

Technical Information

Temperature Ranges and Classifications Conductor Configurations

Table 6: Nominal Temperature Operating Ranges (°C)

-100°	-80°	-60°	-40°	-20°	0	20°	40°	60°	80°	100°	120°	140°	160°	180°	200°	220°	240°	
				-30°	Neoprene				90°C									
				-30°	Hypalon®				105°C									
			-60°	EPDM				150°C										
			-75°	Silicone Braidless				200°C										
			-75°	Silicone Braided				200°C										
				-55°	Cross-Linked Polyethylene				150°C									
				-35°	PVC				105°C									
-100°	Teflon®																260°C	

Table 7: Temperature Classification

Insulation System Class	Minimum Acceptable Lead Wire Temperature Rating	
	C°	F°
130(B)	90	194
155(F)	125	257
180(H)	150	302
220(R)	200	392

Systems of Insulating Materials — UL Standard 1446

This is a guide intended for UL approved insulation systems connected to branch circuits of 600V or less. Approval required by Underwriters Laboratories when using lead wire with a temperature rating more than 5°C under the system temperature rating.

Table 8: Conductor Configurations

Typical Application	American Wire Gage							
	12	14	16	18	20	22	24	26
Fixed Services	19x25	solid	solid	solid	solid	solid	solid	solid
Hook-Up Wire		or	or	or	or	or	or	or
Cable in Raceway		19x27	19x29	7x26	7x28	7x30	7x32	7x34
				or	or			
				16x30	10x30			
Moderate Flexing	65x30	19x27	19x29	16x30	7x28,	7x30	7x34	7x34
Frequently Disturbed		or	or	or	10x30,	or	or	
For Maintenance		41x30	26x30	41x34	19x32,	19x34	10x34	
					or			
					26x34			
Severe Flexing	165x34	104x34	65x34	41x34	26x34	19x34	19x36	7x34
Microphone			or	or	or	or	or	or
Test Prods			104x36	65x36	42x36	26x36	45x40	10x36
Most Severe Duty	259x36	168x36	105x36	63x36	105x40			
Mercury Switches	(7x37	(7x24	(7x15	(7x9	(3x35	(Consider Braid or Tinsel)		
	Rope Lay)*	Rope Lay)*	Rope Lay)*	Rope Lay)*	Rope Lay)*			

Note: For a given AWG wire size (based on equal cross-sectional area of conductor), limpness and flex life are increased by use of a large number of fine strands. The finer stranding does result in higher costs.

*Rope Lay is several stranded groups cabled together. For example: #12 AWG, 259x36 is 7 cords each consisting of 37 strands of #36 AWG

Hypalon and Teflon are DuPont trademarks.



For more information, contact Belden Technical Support: 1-800-BELDEN-1 • www.belden.com

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