

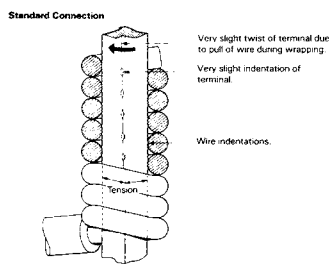
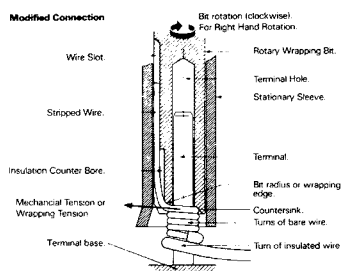
Wire-Wrap™

Wire-Wrap is the original wire-wrapping tool developed in the late 1950's and is a registered trade mark of Cooper Industries, Inc.

Wire-Wrap tools and equipment are used throughout the TV, computer, telecommunication and numerical control industries for high density interconnections worldwide.



THE WIRE-WRAP CONNECTION



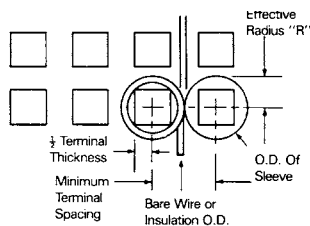
ELECTRIC POWERED TOOLS
14YB3 SERIES - heavy duty wrapping tools.



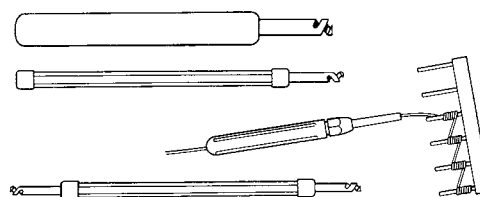
HAND OPERATED TOOLS
14HP1C - squeeze series wrapping tools.



MINIMUM TERMINAL SPACING
Formula: $\frac{1}{2}$ terminal thickness + actual wire diameter (including insulation, if modified wrap) + effective radius (from bit chart)
"R" = minimum terminal spacing.



BITS, SLEEVES



14YB3 Series Electric Wrapping Tools



Description	Material No.	Shelf Pack
Standard Model, 240 volt Heavy duty wrapping tool designed for production, installation and service use. <u>Bit and sleeve not included.</u> <ul style="list-style-type: none"> • Powerful motor with high start torque. • High impact resistant case. • Accepts bits for 18 - 32 AWG. 	27214AB1AU	1

14YP2 Series Pneumatic (Air) Ergonomic Powered Wrapping Tools



3700 RPM, Standard, low maintenance air powered tool for heavy production schedules. Bit and sleeve not included. <ul style="list-style-type: none"> • Weighs only 390 grams. • Suits tooling for 24 - 32 AWG. • Positive forward indexing over 360°. • Air consumption, 0.2 cu. ft. (5.7 litres) per wrap at 80-100 p.s.i. (5.5-7.0 bar). • Fitted with 6ft (1.83m) flexible hose. 	26100AA5	1
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14YM1 Series Pneumatic (Air) Powered Wrapping Tools



Description	Material No.	Shelf Pack
3700 rpm, all metal construction, straight handled tool. designed for assembly line operations where work is horizontal and tool is suspended from a balancer. <u>Bit and sleeve not included.</u> • Quick acting 360° adjustable indexer. • Air consumption 0.2 cu. ft. (5.7 litre) per wrap at 80-100 p.s.i. (5.5-7.0 bar).	26300AA1	1

14HP1C Series Hand Operated Wrap/Unwrap Tool



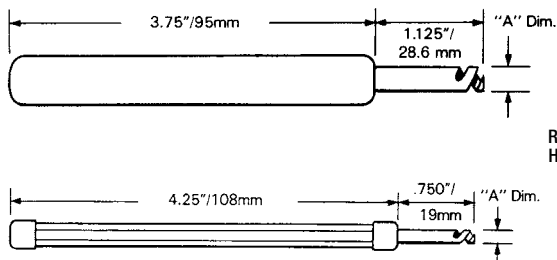
A strong lightweight tool for installers, technicians and service applications <u>Bit and sleeve not included.</u> • Universal collect accommodates all wrapping bits and sleeves. • Suitable for 22-32AWG. • One squeeze provides 10 revolutions of bit. Right Hand	28000AC1	1
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Manual Unwrapping Tools



Wire Gauge AWD	Wrap Type	Terminal Diam. mm	Terminal Depth mm	Insulation Rad. mm	Effective Rad. mm	Material No.	Shelf Pack
26	Mod.	1.02	19.1	0.79	1.88 □	A2055768	1
30	Mod.	0.99	19.1	0.71	1.73 □	A2055729	1

Manual Unwrapping Tools



Removes	Wire Gauge AWG	Terminal Mode Dia mm	Bit OD mm	Material No.	Shelf Pack
Right Hand	18-22	3.18	5.89 □	A25195L	1
Right Hand	20-26	1.78	3.96	A31478	1

□ THESE ITEMS MADE TO ORDER

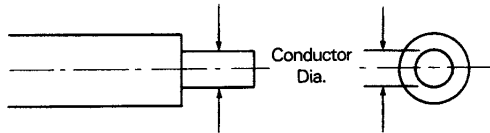
Bit and Sleeve Selection

Bit and Sleeve Selection

Required Information

(1) Wire gauge/conductor diameter. From engineering drawing, specifications, or can be measured. Refer to wire size chart.

Wire size chart



Wire size chart

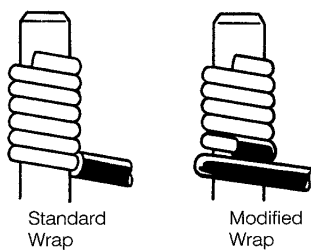
Wire Gauge	Inches	mm
18	.0403	1.020
20	.0320	.813
22	.0253	.643
23	.0226	.574
24	.0201	.511
25	.0179	.455
26	.0159	.404
27	.0142	.361
28	.0126	.320
29	.0113	.287
30	.0100	.254
31	.0089	.266
32	.0079	.201
34	.0063	.160

(2) Wire type. From wire specifications. OFHC, alloy, silver-plated, tin-plated, etc.

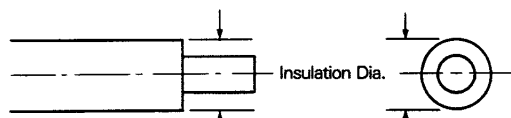
(3) Wrap type, standard or modified. From engineering drawing or specifications. If not specified, modified wrap is preferred method with standard wrap generally accepted for 18 through 24 gauge.

Types of Wrap

A standard bit wraps only the bare wire around the terminal. A modified bit wraps a portion of insulation around the terminal in addition to the bare wire. This greatly increases the ability of the connection to withstand vibration.

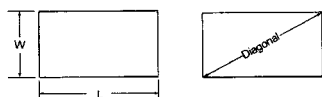


(4) Insulation Diameter. From wire specifications or can be measured. Not required if using standard wrap.



(5) Terminal size. From engineering drawings, specifications, or can be measured.

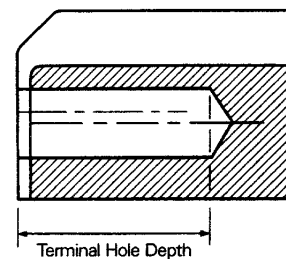
(6) Terminal diagonal. Can be measured, calculated from width and length dimensions, or obtained from popular terminal sizes chart.



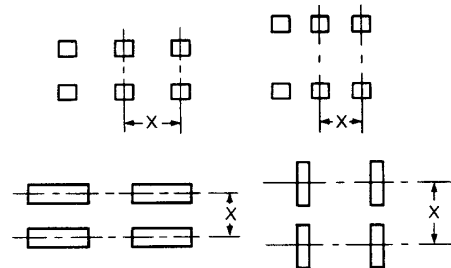
Popular Terminal sizes

Terminal Size		Nominal Diagonal	
in.	mm	in.	mm
.020 sq.	.51 sq.	0.27	0.69
.020 x .030	.51 x .76	.035	0.89
.025 sq.	.64 sq.	.034	0.86
.022 x .036	.56 x .91	.041	1.04
.035 sq.	.89 sq.	.048	1.22
.035 x .050	.89 x 1.27	.060	1.52
.045 sq.	1.14 sq.	.061	1.55
.031 x .062	.79 x 1.57	.067	1.70
.030 x .080	.76 x 2.03	.082	2.08

(7) Terminal hole depth. Should be deep enough to allow wrapping at the terminal base.



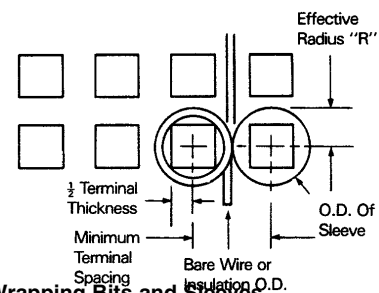
(8) Terminal spacing. Determine minimum center-to-center terminal spacing.



Measure Dimension X

Minimum Terminal Spacing

Formula: 1/2 Terminal Thickness + actual wire diameter (including insulation, if modified wrap) + effective radius (from bit chart) "R" = minimum terminal spacing.



Solderless Wrapping Bits and Sleeves

Wire-Wrap® has always been the leader in developing and supplying bits and sleeves for every kind of application. Over 500 wrapping bits have been designed and produced. More than 100 of these are currently active. Many additional bit and sleeve designs may be supplied upon request. Your distributor will gladly advise you on special requirements.

Wire-Wrap™ CUT-STRIP-WRAP AND SLEEVES

AWG = American Wire Gauge M = Modified Wrap S = Standard Wrap S.F. = Strip Force B.F. = Black Force A = Alloy Wire 0 = OFHC (Oxygen Free Copper Wire) R = Radius IN = inches MM = Millimeters O.D. = Outside Diameter I.D. = Inside Diameter DIA. = Diameter LBS = Pounds KG = Kilograms G = Grams R.H. = Right Hand L.H. = Left Hand CS&W = Cut, Strip, and Wrap = Made to Order Min. = Minimum Max. = Maximum Sq. = Square WT = Wall Thickness T = Thickness L = Length W = Width

(1) Wire Size	(3) Wrap Type	Bit Part No.	UPC No. 0 37103	Sleeve Part No.	UPC No. 0 37103	(2) Wire Type	(6) Terminal Diagonal	(7) Terminal Hole Depth	(4) Maximum Insulation Diameter	Minimum Turns of Insulation	Effective Radius
in.	mm						Minimum "/mm	Maximum "/mm	"/mm		"/mm
18	.040	504222	95210 3	18285	95153 3	A, 0	.061/1.56	.074/1.88	.070/1.78	1	.150/3.81
		504908	95212 7	18640	95159 5	A, 0	.061/1.56	.074/1.88			.151/3.84
20	.032	507356	95249 5	18840	95159 5	A, 0	.042/1.07	.074/1.88	.059/1.50	9/10	.121/3.07
		26495	95172 4	26245	95170 0	A, 0	.059/1.50	.091/2.31			.151/3.84
		18633	95155 7	26245	95170 0	A, 0	.059/1.50	.091/2.31			.147/3.73
		18637	95157 1	18640	95159 5	A, 0	.091/2.31	.123/3.12			.150/3.81
20-22		519904	95388 9	18840	95159 5	A, 0	.054/1.37	.069/1.75	.070/1.78	3/4	.146/3.70
22	.025	505413	95223 3	18340	95159 5	A, 0	.049/1.24	.074/1.88			.119/3.02
		504939	95214 1	507939	95258 5	A, 0	.049/1.24	.074/1.88	.052/1.32	1	.131/3.33
		26498	95173 1	18640	95159 5	A, 0	.049/1.24	.074/1.88	.060/1.52	1	.135/3.43
		26699	95175 0	18640	95159 5	A, 0	.049/1.24	.074/1.88	.060/1.52	1-1/4	.135/3.43
		37014	95180 9	18840	96095 5	A, 0	.061/1.55	.086/2.18			.125/3.17
		18632	95154 0	18840	96095 5	A, 0	.061/1.55	.086/2.18			.125/3.17
		19635	95156 4	18640	95159 5	A, 0	.098/2.49	.123/3.12			.142/3.61
22-24		500131	95183 0	18840	96095 5	A, 0	.054/1.37	.074/1.88			.112/2.84
24	.020	502134	95203 5	502129	95202 8	A, 0	.020/0.61	.044/1.12	.044/1.12	1	.084/2.13
		505415	95225 7	502129	95202 8	0	.024/0.61	.045/1.14			.098/2.49
		506991	95244 8	506999	95245 5	A	.047/1.19	.067/1.70	.050/1.27	9/10	.100/2.54
		504155	95209 7	18840	95159 5	0	.049/1.24	.069/1.75	.050/1.27	9/10	.119/3.02
		26263	96093 1	18840	95159 5	A, 0	.054/1.33	.074/1.88	.046/1.17	9/10	.117/2.97
		512058	95333 9	512056	95331 5	A, 0	.055/1.40	.074/1.88			.105/2.67
		37013	95179 3	512056	95331 5	A, 0	.055/1.40	.074/1.88			.105/2.67
		26589	95174 8	512056	95331 5	A, 0	.055/1.40	.074/1.88			.105/2.67
		5089301	95282 0	502129	95202 8	A, 0	.059/1.50	.068/1.73			.087/2.21
		20420	95162 5	512056	95331 5	A, 0	.073/1.85	.092/2.34			.114/2.90
24-26		519070	95387 2	18840	95159 5	A, 0	.054/1.37	.074/1.88	.046/1.17	9/10	.117/2.97
26	.016	503279	95220 2	507100	96094 8	A, 0	.023/0.58	.039/0.99			.068/1.73
		506445	96092 4	507100	96094 8	A, 0	.023/0.58	.039/0.99	.031/0.79	1-1/4	.074/1.88
		506420	95232 5	502129	95202 8	A, 0	.028/0.71	.044/1.12	.044/1.12	1-1/8	.098/2.49
		509405	95286 8	502129	95202 8	A, 0	.034/0.86	.051/1.30	.034/0.86	1	.086/2.18
		511250	95306 3	510998	95188 5	0	.031/0.79	.038/0.97	.043/1.09	9/10	.111/2.82
		502118	95201 1	512056	95331 5	A, 0	.053/1.35	.069/1.75	.041/1.04	9/10	.105/2.67
		504910	95213 4	512056	95331 5	A, 0	.058/1.47	.074/1.88			.105/2.67
		517104	95361 2	512056	95331 5	0	.054/1.33	.059/1.50	.041/1.04	1	.100/2.54
		506781	95243 1	512056	95331 5	A, 0	.059/1.50	.074/1.88	.041/1.04	9/10	.111/2.82
28	.013	508278	96091 7	507100	96094 8	0	.031/0.79	.036/0.91	.030/0.76	9/10	.067/1.70
		501389	95193 9	507100	96094 8	0	.031/0.79	.034/0.86	.030/0.76	9/10	.067/1.70
		508748	95261 5	507100	96094 8	A, 0°	.034/0.86	.037/0.94	.036/0.91	9/10	.068/2.24
		506633	95242 4	507100	96094 8	0	.041/1.04	.044/1.12			.066/1.68
		505412	95222 6	512056	95331 5	A, 0°	.056/1.42	.069/1.75	.035/0.89	9/10	.066/1.68
		505373	95221 9	512056	95331 5	A, 0°	.066/1.68	.074/1.88			.104/2.64
		511304	95311 7	512056	95331 5	0	.066/1.68	.069/1.75	.038/0.97	9/10	.100/2.54
30	.010	501097	95187 8	507100	96094 8	A, 0	.026/0.66	.031/0.79	.027/0.69	9/10	.066/1.68
		500352	95185 4	507100	96094 8	0	.029/0.74	.031/0.79	.023/0.58	1-1/2	.061/1.55
		511208	95303 2	507100	96094 8	0	.031/0.79	.036/0.91	.023/0.58	9/10	.061/1.55
		507063	96090 0	507100	96094 8	0	.031/0.79	.036/0.91	.023/0.58	9/10	.061/1.55
		511440	95316 6	507100	96094 8	0	.031/0.79	.034/0.86	.028/0.71	1	.068/1.73
		519936	95396 4	507100	96094 8	A, 0°	.032/0.81	.038/0.97	.028/0.71	1	.068/1.73
		500353	95186 1	507100	96094 8	A, 0°	.033/0.84	.036/0.91	.023/0.58	1-1/4	.061/1.55
		507573	95254 7	507100	96094 8	A, 0°	.041/1.04	.044/1.12	.027/0.69	1-1/4	.071/2.72
		507502	95254 7	507100	96094 8	A, 0°	.041/1.04	.044/1.12	.027/0.69	1	.107/2.72
		501381	95192 2	512056	95331 5	A	.060/1.52	.065/1.65	.027/0.69	9/10	.089/1.26
		501194	95190 8	502129	95202 8	A	.066/1.68	.069/1.75			

A = Alloy 0 = OFHC wire A° = Alloy if terminal diagonal at low end 0° = OFHC if terminal diagonal at low end. NOTE: Tin-plate wire should be considered as Alloy in bit selection.

Wire Size AWG	Wire Size "/mm	Bit Part No.	UPC No. 0 37103	Sleeve Part No.	UPC No. 0 37103	Terminal Diagonal		Insulation Range		Insul Turns	Bare Wire Turns	Effective Radius "/mm
						Maximum "/mm	Minimum "/mm	Maximum "/mm	Minimum "/mm			
22	.025/0.64	519930	95394 0	519931	953957	.062/1.57	.054/1.37	.040/1.02	.037/0.94	3/4	5	.137/3.48
22-24	.025/0.64 .020/0.51	518931	95379 7	518932	95380 3	.072/1.83	.069/1.75	.050/1.27	.045/1.14	1/2	6	.133/3.38
24	.020/0.51	519066	95385 8	519067	95386 5	.072/1.83	.059/1.50	.045/1.14	.040/1.02	1/2	6	.133/4.38
24	.020/0.51	519928	95392 6	519929	95393 3	.058/1.47	.054/1.37	.036/0.91	.033/0.84	3/4	5 1/2	.127/3.23
24	.020/0.51	519915	95389 6	519931	95395 7	.058/1.47	.054/1.37	.043/1.09	.040/1.02	3/4	5 1/2	.132/3.35
24	.020/.051	521197	-	521199	95406.0	.063/1.60	.059/1.50	.045/1.14	.040/1.02	3/4	6	.136/3.45
24	.020/0.51	518910	95375 9	518911	95376 6	.072/1.83	.059/1.50	.045/1.14	.040/1.02	1/2	6	.133/3.45
24	.020/0.51	990046	95375 9	522201	95421 3	.074/1.88	.059/1.50	.035/0.89	.032/0.81	1/2	6	.125/3.18
24	.020/0.51	521198	95405 3	521199	95406 0	.070/1.78	.066/1.68	.045/1.14	.040/1.02	3/4	6	.137/3.48
24	.020/0.51	519066	95385 8	522201	95421 3	.072/1.83	.059/1.50	.039/0.99	.034/0.86	1/2	6	.133/3.38
26	.016/0.41	522098	-	521199	95406 0	.069/1.75	.066/1.68	.040/1.02	.037/0.94	1 1/4	6	.133/3.38
26	.016/0.41	519926	95390 2	519927	95391 9	.058/1.47	.054/1.37	.029/0.74	.026/0.66	3/4	6 1/2	.111/2.82
26	.016/0.41	521105	95399 5	521116	95400 8	.058/1.47	.054/1.37	.039/0.99	.035/0.89	3/4	6	.128/3.25
26	.016/0.41	522202	95422 0	522201	95421 3	.072/1.83	.059/1.50	.035/0.89	.031/0.79	1/2	7	.128/3.25
26	.016/0.41	522203	95423 7	522204	95424 4	.063/1.60	.059/1.50	.029/0.74	.025/0.64	3/4	7	.113/2.87
26	.016/0.41	522205	95425 1	522204	95437 4	.069/1.75	.065/1.65	.029/0.74	.025/0.64	3/4	7	.116/2.95
26	.016/0.41	527812	-	527813	95437 4	.034/0.86	.030/0.76	.029/0.74	.025/0.64	3/4	7	.082/2.08
30	.010/0.25	990764	96359 8	990765	96360 4	.034/0.86	.030/0.76	.0215/0.55	.019/0.48	1	7	.065/1.65
30	.010/0.25	990063	96073 3	990064	96074 0	.034/0.86	.030/0.76	.022/0.56	.020/0.51	1	7	.0715/1.82

Note: Terminal Hole Depth 1.00"/25.4mm

IMPORTANT NOTE: The above list of cut-strip-wrap and sleeve combination is a guide for application capacity. In this process a very close control of wire and terminals is necessary. The tension in the wrapped connection is produced by both the wrapping bit face and how tightly the insulation adheres to the conductor. Some types of insulated wire are not compatible, and each application must be examined individually.

Wrapping Bits. See selection charts, pages 49 and 50

Bit Part No.		Description	Material No.	Shelf Pack	
26263	24 AWG	Modified Wrap	T26263	1	
500131	22/24 AWG	Standard Wrap	T500131	1	
501097	24/26 AWG	Modified Wrap	501097	1	
501519	20 AWG	Strap Bit Max. Terminal Diag. 188mm	501519	1	
504222	18 AWG	Standard Wrap	504222	1	
504910	26 AWG	Standard Wrap	504910	1	
505415	24 AWG	Modified Wrap	505415	1	
506420	26 AWG	Modified Wrap	506420	1	
506445	26 AWG	Modified Wrap	506445	1	
507063	30 AWG	Modified Wrap	507063	1	
507573	30 AWG	Modified Wrap	507573	1	
508748	28 AWG	Modified Wrap	508748	1	
519066	24 AWG	Standard Wrap	519066	1	
519070	25/26 AWG	Modified Wrap	519070	1	
521105	26 AWG	Cut Strip & Wrap	521105	1	

Wrapping Sleeves. See selection charts, pages 49 and 50

Sleeve Part No.	Description	Material No.	Shelf Pack	
18840	Wrap	559780	1	
502129	Wrap	502129	1	
507100	Wrap	507100	1	
512056	Wrap	512056	1	
521116	Cut Strip & Wrap	521116	1	
522201	Cut Strip & Wrap	522201	1	