UNDERWRITER'S LABORATORIES LISTED WIRE COMBINATIONS
The combinations listed are Cu-Cu Only. (Do Not use on Al-Al connections.)
The combinations listed are solid and/or stranded wire unless otherwise noted.

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IDEAL Wire-Nut® Wire Connectors

Model	300 Volt Maximum		600 Volt Maximum	
59B®			1 #12	3 #16 w/1 to 3 #20 or #22
			1 #12 w/1 to 3 #18	3 #16 w/1 #20 w/1 or 2 #22
			1 #12 w/1 or 2 #16	3 #16 w/1 #18 w/1 or 2 #22
			1 #12 w/1 #14	3 #16 w/1 or 2 #18
			1 to 3 #14	4 #16 w/1 or 2 #22
			1 #14 w/1 to 5 #18, #20 or #22	4 #16 w/1 #18 or #20
			1 #14 w/1 to 3 #16	4 #16 w/1 #20 w/1 #22
			1 #14 w/1 #20 w/1 or 2 #22	2 to 6 #18
			1 #14 w/1 #18 w/1 or 2 #22	3 #18 w/1 to 3 #20 or #22
			1 #14 w/1 #16 w/1 #20 or #22	3 #18 w/1 #20 w/1 or 2 #22
			2 #14 w/1 to 4 #20 or #22	4 #18 w/1 or 2 #22 or #20
			2 #14 w/1 or 2 #18	4 #18 w/1 #20
			2 #14 w/1 #16	5 #18 w/1 #20 w/1 #22
			2 #14 w/1 #20 w/1 or 2 #22	1 #18 w/1 to 4 #20 or #22
			2 #14 w/1 #18 w/1 or 2 #22	1 #18 w/1 #20 w/1 or 2 #22
			2 #14 w/1 #16 w/1 #20 or #22	2 #18 w/1 to 4 #20 or #22
			1 #16 or #18 Str.	2 #18 w/1 #20 w/1 or 2 #22
			2 to 4 #16	2 to 6 #20
			1 #16 w/1 to 5 #18, #20 or #22	1 #20 w/2 to 5 #22
			1 #16 w/1 #20 w/1 or 2 #22	2 #20 w/1 to 4 #22
			1 #16 w/1 #18 w/1 or 2 #22	3 #20 w/1 to 3 #22
			2 #16 w/1 to 4 #18, #20 or #22	4 #20 w/1 or 2 #22
			2 #16 w/1 #20 w/1 or 2 #22	5 #20 w/1 #22
			2 #16 w/1 #18 w/1 or 2 #22	4 to 6 #22

Model	300 Volt Maximum			
71B®	1 #14	2 or 3 #18		
	1 #14 w/1 #20 or #22	2 #18 w/1 #20		
	1 or 2 #16	2 #18 w/1 or 2 #22		
	1 #16 w/1 #18	1 #20 w/1 to 4 #22		
	1 #16 w/1 or 2 #20	2 to 4 #20		
	1 #16 w/1 to 3 #22	2 #20 w/1 to 3 #22		
	1 #16 w/1 #20 w/1 #18 or #20	3 #20 w/1 or 2 #22		
	1 #18 Str.	4 #20 w/1 #22		
	1 #18 w/1 to 3 #20	2 #22 Str.		
	1 #18 w/1 to 4 #22	3 or 4 #22		
	1 or 2 #18 w/1 #20 w/1 #22	5 #22 Sol.		

Model	300 Volt Maximum			
72B®	1 #14 Str.	2 #16 w/1 #20 w/1 #22		
	1 #14 w/1 #16	1 #18 Str.		
	1 #14 w/1 or 2 #18	1 #18 w/1 to 4 #20 or #22		
	1 #14 w/1 to 3 #20	1 or 2 #18 w/1 #20 w/1 #22		
	1 #14 w/1 to 4 #22	1 #18 Str. w/1 #20 Str.		
	1 #16 Str.	2 #18 w/1 to 3 #20 or #22		
	1 #16 w/1 to 3 #18	2 to 4 #18		
	1 #16 w/1 #18 w/1 #20	3 #18 w/1 or 2 #20 or #22		
	1 #16 w/1 to 4 #20 or #22	3 to 5 #20		
	1 #16 w/1 #22 w/1 #18 or #20	4 #18 w/1 #20 or #22		
	2 or 3 #16	3 #20 w/1 or 2 #22		
	2 #16 w/1 #18	4 #20 w/1 #22		
	2 #16 w/1 or 2 #20	2 #22		
	2 #16 w/1 to 3 #22			

Model	300 Volt Maximum		600 Volt Maximum	
73B®	1 #14 w/2 #16	5 #18	1 or 2 #14	1 #16 w/1 #18 w/1 #22
	1 #14 w/1 #16 w/1 #18	1 #18 w/1 #20	1 #14 w/1 or 2 #18	2 #16
	1 #14 w/3 #18	4 #18 w/1 #20 or #22	1 #14 w/1 to 3 #20	2 #18 w/1 or 2 #20 or #22
	1 #14 w/4 #20	3 #18 w/2 #20 or #22	1 #14 w/1 to 3 #22	1 #18 w/2 to 4 #20
	2 #14 w/1 #18	2 #18 w/3 #22	1 #14 w/1 #16 w/1 #18	1 #18 w/3 to 4 #22
	2 #14 w/1 to 3 #20 or #22	1 #18 Str. w/5 #22 Str.	1 #14 w/1 #16	1 #18 Str.
	3 or 4 #16	3 to 5 #20	1 #16 Str.	3 #18 w/1 #20 or #22
	1 #16 w/4 #18	4 #20 w/1 #22	1 #16 w/1 or 2 #18	2 to 4 #18
	2 #16 w/2 or 3 #18	3 #20 w/1 or 2 #22	1 #16 w/1 to 3 #20 or #22	1 or 2 #18 w/1 #20 w/1 #22
	2 #16 w/3 #20	2 #20 w/2 or 3 #22	2 #16 w/1 or 2 #20	
	3 #16 w/1 #18	1 #20 w/4 #22	2 #16 w/1 to 3 #22	
	3 #16 w/1 or 2 #20 or #22	5 #22	2 #16 w/1 #18	
	4 #16 w/1 #20 or #22		1 or 2 #16 w/1 #20 w/1 #22	

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IDEAL Wire-Nut® Wire Connectors

Model	300 Volt Maximum	600 Volt Maximum	
74B®	1 #10 w/2 #12	1 #8	1 #10 w/1 #12 w/1 #14 or #16
		1 #10	1 #10 w/1 #12 w/1 or 2 #18
		1 to 3 #12	1 #10 w/1 #14 w/2 #16
		1 to 4 #14	1 #10 w/1 #14 w/1 to 3 #18
		2 to 5 #16	1 #10 w/2 #14 w/1 #16
		3 to 6 #20	1 #10 w/1 #16 w/1 or 2 #18
		1 #10 w/1 #12	1 #12 w/1 #14 w/3 #16
		1 #10 w/1 or 2 #14, #16 or #18	1 #12 w/2 #14 w/2 #16
		1 #10 w/3 or 4 #16 or #18	2 #12 w/1 #14 w/1 #16 or #18
		1 #12 w/1 to 3 #14, #16 or #18	2 #12 w/1 #16 w/1 or 2 #18
		1 #12 w/4 #16 or #18	1 #14 w/1 #16 w/1 to 3 #20
		2 #12 w/1 or 2 #14	1 #14 w/1 #18 w/1 to 3 #20
		2 #12 w/1 or 2 #16 or #18	2 #14 w/1 #16 w/1 or 2 #18 or #20
		1 #14 w/1 to 4 #16, #18 or #20	2 #14 w/1 #16 w/1 to 3 #22
		2 #14 w/1 to 3 #16, #18 or #20	3 #14 w/1 #16 w/1 #18, #20 or #22
		3 #14 w/1 or 2 #16	3 #14 w/1 #18 w/1 #20 or #22
		3 #14 w/1 or 2 #18 or #20	1 #16 w/1 #18 w/2 or 3 #20 or #22
		4 #14 w/1 #16 or #18	1 #16 w/1 #18 w/3 or 4 #22
		1 #16 w/1 to 4 #18, #20 or #22	1 #16 w/2 #20 w/2 #22
		2 #16 w/1 to 3 #18, #20 or #22	2 #16 w/1 #18 w/1 or 2 #20 or #22
		3 #16 w/1 or 2 #18, #20 or #22	3 #16 w/1 #18 w/1 #20 or #22
		4 #16 w/1 or 2 #18, #20 or #22	1 #18 w/2 #20 w/3 #22
		1 #18 w/3 or 4 #20 or #22	2 #18 w/1 #20 w/3 #22
		2 #18 w/3 #20 or #22	2 to 5 #18

Model	300 Volt Maximum		600 Volt Maximum	
76B®	1 #6 w/1 or 2 #16	1 #10 w/1 #12 w/3 or 4 #14	1 #6 or #8	1 #12 w/3 or 4 #22
	1 #6 w/1 #14	1 #10 w/2 #12 w/2 or 3 #16 or #18	1 #8 w/1 to 3 #16	1 #12 w/2 to 4 #18 or #20
	1 #6 w/1 #12	1 #10 w/2 #12 w/1 or 2 #14	1 #8 w/1 or 2 #14	1 #12 w/1 to 4 #14 or #16
	1 #6 w/1 #14 w/1 to 4 #22	2 #10 w/3 #16	1 #8 w/1 #12	1 #12 w/1 #20 w/2 to 4 #22
	1 #6 w/1 #14 w/1 or 2 #18	2 #10 w/2 or 3 #14	1 #8 w/1 #14 w/1 to 4 #20	2 #12 w/1 #14 w/1 to 3 #20 or #22
	1 #6 w/1 #14 w/1 #16	2 #10 w/1 or 2 #12	1 #8 w/1 to 4 #18, #20 or #22	1 #12 w/2 #20 w/1 to 3 #22
	2 #8 Str.	2 #10 w/1 #16 w/2 or 3 #18	1 #8 w/1 #14 w/1 or 2 #16	1 #12 w/1 #18 w/1 to 4 #20 or #22
	1 #8 w/4 #16	2 #10 w/1 #14 w/2 or 3 #20 or #22	1 #8 w/1 #12 w/1 #16 or #18	1 #12 w/1 #16 w/1 to 4 #20 or #22
	1 #8 w/3 #14	2 #10 w/1 #14 w/1 to 3 #18	1 or 2 #10	1 #12 w/1 #16 w/1 to 4 #18
	1 #8 w/2 #12	2 #10 w/1 #12 w/1 to 3 #18	1 #10 w/1 to 4 #16 or #18	1 #12 w/1 #14 w/1 to 4 #16 or #18
	1 #8 w/1 #10	2 #10 w/1 #12 w/1 or 2 #16	1 #10 w/1 to 4 #20 or #22	1 #12 w/1 #14 w/1 to 4 #20 or #22
	1 #8 w/1 #14 w/4 #18	3 #10 w/1 #16 or #18	1 #10 w/5 #16	1 #12 w/2 #14 w/1 to 3 #16
	1 #8 w/1 #14 w/3 or 4 #16	5 #12	1 #10 w/1 to 3 #14	2 #12 w/1 to 3 #20 or #22
	1 #8 w/1 #12 w/1 to 4 #16 or #18	2 #12 w/1 #14 w/3 #16	1 #10 w/1 or 2 #12	2 #12 w/1 or 2 #16 or #18
	1 #8 w/1 #12 w/1 or 2 #14	2 #12 w/2 #14 w/2 #16	1 #10 w/1 or 2 #20 w/1 to 3 #22	2 #12 w/1 or 2 #20 w/1 or 2 #22
	1 #8 w/2 #12 w/1 or 2 #18	3 #12 w/2 #14	1 #10 w/1 #18 w/1 to 4 #20 or #22	2 #12 w/1 #18 w/1 to 3 #20 or #22
	1 #8 w/2 #12 w/1 #14 or #16	3 #12 w/3 #16	1 #10 w/1 #16 w/1 to 4 #20 or #22	2 #12 w/1 #16 w/1 to 3 #20 or #22
	1 #8 w/1 #10 w/1 #12 or #14	3 #12 w/1 #16 w/2 #18	1 #10 w/1 #16 w/1 to 4 #18	2 #12 w/1 #16 w/1 to 3 #18
	3 #10	3 #12 w/1 #14 w/1 or 2 #16	1 #10 w/1 #14 w/1 to 4 #20 or #22	2 to 5 #14
	1 #10 w/4 #14	3 #12 w/1 #14 w/1 or 2 #18	1 #10 w/1 #14 w/1 to 4 #18 or #16	4 to 6 #16
	1 #10 w/3 #12	3 #12 w/2 #14 w/1 #16	1 #10 w/2 #14 w/1 or 2 #16	2 #12 w/1 #14 w/1 to 3 #18
	1 #10 w/2 #14 w/3 #16	4 #12 w/1 #14, #16, #18, #20 or #22	1 #10 w/1 #12 w/1 to 4 #18	2 #12 w/1 #14 w/1 to 3 #16
	1 #10 w/1 #12 w/4 #16		1 #10 w/1 #12 w/1 to 3 #16	3 #12 w/1 #16 w/1 or 2 #18
			1 #10 w/1 #12 w/1 or 2 #14	3 #12 w/1 #14
			1 #10 w/2 #12 w/1 #16 or #18	3 #12 w/1 #14 w/1 #20
			2 #10 w/1 to 3 #18	3 #12 w/1 #14 w/1 or 2 #22
			2 #10 w/2 #16	3 #12 w/1 #14 w/1 #18
			2 #10 w/1 #14	3 #12 w/1 or 2 #20 or #22
			2 #10 w/1 #16 w/1 #18	3 #12 w/1 to 3 #18
			2 #10 w/1 #14 w/1 #20 or #22	3 #12 w/1 or 2 #16
			1 to 4 #12	3 #12 w/1 #20 w/1 or 2 #22
			3 #12 w/1 #18 w/1 or 2 #22	3 #12 w/2 #20 w/1 #22
			3 #12 w/1 #18 w/1 or 2 #20	3 #14 w/1 #16 w/1 or 2 #18
			3 #12 w/1 #16 w/1 or 2 #22	4 #14 w/1 #18, #20 or #22
			3 #12 w/1 #16 w/1 or 2 #20	4 #14 w/2 #18
			2 #12 w/2 #14 w/1 #16	4 #14 w/1 #16
			1 #14 w/3 or 4 #18	5 #14 w/1 #18
			1 #14 w/2 #20 w/3 #22	1 #16 w/4 #18
			1 #14 w/1 #18 w/4 #22	2 #16 w/3 #20
			1 #14 w/1 #18 w/3 or 4 #20	2 #16 w/3 or 4 #18
			1 #14 w/1 #16 w/2 to 4 #20	2 #16 w/1 #20 w/3 #22
			1 or 2 #14 w/1 #16 w/1 to 3 #18	2 #16 w/2 #20 w/2 #22
			2 #14 w/2 to 4 #16	2 #16 w/1 #18 w/3 #22
			2 #14 w/1 or 2 #20 w/1 or 2 #22	2 #16 w/1 #18 w/2 or 3 #20
			2 #14 w/1 #18 w/1 to 3 #20 or #22	3 #16 w/1 or 2 #18, #20 or #22
			2 #14 w/1 #16 w/1 to 3 #20 or #22	3 #16 w/1 or 2 #20 w/1 #22
			3 #14 w/1 or 2 #20 or #22	3 #16 w/1 #18 w/1 or 2 #20
			3 #14 w/1 or 2 #16 or #18	3 #16 w/1 #18 w/1 or 2 #22
			3 #14 w/1 #18 w/1 or 2 #20 or #22	4 #16 w/1 or 2 #22
			3 #14 w/1 #16 w/1 or 2 #20 or #22	4 #16 w/1 #18 or #20
			2 #12 w/1 to 3 #14	4 or 5 #16 w/1 #22

Revised 05/07/10

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IDEAL Term-A-Nut® Pigtail Connectors and Grounding Connectors   (Red shell w/Black wire, Red shell w/White wire & Green shell w/Green wire)

Model	600 Volt Maximum			
70	2 to 4 #12	4 #16 w/1 #18	3 #14 w/1 #16	2 #12 w/1 or 2 #16
	2 to 4 #14	1 #14 w/2 or 3 #18	1 #12 w/2 or 3 #18	3 #12 w/1 #16
	4 to 5 # 16	2 #14 w/1 or 2 #18	2 #12 w/1 or 2 #18	1 #12 w/1 to 3 #14
	1 #16 w/3 or 4 #18	3 #14 w/1 #18	3 #12 w/1 #18	2 #12 w/1 or 2 #14
	2 #16 w/2 or 3 #18	1 #14 w/2 or 3 #16	1 #12 w/1 to 3 #16	3 #12 w/1 #14
	3 #16 w/1 or 2 #18	2 #14 w/1 or 2 #16		

IDEAL Greenie® Grounding Connector

Model				
92	1 #10 w/1 or 2 #12	1 #12 w/1 to 3 #14	3 #12 w/1 #14	2 to 4 #14
	1 #10 w/1 to 3 #14	2 to 4 #12	2 #12 w/1 to 3 #14	

IDEAL Wing-Nut® Wire Connectors

Model	600 Volt Maximum			
451®	1 #10	1 #12 w/1 to 3 #16	2 #12 w/1 #16	3 #14 w/1 #16
	1 #10 w/1 #12	1 #12 w/1 or 2 #14	2 #12 w/1 #14	3 #16 w/1 to 3 #18
	1 #10 w/1 or 2 #14	3 #14 w/1 or 2 #18	1 to 3 #14	4 #16 w/1 or 2 #18
	1 #10 w/1 or 2 #16	2 to 4 #16	1 #14 w/1 to 5 #18	2 to 4 #18
	1 #10 w/1 to 3 #18	1 #16 w/1 to 5 #18	1 #14 w/1 to 4 #16	
	1 to 3 #12	2 #16 w/1 to 4 #18	2 #14 w/1 to 3 #18	
	1 #12 w/1 to 5 #18	2 #12 w/1 or 2 #18	2 #14 w/1 to 3 #16	

Model	600 Volt Maximum			
452® **&** **344®** **Twister** **PRO®**	1 #6	2 #10 w/1 to 4 #16	3 #12 w/1 #14 w/1 #16	2 #16 w/1 #18 w/1 to 3 #20
	1 or 2 #8	2 #10 w/1 to 3 #14	4 #12 w/1 or 2 #16	2 #16 w/1 to 4 #22
	1 to 4 #10	2 #10 w/1 to 3 #12	4 #12 w/1 #14	2 #16 w/1 to 4 #20
	1 to 5 #12	2 #10 w/1 #16 w/1 to 3 #18	4 #12 w/1 #16 w/1 #18	2 #16 w/1 to 4 #18
	1 to 6 #14	2 #10 w/2 #14 w/1 or 2 #16	4 #12 w/1 #14 w/1 #18	3 #16 w/1 to 3 #22
	1 to 6 #16	2 #10 w/1 #12 w/1 to 3 #16	4 #12 w/1 #14 w/1 #16	3 #16 w/1 to 3 #20
	2 to 6 #18	2 #10 w/1 #12 w/1 or 2 #14	1 #14 w/1 to 5 #22	3 #16 w/1 to 3 #18
	3 to 6 #20	2 #10 w/2 #12 w/1 or 2 #14	1 #14 w/1 to 5 #20	3 #16 w/1 or 2 #22 w/1 #20
	4 to 6 #22	2 #10 w/2 #12 w/1 or 2 #16	1 #14 w/1 to 5 #18	3 #16 w/1 #18 w/1 or 2 #22
	1 #6 w/1 or 2 #12	2 #10 w/2 #12 w/1 #14	1 #14 w/1 to 5 #16	3 #16 w/1 #18 w/1 or 2 #20
	1 #6 w/1 #10	3 #10 w/1 to 3 #18	1 #14 w/1 #16 w/1 to 3 #18	4 #16 w/1 or 2 #22
	1 #6 w/2 #14 w/1 or 2 #16	3 #10 w/1 to 3 #16	2 #14 w/1 #16 w/1 to 3 #18	4 #16 w/1 or 2 #20
	1 #6 w/1 #12 w/1 or 2 #14	3 #10 w/1 or 2 #14	2 #14 w/1 to 4 #22	4 #16 w/1 or 2 #18
	1 #6 w/2 #12 w/1 #18	3 #10 w/1 #12	2 #14 w/1 to 4 #20	4 #16 w/1 #22 w/1 #20
	1 #6 w/1#10 w/1 #14	3 #10 w/1 #16 w/1 or 2 #18	2 #14 w/1 to 4 #18	4 #16 w/1 #18 w/1 #22
	1 #8 w/1 to 5 #16	3 #10 w/1 #14 w/1 or 2 #18	2 #14 w/1 to 4 #16	4 #16 w/1 #18 w/1 #20
	1 #8 w/1 to 4 #14	3 #10 w/1 #14 w/1 #16	3 #14 w/1 to 3 #22	5 #16 w/1 #22
	1 #8 w/1 to 3 #12	3 #10 w/1 #12 w/1 #18	3 #14 w/1 to 3 #20	5 #16 w/1 #20
	1 #8 w/2 #12 w/1 or 2 #14	3 #10 w/1 #12 w/1 #16	3 #14 w/1 to 3 #18	5 #16 w/1 #18
	1 #8 w/1 or 2 #10	1 #12 w/1 to 5 #18	3 #14 w/1 to 3 #16	1 #18 w/1 to 5 #22
	1 #8 w/1 #10 w/1 or 2 #14	1 #12 w/1 to 5 #16	3 #14 w/1 #16 w/1 or 2 #18	1 #18 w/1 to 5 #20
	1 #8 w/1 #10 w/1 or 2 #12	1 #12 w/1 to 5 #14	4 #14 w/1 or 2 #22	1 #20 w/1 #22 w/1 to 3 #18
	1 #8 w/2 #10 w/1 #14	1 #12 w/1 #16 w/1 to 3 #18	4 #14 w/1 or 2 #20	1 #20 w/2 #22 w/1 to 3 #18
	1 #10 w/1 to 5 #18	2 #12 w/1 #16 w/1 to 3 #18	4 #14 w/1 or 2 #18	2 #20 w/1 #22 w/1 to 3 #18
	1 #10 w/1 to 5 #16	1 #12 w/1 #14 w/1 to 3 #18	4 #14 w/1 or 2 #20	2 #18 w/1 to 4 #22
	1 #10 w/1 to 5 #14	1 #12 w/1 #14 w/1 to 3 #16	4 #14 w/1 or 2 #18	2 #18 w/1 to 4 #20
	1 #10 w/1 or 4 #12	2 #12 w/1 #14 w/1 to 3 #16	4 #14 w/1 or 2 #16	3 #18 w/1 to 3 #22
	1 #10 w/1 #16 w/1 to 4 #18	2 #12 w/1 #14 w/1 to 3 #18	4 #14 w/1 #16 w/1 #18	3 #18 w/1 to 3 #20
	1 #10 w/1 #14 w/1 to 4 #16	1 #12 w/2 #14 w/1 or 2 #16	5 #14 w/1 #16 w/1 #18	4 #18 w/1 or 2 #22
	1 #10 w/1 #14 w/1 to 4 #18	2 #12 w/2 #14 w/1 or 2 #16	1 #16 w/1 to 5 #22	4 #18 w/1 or 2 #20
	1 #10 w/2 #14 w/1 to 3 #16	2 #12 w/1 to 4 #18	1 #16 w/1 to 5 #20	5 #18 w/1 #22
	1 #10 w/1 #12 w/1 to 4 #14	2 #12 w/1 to 4 #16	1 #16 w/1 to 5 #18	5 #18 w/1 #20
	1 #10 w/1 #16 w/1 to 4 #14	2 #12 w/1 to 4 #14	1 #16 w/1 #20 w/1 or 2 #22	1 #20 w/2 to 5 #22
	1 #10 w/1 #12 w/1 to 4 #18	3 #12 w/1 to 3 #18	1 #16 w/2 #20 w/1 or 2 #22	2 #20 w/1 to 4 #22
	1 #10 w/2 #12 w/1 to 3 #16	3 #12 w/1 to 3 #16	2 #16 w/1 #20 w/1 or 2 #22	3 #20 w/1 to 3 #22
	1 #10 w/2 #12 w/1 to 3 #18	3 #12 w/1 to 3 #14	2 #16 w/2 #20 w/1 or 2 #22	4 #20 w/1 or 2 #22
	1 #10 w/2 #12 w/1 or 2 #14	3 #12 w/1 #16 w/1 or 2 #18	1 #16 w/1 #18 w/1 to 3 #22	4 #20 w/1 or 2 #20
	1 #10 w/3 #12 w/1 #14	3 #12 w/1 #14 w/1 or 2 #18	1 #16 w/1 #18 w/1 to 3 #20	
	2 #10 w/1 to 4 #18	3 #12 w/1 #14 w/1 or 2 #16	2 #16 w/1 #18 w/1 to 3 #22	

Model	600 Volt Maximum			
454®	1 or 2 #6	1 #6 w/1 or 2 #8	2 #8 w/1 or 2 #10	2 #8 w/1 #10 w/1 or 2 #12
	2 or 3 #8	2 #6 w/1 #14	3 #8 w/1 or 2 #14	2 #8 w/2 #10 w/1 #14 Sol.
	1 #8 w/1 to 5 #14	2 #6 w/1 #12	1 #8 w/1 #12 w/1 to 4 #14	1 #10 w/1 #12 w/1 to 4 #14
	1 #8 w/1 to 5 #12	1 #6 w/1 #12 w/1 to 4 #14	1 #8 w/2 #12 w/1 to 3 #14	1 #10 w/2 #12 w/1 to 3 #14
	1 #8 w/1 to 4 #10	1 #6 w/2 #12 w/1 to 3 #14	1 #8 w/3 #12 w/1 or 2 #14	1 #10 w/3 #12 w/1 or 2 #14
	2 to 5 #10	1 #6 w/3 #12 w/1 or 2 #14	1 #8 w/4 #12 w/1 #14	1 #10 w/4 #12 w/1 #14
	1 #10 w/3 to 5 #14	1 #6 w/4 #12 w/1 #14	1 #8 w/1 #10 w/1 to 4 #14	1 #10 w/2 to 4 #12
	3 to 6 #12	1 #6 w/1 #10 w/1 to 4 #14	1 #8 w/1 #10 w/1 to 4 #12	2 #10 w/1 #12 w/1 to 3 #14
	1 #12 w/4 or 5 #14	1 #6 w/1 #10 w/1 to 3 #12	1 #8 w/2 #10 w/1 to 3 #14	2 #10 w/2 #12 w/1 or 2 #14
	2 #12 w/2 to 4 #14	1 #6 w/2 #10 w/1 or 2 #14	1 #8 w/2 #10 w/1 to 3 #12	2 #10 w/3 #12 w/1 #14
	3 #12 w/1 to 3 #14	1 #6 w/2 #10 w/1 #12	1 #8 w/3 #10 w/1 or 2 #14	2 #10 w/1 to 4 #14 or #12
	4 #12 w/1 #14	1 #6 w/1 #8 w/1 to 3 #14	1 #8 w/3 #10 w/1 #12	3 #10 w/1 #12 w/1 or 2 #14
	5 or 6 #14	1 #6 w/1 #8 w/1 or 2 #12	2 #8 w/1 #10 to 3 #14	3 #10 w/2 to 3 #12
	1 #6 w/1 to 4 #14	1 #6 w/1 #8 w/1 #10	2 #8 w/2 #12 w/1 or 2 #14	3 #10 w/1 to 3 #14 or #12
	1 #6 w/1 to 5 #12	2 #8 w/1 to 4 #14	2 #8 w/3 #12 w/1 #14	4 #10 w/1 #12 w/1 #14
	1 #6 w/1 to 3 #10	2 #8 w/1 to 3 #12	2 #8 w/1 #10 w/1 to 3 #14	4 #10 w/1 #14 w/1 #12

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UNDERWRITER'S LABORATORIES LISTED WIRE COMBINATIONS
The combinations listed are Cu-Cu Only. (Do Not use on Al-Al connections.)
The combinations listed are solid and/or stranded wire unless otherwise noted.

UL File No. E5238

IDEAL Twister® Wire Connectors

Model	600 Volt Maximum			
340®	2 to 5 #22 2 to 5 #20 2 to 5 #18 2 to 4 #16 1 to 3 #14	1 to 3 #12 1 #10 3 #20 w/1 or 2 #22 4 #20 w/1 #22 1 #18 w/1 to 4 #20 or #22	2 #18 w/1 to 3 #20 or #22 3 #18 w/1 or 2 #20 or #22 4 #18 w/1 #20 or #22 1 #16 w/1 to 4 #20 or #22 1 #16 w/1 to 5 #18	2 #16 w/1 to 3 #20 or #22 2 #16 w/1 to 4 #18 3 #16 w/1 to 3 #18, #20 or #22 4 #16 w/1 #20 or #22 4 #16 w/1 or 2 #18

Model	600 Volt Maximum			
341®	1 to 3 #10 1 #10 w/1 #8 1 to 3 #12 4 #12 Sol. 1 #12 w/1 or 2 #10 1 #12 w/1 #8 2 #12 w/1 #10 1 to 5 #14 1 #14 Sol. w/1 to 3 #12 1 #14 w/1 or 2 #10 2 #14 w/1 or 2 #12 2 #14 w/1 or 2 #10 2 #14 w/1 #8 3 #14 w/1 #12 or #10 3 #14 w/2 #12 4 #14 w/1 #12 or #10	1 to 6 #16 1 #16 w/1 to 4 #14 or #12 1 #16 w/1 or 2 #10 2 #16 w/1 to 4 #14 2 #16 w/1 to 3 #12 2 #16 w/1 or 2 #10 3 #16 w/1 to 3 #14 3 #16 w/1 or 2 #12 or #10 4 #16 w/1 to 2 #14 or #12 4 #16 w/1 #10 5 #16 w/1 #14 2 #18 w/1 to 4 #16, #14 3 #18 w/1 to 3 #12 2 #18 w/1 or 2 #10 3 #18 w/1 to 3 #16, #14 or #12 3 #18 w/1 or 2 #10	4 #18 w/1 or 2 #16, #14 or #12 4 #18 w/1 #10 5 #18 w/1 #16 or #14 2 to 6 #20 1 #20 w/1 to 4 #18, #16 or #14 2 #20 w/1 to 3 #18, #16 or #14 3 #20 w/1 or 2 #18, #16 or #14 4 #20 w/1 or 2 #18, #16 or #14 3 to 6 #22 1 #22 Sol. w/1 #20 Sol. 1 #22 w/2 to 5 #20 1 #22 w/1 to 5 #18 or #16 2 #22 w/1 to 4 #20, #18 or #16 3 #22 w/1 to 3 #20, #18 or #16 4 #22 w/1 or 2 #20, #18 or #16	1 #22 w/1 #18 w/1 #16 1 #22 w/1 #20 w/1 or 2 #16 1 #14 w/1 or 2 #12 w/1 #10 2 #14 w/1 #12 w/1 #10 1 #16 w/1 #12 w/1 #10 2 #16 w/1 #14 w/1 or 2 #12 2 #16 w/2 #14 w/1 #12 2 #16 w/1 #12 w/1 #10 3 #16 w/1 #14 w/1 #12 or #10 4 #16 w/1 #12 w/1 #10 1 #18 w/1 to 4 #16, #14 or #12 5 #16 Sol. w/1 #10 Sol. 1 #16 w/1 or 2 #14 w/1 #12 or #10 2 to 6 #18 1 #18 w/1 or 2 #10

Model	600 Volt Maximum			
342®	1 or 2 #8 1 #8 w/1 #6 2 to 4 #10 1 #10 w/1 or 2 #8 2 #10 w/1 #8 2 to 6 #12 1 #12 w/1 or 2 #10 1 #12 w/3 #10 1 #12 w/1 or 2 #8 1 or 2 #12 w/1 #6 2 #12 w/1 or 2 #10 2 #12 w/1 #8 or #6 2 #12 w/2 #8 3 #12 w/1 #10 or #8 3 #12 w/2 #10 4 #12 w/1 #10	3 to 6 #14 1 #14 w/1 to 4 #12 1 #14 w/1 to 3 #10 1 #14 w/1 or 2 #8 1 or 2 #14 w/1 #6 2 #14 w/1 to 3 #12 2 #14 w/1 to 3 #10 2 #14 w/1 #8 3 #14 w/1 to 3 #12 or #10 3 or 4 #14 w/1 #8 3 #14 w/1 #6 4 #14 w/1 or 2 #12 or #10 4 #14 w/1 #6 5 #14 w/1 #12 or #10 5 #14 w/1 #8 1 #16 w/2 to 5 #14 or #12	1 #16 w/1 to 3 #10 2 #16 w/1 to 4 #14 or #12 2 #16 w/1 or 2 #10 3 #16 w/1 to 3 #14 3 #16 w/1 or 2 #12 or #10 4 #16 w/1 or 2 #14 or #12 4 #16 w/1 #10 3 #18 w/3 #16 or #14 3 #18 w/1 or 2 #12 or #10 4 #18 w/1 or 2 #16, #14 or #12 5 #18 w/1 #16, #14, #12 or #10 1 #12 w/1 #10 w/1 #8 1 #14 w/1 #12 w/1 or 2 #10 1 #14 w/1 #12 w/1 #8 or #6 1 #14 w/2 #12 w/1 or 2 #10 1 #14 w/2 #12 w/1 #8	1 #14 w/3 #12 w/1 #10 1 #14 w/1 #10 w/1 #8 2 #14 w/1 #12 w/1 or 2 #10 2 #14 w/1 #12 w/1 #8 2 #14 w/2 #12 w/1 #10 2 #14 w/1 #10 w/1 #8 3 #14 w/1 #12 w/1 #8 3 #14 w/1 #10 w/1 #8 1 #16 w/1 #14 w/1 or 2 #12 2 #16 w/1 #14 w/1 or 2 #12 2 #16 w/2 #14 w/1 #12 or #10 2 #16 w/1 #12 w/1 #10 3 #16 w/1 #14 w/1 or 2 #12 3 #16 w/1 #14 w/1 #10 4 #16 w/1 #14 w/1 #12

IDEAL Twister® Al/Cu Wire Connectors

Model	600 Volt Maximum		600 Volt Maximum	
65	The wire combinations listed below are for **Aluminum to Copper** conductors. (**Do Not** use on Aluminum to Aluminum conductors.)		The wire combinations listed below are for **Copper to Copper** conductors. (**Do Not** use on Aluminum to Aluminum conductors.)	
	1 #10 Al Sol. w/1 or 2 #10 Cu Sol. 1 #10 Al w/1 or 2 #12 Cu 1 #10 Al w/1 or 2 #14 Cu 1 #10 Al w/1 or 2 #16 Cu 2 #10 Al Sol. w/1 #12 Cu 2 #10 Al Sol. w/1 #14 Cu 2 #12 Al Sol. w/1 #10 Cu Sol. 2 #12 Al Sol. w/1 #10 Cu Str. 1 #12 Al Sol. w/1 or 2 #10 Cu 1 #12 Al Str. w/1 or 2 #10 Cu Sol. 1 #12 Al w/1 or 2 #12 Cu	2 #12 Al Sol. w/1 #12 Cu 1 #12 Al w/1 or 2 #14 Cu 2 #12 Al Sol. w/1 #14 Cu 1 #10 Al w/1 or 2 #18 Cu 2 #10 Al Sol. w/1 #16 Cu 2 #10 Al Sol. w/1 #18 Cu 1 #12 Al w/1 or 2 #16 Cu 1 #12 Al w/1 or 2 #18 Cu 2 #12 Al Sol. w/1 #16 Cu 2 #12 Al Sol. w/1 #18 Cu	4 to 6 #22 3 to 6 #20 2 to 6 #18 1 to 6 #16 1 to 5 #14 1 to 3 #12 4 #12 Sol. 1 to 3 #10 2 #22 w/3 to 5 #20 1 #22 w/1 to 5 #18 or #16 2 #22 w/1 to 4 #20, #18 or #16 3 #22 w/1 to 3 #20, #18 or #16 4 #22 w/1 or 2 #20, #18 or #16 1 #20 w/1 to 4 #18, #16 or #14 2 #20 w/1 to 3 #18, #16 or #14 3 #20 w/1 or 2 #18, #16 or #14 4 #20 w/1 or 2 #18, #16 or #14 1 #18 w/1 to 4 #16, #14 or #12 1 #18 w/1 or 2 #10 2 #18 w/1 to 4 #16, #14 or #12 2 #18 w/1 or 2 #10 3 #18 w/1 or 2 #10 4 #18 w/1 or 2 #16, #14 or #12 4 #18 w/1 #10 5 #18 w/1 #16 or #14 1 #16 w/1 to 4 #14 or #12 1 #16 w/1 or 2 #10 2 #16 w/1 to 4 #14 2 #16 w/1 to 3 #12 2 #16 w/1 or 2 #10	3 #16 w/1 to 3 #14 3 #16 w/1 or 2 #12 or #10 4 #16 w/1 or 2 #14 or #12 4 #16 w/1 #10 5 #16 w/1 #14 5 #16 Sol. w/1 #10 Sol. 1 #14 Sol. w/1 to 3 #12 1 #14 w/1 or 2 #10 1 #14 w/1 or 2 #12 w/1 #10 2 #14 w/1 #12 w/1 #10 2 #14 w/1 or 2 #12 2 #14 w/1 or 2 #10 2 #14 w/1 #8 3 #14 w/1 #12 or #10 3 #14 w/2 #12 4 #14 w/1 #12 or #10 1 #12 w/1 or 2 #10 1 #12 w/1 #8 2 #12 w/1 #10 1 #10 w/1 #8 1 #22 w/1 #18 w/1 #16 1 #22 w/1 #20 w/1 or 2 #16 1 #16 w/1 or 2 #14 w/1 #12 or #10 1 #16 w/1 #12 w/1 #10 2 #16 w/1 #14 w/1 or 2 #12 2 #16 w/2 #14 w/1 #12 2 #16 w/1 #12 w/1 #10 3 #16 w/1 #14 w/1 #12 or #10 4 #16 w/1 #12 w/1 #10

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UNDERWRITER'S LABORATORIES LISTED WIRE COMBINATIONS
The combinations listed are Cu-Cu Only. (Do Not use on Al-Al connections.)
The combinations listed are solid and/or stranded wire unless otherwise noted.

UL File No. E5238

IDEAL In-Sure® Push-In Wire Connectors

Model	600 Volt Maximum			
32 33 34	#12 to #20 Sol. #12 to #16 Str. (≤ 19 Str.) #18 Str. (7 Str.) #14 to #18 Str. Tin-bonded (≤ 19 Str.)			

Model	600 Volt Maximum			
39	#10 to #14 Sol. #10 to #12 Str. (≤ 19 Str.) #10 to #14 Str. Tin-bonded (≤ 19 Str.)			

IDEAL SpliceLine™ Wire Connector

Model	600 Volt Maximum			
42	#12 to #20 Sol. #12 to #16 Str. (≤ 19 Str.) #14 to #18 Str. Tin-bonded (≤ 19 Str.)			

IDEAL WeatherProof™ Wire Connectors

Model	600 Volt Maximum			
61	1 or 2 #14 1 #16 Str. 2 #16 1 to 4 # 18 Str. 2 to 4 #18 Sol. 2 to 4 #20	1 #14 w/1 #16 1 #14 w/1 #16 w/1 #18 1 #14 w/1 or 2 #18 1 #14 w/1 to 3 #20 1 # 14 w/1 to 3 #22 2 #16 w/1 #18	2 #16 w/1 to 3 #22 2 #16 w/1 or 2 #20 1 #16 w/1 or 2 #18 1 #16 w/1 to 3 #20 1 #16 w/1 to 3 #22 3 #18 w/1 #22 or #20	2 #18 w/1 or 2 #22 or #20 1 #18 w/2 to 4 #20 1 #18 w/3 or 4 #22 1 or 2 #16 w/1 #20 w/1 #22 1 or 2 #18 w/1 #20 w/1 #22

Model	600 Volt Maximum			
62	2 to 6 #18 1 to 6 #16 1 to 5 #14 1 to 3 #12	1 to 4 #12 Sol. 1 to 3#10 1 #18 w/1 to 4 #16, #14 or #12 1 #18 w/1 or 2 #10	2 #18 w/1 to 4 #16 or #14 1 #14 w/1 to 3 #12 1 #14 w/1 or 2 #10 2 #14 w/1 or 2 #12 or #10	1 #12 w/1 or 2 #10 1 #12 w/1 #8 1 #10 w/1 #8

Model	600 Volt Maximum			
63	3 to 6 #14 2 to 6 #12 2 to 5 #10 1 or 2 #8	1 #16 w/2 to 5 #14 or #12 1 #16 w/1 to 3 #10 1 #14 w/3 or 4 #12 1 #14 w/1 to 3 #10	1 #14 w/1 or 2 #8 1 #12 w/1 or 2 #10 1 #12 w/1 or 2 #8 1 or 2 #12 w/1 #6	3 #12 w/1 #10 or #8 1 #10 w/1 or 2 #8 1 #8 w/1 #6

IDEAL UnderGround™ Wire Connectors

Model	600 Volt Maximum			
60	1 or 2 #10 1 to 3 #12 1 #12 w/1 #8 1 #12 w/1 #10 2 #12 w/1 #10 1 to 4 #14 1 #14 Sol. w/1 to 2 #12 1 #14 w/1 or 2 #10 2 #14 w/1 #10	2 #14 w/1 #12 3 #14 w/1 #12 1 #16 w/2 #10 1 #16 w/1 to 3 #12 or #14 1 #16 w/1 #10 or #12 w/1 or 2 #14 2 #16 w/1 or 2 #12 2 #16 w/1 #12 w/1 #14 2 #16 w/1 or 2 #14 2 #16 w/1 #10	2 #16 w/1 to 4 #14 3 #16 w/1 to 3 #14 3 #16 w/1 or 2 #10 or #12 3 #16 w/1 #14 w/1 #10 or #12 4 #16 w/1 or 2 #12 or # 14 4 #16 w/1 #10 w/1 #12 4 #16 w/1 #10 5 #16 w/1 #14 5 #16 Sol. w/1 #10 Sol.	1 #18 w/1 to 3 #12, #14 or #16 2 #18 w/1 or 2 #10 2 #18 w/1 or 2 #12, #14 or #16 3 #18 w/1 or 2 #10 3 #18 w/1 or 2 #14 or #16 3 #18 w/1 #10 1 #20 w/1 to 4 #16 or #18 2 #20 w/1 to 3 #14, #16 or #18

Model	600 Volt Maximum			
64	3 or 4 #22 Sol. 3 or 4 #20 Sol. 2 to 4 #18 2 to 4 #16	2 to 4 #14 1 to 3 #12 1 to 3 #10	1 #18 w/1 to 4 #16, #14 or #12 1 #16 w/1 to 4 #14 or #12 1 #14 w/1 or 2 #12 or #10	2 #14 w/1 #12 or #10 2 #12 w/1 #10 1 #8 w/1 #14, #12 or #10

Model	600 Volt Maximum			
66	1 or 2 #6 2 or 3 #8 2 to 5 #10 3 to 6 #12 1 #6 w/1 or 2 #8 1 #6 w/1 to 3 #10 1 #6 w/1 to 5 #12 1 #6 w/1 to 4 #14	2 #6 w/1 #10 2 #6 w/1 #12 2 #6 w/1 or 2 #14 1 #8 w/1 to 4 #10 1 #8 w/1 to 5 #12 1 #8 w/1 to 5 #14 2 #8 w/1 or 2 #10 2 #8 w/1 to 3 #12	2 #8 w/1 to 4 #14 3 #8 w/1 or 2 #14 1 #10 w/2 to 4 #12 1 #10 w/3 to 5 #14 2 #10 w/1 to 4 #12 2 #10 w/1 to 4 #14 3 #10 w/1 to 3 #12	3 #10 w/1 to 3 #14 4 #10 w/1 or 2 #12 4 #10 w/1 or 2 #14 1 #12 w/4 or 5 #14 2 #12 w/2 to 4 #14 3 #12 w/1 to 3 #14 4 #12 w/1 #14

IDEAL PowerPlug® Luminaire Disconnects

Model	Line Side	Ballast Side	Electrical Rating	
102 & 103	#12 to #18 Sol. #12 to #14 Str. (≤ 19 Str.) #18 Str. (7 Str.) #12 to #14 Str. Tin-bonded (≤ 19 Str.) #16 Str. Tin-bonded (≤ 26 Str.) #18 Str. Tin-bonded (≤ 16 Str.)	#18 Sol. #18 Str. (7 Str.) #18 Str. Tin-bonded (≤ 16 Str.)	6Amps / 600Volts Max.	

Model	Line Side	Ballast Side	Electrical Ratings	
182 & 183	#18 Sol.	#18 Sol.	3 Amps / 120 Volts 1.3 Amps / 277 Volts 1 Amps / 347 Volts 0.75 Amps / 480 Volts 0.60 Amps / 600 Volts	

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UNDERWRITER'S LABORATORIES LISTED WIRE COMBINATIONS

The combinations listed are Cu-Cu Only. (Do Not use on Al-Al connections.)

The combinations listed are solid and/or stranded wire unless otherwise noted.

UL File No. E5238

IDEAL Crimp Connectors

Model	600 Volt Maximum			
48	1 to 3 #16	1 #16 w/1 to 5 #22	2 #16 w/1 #18	1 #18 w/2 #20 w/2 or 3 #22
	1 to 5 #18	1 #16 w/1 to 4 #20	2 #16 w/1 to 3 #22	1 #18 w/3 #20 w/2 #22
	1 to 6 #20	1 #16 w/1 to 3 #18	2 #16 w/1 or 2 #20	2 #18 w/1 or 2#20 w/1 #22
	1 to 6 #22	1 #16 w/2 #22	2 #16 w/1 #18 w/1 #22	2 #18 w/1 #20 w/1 to 3 #22
	1 #14 w/1 to 3 #22	1 #16 w/1 #18 w/1 #22	1 #18 w/1 to 5 #20 or #22	3 #18 w/1 #20 w/1 #22
	1 #14 w/1 to 3 #20	1 #16 w/2 #18 w/1 #20	2 #18 w/1 to 3 #20	2 #20 w/1 to 4 #22
	1 #14 w/1 or 2 #18	1 #16 w/2 #18 w/1 or 2 #22	3 #18 w/1 to 3 #22	3 #20 w/1 to 3 #22
	1 #14 w/1 #16	1 #16 w/1 #18 w/1 #20 w/1 #22	3 #18 w/1 or 2 #20	4 #20 w/1 or 2 #22
	1 #14 w/1 #18 w/1 to 3 #22	1 #16 w/1 #18 w/1 or 2 #20 w/1 #22	1 #18 w/1 to 4 #20 w/1 #22	5 #20 w/1 #22
	1 #14 w/1 #18 w/1 or 2 #20	2 #16 w/1 #20 w/1 #22	1 #18 w/1 #20 w/2 to 4 #22	1 #20 w/1 to 4 #22
	1 #14 w/1 #18 w/1 #20 w/1 #22			
Model	600 Volt Maximum			
49	2 #14	1 #14 w/1 to 3 #18	1 #16 w/1 #18 w/1 #20	1 #18 w/1 #22
	1 to 4 #16	1 #14 w/1 to 3 #16	2 #16 w/1 or 2 #18	1 #18 w/2 to 4 #20
	1 to 6 #18	1 #14 w/2 or 3 #20	2 #16 w/2 or 3 #20	1 or 2 #18 w/1 #20
	1 to 6 #20	1 #14 w/1 #17 w/1 #20	3 #16 w/1 #18 w/1 #20	2 #18 w/1 to 4 #20
	1 #12 Str. w/1 or 2 #18	1 #16 w/1 to 4 #18	1 #17 w/1 #18 w/1 #20 (All Str.)	2 to 4 #18 w/1 #22
	1 #12 Str. w/1 #16	1 #16 w/1 to 4 #20	1 #17 w/1 #18 w/1 #20 w/1 #22 (All Str.)	
Model	600 Volt Maximum			
NC-8	The wire combinations listed below are for **Stranded** conductors Only.			
	2 #10	1 #10 w/2 #14	2 #12 w/2 #14	4 #14 w/1 or 2 #18
	2 or 3 #12	1 #10 w/1, 2 or 4 #16	1 #14 w/4 to 10 #18	1 #16 w/5 to 11 #18
	3 to 5 #14	1 #10 w/1 to 6 #18	1 #14 w/3 to 6 #16	2 #16 w/4 to 9 #18
	4 to 7 #16	1 #12 w/3 to 8 #18	2 #14 w/2 to 7 #18	3 #16 w/2 to 7 #18
	7 to 12 #18	1 #12 w/2 to 5 #16	2 #14 w/1 to 4 #16	4 #16 w/1 to 6 #18
	1 #8 w/1 #14, #16 or #18	1 #12 w/1 to 4 #14	3 #14 w/1 to 5 #18	5 #16 w/1 to 4 #18
	1 #8 w/2 #18	2 #12 w/1 to 4 #14	3 #14 w/1 to 3 #16	6 #16 w/1 #18
	1 #10 w/1 #12	2 #12 w/1 to 3 #16		
Model	600 Volt Maximum			
410	2 #14 Str.	1 #10 w/1 to 4 #14	6 #16 w/1 or 2 #18	2 #12 w/1 to 5 #18 w/1 #16
	5 to 10 #18	1 #10 w/1 #12	7 #16 w/1 #18	3 #12 w/1 to 2 #18 w/1 #16
	3 to 7 #16	1 #10 w/2 #12	1 #10 w/1 #18 w/5 #16	1 #14 w/1 #18 w/6 #16
	1 #14 Sol. w/1 #14 Str.	1 #10 w/1, 2 or 4 to 7 #18	1 #10 w/1 to 3 #18 w/4 #16	1 #14 w/1 or 2 #18 w/5 #16
	3 to 6 #14	1 #10 Str. w/1 to 6 #16 Sol.	1 #10 w/1 to 4 #18 w/3 #16	1 #14 w/1 to 4 #18 w/4 #16
	2 to 4 #12	1 #12 w/1 to 9 #18 or 1 to 7 #16	1 #10 w/1 to 6 #18 w/2 #16	1 #14 w/1 to 5 #18 w/3 #16
	2 #10 Str.	2 #12 w/1 to 6 #18 or 1 to 4 #16	1 #10 w/1 to 8 #18 w/1 #16	1 #14 w/1 to 7 #18 w/2 #16
	1 #10 Sol. w/1 #10 Str.	3 #12 w/1 to 3 #18 or #1 or 2 #16	2 #10 w/1 or 2 #16	1 #14 w/1 to 8 #18 w/1 #16
	1 #14 w/1 to 3 #12	1 #14 w/1 to 9 #18	2 #10 w/1 or 2 #18 w/1 #16	2 #14 w/1 #18 w/4 #16
	1 #14 w/1 or 2#12 w/1 #10	1 #14 w/1 to 7 #16	2 #10 w/1 to 4 #18	2 #14 w/3 #18 w/3 #16
	2 #14 w/1 or 2 #12	2 #14 w/1 to 8 #18 or 1 to 5 #16	1 #12 w/1 or 2 #18 w/6 #16	2 #14 w/5 #18 w/2 #16
	2 #14 w/1 #10 w/1 #12	3 #14 w/1 to 5 #18	1 #12 w/1 to 3 #18 w/5 #16	2 #14 w/7 #18 w/1 #16
	3 #14 w/1 or 2 #12	3 #14 w/1 to 4 #16	1 #12 w/1 to 4 #18 w/4 #16	3 #14 w/1 or 2 #18 w/3 #16
	3 #14 w/1 #10	4 #14 w/1 to 3 #18 or 1 or 2 #16	1 #12 w/1 to 5 #18 w/3 #16	3 #14 w/1 to 4 #18 w/2 #16
	1 #12 w/1 to 4 #14	1 #16 w/3 to 7 #18	1 #12 w/1 to 6 #18 w/2 #16	3 #14 w/1 to 5 #18 w/1 #16
	2 #12 w/1 to 3 #14	2 #16 w/2 to 8 #18	1 #12 w/1 to 8 #18 w/1 #16	4 #14 w/1 or 2 #18 w/1 #16
	2 #12 w/1 #10	3 #16 w/1 to 7 #18	2 #12 w/1 #18 w/4 #16	
	2 #10 w/1 or 2 #14	4 #16 w/1 to 5 #18	2 #12 w/1 to 3 #18 w/3 #16	
	2 #10 w/1 #12	5 #16 w/1 to 4 #18	2 #12 w/1 to 4 #18 w/2 #16	
Model	600 Volt Maximum			
411	2 #8	3 #10 w/1 #12	1 #10 w/2 to 4 #12	3 #12 w/1 or 2 #16
	2 #8 w/1 #12	3 #10 w/1 or 2 #14	1 #10 w/3 or 4 #14	3 #12 w/1 or 2 #18
	2 #8 w/1 or 2 #14	3 #10 w/1 or 2 #16	1 #10 w/4 #16	2 #12 w/2 or 3 #14
	1 #8 w/1 or 2 #10	3 #10 w/1 or 2 #18	3 to 5 #12	2 #12 w/3 #16
	1 #8 w/1 to 3 #12	2 #10 w/1 to 3 #12	4 #12 w/1 #14	1 #12 w/4 #14
	1 #8 w/1 to 4 #14	2 #10 w/1 to 3 #14	4 #12 w/1 #16	5 #14
	2 or 3 #10	2 #10 w/1 to 3 #16	4 #12 w/1 #18	
	4 #10 Sol.	2 #10 w/1 to 3 #18	3 #12 w/1 or 2 #14	
Model	600 Volt Maximum			
412	1 #4 w/1 to 3 #14	1 #10 w/1 to 5 #14	2 #12 w/1 to 5 #16	4 #14 w/1 to 3 #16
	1 #4 w/1 or 2 #12	1 #10 w/1 to 5 #12	2 #12 w/1 to 5 #14	5 #14 w/1 or 2 #18
	1 #4 w/1 #10	2 #10 w/1 to 5 #18	3 #12 w/1 to 3 #18	5 #14 w/1 or 2 #16
	1 #4 w/1 #8	2 #10 w/1 to 5 #16	3 #12 w/1 to 3 #16	6 #14 w/1 #18
	1 #6 w/1 to 6 #14	2 #10 w/1 to 5 #14	3 #12 w/1 to 4 #14	6 #14 w/1 #16
	1 #6 w/1 to 5 #12	2 #10 w/1 to 5 #12	4 #12 w/1 to 3 #18	1 #16 w/4 to 6 #18
	1 #6 w/1 to 3 #10	3 #10 w/1 to 4 #18	4 #12 w/1 to 3 #16	2 #16 w/2 to 5 #18
	1 #6 w/1 or 2 #8	3 #10 w/1 to 4 #16	4 #12 w/1 to 3 #14	3 #16 w/1 to 4 #18
	2 #6 w/1 #14	3 #10 w/1 to 4 #14	5 #12 w/1 or 2 #18	4 #16 w/1 to 3 #18
	2 #6 w/1 #12	3 #10 w/1 to 3 #12	5 #12 w/1 or 2 #16	5 #16 w/1 or 2 #18
	1 #8 w/1 to 5 #14	4 #10 w/1 to 3 #18	5 #12 w/1 or 2 #14	6 #16 w/1 #18
	1 #8 w/1 to 5 #12	4 #10 w/1 to 3 #16	1 #14 w/2 to 6 #18	2 #6
	1 #8 w/1 to 3 #10	4 #10 w/1 to 3 #14	1 #14 w/1 to 6 #16	2 or 3 #8
	2 #8 w/1 to 5 #14	4 #10 w/1 or 2 #12	2 #14 w/1 to 5 #18	2 to 5 #10
	2 #8 w/1 to 3 #12	1 #12 w/1 to 6 #18	2 #14 w/1 to 5 #16	2 to 6 #12
	2 #8 w/1 or 2 #10	1 #12 w/1 to 6 #16	3 #14 w/2 to 4 #18	2 to 7 #14
	1 #10 w/1 to 6 #18	1 #12 w/1 to 6 #14	3 #14 w/1 to 3 #16	3 to 7 #16
	1 #10 w/1 to 6 #16	2 #12 w/1 to 5 #16	4 #14 w/1 to 3 #18	

Revised 05/07/10

The combinations listed are Cu-Cu Only. (Do Not use on Al-Al connections.)
The combinations listed are solid and/or stranded wire unless otherwise noted.

IDEAL Set-Screw Connectors

Model	300 Volt Maximum			
10	1 #10	2 #14 w/1 or 2 #18	1 #16 w/1 #18 w/1 or 2 #22	3 #18 w/1 #20 w/1 or 2 #22
	1 #10 Str. w/1 #20	1 #14 w/1 to 3 #18	2 #16 w/1 to 4 #20 or #22	4 #18 w/1 or 2 #20 or #22
	1 #10 Str. w/1 or 2 #22	2 #14 Str. w/1 #18 or #20 w/1 or 2 #22	2 #16 w/1 to 3 #18	4 #18 w/1 #20 w/1 or 2 #22
	1 #12	1 #14 Str. w/1 #18 or #20 w/1 or 2 #22	3 #16 w/1 #18 or #20 w/1 or 2 #22	5 #18 w/1 #20 w/1 or 2 #22
	1 #12 Str. w/1 #14	2 #14 w/1 to 3 #20	3 #16 w/1 to 3 #20 or #22	2 to 6 #20
	1 #12 Str. w/1 #16 w/1 #18	1 #14 w/3 to 5 #20	4 #16 w/1 #18, #20 or #22	1 #20 w/1 to 5 #22
	1 #12 Str. w/1 or 2 #18 or #20	1 #14 Str. w/1 or 2 #20	4 #16 w/1 #20 w/1 #22	2 #20 w/1 to 4 #22
	1 #12 Str. w/1 #18 or #20 w/1 or 2 #20	1 #14 Str. w/2 to 5 #22	2 to 6 #18	3 #20 w/1 to 3 #22
	1 #12 w/3 or 4 #20 or #22	2 #14 w/3 or 4 #22	1 #18 w/1 to 5 #20 or #22	4 #20 w/1 or 2 #22
	1 or 2 #14	2 #14 Str. w/1 or 2 #22	1 #18 w/1 #20 w/1 or 2 #22	5 #20 w/1 #22
	2 #14 w/1 #16	2 to 4 #16	2 #18 w/1 to 4 #20 or #22	4 to 6 #22
	1 #14 w/1 or 2 #16	1 #16 w/1 to 5 #20 or #22	2 #18 w/1 #20 w/1 or 2 #22	3 #16 w/1 or 2 #18
	2 #14 Str. w/1 #16 w/1 #20 or #22	1 #16 w/1 to 4 #18	3 #18 w/1 to 4 #22	
	1 #14 Str. w/1 #16 w/1 #18, #20 or #22	1 #16 w/1 #20 w/1 or 2 #22	3 #18 w/1 to 3 #20	

Model	600 Volt Maximum			
11	1 #10	2 #14 w/1 to 5 #20 or #22	2 #16 w/1 to 4 #18	3 #18 w/1 to 5 #22
	1 #10 Str. w/1 or 2 #16, #18 or #20	2 #14 w/1 to 4 #18	3 #16 w/1 to 5 #22	3 #18 w/1 to 3 #20
	2 #12	2 #14 w/1 to 3 #16	3 #16 w/1 to 4 #20	4 #18 w/1 to 5 #22
	1 #12 w/3 to 5 #20	3 #14 w/1 to 3 #22	3 #16 w/1 to 3 #18	4 #18 w/1 or 2 #20
	1 #12 w/1 to 3 #16 or #18	3 #14 w/1 or 2 #18 or #20	4 #16 w/1 to 5 #22	5 #18 w/1 to 5 #22
	1 #12 w/1 #14	3 #14 w/1 #16	4 #16 w/1 or 2 #18 or #20	5 #18 w/1 #20
	2 #12 w/2 or 3 #20	4 or 5 #16	5 #16 w/1 to 4 #22	1 #20 w/4 or 5 #22
	2 #12 w/1 or 2 #18	1 #16 w/4 or 5 #22	5 #16 w/1 #18 or #20	2 #20 w/3 to 5 #22
	2 or 3 #14	1 #16 w/3 to 5 #20	6 or 7 #18	3 #20 w/3 to 5 #22
	1 #14 w/2 to 5 #22	1 #16 w/2 to 5 #18	1 #18 w/4 or 5 #20 or #22	4 #20 w/3 to 5 #22
	1 #14 w/1 to 5 #18 or #20	2 #16 w/1 to 5 #22	2 #18 w/2 to 5 #22	5 #20 w/1 to 5 #22
	1 #14 w/1 to 4 #16	2 #16 w/2 to 5 #20	2 #18 w/3 or 4 #20	

Model	600 Volt Maximum			
22	1 or 2 #10	2 #10 w/1 #12	3 #12 w/1 #14	5 #14 w/1 #16
	1 #10 Str. w/3 to 5 #20	2 to 4 #12	2 to 6 #14	2 #16 or #18
	1 #10 w/3 to 5 #18	1 #12 w/3 to 5 #18	1 #14 w/3 to 5 #18	4 to 6 #16
	1 #10 w/2 to 5 #16	1 #12 w/2 to 5 #16	1 #14 w/2 to 5 #16	1 #16 w/3 to 5 #18
	1 #10 w/1 to 4 #14	1 #12 w/1 to 5 #14	2 #14 w/2 to 4 #20	2 #16 w/2 to 4 #18
	1 #10 w/1 or 2 #12	2 #12 w/1 to 4 #18	2 #14 w/1 to 4 #16	3 #16 w/1 to 3 #18
	2 #10 w/2 to 4 #20	2 #12 w/1 to 4 #16	3 #14 w/2 or 3 #20	4 #16 w/1 or 2 #18
	2 #10 w/1 to 3 #18	2 #12 w/1 to 4 #14	3 #14 w/1 to 3 #16	5 #16 w/1 #18
	2 #10 w/1 or 2 #16	3 #12 w/1 to 3 #18	4 #14 w/1 or 2 #16	2 #18
	2 #10 w/1 #14	3 #12 w/1 or 2 #16		

Buchanan Crimp Connectors

Model	600 Volt Maximum			
2006S	2 to 10 #18 Str.	8 #18 w/1 #16	2 # 10	1 #14 w/6 #16 w/1 #18
	3 to 10 #18	2 to 7 # 16	1 #14 w/1 #12 w/1 #10	1 #14 w/5 #16 w/1 or 2 #18
	2 #18 w/1 to 6 #16 or 1 to 5 #14	1 #16 w/1 to 4 #14 or 1 to 3 #12	2 #14 w/1 #12 w/1 #10	1 #14 w/4 #16 w/1 to 4 #18
	3 #18 w/1 to 3 #12 or 1 #10	1 #16 w/1 #10	1 #10 w/5 #16 w/1 #18	1 #14 w/3 #16 w/1 to 5 #18
	2 #18 Str. w/1 to 5 #16 or 1 to 5 #14	2 #16 w/1 to 3 #14 or 1 or 2 #12	1 #10 w/4 #16 w/1 to 3 #18	1 #14 w/2 #16 w/1 to 7 #18
	3 #18 Str. w/1 to 3 #12 or 1 #10	2 #16 w/1 #10	2 #10 w/1 #16 w/1 #18	1 #14 w/2 #16 w/1 to 8 #18
	3 #18 w/1 to 5 #16 or 1 to 4 #14	3 #16 w/1 or 2 #14 or 1 #12	1 #12 w/5 #16 w/1 to 3 #18	2 #14 w/4 #16 w/1 #18
	3 #18 w/1 or 2 #12	3 #16 w/1 #10	1 #12 w/4 #16 w/1 to 4 #18	2 #14 w/3 #16 w/3 #18
	4 #18 w/1 to 4 #16 or 1 to 3 #14	4 #16 w/1 #14 or 1 #12	1 #12 w/3 #16 w/1 to 5 #18	2 #14 w/2 #16 w/5 #18
	5 #18 w/1 or 2 #12 or 1 #10	2 to 5 #14	1 #12 w/2 #16 w/1 to 6 #18	2 #14 w/1 #16 w/7 #18
	5 #18 w/1 to 3 #16 or 1 or 2 #14	1 #14 w/1 to 3 #12 or 1 #10	1 #12 w/1 #16 w/1 to 8 #18	3 #14 w/3 #16 w/1 or 2 #18
	6 #18 w/1 #12 or #10	2 #14 w/1 or 2 #12 or 1 #10	2 #12 w/4 #16 w/1 #18	3 #14 w/2 #16 w/1 to 4 #18
	6 #18 w/1 to 3 #16 or 1 or 2 #14	3 #14 w/1 #12	2 #12 w/2 #16 w/1 to 4 #18	3 #14 w/1 #16 w/1 to 5 #18
	6 #18 w/1 #12	2 to 4 #12	2 #12 w/1 #16 w/1 to 5 #18	4 #14 w/1 #16 w/1 or 2 #18
	7 #18 w/1 or 2 # 16 or 1 #14	1 #12 w/1 #10	3 #12 w/1 #16 w/1 or 2 #18	

Model	600 Volt Maximum			
2008S	2 to 10 #18	2 #14 w/ 1 or 2 #12 or 1 #10	1 #12 w/5 #16 w/1 to 3 #18	1 #14 w/1 #16 w/1 to 8 #18
	1 #18 w/1 to 6 #16 or 1 to 5 #14	3 #14 w/1 #12	1 #12 w/4 #16 w/1 to 4 #18	2 #14 w/4 #16 w/1 #18
	2 #18 w/1 to 3 #12 or 1 #10	2 to 4 #12	1 #12 w/3 #16 w/1 to 5 #18	2 #14 w/3 #16 w/3 #18
	2 #18 w/1 to 5 #16 or #14	1 #12 w/1 #10	1 #12 w/2 #16 w/1 to 6 #18	2 #14 w/2 #16 w/5 #18
	3 #18 w/1 to 3 #12 or 1 #10	2 #10	2 #12 w/1 #16 w/1 or 2 #18	2 #14 w/1 #16 w/7 #18
	2 #16 w/1 to 3 #14 or 1 or 2 #12 or 1	1 #14 w/1 #12 w/1 #10	1 #14 w/6 #16 w/1 #18	3 #14 w/3 #16 w/1 or 2 #18
	3 #16 w/1 or 2 #14 or 1 #12 or #10	2 #14 w/1 #12 w/1 #10	1 #14 w/5 #16 w/1 or 2 #18	3 #14 w/2 #16 w/1 to 4 #18
	4 #16 w/1 #14 or #12	1 #10 w/5 #16 w/1 #18	1 #14 w/4 #16 w/1 to 4 #18	3 #14 w/1 #16 w/1 to 5 #18
	2 to 5 #14	1 #10 w/4 #16 w/1 to 3 #18	1 #14 w/3 #16 w/1 to 5 #18	4 #14 w/1 #16 w/1 or 2 #18
	1 #14 w/1 to 3 #12 or 1 #10	2 #10 w/1 #16 w/1 #18	1 #14 w/2 #16 w/1 to 7 #18	

Model	600 Volt Maximum			
2011S	5 to 11 #14 Str.	1 to 3 #14 Str. w/3 to 5 #12 Str.	1 to 3 #14 w/3 to 5 #12	1 #8 w/1 #10
	3 to 7 #12 Str.	1 to 3 #14 Str. w/3 or 4 #10 Str.	1 to 3 #14 w/3 to 4 #10	4 to 10 #14 Sol.
	2 to 5 #10 Str.	1 or 2 #12 Str. w/3 or 4 #10 Str.	1 or 2 #12 w/3 or 4 #10	3 to 6 #12 Sol.
	2 or 3 #8 Str.	1 to 3 #12 Str. w/5 to 8 #14 Str.	1 to 3 #12 w/5 to 8 #14	2 to 4 #10 Sol.
	2 #6 Str.	2 or 4 #14 Str. w/1 #8 or #10 Str.	1 #4 Str. w/1 #8 or #10	2 # 8 Sol.
	1 #8 w/1 #10 Str.	2 or 4 #14 Sol. w/1 #8 Str.	1 #6 Str. w/1 #8 or #10	

Buchanan Termend™ Lugs

Model				
16-8	1 to 8 #16	1 or 2 #12 Sol.	1 to 5 #14 Str.	1 #8 Str.
	1 to 4 #14 Sol.	1 #10 Sol.	1 to 3 #12 Str.	

UNDERWRITER'S LABORATORIES LISTED WIRE COMBINATIONS
The combinations listed are Cu-Cu Only. (Do Not use on Al-Al connections.)
The combinations listed are solid and/or stranded wire unless otherwise noted.

Buchanan B-CAP® Wire Connectors

Model	600 Volt Maximum			
B1	4 to 6 #22	1 #10 w/1 to 2 #14	#16 w/#20 2 to 6*	#12 w/#20 2 to 3*
	3 to 6 #20	1 #10 w/1 to 2 #16	#16 w/#18 2 to 5*	#12 w/#18 2 to 3*
	2 to 6 #18	1 #10 w/1 to 3 #18	#14 w/#22 2 to 4*	#12 w/#16 2 to 3*
	2 to 5 #16	#20 w/#22 3 to 6*	#14 w/#20 2 to 4*	#12 w/#14 2 to 3*
	2 to 4 #14	#18 w/#22 3 to 6*	#14 w/#18 2 to 4*	
	2 to 3 #12	#18 w/#20 3 to 6*	#14 w/#16 2 to 4*	* Any wire combination totaling the
	1 #10 w/1 #12	#16 w/#22 2 to 6*	#12 w/#22 2 to 3*	number of conductors shown.
Model	600 Volt Maximum			
B2	5 to 6 #22	2 #10 Str.	1 #8 Str. w/1 #10 Str.	#14 w/#20 2 to 6*
	3 to 6 #20	2 #10 w/1 #12	1 #12 w/1 #14 w/1 to 4 #16	#14 w/#18 2 to 6*
	2 to 6 #18 Sol.	1 #10 w/1 to 4 #18	1 #12 w/2 #14 w/1 or 2 #16	#14 w/#16 2 to 6*
	2 to 5 #18 Str.	2 #10 w/1 to 3 #18	2 #12 w/1 #14 w/1 to 3 #16	#12 w/#22 2 to 6*
	2 to 6 #16 Sol.	1 #10 w/1 to 4 #16	#20 w/#22 4 to 6*	#12 w/#20 2 to 6*
	2 to 5 #16 Str.	2 #10 w/1 to 3 #16	#18 w/#22 3 to 6*	#12 w/#18 2 to 5*
	2 to 6 #14 Sol.	1 #10 w/1 to 4 #14	#18 w/#20 3 to 6*	#12 w/#16 2 to 5*
	2 to 5 #14 Str.	2 #10 w/1 or 2 #14	#16 w/#22 3 to 6*	#12 w/#14 2 to 5*
	2 to 5 #12 Sol.	1 #10 w/1 to 3 #12	#16 w/#20 2 to 6*	
	2 to 4 #12 Str.	1 #8 Str. w/1 #14 Str.	#16 w/#18 2 to 6*	* Any wire combination totaling the
	2 or 3 #10 Sol.	1 #8 Str. w/1 #12 Str.	#14 w/#22 2 to 6*	number of conductors shown.
Model	600 Volt Maximum			
B4	4 to 6 #14	2 #6 Str.	2 #8 w/1 or 2 #10	#12 w/#14 2 to 6*
	2 to 5 #12	1 #8 w/1 to 4 #14	1 #6 w/1 to 4 #14	#10 w/#14 2 to 5*
	2 to 5 #10 Sol.	1 #8 w/1 to 4 #12	1 #6 w/1 to 4 #12	#10 w/#12 2 to 5*
	2 to 4 #10 Str.	2 #8 w/1 to 3 #12	1 #6 w/1 or 2 #10	
	2 or 3 #8 Sol.	3 #8 Sol. w/1 #12	1 #6 w/1 or 2 #8	* Any wire combination totaling the
	2 #8 Str.	1 #8 w/1 to 4 #10		number of conductors shown.
Model				
BGR & WGR	2 to 5 # 14	2 #10 w/1 #12 w/1 #14	1 #10 w/1 to 3 #12 w/1 #14	3 #12 w/1 or 2 #14
	2 to 5 # 12	2 #10 w/1 to 3 #14	1 #10 w/1 or 2 #12 w/1 or 2 #14	2 #12 w/1 to 3 #14
	2 or 3 # 10	1 #10 w/1 to 3 #12	1 #10 w/1 #12 w/1 to 3 #14	1 #12 w/1 to 4 #14
	2 #10 w/1 or 2 #12	1 #10 w/1 to 4 #14	4 #12 w/1 #14	

Buchanan B-Twist™ Wire Connectors

Model	600 Volt Maximum			
BT2	1 to 3 #10	1 #10 w/2 #12 w/1 or 2 #14	1 or 2 #12 w/2 #14 w/1 #16	1 #16 w/1 #18 w/1 to 3 #22
	1 to 5 #12	1 #10 w/3 #12 w/1 #14	2 #12 w/1 to 4 #18, #16 or #14	2 #16 w/1 to 4 #22, #20 or #18
	1 to 6 #14	1 #10 w/1 to 4 #18 or #16	3 #12 w/1 to 3 #18, #16 or #14	3 #16 w/1 to 3 #22 w/1 #20
	1 to 6 #16	2 #10 w/1 to 3 #14	3 #12 w/1 #16 w/1 or 2 #18	3 #16 w/1 or 2 #22 w/1 #20
	2 to 6 #18	2 #10 w/1 to 3 #12	3 #12 w/1 #14 w/1 or 2 #18 or #16	3 #16 w/1 #18 w/1 or 2 #20
	3 to 6 #20	2 #10 w/1 #16 w/1 to 3 #18	3 #12 w/2 #14 w/1 #16	3 #16 w/1 #18 w/1 or 2 #22
	4 to 6 #22	2 #10 w/2 #14 w/1 or 2 #16	4 #12 w/1 or 2 #16	4 #16 w/1 or 2 #22, #20 or #18
	1 #8 w/1 to 5 #16	2 #10 w/1 #12 w/1 to 3 #16	4 #12 w/1 #14	4 #16 w/1 #22 w/1 #20
	1 #8 w/1 to 4 #14	2 #10 w/1 #12 w/1 to 3 #14	4 #12 w/1 #16 w/1 #18	4 #16 w/1 #18 w/1 #22 or #20
	1 #8 w/1 to 3 #12	2 #10 w/2 #12 w/1 or 2 #18 or #16	4 #12 w/1 #14 w/1 #18 or #16	5 #16 w/1 #22, #20 or #18
	1 #8 w/2 #12 w/1 to 3 #14	2 #10 w/2 #12 w/1 #14	1 #14 w/1 to 5 #22, #20, #18 or #16	1 #18 w/1 to 5 #22 or #20
	1 #8 w/1 or 2 #10	3 #10 w/1 to 3 #18 or #16	1 or 2 #14 w/1 #16 w/1 to 3 #18	1 to 3 #18 w/1 or 2 #22 w/1 #20
	1 #8 w/1 #10 w/1 or 2 #14 or #12	3 #10 w/1 or 2 #14	2 #14 w/1 to 4 #22, #20, #18 or #16	1 to 3 #18 w/2 #22 or #20
	1 #8 w/2 #10 w/1 #14	3 #10 w/1 #12	3 #14 w/1 to 3 #22, #20, #18 or #16	2 #18 w/1 to 4 #22 or #20
	1 #10 w/1 to 5 #18, #16 or #14	3 #10 w/1 #16 w/1 or 2 #18	3 #14 w/1 #16 w/1 or 2 #18	3 #18 w/1 to 3 #22 or #20
	1 #10 w/1 to 4 #12	3 #10 w/1 #14 w/1 or 2 #18	4 #14 w/1 or 2 #22, #20, #18 or #16	4 #18 w/1 or 2 #22 or #20
	1 #10 w/1 #16 w/1 to 4 #18	3 #10 w/1 #14 w/1 #16	4 #14 w/1 #16 w/1 #18	5 #18 w/1 #22 or #20
	1 #10 w/1 #14 w/1 to 4 #18 or #16	3 #10 w/1 #12 w/1 #18 or #16	5 #14 w/1 #18 or #16	1 #20 w/3 to 5 #22
	1 #10 w/2 #14 w/1 to 3 #16	1 #12 w/1 to 5 #18, #16 or #14	1 #16 w/1 to 5 #22, #20 or #18	2 #20 w 2 to 4 #22
	1 #10 w/1 #12 w/1 #16 w/1 or 2 #18 or #16	1 or 2 #12 w/1 #16 w/1 or 2 #22 or #20	1 #16 w/1 or 2 #20 w/1 or 2 #22 or #20	3 #20 w/2 or 3 #22
	1 #10 w/1 #12 w/1 to 4 #14	1 or 2 #12 w/1 #14 w/1 to 3 #18	2 #16 w/1 or 2 #20 w/1 or 2 #22 or #20	4 #20 w/2 #22
	1 #10 w/2 #12 w/1 to 3 #18 or #16	1 or 2 #12 w/1 #14 w/1 to 3 #16	1 #16 w/1 #18 w/1 to 3 #20	5 #20 w/1 #22

Buchanan WingTwist™ Wire Connectors

Model	600 Volt Maximum			
WT41	1 to 3 #10	1 to 6 #16	4 #18 w/1 or 2 #16, #14 or #12	1 #22 w/1 #20 w/1 or 2 #16
	1 #10 w/1 #8	1 #16 w/1 to 4 #14 or #12	4 #18 w/1 #10	1 #14 w/1 or 2 #12 w/1 #10
	1 to 3 #12 Str.	1 #16 w/1 or 2 #10	5 #18 w/1 #16 or #14	2 #14 w/1 #12 w/1 #10
	1 to 4 #12 Sol.	2 #16 w/1 to 4 #14	2 to 6 #20	1 #16 w/1 #12 w/1 #10
	1 #12 w/1 or 2 #10	2 #16 w/1 to 3 #12	1 #20 w/1 to 4 #18, #16 or #14	2 #16 w/1 #14 w/1 or 2 #12
	1 #12 w/1 #8	2 #16 w/1 or 2 #10	2 #20 w/1 to 3 #18, #16 or #14	2 #16 w/2 #14 w/1 #12
	2 #12 w/1 #10	3 #16 w/1 to 3 #14	3 #20 w/1 or 2 #18, #16 or #14	2 #16 w/1 #12 w/1 #10
	1 to 5 #14	3 #16 w/1 or 2 #12 or #10	4 #20 w/1 or 2 #18, #16 or #14	3 #16 w/1 #14 w/1 #12 or #10
	1 #14 Sol. w/1 to 3 #12	4 #16 w/1 or 2 #14 or #12	3 to 6 #22	4 #16 w/1 #12 w/1 #10
	1 #14 w/1 or 2 #10	4 #16 w/1 #10	1 #22 Sol. w/1 #20 Sol.	1 #18 w/1 to 4 #16, #14 or #12
	2 #14 w/1 or 2 #12	5 #16 w/1 #14	1 #22 w/2 to 5 #20	5 #16 Sol. w/1 #10 Sol.
	2 #14 w/1 or 2 #10	2 #18 w/1 to 4 #16, #14	1 #20 w/1 to 5 #18 or #16	1 #16 w/1 or 2 #14 w/1 #10
	2 #14 w/1 #8	3 #18 w/1 to 3 #12	2 #22 w/1 to 4 #20, #18 or #16	1 #16 w/1 or 2 #14 w/1 #10
	3 #14 w/1 #12 or #10	2 #18 w/1 or 2 #10	3 #22 w/1 to 3 #20, #18 or #16	2 to 6 #18
	3 #14 w/2 #12	3 #18 w/1 to 3 #16, #14 or #12	4 #22 w/1 or 2 #20, #18 or #16	1 #18 w/1 or 2 #10
	4 #14 w/1 #12 or #10	3 #18 w/1 or 2 #10	1 #22 w/1 #18 w/1 #16	

UNDERWRITER'S LABORATORIES LISTED WIRE COMBINATIONS
The combinations listed are Cu-Cu Only. (Do Not use on Al-Al connections.)
The combinations listed are solid and/or stranded wire unless otherwise noted.

UL File No. E5238

Buchanan WingTwist™ Wire Connectors

Model	600 Volt Maximum			
WT51	2 to 4 # 18	1 #14 w/1 to 5 #18	1 #12 w/1 to 5 #18	1 to 3 #12
	2 to 4 #16	1 #14 w/1 to 4 #16	1 #12 w/1 to 3 #16	1 #10 w/1 to 3 #18
	1 #16 w/1 to 5 #18	2 #14 w/1 to 3 #18	1 #12 w/1 or 2 #14	1 #10 w/1 or 2 #16
	2 #16 w/1 to 4 #18	2 #14 w/1 to 5 #18	2 #12 w/1 or 2 #18	1 #10 w/1 or 2 #14
	3 #16 w/1 to 3 #18	3 #14 w/1 or 2 #18	2 #12 w/1 #16	1 #10 w/1 #12
	4 #16 w/1 or 2 #18	3 #14 w/1 #16	2 #12 w/1 #14	1 #10
	1 to 3 #14	3 #14 w/1 #18		

Model	600 Volt Maximum			
WT52	1 #12 w/5 #14	1 #10 w/1 to 4 #16	1 #12 w/2 #14 w/1 or 2 #16	4 #14 w/1 or 2 #18
	1 #12 w/4 #16	1 #10 w/1 or 2 #14	2 #12 w/3 or 4 #18	4 #14 w/1 #16
	1 #12 w/4 #14	1 #10 w/1 or 2 #12	2 #12 w/1 to 3 #16	5 #14 w/1 #18
	1 #12 w/2 #14	1 #10 w/1 #14 w/1 to 3 #16	2 #12 w/1 to 3 #14	1 #16 w/4 or 5 #18
	1 #12 w/1 #14	1 #10 w/2 #14 w/1 #16	2 #12 w/1 #14 w/1 or 2 #16	2 #16 w/2 to 4 #18
	1 #10 w/3 #14	1 #10 w/1 #12 w/1 #14	3 #12 w/1 or 2 #16	3 #16 w/1 to 3 # 18
	1 #10 w/4 #14	1 #10 w/1 #12 w/1 or 2 #16	3 #12 w/2 #18	4 #16 w/1 or 2 #18
	1 #10 w/2 #14	2 #10 w/1 or 2 #16	1 #14 w/3 to 5 #18	5 #16 w/1 #18
	1 #10 w/1 #12	2 #10 w/1 #14	1 #14 w/3 #12	2 or 3 #10
	1 #8 w/1 #10	1 #12 w/2 to 5 #18	1 #14 w/2 to 5 #16	2 to 5 #12
	1 #8 w/1 #12	1 #12 w/1 to 5 #16	2 #14 w/1 to 4 #18	2 to 6 #14
	1 #8 w/1 #14	1 #12 w/1 to 4 #14	2 #14 w/1 to 4 #16	4 to 6 #16
	1 #10 w/2 to 5 #18	1 #12 w/1 #14 w/1 to 4 #16	3 #14 w/1 to 3 #16	6 #18

Model	600 Volt Maximum			
WT53	4 to 6 #14	5 #14 w/1 #18	1 #10 w/1 to 4 #12	1 #12 w/2 #14 w/1#16
	2 to 6 #12	5 #14 w/1 #16	2 #10 w/1 to 4 #18	2 #12 w/1 #14 w/1 or 2 #16
	2 or 3 #10	1 #12 w/3 to 5 #16	2 #10 w/2 to 4 #16	1 #10 w/1 #14 w/1 to 3 #16
	2 #8	1 #12 w/2 to 5 #14	2 #10 w/1 to 4 #14	1 #10 w/2 #14 w/1 #16
	1 #6	2 #12 w/3 or 4 #18	2 #10 w/1 or 2 #12	1 #10 w/1 #12 w/1 or 2 #6
	4 #16 w/2 #18	2 #12 w/1 to 4 #16	3 #10 w/1 #14	1 #10 w/1 #12 w/1 to 4 #14
	1 #14 w/4 or 5 #16	2 #12 w/1 to 4 #14	3 #10 w/1 #12	1 #10 w/2 #12 w/1 or 3 #14
	2 #14 w/3 or 4 #18	3 #12 w/1 to 3 #18	1 #8 w/1 to 5 #14	1 #10 w/3 #12 w/1 #14
	2 #14 w/2 to 4 #16	3 #12 w/1 to 3 #16	1 #8 w/1 to 3 #12	2 #10 w/2 #12 w/1 or 2 #14
	3 #14 w/1 to 3 #18	3 #12 w/1 to 3 #14	1 #8 w/1 or 2 #10	1 #8 w/1 #12 w/1 to 3 #14
	3 #14 w/1 to 3 #16	4 #12 w/1 or 2 #16	2 #8 w/1 #14	1 #8 w/2 #12 w/1 #14
	4 #14 w/1 or 2 #18	1 #10 w/1 to 5 #16	1 #6 w/1 #10	1 #8 w/1 #10 w/1 or 2 #14
	4 #14 w/1 or 2 #16	1 #10 w/1 to 5 #14	1 #12 w/1 #14 w/1 to 4 #16	1 #8 w/1 #10 w/1 #12

Model	600 Volt Maximum			
WT54	5 or 6 #14	1 #8 w/1 to 5 #14	2 #10 w/1 #12 w/1 to 3 #14	2 #8 w/2 #12 w/1 or 2 #14
	3 to 6 #12	1 #8 w/1 to 5 #12	2 #10 w/2 #12 w/1 or 2 #14	2 #8 w/3 #12 w/1 #14
	2 to 5 #10	1 #8 w/1 to 4 #10	2 #10 w/3 #12 w/1 #14	2 #8 w/1 #10 w/1 to 3 #14
	2 or 3 #8	2 #8 w/1 to 4 #14	3 #10 w/1 #12 w/1 or 2 #14	2 #8 w/1 #10 w/1 or 2 #12
	1 or 2 #6	2 #8 w/1 to 3 #12	3 #10 w/2 #12 w/1 #14	2 #8 w/2 #10 w/1 #14 Sol.
	1 #12 w/4 or 5 #14	2 #8 w/1 or 2 #10	4 #10 w/1 #12 w/1 #14	1 #6 w/1 #12 w/1 to 4 #14
	2 #12 w/2 to 4 #14	3 #8 w/1 or 2 #14	1 #8 w/1 #12 w/1 to 4 #14	1 #6 w/2 #12 w/1 to 3 #14
	3 #12 w/1 to 3 #14	1 #6 w/1 to 4 #14	1 #8 w/2 #12 w/1 to 3 #14	1 #6 w/3 #12 w/1 or 2 #14
	4 #12 w/1 #14	1 #6 w/1 to 5 #12	1 #8 w/3 #12 w/1 or 2 #14	1 #6 w/4 #12 w/1 #14
	1 #10 w/3 to 5 #14	1 #6 w/1 to 3 #10	1 #8 w/4 #12 w/1 #14	1 #6 w/1 #10 w/1 to 4 #14
	1 #10 w/2 to 4 #14	1 #6 w/1 or 2 #8	1 #8 w/1 #10 w/1 to 4 #14	1 #6 w/1 #10 w/1 to 3 #12
	2 #10 w/1 to 4 #14	2 #6 w/1 #14	1 #8 w/1 #10 w/1 to 4 #12	1 #6 w/2 #10 w/1 or 2 #14
	2 #10 w/1 to 4 #12	2 #6 w/1 #12	1 #8 w/2 #10 w/1 #14	1 #6 w/2 #10 w/1 #12
	3 #10 w/1 to 3 #14	1 #10 w/1 #12 w/1 to 4 #14	1 #8 w/2 #10 w/1 to 3 #12	1 #6 w/1 #8 w/1 to 3 #14
	3 #10 w/1 to 3 #12	1 #10 w/2 #12 w/1 to 3 #14	1 #8 w/3 #10 w/1 or 2 #14	1 #6 w/1 #8 w/1 or 2 #12
	4 #10 w/1 or 2 #14	1 #10 w/3 #12 w/1 or 2 #14	1 #8 w/3 #10 w/1 #12	1 #6 w/1 #8 w/1 #10
	4 #10 w/1 or 2 #12	1 #10 w/4 #12 w/1 #14	2 #8 w/1 #12 w/1 to 3 #14	

Buchanan WireTwist™ Wire Connectors

Model	300 Volt Maximum			
WT1	1 #14	1 #18 w/1 to 3 #20		
	1 or 2 #16	1 #18 w/1 to 4 #22		
	2 or 3 #18	2 #22 Str.		
	2 to 4 #20	4 #20 w/1 #22		
	3 to 4 #22	3 #20 w/1 or 2 #22		
	5 #22	2 #20 w/1 to 3 #22		
	1 #14 w/1 #20 or 22	1 #20 w/1 to 4 #22		
	1 #16 w/1 #18	1 #16 w/1 #20 w/1 #18 or #20		
	1 #16 w/1 or 2 #20	1 or 2 #18 w/1 #20 w/1 #22		
	1 #16 w/1 to 3 #22			

Model	300 Volt Maximum			
WT2	1 #14 Str.	1 #16 w/1 to 3 #18		
	1 or 2 #16 Str.	1 #16 w/1 #18 w/1 #20		
	2 or 3 #16	1 #16 w/1 to 4 #20 or #22		
	1 #18 Str.	4 #18 w/1 #20 or #22		
	2 to 4 #18	3 #18 w/1 or 2 #20 or #22		
	3 to 5 #20	2 #18 w/1 to 3 #20 or #22		
	1 #14 w/1 #16	1 #18 w/2 to 4 #20		
	1 #14 w/1 or 2 #18	1 #18 w/3 or 4 #22		
	1 #14 w/1 to 3 #20	4 #20 w/1 #22		
	1 #14 w/1 to 4 #22	3 #20 w/1 or 2 #22		
	2 # 16 w/1 #18	2 #16 w/1 #20 w/1 #22		
	2 #16 w/1 or 2 #20	1 #16 w/1 #22 w/1 #18 or #20		
	2 #16 w/1 to 3 #22	1 or 2 #18 w/1 #20 w/1 #22		

Revised 05/07/10

UNDERWRITER'S LABORATORIES LISTED WIRE COMBINATIONS
The combinations listed are Cu-Cu Only. (Do Not use on Al-Al connections.)
The combinations listed are solid and/or stranded wire unless otherwise noted.

UL File No. E5238

Buchanan WireTwist™ Wire Connectors

Model	300 Volt Maximum		600 Volt Maximum	
WT3	5 #18	2 #16 w/2 or 3 #18	1 or 2 #14	2 #16 w/1 or 2 #22
	5 #22	2 #16 w/3 #22	1 #16 Str.	1 #16 w/1 or 2 #18
	3 or 4 #16	2 #16 w/3 #20	2 #16	1 #16 w/1 to 3 #20 or #22
	4 or 5 #20	1 #16 w/4 #18	1 #18 Str.	3 #18 w/1 #20 or #22
	2 #14 w/2 #16	4 #18 w/1 #20 or #22	2 to 4 #18	2 #18 w/1 or 2 #20
	2 #14 w/1 to 3 #20 or #22	3 #18 w/2 #20 or #22	1 #14 w/1 #16	2 #18 w/1 to 3 #22
	1 #14 w/2 #16	2 #18 w/3 #22	1 #14 w/1 #16 and 1 #18	1 #18 w/2 to 4 #20
	1 #14 w/3 #18	1 #18 Str. w/5 #22 Str.	1 #14 w/1 or 2 #18	1 #18 w/3 or 4 #22
	1 #14 w/4 #20	4 #20 w/1 #22	1 #14 w/1 to 3 #20	1 or 2 #16 w/1 #20 w/1 #22
	4 #16 w/1 #20 or #22	3 #20 w/1 or 2 #22	1 #14 w/1 to 3 #22	1 #16 w/1 #18 w/1 #22
	3 #16 w/1 #18	2 #20 w/2 or 3 #22	2 #16 w/1 #18	1 or 2 #18 w/1 #20 w/1 #22
	3 #16 w/1 or 2 #20 or #22	1 #20 w/4 #22	2 #16 w/1 or 2 #20	

Model	300 Volt Maximum		600 Volt Maximum	
WT4	2 #10	1 #10 w/1 #12 w/1 #16 or #14	1 #8	3 #16 w/1 or 2 #22 or #20
	3 #12	1 #12 w/3 #14	1 #10	3 #16 w/1 #18
	5 #16	2 #12 w/1 or 2 #14	1 or 2 #12	4 #16 w/1 #22 or #20
	5 #18	2 #12 w/3 #18	1 to 3 #14	1 #18 w/2 #20
	1 #10 w/3 or 4 #16	1 #14 w/4 #18 or #16	2 to 5 #16	1 #18 w/3 #22
	1 #10 w/2 #14	2 #14 w/3 #18 or #16	2 to 6 #18	2 #18 w/3 #20
	1 #10 w/1 #16 w/4 #20	3 #14 w/2 #18 or #16	3 or 4 #20	3 #18 w/1 or 2 #22 or #20
	1 #10 w/1 #16 w/3 or 4 #18	3 #14 w/1 #18 w/2 #20	4 #22	4 #18 w/1 #22 or #20
	1 #10 w/1 #14 w/4 #22	4 #14 w/1 or 2 #16	1 #10 w/1 #14	2 #12 w/1 #18 w/1 or 2 #20
	1 #10 w/1 #14 w/3 #20	1 #16 w/4 #18	1 #10 w/1 #12	1 #14 w/1 #16 w/1 to 4 #22
	1 #10 w/1 #14 w/2 to 4 #18	2 #16 w/3 #18	1 #12 w/1 to 4 #20, #18 or #16	2 #14 w/1 or 2 #20 w/1 or 2 #22
	1 #10 w/1 #14 w/2 #16	3 #16 w/2 #18	1 #12 w/1 or 2 #14	2 #14 w/1 #16 w/1 to 3 #22
	1 #10 w/2 #14 w/1 #16	4 #16 w/1 #18	2 #12 w/1 or 2 #18	3 #14 w/1 #18 w/1 or 2 #22
	1 #10 w/1 #12 w/1 or 2 #18		2 #12 w/1 #16	3 #14 w/1 #18 w/1 #20
			1 #14 w/2 to 4 #20	1 #16 w/1 #20 w/4 #22
			1 #14 w/1 to 3 #18 or #16	1 #16 w/1 #18 w/3 or 4 #22
			2 #14 w/1 to 3 #20	1 #16 w/1 #18 w/2 to 4 #20
			2 #14 w/1 or 2 #18 or #16	2 #16 w/1 or 2 #20 w/1 or 2 #22
			3 #14 w/1 or 2 #20	1 #18 w/2 #20 w/3 #22
			3 #14 w/1 #18 or #16	2 #18 w/1 #20 w/3 #22
			4 #14 w/1 #20 or #18	3 #18 w/1 or 2 #20 w/1 #22
			1 #16 w/4 #20	1 #10 w/1 #16 w/1 or 2 #18
			1 #16 w/1 to 3 #18	1 #10 w/1 #14 w/1 or 2 #20
			1 #16 w/1 to 3 #20	1 #10 w/1 #14 w/1 #18
			1 #16 w/2 #22	1 #12 w/1 #16 w/1 to 4 #20 or #18
			2 #16 w/1 to 3 #20	3 #16 w/1 #18 w/1 or 2 #22 or #20
			2 #16 w/1 or 2 #18	

Model	300 Volt Maximum		600 Volt Maximum	
WT6	2 #8 Str.	2 #10 w/2 or 3 #14	1 #8 w/1 #12	2 #12 w/1 to 3 #14
	3 #10	2 #10 w/1 or 2 #12	1 #10 w/1 to 4 #18 or #16	2 #12 w/1 #16 w/1 to 3 #20
	5 #12	2 #10 w/1 #16 w/2 or 3 #18	1 #10 w/1 to 3 #14	2 #12 w/1 #16 w/1 to 3 #18
	1 #6 w/1 #14	2 #10 w/1 #14 w/1 to 3 #18	1 #10 w/1 or 2 #12	2 #12 w/1 #14 w/1 to 3 #18
	1 #6 w/1 #12	2 #10 w/2 #14 w/1 #16	1 #10 w/1 #18 w/1 to 4 #22 or #20	2 #12 w/1 #14 w/1 to 3 #16
	1 #6 w/1 #14 w/1 or 2 #18	2 #10 w/1 #12 w/1 to 3 #18	1 #10 w/1 #16 w/1 to 4 #20	3 #12 w/1 #14
	1 #6 w/1 #14 w/1 #16	2 #10 w/1 #12 w/1 or 2 #16	1 #10 w/1 #16 w/1 to 4 #18	3 #12 w/1 or 2 #16 or #18
	1 #8 w/4 #16	3 #10 w/1 #16 or #14	1 #10 w/1 #14 w/1 #16 or #18	3 #12 w/1 #18 w/1 or 2 #20
	1 #8 w/3 #14	2 #12 w/2 #14 w/2 #16	1 #10 w/2 #14 w/1 or 2 #16	3 #12 w/1 #16 w/1 or 2 #20
	1 #8 w/2 #12	3 #12 w/2 #14	1 #10 w/1 #12 w/1 to 3 #16 or #18	2 #12 w/2 #14 w/1 #16 or #18
	1 #8 w/1 #10	3 #12 w/3 #16	1 #10 w/1 #12 w/1 or 2 #14	1 #14 w/3 to 4 #18
	1 #8 w/1 #14 w/4 #18	3 #12 w/1 #16 w/2 #18	1 #10 w/2 #12 w/1 #16 or #18	1 #14 w/1 #16 w/2 to 4 #20
	1 #8 w/1 #12 w/1 to 4 #18 or #16	3 #12 w/1 #14 w/1 or 2 #16	2 #10 w/1 to 3 #18	1 or 2 #14 w/1 #16 w/1 to 3 #18
	1 #8 w/1 #12 w/1 or 2 #14	3 #12 w/1 #14 w/1 or 2 #18	2 #10 w/1 or 2 #16	2 #14 w/ 2 to 4 #16
	1 #8 w/2 #12 w/1 #16 or #14	3 #12 w/2 #14 w/1 #16	2 #10 w/1 #14	2 #14 w/1 #18 w/1 to 3 #22 or #20
	1 #8 w/1 #10 w/1 #14 or 12	4 #12 w/1 #18, #16 or #14	2 #10 w/1 #16 w/1 #18	2 #14 w/1 #16 w/1 to 3 #22 or #20
	1 #10 w/4 #14	1 #6	2 #10 w/1 #14 w/1 #20	3 #14 w/1 or 2 #18 or #16
	1 #10 w/3 #12	1 #8	1 #12 w/2 to 4 #20 or #18	3 #14 w/1 #16 w/1 or 2 #20
	1 #10 w/2 #14 w/3 #16	1 or 2 #10	1 #12 w/1 to 4 #16 or #14	3 #14 w/1 #16 w/1 or 2 #18
	1 #10 w/1 #12 w/4 #16	1 to 4 #12	1 #12 w/1 #16 w/1 to 4 #20	1 #16 w/4 #18
	1 #10 w/1 #12 w/3 or 4 #14	2 to 5 #14	1 #12 w/1 #16 w/1 to 4 #18	2 #16 w/3 or 4 #18
	1 #10 w/2 #12 w/2 or 3 #18 or #16	4 to 6 #16	1 #12 w/1 #14 w/1 to 4 #20, #18 or #16	2 #16 w/1 #18 w/3 #22
	1 #10 w/2 #12 w/1 or 2 #14	1 #8 w/1 or 2 #14	1 #12 w/2 #14 w/1 to 3 #16	2 #16 w/1 #18 w/2 or 3 #20
	2 #10 w/3 #16		2 #12 w/1 or 2 #18 or #16	3 #16 w/1 or 2 #20 or #18
				4 #16 w/1 #20 or #18