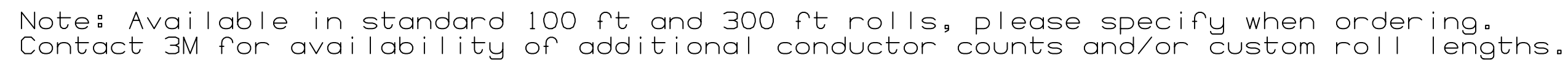


.050", 28 AWG STRANDED, HIGH FLEX LIFE, HALOGEN FREE PO



X HF319/XX XX

NUMBER OF CONDUCTORS
(SEE TABLE 1)

RADIUS	MINIMUM CYCLES
1/2"	18 MILLION
3/4"	113 MILLION

ALL CYCLES WERE PERFORMED AT AMBIENT CONDITIONS.

NUMBER OF CONDUCTORS	3M PART NUMBER	DIMENSION 'A' ± AS NOTED	DIMENSION 'B' (SEE NOTE 2)
6	HF319/06	0.300"±0.010"	0.250"±0.007"
9	HF319/09	0.450"±0.010"	0.400"±0.007"
10	HF319/10	0.500"±0.010"	0.450"±0.007"
14	HF319/14	0.700"±0.010"	0.650"±0.007"
15	HF319/15	0.750"±0.010"	0.700"±0.007"
16	HF319/16	0.800"±0.015"	0.750"±0.011"
20	HF319/20	1.000"±0.015"	0.950"±0.011"
24	HF319/24	1.200"±0.015"	1.150"±0.011"
25	HF319/25	1.250"±0.015"	1.200"±0.011"
26	HF319/26	1.300"±0.015"	1.250"±0.011"
30	HF319/30	1.500"±0.020"	1.450"±0.015"
34	HF319/34	1.700"±0.020"	1.650"±0.015"
36	HF319/36	1.800"±0.020"	1.750"±0.015"
37	HF319/37	1.850"±0.020"	1.800"±0.015"
40	HF319/40	2.000"±0.020"	1.950"±0.015"
50	HF319/50	2.500"±0.020"	2.450"±0.015"
60	HF319/60	3.000"±0.020"	2.950"±0.015"
64	HF319/64	3.200"±0.020"	3.150"±0.015"

VOLTAGE RATING	USA: 300V, CANADA: 150V, EU: 50V	
INSULATION RESISTANCE	PRIMARY CABLE $>1 \times 10^{10} \Omega/10 \text{ FT}$ [3 m]	
	UNBALANCED	BALANCED
CHARACTERISTIC IMPEDANCE	100 Ω	169 Ω
CAPACITANCE	15.0 pF/ft [49.2 pF/m]	8.4 pF/ft [27.7 pF/m]
INDUCTANCE	0.15 $\mu\text{H}/\text{ft}$ [0.49 $\mu\text{H}/\text{m}$]	0.24 $\mu\text{H}/\text{ft}$ [0.79 $\mu\text{H}/\text{m}$]
PROPAGATION DELAY	1.48 ns/ft [4.86 ns/m]	1.42 ns/ft [4.66 ns/m]
VELOCITY OF PROPAGATION	68%	72%

UL[®] AWM 21682 105°C 300V HOR **UL**[®] AWM 1A 105°C 150V FT2 EU<50V


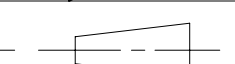
NOTES

1. MATERIAL:
A) PRIMARY INSULATION: HALOGEN FREE POLYOLEFIN (PO).
B) CONDUCTORS: 28 AWG, 19 X 40 AWG SILVER PLATED STRANDED COPPER ALLOY
2. REGULATORY INFORMATION:
VISIT 3M.com/regs OR CONTACT YOUR 3M REPRESENTATIVE TO FIND THE RoHS COMPLIANCE STATUS OF THE 3M PART YOU ARE INTERESTED IN.

UL FILE NO: E42769.
UL STYLE NO: 21682.
3. MARKINGS:
STANDARD: NONE
CANADIAN: SEE "PRINTING ILLUSTRATION" VIEW
PRIMARY CABLE: BLUE MARK ON EDGES DESIGNATES WIRE NUMBER 1.
4. ENVIRONMENTAL:
TEMP RATING: -40°C TO +105°C (EIA-364-32G, METHOD A, TEST CONDITION 2).

-10°C TO +105°C (UL TEMPERATURE RATING)
FLAMABILITY RATING: HORIZONTAL.
5. HALOGEN FREE IS DEFINED AS BOTH:
1) NO HALOGEN COMPOUNDS THAT ARE INTENTIONALLY ADDED TO THE PRODUCT OR USED IN THE MANUFACTURING PROCESS FOR THE PRODUCT.
2) ANY IMPURITIES PRESENT ARE LESS THAN 900 ppm BROMINE, LESS THAN 900 ppm CHLORINE AND/OR LESS THAN 1500 ppm TOTAL BROMINE AND CHLORINE. THE LATTER ARE THE LEVELS SET FORTH IN CERTAIN INDUSTRY STANDARDS FOR PRINTED CIRCUIT BOARDS, SUCH AS THE INTERNATIONAL ELECTROTECHNICAL COMMISSION (IEC) 61249-2-21 STANDARD. THIS INFORMATION REPRESENTS 3M'S KNOWLEDGE AND BELIEF WHICH MAY BE BASED IN WHOLE OR IN PART ON INFORMATION PROVIDED BY 3RD PARTY SUPPLIERS TO 3M.

C	80477	SEP 06,2018	JNC	BPM
		REVISED DATA AND NOTES		
B	40826	MAY 22,2012	JNC	SN
		REVISED AND REDRAWN		
REV	ECO	ISSUE DATE AND DESCRIPTION	DRFT	CHKD
DRFT	CASTIGATIONE	DATE MAY 15,2012	MFG	DATE
CHKD		DATE	APPROV S. NEU	DATE MAY 15,2012

DESIGN REFERENCE				NEXT ASSEMBLY				REV		ECO		ISSUE DATE AND DESCRIPTION				DRFT		CHKD	
ACROSS CODES								BOM		CAST		GLIONE		DATE		MFG		DATE	
														MAY 15, 2012					
								CHKD				DATE		APPRV.		S. NEU		DATE MAY 15, 2012	
DIVISION				DIVISION CODE				© 3M COPYRIGHT 2018											
				EMSD				<div>  <div> <div>3M Center</div> <div>St. Paul,</div> <div>MN 55144</div> </div> </div> <div> <p>This document and the information it contains are 3M property and may not be reproduced or further distributed without 3M permission, or used or disclosed other than for 3M authorized purposes. All rights reserved.</p> </div>											
DO NOT SCALE				TOLERANCES EXCEPT AS NOTED				<div>  </div>											
DRAWING				INCHES				<div> <p>TITLE</p> <h1>HIGH FLEX LIFE, FLAT CABLE, 28 AWG STRANDED, HF319</h1> </div>											
				.0 ± .1 .00 ± .05 .000 ± .010 .0000 ±				<div> <p>CAGE NUMBER</p> <p>SIZE</p> <p>DRAWING NO.</p> <p>REV.</p> </div>											
THIRD ANGLE PROJECTION				MILLIMETERS				<div> <p>D 78-5100-2342-3 C</p> </div>											
INTERPRET PER ASME Y14.5 - 2009				0 ± .25 .0 ± 1.3 .00 ± .25 .000 ±				<div> <p>MODEL</p> <p>HF319</p> </div>											
MAX SURFACE ROUGHNESS				ANGLE				<div> <p>DET.</p> <p>SHTS</p> <p>OYES</p> <p>XNO</p> <p>SHT 1 OF 2</p> </div>											
<input checked="" type="checkbox"/> UNFINISHED SURFACES <input type="checkbox"/> MARKED ONLY																			

CAULS

3M™ HIGH FLEX LIFE FLAT CABLE, HF319 SERIES

.050", 28 AWG STRANDED, HIGH FLEX LIFE, HALOGEN FREE PO

Regulatory: For regulatory information about this product, visit 3M.com/regs or contact your 3M representative.


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ACCESS CODES				BRT CASTIGLIONE		DATE MAY 15,2012		MFG		DATE			
				CHKD		DATE		APPROV S. NEU		DATE MAY 15,2012			
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THIRD ANGLE PROJECTION				INCHES		MILLIMETERS		TITLE					
				.00 ± .01		.00 ± .05		HIGH FLEX LIFE, FLAT					
				.000 ± .010		.00 ± .13		CABLE, 28 AWG					
				.0000 ±		.00 ± .25		SIZE STRANDED, HF 319					
INTERPRET PER ASME Y14.5 - 2009				MAY SURFACE ROUGHNESS		CAGE NUMBER		SIZE		DRAWING NO.		REV.	
✓ <input type="checkbox"/> MARKED SURFACES				✓ <input type="checkbox"/> UNMARKED SURFACES		D 78-5100-2342-3		C					
MODEL				HF319		DET. LISTS		YES <input checked="" type="checkbox"/> NO		SHT 2 OF 2			

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