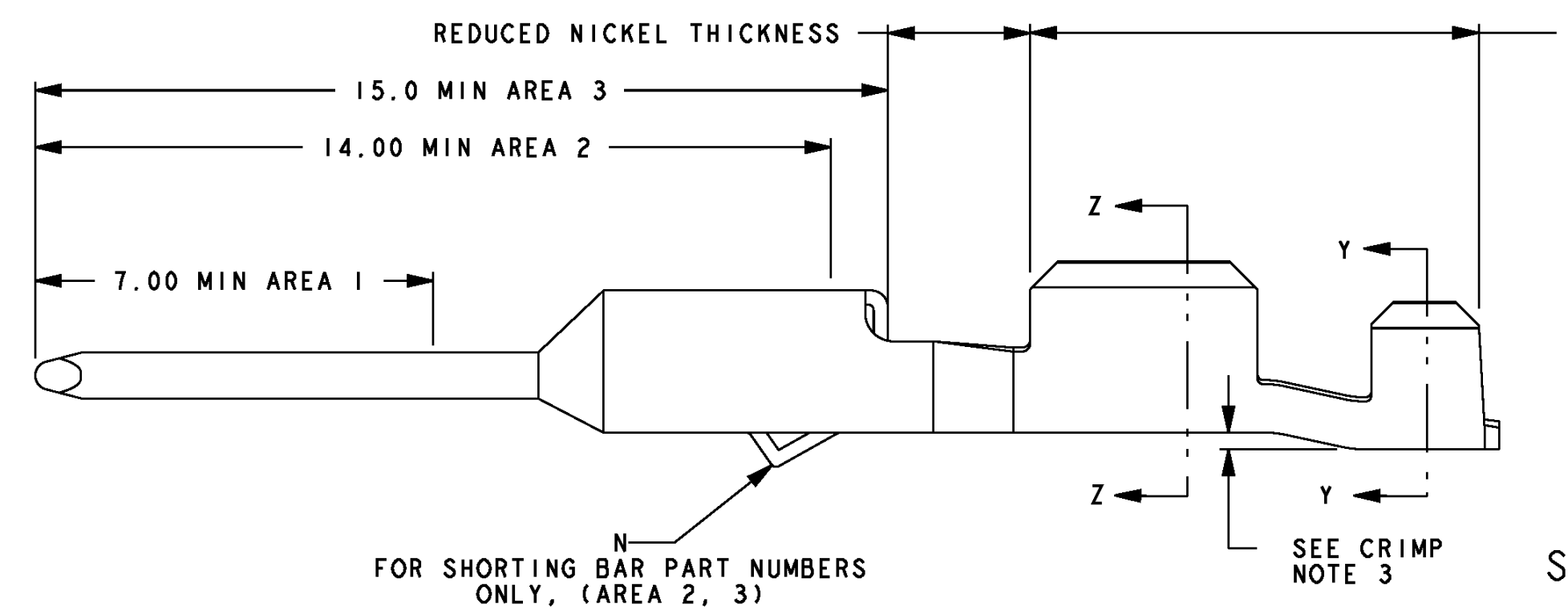
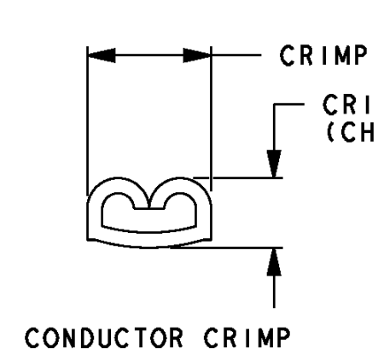
TABLE 1 - TERMINAL CRIMP DIMENSION (FOR REFERENCE ONLY)

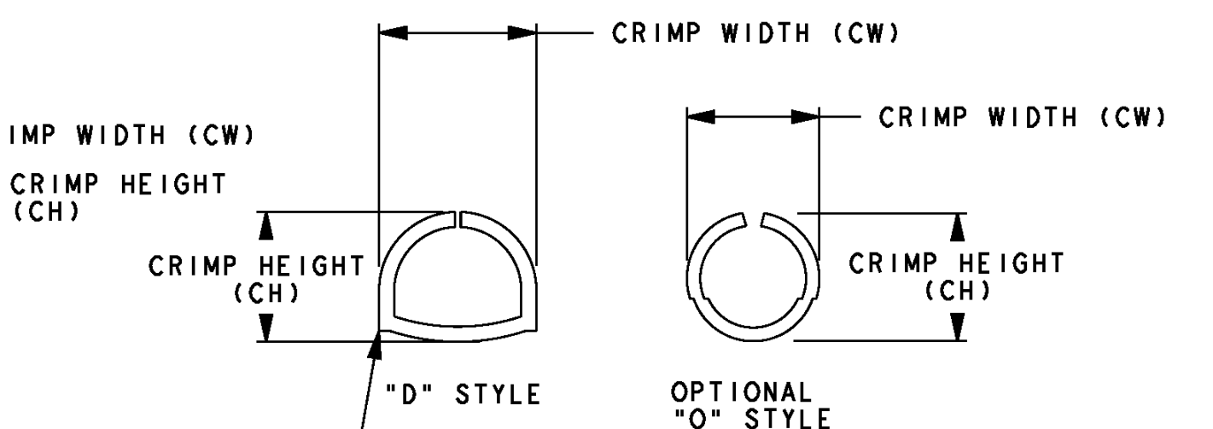
PART NUMBER										
TIN ALL OVER	PALLADIUM		GOLD		GRIP CODE	WIRE SIZE	CONDUCTOR CH (SECT Z-Z, +/-0.05)	CONDUCTOR CW (SECT Z-Z, +/-0.10)	INSULATION CH (SECT Y-Y, +/-0.10)	INSULATION CW (SECT Y-Y, +/-0.10)
	AREA 1 (IN-LINE)	AREA 2 (SHORTING BAR)	AREA 1 (IN-LINE)	AREA 2 (SHORTING BAR)						
54001626	54001628	54001629	54001633	54001634	16	16	1.20	2.05	2.45	2.60
						18	1.15	2.05	2.15	2.60
54002001	54002003	54002004	54002008	54002009	20	20	1.05	1.65	2.00	2.40
						22	0.95	1.65	1.80	2.40





CONDUCTOR CRIMP

SECTION Z-Z



INSULATION CRIMP

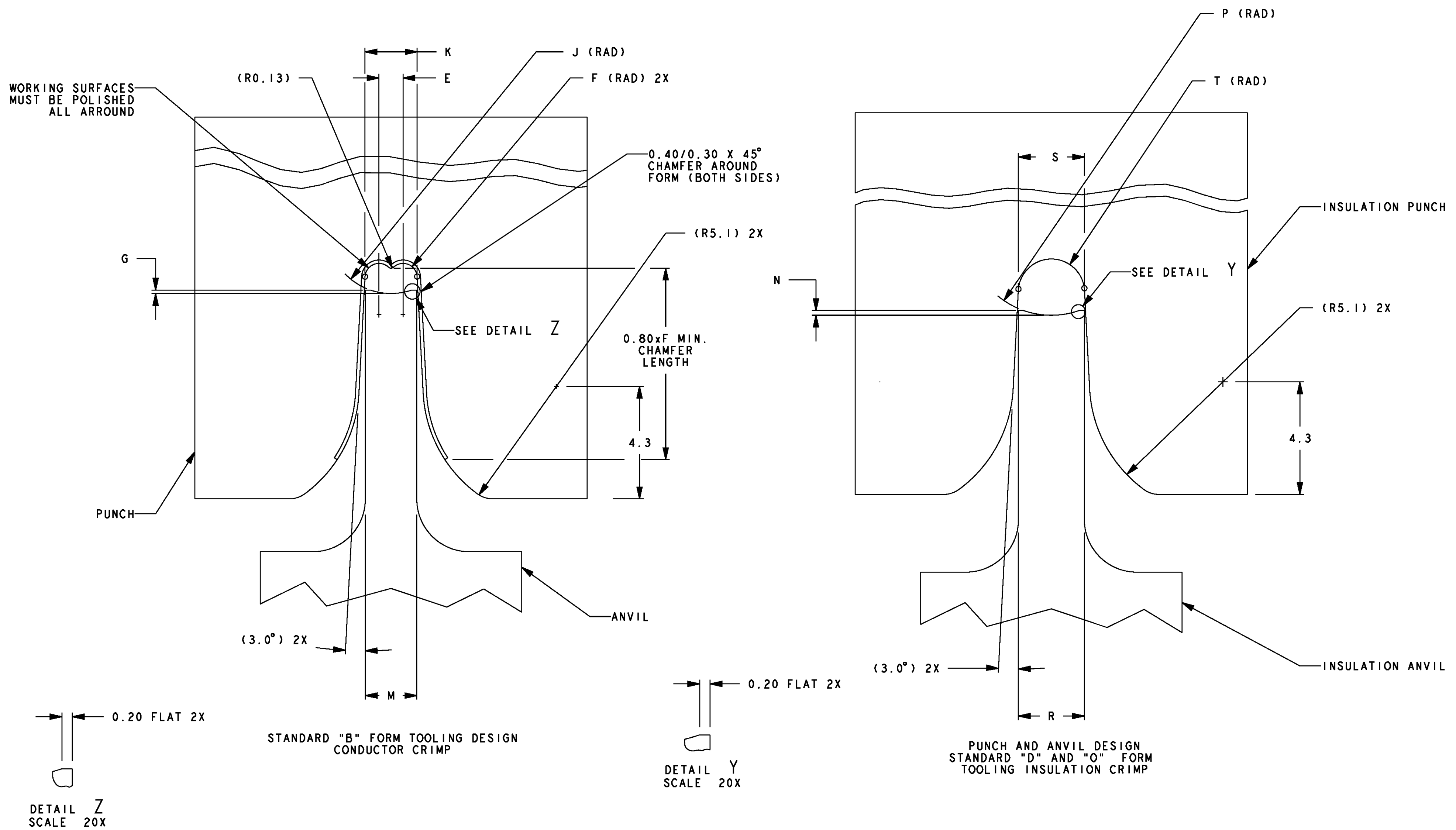
SECTION Y-Y

TABLE 2 - PLATING DETAILS

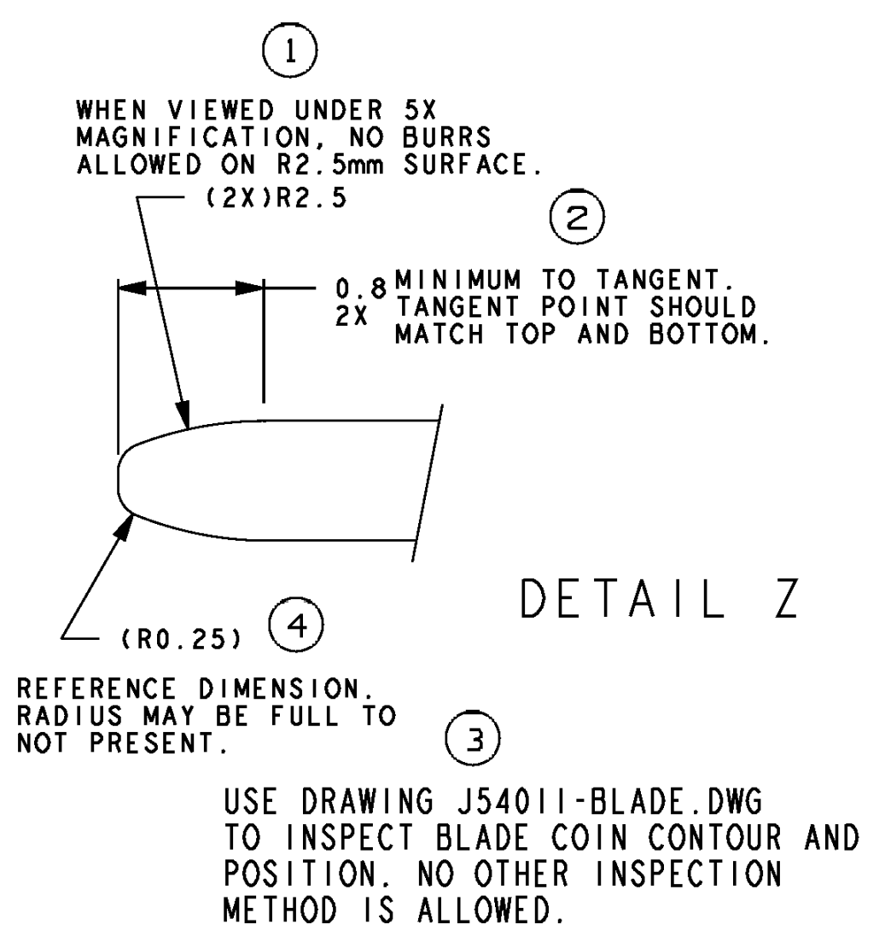
MATERIAL	PLATING TYPE/PROCESS		THICKNESS	APPLICABLE SPEC.	PLATING AREA
TYPE ① TIN	100% ELECTROMATTE TIN		0.0012 - 0.0026	NONE	ALL OVER
TYPE ② PALLADIUM OR GOLD	a)	SULFAMATE DUCTILE NICKEL	0.00127 - 0.0026 (MEASURED AT POINT N FOR AREA 2,3)	ASTM B 689-90 TYPE 2	#3
	b)	NICKEL FLASH	0.000127 MAX	ASTM B 689-90 TYPE 2	#4
	c)	100% PURE ELECTROMATTE TIN (POST PLATED)	0.0012 - 0.0026	NONE	#4
	d)	PALLADIUM OPTION GOLD FLASH - 99% PURE PER ASTM B488 TYPE 2 CODE C OVER PALLADIUM	PD - 0.000508 MIN AU - 0.000051 MIN (MEASURED AT POINT N FOR AREA 2, 3)	ASTM B 488-95	#1 OR #2 SEE P/N
	e)	GOLD OPTION GOLD - 99% PURE PER ASTM B488 TYPE 2 CODE C	AU - 0.00076 MIN (MEASURE AT POINT N FOR AREA 2, 3)	ASTM B 488-95	#1 OR #2 SEE P/N

PLATING NOTES:

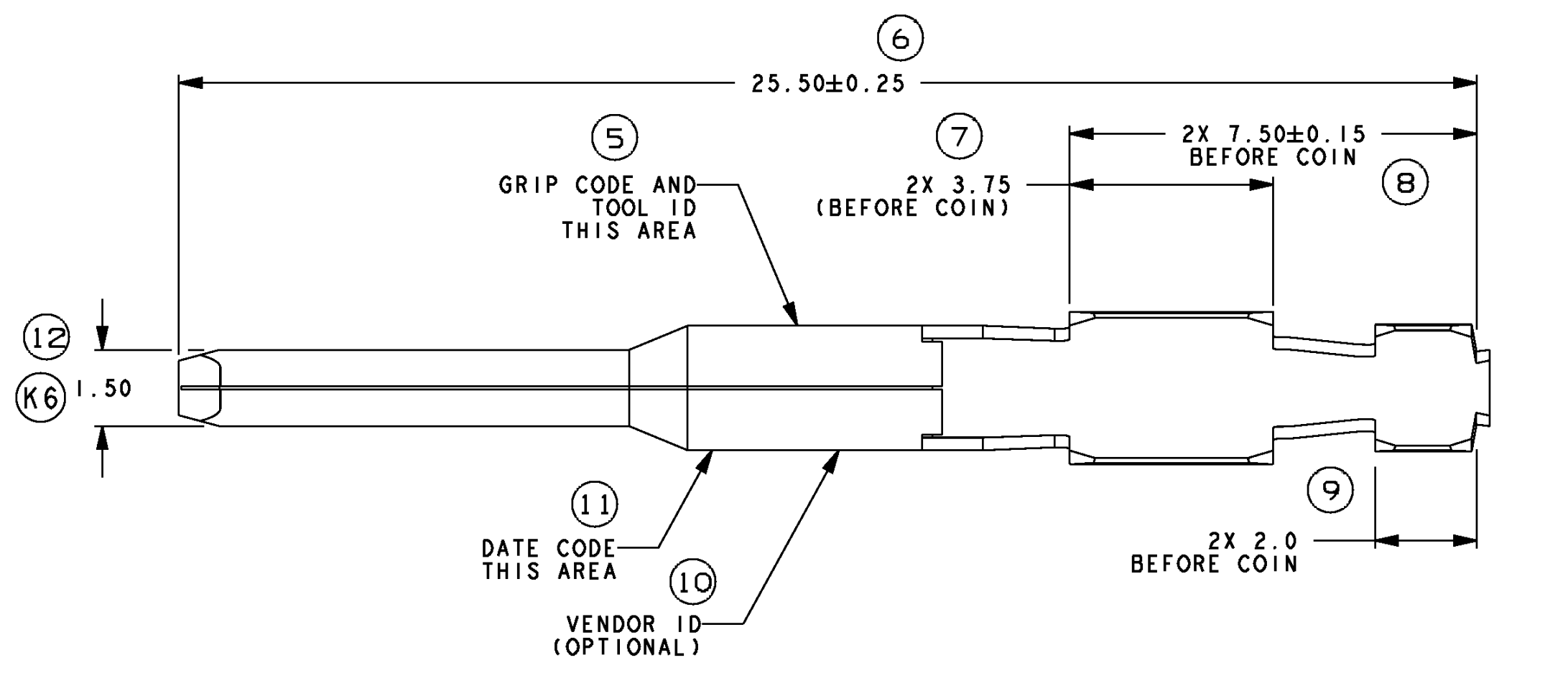
1. TIN PLATE NOT TO OVERLAP PRECIOUS METAL
2. TIN AND NICKEL OVERLAP IS NECESSARY TO AVOID EXPOSURE OF BARE METAL

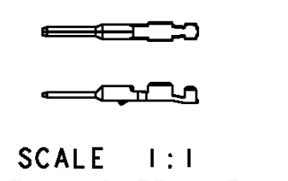


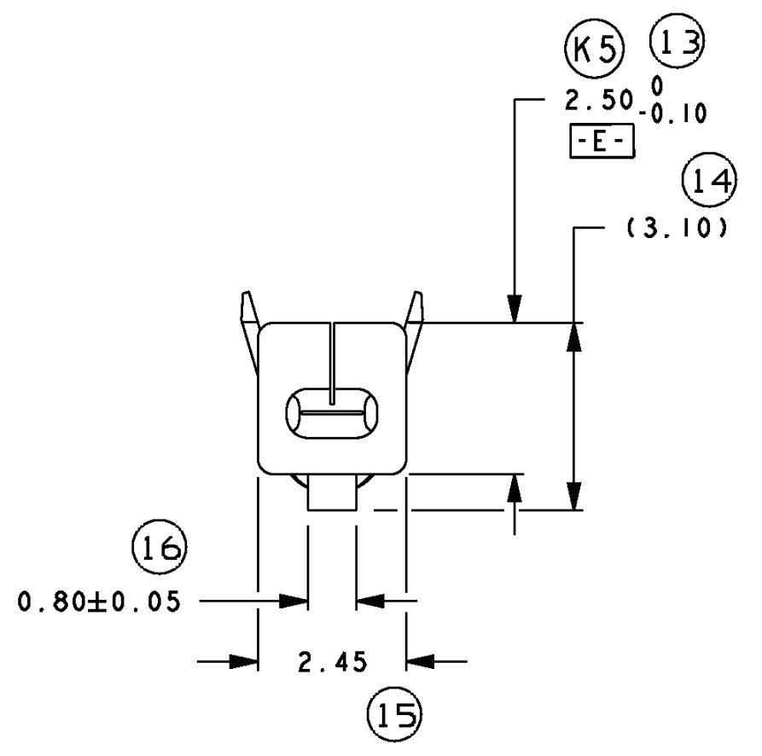
CRIMP TOOL INFORMATION (REF. ONLY)

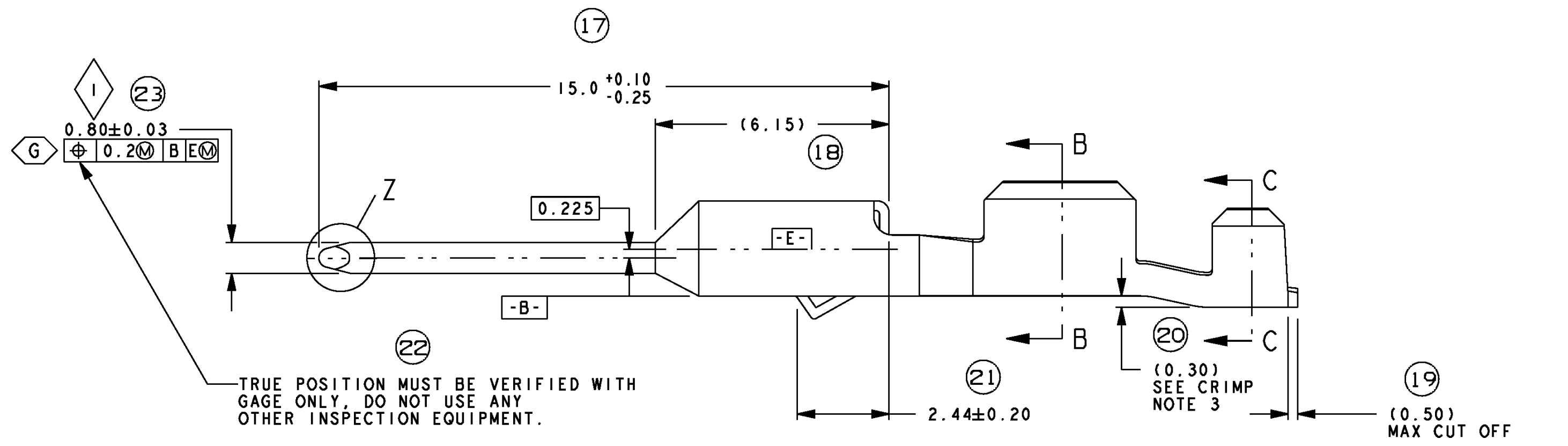


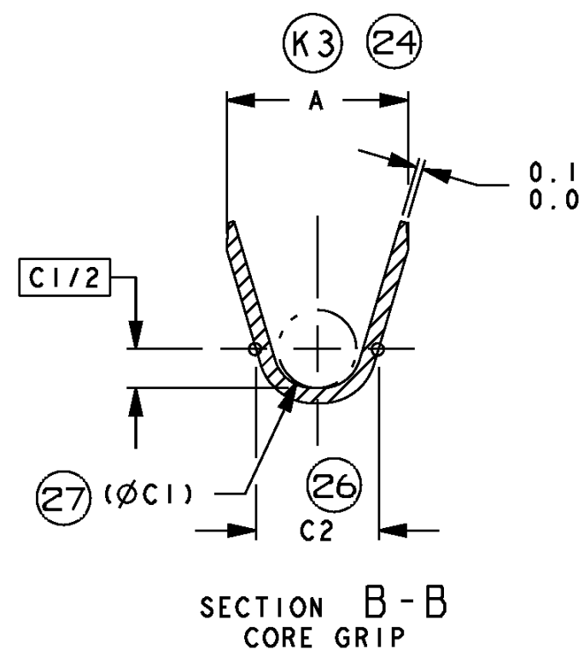
DETAIL Z



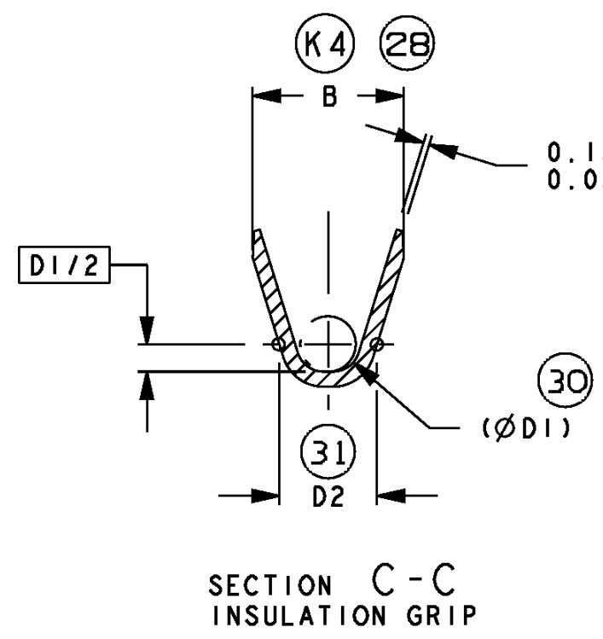






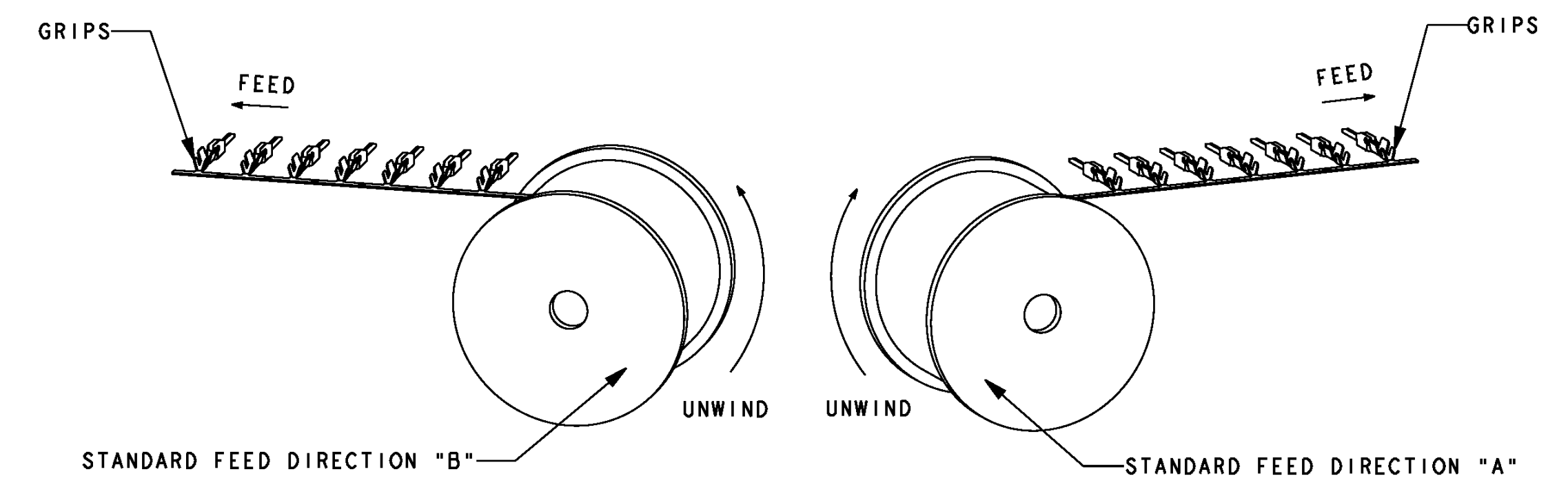


SECTION B-B
CORE GRIP



SECTION C-C
INSULATION GRIP

NOTE: CUSTOMER REQUESTS FOR REWIND PARTS WILL INCLUDE AN "RWA" AT THE END OF THE BILL OF MATERIAL (B.O.M) PART NUMBER I.E.
5400XXXXRWA



VIEW NOT TO SCALE

NOTES:

㉜ 1) K INDICATES IN-PROCESS INSPECTION FOR MANUFACTURING DIMENSIONS OR SPECIFICATION(S) : 6

◇ QUALITY ASSURANCE REQUIREMENTS SPC DATA REQUIRED : 1

㉝ 2) MUST COMPLY WITH ALL APPLICABLE REQUIREMENTS OF:
SAE/USCAR-2 REV 4
SAE/USCAR-12 REV 2
SAE/USCAR-21 REV 1

㉞ 3) MATERIAL:
① TIN PLATING OPTION : 0.254 +/-0.008 C19400
100% ELECTROMATTE TIN PLATED
0.0012/0.0026 THICK
TENSILE STRENGTH: 379 - 483 MPa
YIELD STRENGTH: 379 MPa MIN
ELONGATION IN 51MM: 2% MIN

② PALLADIUM & GOLD PLATING : SAME AS OPTION 1 EXCEPT BARE (UNPLATED)
SEE CHART FOR POST PLATING CALLOUTS

㉟ 4) IT IS PERMISSIBLE TO PERFORM CONTINUOUS CONFORMANCE PER FCI SPECIFICATION #AQA-001 INSTEAD OF ANNUAL LAYOUT AND ANNUAL PV REQUIEREMENTS OF QS-9000 SECTION 2
ALL NON-REFERENCE DIMENSIONS ARE REQUIRED
-CURRENT PRODUCTION TOOLING
-POINT OF LAST RUN

㊱ 5) UNLESS OTHERWISE SPECIFIED
1 PLACE DIM ±0.25
2 PLACE DIM ±0.1
ANGULAR DIM ±2°

㊲ 6) ⟨G⟩ DENOTES GAGE REQUIREMENTS FOR USER AND MANUFACTURER

CRIMP NOTES:

1. THE CRIMP AND CRIMP TOOLING DIMENSIONS HAVE BEEN ESTABLISHED AND VALIDATED TO USCAR-21 USING FCI TOOLS, MACHINES AND PROCESSES. THE DIMENSIONS SHOWN ARE FOR REFERENCE.

2. WIRING SUPPLIERS ARE TO DEVELOP AND VALIDATE THEIR CRIMPING SPECIFICATIONS AND PROCESSES ACCORDING TO ALL ASPECTS OF USCAR-21 REV.2. NOTE THAT AS STATED IN USCAR-21, WIRING SUPPLIER DEFINED CRIMPING SPECIFICATIONS AND CRIMPING PROCESSES MAY IMPACT CONNECTOR FUNCTIONS. (SEE USCAR-21 REV. 2, 4.2.5.1); CONTACT FCI ENGINEERING FOR ANY NEEDED ASSISTANCE IN THIS REGARD.

3. DESIGN REFERENCE INFORMATION: IT IS RECOMMENDED THAT THE NOTED NOMINAL OFFSET BETWEEN THE CONDUCTOR GRIP AND INSULATION GRIP NOT BE CHANGED BY THE CRIMPING PROCESS. RESIZING THIS FEATURE DURING CRIMPING CAN NEGATIVELY IMPACT CONNECTOR SYSTEM FUNCTION. ACCEPTABILITY OF THE ACTUAL NOTED CRIMPED OFFSET, CRIMPING SPECIFICATION, AND CRIMPING PROCESS USED IS TO BE DETERMINED AS DEFINED IN CRIMP NOTE 2.

4. DESIGN REFERENCE INFORMATION: CRIMPED TERMINALS ARE USED ON VARIOUS CONNECTOR APPLICATIONS. NORMALLY, FOR DESIGN PURPOSES, A CONDUCTOR AND INSULATION CRIMP ANGLE TOERANCE OF +/- 3 DEGREES RELATIVE TO TERMINAL DATUM "E" CAN BE ASSUMED. ACTUAL CRIMP TOLERANCES DEFINED WITHIN A HARNESS MAKER'S CRIMPING PROCESS FOR A SPECIFIC CONNECTOR APPLICATION MUST BE VERIFIED AS SUITABLE BY FULL VALIDATION TO ALL ASPECTS OF USCAR-21 INCLUDING SECTION 4.2.5.

TABLE 3 - TERMINAL GRIP / CRIMP TOOL DIMENSION TABLE (CRIMP TOOL DIMENSIONS (E-T) FOR REFERENCE ONLY)

PART NUMBER																										
TIN ALL OVER	PALLADIUM		GOLD		GRIP CODE	WIRE SPECIFICATION	A	B	(ØC1)	C2	(ØD1)	D2	E+/-0.02	F+/-0.02	G+/-0.02	J+/-0.02	K+/-0.02	M+/-0.02	N+/-0.02 FOR "D" STYLE	N+/-0.02 FOR "O" STYLE	P+/-0.02 FOR "D" STYLE	P =/-0.02 FOR "O" STYLE	R+/-0.02	S+/-0.02	T+/-0.02
	AREA 1 (IN-LINE)	AREA 2 (SHORTING BAR)	AREA 1 (IN-LINE)	AREA 2 (SHORTING BAR)																					
54001626	54001628	54001629	54001633	54001634	16	ESB-MIL123-A/ MS 8288	3.0	3.7	1.00	1.6	1.75	2.4	0.92	0.53	0.13	2.56	1.99	1.97	0.18	0.67	2.34	1.15	2.52	2.53	1.23
54002001	54002003	54002004	54002008	54002009	20	ESB-MIL123-A/ MS 8288	2.5	3.1	0.76	1.4	1.40	2.0	0.74	0.43	0.09	2.06	1.59	1.59	0.16	0.60	2.16	1.10	2.33	2.33	1.17

LAST BALLOON: ㊲

EUR C04 112 F29 PDS

11883	L	03/14/11	C11	REVISED NOTE 3.
11675	K	09/08/10	O11 B09	ADDED DETAIL "Z" AND RELATED NOTES. ADDED "O" STYLE INSULATION CRIMP AND RELATED DIMENSIONS AND NOTES
11063	J	08/05/09	M8	REVISED TRUE POSTION CALLOUT AND BASIC DIM.
10707	H3	11/13/08	N20	UPDATE PLATING CHART, REMOVE 10.1 DIMENSION ADD N NOTE, UPDATE CRIMP TOOL TOL.
10592	H2	9/9/08	N20	ADDED NICKEL FLASH SPECIFICATIONS ADDED REDUCED NICKEL THICKNESS SPECIFICATIONS
10409	H1	5/22/08	Q21	14.00 MIN WAS 11.4 MIN FOR AREA 2
10396	H	5/13/08	M18 Q19 Q21 M15	UPDATED PALLADIUM PLATING THICKNESS TO 0.000508MM (20MICRO INCHES), UPDATED PLATING DETAILS FOR AREA 3 & 4 MOVED POINT OF MEASUREMENT 'N' TO 10.10 DIMENSION ADDED PLATING NOTES
9987	G1	10/29/07	- N18 F8	CREATED A CUSTOMER DRAWING IN NEW FORMAT. SEE REV 'G' FOR PREVIOUS CHANGES. UPDATED TRANSITION AREA NICKEL PLATING DETAILS WINDING DIRECTION VIEW ADDED TO THE DRAWING
ECN-NO.			ZONE	CHANGE DESCRIPTION

PRODUCT SPEC. APEX 150
PACKAGING SPEC. -
APPLICATION SPEC. -

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TOLERANCES SEE NOTES
MATERIAL : SEE NOTES
SURFACE FINISH -
COUNTERPART Nr. J54009-CUST
COLOUR : -
DO NOT MEASURE DRAWING
TOOL NO. D630
ECO Loc. Code AN
3RD ANGLE
CAD SYSTEM pro / eng.
DIMENSION IN MILLIMETERS
DWG SIZE A0

	DATE	NAME
CREATED BY	04/19/05	GDL
MODIFIED BY	10/27/07	ASHOK
CHECKED BY	10/27/07	VINAYAK
APPROVED BY	10/27/07	VINAYAK

TITLE APEX 150 MALE TERMINAL
PROJECT -
ESR NO. 6243
CAT. NO. -
FILE NAME J54011-CUST
DRAWING NUMBER J54011-CUST
REV. L
STATE
PART NUMBER
REV.
APPROVAL LEVEL L
SHEET 1 of 1
SCALE 10:1

54001633	L	13768448	01	AH	15520260	01	AB	M6575H94
54002008	L	13783476	01	AG	15520262	01	AB	M6575H94
54002004RWA	L	15520259	01	AA	-	-	-	33500641
54002004	L	33500641	01	AB	15520262	01	AB	M6575H94
54002003RWC	L	15520257	01	AA	-	-	-	13851003
54002003RWA	L	15548865	01	-	-	-	-	13851003
54002003	L	13851003	01	AE	15520262	01	AB	M6575H94
54002001RWA	L	15520256	01	AA	-	-	-	13624759
54002001	L	13624759	01	AH	-	-	-	M6576H94
54001629	L	13755243	01	AH	15520260	01	AB	M6575H94
54001628RWA	L	15548863	01	-	-	-	-	13795935
54001628	L	13795935	01	AB	15520260	01	AB	M6575H94
54001626RWC	L	33162170	01	-	-	-	-	13630404
54001626RWA	L	15520254	01	AA	-	-	-	13630404
54001626	L	13630404	01	AH	-	-	-	M6576H94
PART NUMBER	REV	PART NUMBER	REV	N/P	PART NUMBER	REV	N/P	MAT'L SPEC
		PLATED			UNPLATED			
MVL		DELPHI						

NOTES

1. UNLESS OTHERWISE SPECIFIED AND/OR INDICATED:

DIMENSIONS ARE TO FACE OF VIEW SHOWN AND AUTOMATICALLY ROUNDED BY COMPUTER FOR INSPECTION (SEE MATH MODEL FOR PRECISE DIMENSIONS). FOR ALL OTHER DIMENSIONS NOT SHOWN BUT REQUIRED FOR TOOL BUILD, SEE MATH MODEL FOR PRECISE TOOL PATH DATA.

DWG STATUS					ZONE	REVISION HISTORY	AUTH	DR	APVD 1	APVD 2
DATE	STG	REV	N/P	CHG						
11MR13	R	09	-	-		ALL PARTS - CLEARED REV COLUMN, UPDATED PASTE UP PRINT AND ADDED INSPECTION SYMBOLS/BALLOONS: 15520260,15520261, 15520262,15520265,15520254,13795935, 15520256,15520257,33500641 & 15520259 - RELEASED	421190	CGD	JAA	DAB
16AP13	R	10	-	-		13768448,13783476,33500641,13851003, 13755243, 13795935 - UPDATED "DELPHI P/N UNPLATED" AND MAT'L SPEC WAS M6576H94	422138	AHG	JAA	DAB
08AU13	R	11	-	-		ALL PARTS - INSPECTION SYMBOL/BALLOON #17 WAS 15.0	423505	IMF	JAA	BC
20AU13	R	12	-	-		15548865 - RELEASED	423622	CGD	JAA	DAB
13FE14	R	13	-	-		15548863 - RELEASED	425529	CGD	CGD	DAB
22AP14	R	14	-	-		33162170 - RELEASED	426313	CGD	CGD	DAB

TOLERANCE UNLESS OTHERWISE SPECIFIED:
DECIMAL: ANGULAR ±2°
TWO PLACE SEE DRAWING
THREE PLACE SEE DRAWING

A ——— LINE DRAWN THROUGH A PART NUMBER INDICATES THAT PHYSICAL PARTS ARE NOT AVAILABLE FOR ORDERING.

PART NUMBERS THAT DO NOT HAVE A LINE PRESENT INDICATE THAT PHYSICAL PARTS ARE AVAILABLE FOR ORDERING.

CONTACT DELPHI SALES TO ASSURE AVAILABILITY OF PARTS.

DWG TYPE PART DRAWING
STYLE
VOLUME (CM³)
DISTR CODE D

UNLESS OTHERWISE SPECIFIED
THIS DOCUMENT IS IN ACCORDANCE WITH ASME Y14.5M-1994 AS AMENDED BY THE GM GLOBAL DIMENSIONING AND TOLERANCING ADDENDUM-2001. SEPARATE PATTERNS OF FEATURES MAY BE GAGED SEPARATELY REGARDLESS OF DATUM REFERENCES.

ALL DIMENSIONS ARE IN MILLIMETERS

REFERENCE

THIRD ANGLE PROJECTION

DO NOT SCALE
USE MATH DATA
CAD
NX

DELPHI
DELPHI PACKARD ELECTRICAL/ELECTRONIC ARCHITECTURE
WARREN, OH

REVISED 2013
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		DATE
DR		
APVD1	CARLOS DELGADILLO	11MR13
APVD2	J. S. ALVARADO	11MR13
APVD3	DANIEL A. BUCCINO	11MR13
APVD4		
APVD5		

SUBSTANCES OF CONCERN AND RECYCLED CONTENT PER DELPHI 10949001

MATERIAL
SEE CHART

DRAWING NAME
TAXI TERM M APEX 1.5

DRAWING NUMBER
13678140

SIZE	SCALE	FRAME NO	SHEET NO	STG	REV	N/P
A0	NONE	1 OF 1	1 OF 1	R	14	-

User: GZGY6N
Part: 13678140-CUS01-S01 Date: 22-Apr-14 Time: 09:32
Message: