Tooling

Contents

Tooling

Tooling Overview

There are two types of contacts manufactured, solid and stamped & formed. Both styles of contacts are designed for crimp style terminations - no solder is required or recommended. A crimp style termination displaces the wire strands creating a superior bond between the wire and the contact.
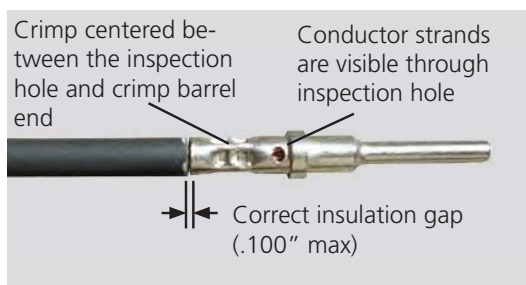
Several types of tools are available to assist with hand and production wire crimping, wire insertion and removal and wedgelock/terminal position assurance removal. The tools are specific to the solid contacts or the stamped & formed contacts. To create a proper crimp and achieve the highest performance specifications, contacts must be crimped with the recommended tooling.

■ Benefits of Crimping

Mechanically crimping contacts is the dominant wire termination method, for some very good reasons:

1. Since no wet process is involved, corrosion is not a problem. No adhesive, flux, or additives are used.

2. Strength, accuracy and overall reliability of a crimped contact are controlled by the crimp tool, not the operator. The field tools (except size 4 solid style) release the contact only after the full crimping cycle is completed.

3. The crimp tool is universal, accepts both pins and sockets of many sizes.

4. Crimping can be done anywhere, without special preparation. Terminations are replaced or modified in the field exactly the same as in the shop, using the same tools and the same techniques, and with the same ease of operation and certainty of results.

5. Total installed and maintenance costs are lower.
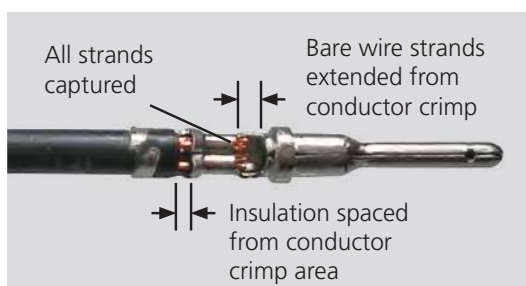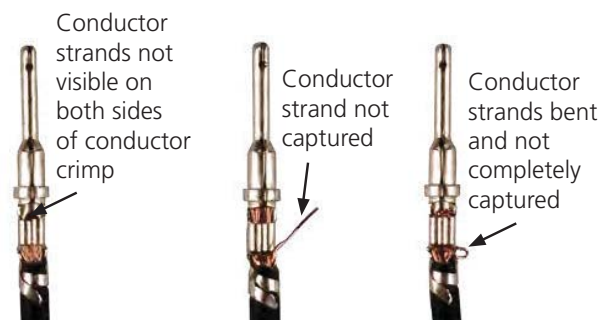
■ Solid Contact Crimp Inspection

Crimp centered between the inspection hole and crimp barrel end

Conductor strands are visible through inspection hole

Correct insulation gap (.100" max)

Acceptable Crimp

Conductor strands not visible

Flayed wire

Birdcage

Unacceptable Crimps

■ Stamped & Formed Contact Crimp Inspection

All strands captured

Bare wire strands extended from conductor crimp

Insulation spaced from conductor crimp area

Acceptable Crimp

Conductor strands not visible on both sides of conductor crimp

Conductor strand not captured

Conductor strands bent and not completely captured

Unacceptable Crimps

Automated Tooling Overview

For higher production volumes, a pneumatic power crimp tool is available for the solid contacts, and applicator dies for stamped & formed contacts. The HDP-400, the pneumatic solid crimp tool, is a fast, bench-top tool that crimps most DEUTSCH contacts. The HDP-400 has a foot control, and easy-to-change dies and locators for each contact size. TE Connectivity's stamped & formed OCEAN applicator dies are heavy duty mini-dies that work in many industry standard presses. The OCEAN applicator dies offer simple adjustments and the flexibility to accept different sized contacts and wire gauge.

■ **Automated Tooling for Solid Contacts**

Tool P/N	Contact Size	Contact Part Number
HDP-400	4	0460-204-0490 0462-203-04141
	8	0460-204-08141 0462-203-08141
	12	0460-204-12** 0462-203-12**
	16	0460-202-16** 0462-201-16** 0460-215-16** 0462-209-16**
	20	0460-202-20** 0462-201-20**

HDP-400 Dies and Locators

Crimp Tool Part Number	Drawing Number Reference
HDP-400	0425-205-0000

■ **HDP-400 Tooling Accessories**

Go-No-Go Gauges

| Part Number	Go-No-Go Gauges
GA20N	HDP-400 Size 20
450GA-16N	HDP-400 Size 16
450GA-12N	HDP-400 Size 12
GA8-SPEC	HDP-400 Size 8
450GA-4-SPEC	HDP-400 Size 4

Tooling

■ Automated Tooling for Stamped & Formed Contacts

Applicator Tooling - 1.3 mm Contacts (AMPSEAL)

	Socket P/N	Insulation Range O.D. (mm)	Applicator P/N
1.3 mm	770520-1 770520-3	.067-.106 (1.70-2.70)	2151376-1

The -1 suffix on the applicator p/n represents a mechanical feed, for other feed options or additional information contact your representative.
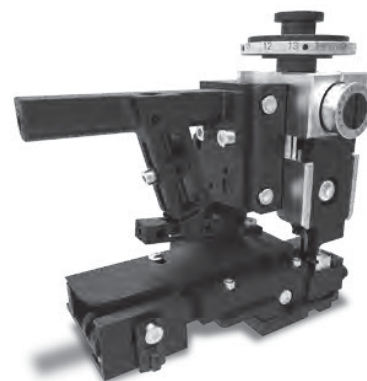
Applicator Tooling - HDSF 1.58 mm Contacts (AMPSEAL 16)

	Pin P/N	Receptacle P/N	Insulation Range O.D. (mm)	Applicator P/N
HDSF 1.58 mm	2098250-1 2098250-3	2098251-1	.065-.118 (1.65-3.0)	2151617-1
	-	2098251-2	.065-.118 (1.65-3.0)	2151617-2
	638112-1 638112-3	-	.077-.155 (1.96-3.94)	2151239-1
	-	776491-1 776491-2	.077-.155 (1.96-3.94)	2151239-2

The -1 suffix on the applicator p/n represents a mechanical feed and the -2 suffix represents a pneumatic feed, for other feed options or additional information contact your representative.

Applicator Tooling - DEUTSCH Contacts

	Pin P/N	Socket P/N	Insulation Range O.D. (mm)	Applicator P/N Conversion Kit P/N
Size 12 - Group 1	1060-12-0144 1060-12-0166	1062-12-0144 1062-12-0166	.151-.176 (3.83-4.47)	2266124-1 7-2266124-8
			.130-.154 (3.30-3.91)	2266125-1 7-2266125-8
			.113-.135 (2.87-3.43)	2266126-1 7-2266126-8
Size 12 - Group 2	1060-12-0222 1060-12-0244	1062-12-0222 1062-12-0244	.185-.204 (4.70-5.18)	2266127-1 7-2266127-8
			.155-.190 (3.94-4.83)	2266128-1 7-2266128-8
			.140-.160 (3.56-4.06)	2266129-1 7-226129-8

The -1 suffix on the applicator p/n represents a mechanical feed, for other feed options contact your representative. The conversion kit is to convert applicators within the same group. For more information, please reference TE catalog 1-1773730-8 or contact your representative.

Applicator Tooling - DEUTSCH Contacts (continued)

	Pin P/N	Socket P/N	Insulation Range O.D. (mm)	Applicator P/N Conversion Kit P/N
Size 16 - Group 1	1060-14-0122 1060-14-0144 1060-14-0177	1062-14-0122 1062-14-0144 1062-14-0177	.120-.150 (3.05-3.81)	2266100-1 7-2266100-8
	1060-14-1077 1060-14-1088	1062-14-1077 1062-14-1088	.105-.125 (2.67-3.18)	2266101-1 7-2266101-8
	1060-16-0122 1060-16-0144 1060-16-0177	1062-16-0122 1062-16-0144 1062-16-0177	.105-.125 (2.67-3.18)	2266101-1 7-2266101-8
			.085-.111 (2.16-2.82)	2266102-1 7-2266102-8
	1060-16-0722 1060-16-0744 1060-16-0777	1062-16-0722 1062-16-0744 1062-16-0777	.075-.105 (1.91-2.67)	2266103-1 7-2266103-8
	1060-16-0977 1060-16-0988	1062-16-0977 1062-16-0988	.063-.094 (1.60-2.39)	2266104-1 7-2266104-8
Size 16 - Group 2	1060-16-0622 1060-16-0644 1060-16-0677 1060-16-0688	1062-16-0622 1062-16-0644 1062-16-0677 1062-16-0688	.063-.094 (1.60-2.39)	2266110-1 7-2266110-8
			.050-.075 (1.27-1.91)	2266111-1 7-2266111-8
Size 16 - Group 3	1060-16-1222 1060-16-1244 1060-16-1277	1062-16-1222 1062-16-1244 1062-16-1277	.120-.140 (3.05-3.56)	2266112-1 7-2266112-8
			.105-.125 (2.67-3.18)	2266113-1 7-2266113-8
	- - -	1062-16-1422 1062-16-1444 1062-16-1477	.090-.110 (2.29-2.79)	2266114-1 7-2266114-8
			.075-.095 (1.91-2.41)	2266115-1 7-2266115-8
Size 20 - Group 1	1060-20-0122 1060-20-0144 1060-20-0177	1062-20-0122 1062-20-0144 1062-20-0177	.105-.125 (2.67-3.18)	2266116-1 7-2266116-8
			.085-.111 (2.16-2.82)	2266117-1 7-2266117-8
	- - -	1062-20-0322 1062-20-0344 1062-20-0377	.075-.105 (1.91-2.67)	2266118-1 7-2266118-8
	1060-20-0222 1060-20-0244 1060-20-0277	1062-20-0222 1062-20-0244 1062-20-0277	.063-.085 (1.62-2.16)	2266119-1 7-2266119-8
			.050-.075 (1.27-1.91)	2266120-1 7-2266120-8

The -1 suffix on the applicator p/n represents a mechanical feed, for other feed options contact your representative. The conversion kit is to convert applicators within the same group. For more information, please reference TE catalog 1-1773730-8 or contact your representative.

Hand Tool Overview

For field service, prototype, and low-volume production, there are several easy-to-use hand crimp tools for both solid barrel and stamped & formed contacts. All hand crimp tools provide a tight, complete crimp with minimal effort. The HDT-48-00, the most commonly used tool for solid contacts, crimps a wide range of contact sizes. It provides a symmetrical four indent crimp, is compact and easy-to-use for field service, yet sturdy and reliable enough for low volume production. Hand crimp tools for DEUTSCH stamped & formed contacts are wire gauge specific and simultaneously crimp the insulation and conductor, saving time and effort during field service. The PRO-CRIMPER III hand tool features interchangeable dies and locators for different AMPSEAL and AMPSEAL 16 stamped & formed contacts.

■ **Hand Tools for Solid Contacts**

HDT-04-08   HDT-48-00   HDT-50-00   HDT-1561

Contact Size	Contact Part Number	Tool Part Number	Crimp Type
4	0460-204-0490 0462-203-04141	HDT-04-08	Two Indent Crimp
8	0460-204-08141 0462-203-08141	HDT-04-08	Two Indent Crimp
12	0460-204-12** 0462-203-12**	HDT-48-00	Four Indent Crimp
		HDT-1561	Two Indent Crimp
		HDT-50-00	One Indent Crimp
16	0460-202-16** 0462-201-16** 0460-215-16** 0462-209-16**	HDT-48-00	Four Indent Crimp
		HDT-1561	Two Indent Crimp
		HDT-50-00	One Indent Crimp
20	0460-202-20** 0462-201-20**	HDT-48-00	Four Indent Crimp
		HDT-1561	Two Indent Crimp
		HDT-50-00	One Indent Crimp

■ **HDT-48-00 Hand Tool Accessories**

helpful hint

Go-no-go gauges are used to inspect crimp tooling. The G454 gauge is used with the HDT-48-00 hand tool.

HDT-48-00 Adjustment Screw and Locking Nut

Part Number	Crimp Tool Replacement Part
0426-209-0000	Adjustment Screw and Locking Nut
M2700-395-10	Locking Nut

Go-No-Go Gauge

Part Number	Description
G454	HDT-48-00 Go-No-Go Gauge

■ Hand Tools for DEUTSCH Stamped & Formed Contacts

DTT-12-00   DTT-12-01

DTT-16-00
DTT-16-01
DTT-20-00
DTT-20-02

Contact Size	Contact Part Number	Tool Part Number
12	1060-12-01** 1062-12-01**	DTT-12-00
	1060-12-02** 1062-12-02**	DTT-12-01
16	1060-16-01** 1062-16-01** 1060-16-06** 1062-16-06**	DTT-16-00 (14-16 AWG)
		DTT-16-01 (18 AWG)
20	1060-20-01** 1062-20-01**	DTT-20-00
	1060-20-02** 1062-20-02**	DTT-20-02

■ Hand Tools for AMPSEAL and AMPSEAL 16 Stamped & Formed Contacts

Part Number	Wire Size AWG	Description
58529-1	16-20	PRO-CRIMPER III hand tool for AMPSEAL contacts
91337-1	14-18	PRO-CRIMPER III hand tool for AMPSEAL 16 contacts
2119118-1	18-20	PRO-CRIMPER III hand tool for AMPSEAL 16 contacts

■ Removal Tools

| Tool	Part Number	Description
	776441-1	Tool for PLR (Primary Latch Reinforcement) and contact removal for use with AMPSEAL 16 connectors
	DT-RT1	Multi-use tool with a small hook on one end for wedgelock removal, and a small screwdriver on the other end to push back the locking fingers and release the contact. For use with the DT, DTM, DTP, DTV, DRB, and STRIKE Series.

Tooling

■ **Removal Tools**

DEUTSCH removal tools are designed to simplify contact removal and field service repair in connectors that utilize a round shoulder contact retention system. Removal tools are compact, easy-to-use, and manufactured of heavy duty plastic to remove contacts without damage to the wire, insulation, connector seals, or connector body. The removal tools are required for wire removal in the DTHD, Jiffy Splices, HD10, HDP20, HD30, DRC, AEC, and WT Series.

Removal Tool	Part Number	Contact Size	Wire Gauge Range	Color
	0411-027-0405	Size 4	4 AWG	Black
	114009	Size 4	6 AWG	White
	114008	Size 8	8-10 AWG	Green
	0411-353-0805	Size 8 for HD Box	8-10 AWG	Green Extended
	114010	Size 12	12 AWG	Yellow
	0411-337-1205	Size 12	12-14 AWG Extra Thin Wall (E-Seal)	Orange
	0411-291-1405	Size 16	14-16 AWG	Green
	0411-310-1605	Size 16	16-20 AWG	Light Blue
	0411-336-1605	Size 16	16-18 AWG Extra Thin Wall (E-Seal)	Dark Blue
	0411-240-2005	Size 20	20-22 AWG	Red

helpful hint

A contact removal tool taped or tie wrapped to the harness will make it easily available, should repairs be needed.
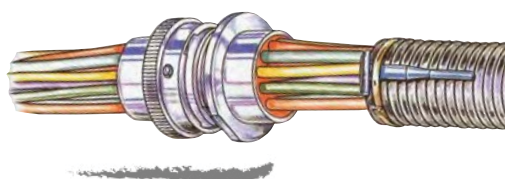
How To Instructions

■ Wire Stripping

Step 1:
1. Choose the correct AWG for the contact being used.

2. Measure from the end of the wire the recommended strip length according to the contact size.

3. Place the wire into a stripping tool at the recommended strip length. Strip the wire according to stripping tool instructions.

Step 2:
1. After stripping, a small piece of the insulation should come off.

2. Check for any broken strands or for a dent in the wire. If either exist, the wire is damaged and should be cut and stripped again.
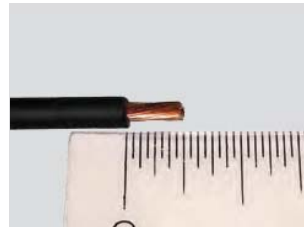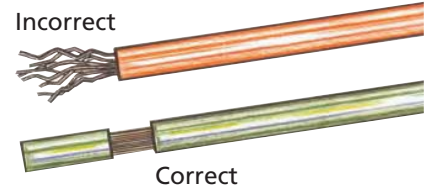
Step 3:
Measure the exposed strands to be sure the crimp length is correct.

helpful hint

Leaving the stripped portion of the insulation on the wire until prior to crimping will avoid flayed wire strands.

Incorrect

Correct

■ Crimping with the HDT-48-00 Hand Tool

Step 1:
1. Strip insulation from wire.

2. Raise selector knob and rotate until arrow is aligned with wire size to be crimped.

3. Loosen locknut, turn adjusting screw in until it stops.

Step 2:
Insert contact with barrel up. Turn adjusting screw counterclockwise until contact is flush with indentor cover. Tighten locknut.

Step 3:
1. Insert wire into contact. Contact must be centered between indentors. Close handles until crimp cycle is completed.

2. Release handles and remove crimped contact.

Notice
Tool must be adjusted for each type/ size of contact.
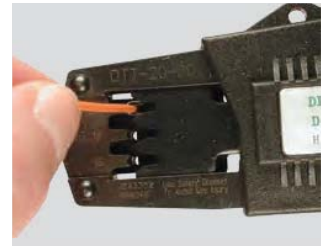
137

Tooling

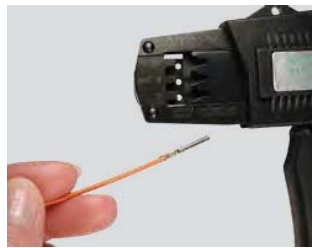■ **Crimping with DTT Style Hand Tools (size 16 & 20)**

Step 1:
Cycle the hand tool to the open position. Place the contact into the correct die nest.

Step 2:
Partially close the tool until the contact is held in place.

Step 3:
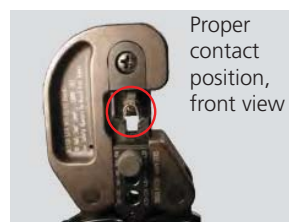Insert the prestripped wire into the crimp area of the contact.

Step 4:
Close the tool until the ratchet releases. The ratchet is released when a loud click is heard and crimp is complete.

■ **Crimping with DTT-12-01 Hand Tool**

Insulation diameters

Insulation selector

Step 1:
Cycle handles to release ratchet and fully open crimp jaws. Pull out insulation selector and push into proper diameter using the chart below.


Proper contact position, front view

Proper contact position, side view

Step 2:
1. Insert contact into locator. Adjust alignment and width of crimp wings if necessary to help ensure capture by crimp jaws.

2. Insert stripped wire into the contact. Close crimp tool until full-cycle ratchet control releases.

Wire Type	Insulation Selector
10 TXL	.150-.170
10 GXL	.160-.180
10 SXL	.170-.205
5.0 mm^2	.160-.180
6.0 mm^2	.170-.205

■ Crimping with DTT-12-00 Hand Tool
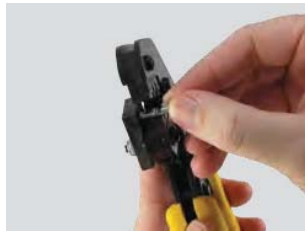
Step 1:
Cycle the tool to release ratchet and open tool. Lift the locator gate, and place the contact into the correct die nest. Adjust alignment of crimp wings to help ensure capture by crimp jaws.

Step 2:
Partially close the tool until the contact is held in place.

Step 3:
Insert the prestripped wire into the crimp area of the contact.

Step 4:
Close the tool until the ratchet releases. The ratchet is released when a loud click is heard and crimp is complete.