DANIELS MANUFACTURING CORPORATION

SLIDES ONLY

NO SCRIPT PROVIDED

Component & Tooling

Identification Training

Agenda

- DMC® History
- Component to Tooling
- Crimp Tools
- Accessories
- Large Gauge Tooling
- Wire Strippers
- Tensile Testing
- Banding
- Safe-T-Cable®
- LaceLok®
- Kits

MISSION

The trusted provider of tooling and technology for mission-critical electrical systems.

VISION

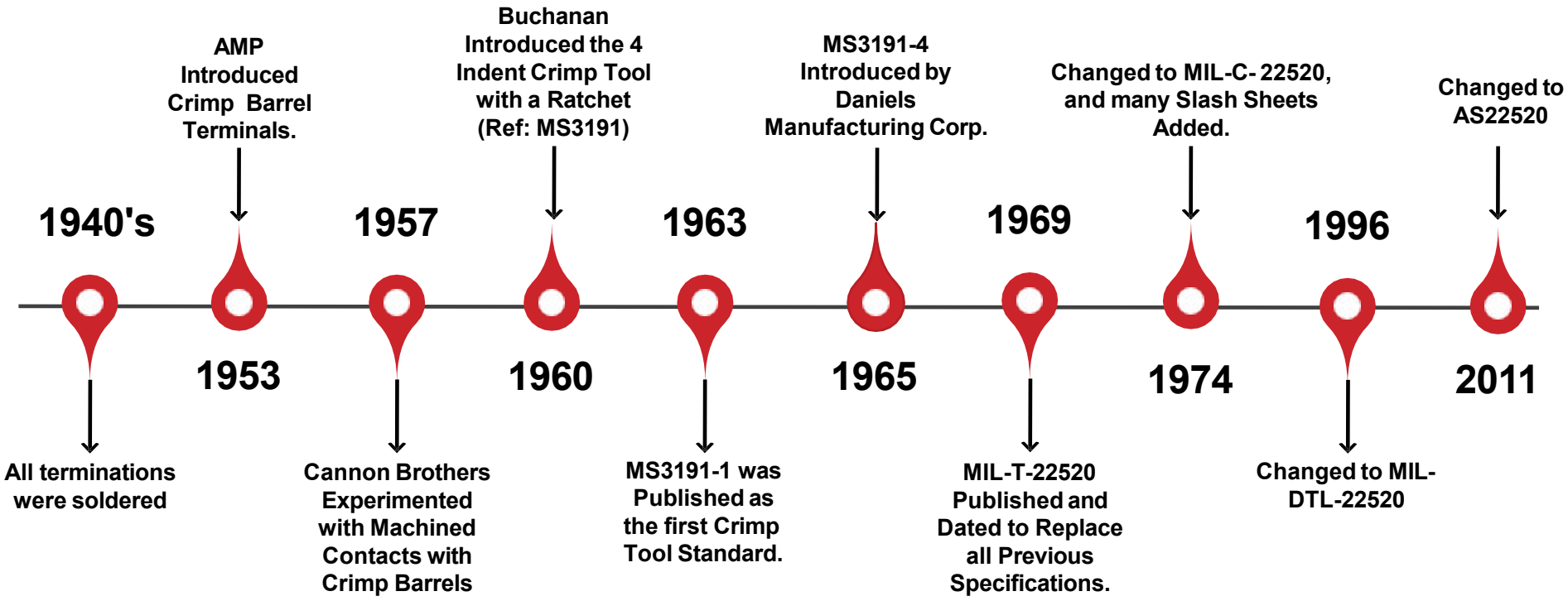
To create industry-changing solutions that drive customer success.

VALUES

- Maintain Customer Focus
- Preserve Family Culture
- Commit to Growth
- Succeed with Honor
- Hire and Develop the Best
- Embrace Teamwork & Optimism
- Retain Organizational Flexibility
- Adopt Change while Respecting Heritage

History

Timeline for Crimp Technology



History

Tooling Support

Our mission is to be your trusted partner in tooling and technology for mission-critical electrical systems. DMC and DMC Europe provides a full catalog of tooling to support EWIS including:

- Crimp Tools & Accessories (qualified to AS22520)
- Insertion/Removal Tools (qualified to AS81969 & AS5259)
- Connector Assembly Tools
- Tensile Test Equipment
- Safe-T-Cable®
- Twist-Strip®
- Lacelok®

Introduction to Connectors

Introduction to Connectors

Connector Styles

MIL-Spec Type Circulars:

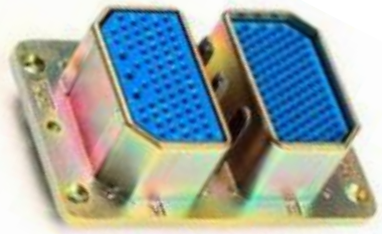
MIL-DTL-38999 Connectors

MIL-DTL-26482 Series II

MIL-DTL-83723 Connectors

MIL-DTL-50151 Connectors

D-Sub, Rack & Panel:



AS81659

MIL-DTL-24308

MIL-DTL-83733

Introduction to Connectors

Popular Connectors

Some of the more popular connectors found on *EWIS today are:

- MIL-DTL-38999 Series 3
- MIL-DTL-32689 2M, and Series 80
- MIL-DTL-26482 Series 1 and 2
- MIL-DTL-83723 Series 2 and 3
- MIL-DTL-24308 D-Sub/Rack & Panel
- AS50151 (formerly MIL-C-5015)

*EWIS, short for Electrical Wiring Interconnect System, refers to the complete wiring system of an aircraft

Introduction to Connectors

Receptacles and Plugs

Receptacles have mating socket and often have mounting features such as a flange with holes.

Plugs have prolonged connecting pins.

Introduction to Connectors

- **Blue bands** on connectors generally indicate the connector has contacts that release from the **rear** of the connector (wire side).
- Connectors **without** color bands would likely indicate the connector contacts release from the **front** (mating side).

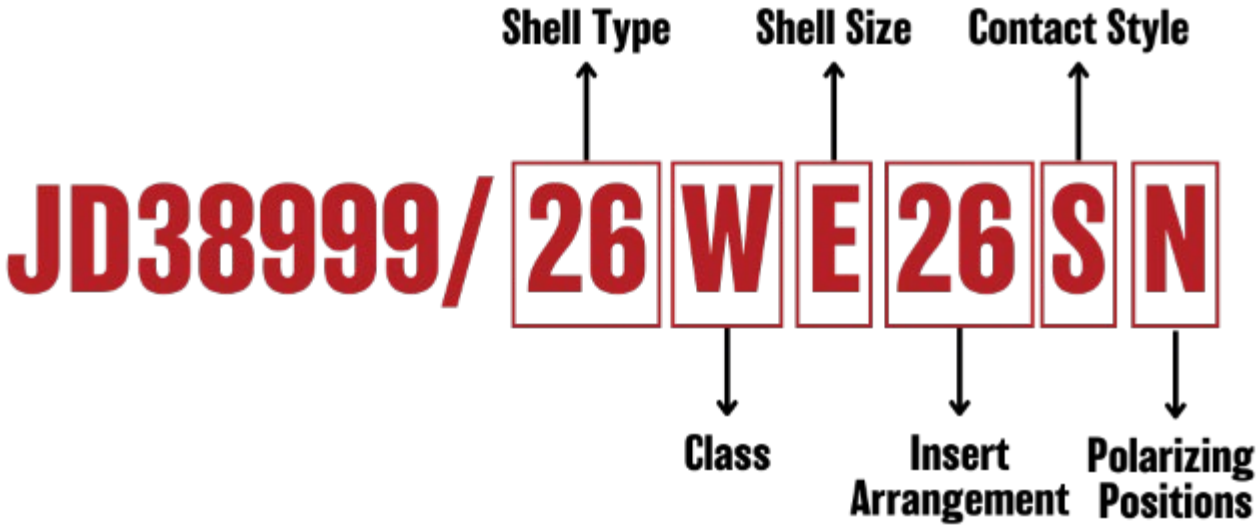
- **Red bands** on circular connectors are usually there as a visual check for the complete mating of threaded connectors.

Connector Part Numbers

Identifying the Type of Connector

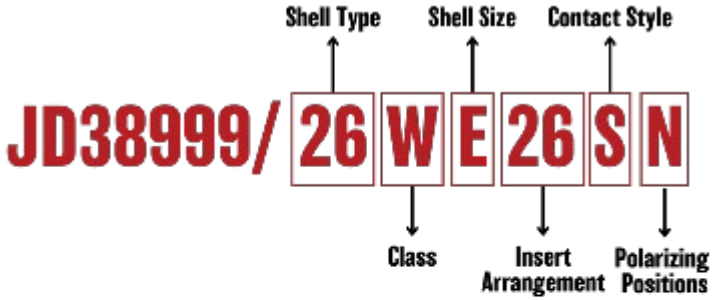
JD38999/26 = MIL-DTL-38999 Series III (Formerly MIL-C)

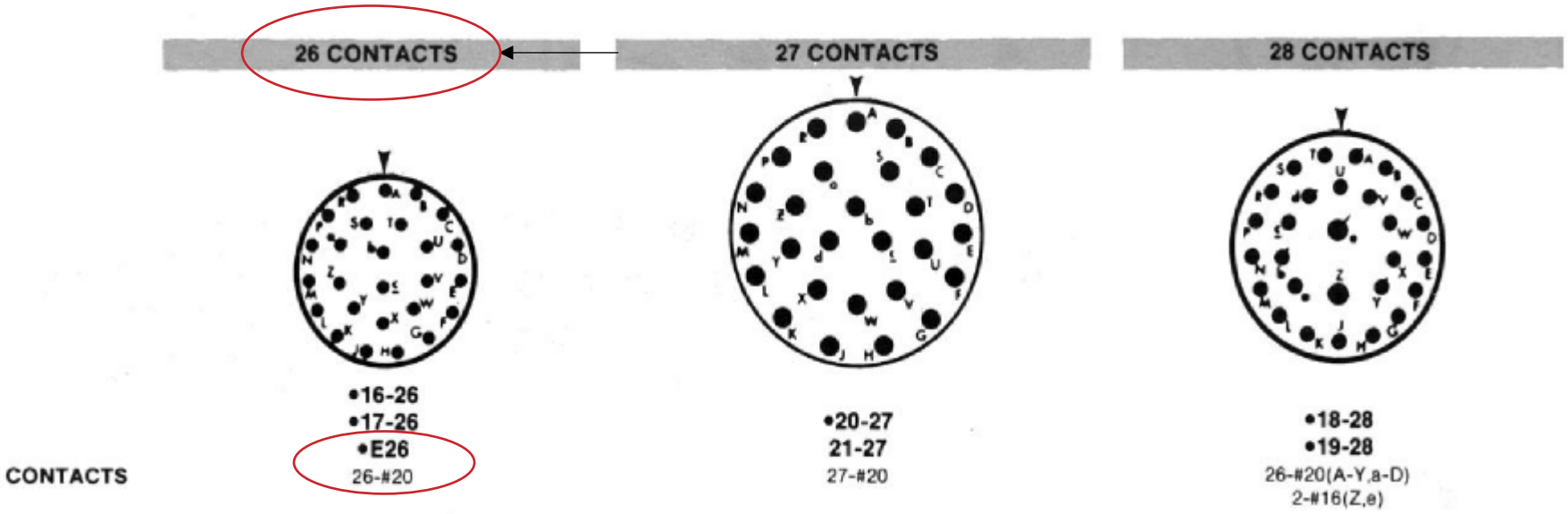
- Shell Type: Connector description, i.e., wall mount, jam nut, straight plug (26)
- Class: Material, plating, temperature range, and other design factors (W)
- Shell Size: Diameter of connector (E)
- Insert Arrangement: Layout and size, type of contact (26)
- Contact Style: Pin, socket, solder tail, etc. (S)
- Polarizing Positions: Orientation of keys or insert rotation for proper mating (N)



Connector Identification

Insert Arrangement of Connectors





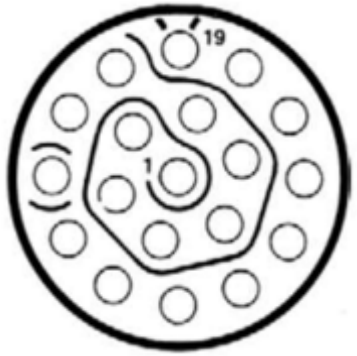
*Check Connector OEM documentation for insert arrangements.

Connector Identification

Contact Arrangement

In addition to contact type, insert arrangements are important. Connector layouts vary in different MIL-SPECs; some use numbers, others use letters.

- On a MIL-DTL-26500, contacts are numbered from center out.
- When looking at the face of the plug, number 1 is in the center and is counted counterclockwise, clockwise for the receptacle.



Plug

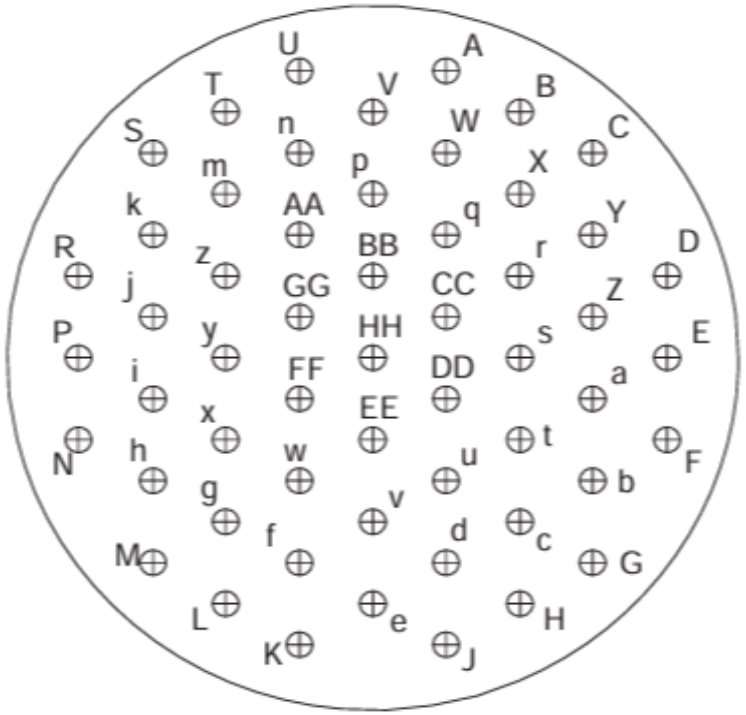
Receptacle

- There is a tracer line to help guide your eye around the connector. To help keep track of the number of contacts, every 10th one has a circle around it. The last contact is numbered and should match the connector part number.

Connector Identification

Contact Arrangement

- On MIL-DTL-38999 connectors, letters are used to identify the contact position, including capitals (A, B, C), lower case (a, b, c), and double (AA, BB, CC).
- I, O, and Q are omitted because they are difficult to print and see.



Connector Part Numbers

MIL-DTL-38999 ADAPTERS
SERIES 3

COUPLING METHOD	THREADED, TRIPLE START SELF-LOCKING
KEYING POSITIONS	N (NORMAL), A, B, C, D, E
ALTERNATE KEYING METHOD	MASTER KEY REMAINS STATIONARY –MINOR KEYS ROTATE INDEPENDENTLY
EMI/RFI GROUNDING	YES (EMI/RFI GROUNDING FINGERS MAY NOT BE AVAILABLE ON ALL MODELS)

TYPICAL CONNECTOR PART NUMBER BREAKDOWN

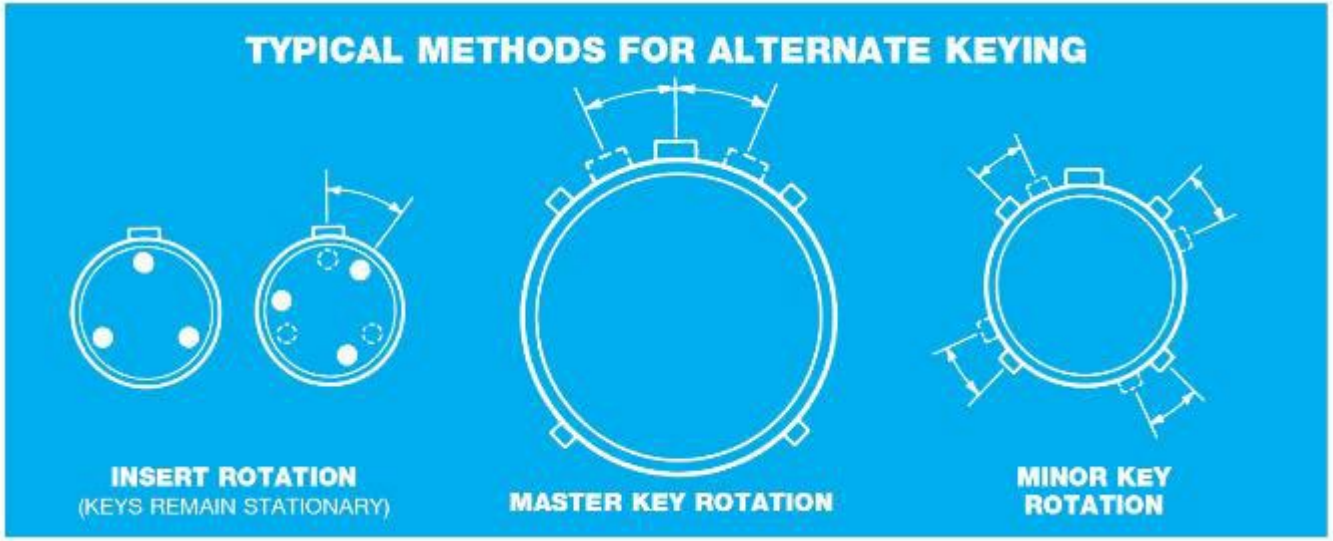
MILITARY SPECIFICATION SHEET	CLASS	SHELL SIZE	INSERT ARRANGEMENT	CONTACT TYPE (PIN OR SOCKET)	KEYING POSITION
D38999/26	F	J	30	P	N

PLUGS						
CONNECTOR PREFIX NUMBER	SHELL SIZE	KEYING POSITIONS	ADAPTER TOOL	COLOR	T-HANDLE WRENCH	ADAPTER TOOL SET
D38999/26( ) D38999/29( ) D38999/30( ) D38999/31( ) D38999/36( )	9(A)	N, C, D	CM389T-9A	LAVENDER	BT-HT-100 (¼" SQ. DRIVE)	CM-S-389T
	9(A)	A, B, E	CM389T-9B			
	11(B)	N, D, E	CM389T-11A			
	11(B)	A, B, C	CM389T-11B			
	13(C)	N, D, E	CM389T-13A			
	13(C)	A, B, C	CM389T-13B			
	15(D)	N, D, E	CM389T-15A			
	15(D)	A, B, C	CM389T-15B			
	17(E)	N, A, B	CM389T-17A			
	17(E)	C, D, E	CM389T-17B			
	19(F)	N, A, B	CM389T-19A		BT-HT-107 (⅜" SQ. DRIVE)	
	19(F)	C, D, E	CM389T-19B			
	21(G)	N, A, B	CM389T-21A			
	21(G)	C, D, E	CM389T-21B			
	23(H)	N, A, B	CM389T-23A			
	23(H)	C, D, E	CM389T-23B			
	25(J)	N, A, B	CM389T-25A			
	25(J)	C, D, E	CM389T-25B			

Connector Identification

Polarizing Positions

- Polarizing positions or keying is used to prevent mating of incorrect orientation or polarity.
- Hundreds of configurations of connectors are manufactured.
- N stands for “normal” and numbers represent alternate keying positions.



Introduction to Contacts

Pin & Socket

Contact Styles are defined as Pin (male) and Socket (female).

Pin

Socket

BIN Codes

How to Identify Contact Part Numbers

M39029-XX/XXX

Color codes or Basic Identification Number (BIN) codes are used to identify contact part numbers.

Betty **B**rown **R**uns **O**ver **Y**our **G**arden **B**ut **V**iolet **G**ingerly **W**alks

Big **B**ears **R**oam **O**ver **Y**ellow **G**rounds, **B**rave **V**ikings **G**o **W**ild

Contact Identification

Contact Gages

- Contact Gages are used to identify the size of contacts in connectors
- Four contact gages are included with all DMC kits. This is especially useful where two or more contact sizes are present in a single connector.

American Wire Gauge (AWG)

Wire Conductor Size

- American Wire Gauge (AWG) is a US standard for wire conductor size.
- The "gauge" is related to the diameter of the wire.
- The higher the gauge number, the smaller the diameter and thinner the wire.

Tool Selection

Selecting the Proper Tooling

Contact Identification

How to build a connector video

M39029/XX-XXX using BIN code to select tooling

Pin:

- Orange-Blue-Orange
- BIN 363

Socket:

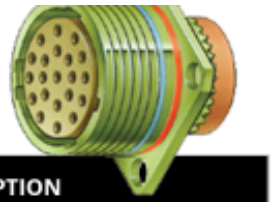
- Orange-Green-Brown
- BIN 351

Selecting the Proper Tooling

Use DMC Resources to Find Tooling

Using DMC's Catalog, search for the contact using the BIN code.

MIL-DTL-38999
SERIES 3



Tri-Start Coupling, Circular, Rear Release Contacts

CONNECTOR P/N	DESCRIPTION
D38999/20	WALL MOUNT FLANGE RECEPTACLE
D38999/24	JAM NUT MOUNT RECEPTACLE
D38999/26	STRAIGHT PLUG
D38999/29	LANYARD RELEASE PLUG (PIN CONTACTS ONLY)

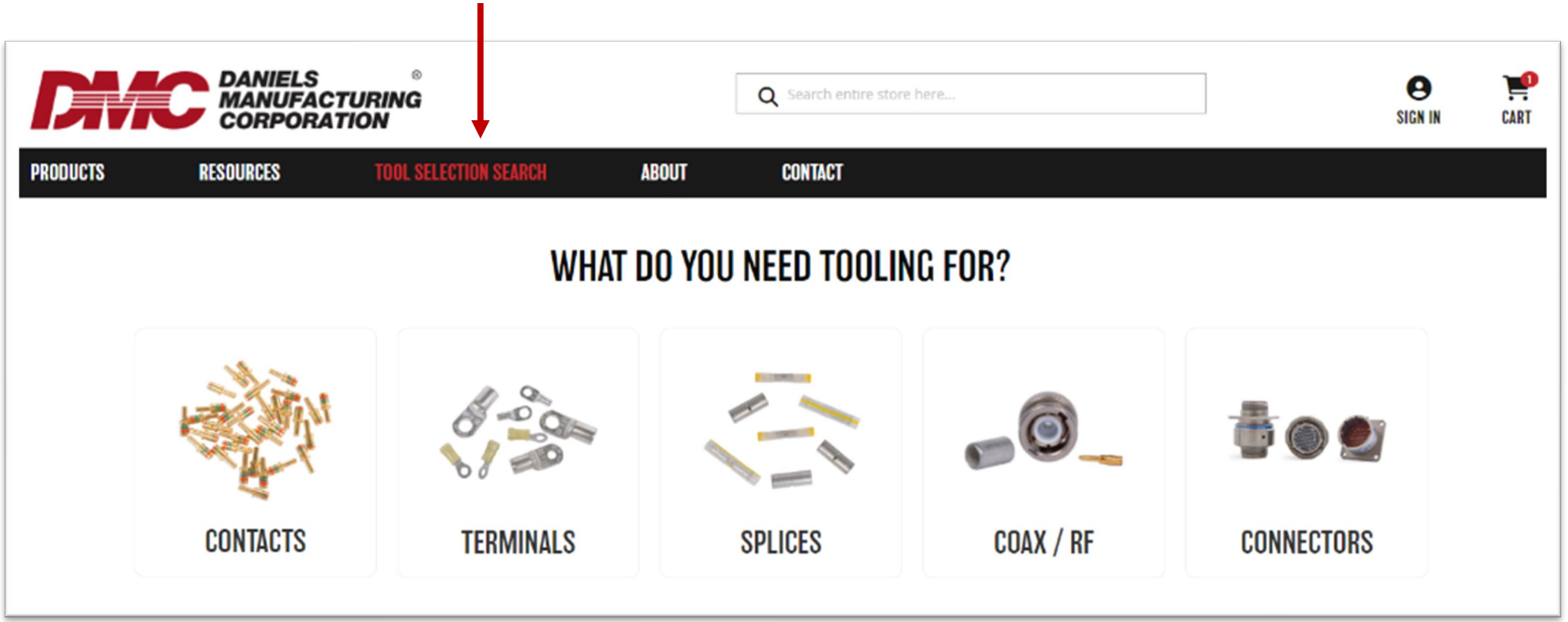
CONNECTOR P/N	DESCRIPTION
D38999/30	LANYARD RELEASE PLUG (SOCKET CONTACTS ONLY)
D38999/31	LANYARD RELEASE PLUG (PIN CONTACTS ONLY)
D38999/34	JAM NUT RECEPTACLE (SOCKET CONTACTS ONLY)
D38999/35	WALL MOUNT RECEPTACLE (SOCKET CONTACTS ONLY)

CONTACT PART NUMBER	BIN			PIN (P) OR SOCKET (S)	MATING END	WIRE BARREL	WIRE RANGE	CRIMP TOOL AND ACCESSORY				ASSEMBLY TOOLS	
								AF8	AFM8	MH860	1716P-1*	INSERTION	REMOVAL
M39029/58-360	3-ORN	6-BLU	0-BLK	P	22	22D	22-28		K42	86-6		DAK95-22MB (ANGLED TWEEZER) OR DAK722-22D (OFFSET TWEEZER)	DRK95-22MB (ANGLED TWEEZER) OR DRK722-22D (OFFSET TWEEZER)
M39029/56-348	3-ORN	4-YEL	8-GRA	S					K40	86-4			
M39029/118-644	6-BLU	4-YEL	4-YEL	P					K42	86-6			
M39029/118-650	6-BLU	5-GRN	0-BLK	P									
M39029/117-632	6-BLU	3-ORN	2-RED	S					K40	86-4			
M39029/117-638	6-BLU	3-ORN	8-GRA	S									
M39029/58-361	3-ORN	6-BLU	1-BRN	P		22M	24-28		K42	86-6			
M39029/56-349	3-ORN	4-YEL	9-WHT	S					K40	86-4			
M39029/58-362	3-ORN	6-BLU	2-RED	P	22	22	22-26		K42	86-6		DAK95-22B (ANGLED TWEEZER) OR DAK722-22 (OFFSET TWEEZER)	DRK95-22B (ANGLED TWEEZER) OR DRK722-22 (OFFSET TWEEZER)
M39029/56-350	3-ORN	5-GRN	0-BLK	S					K40	86-4			
M39029/58-363	3-ORN	6-BLU	3-ORN	P	20	20	20-24		K43			DAK95-20B (ANGLED TWEEZER) OR DAK722-20 (OFFSET TWEEZER)	DRK95-20B (ANGLED TWEEZER) OR DRK722-20 (OFFSET TWEEZER)
M39029/56-351	3-ORN	5-GRN	1-BRN	S									
M39029/118-646	6-BLU	4-YEL	6-BLU	P									
M39029/118-652	6-BLU	5-GRN	2-RED	P									
M39029/117-634	6-BLU	3-ORN	4-YEL	S						86-7			
M39029/117-640	6-BLU	4-YEL	0-BLK	S									

Selecting the Proper Tooling

Use DMC Resources to Find Tooling

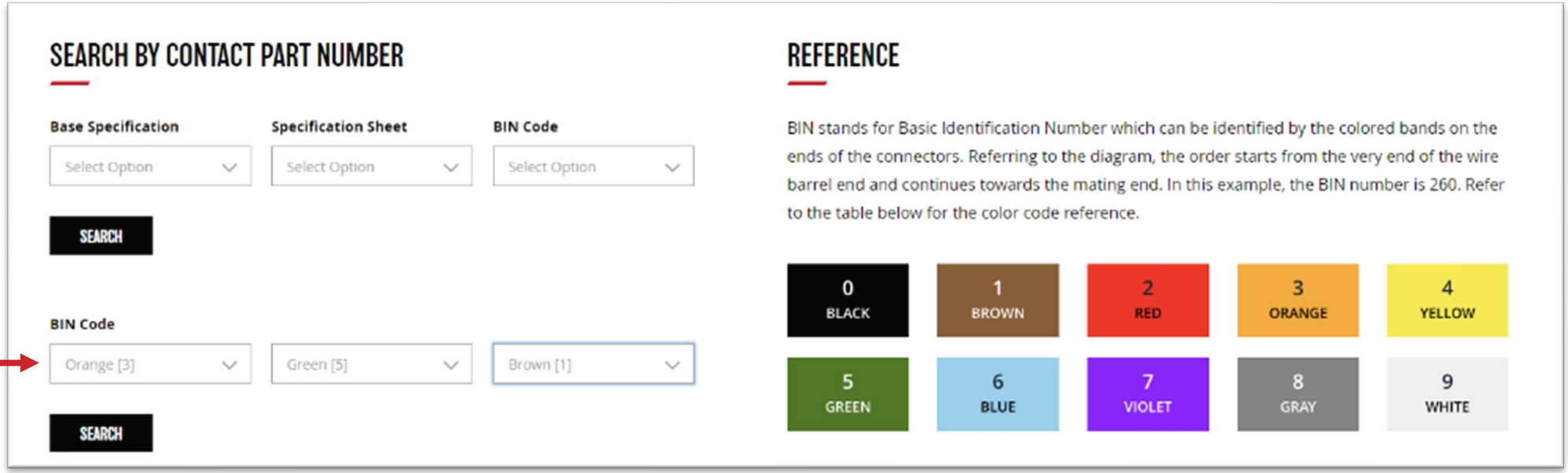
Alternatively, you can use the Tool Selection Search on dmctools.com



Selecting the Proper Tooling

Use DMC Resources to Find Tooling

Select your component. In this case the component is a contact. Next, search for tooling by entering the BIN code or contact part number.



Selecting the Proper Tooling

Use DMC Resources to Find Tooling

All tooling related to the component search will be presented along with general information relating to the component.

TOOLING FOR M39029/56-351

Mating End Sizes	Wire Barrel Size	Pin/Socket	Part No (Current)	Part No (Superseded)	Wire Range	Color Bin
20	20	S	M39029/56-351	MS27490-20	20-24	3 5 1

Specification: MIL-C-39029/56E

INNER/PRIMARY CRIMP TOOL

Military Approved

K43

Positioner

$64.02

Military Approved

MH860

Adjustable Middle Range 8 Indent Crimp Tool

$445.05

Military Approved

86-7

Positioner

$64.02

WA27F

Pneumatic Indent Crimp Tool - Equivalent to AF8

$1,881.98

Military Approved

TH163

Turret Head

$136.60

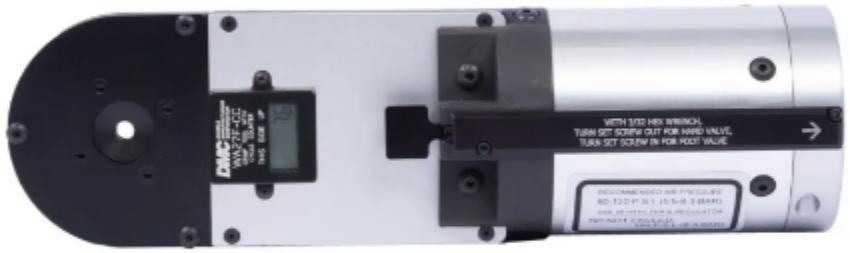
Selecting the Proper Tooling

Use DMC Resources to Find Tooling

DANIELS MANUFACTURING CORPORATION

Enter Keyword to Search | SEARCH | SIGN IN | CART

PRODUCTS | RESOURCES | TOOL SELECTION SEARCH | ABOUT | CONTACT



DESCRIPTION | MORE INFORMATION | RESOURCES | REVIEWS

WA27F-CC

Pneumatic Indent Crimp Tool with Cycle Counter - Equivalent to AF8

Be the first to review this product

$2,087.75

Ships Within: **10 weeks**

Certificate

None

Qty 1 ADD TO CART

ADD TO COMPARE

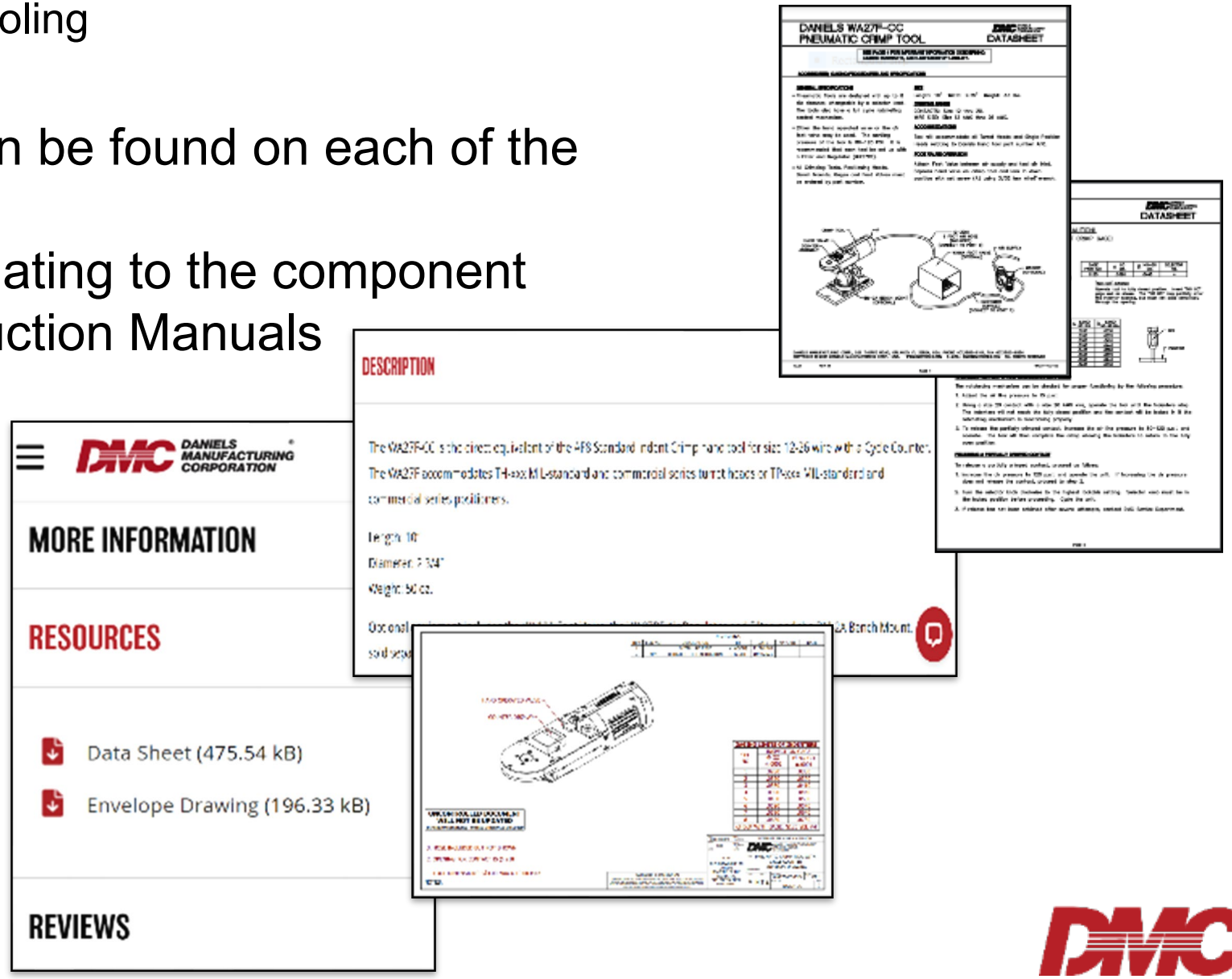
- Equivalent to AF8 (M22520/1-01)

Selecting the Proper Tooling

Use DMC Resources to Find Tooling

Additional information can be found on each of the tools such as:

- General information relating to the component
- Data Sheets and Instruction Manuals
- Envelope Drawings
- Shipping Weight



Introduction to 4/8 Indent Tools

AF8 (M22520/1-01)

4/8 Indent Tools

- Crimp range **12 - 26 AWG**
- Cycle control ratchet
- Produces 8 indent crimp
- Crimp depth controlled by 8 position selector knob
- Go/No-Go performed with G125
- Utilizes turret & single position heads

AFM8 (M22520/2-01)

4/8 Indent Tools

- Crimp range **20 - 32 AWG**
- Ratchet control cycling
- Produces 8 indent crimp

- Crimp depth controlled by 8 position selector knob
- Go/No-Go performed with G125
- Utilizes “K” positioners

Locators

Different Options

Turret:

- Turret heads can accommodate different size contacts (selected by color codes)

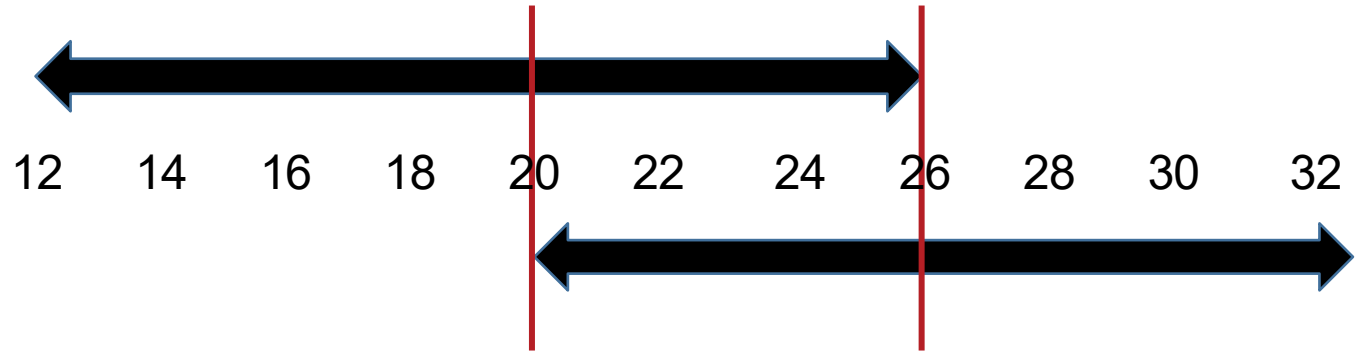
Positioner:

- Positioners are dedicated to a single contact size

4/8 Indent Tools

AF8 Lower Range VS AFM8 Upper Range

AF8 - Crimp Range 12 through 26 AWG



AFM8 - Crimp Range 20 through 32 AWG

Go/No-Go Gages

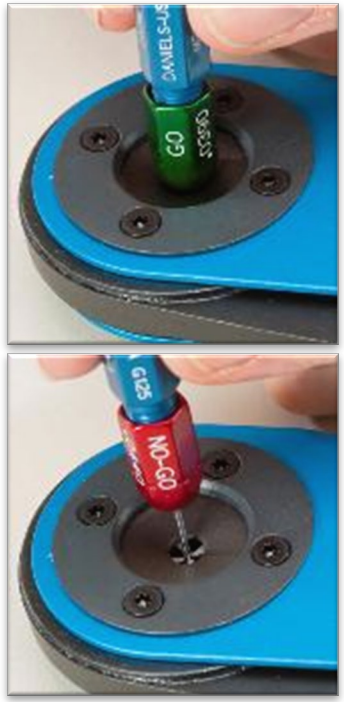
Crimp Tool Verification

- It is important to periodically gage crimp tools by using an inspection/verification gage (Go/No-Go).
- This step ensures the tool has maintained the settings/tolerances it had when it was manufactured or calibrated.
- 4/8 indent crimp tools can easily be gaged by following the directions on the gage and tool instructions.

Go/No-Go Gages

Crimp Tool Verification

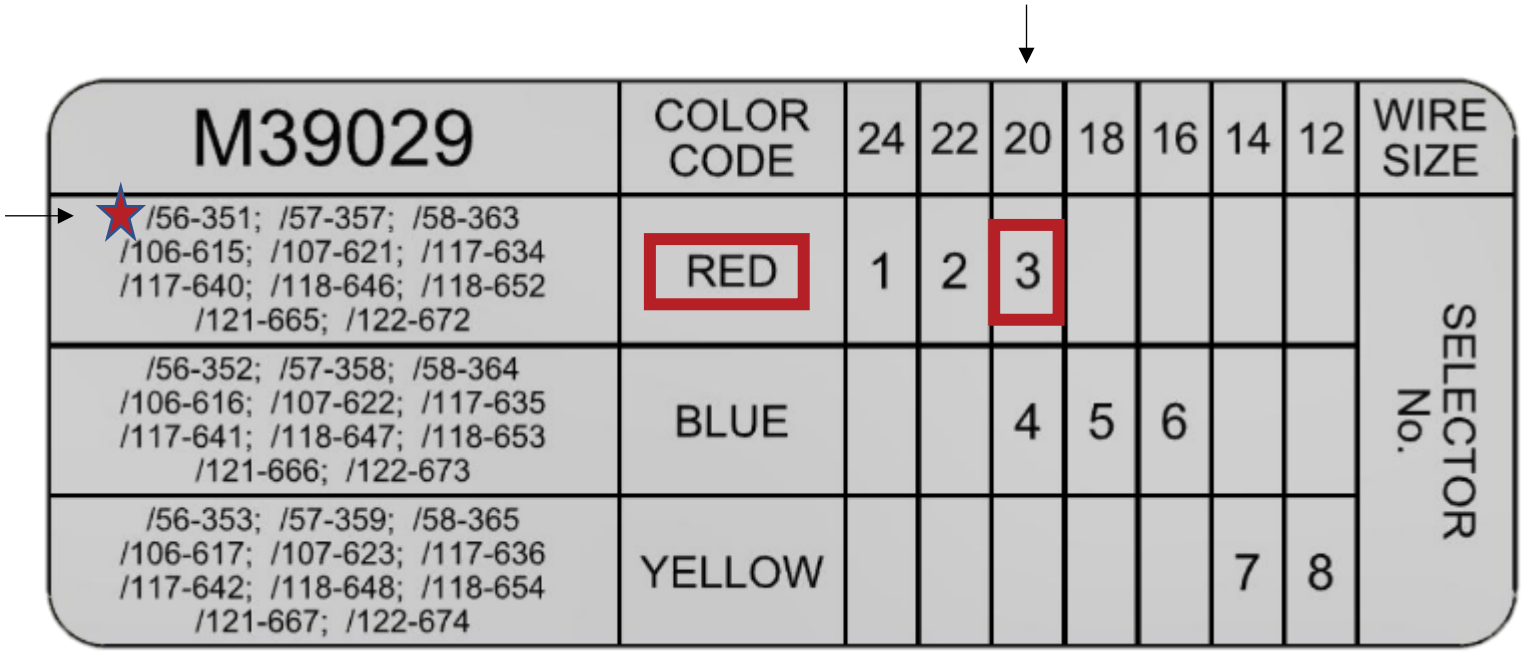
- Set the tool to the specified setting (crimp depth selector) and first insert the “Go”, then the “No-Go” end of the gage into the indenters.
- The “Go” should pass freely between the four indenters, and the “No-Go” should not pass through the indenters.



Introduction to Crimping

Step 1:

Once you have identified the appropriate tooling, use the data plate to find the correct settings for the tool.

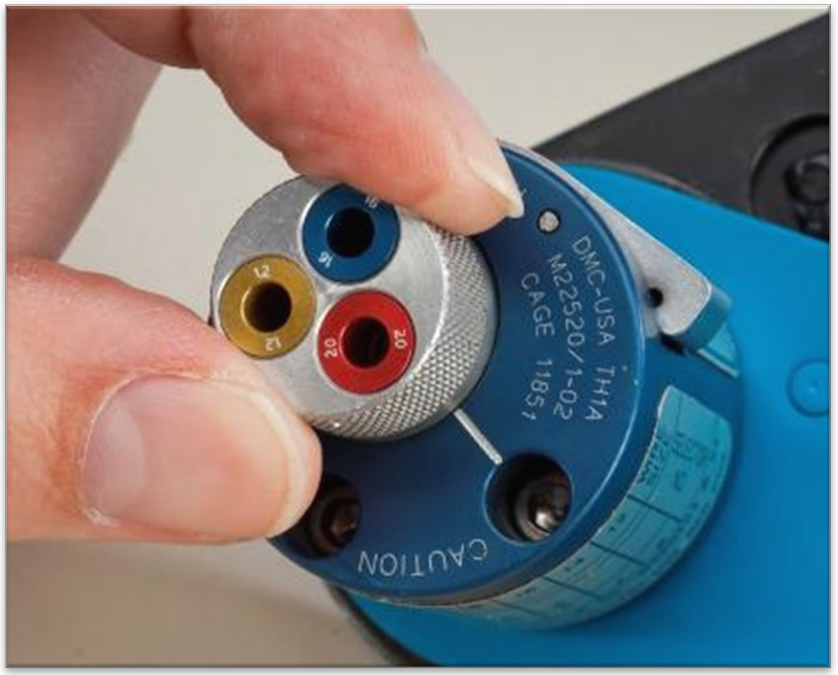


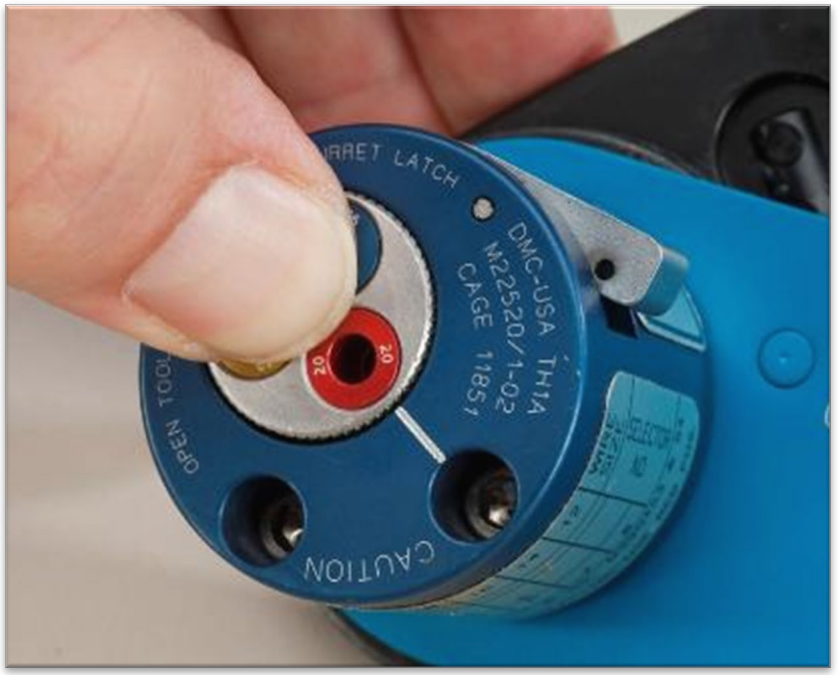
M39029	COLOR CODE	24	22	20	18	16	14	12	WIRE SIZE
/56-351; /57-357; /58-363 /106-615; /107-621; /117-634 /117-640; /118-646; /118-652 /121-665; /122-672	RED	1	2	3					SELECTOR No.
/56-352; /57-358; /58-364 /106-616; /107-622; /117-635 /117-641; /118-647; /118-653 /121-666; /122-673	BLUE			4	5	6			
/56-353; /57-359; /58-365 /106-617; /107-623; /117-636 /117-642; /118-648; /118-654 /121-667; /122-674	YELLOW						7	8	

*Tools under M39029 or AS39029 have superseded older tools

Step 2:

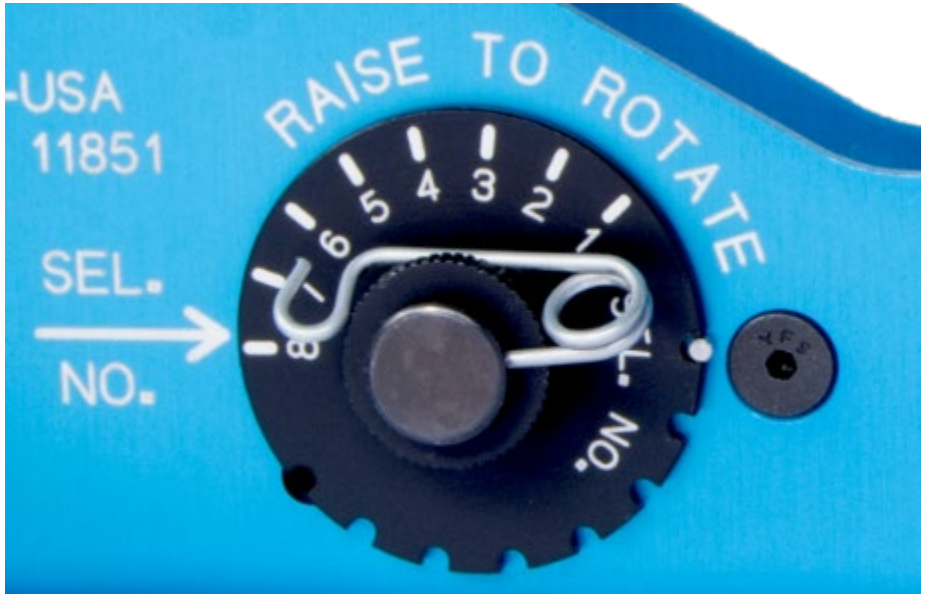
Set the Turret to red and push the turret knob in.





Step 3:

Next, set the selector setting knob to 3 by lifting and rotating.



Note: The selector setting on the Turret or Positioner you are using is always the one to use.

Step 4:

Insert the wire into the contact prior to inserting the contact into the tool, or if it is preferable, insert the contact into the tool, then insert the stripped wire into the contact.

Step 5:

Close the tool until the movable handle fully bottoms, and the ratchet allows the handle to open. Relax pressure and remove the crimped contact.

Step 6:

Inspect the contact

- The crimp location should be midway between the inspection hole and the end of wire barrel.
- Ensure there is wire in the inspection hole
- The gap between the insulation and contact barrel should be less than 50% of the overall wire diameter
- No wire strands should be located outside of the wire barrel
- Look for cracks in the plating material (magnification may be required.)

Powered Equivalents

Manual	AF8 	MH860 	AFM8 
Pneumatic	WA27F 	WA22P 	WA22  WA22-LCX1 
Battery	N/A	N/A	N/A

Accessories

Go/No-Go

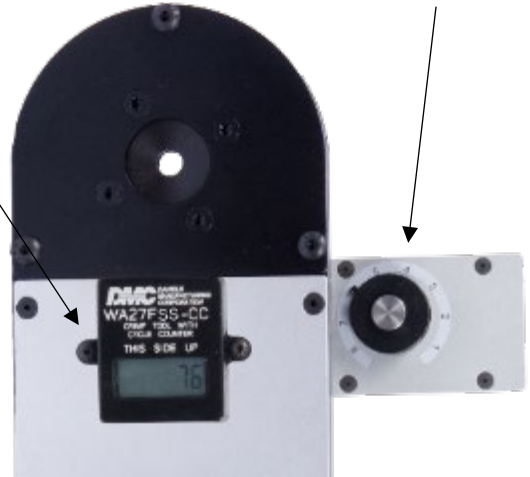
Bench Mount

Foot Pedal

Regulator

Cycle Counter

Side selector



Introduction to Terminals, Splices and Stamped & Formed Contacts

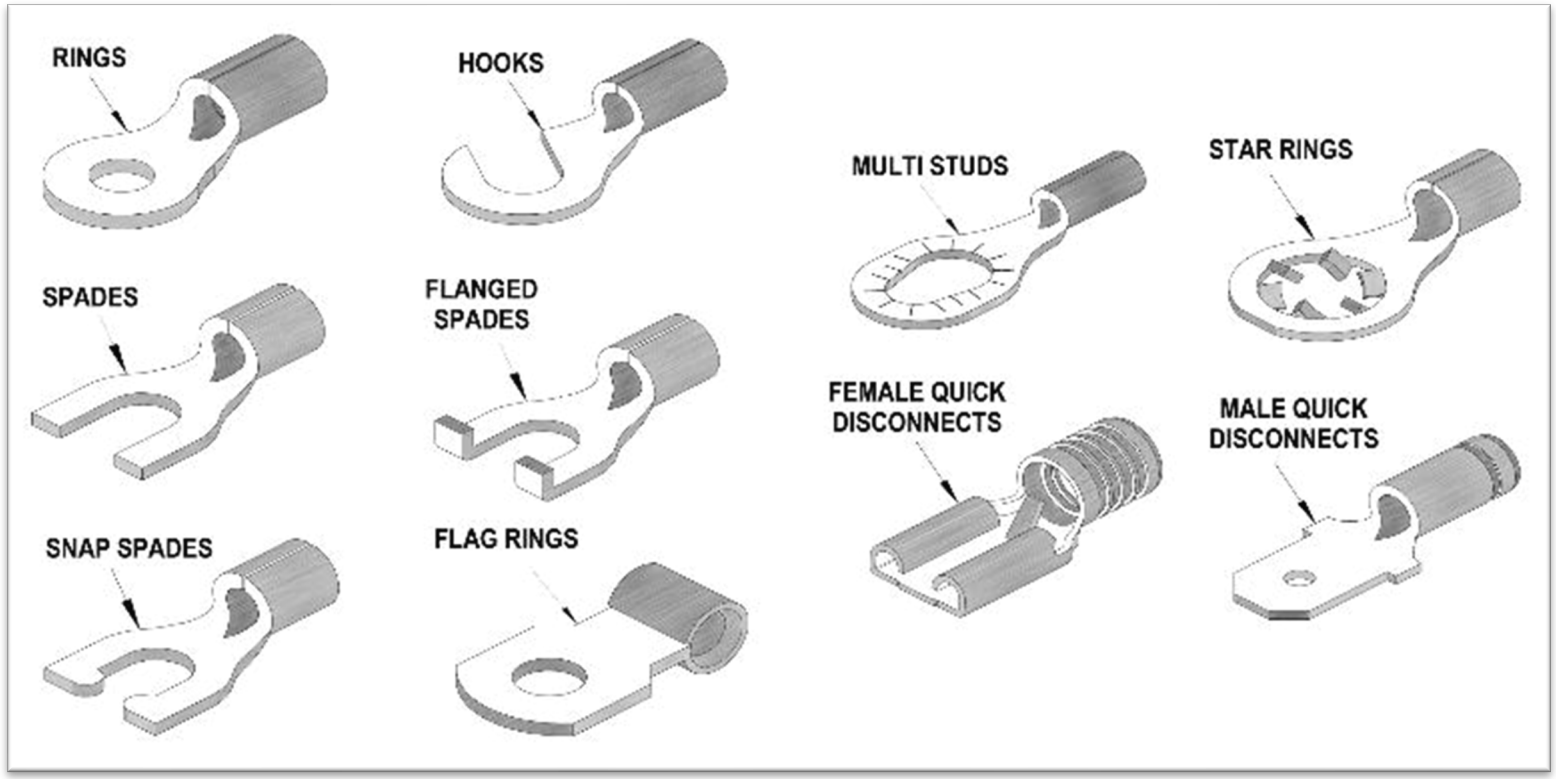
Terminal Colors

- Color shades vary based on material and barrel styles
- PVC and Nylon take the color differently. In the 14-16 AWG range (blue) for example, the PVC barrels will be dark blue. The nylon barrels will be a lighter, translucent blue.
- The color shade has no correlation to the quality of the insulation.

Color Code Wire Range (AWG)	
Yellow	24-26
Red	18-22
Blue	14-16
Yellow	10-12
Red	8
Blue	6
Yellow	4

Tongue Styles

The “tongue” is the end of the terminal that attaches to other components (switch, stud, transformer, etc.).



Stamped and Formed Contacts

- Stamped and formed contacts are created from rolls of copper alloy that have been selected for their conductivity, strength, and temper.
- A series of complex progressive stamping dies form their specific geometry.
- Stamped and formed contacts can be terminated with dies or GMT series tools.

Form Crimp Tools

Form Crimp Tools

Introduction

- HX4 series crimp tools have a system of interchangeable dies. Crimp dies are snapped into the tool frame and held in place by internal spring clips.
- Insulated and uninsulated terminals are standardized under AS7928. The traditional tool for red, blue, and yellow (size 26-10 AWG wire) terminals is the AS22520/5-01 with AS22520/5-100 crimp dies.
- Y Dies accommodate most coaxial and triaxial connectors and contacts conforming to MIL-DTL-39012, AS39029.
- Dies are also available to accommodate different types of ferrules, splices, and terminal lugs.

Form Crimp Tools

Y Dies

The new and improved **Y111** series dies were built to accommodate IPC requirements and feature an adjustable insulation crimp.

Y1115
(AS22520/5-106)

Y1116
(AS22520/5-107)

Y1117
(AS22520/5-108)

General Maintenance Tools

Crimp Tools for Environmental Splices

The preferred crimping tools for environmental splices are tools that have fixed crimp jaws such as the GMT232 (M22520/37-01) and GMT1090 (M22520/44-01).

Removable dies for the M22520/5 and M22520/10 tools are also available for crimping splices, but access to tight areas sometimes limits their use.

General Maintenance Tools

Crimp Tools for Environmental Splices

The GMT232 (AS22520/37-01) is designed to terminate wire splices conforming to MIL-S-81824 of the following sizes:

Tool Cavity	12-16		16-20		20-26	
Crimp Splicer Size	I.D.	O.D.	I.D	O.D.	I.D.	O.D.
	.102	.153	.069	.106	.050	.080
	.097	.147	.064	.101	.045	.075

Splices are to be staggered in a wire bundle to avoid growth of the harness diameter.

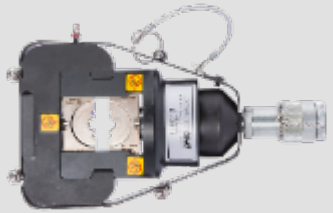
Large Gauge Tooling

Large Gauge Tooling

- Die Type Crimpers for Large Gauge (8-4/0AWG) Terminals and Lugs
- AS5259 Spec. Issued & QPLs
- Utilizes Interchangeable Die Sets

Tool Family	AWG Range	Crimp Style
36 Series	8 - 0	Form
51 Series	8 - 2/0	Form
120 Series	8 - 4/0	Form
23 Series	8 - 4/0	Indent
136 Series	8 - 4/0, up to 750 MCM	Indent

Large Gauge Tooling

	51 Series	23 Series	120 Series	136 Series	36 Series
Manual	HD51 	HD23 	HD120 	HC136 	HD36 
Pneumatic	XHD51 	WA23B 	TBHD1M 	XHC136 	N/A
Battery	HDE51C 	HDE23C 	HDE120C 	HCE136C 	HDE36C 

Large Gauge Crimp Tool

HDE36 Battery Crimp Tool

The HD36 tools provide 4 tons of crimping force capable of crimping medium range terminals and lugs both insulated and uninsulated. These tool uses HD36 dies that accommodate varying applications.

HDE36

- Confined Crescent dies for 8, 6, & 4 (Red, Blue, Yellow) Insulated Terminals
- Single indent dies to accommodate 8 to 2 AWG uninsulated terminals.
- Single and Double hex cavity dies ranging from 8 to 2/0 AWG uninsulated terminals.

HD36

Nest and Indent

Confined Crescent

Circular

Large Gauge Crimp Tool

HD51 Crimp Tools

The 51 series tools provide 6 tons of crimping force using HD51 Dies capable of crimping insulated terminals sizes 8 to 2 AWG, and uninsulated terminals sizes 8 to 2/0 AWG.

Manual Hydraulic
4.6 lbs.

HDE51C features 4 second crimp cycle and is provided with two 18 VDC, Lithium Ion, 1.5 AMP batteries averaging 100 crimps per charge.

(Optional) Extended Life Battery, 18 VDC, Lithium Ion, 3.0 AMP averaging 200 crimps per charge.

Battery Charger options: 120 VAC (HDE-LI-120C) or 240 VAC (HDE-LI-230C) Contact DMC for 230V

Typical HD51 dies with unique crimp cavities.

Confined Crescent | Hex | Nest and Indent

M5259/8-01* QPL Pending for dies

Battery
5.9 lbs.

Large Gauge Crimp Tool

HD51 Remote Crimp Head

The XHD51 tools provide 6 tons of crimping force using HD51 dies currently being qualified to AS5259 specifications. This tool crimps a wire range from 12 to 2/0 AWG.

- The XHD51 remote crimp head is ideal for high volume production lines and maintenance rework centers.
- The XHD51 can be used as a hand-held or mounted tool when used with the XHD51-BM.
- The XHD51 can be powered by any of the HPU series pumps qualified to AS529/2 but ideally used with the HPU11M

M5259/4-01 QPL Pending

Large Gauge Crimp Tool

HD120 Series

These heavy-duty crimpers delivers 12 tons of die force necessary to crimp large conductors. Both use interchangeable MS23002-XX dies (for insulated lugs), MS90485-XX dies (for un-insulated lugs) and MS25442-XX dies (for aluminum lugs).

The HD120 has a two-stage pump minimizes the number of handle closures needed to complete the crimp and the padded handles provide a comfortable advantage.

AS5259/3-01

The HDE120C is a battery powered hydraulic crimp tool with automatic pressure relief to prevent over compression and automatic die retraction after the crimp cycle.

Both use AS5259/7 Crimp Dies. Additional dies are available, contact DMC

Large Gauge Crimp Tool

TBHD1M Remote Hydraulic Crimp Head

- The TBHD1M (MS25441-1) exerts 12 tons of crimp force and spans the complete range from 8 to 4/0 AWG conductors in military/aerospace applications, and 750 MCM applications on commercial systems.
- The TBHD1M accepts the HD002 (MS23002), HD485 (MS90485), HD442 (MS25442), and Boeing ST 2354 die combinations.

Confined Crescent for Insulated Copper Terminals

Hex Cavity for Uninsulated Copper Terminals

Hex Cavity for Uninsulated Aluminum Terminals

The recommended hydraulic pump is the HPU11 air over hydraulic powered pump

Large Gauge Crimp Tool

HC136 Series

The HC136 series tools are dieless four-indent hydraulic crimpers that can self-adjust to the application. The tool provides a symmetrical four-sided crimp (at 90º intervals). The crimp pressure against the resistance of the metal conductor assembly will cause the tool to crimp to a depth where there is metal to metal bottoming (gas-tight crimp joint on aluminum and soft copper).

The HC136 crimps sizes 6 AWG to 4/0 AWG conductors on copper, and up to 750 MCM applications on aluminum.

Triangle indenter shape is standard. Optional indent designs are available.

The HDE136C is a Bluetooth battery powered hydraulic crimp tool with automatic pressure relief to prevent over compression and automatic die retraction after the crimp cycle.

Remote hydraulic options

Pumps

DMC offers a variety of hydraulic powered pumps to power our remote crimp head tools. Each of these tools provide a maximum output of 10,000 psi and come with a heavy-duty hose. The HPU series pumps meet the requirements of the SAE-AS5259/2 spec for large gauge crimp tools.

HPU11 Pneumatic Hydraulic

Foot operated pump with pressure pedal, release pedal, lock and Hydraulic gauge.

12-4040 Hydraulic Hose

AS5259/2-01

HPU13M Pneumatic Hydraulic

Two Lithium-ion 18V Batteries and charger

HPU12 Manual Hydraulic

Two speed hand-actuated Pump

AS5259/2-03

HPU15 Manual Hydraulic

Two speed foot-actuated pump

AS5259/2-02

Introduction to I/R Tools

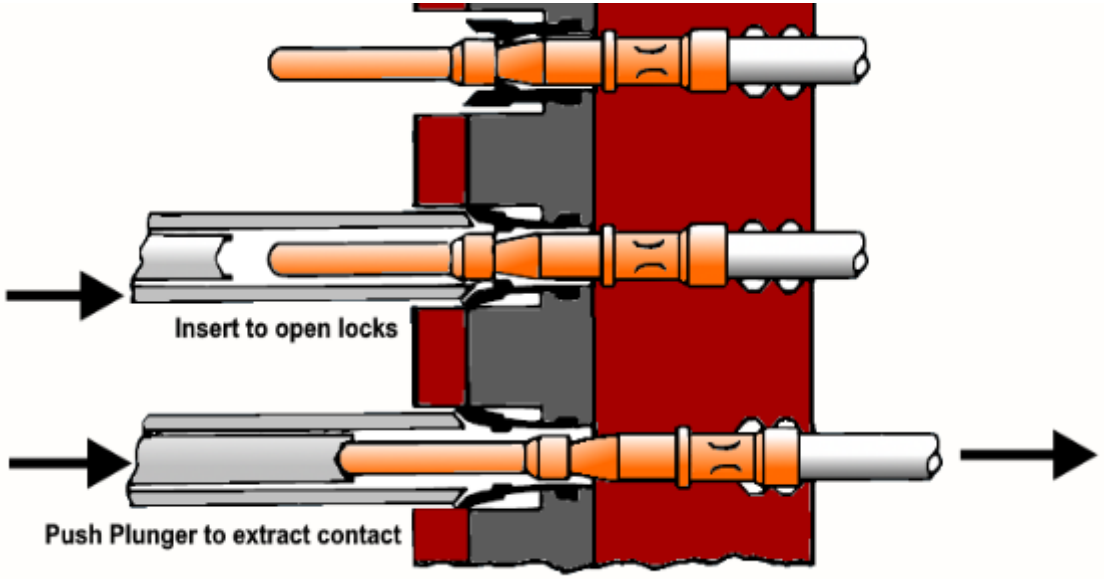
Removal of Contacts

Identifying the Correct Tool

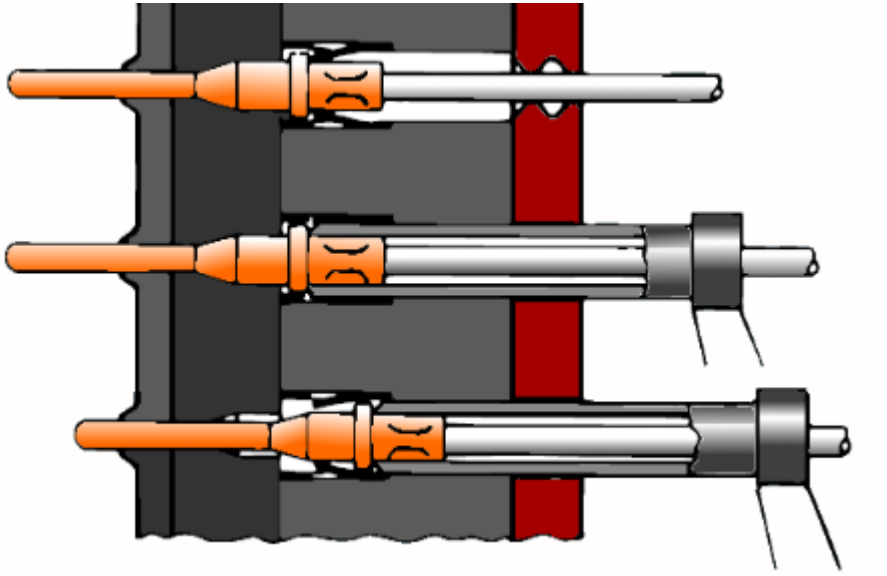
- Identification is key to this process. Begin by identifying the correct tool.
- Verify the correct contacts have been selected and use the predetermined tool to insert or remove the contacts from the connector.

Contact Release Systems

Typical Front Release Connector



Typical Rear Release Connector



Introduction to Wire Stripping

Wire Strippers

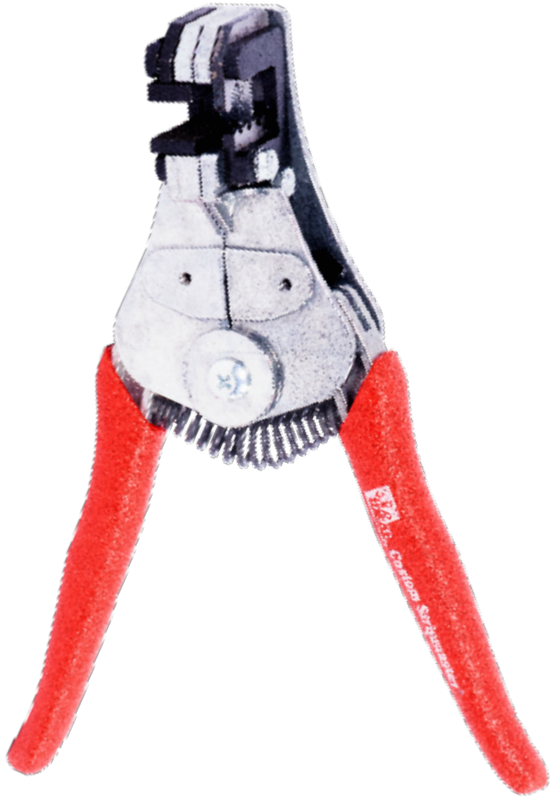
Knife-Type Blades

Stripmaster® wire strippers and **knife-type** blades

Wire Stripping

Die-Type Blades

Custom Stripmaster® wire strippers and **die-type** blades



Red Handles (10-14 AWG)

Black Handles (16-30 AWG)

Wire Stripping

Pneumatic Handheld Wire Strippers

Tool	WSP-1630	WSP-1014	WSP-1626E
			
AWG	16-30	10-14	16-26
Length	8.5”	8.9”	8.9”
Width	2.6”	2.6”	2.6”
Weight	1.8 lbs	2.3 lbs	2.2 lbs

Wire Preparation

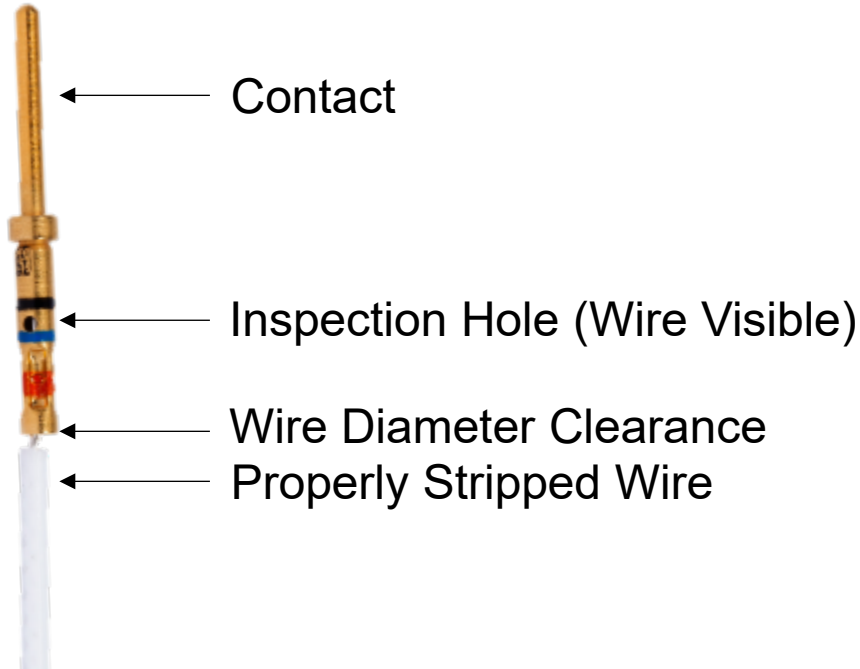
The Proper Technique

1. Determine the proper length of insulation to be removed. Wire must be visible in inspection hole. Less than 50% of overall wire diameter clearance between insulation and contact barrel.
2. Insert wire into the exact center of the correct slot for wire size to be stripped, each slot is marked.
3. Close handles together as close as possible.
4. Partially open handles allowing grips to open, then remove wire before allowing handles to fully open.
5. Release handles, allowing wire holder to return to the open position.
6. Remove the stripped wire

Wire Stripping

Tips

- Wire must be visible in the inspection hole. Less than 50% of overall wire diameter clearance between the insulation and contact barrel.
- After stripping, strands of wire should be twisted firmly together in the same direction as the normal lay of the wire.
- Stripped wire with nicked or cut strands is not acceptable.



Tensile Testing

Tensile Testing

Equipment

PT-150HA
Alphatron® Manual Pull Tester
150lbs

HPT-200B
Portable Tensile Tester
200lbs

MPT-250C
Alphatron® Motorized Pull Tester
250lbs

Tensile Testing

Tips and Accessories

- These tools ensure that terminated wire samples accurately meet industry strength requirements.
- Alphatron® testers cover wire ranges from 26 to 8 AWG and are accurate within ±0.5% of full scale.
- Optional Accessories
  - Ring Terminal Lower Grip (P/N 15-0066C)
  - Mini-Vise Grip (P/N 15-3314)
  - General Purpose Lower Grip (P/N 15-3087C)
  - Safe-T-Cable Pull Wheel & Grip Set (P/N 15-3318)
  - Customized Grips are available for specific applications

Banding Tools

Banding Tools

One-Step

- The One-Step Band Application Tools are built to SAE AS81306/1 specifications.
- Designed to install stamped buckle bands.

DBS-2200
.125 Banding Tool

DBS-2100
.250 Banding Tool

Banding Tools

One-Step

.125 Wide

DBS-128-8

M85049/128-8

Wide Stamped Coiled

DBS-128-7

M85049/128-7

Wide Stamped Flat

.250 Wide

DBS-128-4

M85049/128-4Wide Stamped Coiled

DBS-128-3

M85049/128-3

Wide Stamped Flat

Banding Tools

Two-Step

- DMC's manual two-step banding tools are qualified to SAE AS81306/2 specifications.
- Designed to install welded buckle bands.

DBS-1200
.125 Banding Tool

DBS-1100
.250 Banding Tool

Banding Tools

Two-Step

.125 Wide

DBS-128-6

M85049/128-6

.125 Wide Welded- Coiled

DBS-128-5

M85049/128-5

.125 Welded Band- Flat

.250 Wide

DBS-128-2

M85049/128-2

.250 Wide Welded- Coiled

DBS-128-1

M85049/128-1

.250 Welded Band- Flat

Tool Kits

DMC's Maintenance Tool Kits

Created For High-Reliability Electrical Systems

DMC researches, designs, and develops tool kits to support specific platforms and wiring systems.

Our comprehensive kits include all the items needed to strip, crimp, insert, remove, torque, and test. Kits also come with cross-reference charts for the connectors, contacts, and terminals which eliminates time-consuming research. Kits are available in multiple configurations including hand-carry kits, trolley cases, and roll-around cabinets.

Safe-T-Cable®

Fastener Retention System

Safe-T-Cable®

- User-friendly alternative to lockwire
- Trusted for its reliability for over 30 years, commonly used in aircraft engines and airframes
- Proven reliability in Space, Marine, and other harsh environments
- Continued acceptance for quality control and production enhancement
- The tool applies the tension, crimps, and cuts the excess cable off
- Adjustable and pre-set tension tools are available with manual, battery, and pneumatic power options
- Multiple nose lengths are available to accommodate most applications

LaceLok®

Secondary Wire Harness Support

LaceLok®

- LaceLok was designed to replace hand-tied lace and cable ties for secondary wire harness support
- Combines the ease of zip ties with the performance of string ties
- Available in various lengths and colors and is sold in quantities of 100 with the option of 6”, 10”, 18”, and 24” lengths
- Developed by Ideal Industries in 2012
- Acquired and perfected by DMC in 2022
- Mil-Spec Qualified since Dec. 2022
- Listed in SAE AS50881H since Jan. 2023

DMC Certifications

DMC, in partnership with Snap-on and The National Coalition of Certification Centers (NC3) offers several certification courses designed to provide hands-on specialized industry skills.

- Precision Electrical Termination Certification
  - Learn the proper use of various electrical wiring tools, identification of essential component parts, and the methodology of crimping
- Safe-T-Cable Certification
  - Learn the history of safety wiring, Safe-T-Cable specifications and best practices, how to install Safe-T-Cable, as well as the identification, verification, and maintenance of Safe-T-Cable tools

Learn More:
www.dmctools.com/resources/education

Thank You