

STAMPED AND FORMED CONTACTS, PG 1 of 2

Click on [blue underlined](#) part numbers to be taken to their spec sheets.

OPTIONS

PART NUMBER: [AT62-14-01XX](#)
DESCRIPTION: CONTACT, SOCKET, STAMPED, SIZE 16

MATERIAL:
 CONTACT BODY: COPPER ALLOY
 HOOD: STAINLESS STEEL
PLATING SUFFIX CODE:
 XX=22 NICKEL PLATING
 XX=44 GOLD PLATING
CONTACT GENERAL DATA SPECIFICATION: S2-15217
AVAILABLE CRIMPERS: ATT-16-00, MFX-3950 & MFX-3953
CRIMPER SPECIFICATIONS: S2-15223 & S2-15224
CRIMP INFORMATION DRAWING: S2-15221 & S2-15222
CONTACTS PER REEL: APPROX. 4000 (PARTIAL REELS AVAILABLE)



PART NUMBER: [AT62-16-01XX](#)
DESCRIPTION: CONTACT, SOCKET, STAMPED, SIZE 16

MATERIAL:
 CONTACT BODY: COPPER ALLOY
 HOOD: STAINLESS STEEL
PLATING SUFFIX CODE:
 XX=22 NICKEL PLATING
 XX=44 GOLD PLATING
CONTACT GENERAL DATA SPECIFICATION: S2-15217
AVAILABLE CRIMPERS: ATT-16-00, ATT-16-01, MFX-3950 & MFX-3953
CRIMPER SPECIFICATIONS: S2-15223 & S2-15224
CRIMP INFORMATION DRAWING: S2-15221 & S2-15222
CONTACTS PER REEL: APPROX. 4000 (PARTIAL REELS AVAILABLE)



PART NUMBER: [AT62-16-06XX](#)
DESCRIPTION: CONTACT, SOCKET, STAMPED, SIZE 16

MATERIAL:
 CONTACT BODY: COPPER ALLOY
 HOOD: STAINLESS STEEL
PLATING SUFFIX CODE:
 XX=22 NICKEL PLATING
 XX=44 GOLD PLATING
CONTACT GENERAL DATA SPECIFICATION: S2-15217
AVAILABLE CRIMPERS: ATT-16-01, MFX-3950 & MFX-3953
CRIMPER SPECIFICATIONS: S2-15223 & S2-15224
CRIMP INFORMATION DRAWING: S2-15221 & S2-15222
CONTACTS PER REEL: APPROX. 4000 (PARTIAL REELS AVAILABLE)



PART NUMBER: [AT60-14-01XX](#)
DESCRIPTION: CONTACT, PIN, STAMPED, SIZE 16

MATERIAL: COPPER ALLOY
PLATING SUFFIX CODE:
 XX=22 NICKEL PLATING
 XX=44 GOLD PLATING
CONTACT GENERAL DATA SPECIFICATION: S2-15217
AVAILABLE CRIMPERS: ATT-16-00, MFX-3950 & MFX-3953
CRIMPER SPECIFICATIONS: S2-15223 & S2-15224
CRIMP INFORMATION DRAWING: S2-15221 & S2-15222
CONTACTS PER REEL: APPROX. 4000 (PARTIAL REELS AVAILABLE)

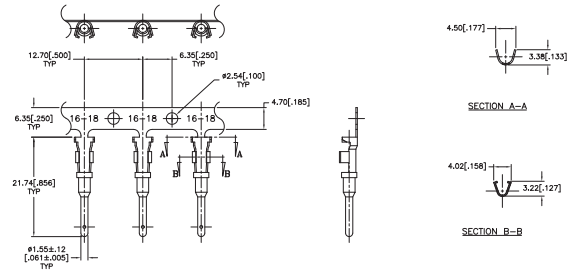


STAMPED AND FORMED CONTACTS, PG 2 of 2

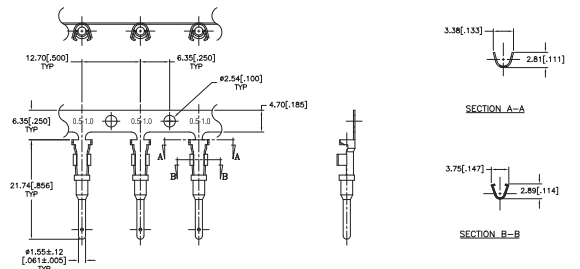
Click on [blue underlined part numbers](#) to be taken to their spec sheets.

OPTIONS

PART NUMBER: [AT60-16-01XX](#)
DESCRIPTION: CONTACT, PIN, STAMPED, SIZE 16
MATERIAL: COPPER ALLOY
PLATING SUFFIX CODE:
 XX=22 NICKEL PLATING
 XX=44 GOLD PLATING
CONTACT GENERAL DATA SPECIFICATION: S2-15217
AVAILABLE CRIMPERS: ATT-16-00, ATT-16-01, MFX-3950 & MFX-3953
CRIMPER SPECIFICATIONS: S2-15223 & S2-15224
CRIMP INFORMATION DRAWING: S2-15221 & S2-15222
CONTACTS PER REEL: APPROX. 4000 (PARTIAL REELS AVAILABLE)



PART NUMBER: [AT60-16-06XX](#)
DESCRIPTION: CONTACT, PIN, STAMPED, SIZE 16
MATERIAL: COPPER ALLOY
PLATING SUFFIX CODE:
 XX=22 NICKEL PLATING
 XX=44 GOLD PLATING
CONTACT GENERAL DATA SPECIFICATION: S2-15217
AVAILABLE CRIMPERS: ATT-16-01, MFX-3950 & MFX-3953
CRIMPER SPECIFICATIONS: S2-15223 & S2-15224
CRIMP INFORMATION DRAWING: S2-15221 & S2-15222
CONTACTS PER REEL: APPROX. 4000 (PARTIAL REELS AVAILABLE)



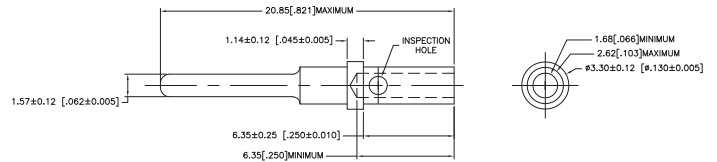
SOLID/MACHINED CONTACTS

Click on [blue underlined part numbers](#) to be taken to their spec sheets.

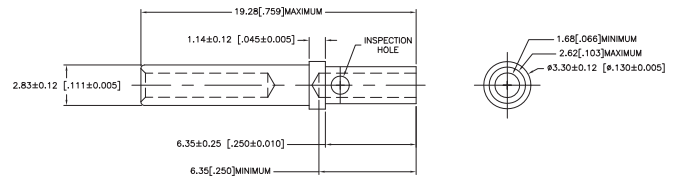
OPTIONS

MILITARY-STYLE

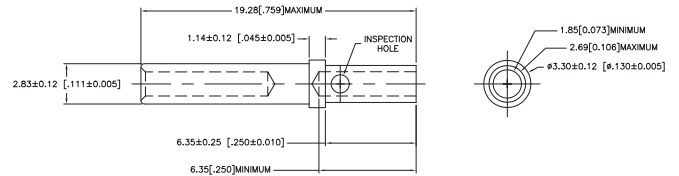
PART NUMBER: [AT60-202-16XX](#)
DESCRIPTION: CONTACT, PIN, SOLID MACHINED, SIZE 16
MATERIAL: COPPER ALLOY
PLATING SUFFIX CODE:
 XX=141 NICKEL PLATING
 XX=31 GOLD PLATING
CONTACT GENERAL DATA SPECIFICATION: S2-15217
AVAILABLE CRIMPERS: CA-5D12 & CA-5E12
CRIMPER SPECIFICATIONS: S2-15219 & S2-15220
CRIMP INFORMATION DRAWING: S2-15218



PART NUMBER: [AT62-201-16XX](#)
DESCRIPTION: CONTACT, SOCKET, SOLID MACHINED, SIZE 16
MATERIAL:
 CONTACT BODY: COPPER ALLOY
 HOOD: STAINLESS STEEL
PLATING SUFFIX CODE:
 XX=141 NICKEL PLATING
 XX=31 GOLD PLATING
CONTACT GENERAL DATA SPECIFICATION: S2-15217
AVAILABLE CRIMPERS: CA-5D12 & CA-5E12
CRIMPER SPECIFICATIONS: S2-15219 & S2-15220
CRIMP INFORMATION DRAWING: S2-15218

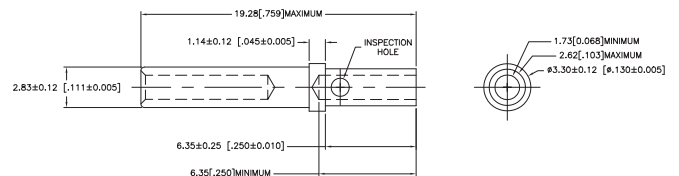


PART NUMBER: [65-54942-14](#)
DESCRIPTION: CONTACT, SOCKET, ROCKSOLID, SIZE 16
AWG RANGE: 14AWG
MATERIAL: COPPER ALLOY
PLATING: GOLD
CONTACT GENERAL DATA SPECIFICATION: S2-15217
AVAILABLE CRIMPERS: CA-5D12 & CA-5E12
CRIMPER SPECIFICATIONS: S2-15219 & S2-15220
CRIMP INFORMATION DRAWING: S2-15218

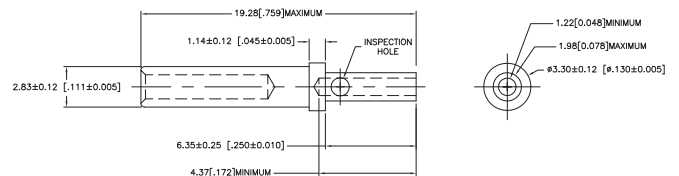


ROCKSOLID™ CONTACTS

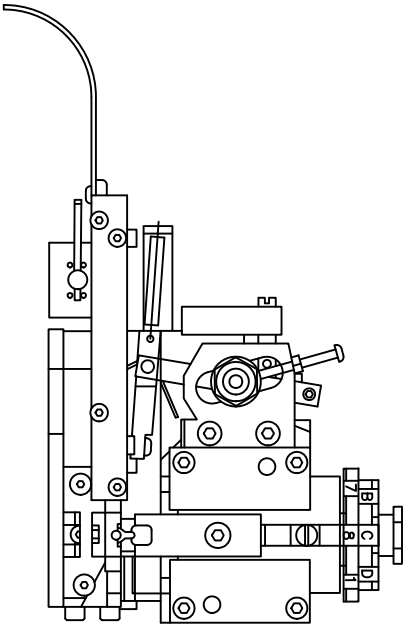
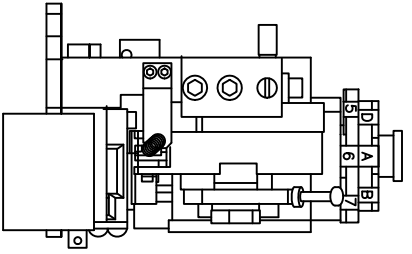
PART NUMBER: [65-54942-16](#)
DESCRIPTION: CONTACT, SOCKET, ROCKSOLID, SIZE 16
AWG RANGE: 16AWG
MATERIAL: COPPER ALLOY
PLATING: GOLD
CONTACT GENERAL DATA SPECIFICATION: S2-15217
AVAILABLE CRIMPERS: CA-5D12 & CA-5E12
CRIMPER SPECIFICATIONS: S2-15219 & S2-15220
CRIMP INFORMATION DRAWING: S2-15218



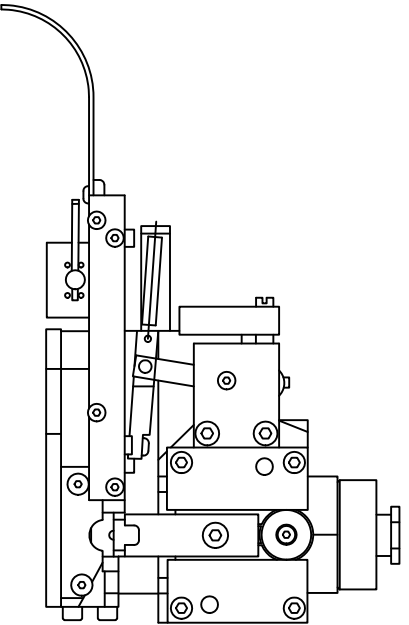
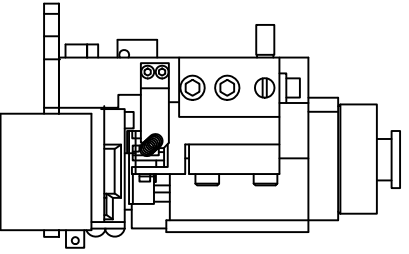
PART NUMBER: [65-54942-20](#)
DESCRIPTION: CONTACT, SOCKET, ROCKSOLID, SIZE 16
AWG RANGE: 20AWG
MATERIAL: COPPER ALLOY
PLATING: GOLD
CONTACT GENERAL DATA SPECIFICATION: S2-15217
AVAILABLE CRIMPERS: CA-5D12 & CA-5E12
CRIMPER SPECIFICATIONS: S2-15219 & S2-15220
CRIMP INFORMATION DRAWING: S2-15218



REVISIONS		DESCRIPTION	DATE	BY	APPR
REV	ZONE	ECO	RELEASE NUMBER 016571	B.D.B.	M.R.F.
A1	-	-			



SINE PART NUMBER	MFX-3950
DEUTSCH PART NUMBER	DCT16-02-00
TYCO PART NUMBER	1-3-1385344-1, 2, 3, 4, 5 & 7



SINE PART NUMBER	MFX-3953
DEUTSCH PART NUMBER	DCT1620-02-00

ALL REFERENCES TO DEUTSCH PRODUCTS OR SPECIFICATIONS ARE FOR COMPARISON PURPOSES ONLY, AND REFER TO DEUTSCH INDUSTRIAL PRODUCTS.
 ALL REFERENCES TO TYCO PRODUCTS OR SPECIFICATIONS ARE FOR COMPARISON PURPOSES ONLY, AND REFER TO TYCO ELECTRONICS.

QUANTITY **PART NUMBER** **DESCRIPTION** **ITEM**

UNLESS OTHERWISE SPECIFIED		SIGNATURES		DATE	
1) All dimensions are in inches.		DESIGN:	BERNIM	6/9/09	MATERIALS LIST SINE Systems Corporation A Subsidiary of Amphenol Corporation 44724 Moley Drive Clinton Township, MI 48036 CRIMPER INFORMATION MFX-3950 & MFX-3953
2) Reference Standards Per:		CHECKED:	FOUC	6/9/09	
3) Production Standards Per:		ENGINEER:	BERNIM	6/9/09	
4) Misc:	SS-20020	APPROVAL:	BERNIM	6/9/09	
MATERIAL SPECIFICATIONS:		CUSTOMER:			
PROCESS SPECIFICATIONS:	NA	THE USE OF THIS DRAWING IS LIMITED TO THE SPECIFIC APPLICATIONS, MATERIALS, AND PERFORMANCE SPECIFICATIONS AND PERFORMANCE INDICATED THEREON. ALL DIMENSIONS ARE SUBJECT TO NORMAL MANUFACTURING TOLERANCES UNLESS OTHERWISE INDICATED. DOCUMENTS REFERENCED HEREON MAY CONTAIN RESTRICTED RIGHTS DATA.		SIZE: P30d	SCALE: NONE
NEXT ASSY:		APPROVED:			10K44

REF: A1	REV: S2-15224	ITEM:	CRIMPER INFORMATION
SHEET:	1 OF 1	SIZE:	A1

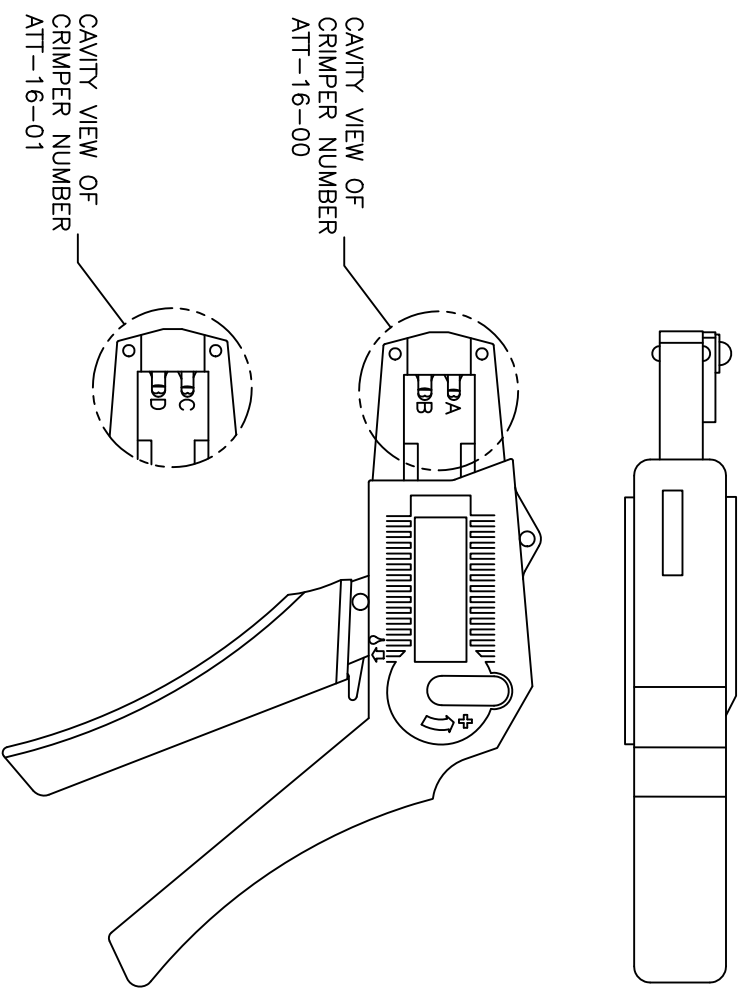
REVISIONS					
REV	ECO	DESCRIPTION	DATE	BY	APPR
A1	-	RELEASE NUMBER 016571	6/12/09	B.D.B.	M.R.F.

USE CRIMPER NUMBER:
ATT-16-00 WITH CAVITY A & B

CONTACT P/N:	INSULATION ϕ	CAVITY	WIRE SIZE
AT60-16-01**	.075 - .140	B	1.5mm ²
AT62-16-01**	[1.91 - 3.56]	A	16AWG
		A	1.0mm ²
AT60-14-01**	.095 - .150	B	14AWG
AT62-14-01**	[2.41 - 3.81]	B	2.0mm ²
		B	1.5mm ²
		A	1.5mm ²
		A	16AWG
		A	1.0mm ²
AT60-16-06**	.055 - .100	A	16AWG
AT62-16-06**	[1.40 - 2.54]	A	1.0mm ²

USE CRIMPER NUMBER:
ATT-16-01 WITH CAVITY C & D

CONTACT P/N:	INSULATION ϕ	CAVITY	WIRE SIZE
AT60-16-01**	.075 - .140	D	18AWG
AT62-16-01**	[1.91 - 3.56]	D	.75mm ²
AT60-16-06**	.055 - .100	D	18AWG
AT62-16-06**	[1.40 - 2.54]	D	.75mm ²
		C	.50mm ²



ALL REFERENCES TO DEUTSCH PRODUCTS OR SPECIFICATIONS ARE FOR COMPARISON PURPOSES ONLY, AND REFER TO DEUTSCH INDUSTRIAL PRODUCTS.

- NOTES (UNLESS OTHERWISE SPECIFIED):
- ALL DIMENSIONS IN INCHES [MILLIMETERS]
 - FOR PLATING CODES ** SEE CONTACT DATA DRAWINGS.
 - THIS TOOL IS FOR CRIMPING SIZE 16 CONTACTS ONLY TO WIRES LISTED IN THE CHARTS.
 - DEUTSCH IPD CROSS REFERENCE PART NUMBERS ARE DTT-16-00 AND DTT-16-01.

QUANTITY	PART NUMBER	DESCRIPTION	ITER#
		MATERIALS LIST	
		SINE Systems Corporation	
		A Subsidiary of Amphenol Corporation	
		44724 Morley Drive	
		Clifton Township, NJ 08036	
		INSTRUCTIONS: ATT-16-00 & 01	
		CRIMPER, HAND, STAMPED CONTACTS	
		SIZE: PCD# NODWG NO:	REVISION
		B 16K44	A1
		SCALE: NONE	
		S2-15223	
		SHEET 1 OF 1	

REV ZONE		ECO	DESCRIPTION	DATE	BY	APP
AT	-	-	RELEASE NUMBER 016871	6/12/09	B.D.B.	M.F.F.

STAMPED CONTACT PART NUMBER 106=PIN 106=SOCKET	SIZE	CONDUCTOR WIRE SIZE	CRIMP HEIGHT	CRIMP WIDTH	CONDUCTOR PUNCH NUMBER	CONDUCTOR ANVIL NUMBER	CRIMP TENSILE REFERENCE
AT80-14-011x AT82-14-011x INSULATION RANGE 0.095-0.150(2.41-3.81)	16	14 AWG 2.00mm ² 1.50mm ² 16 AWG 1.00mm ² 18 AWG 0.75mm ²	0.055(1.40) 0.051(1.40) 0.051(1.29) 0.050(1.27) 0.049(1.24) 0.048(1.22)	±0.003 NCH ±0.08 mm	AT17-002-0200	AT17-101-0200	28(111)
AT60-16-011x AT62-16-011x INSULATION RANGE 0.075-0.140(1.91-3.56)	16	14 AWG 2.00mm ² 1.50mm ² 16 AWG 1.00mm ² 18 AWG 0.75mm ²	0.051(1.40) 0.051(1.40) 0.051(1.29) 0.050(1.27) 0.049(1.24) 0.048(1.22)		AT17-002-0200	AT17-101-0200	28(111)
AT60-16-066x INSULATION RANGE 0.055-0.100(1.40-2.54)	16	16 AWG 1.00mm ² 0.75mm ² 20 AWG 0.50mm ²	0.050(1.27) 0.050(1.27) 0.048(1.22) 0.045(1.14)		AT17-003-0200	AT17-103-0200	28(111) 15(67)

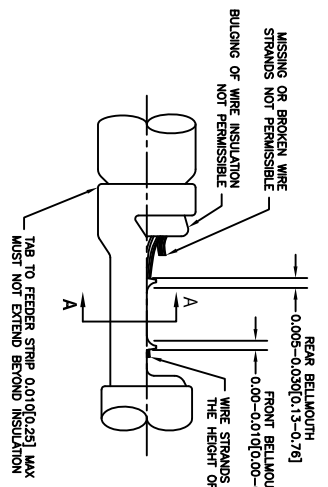
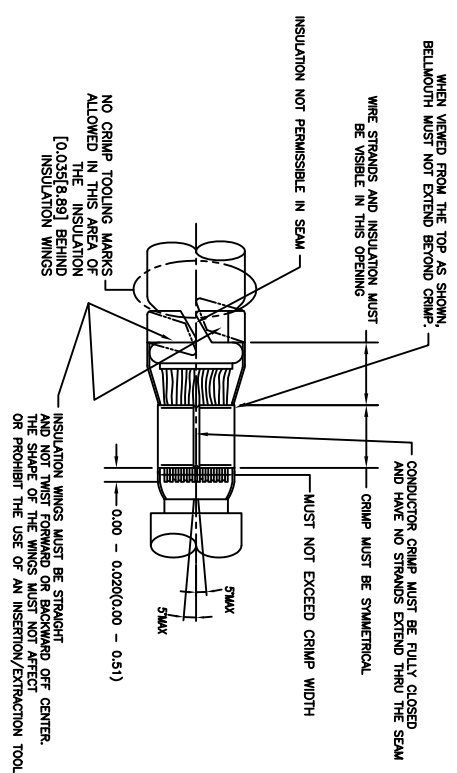
CROSS REFERENCE

SINE PART NUMBER	DEUTSCH PART NUMBER
MX-3950	DC116-02-00
AT17-002-0200	1017-002-0200
AT17-003-0200	1017-003-0200
AT17-101-0200	1017-101-0200
AT17-103-0200	1017-103-0200
AT17-210-0200	1017-210-0200
AT17-211-0200	1017-211-0200
AT17-213-0200	1017-213-0200
AT17-214-0200	1017-214-0200
AT17-217-0200	1017-217-0200
AT17-218-0200	1017-218-0200
AT17-310-0200	1017-310-0200
AT17-311-0200	1017-311-0200
AT17-313-0200	1017-313-0200
AT17-304-0200	1017-304-0200
AT17-317-0200	1017-317-0200

INSULATION DIAMETER RANGE	INSULATION PUNCH NUMBER	INSULATION ANVIL NUMBER
0.120-0.150 [3.05-3.81]	AT17-210-0200	AT17-310-0200
0.105-0.125 [2.67-3.18]	AT17-211-0200	AT17-311-0200
0.085-0.111 [2.16-2.82]	AT17-213-0200	AT17-313-0200
0.075-0.105 [1.91-2.67]	AT17-214-0200	AT17-304-0200
0.065-0.094 [1.62-2.39]	AT17-217-0200	AT17-317-0200
0.050-0.075 [1.27-1.91]	AT17-218-0200	AT17-318-0200

NOTES: UNLESS OTHERWISE SPECIFIED

- ALL DIMENSIONS ARE IN INCHES(mm).
- FORCES ARE IN POUNDS(LBS) AND NEWTONS(N).
- "X"= PLATING SUFFIX. SEE INDIVIDUAL CONTACT DRAWING.
- WIRE STRIP LENGTH: 0.175±0.029(4.45±0.74). BROKEN OR MISSING CONDUCTOR STRANDS ARE NOT ACCEPTABLE.
- USE A BLADE MICROMETER (0.100(2.54) MIN APPLICABLE) TO MEASURE THE CONDUCTOR CRIMP. SEE SECTION AA.
- CRIMP TENSILE STRENGTH IS DETERMINED AT A PULL RATE SPEED OF 1.00 INCH(2.54) PER MINUTE. INSULATION WINGS ARE REMOVED FOR TEST. ACTUAL CRIMP TENSILE STRENGTH DEPENDS ON WIRE/CONDUCTOR SIZE. VALUES ON THIS SPECIFICATION ARE FOR REFERENCE ONLY.
- INSULATION DIAMETER RANGE IS DETERMINED BY CONNECTOR AND ITS WIRE SEAL SIZE. SEE CONNECTOR DRAWING FOR INSULATION RANGE.
- INSULATION CRIMP DIAMETER SHOULD BE THE EQUAL OR LESS THAN THE DIAMETER OF THE WIRE INSULATION (HARD OR TEFION INSULATION MAY BE AN EXCEPTION). INSULATION CRIMP SHALL NOT AFFECT REMOVAL TOOL PERFORMANCE AND SHALL NOT DAMAGE CONNECTOR BROWNEI SEAL.
- CONDUCTOR TYPE ARE PER SAE J1128(AWG) AND ISO 6122(METRIC)
- FOR CONTACT MATERIAL AND PERFORMANCE DATA. SEE DRAWING S2-15217.
- REFER TO S2-15223 AND S2-15224 AND CROSS REFERENCE CHARTS FOR CRIMP TOOL DATA.



ALL REFERENCES TO DEUTSCH PRODUCTS OR SPECIFICATIONS ARE FOR COMPARISON PURPOSES ONLY, AND REFER TO DEUTSCH INDUSTRIAL PRODUCTS.

QUANTITY	PART NUMBER	MATERIALS LIST	DESCRIPTION	ITEM
UNLESS OTHERWISE SPECIFIED				
1) All dimensions are in inches.				
2) For SAE 30304 and 30404 use 31/64.				
3) For SAE 30303 and 30403 use 3/16.				
4) For SAE 30302 and 30402 use 3/16.				
5) Reduction Standard Per: ENGINEER: BERNIM DATE: 6/8/09				
APPROVAL: APPROVAL: BERNIM DATE: 6/8/09				
MATERIAL SPECIFICATIONS: N/A				
PROCESS SPECIFICATIONS:				
THE USE OF THIS DRAWING IS SPECIFIC TO THE DESIGN AND PERFORMANCE OF THE PART. ANY CHANGE TO THE DESIGN OR PERFORMANCE OF THE PART WITHOUT THE WRITTEN APPROVAL OF AMPHENOL CORP. IS PROHIBITED. ALL DIMENSIONS ARE SUBJECT TO REMOVAL DOCUMENTS REFERENCED HEREON UNLESS OTHERWISE NOTED.				
SIZE: (FSCAL) (M) (IMP) (M)		SCALE: NONE		
C 10K44		S2-15222		
SHEET 1 OF 1		REVISION: A1		

SINE SYSTEMS CORPORATION
A Subsidiary of Amphenol Corporation
44724 Moley Drive
Clinton Township, MI 48036

CRIMP DATA, STAMPED CONTACTS FOR CRIMPER MFX-3950

REVISIONS			
REV	ZONE	ECO	DESCRIPTION
A1	-	-	RELEASE NUMBER 016971
			DATE 6/12/09
			BY B.O.B.
			APP. M.F.F.

STAMPED CONTACT PART NUMBER (1009=PIN 1009=SOCKET)	SIZE	CONDUCTOR WIRE SIZE	CRIMP HEIGHT +0.001/-0.002 INCH (+0.025/-0.05 mm)	CRIMP WIDTH ±0.003 INCH (±0.08 mm)	CONDUCTOR PUNCH NUMBER	CONDUCTOR ANVIL NUMBER	CRIMP TENSILE REFERENCE (LBS/IN)
A160-14-011x A162-14-011x INSULATION RANGE 0.095-0.150(2.41-3.81)	16	14 AWG 2.00mm ² 1.50mm ² 16 AWG 1.00mm ² 18 AWG 0.75mm ²	0.0591(1.40) 0.0551(1.40) 0.0531(1.35) 0.0501(1.27) 0.0481(1.21) 0.0461(1.17)	0.094(2.39) 0.084(2.39) 0.094(2.39) 0.084(2.39) 0.084(2.39) 0.084(2.39)		A117-4083-0200 A117-183-0200	291(111)
A160-16-011x A162-16-011x INSULATION RANGE 0.075-0.140(1.91-3.59)	16	16 AWG 1.00mm ² 18 AWG 0.75mm ²	0.0591(1.40) 0.0551(1.40) 0.0531(1.35) 0.0501(1.27)	0.094(2.39) 0.084(2.39) 0.094(2.39) 0.084(2.39)		A117-4083-0200 A117-183-0200	291(111)
A160-16-066x A162-16-066x INSULATION RANGE 0.055-0.100(1.40-2.54)	16	16 AWG 1.00mm ² 0.75mm ² 20 AWG 0.50mm ²	0.0591(1.40) 0.0591(1.40) 0.0481(1.21) 0.0481(1.21) 0.0461(1.17)	0.094(2.39) 0.094(2.39) 0.079(2.01) 0.079(2.01) 0.079(2.01)		A117-4082-0200 A117-182-0200	291(111) 19(67)

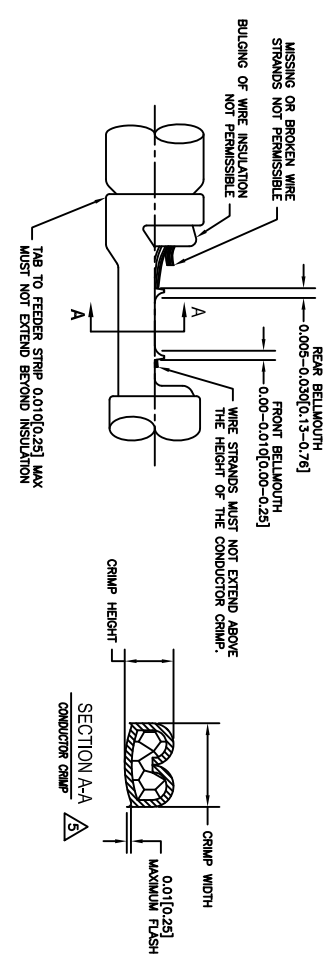
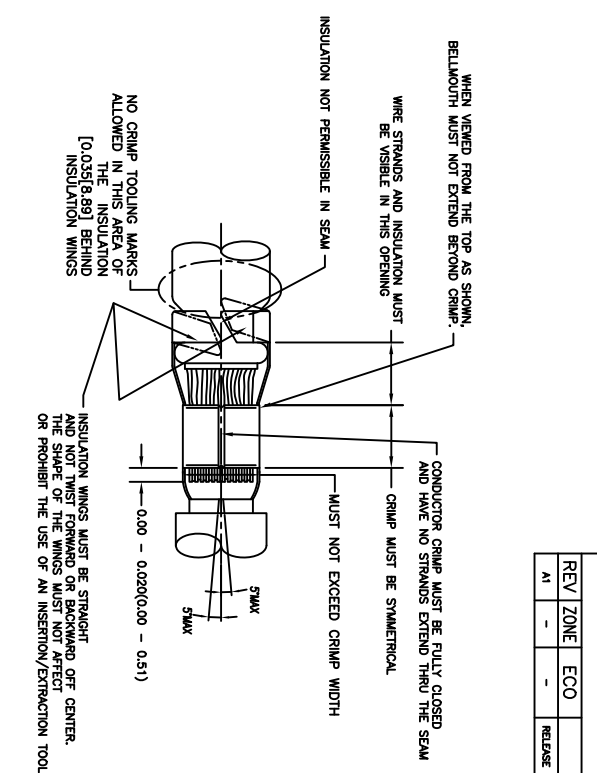
CROSS REFERENCE

INSULATION DIAMETER RANGE	INSULATION PUNCH NUMBER	INSULATION ANVIL NUMBER
0.120-0.150 [3.05-3.81]	A117-225-0200	A117-326-0200
0.105-0.125 [2.67-3.18]	A117-226-0200	A117-326-0200
0.085-0.111 [2.16-2.82]	A117-227-0200	A117-327-0200
0.075-0.105 [1.91-2.67]	A117-228-0200	A117-328-0200
0.063-0.094 [1.62-2.39]	A117-229-0200	A117-328-0200
0.050-0.075 [1.27-1.91]	A117-230-0200	A117-330-0200

SINE PART NUMBER	DEUTSCH PART NUMBER
MPX-3953	DCT1620-02-00
A117-083-0200	1017-083-0200
A117-082-0200	1017-082-0200
A117-183-0200	1017-183-0200
A117-182-0200	1017-182-0200
A117-225-0200	1017-225-0200
A117-226-0200	1017-226-0200
A117-227-0200	1017-227-0200
A117-228-0200	1017-228-0200
A117-229-0200	1017-229-0200
A117-230-0200	1017-230-0200
A117-325-0200	1017-325-0200
A117-326-0200	1017-326-0200
A117-327-0200	1017-327-0200
A117-328-0200	1017-328-0200
A117-329-0200	1017-329-0200
A117-330-0200	1017-330-0200

NOTES: UNLESS OTHERWISE SPECIFIED

1. ALL DIMENSIONS ARE IN INCHES(mm).
2. FORCES ARE IN POUNDS(LBS) AND NEWTONS(N).
3. "X"= PLATING SUFFIX. SEE INDIVIDUAL CONTACT DRAWING.
4. WIRE STRIP LENGTH: 0.175±0.029(4.45±0.74). BROKEN OR MISSING CONDUCTOR STRANDS ARE NOT ACCEPTABLE.
5. USE A BLADE MICROMETER (0.100[2.54] MIN SPINDLE AND 0.060[0.010][1.50][0.040] ANVIL) TO MEASURE THE CONDUCTOR CRIMP. SEE SECTION AA.
6. CRIMP TENSILE STRENGTH IS DETERMINED AT A PULL RATE SPEED OF 1.00 INCH(2.54) PER MINUTE. INSULATION WINGS ARE REMOVED FOR TEST. ACTUAL CRIMP TENSILE STRENGTH DEPENDS ON WIRE/CONDUCTOR SIZE. VALUES ON THIS SPECIFICATION ARE FOR REFERENCE ONLY.
7. INSULATION DIAMETER RANGE IS DETERMINED BY CONNECTOR AND ITS WIRE SEAL SIZE. SEE CONNECTOR DRAWING FOR INSULATION RANGE.
8. INSULATION CRIMP DIAMETER SHOULD BE THE EQUAL OR LESS THAN THE DIAMETER OF THE WIRE INSULATION (HARD OR TEFLON INSULATION MAY BE AN EXCEPTION). INSULATION CRIMP SHALL NOT AFFECT REMOVAL TOOL PERFORMANCE AND SHALL NOT DAMAGE CONNECTOR GROMMET SEAL.
9. CONDUCTOR TYPE ARE PER SAE J1128(AWG) AND ISO 6122(METRIC)
10. FOR CONTACT MATERIAL AND PERFORMANCE DATA, SEE DRAWING S2-15217.
11. REFER TO S2-15223 AND S2-15224 AND CROSS REFERENCE CHARTS FOR CRIMP TOOL DATA.



ALL REFERENCES TO DEUTSCH PRODUCTS OR SPECIFICATIONS ARE FOR COMPARISON PURPOSES ONLY, AND REFER TO DEUTSCH INDUSTRIAL PRODUCTS.

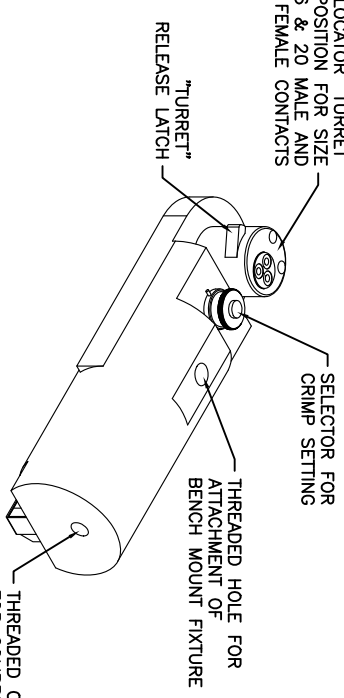
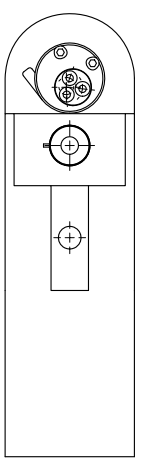
QUANTITY	PART NUMBER	DESCRIPTION	ITEM
MATERIALS LIST			
UNLESS OTHERWISE SPECIFIED			
1) All dimensions are in inches.	SIGNATURES	DATE	
2) 1/8" = 3.175 mm	DRAWN: POTER	4/7/09	
3) 1/16" = 1.575 mm	CHECKED: RONE	6/8/09	
4) 1/32" = 0.7875 mm	ENGINEER: BERNIM		
5) Reduction Standard Per: ASME Y14.5	APPROVAL: BERNIM	6/8/09	
6) Form: S2-20020	CUSTOMER:		
7) Material Specification: NA			
PROCESS SPECIFICATIONS:			
THE USE OF THIS DRAWING IS SUBJECT TO THE TERMS AND CONDITIONS OF THE PURCHASE ORDER. ALL DIMENSIONS ARE SUBJECT TO NORMAL TOLERANCES UNLESS OTHERWISE SPECIFIED. DIMENSIONS REFERRED HEREON MAY BE OBTAINED FROM THE DRAWING.			
CRIMP DATA, STAMPED CONTACTS FOR CRIMPER MPX-3953			
SIZE: TYPICAL NOMINAL DIM.	SCALE: NONE	S2-15221	SHEET 1 OF 1
REVISION	REV: A1	S2-15221	9

CRIMP DATA, STAMPED CONTACTS

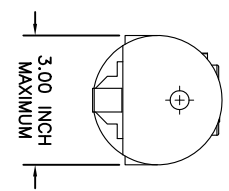
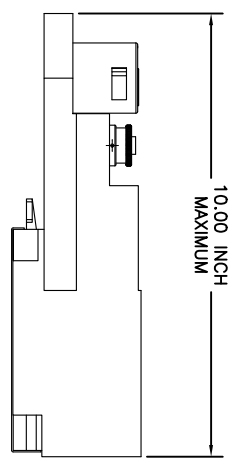
A Subsidiary of Amphenol Corporation
44724 Moley Drive
Clinton Township, MI 48036

REVISONS		DESCRIPTION	DATE	BY	APPR
REV	ZONE	ECO	RELEASE NUMBER 016571	6/12/09	B.D.B.
AI	-	-			M.R.F.

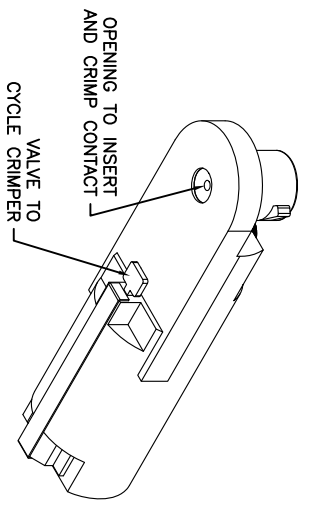
CONTACT LOCATOR "TURRET"
THREE POSITION FOR SIZE
12, 16 & 20 MALE AND
FEMALE CONTACTS



THREADED OPENING
FOR COMPRESSED
AIR FITTING



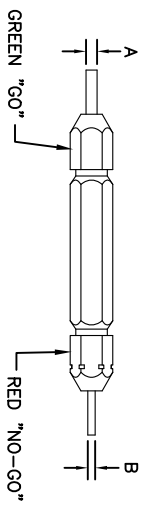
- NOTES:
1. THE CA-5E12 IS A COMPRESSED AIR OPERATED HAND CRIMPER FOR ELECTRICAL CONTACTS. IT IS ADJUSTABLE TO 3 CONTACT SIZES (12, 16 & 20) AND 8 INDENTER CRIMP POSITIONS FOR DIFFERENT WIRE SIZES (12AWG THRU 26 AWG).
 2. 80-120 PSI COMPRESSED AIR.
 3. WEIGHT: 3.1 LBS
 4. SELECTING CONTACT SIZE: PRESS THE RELEASE LATCH ON SIDE OF THE CONTACT LOCATOR "TURRET". ROTATE TO THE DESIRED CONTACT SIZE. THE TOP OF THE "TURRET" IS EMBOSSED WITH THE CONTACT SIZES.
 5. SELECTING WIRE SIZE: GRASP THE SELECTOR AND ROTATE TO THE DESIRED NUMBER.



GAGE PART NO.	A GO DIA.	B NO-GO DIA.	SELECTOR NUMBER
G125	.0390	.0440	4

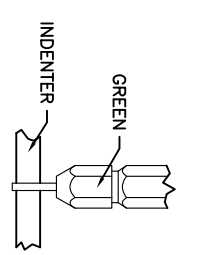
GAGING INSTRUCTIONS

CAUTION!
DO NOT CRIMP GAGE!

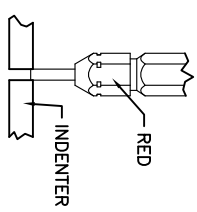


"GO" GAGING: OPERATE TOOL TO FULLY CLOSED POSITION. INSERT "GO" GAGE END AS SHOWN. GAGE MUST PASS FREELY BETWEEN INDENTER TIPS.

"NO-GO" GAGING: OPERATE TOOL TO FULLY CLOSED POSITION. INSERT "NO-GO" GAGE END AS SHOWN. THE "NO-GO" MAY PARTIALLY ENTER THE INDENTER OPENING, BUT MUST NOT PASS COMPLETELY THROUGH THE OPENING.



SELECTOR NUMBER	A GO DIA.	B NO-GO DIA.
1	.0280	.0330
2	.0320	.0370
3	.0360	.0410
4	.0390	.0440
5	.0450	.0500
6	.0520	.0570
7	.0590	.0640
8	.0680	.0730



CONTACT SIZE	LOCATOR "TURRET" POSITION	WIRE COLOR	SELECTOR NUMBER
20-20	RED	1	2
16-22	BLUE	4	5
16-20	BLUE	1	2
16-16	BLUE	4	5
12-16	YELLOW	4	5
12-12	YELLOW		7
			8

MATERIALS LIST

QUANTITY	PART NUMBER	DESCRIPTION	ITEM

UNLESS OTHERWISE SPECIFIED
1) All dimensions are in inches.
2) Pl. DEC 2000
3) Pl. DEC 2000
4) Pl. DEC 2000
5) Pl. DEC 2000
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100) Pl. DEC 2000

PROCESS SPECIFICATIONS:
MATERIAL SPECIFICATIONS:
MA
INSTRUCTIONS FOR CA-5E12
CRIMPER, PNEUMATIC

SIZE: 10K44
SCALE: NONE
S2-15220
SHEET: 1 OF 1

REV ZONE		ECO		REVISIONS		DESCRIPTION	DATE	BY	APPR
AI	-	-	-	RELEASE NUMBER	016571		6/12/09	B.D.B.	M.R.F.

CONTACT LOCATOR
"TURRET"
THREE POSITIONS FOR
SIZE 12, 16 & 20 MALE
AND FEMALE CONTACTS

"TURRET" RELEASE LATCH

6.25 INCH
MAXIMUM
OPEN

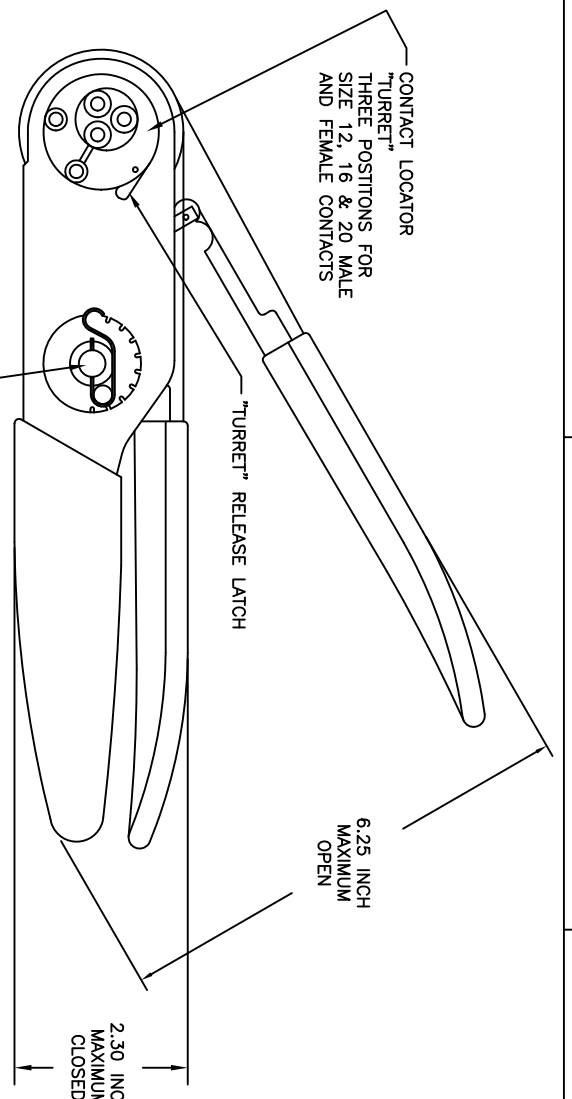
2.30 INCH
MAXIMUM
CLOSED

SELECTOR FOR CRIMP
SETTING

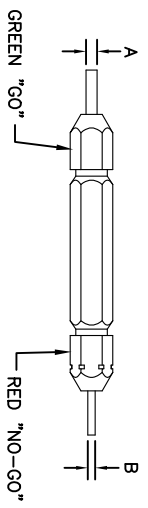
1.125 INCH MAX.

9.75 INCH MAXIMUM

1.00 INCH MAX.



GAGE PART NO.	A GO DIA.	B NO-GO DIA.	SELECTOR NUMBER
G125	.0390	.0440	4

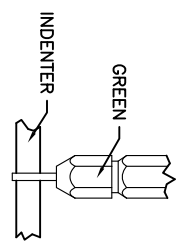


GAGING INSTRUCTIONS

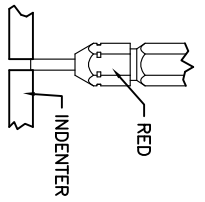
CAUTION!
DO NOT CRIMP GAGE!

"GO" GAGING: OPERATE TOOL TO FULLY CLOSED POSITION. INSERT "GO" GAGE END AS SHOWN. GAGE MUST PASS FREELY BETWEEN INDENTER TIPS.

"NO-GO" GAGING: OPERATE TOOL TO FULLY CLOSED POSITION. INSERT "NO-GO" GAGE END AS SHOWN. THE "NO-GO" MAY PARTIALLY ENTER THE INDENTER OPENING, BUT MUST NOT PASS COMPLETELY THROUGH THE OPENING.



SELECTOR NUMBER	A GO DIA.	B NO-GO DIA.
1	.0280	.0330
2	.0320	.0370
3	.0360	.0410
4	.0390	.0440
5	.0450	.0500
6	.0520	.0570
7	.0590	.0640
8	.0880	.0730



- NOTES:
- THE CA-5D12 IS A HAND OPERATED CRIMPER FOR ELECTRICAL CONTACTS. IT IS ADJUSTABLE TO 3 CONTACT SIZES (12, 16 & 20) AND 8 INDENTER CRIMP POSITIONS FOR DIFFERENT WIRE SIZES (12AWG THRU 26 AWG).
 - WEIGHT: 1.64 LBS
 - SELECTING CONTACT SIZE: PRESS THE RELEASE LATCH ON SIDE OF THE CONTACT LOCATOR "TURRET". ROTATE TO THE DESIRED CONTACT SIZE. THE TOP OF THE "TURRET" IS EMBOSSED WITH THE CONTACT SIZES.
 - SELECTING WIRE SIZE: REMOVE THE LOCKING CLIP. GRASP THE SELECTOR AND ROTATE TO THE DESIRED NUMBER.

CONTACT SIZE	LOCATOR "TURRET" POSITION COLOR	WIRE	AWG	WIRE	AWG	WIRE	AWG	WIRE	AWG	WIRE	AWG
20-20	RED	1	2	3	4						
16-22	BLUE	4	5	6							
16-20	BLUE	1	2	3	4						
16-16	BLUE				4	5	6				
12-16	YELLOW				4	5	6				
12-12	YELLOW						7	8			

QUANTITY	PART NUMBER	DESCRIPTION	ITEM
		MATERIALS LIST	

SINE Systems Corporation
A Subsidiary of Amphenol Corporation
44724 Moley Drive
Canton Township, MI 48036

DATE: 6/3/09
DRAWN: BERNU
CHECKED: NONE
ENGINEER: BERNU
APPROVAL: BERNU 6/3/09

INSTRUCTIONS FOR CA-5D12 CRIMPER, HAND, MACHINED CONTACTS
SIZE: 10K44
SCALE: NONE
S2-15219

UNLESS OTHERWISE SPECIFIED:
1) All dimensions are in inches.
2) Holes are to be reamed.
3) Pl. Sec. 40.00 1 Position 3.1/4"
4) Pl. Sec. 40.00 1 Position 3.1/4"
5) Fabrication Standard: Per: A
6) Heat: S2-20020
7) Material Specification:
8) Material Specification:
9) Material Specification:
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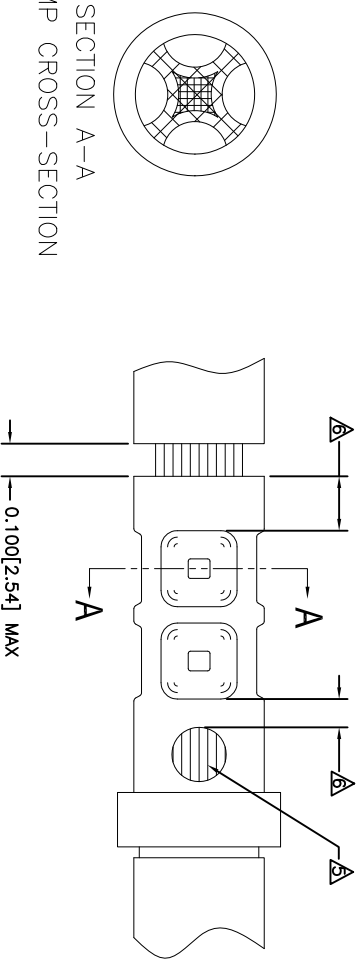
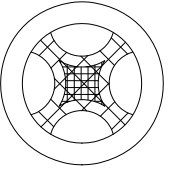
REVISIONS						
REV	ZONE	ECO	DESCRIPTION	DATE	BY	APPR
A1	-	-	RELEASE NUMBER 016571	6/12/09	B.D.B.	M.R.F.

CONTACT P/N	SIZE TYPE	WIRE SIZE	REF. ONLY TENSILE LBS[N]
AT60-202-16XX	16PIN	1.5mm ² 16AWG	35[156]
AT62-201-16XX	16SOC	1.0mm ² 18AWG 0.75mm ² 20AWG	25[111]
		0.50mm ²	20[89]

RECOMMENDED STRIP LENGTH		
CONTACT SIZE	STRIP LENGTH INCH[MM]	
16	0.250-0.312[6.35-7.92]	

CRIMP TOOLING						
CONTACT SIZE	CRIMP TOOL PART NUMBER	CONTACT LOCATOR "TURRET" POSITION	WIRE SELECTOR NUMBER	GO GAGE INCH[MM]	"NOGO" GAGE INCH[MM]	REMARKS
16	CA-5D12 CA-5E12	BLUE	6	0.052[1.32]	0.057[1.45]	
16	CA-5D12 CA-5E12	BLUE	4	0.039[.991]	0.044[1.12]	SIZE 16 WITH 20 AWG WIRE

- NOTES: UNLESS OTHERWISE SPECIFIED**
- 1. MINIMUM +/-0.0005 [0.013] TOLERANCE STEEL GAGE PINS. DO NOT CRIMP GAGE PINS. CLOSE DIE, THEN USE GAGE PINS.
 - 2. WHEN XX=31, CONTACT PLATING IS GOLD.
 - 3. WHEN XX=141, CONTACT PLATING IS NICKEL.
 - 4. PULL RATE OF 1.0 IN [25.4] PER MINUTE. ACTUAL STRENGTH DEPENDS ON WIRE SIZE.
 - 5. FOR CONTACT PERFORMANCE, MATERIAL SPECIFICATIONS AND APPLICATION DETAILS, SEE DRAWING S2-15217.
 - 6. CONDUCTOR STRANDS MUST BE VISIBLE THRU THE INSPECTION HOLE PRIOR TO CRIMP.
 - 7. PROPER CRIMP TOOLING WILL PRODUCE A CRIMP CENTERED BETWEEN THE INSPECTION HOLE AND CRIMP BARREL END.
 - 8. WIRE SIZES PER SAE J1128 AND J1560 [DIN 72551-6] REFERENCE INSTRUCTION MANUALS S2-15219 AND S2-15220 FOR CA-5D12 AND CA-5E12 HAND AND PNEUMATIC CRIMPER.
 - 9. THE CRIMP HEIGHT DIMENSION AFTER CRIMPING MAY VARY FROM THE VALUES LISTED FOR THE "GO-NOGO" PINS.



SECTION A-A
CRIMP CROSS-SECTION

QUANTITY	PART NUMBER	DESCRIPTION	ITEM
UNLESS OTHERWISE SPECIFIED	MATERIALS LIST		
1) All dimensions are in inches.	SIGNATURES		
2) If dimensions are in inches, specify.	DATE	DATE	
3) If dimensions are in millimeters, specify.	ENGINEER: BERNU	6/3/09	6/3/09
4) If dimensions are in millimeters, specify.	CHECKED: TONE	6/3/09	
5) Fabrication Standards Per: SS-20020	APPROVAL: BERNU	6/3/09	
6) If dimensions are in millimeters, specify.	CUSTOMER: MA		
7) If dimensions are in millimeters, specify.			
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100) If dimensions are in millimeters, specify.			

4

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REVOLUTIONS		DESCRIPTION	DATE	BY	APPR
REV	ZONE	ECO	6/12/08	B.D.B.	M.R.F.
AT	-	-	RELEASE NUMBER 016871		

SOLID CONTACT SIZE	SOLID CONTACT PART NUMBERS		WIRE SIZE AVG (mm ²)	RECOMMENDED STRIP LENGTH INCH (mm)	MIN CONTACT RETENTION LBS (N)	REF CRIMP TENSILE LBS (N)	MAX RATED AMPS @ 125°C CONTINUOUS
	PIN	SOCKET					
16	AT60-202-16**	AT62-201-16**	16-20 [1.5-0.5]	0.25-0.31 [6.35-7.92]	25 [1111]	35-20 [156-89]	13

S&P CONTACT SIZE	STAMPED CONTACT PART NUMBERS		WIRE SIZE AVG (mm ²)	WIRE INSULATION O.D. RANGE	RECOMMENDED STRIP LENGTH INCH (mm)	MIN CONTACT RETENTION LBS (N)	REF CRIMP TENSILE LBS (N)	MAX RATED AMPS @ 125°C CONTINUOUS
	PIN	SOCKET						
16	AT60-14-01**	AT62-14-01**	14-16 [2.0-1.0]	.100 - .150 [2.54 - 3.81]	0.150-0.200 [3.81-5.08]	25 [1111]	25 [1111]	13
16	AT60-16-01**	AT62-16-01**	16-18 [1.0-0.75]	.075 - .100 [1.90 - 2.54]	0.150-0.200 [3.81-5.08]	25 [1111]	25 [1111]	13
16	AT60-16-06**	AT62-16-06**	18-20 [0.75-0.50]	.055 - .095 [1.40 - 2.41]	0.150-0.200 [3.81-5.08]	25 [1111]	25-15 [111+67]	13

CONTACT RESISTANCE STRENGTH (LESS DROP THROUGH WIRE)			
WIRE AWG	TEST CURRENT	MILLIVOLT DROP SOLID	MILLIVOLT DROP S&P
14	18	60	100
16	13	60	100
18	10	60	100
20	7.5	60	100

MATERIAL SPECIFICATION AND PLATING ** CODES	
PIN: COPPER ALLOY	SOCKET: COPPER ALLOY WITH STAINLESS STEEL SLEEVE
SOLID MACHINED CONTACT PLATING OPTIONS: Δ 31= GOLD* 141= NICKEL	
STAMPED CONTACT PLATING OPTIONS: Δ 22= NICKEL 44= GOLD* 89= SELECTIVE GOLD*	
GOLD* PLATING IS AVAILABLE (RECOMMENDED) FOR ONLY (<5V) CIRCUIT APPLICATIONS MATERIALS AND PLATINGS ARE ROHS COMPLIANT	

NOTES: UNLESS OTHERWISE SPECIFIED

1. ALL DIMENSIONS ARE INCHES(MM).
2. ALL FORCES ARE IN LBS(POUNDS) AND "N" (NEWTONS).
3. CONTACT RETENTION TEST PULL RATE SHALL BE 1.0 INCH(25.4) PER MINUTE MAXIMUM. WIRE SIZE WILL AFFECT THE TRUE STRENGTH OF THE CRIMP.
4. WIRE SIZES AND INSULATION RANGES ARE FOR REFERENCE ONLY. THE ACTUAL INSULATION RANGE DEPENDS ON CONNECTOR GROMMET SEALING SIZE.

SEE SPECIFICATIONS LISTED BELOW FOR INDIVIDUAL CRIMP INFORMATION:

"SOLID" CONTACTS	SIZE	"STAMPED" CONTACTS	SIZE
	S2-15218	S2-15222	16
		S2-15221	16/20

- Δ MAXIMUM RATED CURRENT IN CHART DEPENDS ON CONTACT SIZE. ACTUAL RATED CURRENT DEPENDS ON WIRE SIZE.
- Δ CONTACT FACTORY FOR ALL AVAILABLE PLATING ON SPECIFIC CONTACTS.
- Δ AMPHENOL SINE PERFORMANCE SPECIFICATIONS REQUIRE THE USE OF AMPHENOL SINE APPROVED TOOLING.

QUANTITY	PART NUMBER	DESCRIPTION	ITEM
MATERIALS LIST			
UNLESS OTHERWISE SPECIFIED		SIGNATURES	
1) All dimensions are in inches.		DATE	
2) Pl. SEE 30.00		ORDERED: RORR 4/5/09	
3) Pl. SEE 30.01		ORDERED: RORR 6/3/09	
4) Pl. SEE 30.02		ENGINEER: BERNI 6/3/09	
5) Fabrication Standards Per: SS-20020		APPROVAL: BERNI 6/3/09	
6) Material Specifications:		CUSTOMER: A	
7) Material Specifications:		APPROVAL: BERNI 6/3/09	
8) Material Specifications:		CUSTOMER: A	
9) Material Specifications:		APPROVAL: BERNI 6/3/09	
10) Material Specifications:		CUSTOMER: A	
11) Material Specifications:		APPROVAL: BERNI 6/3/09	
12) Material Specifications:		CUSTOMER: A	
13) Material Specifications:		APPROVAL: BERNI 6/3/09	
14) Material Specifications:		CUSTOMER: A	
15) Material Specifications:		APPROVAL: BERNI 6/3/09	
16) Material Specifications:		CUSTOMER: A	
17) Material Specifications:		APPROVAL: BERNI 6/3/09	
18) Material Specifications:		CUSTOMER: A	
19) Material Specifications:		APPROVAL: BERNI 6/3/09	
20) Material Specifications:		CUSTOMER: A	
21) Material Specifications:		APPROVAL: BERNI 6/3/09	
22) Material Specifications:		CUSTOMER: A	
23) Material Specifications:		APPROVAL: BERNI 6/3/09	
24) Material Specifications:		CUSTOMER: A	
25) Material Specifications:		APPROVAL: BERNI 6/3/09	
26) Material Specifications:		CUSTOMER: A	
27) Material Specifications:		APPROVAL: BERNI 6/3/09	
28) Material Specifications:		CUSTOMER: A	
29) Material Specifications:		APPROVAL: BERNI 6/3/09	
30) Material Specifications:		CUSTOMER: A	
31) Material Specifications:		APPROVAL: BERNI 6/3/09	
32) Material Specifications:		CUSTOMER: A	
33) Material Specifications:		APPROVAL: BERNI 6/3/09	
34) Material Specifications:		CUSTOMER: A	
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96) Material Specifications:		CUSTOMER: A	
97) Material Specifications:		APPROVAL: BERNI 6/3/09	
98) Material Specifications:		CUSTOMER: A	
99) Material Specifications:		APPROVAL: BERNI 6/3/09	
100) Material Specifications:		CUSTOMER: A	

SINE Systems Corporation
A Subsidiary of Amphenol Corporation
44724 Moley Drive
Clinton Township, MI 48036

GENERAL DATA, CONTACTS STAMPED AND FORMED / MACHINED

SIZE: Pcs/lot 10000
SCALE: NONE
C 10K44
S2-15217
SHEET 1 OF 1