC-S	26	66/44	.019	.024	.065	.089	6.8
3006-032-28-3-C-CCC-S	28	41/44	.015	.020	.057	.081	5.2
3006-032-29-3-C-CCC-S	29	51/46	.014	.019	.055	.075	4.5
3006-032-30-3-C-CCC-S	30	41/46	.012	.017	.050	.070	3.9
FOUR CONDUCTOR							
3006-032-24-4-C-CCC-S	24	41/40	.023	.031	.088	.112	12.1
3006-032-26-4-C-CCC-S	26	66/44	.019	.024	.072	.096	8.4
3006-032-28-4-C-CCC-S	28	41/44	.015	.020	.062	.082	6.1
3006-032-29-4-C-CCC-S	29	51/46	.014	.019	.060	.080	5.5
3006-032-30-4-C-CCC-S	30	41/46	.012	.017	.055	.075	4.8
SIX CONDUCTOR							
3006-032-24-5-C-CCC-S	24	41/40	.023	.031	.097	.127	14.8
3006-032-26-6-C-CCC-S	26	66/44	.019	.024	.086	.110	11.4
3006-032-28-6-C-CCC-S	28	41/44	.015	.020	.074	.098	8.5
3006-032-29-6-C-CCC-S	29	51/46	.014	.019	.071	.091	7.2
3006-032-30-6-C-CCC-S	30	41/46	.012	.017	.065	.085	6.3

Please see Calmont High Flex Product Section for complete specifications and additional sizes.



Instrumentation Wire and Cable

SPECIALTY CABLE

Robotic Shielded Single Conductor Ribbon Cable

This cable is used across the joints of a robotic arm to carry position signals. By utilizing high strength alloy conductors, FEP insulation, alloy shields and silicone rubber jackets bonded into a flat ribbon, Calmont created a cable capable of more than 15 million flex cycles.



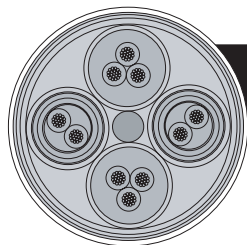
Calmont has a legacy of building flexible long life cables for critical applications.

There are unlimited combinations of components that can be incorporated into our Siliflex Ribbon Cables.

These may include shielded singles, twisted pairs, triads or quads. Mixed conductor sizes may also be used.

Robotic Machine Control Cable

This cable is used to send and receive data from a machine robot. This cable goes across the moving joint of a robot arm, and is subjected to over 1 million flexes during its life. The cable is made of 25 conductors of 26 AWG wires made with 66 strands of 44 AWG bare copper, insulated with FEP Teflon for mechanical strength and flexibility. Each conductor is then shielded for interference suppression. Each shielded conductor is then jacketed with silicone rubber for maximum flexibility. Finally, the 25 shielded conductors are bonded into a silicone ribbon cable.



Electromagnetic Interference (EMI) and Electromagnetic Pulse (EMP) Resistant Cable

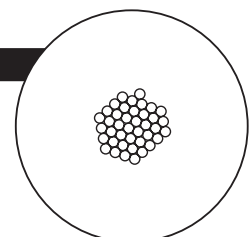
This cable is shielded with two shields of differing magnetic properties. A high and low permeable alloy material is used for each layer of the cable for maximum deflection. This design has two twisted pairs and two twisted triads, each double shielded with a double shield over the core.

Calmont has the solution to your toughest cable noise problems.

From low cost simple PVC wires to specially formulated silicone leads, Calmont can build a test probe wire that meets your specifications or assist in developing a design.

Test Probe Wire

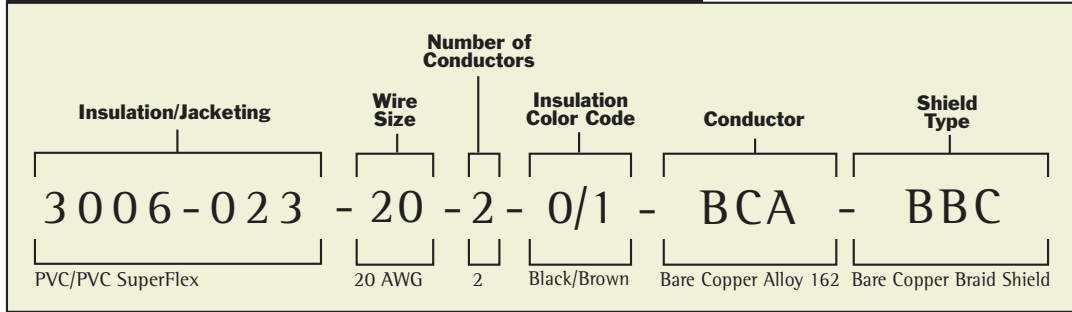
Single conductor wire using a high strand count conductor with silicone rubber for maximum flexibility. This wire is used on test probe leads on various electrical test instruments. The use of silicone rubber for the insulation provides superior high voltage protection for the user.





How To Order Calmont High Flex Products

SAMPLE ORDERING NUMBER



CALMONT HIGH FLEX CABLE OPTIONS

Part #	Insulation/Jacketing	-A WIRE SIZE AWG	-N NUMBER OF CONDUCTORS	-C PRIMARY INSULATION COLORS	-CCC CONDUCTOR TYPE		-S SHIELD STYLE
					ABBREVIATION	DESCRIPTION	
3006-023	PVC/PVC	20 AWG through 40 AWG	Customer to specify.	Per MIL-STD-6 0 = Black 1 = Brown 2 = Red 3 = Orange 4 = Yellow 5 = Green 6 = Blue 7 = Violet 8 = Grey 9 = White	BC	Bare Copper	U = No Shield
3006-031	PVC/TPE				BCA	Bare Copper Alloy 162	BC
3006-051	PVC/PU				BCW	Bare CopperWeld	BCA
3006-024	FEP/FEP				BPB	Bare Phosphor Bronze	Bronze
3006-029	FEP/SILICONE				CON	Constantan	BCW
3006-032	FEP/TPE				HIP	High Permeable Iron	HIP
3006-052	FEP/PU				KN	Alumel	LOP
3006-028	SILICONE/SILICONE				KP	Chromel	NIC
3006-026	SILICONE/FEP				LOP	Low Permeable Iron	NPA
3006-034	SILICONE/TPE				NIC	Nickel	NPC
					NPA	Nickel plated Alloy 135	SCW
					NPC	Nickel plated Copper	SPA
					SCW	Silver plated CopperWeld	SPC
		SPA	Silver plated alloy 135	SPCS95			
		SPC	Silver plated Copper	SS			
		SPCS95	Silver plated Alloy CS-95	TC			
		SS	Stainless Steel	TCA			
		TC	Tin plated Copper	TCW			
		TCA	Tin plated Alloy 162				
		TCW	Tin plated CopperWeld				
				(B) Braid Shield			
				(S) Spiral Shield			