Altech®

Ferrules
AT A GLANCE

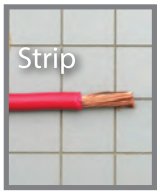
Order Catalog
PN- 960

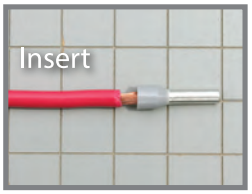
Ferrules ensure reliable electrical connections when terminating stranded flexible wire in terminal blocks, circuit breakers or other control devices. Using ferrules offers several advantages:

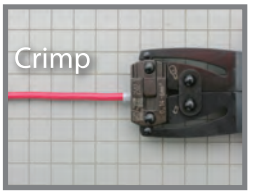
- **ELIMINATE CROSS SHORTING**
  Caused by unraveled stray wire strands.
- **REDUCE INSTALLATION TIME**
  Eliminate the need to dress loose wire strands and facilitating wire insertion into the terminal clamp.
- **IMPROVE TERMINAL CONNECTIONS**
  Reduce resistance by providing a solid surface at the connection point.
- **PREVENT CONDUCTOR BREAKAGE**
  due to bending, wire stress or vibration.

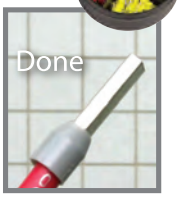


Easy to install













Single Insulated Ferrules



AWG	mm²	Barrel Length	Total Length	UL Recognized Ferrules-Single Insulated — Industrial Standard — Color	UL Recognized Ferrules-Single Insulated — Industrial Standard — Part #	UL Recognized Ferrules-Single Insulated — DIN Standard — Color	UL Recognized Ferrules-Single Insulated — DIN Standard — Part #	Original Ferrules-Single Insulated — Industrial Standard — Color	Original Ferrules-Single Insulated — Industrial Standard — Part #	Original Ferrules-Single Insulated — DIN Standard — Color	Original Ferrules-Single Insulated — DIN Standard — Part #	Standard Pack.	CRIMPIT Crimper — F4	F6 gyra	F6 EN	F6 Auto	F6L	F16 (L)	F1 25L	F50L
26	0.14	6	10	grey	FII2606							500/100		■						
		8	12	grey	FII2608							500/100		■						
24	0.25	6	10	light blue	FII2406			light blue	26200			500/100		■						
		8	12	light blue	FII2408			light blue	2621.0			500/100		■						
		12	16	light blue	FII2412							500/100		■						
22	0.34	6	10	turquoise	FII2206			turquoise	2622.0			500/100		■						
		8	12	turquoise	FII2208			turquoise	2623.0			500/100		■						
		12	16	turquoise	FII2212							500/100		■						
20	0.5	6	12	orange	FII2006	white	FID2006	orange	2397.0	white	2863.0	500/100	■	■	■	■	■			
		8	14	orange	FII2008	white	FID2008	orange	2201.0	white	2864.0	500/100	■	■	■	■	■			
		10	16	orange	FII2010	white	FID2010			white	2865.0	500/100	■	■	■	■	■			
		12	18	orange	FII2012	white	FID2012					500/100	■	■	■	■	■			
18	0.75	6	12	white	FII1806W	grey	FID1806GR	white	2398.0	grey	2866.0	500/100	■	■	■	■	■			
		8	14	white	FII1808W	grey	FID1808GR	white	2202.0	grey	2867.0	500/100	■	■	■	■	■			
		10	16	white	FII1810W	grey	FID1810GR			grey	2868.0	500/100	■	■	■	■	■			
		12	18	white	FII1812W	grey	FID1812GR			grey	2869.0	500/100	■	■	■	■	■			
	1.0	6	12	yellow	FII1806Y	red	FID1806R	yellow	2399.0	red	2870.0	500/100	■	■	■	■	■			
		8	14	yellow	FII1808Y	red	FID1808R	yellow	2203.0	red	2871.0	500/100	■	■	■	■	■			
		10	16	yellow	FII1810Y	red	FID1810R			red	2872.0	500/100	■	■	■	■	■			
		12	18	yellow	FII1812Y	red	FID1812R			red	2840.0	500/100	■	■	■	■	■			
16	1.5	6	12	red	FII1606	black	FID1606					500/100	■	■	■	■	■			
		8	14	red	FII1608	black	FID1608	red	2204.0	black	2841.0	500/100	■	■	■	■	■			
		10	16	red	FII1610	black	FID1610	red	2205.0	black	2842.0	500/100	■	■	■	■	■			
		12	18	red	FII1612	black	FID1612			black	2843.0	500/100	■	■	■	■	■			
		18	24	red	FII1618	black	FID1618			black	2844.0	500/100	■	■	■	■	■			
14	2.08	8	15	yellow	FII1408Y							500/100	■	■	■		■			
	2.5	6	13	blue	FID1406	blue	FID1406					500/100	■	■	■		■			
		8	15	blue	FID1408	blue	FID1408	blue	2206.0	blue	2845.0	500/100	■	■	■		■			
		10	17	blue	FID1410	blue	FID1410					500/100	■	■	■		■			
		12	19	blue	FID1412	blue	FID1412	blue	2401.0	blue	2846.0	500/100	■	■	■		■			
		18	25	blue	FID1418	blue	FID1418	blue	2207.0	blue	2847.0	500/100	■	■	■		■			
12	4	8	16	grey	FID1208	grey	FID1208					500/100	■	■	■		■			
		10	18	grey	FID1210	grey	FID1210	grey	2208.0	grey	2848.0	500/100	■	■	■		■			
		12	20	grey	FID1212	grey	FID1212	grey	2402.0	grey	2849.0	500/100	■	■	■		■			
		18	26	grey	FID1218	grey	FID1218	grey	2209.0	grey	2850.0	100	■	■	■		■			
10	6	12	20	black	FII1012	yellow	FID1012	black	2210.0	yellow	2851.0	100		■	■		■	■	■	
		18	26	black	FII1018	yellow	FID1018	black	2211.0	yellow	2852.0	100		■	■		■	■	■	
8	10	12	22	ivory	FII0812	red	FID0812	ivory	2212.0	red	2853.0	100						■	■	
		18	28	ivory	FII0818	red	FID0818	ivory	2213.0	red	2854.0	100						■	■	
6	16	12	22	green	FII0612	blue	FID0612	green	2214.0	blue	2855.0	100						■	■	
		18	28	green	FII0618	blue	FID0618	green	2215.0	blue	2856.0	100						■	■	
4	25	16	30	brown	FII0416	yellow	FID0416					50							■	
		18	32	brown	FII0418	yellow	FID0418	brown	2267.0	yellow	2857.0	50							■	
		22	36	brown	FII0422	yellow	FID0422	brown	2272.0	yellow	2858.0	50								■
2	35	16	30	beige	FII0216	red	FID0216					50								■
		18	32	beige	FII0218	red	FID0218	beige	2276.0	red	2859.0	50								■
		25	39	beige	FII0225	red	FID0225	beige	2390.0	red	2860.0	50								■
1	50	20	36	olive	FII 0120	blue	FID0120	olive	2500.0	blue	2861.0	50								■
		25	41	olive	FII0125	blue	FID0125					50								■
		30	46	olive	FII0130	blue	FID0130					50								■
2/0	70	20	37					yellow	2786.0			25								
3/0	95	25	44					red	2787.0			5								
4/0	120	27	48					blue	2788.0			25								
250 MCM	150	32	58					yellow	2789.0			25								

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Twin Insulated Ferrules



AWG	mm²	Barrel Length	Total Length	UL Recognized Ferrules Twin Insulated – Industrial Standard – Color	UL Recognized Ferrules Twin Insulated – Industrial Standard – Part #	UL Recognized Ferrules Twin Insulated – DIN Standard – Color	UL Recognized Ferrules Twin Insulated – DIN Standard – Part #	Original Ferrules - Twin Insulated – DIN Standard – Color	Original Ferrules - Twin Insulated – DIN Standard – Part #	Standard Packaging	CRIMPIT Crimper: F4	F6 gyra	F6 EN	F6 Auto	F6L	F16 (L)	F1 25L	F50L
2x22	2x0.34	8	15	turquoise	FTI2208					500/100	■	■	■	■	■			
2x20	2x0.5	8	14	orange	FTI2008	white	FTD2008	white	2794.0	500/100	■	■	■	■	■			
		10	16	orange	FTI2010	white	FTD2010			500/100	■	■	■	■	■			
		12	18	orange	FTI2012	white	FTD2012			500/100	■	■	■	■	■			
2x18	2x0.75	8	14	white	FTI1808W	grey	FTD1808GR	grey	2775.0	500/100	■	■	■	■	■			
		10	16	white	FTI1810	grey	FTD1810	grey	2795.	500/100	■	■	■	■	■			
		12	18	white	FTI1812W	grey	FTD1812GR			500/100	■	■	■	■	■			
		18	24	white	FTI1818W	grey	FTD1818GR			500	■	■	■	■	■			
	2x1	8	15	yellow	FTI1808Y	red	FTD1808R	red	2776.0	500/100	■	■	■	■	■			
		12	19	yellow	FTI1812Y	red	FTD1812R			500/100	■	■	■	■	■			
		14	21	yellow	FTI1814	red	FTD1814			500	■	■	■	■	■			
		18	25	yellow	FTI1818Y	red	FTD1818R	red	2796.0	500/100	■	■	■	■	■			
2x16	2x1.5	8	16	red	FTI1608	black	FTD1608	black	2777.0	500/100	■	■	■	■	■			
		12	20	red	FTI1612	black	FTD1612	black	2797.0	500/100	■	■	■	■	■			
		18	26	red	FTI1618	black	FTD1618			100	■	■	■	■	■			
2x14	2x2.5	10	19	blue	FTD1410	blue	FTD1410	blue	2778.0	500/100	■	■	■	■	■			
		12	21	blue	FTD1412	blue	FTD1412	blue	2798.0	500/100	■	■	■	■	■			
		18	27	blue	FTD1418	blue	FTD1418			100	■	■	■	■	■		■	
2x12	2x4	12	22	grey	FTD1212	grey	FTD1212	grey	2799.0	100/20		■	■		■		■	
		18	28	grey	FTD1218	grey	FTD1218			100		■	■		■		■	
2x10	2x6	12	23	black	FTI1012	yellow	FTD1012	yellow	2800.0	100/20							■	
		18	29	black	FT11018	yellow	FTD1012			100							■	
2x8	2x10	12		ivory	FTI0812	red	FTD0812	red	2801.0	100/20							■	
		18		ivory	FTI0818	red	FTD0818			100							■	
2x6	2x16	16		olive	FTI0616	blue	FTD0616	blue	2802.0	50							■	■
		25		olive	FTI0625	blue	FTD0625			50								■

Uninsulated Ferrules



AWG	mm²	Barrel Length	Part Number	Std. Pack.	CRIMPIT Crimper: F4	F6 gyra	F6 EN	F6 Auto	F6L	F16 (L)	F1 25L	F50L	22,030
20	0.5	6	2216.0	1000/100	■	■	■	■	■				
18	0.75	6	2217.0	1000/100	■	■	■	■	■				
18	0.75	10	2218.0	1000/100	■	■	■	■	■				
18	1	6	2219.0	1000/100	■	■	■	■	■				
18	1	10	2220.0	1000/100	■	■	■	■	■				
16	1.5	7	2221.0	1000/100	■	■	■	■	■				
16	1.5	10	2222.0	1000/100	■	■	■	■	■				
14	2.5	7	2223.0	1000/100	■	■	■	■	■				
14	2.5	12	2224.0	1000/100	■	■	■	■	■				
12	4	9	2225.0	1000/100	■	■	■	■	■				
12	4	12	2226.0	1000/100	■	■	■	■	■				
10	6	12	2227.0	500/100		■	■	■	■	■	■		
10	6	15	2388.0	500/100		■	■	■	■	■	■		
8	10	12	2228.0	500/100						■	■		
8	10	15	2389.0	500/100						■	■		
8	10	18	2229.0	500/100						■	■		
6	16	12	2391.0	500/100						■	■		
6	16	15	2392.0	500/100						■	■		
6	16	18	2393.0	100						■	■		
4	25	15	2394.0	500/100							■		
4	25	18	2395.0	100							■		
2	35	18	2396.0	100								■	
1	50	32	2816.0	100								■	
2/0	70	25	2790.0	100									■
3/0	95	32	2791.0	50									■
4/0	120	32	2792.0	25									■
250MCM	150	32	2793.0	25									■
350MCM	185	32	2815.0	25									
500MCM	240	40	2815.5	25									

Technical Information

	Insulated Ferrules	Uninsulated Ferrules
Temperature Resistance	23° to 221°F (-5° to 105°C)	23° to 248°F (-5° to 120°C)
Materials	Collar = Polypropylene-fluoropolymer Tube = Copper (Cu-DHP) galvanically tin-plated with 3-5 µm shiny plating	Tube = Copper (Cu-DHP) galvanically tin-plated with 3-5 µm shiny plating
Standards	• DIN 46228-4:1990 (1992 for Uninsulated Ferrules) • CSA-US / ANSI-UL, CSA-US certificate. UL certificate number: 20140415-E467395 • RoHS and WEEE directives 2011/65/EU, 2003/11/EG and 2012/19/EU • REACH regulation (EG) no. 1907/2006 • Conflict minerals according to Sec. 1502 DFA • Products are labeled with the mark and meet the pertinent EC directives	

COMPANIES WE CROSS, — PLUS OTHERS!

ABB	Entrelec	Phoenix
American Electric	Greenlee	Thomas & Betts
Automation Direct	Lapp	Tyco
Conta Clip	McMaster Carr	Wago
Eclipse	Panduit	Weidmuller

Pull-Out Forces Minimum Values

Minimum values of pull-out forces for FERRULES according to DIN EN 60947-1:2008. DIN EN 60999-1:2000 and DIN EN 6-0999-2:2004

Conductor Cross Section	AWG	24	22	20	18	18	16	14	12	10	8	6	4	2	0	00	000	250 kvmil	300 kcmil	350 kcmil	500 kcmil
	mm²	0.20	0.34	0.50	0.75	1.0	1.5	2.5	4.0	6.0	10	16	25	35	50	70	95	120	150	185	240
Pull Out Force	N	10	15	20	30	35	40	50	60	80	90	100	135	190	236	285	351	427	427	503	578
	Lbs.	2.2	3.4	4.5	6.7	7.9	9	11.2	13.5	18	20.2	22.5	30.4	42.7	53.1	64.1	78.9	96	96	113.1	130

Minimum values of pull-forces for FERRULES according to UL 486F

Pull Out Force	N	20	20	20	30	35	40	50	60	80	90	100	135	190							
	Lbs.	4.5	4.5	4.5	6.7	7.9	9	11.2	13.5	18	20.2	22.5	30.4	42.7							