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.

IMPORTANT NOTE

Just click on the item you want.

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Wire-Wrap extensions, adapters and aids

Key to symbols

CSW = Cut, strip and wrap.
RH = Right Hand
LH = Left Hand
Δ = These items are made to order.
Please Note: With all Wire-Wrap tools, sleeves and bits need to be ordered separately.

Wire-wrapping is covered by many national and international specifications. Example:

EIA Std. RS-280-B	USA
Mil Std. 1130-B	US Army
Navord 10001-WS 6119	US Navy
D.I.N. 41611-2	Germany
N.F.C. 93021	France
I.E.F. Std. 5949	England
R.R.E. 33185	British Ministry of Defence
I.E.C. 352	Europe (Geneva, Switzerland),

This edition supercedes all previous Wire-Wrap Catalogs.

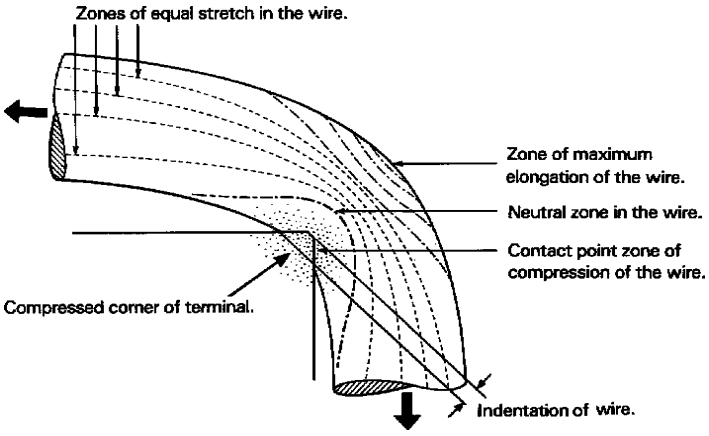
WW is an abbreviation for Wire-Wrap

The Wire-Wrap® Connection

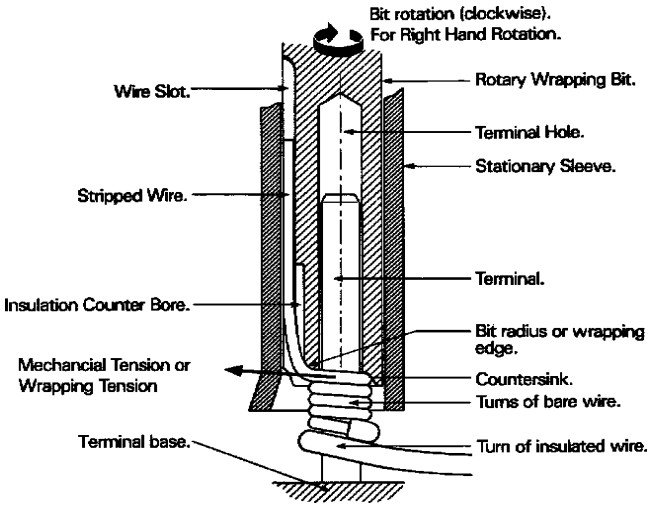
CooperTools now includes wrapping bits and sleeves for virtually limitless applications.
The proper selection of bits and sleeves is vital to good wrapping. Selection charts are provided in this catalog. In addition, your CooperTools Wire-Wrap distributor and Wire-Wrap® specialists are ready to advise you.

Intimate contact of bare wire and terminal corners

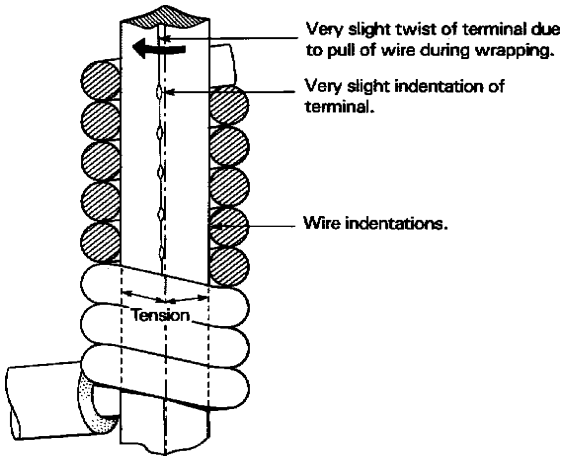
During the wrapping process, the wire is pulled from the wire slot by the rotation of the bit around the terminal. The wire is drawn over the wrap radius that intersects the bit face and the wire slot, placing tension on the wire in the process. This tension causes stretch of the wire.
As the wire is wrapped under mechanical tension, the sharp corners of the terminals penetrate into the surface of the wire and an intimate and large surface of contact is established.
As the turns of wire are hooked at each corner of the terminal, the mechanical tension produced by the wrapping bit remains stored in the wrapped wire and a permanent gas-tight connection is established.
After the wrapping operation, the terminal that has been twisted in the direction of wrapping will slightly untwist and some relaxation will occur in the wire material. After some hours, when the connection is stabilized, the compression between wire and terminal corners is from 50.000 psi (35Kg/mm^2) to 100.000 psi (70 Kg/mm^2), depending on the wire diameter and on the wire material.
Four turns of wire, i.e. 16 contact points provide a surface of contact equivalent to the cross section of the wire.
The electrical resistance of a wire wrapped connection is in the range of 1 milli ohm, which is less than the electrical resistance of one inch of length of the wire used to establish the connection. When the connection ages solid state diffusion at the interface corners and wire will often increase the conductivity of the connection.



Modified Connection

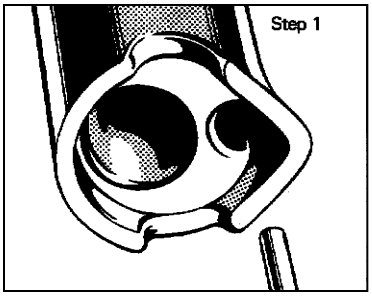


Standard Connection

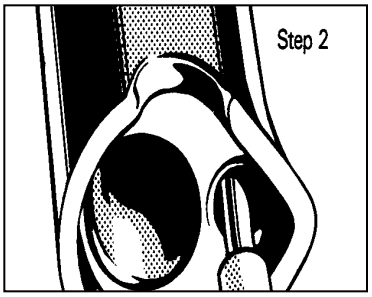


How to make Wire-Wrap® connections

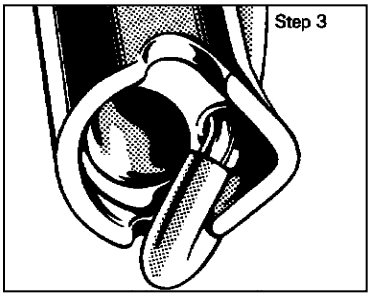
Bit, Sleeve, and Pre-Stripped Wire



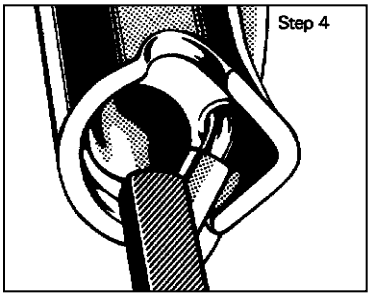
Wire Insertion



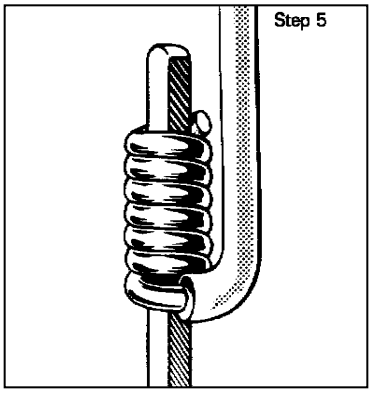
Wire Anchoring



Terminal Insertion



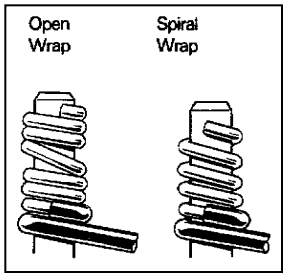
Finished Connection



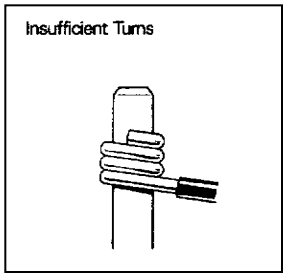
Hints for good Wire-Wrapped connections

Let the Wire-Wrap tools do the work. Don't press too hard because excess pressure can lead to overwrapping. Overwrap may also occur when the wrapping bit has not been selected correctly in function of wire gauge and terminal dimension.

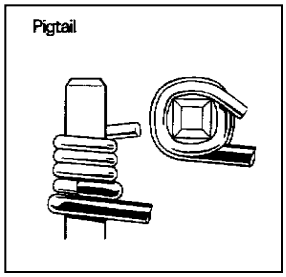
Keeping the tool on the terminal until the wrap is complete is important. If removed too soon, spiral and open wraps may result.



Feeding wire into the slot in the bit correctly is not difficult. The stripped end of the wire should be pushed in all the way.



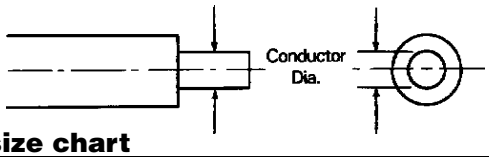
Wire-wrapping is a precision technique. Proper bit and sleeve selection is important. Incorrect choice can lead to problems ranging from pigtails to loose wraps.



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

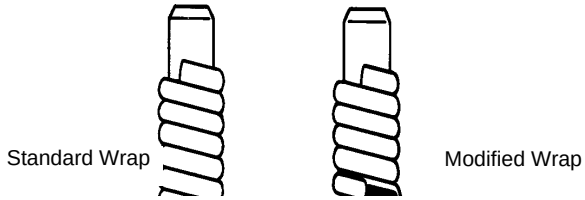
Wire Gauge	Inches	mm
18	.0403	1.020
20	.0320	.813
22	.0253	.643
23	.0226	.574
24	.0201	.511
25	.0179	.455
26	.0159	.404
27	.0142	.361
28	.0126	.320
29	.0113	.287
30	.0100	.254
31	.0089	.226
32	.0079	.201
34	.0063	.160

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

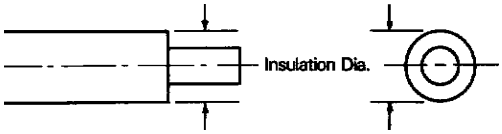
(3) Wrap type, standard or modified. From engineering drawing or specifications. If not specified, modified wrap is preferred method with standard wrap generally accepted for 18 through 24 gauge.

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.

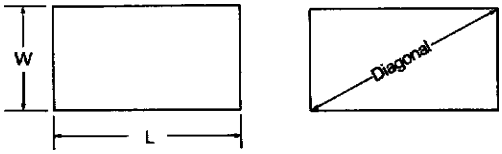


(4) Insulation diameter. From wire specifications or can be measured. Not required if using standard wrap.



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

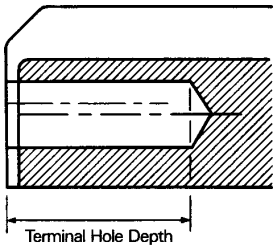
(6) Terminal diagonal. Can be measured, calculated from width and length dimensions, or obtained from popular terminal sizes chart.



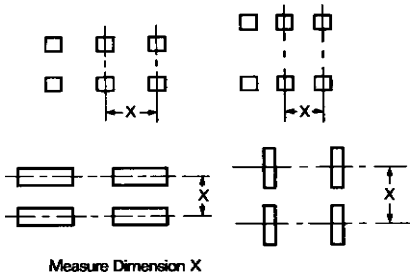
Popular terminal sizes

Terminal Size		Nominal Diagonal	
in.	mm	in.	mm
.020 sq.	.51 sq.	.027	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.

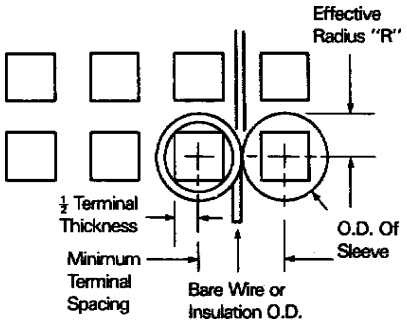


(8) Terminal spacing. Determine minimum center-to-center terminal spacing.



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.

Solderless Wrapping Bits and Sleeves

AWG=American Wire Gage M=Modified Wrap S=Standard Wrap S.F.=Strip Force B.F.=Back Force A=Alloy Wire O=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. **037103**	Sleeve Part No.	UPC No. **037103**	(2) Wire Type	(6) Terminal Diagonal Minimum	Maximum	(7) Terminal Hole Depth	(4) Maximum Insulation Diameter	Minimum No. of Turns of Insulation	Effective Radius
AWG	in.	mm							"/mm	"/mm	"/mm	"/mm		"/mm
18	.040	1.02	S	504222	952103	18285	951533	A, O	.061/1.56	.074/1.88	1.00/25.4			.150/3.81
			M	504908	952127	18640	951595	A, O	.061/1.56	.074/1.88	1.00/25.4	.070/1.78	1	.151/3.84
20	.032	0.81	S	507356	952493	18840	951595	A, O	.042/1.07	.074/1.88	1.00/25.4			.121/3.07
			M	26495	951724	26245	951700	A, O	.042/1.07	.074/1.88	1.00/25.4	.059/1.50	9/10	.151/3.84
			S	18633	951557	26245	951700	A, O	.059/1.50	.091/2.31	1.00/25.4			.147/3.73
			S	18637	951571	18640	951595	A, O	.091/2.31	.123/3.12	1.00/25.4			.150/3.81
22	.025	.064	S	505413	952233	18840	951595	A, O	.049/1.24	.074/1.88	1.00/25.4			.119/3.02
			M	504939	952141	507939	952585	A, O	.049/1.24	.074/1.88	1.00/25.4	.052/1.32	1	.131/3.33
			M	26498	951731	18640	951595	A, O	.049/1.24	.074/1.88	1.00/25.4	.060/1.52	1	.135/3.43
			M	26699	951755	18640	951595	A, O	.049/1.24	.074/1.88	1.00/25.4	.060/1.52	1-1/4	.135/3.43
			S	18632	951540	18840	960955	A, O	.061/1.55	.086/2.18	1.00/25.4			.125/3.17
			S	18635	951564	18640	951595	A, O	.098/2.49	.123/3.12	1.00/25.4			.142/3.61
22-24			S	500131	951830	18840	960955	A, O	.054/1.37	.074/1.88	1.00/25.4			.112/2.84
24	.020	0.51	S	502134	952035	502129	952028	A, O	.024/0.61	.044/1.12	1.00/25.4			.084/2.13
			M	505415	952257	502129	952028	O	.024/0.61	.045/1.14	1.00/25.4	.044/1.12	1	.098/2.49
			M	506991	952448	506999	952455	A	.047/1.19	.067/1.70	1.00/25.4	.041/1.04	9/10	.100/2.54
			M	504155	952097	18840	951595	O	.049/1.24	.069/1.75	1.14/28.5	.050/1.27	9/10	.119/3.02
			M	26263	960931	18840	951595	A, O	.054/1.33	.074/1.88	1.12/28.8	.046/1.17	9/10	.117/2.97
			S	512058	953339	512056	953315	A, O	.055/1.40	.074/1.88	1.00/25.4			.105/2.67
			S	26589	951748	512056	953315	A, O	.055/1.40	.074/1.88	1.50/38.1			.105/2.67
			S	509301	952820	502129	952028	A, O	.059/1.50	.068/1.73	1.00/25.4			.087/2.21
			S	Δ20420	951625	512056	953315	A, O	.073/1.85	.092/2.34	1.00/25.4			.114/2.90
24-26			M	519070	953872	18840	951595	A, O	.054/1.37	.074/1.88	1.13/28.8	.046/1.17	9/10	.117/2.97
26	.016	0.41	S	505279	952202	507100*	960948	A, O	.023/0.58	.039/0.99	0.75/19.1			.068/1.73
			M	506445	960924	507100*	960948	A, O	.023/0.58	.039/0.99	0.75/19.1	.031/0.79	1-1/4	.074/1.88
			M	506420	952325	502129	952028	A, O	.028/0.71	.044/1.12	0.75/19.1	.044/1.12	1-1/8	.098/2.49
			M	509405	952868	502129	952028	A, O	.034/0.86	.051/1.30	1.00/25.4	.034/0.86	1	.086/2.18
			M	511250	953063	501098	951885	O	.031/0.79	.038/0.97	0.75/19.1	.043/1.09	1	.084/2.14
			M	502118	952011	512056	953315	A, O	.053/1.35	.069/1.75	1.00/25.4	.041/1.04	9/10	.111/2.82
			S	504910	952134	512056	953315	A, O	.058/1.47	.074/1.88	1.00/25.4			.105/2.67
			M	517104	953612	512056	953315	O	.054/1.33	.059/1.50	1.00/25.4	.041/1.04	1	.100/2.54
			M	506781	952431	512056	953315	A, O	.059/1.50	.074/1.88	1.00/25.4	.041/1.04	9/10	.111/2.82
28	.013	0.33	M	509278	960917	507100*	960948	O	.031/0.79	.036/0.91	0.75/19.1	.030/0.76	9/10	.067/1.70
			M	501389	951939	502129	952028	A°, O°	.033/0.84	.039/0.99	0.75/19.1	.036/0.91	9/10	.088/2.24
			S	508748	952615	507100*	960948	A, O	.034/0.86	.037/0.94	0.75/19.1			.063/1.60
			S	506633	952424	507100*	960948	O	.041/1.04	.044/1.12	0.75/19.1			.066/1.68
			M	505412	952226	512056	953315	A, O	.056/1.42	.069/1.75	1.00/25.4	.035/0.89	9/10	.104/2.64
			S	505373	952219	512056	953315	A, O°	.066/1.68	.074/1.88	1.00/25.4			.105/2.67
30	.010	0.25	M	501097	951878	507100*	960948	A, O	.026/0.66	.031/0.79	0.62/15.7	.027/0.69	9/10	.066/1.68
			S	500352	951854	507100*	960948	O	.029/0.74	.031/0.79	0.75/19.1			.066/1.68
			M	511208	953032	507100*	960948	O	.031/0.79	.036/0.91	0.75/19.1	.023/0.58	1-1/2	.061/1.55
			M	507063	960900	507100*	960948	O	.031/0.79	.036/0.91	0.75/19.1	.023/0.58	9/10	.061/1.55
			M	511440	953186	507100*	960948	O	.031/0.79	.036/0.91	0.75/19.1	.027/0.69	1-1/8	.064/1.63
			M	519936	953964	507100*	960948	A	.031/0.79	.038/.097	0.75/19.1	.028/0.71	1	.068/1.73
			S	500353	951861	507100*	960948	A°, O	.032/0.81	.036/0.91	0.75/19.1			.061/1.55
			M	507573	952547	507100*	960948	A	.033/0.84	.036/0.91	0.75/19.1	.023/0.58	1-1/4	.061/1.55
			M	507502	952547	507100*	960948	A°, O°	.041/1.04	.044/1.12	0.75/19.1	.027/0.69	1-1/4	.071/1.80
			M	501381	951922	512056	953315	A	.060/1.52	.065/1.65	1.00/25.4	.027/0.69	1	.107/2.72
			M	501194	951908	502129	952028	A	.066/1.68	.069/1.75	1.00/25.4	.027/0.69	9/10	.089/2.26

A=Alloy wire O=OFHC wire A°=Alloy if terminal diagonal at low end O°=OFHC if terminal diagonal at low end Δ=Made to order. NOTE: Tin-plated wire should be considered as Alloy in bit selection.
* = Cat. No. 507100-V UPC No. 960948 for Carded Version.

Portable Wire-Wrap®
Electric powered tools
14YB3 Series - heavy duty wrapping tools

The 14YB3 Series is a heavy-duty, easy-to-operate electric Wire-Wrap® tool. Designed for production, installation, and service uses, the 14YB3 is the top of the Wire-Wrap portable tool line. It features a powerful motor for steady performance; high impact-resistant plastic housing. Several models are available. The standard model accepts bits for wire sizes 18-32 AWG. Its free speed is 4500 RPM. Additional models offer a backforce feature; 2300 RPM reduced speed for cut, strip and wrap. 42/120/220 VAC. Other features are planetary gear reduction drive, insulated collet and collet nut, light trigger pull, and two-wire cord.

ALL TOOLS ARE DOUBLE INSULATED.

	Cat. No.	UPC No. **037103**	Tool Mod. No.	V.	Hz.	Speed RPM	Wire Size	Cord '/cm	Comment	Wt. oz/g	Rotation	Shelf Pack
	27160AB6	121967	14YB3-STD	120	60				Standard		RH	1
	27170AB5	121974	14YB3-BF	120	60				Backforce		RH	1
	27172AB1	122025	14YB3-CSW	120	60				C.S.W.		RH	1
	27214AB1	109101		230							RH	1
	27216AB7	122988	17YB2C-BF	230					Backforce		RH	1
Δ	27240AA8	950079	14YB2C-BF	42							RH	1
Δ	27252AA3	950093	14YB2-CSW	42							RH	1

Backforce: A spring loaded device internal to all tools identified as Backforce. Normally utilized to train new operators or to eliminate excess pressure against connection on critical applications. The building turns of wire being wrapped on the terminal forces the wrapping bit rearward against a predetermined spring pressure. This assures that every connection on the panel has been wrapped at the same pressure.

XA4 Series wrapping tools

- Built for one or two finger operation.
- Comfortable lighter trigger pressure... less hand and wrist fatigue.
- "Operator Adjustable Indexing": eight separate positions for operator preference.
- A twist of the knurled outer ring conveniently repositions the bit & sleeve.
- Slim, lightweight, durable quality.
- Designed for service work and light production.

ALL TOOLS ARE DOUBLE INSULATED.

Cat. No.	UPC No. **037103**	Tool Mod. No.	V.	Hz.	Speed RPM	Wire Size	Cord '/cm	Comment	No. of Wires	Rotation	Shelf Pack
27300AC6	963611	XA4-STD	120	60	3500			Standard	2	RH	1
27310AE1	091642	XA4-STD-3W	120	60	3500			Standard	3	RH	1
27360AC0	963635	XA4-BF	120	60	3500			Backforce	2	RH	1
27370AE5	095022	XA4-BF-3W	120	60	3500			Backforce	3	RH	1

Δ = These items are made to order.
Please Note: With all Wire-Wrap tools, sleeves and bits need to be ordered separately.

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R3 Series-battery powered wrapping/unwrapping tool

It has everything... except weight, bulk and a power cord! That's why our R3 tool can be used away from the bench without any of the discomforts associated with some other self powered tools.
The comfortable, slim design means far less strain and fatigue for the operator, but that's only the beginning. As the battery pack can be installed in two ways; one for wrapping, the other for unwrapping, there is no need for two separate tools-the R3 does both jobs. The R3 can make over 1100 connections with one charge, over 25% more than could be made with the previous R2 model. Also, rechargeable and standard non-rechargeable batteries may be used in an emergency, which makes the tool even more flexible. A built-in safety feature prevents the accidental recharging of non-rechargeable batteries.
Several features from the popular Wire-Wrap XA3 model are also incorporated in the R3, such as:

- Operator adjustable indexing. A simple adjustment of the outer knurled ring places the indexing position of the bit to suit individual preference.
- Self aligning gearing system. Part of a totally new drive train design that will reduce part breakage and repair bills.
- Snap action switch, designed for low voltage applications, reduces previously encountered switch problems. To complete the system, a compact charger unit is included which will recharge batteries in one hour and, to reduce bench clutter, may be hung on the wall.
- Engineered for reduced electrical interference.

Cat. No.	UPC No. **037103**	V	Hz	Speed	Wire Size	Color	Comments
27600AE6	044082	120	60	3000	22-32	Black	Standard
27610AE5	044099	120	60	3000	24-32	Black	Backforce
27650AD3	962416	240	50	3000	22-32	Blue	Standard
27650AU9	026309	240	50	3000	22-32	Blue	Stand(Australia)
27650FR9	963529	240	50	3000	22-32	Blue	Stand(France)
27660AD2	962423	240	50	3000	24-32	Blue	Backforce

Power Heads

Cat. No.	UPC No. **037103**	Used in Cat. No.	Color	Comments
990871	044068	27600AE6	Black	Standard
990872	044075	27610AE5	Black	Backforce
990680	963505	27650AD3	Blue	Standard

Battery Handles

Part No.	UPC No. **037103**	Description	Color
990655	963390	Battery handle assembly with battery	Blue
990857	044020	Battery handle assembly with battery	Black

Charger Power Supply

Part No.	UPC No. **037103**	Voltage	Hz	Color
990859	044006	120	60	Black
990700	963468	240	60	Blue

Charger

Part No.	UPC No. **037103**	Description	Color
990650	963444	Battery handle charger	Blue
990858	044037	Battery handle charger	Black

Power Head and Battery Handle

Part No.	UPC No. **037103**	Description	Color
990869	044051	Power head & battery handle std (120v)	Blue

Δ = These items are made to order.
Please Note: With all Wire-Wrap tools, sleeves and bits need to be ordered separately.

Portable Wire-Wrap® Air powered tools 14YP1Series wrapping tools

A precision-quality air-powered tool weighing 13 3/4oz /390 g. 14YP1 is designed for production use with little maintenance. It is available in models for wire sizes 18-32 AWG in standard and backforce 24-32 AWG wire configurations, 3700 or 4700 RPM. Its plastic housing is rugged and well balanced for maximum operator efficiency. It is equipped with a 6 ft/183 cm flexible hose and has a positive forward indexing feature. The index is 360° adjustable. As with the 14YM1 and 14YP1 is available with nose assemblies for extra large bits and sleeves. Air pressure has to be from 80-100 p.s.i. (5.5-7.0 bars). Air consumption is maximum .2 cu. ft., or 5.7 litre free air per wrap.

	Cat. No.	UPC No. **037103**	Tool Mod. No.	Speed RPM	Wire Size	Air Hose '/cm	Rotation	Air Pressure PSIG/bar	Comment	Wt. oz/g	Shelf Pack
	26100AA5	960894	14YP1-37-STD	3700	18/32	6/183	RH	80-100/5.5-7.0	Standard	13 3/4 /390	1
Δ	26101AA3	-	14YP1-37-B	3700	18/32	6/183	RH	80-100/5.5-7.0	Oversize nose piece	13 3/4 /390	1
	26110AA4	950338	14YP1-37-BF	3700	24/32	6/183	RH	80-100/5.5-7.0	Backforce	13 3/4 /390	1
Δ	26120AA3	-	14YP1-37-STD-L	3700	18/32	6/183	LH	80-100/5.5-7.0	Standard	13 3/4 /390	1
	26150AA0	950352	14YP1-47-STD	4700	18/32	6/183	RH	80-100/5.5-7.0	Standard	13 3/4 /390	1
	26150AB8	963789	14YP2-47-STD	4700	18/32	6/183	RH	80-100/5.5-7.0	Extended trigger	13 3/4 /390	1
Δ	26160AA9	950369	14YP1-47-BF	4700	24/32	6/183	RH	80-100/5.5-7.0	Backforce	13 3/4 /390	1
Δ	26250AA8	-	14YP1-37-STD-G	3700	18/32	6/183	RH	80-100/5.5-7.0	Standard-wire grd.	13 3/4 /390	1

Note: Left hand rotation tools are typically used with stranded wire.
The connection must be soldered unless the wire has been top-coated with an outer layer of tin solder.

14YM1 Series wrapping tools

Of aluminum and steel construction, the 14YM1 is of the straight-handle, in-line design, commonly used in assembly-line operations where the wrapping area is horizontal. This tool can be suspended from a tool balancer. It is available in a left-hand wrapping configuration upon request. YM1 has a 360° adjustable index position. Its positive, quick-acting indexing mechanism is always in position for the next wire insertion. Air pressure has to be from 80-100 psi (5.5-7 bars). Air consumption is maximum .2 cu. ft., or 5.7 litre free air per wrap.

Cat. No.	UPC No. **037103**	Tool Mod. No.	Speed RPM	Wire Size	Air Hose '/cm	Rotation	Air Pressure PSIG/bar	Comment	Wt. oz/g	Shelf Pack
26300AA1	950390	14YM1-37-STD	3700	18/32	6/183	RH	80-100/5.5-7.0	Standard	12.0/340	1

Δ = These items are made to order.
Please Note: With all Wire-Wrap tools, sleeves and bits need to be ordered separately.

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Portable Wire-Wrap®
Hand Operated tools
14HP1C - Squeeze series wrapping tools

For telephone installers, electronic technicians, and servicemen. Squeeze the handle and a quality solderless wrap is made with the 14HP1C manual Wire-Wrap tool. Features strong, lightweight plastic housing. Universal collet accommodates all wrapping bits and sleeves. One squeeze of the handle provides ten revolutions of the wrapping bit. This sturdy tool will withstand rough handling and require only a minimum maintenance over a long service life. Other design features include quality construction, adjustable pivot, heat treated gearing, and ball bearing mechanism. Uses 22-32 AWG wire.

Cat. No.	UPC No. **037103**	Tool Mod. No.	Wire Size	Rotation	Comment	Wt. oz/g	Shelf Pack
28000AC1	960870	14HP1-C	22-32	RH	Standard	8.0/230	1
28010AB2	961334	14HP1-C	22-32	LH	Standard	8.0/230	1

Δ = These items are made to order.
Please Note: With all Wire-Wrap tools, sleeves and bits need to be ordered separately.

Portable Wire-Wrap® manual tools
Manual tools

Pencil-type Wire-Wrap® tools are available for wrapping wire gauges 18-32 AWG. A representative listing of tool combinations (handle, bit and sleeve) is presented in the table below. To order, please specify the tool number (A20557-). For tool combinations not listed, please contact your Cooper Tools Wire-Wrap distributor or Wire-Wrap specialists.
To make selection, use method described on page 1.

Handle Mod. No.	UPC No. **037103**	Description	Wt. oz/g	Shelf Pack
517219	953650	Manual Wire-Wrap handle	1/30	1

	Complete Tool Mod. No.	UPC No. **037103**	Size AWG	Type Wrap	Consists of Handle	Bit	Sleeve	Hole Diameter "/mm	Terminal Hole Depth "/mm	Terminal Maximum Insulation "/mm	Effective Radius "/mm
	A2055730	950871	18	Std.	517219	504222	517232	.075/1.91	1.000/25.4	- / -	.150/3.81
Δ	A2055735	950918	20	Std.	517219	507356	517231	.075/1.91	1.000/25.4	- / -	.120/3.05
	A2055746	950987	20	Mod.	517219	26495	517232	.075/1.91	1.000/25.4	.059/1.50	.151/3.84
Δ	A2055715	950802	20	Std.	517219	18633	517232	.093/2.36	1.00/25.40	N/A	.147/3.73
Δ	A2055717	950826	20	Std.	517219	18637	517233	.125/3.17	1.00/25.40	N/A	.150/3.81
	A2055714	950796	22	Std.	517219	18632	517231	.087/2.21	1.000/25.4	- / -	.125/3.18
	A2055734	950901	22	Std.	517219	505413	517231	.075/1.91	1.000/25.4	- / -	.119/3.02
	A2055739	950949	22	Mod.	517219	504939	517231	.075/1.91	1.000/25.4	.052/1.52	.132/3.35
	A2055734	950901	22	Std.	517219	505413	517231	.075/1.90	1.00/25.40	N/A	.119/3.02
	A2055731	950888	22-24	Std.	517219	500131	517231	.075/1.91	1.000/25.4	- / -	.112/2.84
	A2055712	950789	24	Std.	517219	512058	517230	.075/1.91	1.000/25.4	- / -	.105/2.67
	A2055723	950840	24	Mod.	517219	26263	517231	.075/1.91	1.125/28.6	.046/1.17	.117/2.97
Δ	A2055737	950932	24	Std.	517219	504155	517231	.070/1.78	1.140/30.0	.050/1.27	.119/3.02
Δ	A2055754	951052	24	Std.	517219	502134	517229	.045/1.14	1.00/25.40	N/A	.084/2.13
	A2055766	951137	24	Mod.	517219	505415	517229	.045/1.14	1.00/25.40	.044/1.12	.098/2.49
	A2055742	950970	26	Mod.	517219	511250	517228	.039/0.99	.750/19.1	.043/1.09	.079/2.01
	A2055752	951045	26	Mod.	517219	502118	517230	.070/1.78	1.000/25.4	.041/1.04	.111/2.82
	A2055768	951151	26	Mod.	517219	506445	517228	.040/1.02	.750/19.1	.031/0.79	.074/1.88
Δ	A2055769	951168	26	Mod.	517219	509405	517229	.052/1.32	1.000/25.4	.034/0.86	.086/2.18
	A2055740	950956	26	Std.	517219	504910	517230	.075/1.90	1.00/25.40	N/A	.105/2.67
	A2055758	951090	26	Std.	517219	505279	517228	.040/1.02	.075/19.05	N/A	.068/1.73
	A2055748	951007	28	Std.	517219	508748	517228	.038/0.97	.750/19.1	-/-	.063/1.60
	A2055741	950963	28	Mod.	517219	501389	517229	.040/1.02	.075/19.05	.036/0.91	.088/2.24
	A2055729	950864	30	Mod.	517219	519936	517228	.039/0.99	.750/19.1	.028/0.71	.068/1.73
	A2055747	950994	30	Std.	517219	500353	517228	.040/1.02	.750/19.1	- / -	.061/1.55
Δ	A2055767	951144	30	Mod.	517219	507502	517228	.045/1.14	.750/19.1	.027/0.69	.071/1.80
	A2055732	950895	30	Mod.	517219	501194	517229	.070/1.78	1.00/25.40	.027/0.69	.089/2.26
	A2055764	951120	30	Mod.	517219	511208	517228	.035/.89	.750/19.05	.023/0.58	.061/1.55
	A2055736	950925	30	Mod.	517219	507063	517228	.036/.91	.750/19.1	.023/.058	.061/1.55

Δ = These items are made to order.
Please Note: With all Wire-Wrap tools, sleeves and bits need to be ordered separately.

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XA4 Series - unwrapping tools

- Built for one or two finger operation.
- Comfortable lighter trigger pressure... less hand and wrist fatigue.
- Slim, lightweight, durable quality.
- Designed for service work and light production.

Cat. No.	UPC No. **037103**	Tool Mod. No.	V	Hz	Speed	Wt. oz/g	Shelf Pack
27450AC9	963659	XA4	120	60	3500	9.3/266	1

Unwrap bit and sleeve assemblies.

Cat. No.	UPC No. **037103**	Tool Bit Rotation	Wire Size	Terminal Hole Dia. "/mm	Bit O.D. "/mm	Wrap Rotation
990420	961273	LF HD	28-30	.040/1.02	.093/2.36	RT HD
990421	961280	LF HD	22-26	.070/1.78	.125/3.18	RT HD
990422	961297	LF HD	22-26	.070/1.78	.156/3.96	RT HD

R3 Series-battery powered wrapping/unwrapping tool

The comfortable, slim design means far less strain and fatigue for the operator, but that's only the beginning. As the battery pack can be installed in two ways; one for wrapping, the other for unwrapping, there is no need for two separate tools-the R3 does both jobs. The new R3 can make over 1100 connections with one charge, over 25% more than could be made with the previous R2 model. Also, rechargeable and standard non-rechargeable batteries may be used in an emergency, which makes the tool even more flexible. A built-in safety feature prevents the accidental recharging of non-rechargeable batteries. Several features in the R3:

- Operator adjustable indexing. A simple adjustment of the outer knurled ring places the indexing position of the bit to suit individual preference.
- Self aligning gearing system. Part of a totally new drive train design that will reduce part breakage and repair bills.
- Snap action switch, designed for low voltage applications, reduces previously encountered switch problems. To complete the system, a compact charger unit is included which will recharge batteries in one hour and, to reduce bench clutter, may be hung on the wall.
- Engineered for reduced electrical interference.

Cat. No.	UPC No. **037103**	Tool Mod. No.	V	Hz	Speed RPM	Wire Size	Shelf Rotation	Comment	Pack
27600AE6	962393	R3	120	60	3000	22-32	LH or RH	Standard (black)	1
27610AE5	962409	R3	120	60	3000	24-32	LH or RH	Backforce (black)	1
27650AD3	962416	R3	240	50	3000	22-32	LH or RH	Standard (blue)	1
27660AD2	962423	R3	240	50	3000	24-32	LH or RH	Backforce (blue)	1

Unwrap bit and sleeve assemblies.

Cat. No.	UPC No. **037103**	Tool Bit Rotation	Wire Size	Terminal Hole Dia. "/mm	Bit O.D. "/mm	Wrap Rotation
990420	961273	LF HD	28-30	.040/1.02	.093/2.36	RT HD
990421	961280	LF HD	22-26	.070/1.78	.125/3.18	RT HD
990422	961297	LF HD	22-26	.070/1.78	.156/3.96	RT HD

Replacement Battery Charger and Power Supply

Cat. No.	UPC No. **037103**	Description	Shelf Pack
990650	963444	Charger (blue)	1
990858		Charger (black)	1
990859	963451	Power Supply - 120V (black)	1
990700	963468	Power Supply - 220V (black)	1

Replacement Battery Cell

Cat. No.	UPC No. **037103**	Description	Shelf Pack
990519	962751	Battery Cell	1

Δ = These items are made to order.
Please Note: With all Wire-Wrap tools, sleeves and bits need to be ordered separately.

Portable Wire-Wrap®
Unwrapping hand operated tools
14 HP1C - Squeeze series unwrapping tools

These quality unwrapping tools have the same features as their respective models of Wire-Wrap tools. A full range of unwrapping bits and sleeves is provided. Representative bits and sleeves are listed below and in detailed product sheets. Available to unwrap either right or left hand wraps. Note: Order tool and unwrap bit and sleeve assemblies separately.

Cat. No.	UPC No. **037103**	Tool Mod. No.	Rotation	Comment	Wt. oz/g	Shelf Pack
28000AC1	960870	14HP1-C	RH	Standard	8.0/230	1
28010AB2	961334	14HP1-C	LH	Standard	8.0/230	1

Unwrap bit and sleeve assemblies.

Cat. No.	UPC No. **037103**	Tool Bit Rotation	Wire Size	Terminal Hole Dia. "/mm	Bit O.D. "/mm	Wrap Rotation
990420	961273	LF HD	28-30	.040/1.02	.093/2.36	RT HD
990421	961280	LF HD	22-26	.070/1.78	.125/3.18	RT HD
990422	961297	LF HD	22-26	.070/1.78	.156/3.96	RT HD
990423	961303	RT HD	28-30	.040/1.02	.093/2.36	LF HD
990424	961310	RT HD	22-26	.070/1.78	.125/3.18	LF HD
990425	961327	RT HD	22-26	.070/1.78	.156/3.96	LF HD

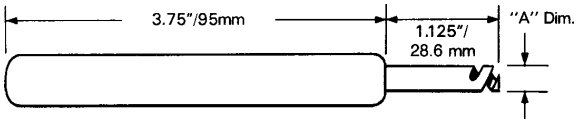
Wire-Wrap®

Portable Wire-Wrap ®
Unwrapping manual tools
Left hand unwrapping tool

To remove right hand connections

Mod. No.	UPC No. **037103**	Wire Size AWG	Includes Bit No.	Terminal Hole Diameter "/mm	"A" Dim. "/mm	Shelf Pack
A25195-L	951267	18-22	25195	.125/3.18	.232/5.89	1

Terminal Hole Depth: 1.500 /38.1 mm.



Left hand unwrapping tool

To remove right hand connections

Mod. No.	UPC No. **037103**	Wire Size AWG	Terminal Hole Diameter "/mm	"A" Dim. "/mm	Shelf Pack
A31478	960986	20-26	.070/1.78	.156/3.96	1
501875	951991	20-26	.075/1.91	.156/3.96	1
504769	952110	20-26	.070/1.78	.125/3.18	1
509489	952950	20-26	.052/1.32	.125/3.18	1
505084	960962	26-32	.040/1.02	.093/2.36	1
509302	952837	26-32	.044/1.12	.093/2.36	1
509436	952899	26-32	.036/0.91	.093/2.36	1

Terminal Hole Depth: 1.000 /25.4 mm.

Δ = These items are made to order.
Please Note: With all Wire-Wrap tools, sleeves and bits need to be ordered separately.

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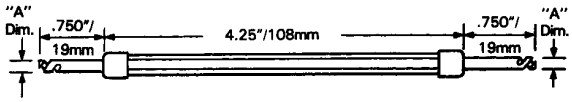
Dual size left hand unwrapping tool
To remove right hand connections



Mod. No.	UPC No. **037103**	Wire Size AWG	Terminal Hole Diameter "/mm	"A" Dim. "/mm	Shelf Pack
A25461L	951373	20-26	.052/1.32	.125/3.18	1
			.070/1.78		

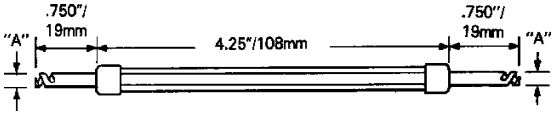
Terminal Hole Depth: 1.000 /25.4 mm.

Right hand unwrapping tool
To remove left hand connections

Mod. No.	UPC No. **037103**	Wire Size AWG	Terminal Hole Diameter "/mm	"A" Dim. "/mm	Shelf Pack
A31477	951519	20-26	.070/1.78	.156/3.96	1
505243	952189	26-32	.040/1.02	.093/2.36	1

Terminal Hole Depth: 1.000 /25.4 mm.

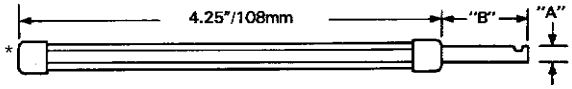
Dual right & left hand unwrapping tool



Mod. No.	UPC No. **0 37103**	Wire Size AWG	Terminal Hole Diameter "/mm	"A" Dim. "/mm	Shelf Pack
500130	951823	20-26	.070/1.78	.156/3.96	1
A26664	951502	20-26	.070/1.78	.125/3.18	1
511225	953049	24-30	.052/1.32	.125/3.18	1
505244	960979	26-32	.040/1.02	.093/2.36	1
511203	953018	26-32	.036/0.91	.093/2.36	1

Terminal Hole Depth: 1.000 /25.4 mm.

Dual right & left hand unwrapping tool



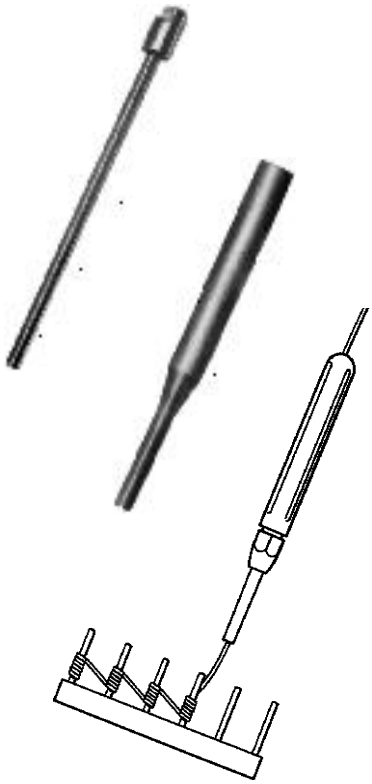
Mod. No.	UPC No. **037103**	Wire Size AWG	Terminal Hole Dia. "/mm	"A" Dim. "/mm	"`B" Dim. "/mm	Shelf Pack
515664	953551	24	.070/1.78	.160/4.06	.865/22.0	1
515665	953568	26	.070/1.78	.145/3.68	.865/22.0	1
515666	953575	30	.038/0.97	.106/2.69	.865/22.0	1
*531438	954602	30	.040/1.02	.093/2.36	.750/19.0	1
(For use with terminal locator)						
Δ *531604	954619	30	.040/1.02	.093/2.36	1.50/38.1	1

Terminal Hole Depth: 1.000 /25.4mm.

Δ = These items are made to order.
Please Note: With all Wire-Wrap tools, sleeves and bits need to be ordered separately.

Portable Wire-Wrap®
Manual strapping tools

The Manual Wire-Wrap® Strapping Tool is a hand-held, portable unit designed specifically for interconnecting terminals by solderless wrapping with a continuous length of bare wire. Fast, economical, continuous bare wire strapping is accomplished by the solderless wrapping concept, the concept with proven reliability. The unique hand tool interconnects terminals with a bare wire conductor forming permanent, gas-tight, solderless connections. The handle is constructed from reinforced plastic. Note: Order handle, bit and sleeve separately.



Mod. No.	UPC No. **037103**	Description	Wt. oz/g	Shelf Pack
521124	954015	Manual Wire-Wrap Strapping Tool Handle	3/85	1

Size AWG	Wrapping Bit Mod. No.	UPC No. **037103**	Sleeve Mod. No.	UPC No. **037103**	Terminal Hole Diameter "/mm	Maximum Terminal Diagonal "/mm	Effective Radius "R'' "/mm
20	501519	951946	517231	953704	.075/1.91	.074/1.88	.121/3.07
22	501550	951953	517231	953704	.075/1.91	.074/1.88	.119/3.02
22	Δ 503911	-	517231	953704	.087/2.21	.086/2.18	.125/3.18
22-24	509242	952660	517231	953704	.075/1.91	.074/1.88	.112/2.84
24	503912	952066	517230	953698	.075/1.91	.074/1.88	.105/2.67
26	509207	952646	517228	953674	.040/1.02	.039/0.99	.068/1.73
26	501332	951915	517230	953698	.075/1.91	.074/1.88	.105/2.67
28	Δ 511202	-	517228	953674	.038/0.97	.037/0.94	.063/1.60
30	501866	951984	517228	953674	.037/0.94	.036/0.91	.061/1.55

Type B2

This unique cutting and skinning tool utilizes a blade design that cuts the entire diameter of insulation without damaging the wire conductor. Capacity is 22-34 AWG. Available as a tool with attached handle or as an accessory fastened to air, electric, or battery powered wrap tools.

Wire Gauge	Complete Cut and Strip Tool w/Holder Cat. No.	UPC No. **037103**	Cut and Strip Accessory for YPI Cat. No.	UPC No. **037103**	Cut and Strip Accessory for YB2 and YB3 Cat. No.	UPC No. **037103**	Cut and Strip Accessory for XA3, R3 and XA4 Cat. No.	UPC No. **037103**
22	-	-	-	-	99050822	962188	-	-
24	99050524	961983	-	-	-	-	99050924	962263
26	99050526	961990	-	-	-	-	99050926	962270
28	99050528	962003	99050628	962072	99050828	962218	-	-
30	99050530	962010	99050630	962089	99050830	962225	-	-
32	-	-	-	-	99050832	962232	-	-
34	99050534	962034	-	-	99050834	962249	-	-

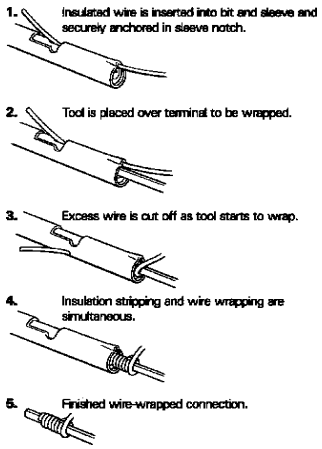
Δ = These items are made to order.
Please Note: With all Wire-Wrap tools, sleeves and bits need to be ordered separately.

Insulation stripper

These Wire-Wrap® Insulation Stripper is ideal for repair service, prototype breadboarding, hobbyist, and limited production assembly. The stripper is available in both single and two-wire size construction. Thermoplastic insulations are easily removed from solid conductor wire to prepare for wire wrapping or other methods of electrical termination. To use, push the insulated wire through the ferule to the desired strip length- and a quick pull will remove the insulation. The stripped piece of insulation is pushed out of the strtipper by the next wire insertion.

Mod. No.	UPC No. **037103**	Wire Size AWG	Construction	Maximum Insulation Diameter "/mm	Color Code	Wt. oz/g	Shelf Pack
525650	954305	24	Single End	.0455/1.16	Yellow	3/85	1
525651	954312	24	Double End	.0455/1.16	Yellow	3/85	1
		26	Double End	.0315/0.80	Red	3/85	1
525652	954329	26	Single End	.0315/0.80	Red	3/55	1
525653	954336	26	Double End	.0315/0.80	Red	3/85	1
		30	Double End	.0225/0.57	Blue	3/85	1
525654	954343	28	Single End	.255/0.65	Green	3/85	1
525655	954350	30	Single End	.0225/0.57	Blue	3/85	1

Cut-strip-wrap bits and sleeves



The cut-strip-wrap bit and sleeve assembly is an economical means for making solderless wrapped connections. The one-step operation results in time savings for terminating the loose ends of wire harnesses and cables when compatible combinations of wire and insulation tupes are used.

Features:

- Wire is loaded in conventional manner.
- No exposed moving parts-wrapping bit rotates inside a stationery sleeve.
- Bare wire-turns on terminals are constant because of fixed window cut-off design.
- Close terminal spacing-only slightly larger than conventional bits and sleeves.
- Highly reliable modified wrap.
- Only minimal re-training of operators is necessary.

Wire Size AWG	"/mm	Bit Part No.	UPC No. **037103**	Sleeve Part No.	UPC No. **037103**	Terminal Diagonal Maximum "/mm	Terminal Diagonal Minimum "/mm	Insulation Range Maximum "/mm	Insulation Range Minimum "/mm	Insul-Turns	Bare Wire Turns	Effective Radius "/mm
22-24	.025/0.64	Δ518931	953797	518932	953803	.072/1.83	.069/1.75	.050/1.27	.045/1.14	1/2	6	.133/3.38
22-24	.020/0.51	Δ518931	953797	518932	953803	.072/1.83	.069/1.75	.050/1.27	.045/1.14	1/2	6	.133/3.38
24	.020/0.51	519066	953858	519067	953865	.072/1.83	.059/1.50	.045/1.14	.040/1.02	1/2	6	.133/3.38
24	.020/0.51	519928	953926	519929	953933	.058/1.47	.054/1.37	.036/0.91	.033/0.84	3/4	5 1/2	.127/3.23
24	.020/0.51	518910	953759	518911	953766	.072/1.83	.059/1.50	.045/1.14	.040/1.02	1/2	6	.133/3.38
24	.020/0.51	990046	953759	522201	954213	.074/1.88	.059/1.50	.035/0.89	.032/0.81	1/2	6	.125/3.18
24	.020/0.51	521198	954053	521199	954060	.070/1.78	.066/1.68	.045/1.14	.040/1.02	3/4	6	.137/3.48
24	.020/0.51	519066	953858	522201	954213	.072/1.83	.059/1.50	.039/0.99	.034/0.86	1/2	6	.133/3.38
26	.016/0.41	519926	953902	519927	953919	.058/1.47	.054/1.37	.029/0.74	.026/0.66	3/4	6 1/2	.111/2.82
26	.016/0.41	522203	954237	522204	954244	.063/1.60	.059/1.50	.029/0.74	.025/0.64	3/4	7	.113/2.87
26	.016/0.41	527812	-	527813	954374	.034/0.86	.030/0.76	.029/0.74	.025/0.64	3/4	7	.082/2.08
30	.010/0.25	990764	963598	990765	963604	.034/0.86	.030/0.76	.0215/0.55	.019/0.48	1	7	.065/1.65
30	.010/0.25	990063	960733	990064	960740	.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

IMPORTANTNOTE: 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.

Wire specifications

Wire-Wrap® insulated wire is guaranteed to work with your Wire-Wrap CSW bits and sleeves. That means good wraps that meet specifications every time. The wire comes on 1000 ft./304mm spools in 24, 26 and 30 AWG sizes.

CSW WIRE

Part No.	UPC No. **037103**	AWG	Insulation O.D. "/mm	Color
990222	955012	30	.0195/0.50	Black
990223	955029	30	.0195/0.50	Green
990224	955067	30	.0195/0.50	Orange
990080	954817	30	.0195/0.50	White
990081	954824	30	.0195/0.50	Yellow
990082	954831	30	.0195/0.50	Red
990083	954848	30	.0195/0.50	Blue
990084	954855	26	.0275/0.70	White
990085	954862	26	.0275/0.70	Yellow
990086	954879	26	.0275/0.70	Red
990087	954886	26	.0275/0.70	Blue
990090	954916	26	.034/0.86	Red
990091	954923	26	.034/0.86	Blue
990092	954930	24	.034/0.86	White
990093	954947	24	.034/0.86	Yellow
990094	954954	24	.034/0.86	Red
990095	954961	24	.034/0.86	Blue\

Wire-Wrap® extensions, adapters and aids
Extension adapter assemblies

For use with 22 through 30 gauge wrapping bits: fits all tools with steel nose nuts.

Mod. No.	UPC No. **037103**	Length "/mm	Wt. oz/g	Shelf Pack
505473	952271	2/50	1.0/30	1
505477	952301	6/150	3.0/90	1

Extended nose

Fits all tools with plastic nose nut. Unit includes all components necessary to extend bit and sleeve either 2 in./50mm or hard quad 4 in./100mm.

Mod. No.	UPC No. **037103**	Length "/mm	Wt. oz/g	Shelf Pack
990240	96134 1	2/150	-	1
990241	96135 8	4/100	-	1

Springhook

A useful aid for wire handling. Constructed of high quality surgical steel, this tool is for routing wires on dense wire-wrapped panels.

Mod. No.	UPC No. **037103**	Shelf Pack
532748	954800	1