CTX50 UN-SEALED RECEPTACLE CRIMP TERMINAL

1.0 SCOPE

This specification details the crimping information and common practices of general crimps for the Molex CTX50 Un-Sealed Receptacle Terminal. Please refer to sales drawing SD-560023-002 for additional part information. The information in this document is for reference and benchmark purposes only. Customers are required to complete their own validation testing if tooling and/or wire is different than what is shown in this specification.

All measurements are in millimeters and Newton unless specified otherwise.

Terminals shown in this document are generic representations. They are not intended to be an image of any terminal listed in the scope.

2.0 PRODUCT DESCRIPTION

DEFINITION OF TERMS:

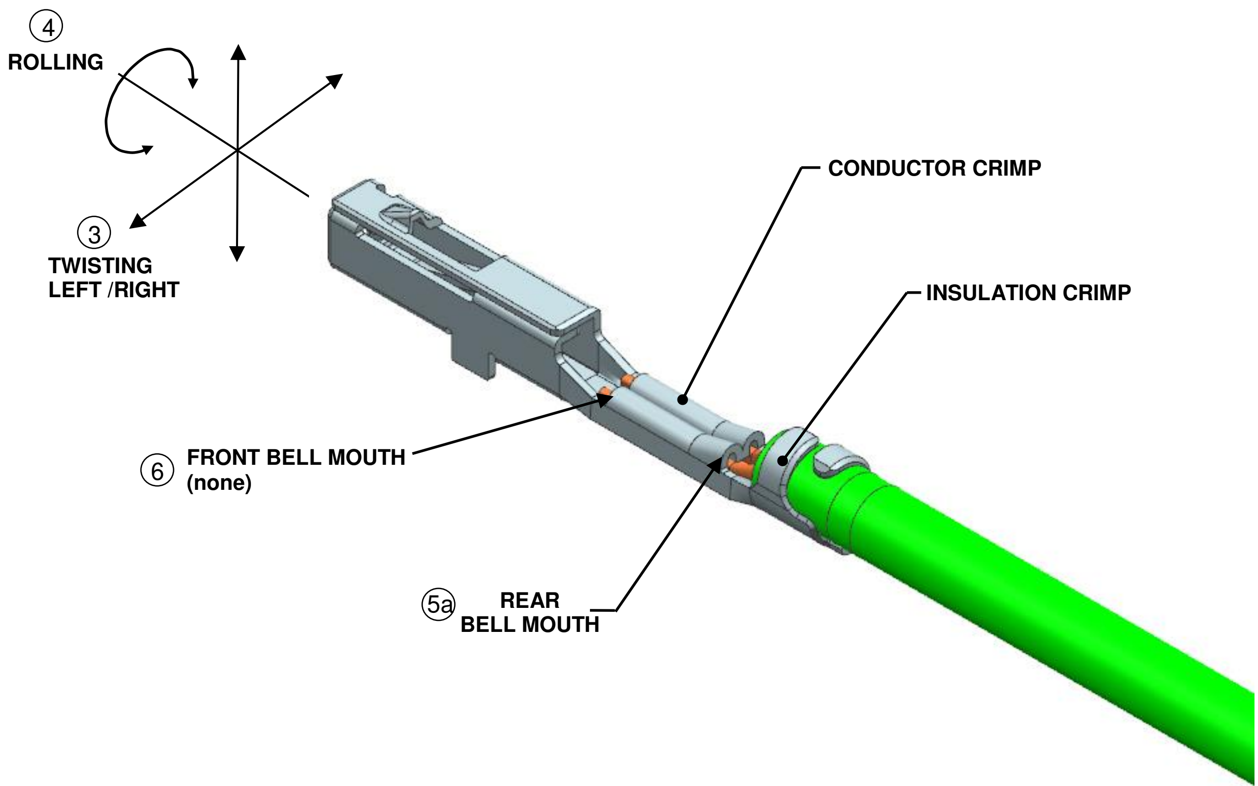


Figure 1

DEFINITIONS OF TERMS (CONT.):

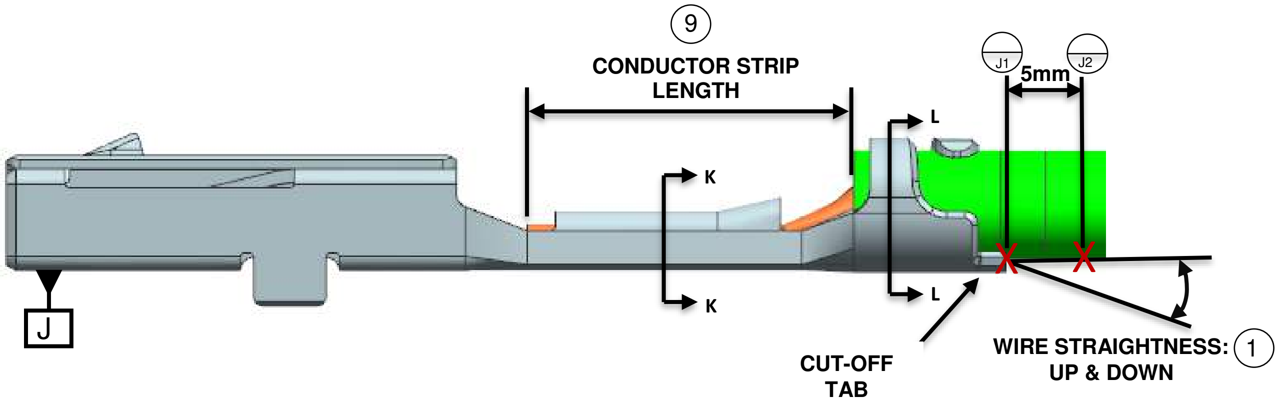


Figure 2a

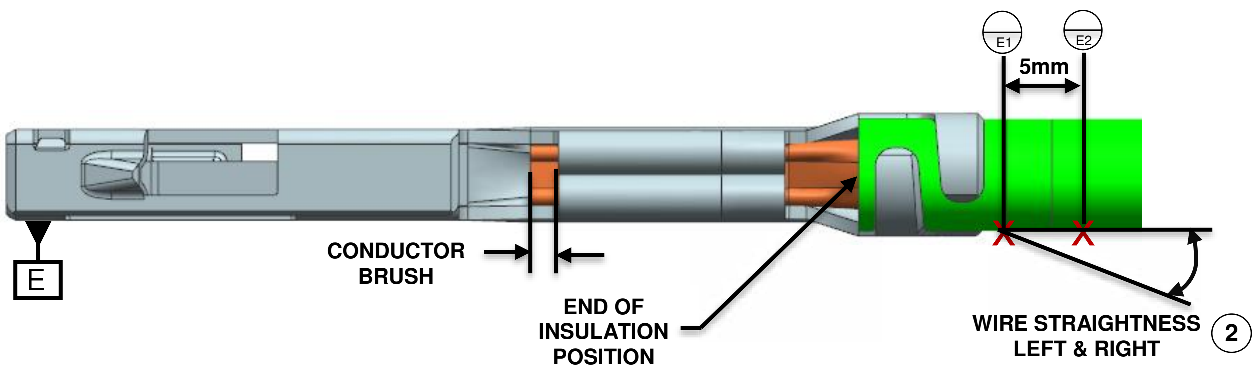
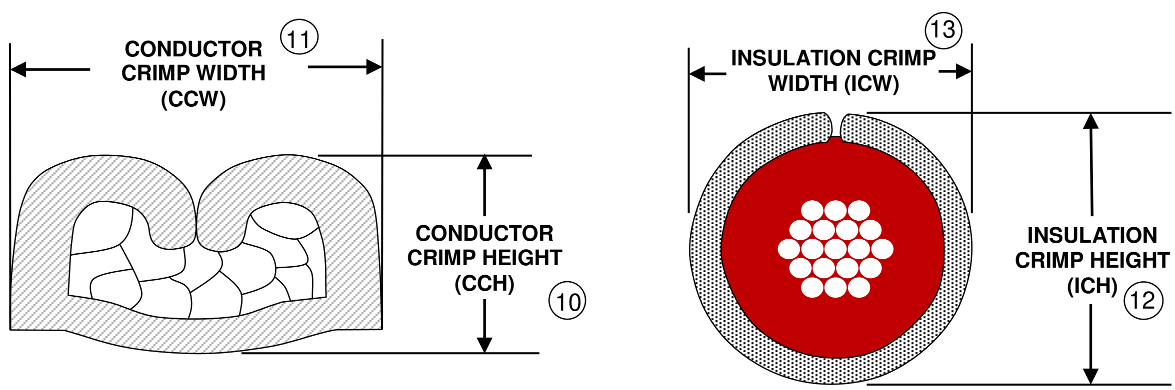


Figure 2b



SECTION K-K

SECTION L-L

Figure 2c

STRAIGHTNESS ① ② ③ ④

The crimping process may result in some bending between the conductor crimp and the terminal box. This bending must not exceed the limits shown in Table 2

WIRE STRAIGHTNESS ① ②

UP/DOWN Wire straightness ensures that the wire is not biased to either side of the cavity and/or mat seal. Wire straightness is measured with reference to Datum J for Up/Down bias. With a max wire length of 20mm for measurement purposes, establish the angle of the wire with one point at the base of the insulation grip (J1) and the other at 5mm from the base of the insulation grip (J2).

LEFT/RIGHT Wire straightness ensures that the wire is not biased to either side of the cavity and/or mat seal. Wire straightness is measured with reference to Datum E for LEFT/RIGHT bias. With a max wire length of 20mm for measurement purposes, establish the angle of the wire with one point at the base of the insulation grip (E1) and the other at 5mm from the base of the insulation grip (E2).

TWISTING ③

To measure twisting, establish datum E1 as shown in Figure 3**.** then measure the angle of the line defined by points C and D with respect to the datum.

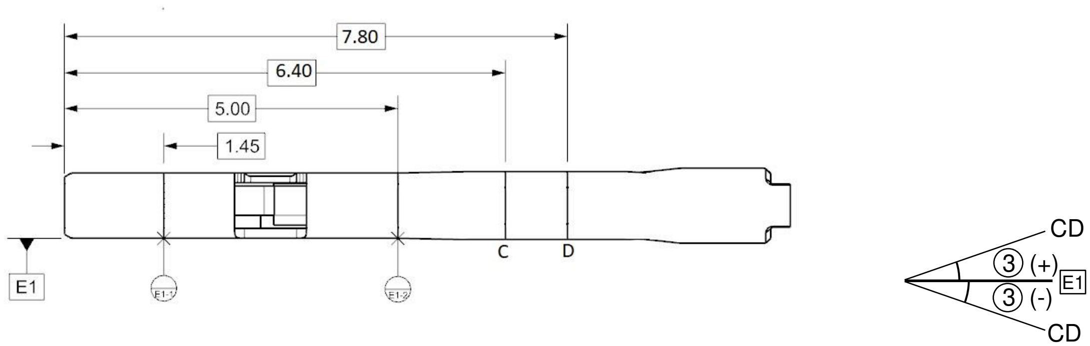


Figure 3

ROLLING ④

To measure rolling, cross section the part 2.65 ±0.05 mm behind datum F, then clamp the part in a vice as shown in Figure 4**.** Using a shadowgraph, focus the graph to see the bottom edge of terminal and establish line X. With line X established, refocus the graph to sectioned crimp edge. Measure the angle of the line defined by points E and F with respect to line X.

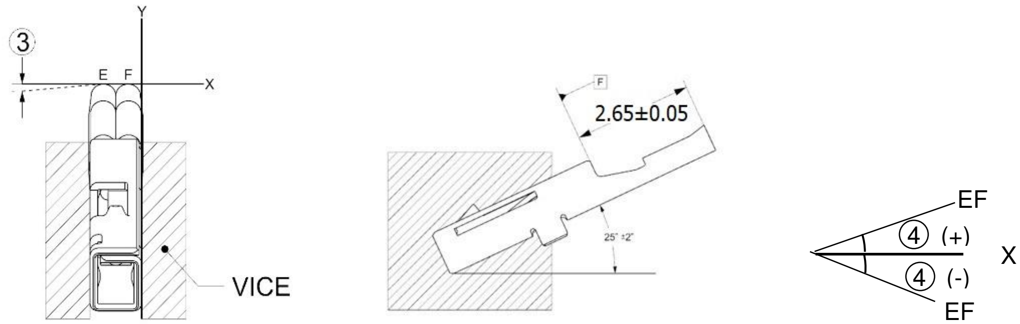


Figure 4

BELLMOUTH (FLARE) 5a 5b 5c 6

The flare that is formed on the edge of the conductor crimp acts as a funnel for the wire strands. This funnel reduces the possibility that a sharp edge on the conductor crimp will cut or nick the wire strands. A rear bellmouth is required on the conductor crimp. CAUTION: Excessively large/small bellmouth may affect mechanical / electrical performance. See Table 2 for bellmouth specifications.

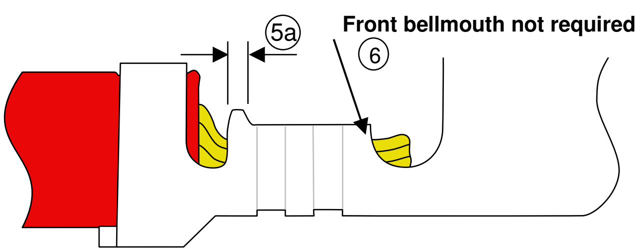


Figure 5a

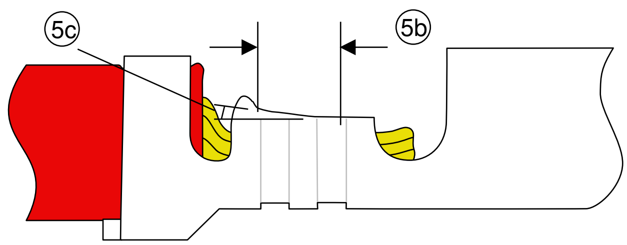


Figure 5b

560023-0444/0445 only

CUT-OFF TAB 7a 7b

This is the material that protrudes outside the insulation crimp after the terminal is separated from the carrier strip. A cut-off tab that is too long may expose a terminal outside the housing; it may fail electrical spacing requirements. See Table 2 for cut-off tab length specifications.

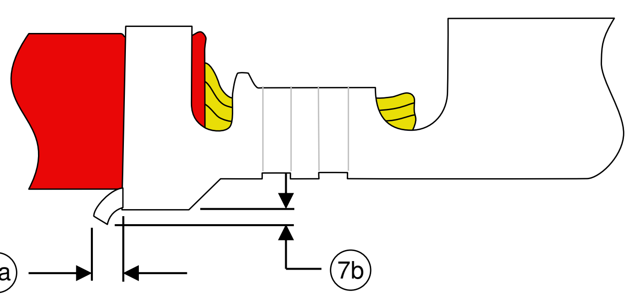


Figure 6

CONDUCTOR BRUSH ⑧a ⑧b

The conductor brush is made up of the wire strands that extend past the conductor crimp into the transition area towards the terminal box. This helps ensure that mechanical compression occurs over the full length of the conductor crimp. The conductor brush should not extend past the transition area into the terminal box or above the conductor crimp/transition wall height (whichever is tallest). CAUTION: Excessive conductor brush extended above the transition/crimp area can cause terminal retention issues inside plastic cavity.

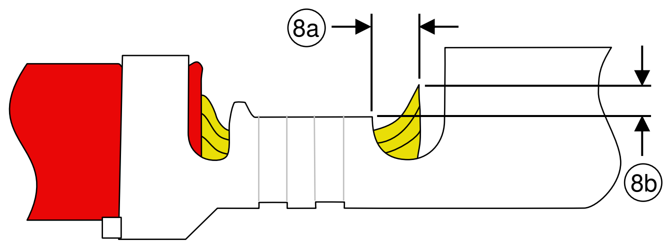


Figure 7

CONDUCTOR STRIP LENGTH ⑨

The strip length is determined by measuring the exposed conductor strands after the insulation is removed. The strip length determines the conductor brush length when the end-of-insulation position is centered in the transition area between conductor and insulation crimps. See Table 2 for the length requirement

CAUTION: Care must be taken to ensure that all conductor strands are equal in length (no diagonally cut strands). No scratched or missing strands are permitted. The insulation cut must be uniform (no diagonally cut insulation and no extrusions of insulation).

CONDUCTOR CRIMP

This is the metallurgical compression of a terminal around the wire's conductor. This connection creates a common electrical path with low resistance and high current carrying capabilities.

CONDUCTOR CRIMP HEIGHT/WIDTH ⑩ ⑪

The conductor crimp height is measured from the top surface of the formed crimp to the bottom most radial surface. The conductor crimp width is measured across the widest portion of the crimp. Do not include the extrusion points in these measurements. Measuring crimp height/width is a quick, non-destructive way to help ensure the correct metallurgical compression of a terminal around the wire's conductor and is an excellent attribute for process control. The crimp height/width specification is typically set as a balance between electrical and mechanical performance over the complete range of wire stranding and coatings, and terminal materials and plating. Although it is possible to optimize a crimp height/width to individual wire strands and terminal plating, one crimp height/width specification is normally created. See Table 2 for crimp height/width specifications.

INSULATION CRIMP HEIGHT/WIDTH ⑫ ⑬

Insulation crimp heights/widths are specified in **Table 2**. CTX50 Un-Sealed Receptacle Terminals are designed to accommodate multiple wire sizes. Although within the terminal range, an insulation grip may not completely surround the wire, an acceptable insulation crimp will still be provided.

The insulation crimp should be visually evaluated to confirm it provides adequate compression on the wire. It should also be evaluated by sectioning through the center of the crimped insulation grip. The grip should compress the insulation but not pierce it or otherwise damage the integrity of the insulation. The grip should not contact the conductors under any circumstance. Mechanically, the insulation grip should withstand repeated flexing of the wire as shown in Figure 8 without pulling out of the grip. The wire is flexed 5 times each in two perpendicular planes in the following sequence: b to a, a to b, b to c, c to b, then repeat **(see Figure 8)**.

Once the optimum setting for an insulation crimp height is determined, it is important to document it. The operator can then check it as part of the setup procedure.

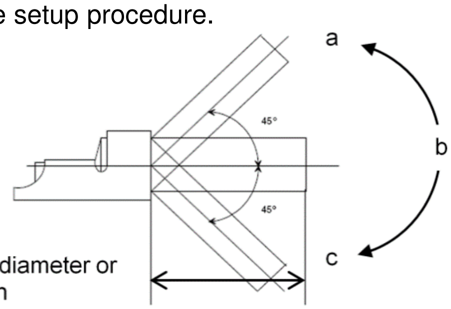


Figure 8

INSULATION AND CONDUCTOR GRIP STEP ⑭ ⑮

The insulation grip step is the designed offset between the conductor grip and the insulation grip which must be met by the crimp process (see Figure 9 and Table 2).

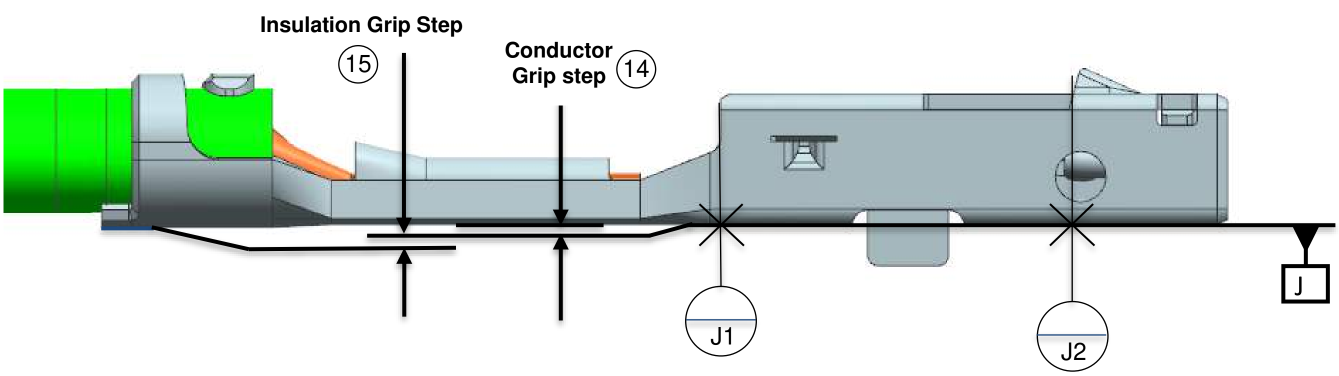


Figure 9

CONDUCTOR ANVIL FLASH (EXTRUSIONS / BURR) (16a) (16b)
These are the small flares that form on the bottom of the conductor crimp resulting from the clearance between the punch and anvil tooling. If the anvil is worn or the terminal is over-crimped, excessive extrusion can result.

An uneven extrusion may also result if the punch and anvil are misaligned, if the feed is misadjusted or if there is insufficient or excessive terminal drag (see Figure 8 and Table 2).

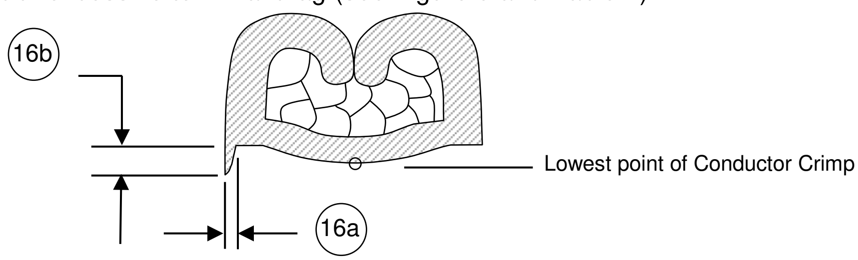


Figure 10

END-OF-INSULATION POSITION
This is the location of the insulation in relation to the transition area between the conductor and insulation crimps. Equal amounts of the conductor strands and insulation needs to be visible in the transition area. The end-of insulation position ensures that the insulation is crimped along the full length of the insulation crimp and that no insulation gets crimped under the conductor crimp. The end-of-insulation position is set by the wire stop and strip length for bench applications. For automatic wire processing applications, the end-of-insulation position is set by the in/out press adjustment (see Figure 2).

WING DISSYMMETRY (17)
Wing dissymmetry is the crimped offset between the ends of core wings (see Figure 10 and Table 2).

SPACE BETWEEN WING TIPS AND CRIMP BOTTOM (18)
The space between the crimp wing tips and the bottom of the crimp is designed to assure no contact between wing tips and the crimp bottom. Shortest distance is measured. (See Figure 10 and Table 2).

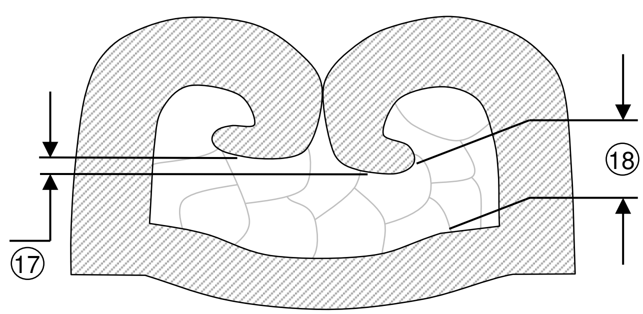


Figure 11

CRIMP BULGE (19a) (19b)

Caution needs to be taken with the crimp tooling to prevent a bulge in the transition area during crimping. The transition should generally flow smoothly from the conductor crimp to the terminal box. Any bulge must not exceed the width shown in Table 3. See Figure 11 for an example of crimp bulge.

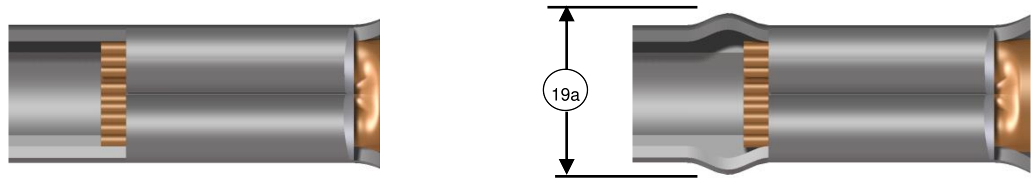


Figure 12

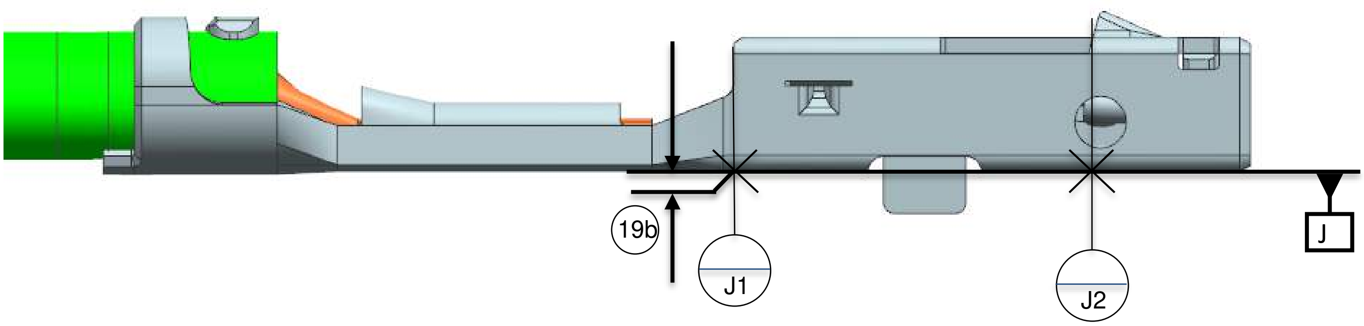


Figure 13

BOX DEFORMATION

Care must be taken to ensure that the terminal box is not deformed during crimping and handling. Any deformation of the terminal box must not exceed the tolerances specified in sales drawing

WIRE CONDITION AFTER CRIMP

The wire, after crimping, should not have any scratches, grooves, or dents. At a minimum, check the condition of the wire on a sample length of 26mm as shown in Figure 12.

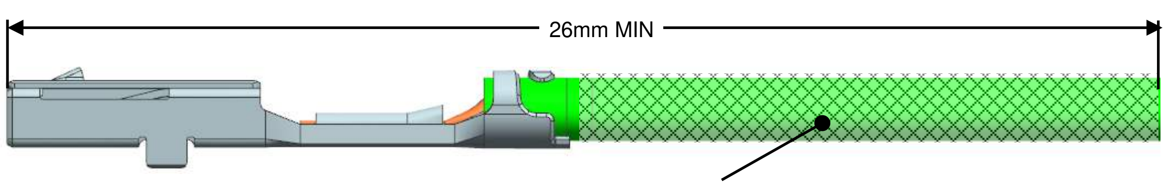


Figure 14

3.0 PRODUCT SPECIFICATIONS

Table 1a

Terminal Information	Validated Wire Information				Wire Dependent Crimp Dimensions								
						Conductor Crimp		Insulation Crimp		Grip Step, mm			
Material Number	Std. / Type	Conductor Size	No. of Strands	Insulation Diameter, mm	Strip Length, mm	CCH, mm	CCW, mm	ICH, mm	ICW, mm	Conductor	Insulation	Rear Bellmouth, mm	Min. Pull Force, N
							± 0.03	± 0.05	± 0.05	± 0.05	± 0.10		
560023-0444 / 0445	LV 112-4 [1,a]	0.13 mm²	7	0.80 - 0.90	(3.6)	0.53 ± 0.03	0.83	1.10	1.10	0.00	0.00	0.30 max	50
	ISO 6722-1 [1,a]			0.95 - 1.05				1.20					
560023-0544 / 0545	ISO 6722-1 [1,b]		7	0.95 - 1.05		0.56 ± 0.03		1.20					40
560023-0421 / 0423	UL 1332 [2,b]	24 AWG		1.15 – 1.35	(2.9)	0.69 ± 0.03	1.04	1.25	1.15		0.00	0.50 ± 0.10	40
560023-0448 / 0450	ISO 6722-1 [a]	0.35 mm²	7	1.20 - 1.40	(3.1)	0.67 ± 0.02	1.04	1.53	1.38		- 0.03	0.70 ± 0.10	50
	LV 112-1 [2,a]	0.35 mm²	7	1.20 - 1.30		0.67 ± 0.02							
	UL 10086 [2,a]	22 AWG	19	1.30 - 1.40		0.65 ± 0.02							
	UL 10588 [2,a]			1.17 - 1.27		0.71 ± 0.02							
	UL 10316 [2,a]			1.10 - 1.30		0.65 ± 0.02							
560023-0548 / 0550	ISO 6722-1 [a]	0.35 mm²	7	1.20 - 1.40		0.67 ± 0.02							
	UL 10086 [2,a]	22 AWG	19	1.30 - 1.40		0.65 ± 0.02							
	UL 10588 [2,a]			1.17 - 1.27		0.71 ± 0.02							
	UL 10316 [2,a]			1.10 - 1.30		0.65 ± 0.02							

Validated wire strand material is bare copper (Cu-ETP1), unless otherwise stated.
[1] Validated wire strand material is CuSn03
[2] Validated wire strand material is tin-plated copper strands

Terminal crimps are validated to the following specifications:
[a] USCAR-21, Revision-3, Nov-2014; Sections 4.3, 4.4 & 4.5.2
[b] USCAR-21, Revision-3, Nov-2014; Sections 4.3 & 4.5.2

Notes:
1. The above specifications are guidelines for an optimum crimp. Crimp heights/widths are applicable for punch/anvil tooling shown in Figures 17-26.
2. Pull force should be measured with no influence from the insulation crimp.
3. Customers are required to complete their own validation testing if tooling and/or wire is different than what is shown in this specification.
4. Customers are recommended to perform crimping without using lubricant.

Table 1b

Terminal Information	Validated Wire Information				Wire Dependent Crimp Dimensions								
						Conductor Crimp		Insulation Crimp		Grip Step, mm			
Material Number	Std. / Type	Conductor Size	No. of Strands	Insulation Diameter, mm	Strip Length, mm	CCH, mm	CCW, mm	ICH, mm	ICW, mm	Conductor	Insulation	Rear Bellmouth, mm	Min. Pull Force, N
							± 0.03	± 0.05	± 0.05	± 0.05	± 0.10		
560023-0421 / 0423	CHFUS [1,a]	24 AWG	7	1.15 - 1.35	2.90	0.69 ± 0.03	1.04	1.25	1.15	0.00	0.00	0.50 ± 0.10	40
560023-0448 / 0450	*FTP: 00949_10_00766 [1,b]	0.35 mm^2	7	1.25 - 1.35	3.10	0.67 ± 0.02	1.04	1.53	1.38		- 0.03	0.70 ± 0.10	50
	A3Z [2,c]			1.25 - 1.35		0.61 ± 0.02							
	FLRY-A [2,d]			1.20 - 1.30		0.67 ± 0.02							
	FLRYW-A [2,d]			1.20 - 1.30		0.67 ± 0.02							
	FLR13Y-A [1,e]			1.20 - 1.40		0.67 ± 0.02							

Wires are in accordance with following specifications:
[1] JIS C 3102, JASO D 611
[2] ISO 6722-1

Terminal crimps are validated to the following specifications:
[a] PSA STE 96 34115099 Rev. 2007-2008; Sections 5.6.4, 5.6.5.2, 5.6.5.4, 5.6.6.1, 5.6.6.2, 5.6.7.1
[b] PSA STE 96 34115099 Rev. 2007-2008; Sections 4.3.5.3, 5.6.4, 5.6.5.1, 5.6.5.2, 5.6.5.4, 5.6.6.2, 5.6.7.1
[c] RSA 36-05-019 Rev J
[d] RNDS-B-00029 v2.0 24012NDS07 36-05-019-L; Sections 13.1, 13.2.1, 13.2.2, 13.2.3, 13.3, 13.4, 13.5
[e] AK LV214, Mar 2010; Sections PG0 & PG10. VW 60330 Section 4.3.4 & VW 75174-2 Section 3.4

Notes:
1. The above specifications are guidelines for an optimum crimp. Crimp heights/widths are applicable for punch/anvil tooling shown in Figures 17-26.
2. Pull force should be measured with no influence from the insulation crimp.
3. Customers are required to complete their own validation testing if tooling and/or wire is different than what is shown in this specification.

* 0.35mm2 FTP: 00949_10_00766 wire is equivalent to 0.35mm2 T3ZHID wire

Table 2

Specifications

Balloon #	Feature	Requirement	
1	Wire Straightness Up/Down from datum J	3° MAX	
2	Wire Straightness Left/Right from datum E	3° MAX	
3	Twisting Left/Right	2° MAX	
4	Rolling	N/A	
5a	Rear Bell Mouth	See Table 1a/1b	
5b	Conductor Crimp Angle Horizontal Length	Grip Code S	1.50 ± 0.50
5c	Conductor Crimp Angle	Grip Code S	7.5° ± 2.5°
6	Front Bell Mouth	None	
7a	Cut-Off Tab	0.30 MAX	
7b		No burrs	
8a	Conductor Brush	0.55 MAX	
8b		Not to extend above conductor crimp/ transition height	
9	Conductor Strip Length	See Table 1a/1b	
10	Conductor Crimp Height	See Table 1a/1b	
11	Conductor Crimp Width	See Table 1a/1b	
12	Insulation Crimp Height	See Table 1a/1b	
13	Insulation Crimp Width	See Table 1a/1b	
14	Conductor Grip Step	See Table 1a/1b	
15	Insulation Grip Step	See Table 1a/1b	
16a	Conductor Anvil Flash	0.10 MAX	
16b		0.10 MAX	
17	Wing Dissymmetry	0.20 MAX	
18	Space Between Wing Tips and Crimp Bottom	Wire ≤ 0.22mm²	No contact
		Wire ≥ 0.35mm²	0.10 MIN
19a	Crimp Bulge	Grip Codes S, M, L	1.07 MAX
19b		Grip Code S	0.10 MAX

4.0 REFERENCE DOCUMENTS

Reference documentation for general practices is located on the website per the below links:
1. Molex Quality Crimping Handbook http://www.molex.com/images/products/apptool/qual_crimp.pdf
2. Molex-Recognizing Good Crimps http://www.molex.com, search for Application Tooling

5.0 PROCEDURE

5.1 GENERAL MEASUREMENT AND EVALUATION REQUIREMENTS

Crimp Height Measurement (Anvil Flash Evaluation)
1. Complete tool set-up procedure.
2. Crimp a minimum of 5 samples.
3. Place the flat blade of the crimp micrometer across the center of the dual radii of the conductor crimp. Do not take the measurement near the conductor bell mouth (see Figure 13).
4. Rotate the micrometer dial until the point contacts the bottom most radial surface. If using a caliper, be certain not to measure the conductor anvil flash (extrusions) of the crimp (see Figure 14).

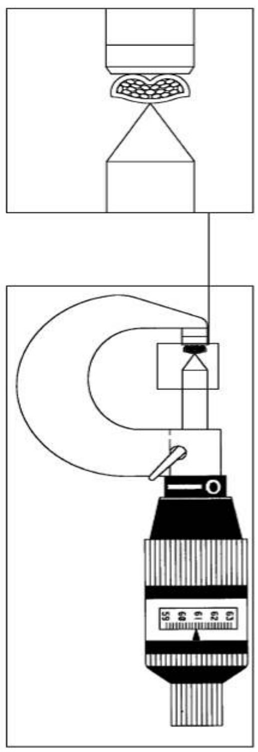


Figure 15

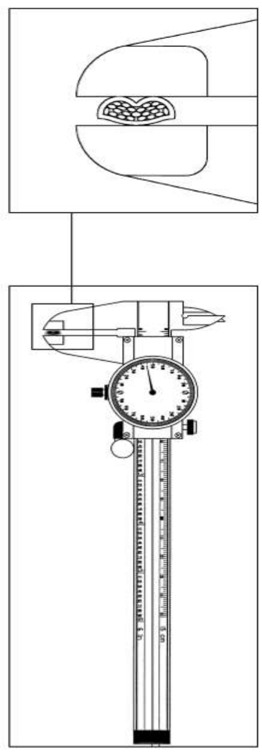
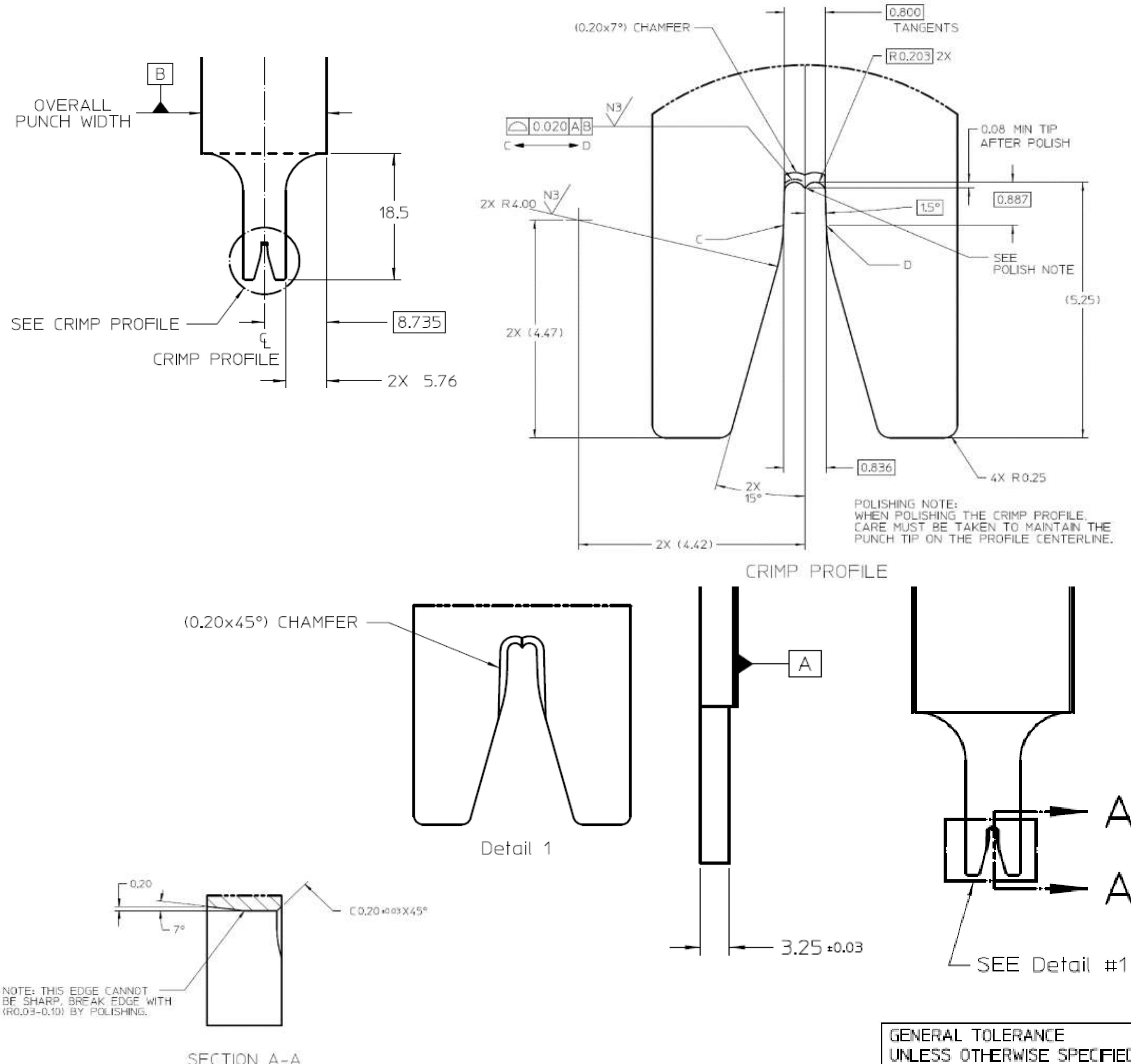


Figure 16

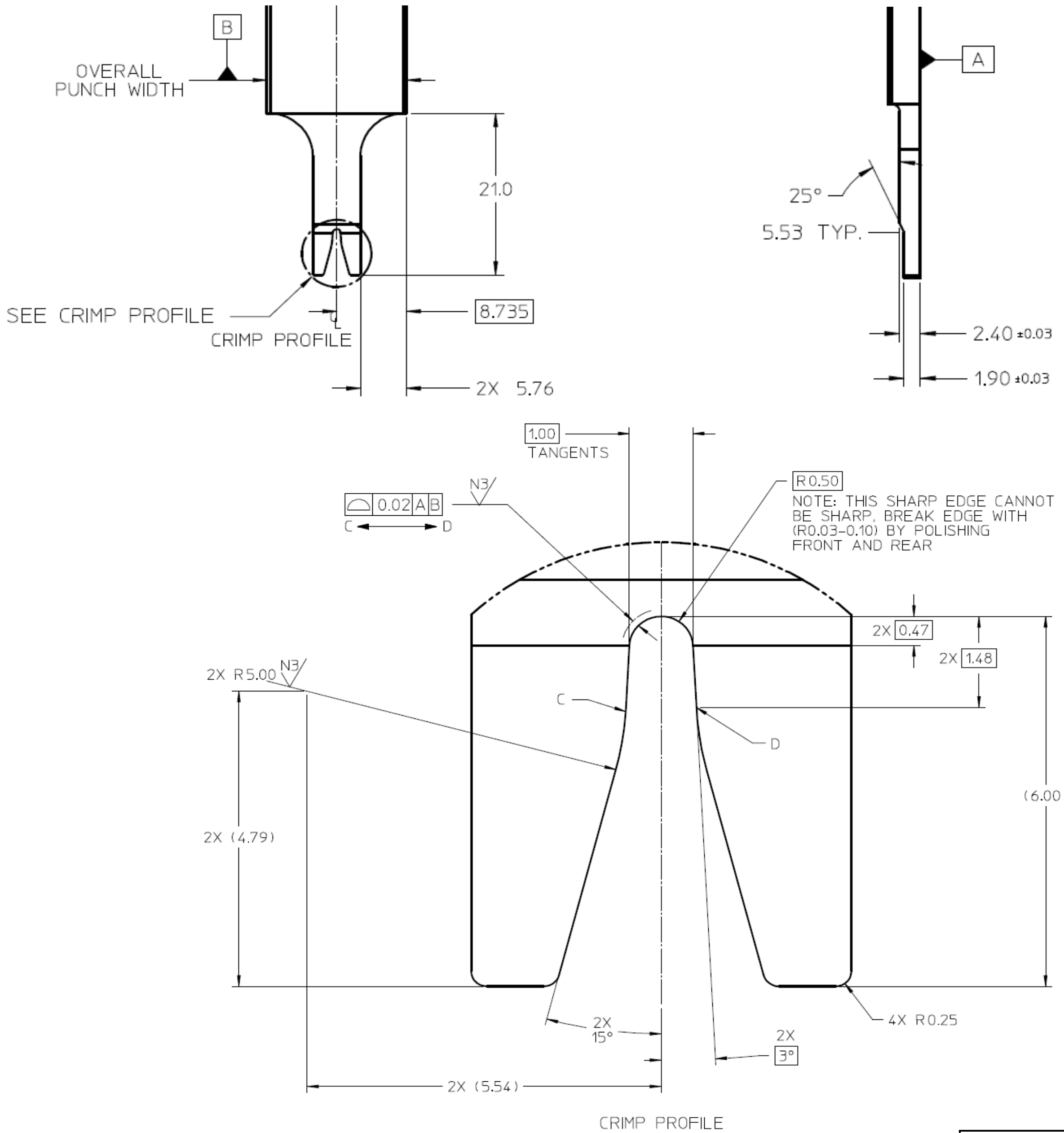
6.0 CRIMP TOOLING GEOMETRY

The crimp tooling information shown below defines the tooling used by Molex to perform validation testing to establish recommended crimp height and widths. The user is responsible for validating crimp performance based on tooling, equipment and wire that is being used.



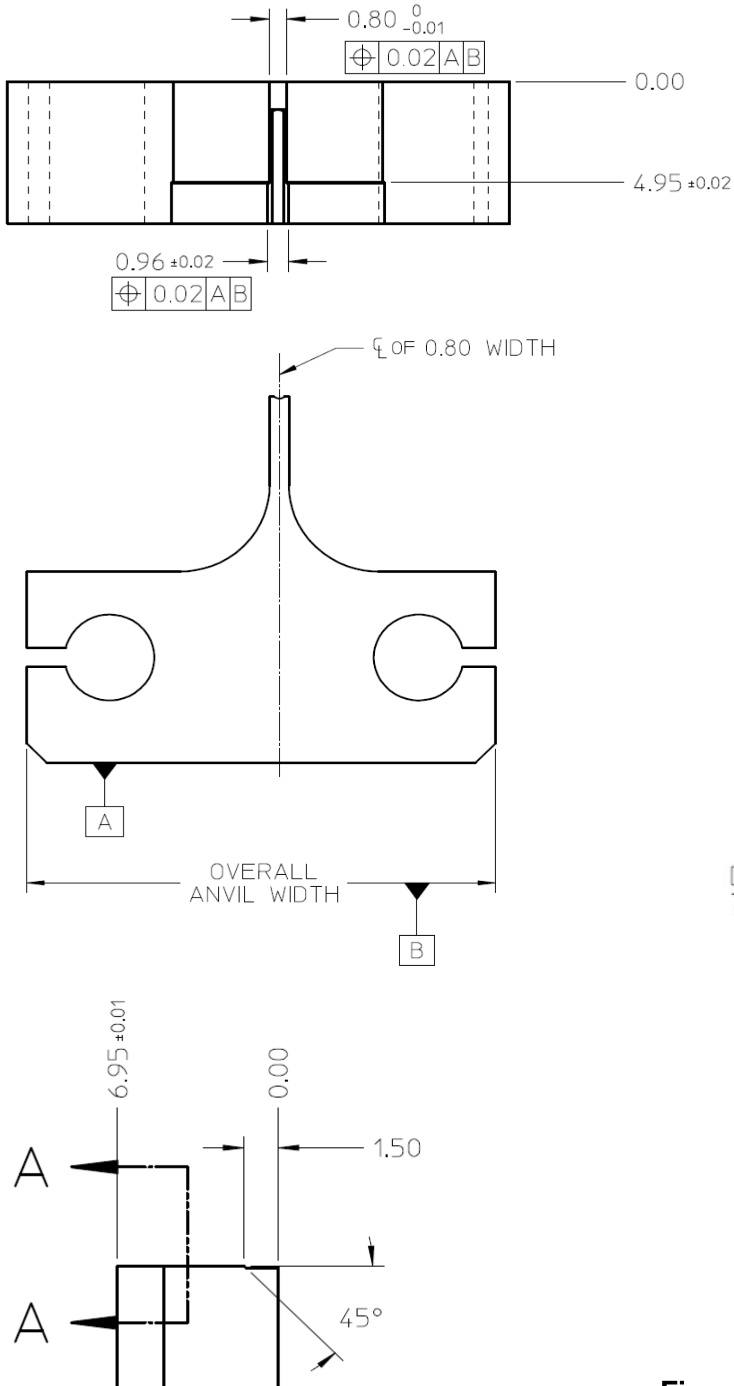
GENERAL TOLERANCE UNLESS OTHERWISE SPECIFIED		
DEC. PLCS.	mm	INCH
4 PLACES	± ---	± ---
3 PLACES	± ---	± ---
2 PLACES	± 0.10	± ---
1 PLACE	± 0.30	± ---
ANGULAR:	± 1/2°	

Figure 17
Conductor Punch Tooling Grip Size S

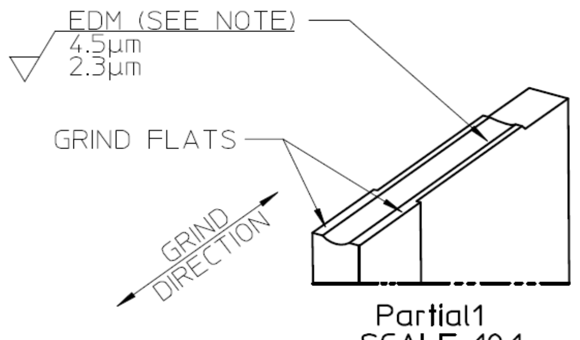


GENERAL TOLERANCE UNLESS OTHERWISE SPECIFIED		
DEC. PLCS.	mm	INCH
4 PLACES	± ---	± ---
3 PLACES	± ---	± ---
2 PLACES	± 0.10	± ---
1 PLACE	± 0.30	± ---
ANGULAR:	± 1/2°	

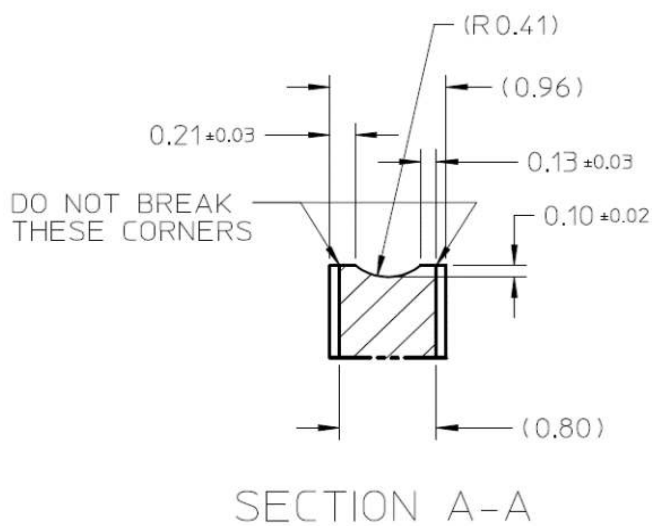
Figure 18
Insulator Punch Tooling Grip Size S



NOTE:
CONDUCTOR ANVIL SURFACE FINISH.
EDM FINISH ACCEPTABLE 4.5 - 2.3 µm.
NO POLISHING OR GRINDING EDM SURFACES.
ACCEPTABLE FINISH CAN BE DETERMINED VISUALLY BY USING AN EDM SURFACE FINISH COMPARATOR SCALE.

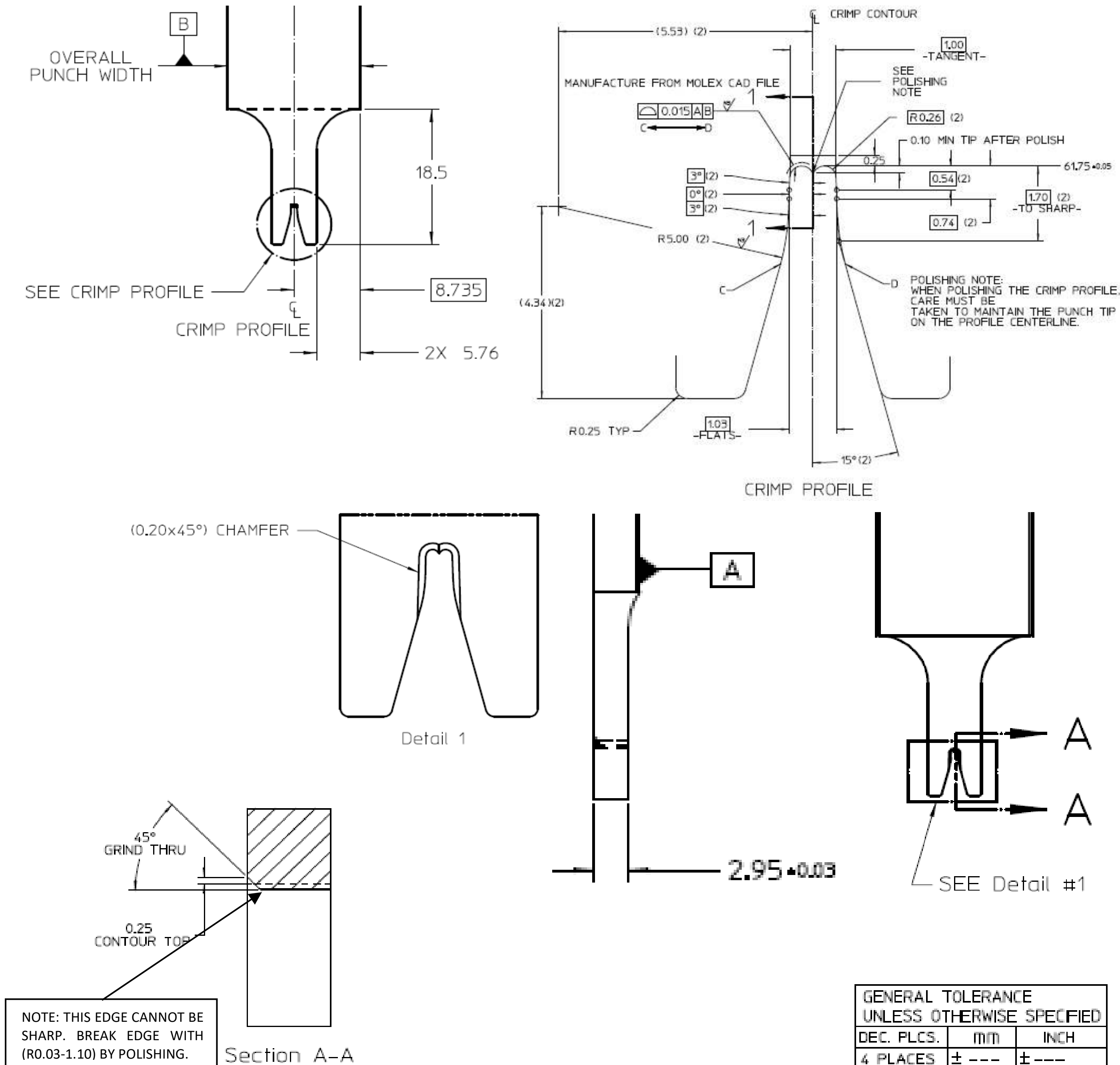


NOTE:
ANVIL RADIUS CREATED BY EDM
(ELECTRICAL DISCHARGE MACHING)



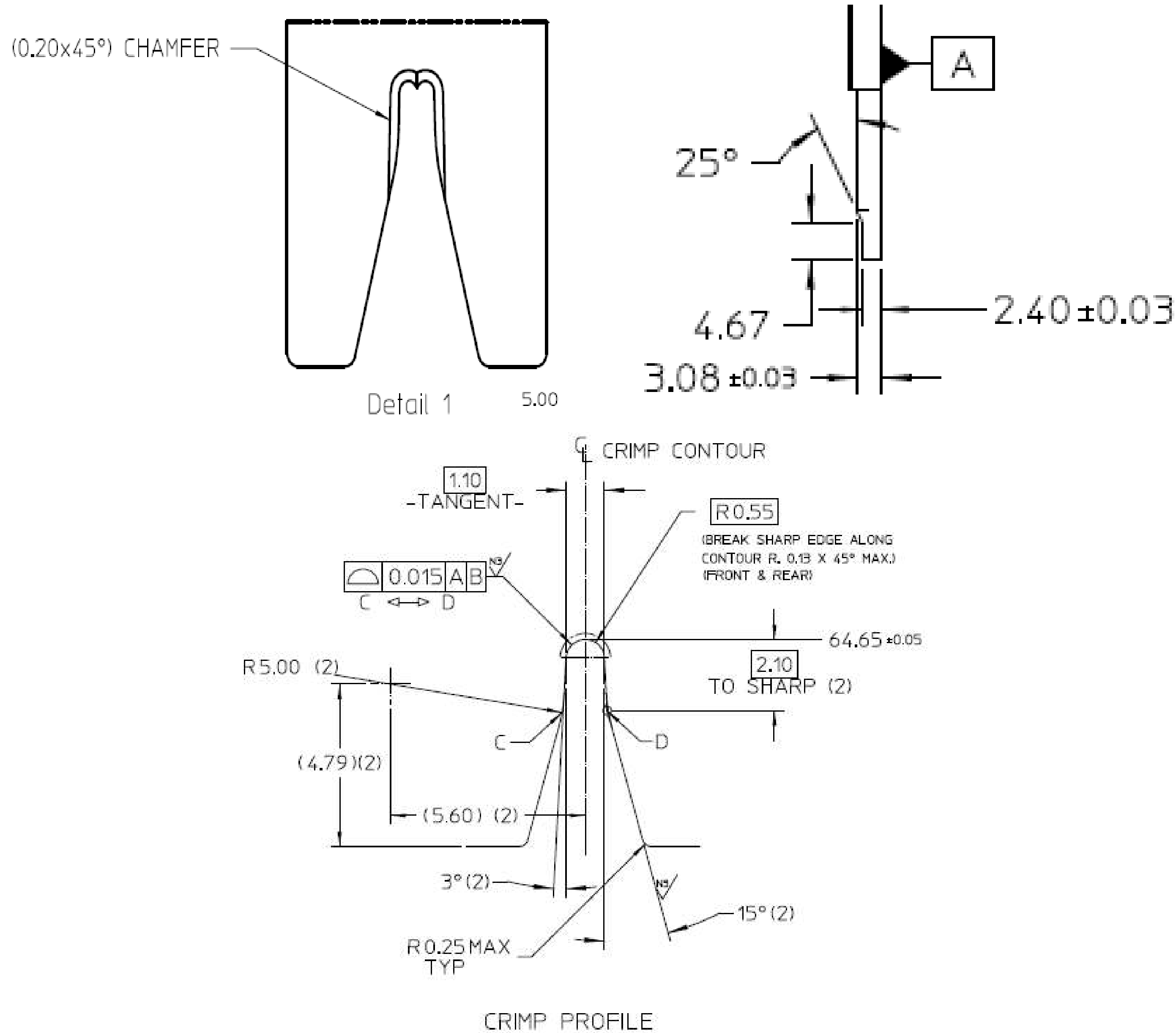
GENERAL TOLERANCE UNLESS OTHERWISE SPECIFIED		
DEC. PLCS.	mm	INCH
4 PLACES	± ---	± ---
3 PLACES	± ---	± ---
2 PLACES	± 0.10	± ---
1 PLACE	± 0.30	± ---
ANGULAR:	± 1/2°	

Figure 19
Combination Anvil Tooling Grip Size S



GENERAL TOLERANCE UNLESS OTHERWISE SPECIFIED		
DEC. PLCS.	mm	INCH
4 PLACES	± ---	± ---
3 PLACES	± ---	± ---
2 PLACES	± 0.10	± ---
1 PLACE	± 0.30	± ---
ANGULAR:	± 1/2°	

Figure 20
Conductor Punch Tooling Grip Size M



GENERAL TOLERANCE UNLESS OTHERWISE SPECIFIED		
DEC. PLCS.	mm	INCH
4 PLACES	± ---	± ---
3 PLACES	± ---	± ---
2 PLACES	± 0.10	± ---
1 PLACE	± 0.30	± ---
ANGULAR:	± 1/2°	

Figure 21
Insulator Punch Tooling Grip Size M

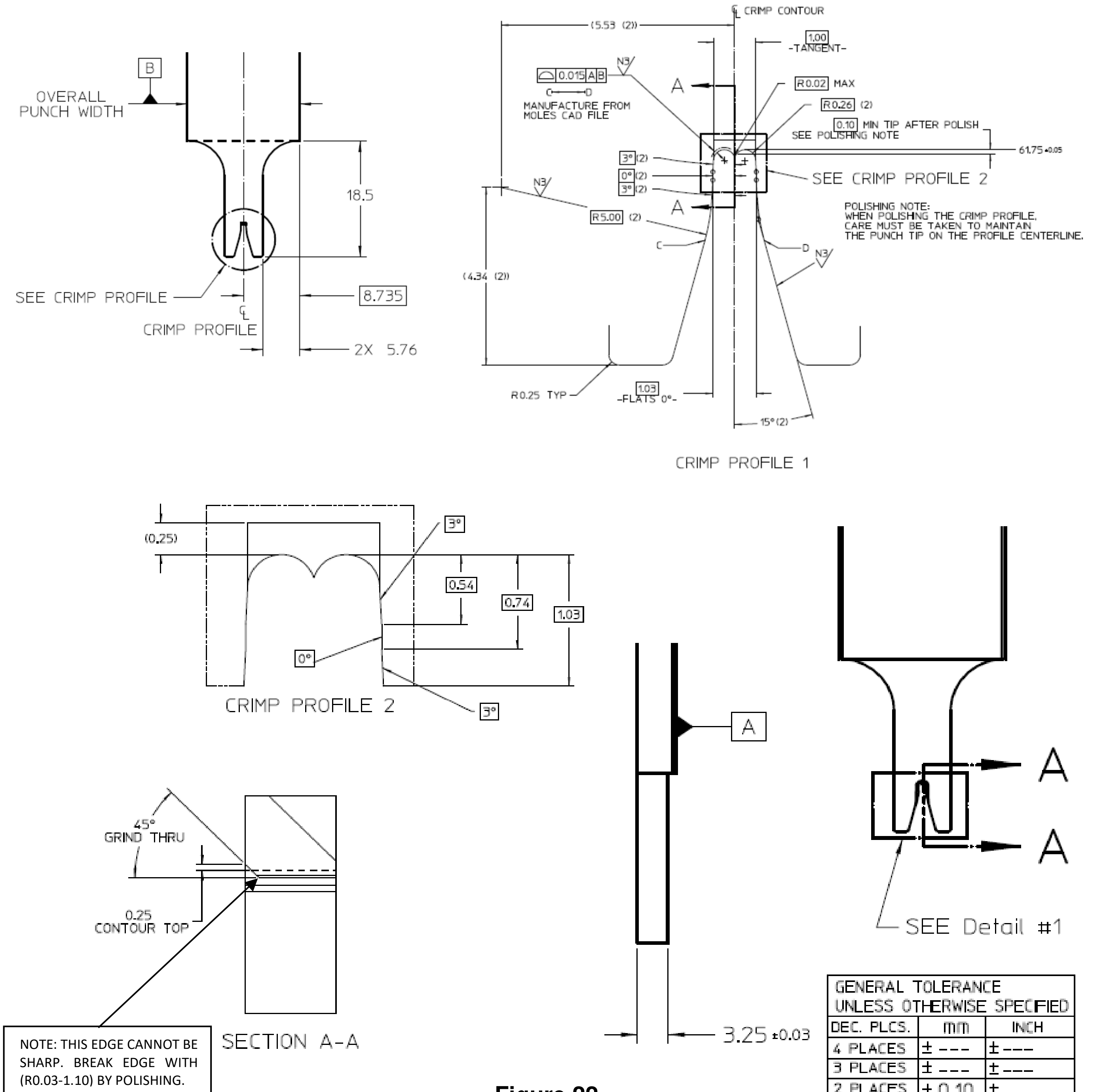
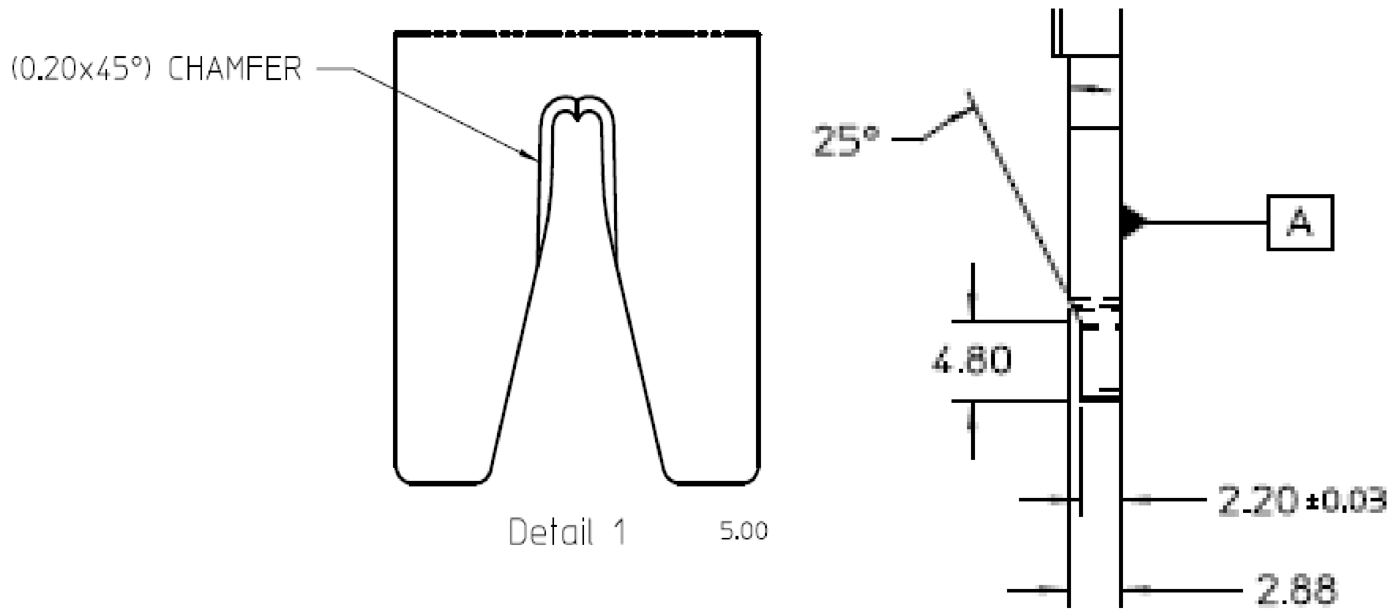
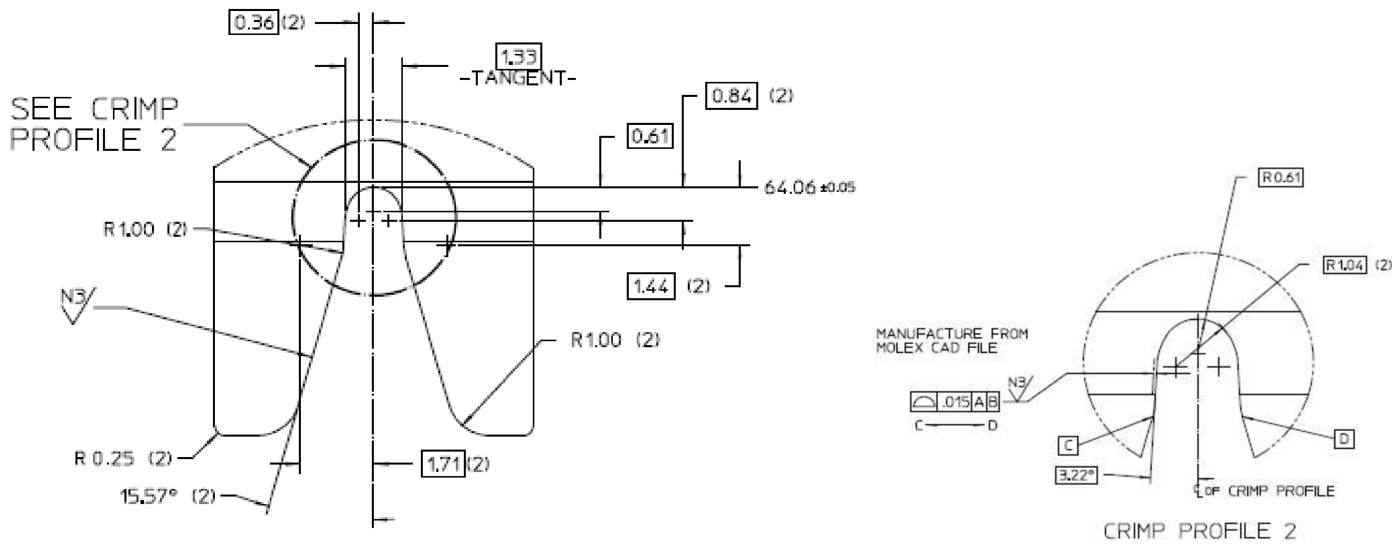


Figure 22
Conductor Punch Tooling Grip Size L

GENERAL TOLERANCE UNLESS OTHERWISE SPECIFIED		
DEC. PLCS.	mm	INCH
4 PLACES	± ---	± ---
3 PLACES	± ---	± ---
2 PLACES	± 0.10	± ---
1 PLACE	± 0.30	± ---
ANGULAR:	± 1/2°	



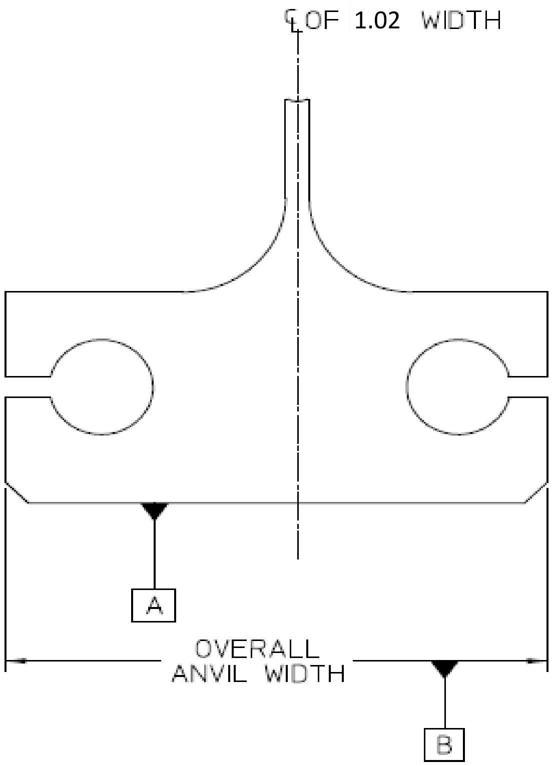


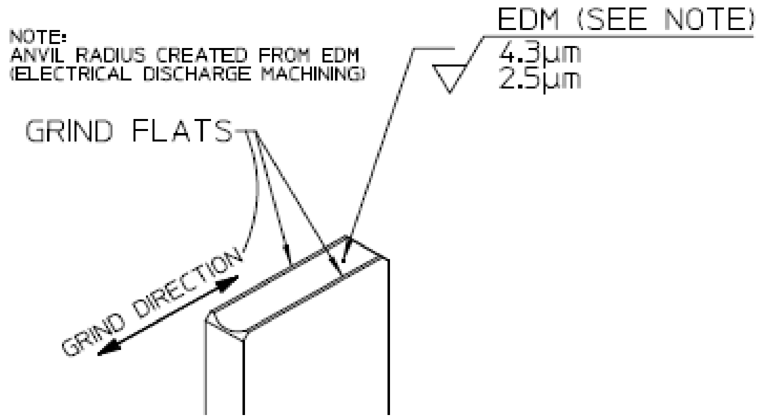
CRIMP PROFILE 1

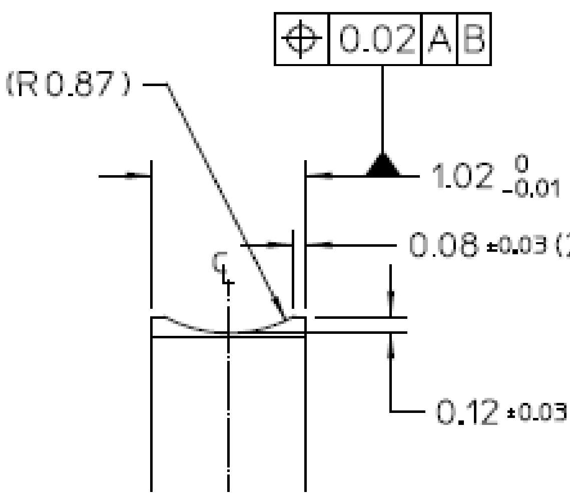
GENERAL TOLERANCE UNLESS OTHERWISE SPECIFIED		
DEC. PLCS.	mm	INCH
4 PLACES	± ---	± ---
3 PLACES	± ---	± ---
2 PLACES	± 0.10	± ---
1 PLACE	± 0.30	± ---
ANGULAR:	± 1/2°	

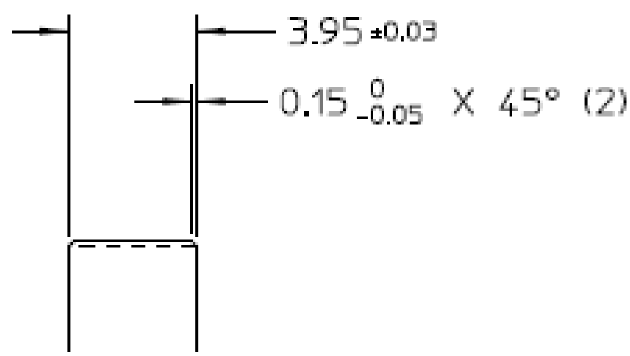
Figure 23
Insulator Punch Tooling Grip Size L

NOTE:
CONDUCTOR ANVIL SURFACE FINISH.
EDM FINISH ACCEPTABLE 4.5 - 2.3 µm.
NO POLISHING OR GRINDING EDM SURFACES.
ACCEPTABLE FINISH CAN BE DETERMINED VISUALLY BY USING AN EDM SURFACE FINISH COMPARATOR SCALE.





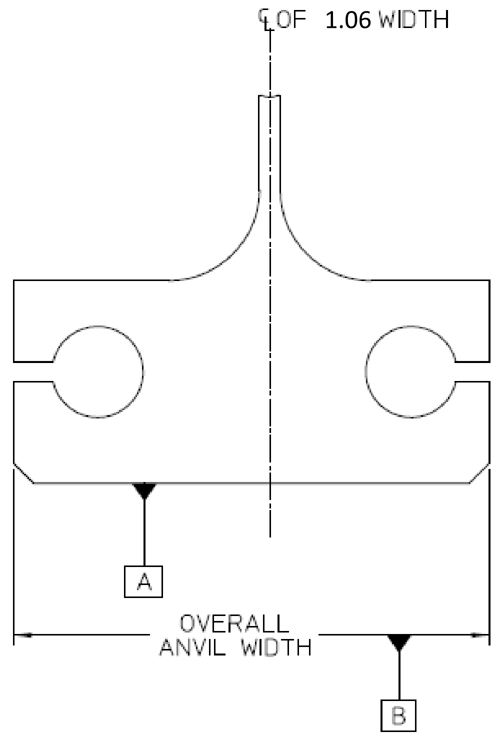


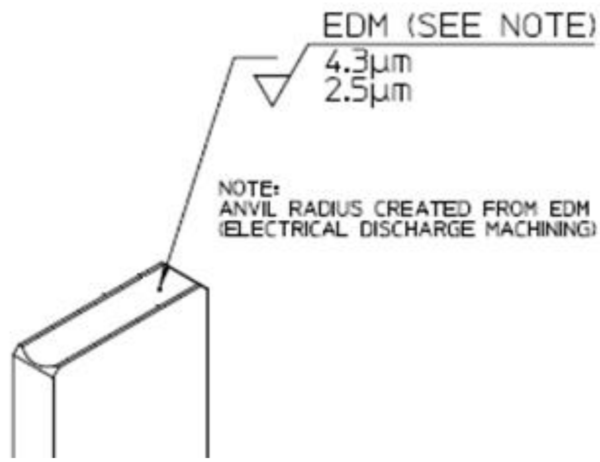


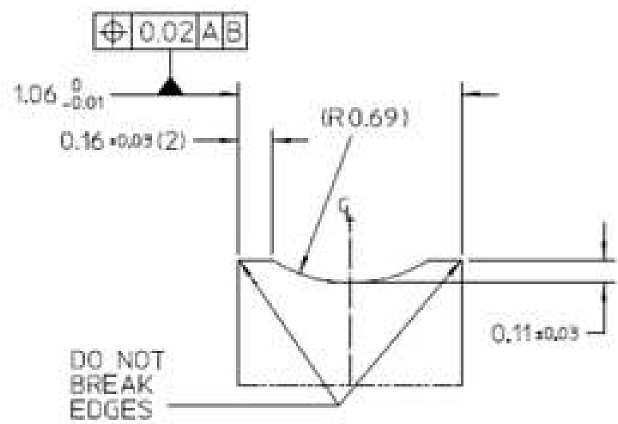
GENERAL TOLERANCE UNLESS OTHERWISE SPECIFIED		
DEC. PLCS.	mm	INCH
4 PLACES	± ---	± ---
3 PLACES	± ---	± ---
2 PLACES	± 0.10	± ---
1 PLACE	± 0.30	± ---
ANGULAR:	± 1/2°	

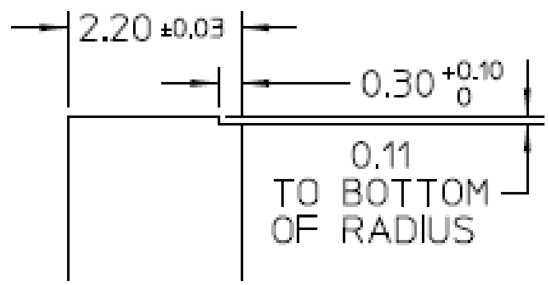
Figure 24
Conductor Anvil Tooling Grip Size M and L

NOTE:
CONDUCTOR ANVIL SURFACE FINISH.
EDM FINISH ACCEPTABLE 4.5 - 2.3 µm.
NO POLISHING OR GRINDING EDM SURFACES.
ACCEPTABLE FINISH CAN BE DETERMINED VISUALLY BY USING AN EDM SURFACE FINISH COMPARATOR SCALE.





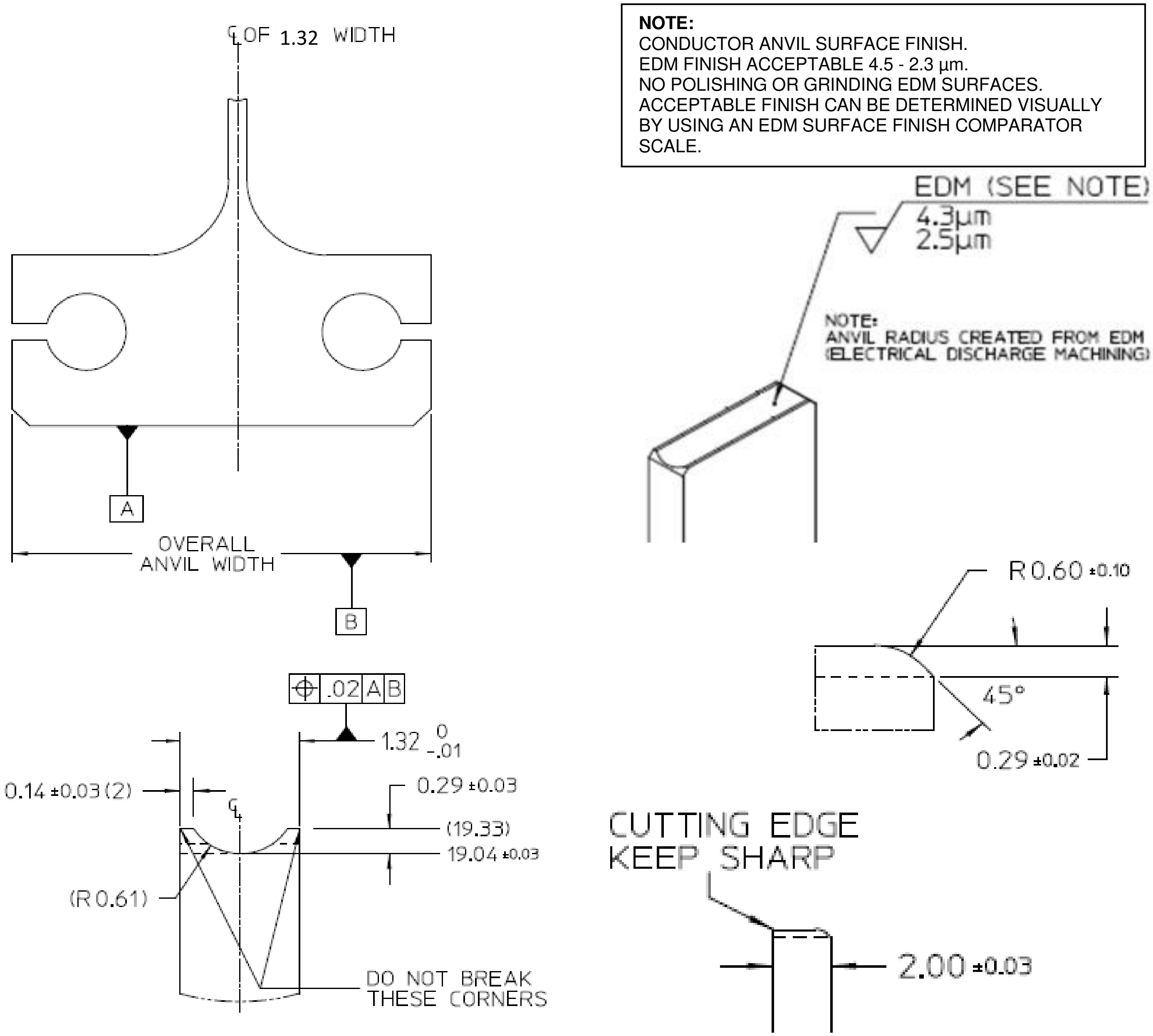




GENERAL TOLERANCE UNLESS OTHERWISE SPECIFIED		
DEC. PLCS.	mm	INCH
4 PLACES	± ---	± ---
3 PLACES	± ---	± ---
2 PLACES	± 0.10	± ---
1 PLACE	± 0.30	± ---
ANGULAR:	± 1/2°	

Figure 25
Insulator Anvil Tooling Grip Size M

NOTE:
CONDUCTOR ANVIL SURFACE FINISH.
EDM FINISH ACCEPTABLE 4.5 - 2.3 µm.
NO POLISHING OR GRINDING EDM SURFACES.
ACCEPTABLE FINISH CAN BE DETERMINED VISUALLY BY USING AN EDM SURFACE FINISH COMPARATOR SCALE.



GENERAL TOLERANCE UNLESS OTHERWISE SPECIFIED		
DEC. PLCS.	mm	INCH
4 PLACES	± ---	± ---
3 PLACES	± ---	± ---
2 PLACES	± 0.10	± ---
1 PLACE	± 0.30	± ---
ANGULAR:	± 1/2°	

Figure 26
Insulator Anvil Tooling Grip Size L

7.0 CRIMP STRAIGHTNESS

A sample method for maintaining crimp straightness is shown in Figure 26 below.

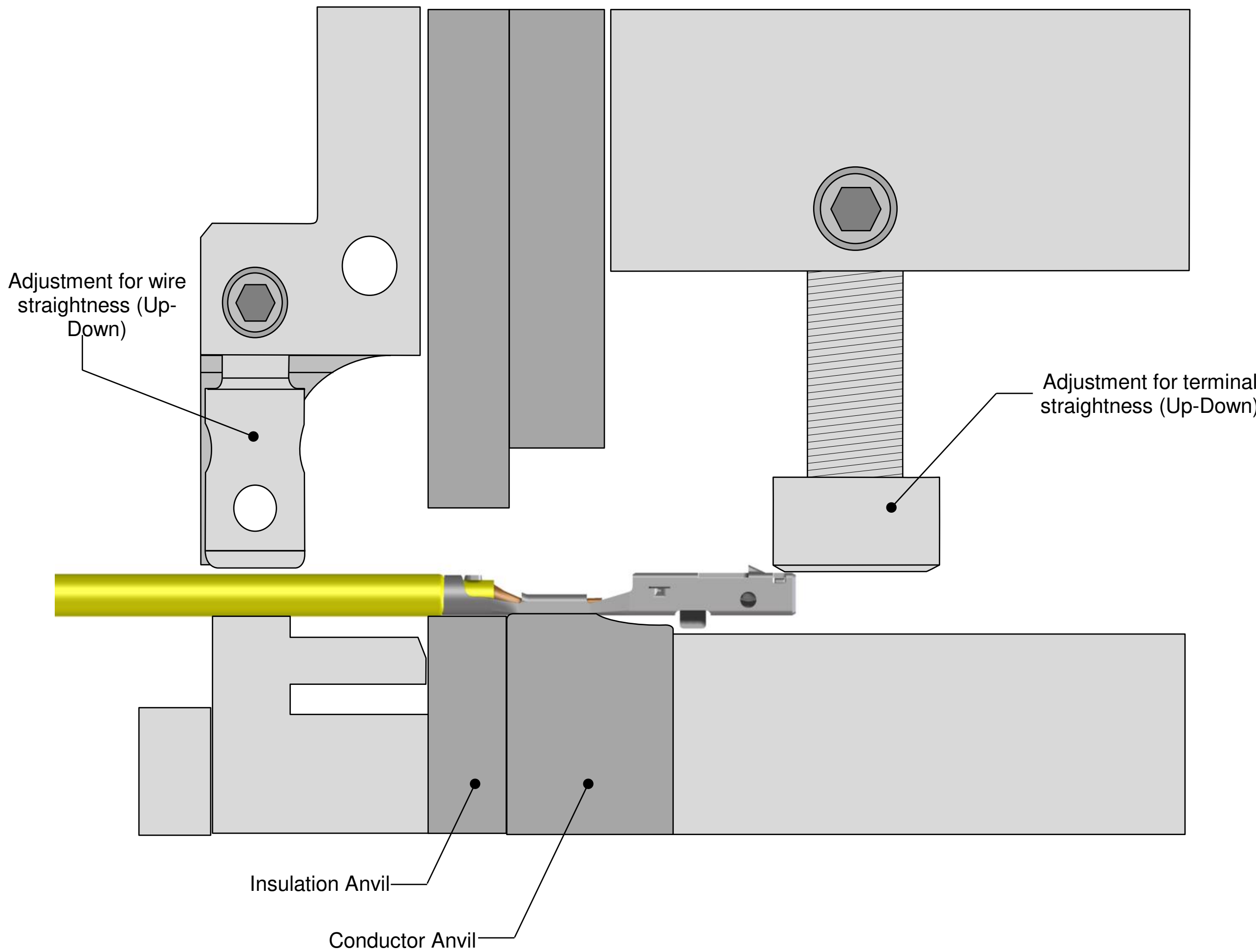


Figure 27

8.0 APPLICATION TOOLING

Application Tooling for the CTX50 Receptacle Terminal can be obtained directly from Molex.

To find the proper and latest Molex Application Tooling

1. Go to http://www.molex.com
2. Enter the terminal / connector part number into the search box and select the "Go" button.
   a. Molex part numbers can also be found by searching on the product description.
3. Review the Application Tooling available on the right side of the product window.
   a. It may be necessary to scroll down on the right side of the terminal / connector product page to view all the tooling options.
   b. Hand tools and manual type tools require the loose terminal / connector part number to be used in the search.
   c. Applicator or semi-automatic type tools require the reeled terminal / connector part number to be used in the search.
4. Select the tool part number link
5. Review the tooling page for general tool information
6. Open the link for the Application Tooling Specification (ATS) (located on the left under *Specifications & Other Documents*) for additional details such as:
   a. Termination specifications: crimp height, pull force, wire strip length, insulation diameter, etc.
   b. Tool information: tool diagram, tool parts list, repair parts, perishable parts list.
7. Order Molex Application Tooling through your preferred distributor

Notes:

1. Hand crimp tooling can only be used with certain wires and terminal part numbers. Check the Application Tooling Specification Sheet on the Molex website for details.
2. Hand crimp tooling is not been validated to USCAR 21 but will meet the dimensional requirements in Table 2.
3. Application Tooling product numbers are subject to change without prior notice. Customers are advised to check the Molex website for the most up-to-date information.
4. Molex FineAdjust™ and MiniMac™ Application Tooling requires the use of left payoff ("D" Wind) parts.

9.0 CRIMP FORCE MONITORING

When using a Komax CFA, Molex recommends adjusting the zone limits W1 & W2 to avoid pseudo scrap. The parameters that Molex used during validation for the crimp force analysis can be found in the Table 5. It contains recommended values, that do not free the customer from their responsibility to perform separate tests, to determine suitable parameters to ensure a proper monitoring.

Table 3

Crimp Force Analysis Parameters	
System	Komax CFA
Applicator	Molex P/N: 638084500
Number of CFA Reference curves	1
Auto Adjust	No
Bad Limit Overall (BLO)	50
Learn limit (Factor relative to BLO)	1.0
Stop Limit (Factor relative to BLO)	3.0
Drift limit (Factor relative to BLO)	3.0
W1	0.6
W2	0.6
Zone 1 Sensitivity (S1)	0.5
Zone 2 Sensitivity (S2)	0.5
Zone 2 Sensitivity (S3)	1.0

Application Spec Revision Log

Change	By	Date	Revision Number
Added min tip dimension and radius of tip for small grip conductor punch and changed value to 0.10 for medium and large grip conductor punches. All crimp tooling drawings updated to reflect current AH tooling. Added dimensions for Anvil Step of crimp tooling. Insulation Grip Step tolerance increased to ±0.05. Crimp Bulge (balloon 17) changed to 1.07 MAX. Table 3: Removed rolling requirement. Twisting requirement increased to 2° MAX.	J. Burgio	07/19/2016	D
Addition of new small grip part number specifications, crimp tooling views, and crimp bulge requirements. Updates to Figure 4, Figure 12, Table 2, Table 3, and Section 6.	J. Burgio	11/03/2016	E
Corrected missing flat to flat dimension on Figures 19 & 20. Addition of FLR13Y-A wire in Table 2.	J. Burgio	12/20/2016	E1
Insulator punch tooling thickness reduced for P/N 560023-0444/0445; Figure 16. Revision is “steel safe”.	J. Burgio	02/23/2017	E2
Addition of L-grip Au terminals (Table 1 & Table 2). A3Z wire validated for L-grip Sn terminals (Table 2).	J. Burgio	5/16/2017	F
Adding PSA wire: FTP: 00949_10_00766 Rear Bell mouth (Balloon 5a) tolerance on grip code L changed from 0.05 to 0.10	F. Petit-Pierre	12/06/2017	G
Page 8: Modification of A3Z CCH in Table 3 - FTP: 00949_10_00766 is equivalent to 0.35mm2 T3ZHID wire	F. Petit-Pierre	05/02/2018	H
Removed obsoleted S-grip part number 560023-0422/0424. Released Au S-grip. Added UL10086, UL10588, UL10316, UL 1332 wires, number of strands column and outer diameter of wire column to table 2. Cleaned up table 1 and 3. Edited crimp tooling figures, Edited front bell mouth value. Added EDM finish notes to anvil sheets.	S. Mahadik	09/27/2018	J
Added FHLR9Y wire, number of strands column and outer diameter of wire column to table 2	B. SKantharaju	02/17/2020	J1
Updated missed information on Terminal straightness from Rev J in page 2	B. SKantharaju	02/26/2020	J2
Updated to latest template format, Added conductor grip and wire straightness callout	RGV	03/12/2020	K
Removed bend up/down dimension; added wire straightness definition; changed tolerance on insulation grip step from ±0.05 mm to ±0.10 mm; consolidated table 1, 2, 3 into table 1a, 1b and 2; Crimp Force Monitoring data added.	MUM	05/28/2021	L

NOTE: Please refer to www.molex.com to ensure the latest revision of this document