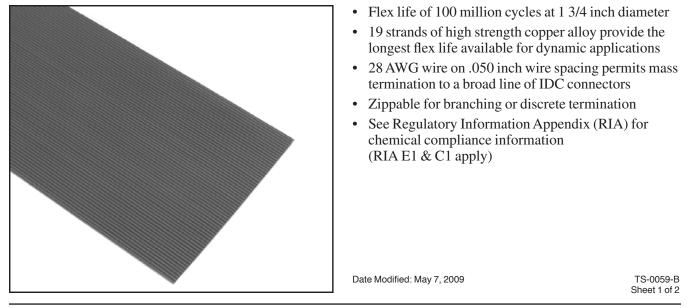
$3M^{TM}$ High Flex Life Cable

.050" 28 AWG Stranded, PVC

3319 Series



Physical

Insulation:	
Material:	Polyvinyl Chloride (PVC)
Color:	Black
Marking:	
Standard:	None
Canadian Option:	A WM 2651 105C 300V VW1 3M NU C A WM IA 105C 300V FT1 EU <50V
Conductors:	28 AWG, 19 × 40 [19 × Ø 0.79] Silver Plated Stranded Copper Alloy (89% Conductivity)

Electrical

Voltage Rating:	USA: 300V	Canada: 300V	EU: <50V
Insulation Resistance:	$> 1 \times 10^{10}\Omega/10$ ft. [3 m]		
Characteristic Impedance:	Unbalanced 103 Ω	Balanced 171 Ω	
Capacitance:	13.6 pF/ft [44.62 pF/m]	7.9 pF/ft [25.91 pF/m]	
Inductance:	0.14 μH/ft [0.47 μH/m]	0.23 µH/ft [0.76 µH/m]	
Propagation Delay:	1.40 ns/ft [4.59 ns/m]	1.35 ns/ft [4.43 ns/m]	
Velocity of Propagation:	73%	75%	
Note: Unbalanced is measured between ground-signal-ground c	onductors. Balanced is measured betwee	en signal conductors within a pair.	

Environmental

Temperature Rating:-20°C to +105°CFlammability Rating:USA: VW-1Canada: FT1

UL File No.: E42769, Style No: 2651

3MTM High Flex Life Cable .050" 28 AWG Stranded, PVC

	Number of Conductors	3M Part Number	Dimension A	Dimension B		
	06	3319/06	0.300 ± .010 [7.62]	0.250 ± .007 [6.35]		
	09	3319/09	0.450 ± .010 [11.43]	0.400 ± .007 [10.18]		
	10	3319/10	0.500 ± .010 [12.70]	0.450 ± .007 [11.43]		
	14	3319/14	0.700 ± .010 [17.78]	0.650 ± .007 [16.51]		
	15	3319/15	0.750 ± .010 [19.05]	0.700 ± .007 [17.78]		
	16	3319/16	0.800 ± .015 [20.32]	0.750 ± .011 [19.05]		
	20	3319/20	1.000 ± .015 [25.40]	0.950 ± .011 [24.13]		
	24	3319/24	1.200 ± .015 [30.48]	1.150 ± .011 [29.21]		
	25	3319/25	1.250 ± .015 [31.75]	1.200 ± .011 [30.48]		
	26	3319/26	1.300 ± .015 [33.02]	1.250 ± .011 [31.75]		
	30	3319/30	1.500 ± .020 [38.10]	1.450 ± .015 [36.83]		
	34	3319/34	1.700 ± .020 [43.18]	1.650 ± .015 [41.91]		
Inch	36	3319/36	1.800 ± .020 [45.72]	1.750 ± .015 [44.45]		
[mm]	37	3319/37	1.850 ± .020 [46.99]	1.800 ± .015 [45.72]		
Tolerance Unless Noted	40	3319/40	2.000 ± .020 [50.80]	1.950 ± .015 [49.53]		
000. 00. 0.	50	3319/50	2.500 ± .020 [63.50]	2.450 ± .015 [62.23]		
Inch ±.1 ±.01 ±.005	60	3319/60	3.000 ± .020 [76.20]	2.950 ± .015 [74.93]		
[] Dimensions for Reference Only	64	3319/64	3.200 ± .020 [81.28]	3.150 ± .015 [80.01]		
[0.64] (0.64] (1.27] (1.27] (1.27] (1.27] (1.27] (1.27] (1.27)						
Note: Red marking on one edge of cable designates wire #1.						
Ordering Information	3319 / 2	VV VV				
-	/					
Blank = Standard C = Canadian Certified Version Blank = Standard Blank = Standard SF = Splice Free						
Number of Conductors (See Table)						
Note: Available in standard 100 ft or 300 ft rolls, pleaseTS-0059-Bspecify when ordering. Contact 3M for availability ofTS-0059-Badditional conductor counts and/or custom roll lengths.Sheet 2 of 2						

ЗМ

Interconnect Solutions http://www.3M.com/interconnects/

3M is a trademark of 3M Company. For technical, sales or ordering information call 800-225-5373

Regulatory Information Appendix

3M Electronic Solutions Division/Interconnect

EUROPE

Appendix E1: European Union RoHS

Directive 2002/95/EC, Restriction of the Use of Certain Hazardous Substances in Electrical & Electronic Equipment, as amended by EU Commission Decision 2005/618/EC.

This product is RoHS Compliant 2005/95/EC.

"RoHS Compliant 2005/95/EC" means that the product or part ("Product") does not contain any of the substances in excess of the maximum concentration values in EU Directive 2002/95/EC, as amended by Commission Decision 2005/618/EC, unless the substance is in an application that is exempt under EU RoHS. Unless otherwise stated by 3M in writing, this information represents 3M's best knowledge and belief based upon information provided by third party suppliers to 3M.

In the event any product is proven not to conform with 3M's Regulatory Information Appendix, then 3M's entire liability and Buyer's exclusive remedy will be in accordance with the Warranty stated below.

Appendix E2: European Union RoHS

Directive 2002/95/EC, Restriction of the Use of Certain Hazardous Substances in Electrical & Electronic Equipment, as amended by EU Commission Decision 2005/618/EC.

This product contains lead in the compliant pin area in excess of the maximum concentration value allowed but is compliant by exemption under EU Commission Decision 2005/747/EC.

"RoHS Compliant 2005/95/EC" means that the product or part ("Product") does not contain any of the substances in excess of the maximum concentration values in EU Directive 2002/95/EC, as amended by Commission Decision 2005/618/EC, unless the substance is in an application that is exempt under EU RoHS. Unless otherwise stated by 3M in writing, this information represents 3M's best knowledge and belief based upon information provided by third party suppliers to 3M.

In the event any product is proven not to conform with 3M's Regulatory Information Appendix, then 3M's entire liability and Buyer's exclusive remedy will be in accordance with the Warranty stated below.

Appendix E3: European Union RoHS

Directive 2002/95/EC, Restriction of the Use of Certain Hazardous Substances in Electrical & Electronic Equipment as amended by Commission Decision 2005/618/EC.

This product contains lead in the solder tail area in excess of the maximum concentration value allowed.

Unless otherwise stated by 3M in writing, this information represents 3M's best knowledge and belief based upon information provided by third party suppliers to 3M.

In the event any product is proven not to conform with 3M's Regulatory Information Appendix, then 3M's entire liability and Buyer's exclusive remedy will be in accordance with the Warranty stated below.

Appendix E4: European Union RoHS

Directive 2002/95/EC, Restriction of the Use of Certain Hazardous Substances in Electrical & Electronic Equipment, as amended by EU Commission Decision 2005/618/EC, as amended by EU Commission Decision 2005/717/EC, as amended by EU Court of Justice Decision 2008/C 116/04

This product contains decaBDE in the insulating material in excess of the maximum concentration allowed for finished products subject to EU RoHS that are placed on the EU market after June 30, 2008.

Unless otherwise stated by 3M in writing, this information represents 3M's best knowledge and belief based upon information provided by third party suppliers to 3M.

In the event any product is proven not to conform with 3M's Regulatory Information Appendix, then 3M's entire liability and Buyer's exclusive remedy will be in accordance with the Warranty stated below.

Appendix E5: European Union RoHS

Directive 2002/95/EC, Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment, as amended by EU Commission Decision 2005/618/EC.

This product contains lead in excess of the maximum concentration value allowed but is compliant by exemption under Item 6 of the Annex to the Directive.

"RoHS Compliant 2005/95/EC" means that the product or part ("Product") does not contain any of the substances in excess of the maximum concentration values in EU Directive 2002/95/EC, as amended by Commission Decision 2005/618/EC, unless the substance is in an application that is exempt under EU RoHS. Unless otherwise stated by 3M in writing, this information represents 3M's best knowledge and belief based upon information provided by third party suppliers to 3M.

In the event any product is proven not to conform with 3M's Regulatory Information Appendix, then 3M's entire liability and Buyer's exclusive remedy will be in accordance with the Warranty stated below.

CHINA Appendix C1: China RoHS

Electronic Industry Standard of the People's Republic of China, SJ/T11363-2006, Requirements for Concentration Limits for Certain Hazardous Substances in Electronic Information Products.

This symbol, per Marking for the Control of Pollution Caused by Electronic Information Products, SJ/T11364-2006, means that the product or part does not contain any of the following substances in excess of the following maximum concentration values in any homogeneous material: (a) 0.1% (by weight) for lead, mercury, hexavalent chromium, polybrominated biphenyls or polybrominated diphenyl ethers (excluding decaBDE); or (b) 0.01% (by weight) for cadmium. Unless otherwise stated by 3M in writing, this information represents 3M's best knowledge and belief based upon information provided by third party suppliers to 3M.

In the event any product is proven not to conform with 3M's Regulatory Information Appendix, then 3M's entire liability and Buyer's exclusive remedy will be in accordance with the Warranty stated below.

Appendix C2: China RoHS



Electronic Industry Standard of the People's Republic of China, SJ/T11363-2006, Requirements for Concentration Limits for Certain Hazardous Substances in Electronic Information Products.

This symbol, per Marking for the Control of Pollution Caused by Electronic Information Products, SJ/T11364-2006, means that the product or part does contain a substance, as detailed in the chart below, in excess of the following maximum concentration values in any homogeneous material: (a) 0.1% (by weight) for lead, mercury, hexavalent chromium, polybrominated biphenyls or polybrominated diphenyl ethers (excluding decaBDE); or (b) 0.01% (by weight) for cadmium. Unless otherwise stated by 3M in writing, this information represents 3M's best knowledge and belief based upon information provided by third party suppliers to 3M.

The numerical reference in the symbol above should not be construed as a representation regarding the product's life or an extension of a product warranty. The product warranty is stated below. In the event any product is proven not to conform with 3M's Regulatory Information Appendix, then 3M's entire liability and Buyer's exclusive remedy will be in accordance with the product Warranty stated below.

产品中有毒有害物质或元素的名称及含量 Name and Content of Hazardous Substances or Elements

<u>)</u> 而于自每有占物质或冗余的石物及自重 Rume and Soment of Huzardous Substances of Elements								
部件名称	有毒有害物质或元素 (Hazardous Substances or Elements)							
(Part or Component Name)	铅(Pb)	汞 (Hg)	镉 (Cd)	六价铬(Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)		
端子镀层(contact plating)	×	0	0	0	0	0		
O: 表示该有毒有害物质在该部件所有均质材料中的含量均在SJ/T11363-2006 标准规定的限量要求以下。(Indicates that this hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in SJ/T11363-2006.) ×: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T11363-2006 标准规定的限量要求。(Indicates that this hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement in SJ/T11363-2006.)								

Appendix C3: China RoHS



Electronic Industry Standard of the People's Republic of China, SJ/T11363-2006, Requirements for Concentration Limits for Certain Hazardous Substances in Electronic Information Products.

This symbol, per Marking for the Control of Pollution Caused by Electronic Information Products, SJ/T11364-2006, means that the product or part **does** contain a substance, as detailed in the chart below, in excess of the following maximum concentration values in any homogeneous material: (a) 0.1% (by weight) for lead, mercury, hexavalent chromium, polybrominated biphenyls or polybrominated diphenyl ethers (excluding decaBDE); or (b) 0.01% (by weight) for cadmium. Unless otherwise stated by 3M in writing, this information represents 3M's best knowledge and belief based upon information provided by third party suppliers to 3M.

The numerical reference in the symbol above should not be construed as a representation regarding the product's life or an extension of a product warranty. The product warranty is stated below. In the event any product is proven not to conform with 3M's Regulatory Information Appendix, then 3M's entire liability and Buyer's exclusive remedy will be in accordance with the product Warranty stated below.

产品中有毒有害物质或元素的名称及含量 Name and Content of Hazardous Substances or Elements

部件名称	有毒有害物质或元素 (Hazardous Substances or Elements)					
(Part or Component Name)	铅(Pb)	汞 (Hg)	镉 (Cd)	六价铬(Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
合金(Metal alloy)	×	0	0	0	0	0

○:表示该有毒有害物质在该部件所有均质材料中的含量均在SJ/T11363-2006 标准规定的限量要求以下。(Indicates that this hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in SJ/T11363-2006.) ×:表示该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T11363-2006 标准规定的限量要求。(Indicates that this hazardous substance

×:表示该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T11363-2006 标准规定的限量要求。(Indicates that this hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement in SJ/T11363-2006.)

Important Notice

All statements, technical information, and recommendations related to 3M's products are based on information believed to be reliable, but the accuracy or completeness is not guaranteed. Before using this product, you must evaluate it and determine if it is suitable for your intended application. You assume all risks and liability associated with such use. Any statements related to the product which are not contained in 3M's current publications, or any contrary statements contained on your purchase order shall have no force or effect unless expressly agreed upon, in writing, by an authorized officer of 3M.

Warranty; Limited Remedy; Limited Liability.

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