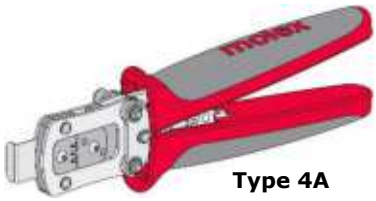
Order Number
213309-3600

molex

Application Tooling Specification



Type 4A

FEATURES

- A full cycle ratcheting hand tool ensures complete crimps
- Ergonomically designed soft handles
- Precisely designed crimping profiles with simple contact positioning
- Easy handling due to outstanding force ratio
- This hand tool is IPC/WHMA-A-620 compliant
- Modular crimp head is removable and can be used in the Electric Crimp Machine (Order No. 63816-1900), accompanied by Battery Powered Crimp Adapter (Order No. 63816-1950)
- Can also be used in the Battery Powered Tool Order No. 63816-0270 (110 V) or 63816-0280 (220 V), accompanied by Battery Powered Crimp Adapter (Order No. 63816-1950)
- This tool is RoHS compliant

SCOPE

Products: 2.00 Board-In Crimp Terminals, 28 AWG, UL1007 and UL1061 Wire.

Terminal Series No.	Terminal Order No. Reel Form Only (1)		Wire Size	Insulation Diameter				Strip Length	
				IPC/WHMA-A-620♦		Terminal♦♦			
			AWG	mm	In.	mm	In.	mm	In.
35044	35044-9101	35044-9160	28	0.70-1.50	.028-.059	0.90-1.50	.035-.059	1.80-2.20	.071-.087
	35044-9102	35044-9210							
	35044-9110	35044-9260							
	35044-9902								

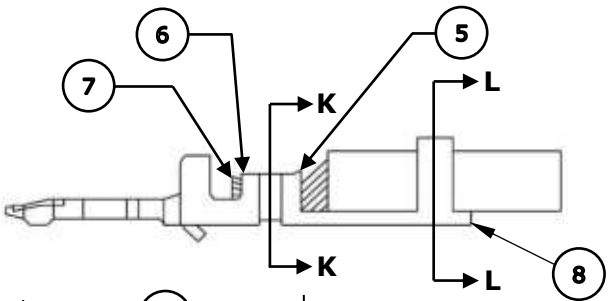
(1) Customer to cut off terminal from reel.

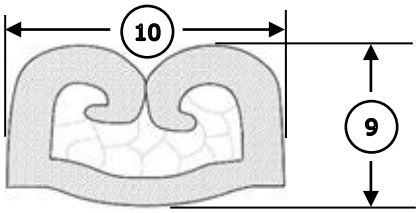
♦To achieve optimum IPC/WHMA-A-620 insulation crimps, use this insulation OD range.

♦Refer to the Crimp Specification table for detailed IPC/WHMA-A-620 information.

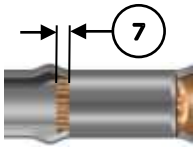
♦♦Overall insulation OD specification for terminal.

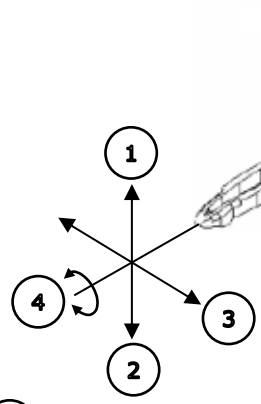
DEFINITION OF TERMS

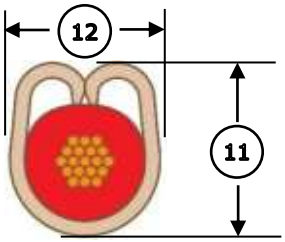




SECTION K-K







SECTION L-L

CRIMP SPECIFICATION

After crimping, the crimp profiles should measure the following:

Feature	Requirement					
1. Bend Up	3° Max					
2. Bend Down	3° Max					
3. Twist	3° Max					
4. Roll	3° Max					
5. Bell Mouth Rear	0.20-0.50mm (.008-.020”) Ref.					
6. Bell Mouth Front	Not Applicable					
7. Conductor Brush	0.40mm (.016”) Maximum					
8. Cut-Off Tab	0.30mm (.012”) Maximum					
Conductor Crimp	**Wire Type**	**Wire Size**	**9. Crimp Height**		**10. Crimp Width**	
	UL1007	28 AWG	0.66-0.71mm	.026-.028 In.	1.10-1.30mm	.044-.051 In.
	UL1061	28 AWG				
Insulation Crimp	**Wire Type**	**Wire Size**	**11. Crimp Height (Ref.)**		**12. Crimp Width (Ref.)**	
	UL1007	28 AWG	1.48mm	.058 In.	1.48mm	.058 In.
	UL1061	28 AWG	1.49mm	.059 In.	1.40mm	.055 In.
Pull Force	**Wire Type**	**Wire Size**	**Minimum Force**		***Profile**	
					A	**B**
	UL1007	28 AWG	10 N	2.25 lb.	X	
	UL1061	28 AWG	10 N	2.25 lb.		X

♦To achieve IPC/WHMA-A-620 crimps, the following overall wire insulation diameter ranges are recommended:
Profile A: 1.00-1.50mm (.039-.059”)
Profile B: 0.70-1.30mm (.028-.051”)

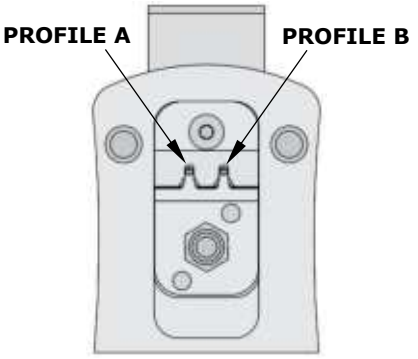
Tool Qualification Notes

1. (Ref) means the dimension provided is approximate due to the wide range of wires, conductor stranding, insulation diameters and insulation hardness.
2. An occasional pull force test should be performed. It must exceed the minimum pull force specification.
3. Pull force should be measured with no influence from the insulation crimp. To ensure this, strip the wire long enough so the terminal insulation grips do not contact the wire insulation.

***Profile Note**

Because this hand tool crimps two different types of 28 AWG wire, the crimp profiles are identified as Profile A and Profile B in the Crimp Specification section above.

Please refer to the illustration to the right when selecting the correct crimp profile for your application.



OPERATION

Open the tool by squeezing the handles together. At the end of the closing stroke, the ratchet mechanism will release the handles, and the hand tool will spring open.

1. With the hand tool in the open position, pivot the terminal locator open by pulling on the locator knob, and lift the wire stop blade up. See Figure 1.
2. Insert the terminal into the correct profile until the terminal is fully seated and stops.
3. Gently pivot the locator closed.
4. Bring down the wire stop blade. Make sure the wire stop blade is fully seated on the terminal behind the conductor grip section.
5. Slide the pre-stripped wire into the terminal. Make sure to aim the wire brush toward the tip point on the wire stop blade. See Figure 2. Align the wire so that it is parallel and sitting into the terminal. Maintain a light and constant pressure on the wire that is seated in the terminal at all times. (Do not let go of the wire.) Be sure to hold the wire in place until the terminal is fully crimped. See Figure 3.
6. Close the tool until the ratchet releases.
7. Lift the wire stop blade.
8. Carefully remove the crimped terminal.

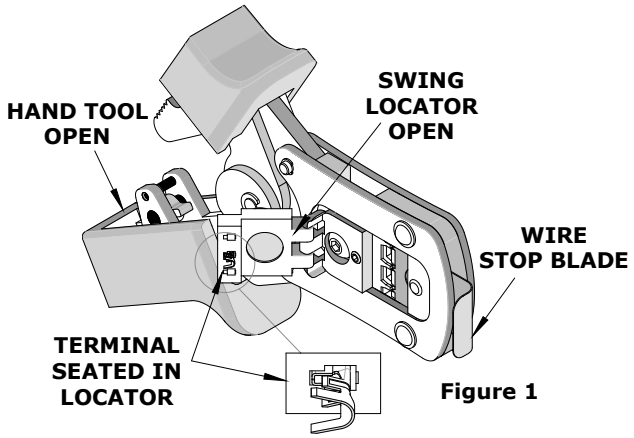


Figure 1

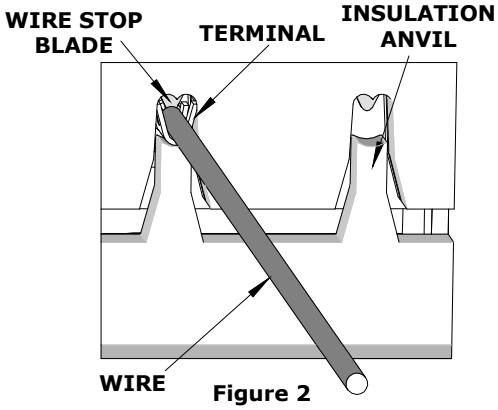


Figure 2

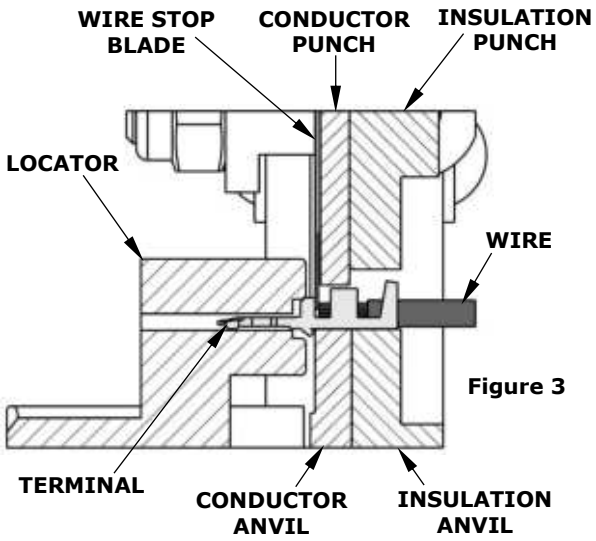


Figure 3

Note: The tamper-proof ratchet action will not release the tool until it has been fully closed.

Note: To maintain good brush control and a consistent bell mouth, the crimping instructions must be followed.

TERMINAL LOCATOR REPLACEMENT

This section describes the procedure for changing locators.

Removal

1. With the tool in the open position, pivot the terminal locator outward.
2. Remove the M4 BHCS. See Figure 4.

Installation

1. Place the proper locator on the hand tool. Install the M4 BHCS. See Figure 4.
2. Tighten the screw enough to hold the locator. Make sure the locator can still float freely with hand pressure.
3. Insert the proper terminal fully into the correct profile slot until the terminal is fully seated and stops. Then, gently pivot the locator closed.
4. With hand pressure, slowly slide the locator to the correct position. See Figure 5.
5. Gently pivot the locator open without disturbing the location.
6. Hold the locator firmly in place, and slowly tighten the M4 BHCS.

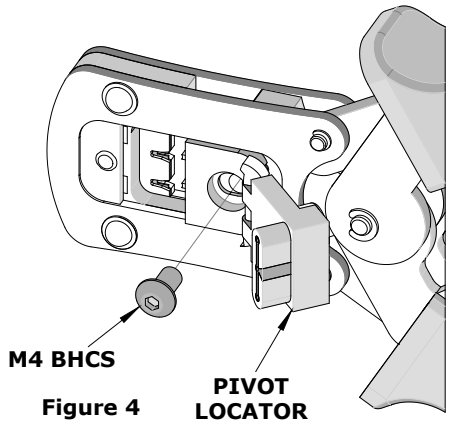


Figure 4

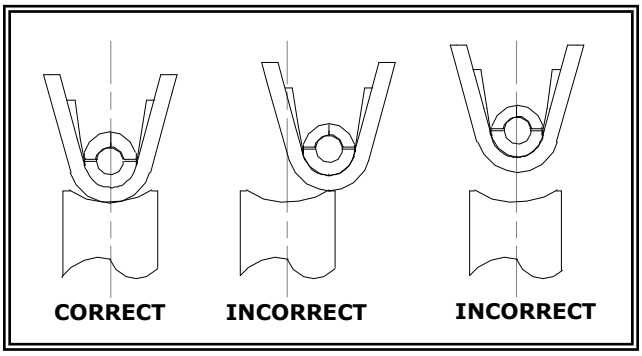


Figure 5

MAINTENANCE

It is recommended that each operator of the tool be made aware of and responsible for the following maintenance steps:

1. Remove dust, moisture and other contaminants with a clean brush or a soft, lint-free cloth.
2. Do not use any abrasive materials that could damage the tool.
3. Make certain all pins, pivot points and bearing surfaces are protected with a thin coat of high-quality machine oil. Do not oil excessively. The tool was engineered for durability, but like any other equipment, it needs cleaning and lubrication for a maximum service life of trouble-free crimping. Light oil (such as 30 weight automotive oil) used at the oil points every 5,000 crimps or 3 months will significantly enhance the tool life.
4. Wipe excess oil from the hand tool, particularly from the crimping area. Oil transferred from the crimping area onto certain terminations may affect the electrical characteristics of an application.
5. When the tool is not in use, keep the handles closed to prevent objects from becoming lodged in the crimping dies, and store the tool in a clean, dry area.

Miscrimps or Jams

Should this tool ever become stuck or jammed in a partially closed position, **do not** force the handles open or closed. The tool will open easily by lifting the ratchet release lever. See Figure 9.

Warranty

This tool is for electrical terminal crimping purposes only. This tool is made of the best quality materials. All vital components are long-life tested. All tools are warranted to be free of manufacturing defects for a period of 30 days. Should such a defect occur, Molex will repair or exchange the tool free of charge. This repair or exchange will not be applicable to altered, misused or damaged tools. This tool is designed for hand use only. Any clamping, fixturing or use of handle extensions voids this warranty.

CAUTION: Repetitive use of this tool should be avoided.

CAUTIONS

1. Manually powered hand tools are intended for low-volume use or field repair. This tool is NOT intended for production use. Repetitive use of this tool should be avoided.
2. Insulated rubber handles are not protection against electrical shock.
3. Wear eye protection at all times.
4. Use only the Molex terminals specified for crimping with this tool.

CAUTION: Molex crimp specifications are valid only when used with Molex terminals and tooling.

Notes

1. This tool should only be used for the terminals and wire gauges specified on this sheet.
2. This tool is not adjustable for crimp height; however, crimp force is adjustable. (See instructions above.) Variations in tools, terminals, wire stranding and insulation types may affect crimp height.
3. This tool is intended for standard conductor sizes. It may not give a good insulation crimp support for all insulation sizes.
4. Molex does not repair hand tools (see warranty above). The replacement parts listed are the only parts available for repair. If the handles or crimp tooling are damaged or worn, a new tool must be purchased.
5. Pull force is measured with no influence from the insulation crimp. The insulation should be stripped long (.50”) so the insulation grips on the terminal do not grip the wire insulation or the conductor. Refer to Molex Quality Crimping Handbook 63800-0029 for additional information on crimping and crimp testing.
6. Molex does not certify hand crimp tools.

CAUTION: Molex crimp specifications are valid only when used with Molex terminals and tooling.

APPLICATIONS FOR THE MODULAR CRIMP HEAD

WARNING: *NEVER* operate, service, install or adjust this modular crimp head without proper instruction and without first reading and understanding the instructions in the proper manual or specification sheet. See chart below for the correct manual or specification sheet.

WARNING: *NEVER* install tooling or service this tool while it is plugged into any power source. Disconnect the power by unplugging, or turn off the actuator from its power source.

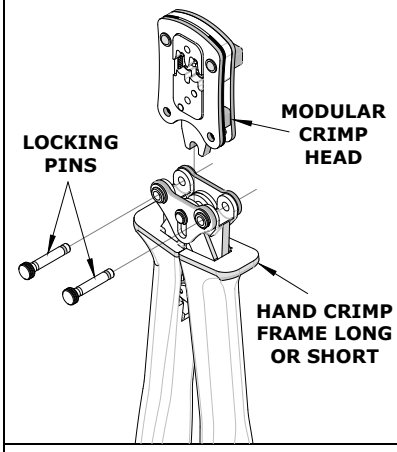
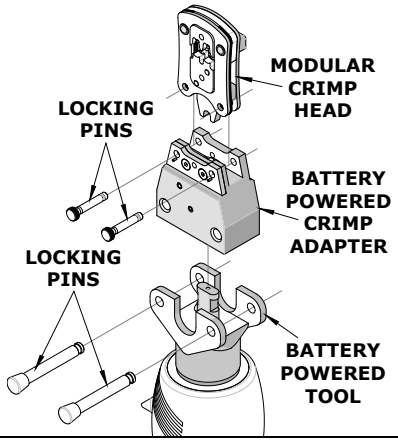
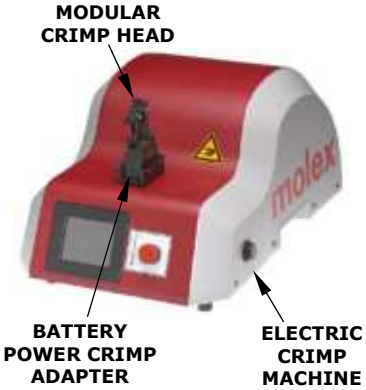
CAUTION: Keep fingers away from the crimping area when operating this tool. It may cause severe injury.

CAUTION: Wear safety glasses when operating or servicing this tool.

The chart below shows all applications for this modular crimp head:

Tool Order No.	Tool Description	Adapter Order No.	Adapter Description	Figure No.
63816-0000	Hand Crimp Frame (Short)	—	—	6
63816-0050	Hand Crimp Frame (Long)	—	—	6
63816-0270	Battery Power Tool (110 V)	63816-1950	Battery Power Crimp Adapter	7
63816-0280	Battery Power Tool (220 V)	63816-1950	Battery Power Crimp Adapter	7
63816-1900	Electric Crimp Machine	63816-1950	Battery Power Crimp Adapter	8

Applications for the Modular Crimp Head

Hand Crimp Tool	Battery Powered Tool	Electric Crimp Machine
		
Figure 6	**Figure 7**	**Figure 8**

PARTS LIST

Hand Crimp Tool 213309-3600			
Item	**Order Number**	**Description**	**Quantity**
1	63816-0000	Hand Crimp Frame (Short)	1
2	213309-3675	Locator	1
3	63816-0001	Locking Pin	2
4	63600-0525	Handle Spring	1
5	63600-0520	Crimping Spring	2

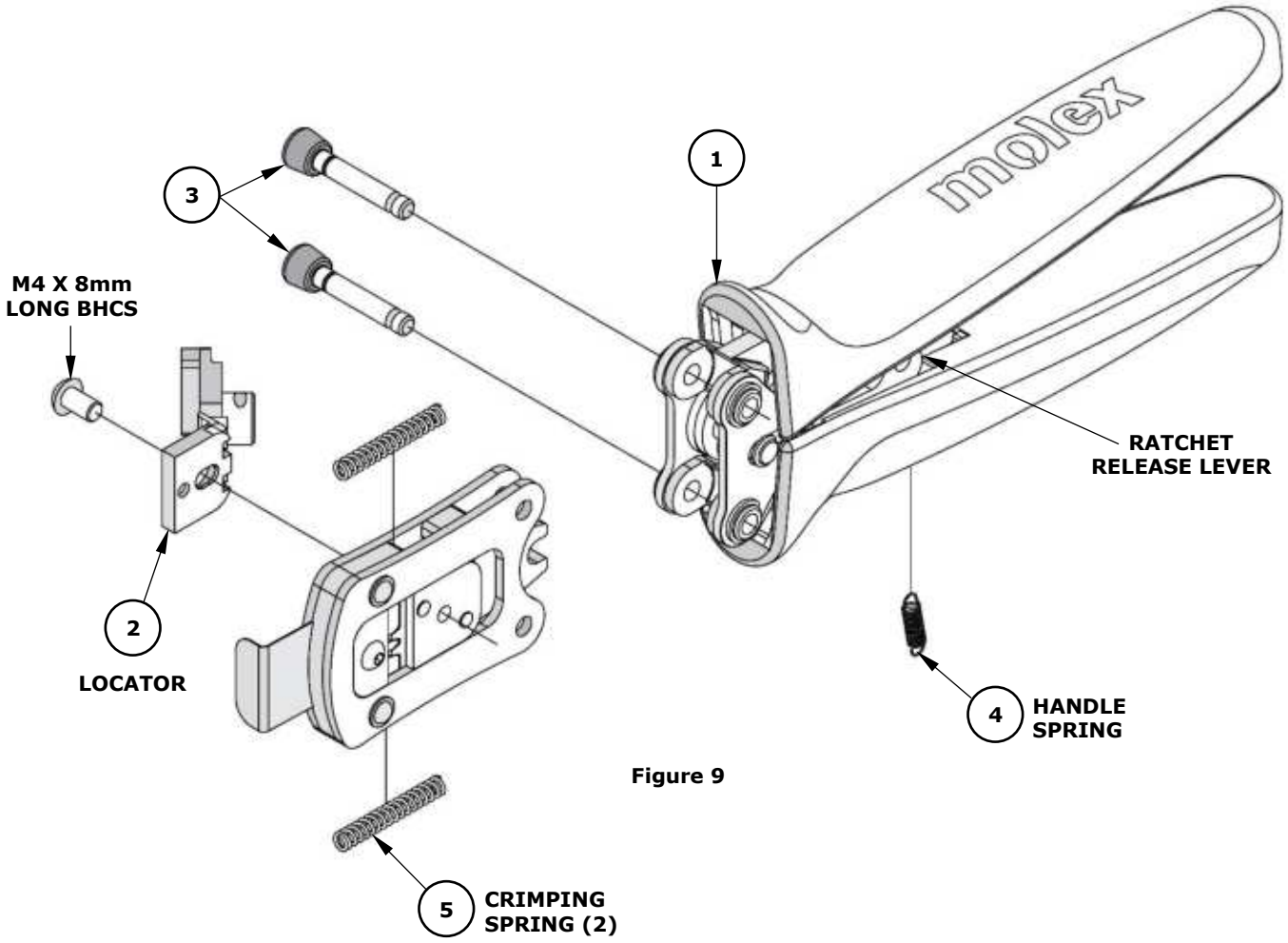


Figure 9

Application Tooling Support

Phone: (402) 458-TOOL (8665)
E-Mail: toolingsupport@molex.com
Website: www.molex.com/applicationtooling

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