

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)

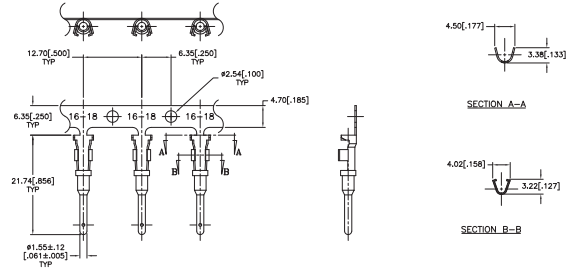


STAMPED AND FORMED CONTACTS, PG 2 of 2

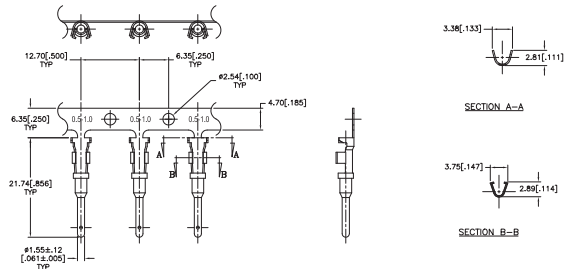
Click on [blue underlined part numbers](#) to be taken to their spec sheets.

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)



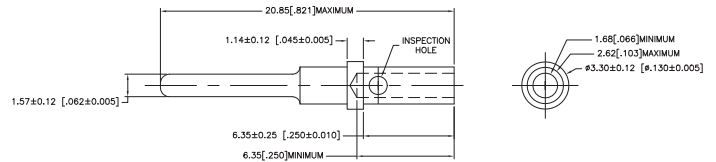
SOLID/MACHINED CONTACTS

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

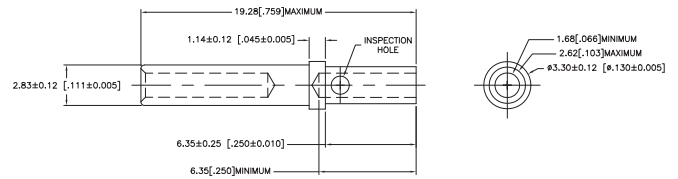
OPTIONS

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

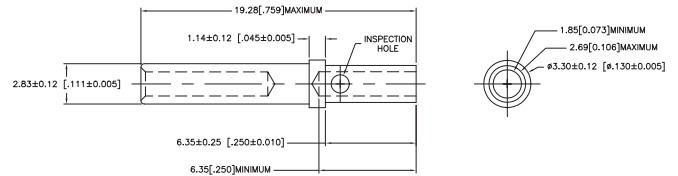


PART NUMBER: [AT62-201-16XX](#)
DESCRIPTION: CONTACT, SOCKET, SOLID MACHINED, SIZE 16
MATERIAL:
 CONTACT BODY: COPPER ALLOY
 HOOD: STAINLESS STEEL
PLATING SUFFIX CODE:
 XX=141 NICKEL PLATING
 XX=31 GOLD PLATING
CONTACT GENERAL DATA SPECIFICATION: S2-15217
AVAILABLE CRIMPERS: CA-5D12 & CA-5E12
CRIMPER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

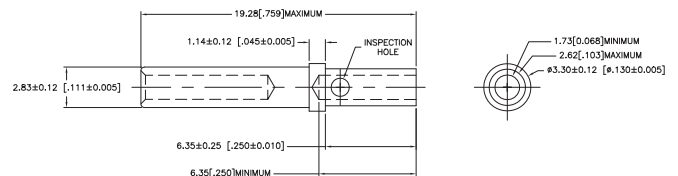


ROCKSOLID™ CONTACTS

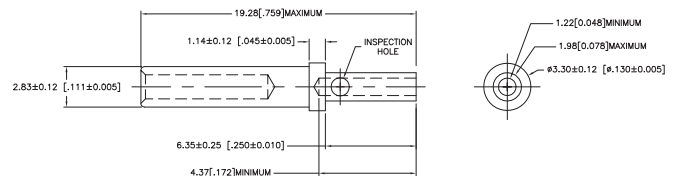
PART NUMBER: [65-54942-14](#)
DESCRIPTION: CONTACT, SOCKET, ROCKSOLID, SIZE 16
AWG RANGE: 14AWG
MATERIAL: COPPER ALLOY
PLATING: GOLD
CONTACT GENERAL DATA SPECIFICATION: S2-15217
AVAILABLE CRIMPERS: CA-5D12 & CA-5E12
CRIMPER SPECIFICATIONS: S2-15219 & S2-15220
CRIMP INFORMATION DRAWING: S2-15218



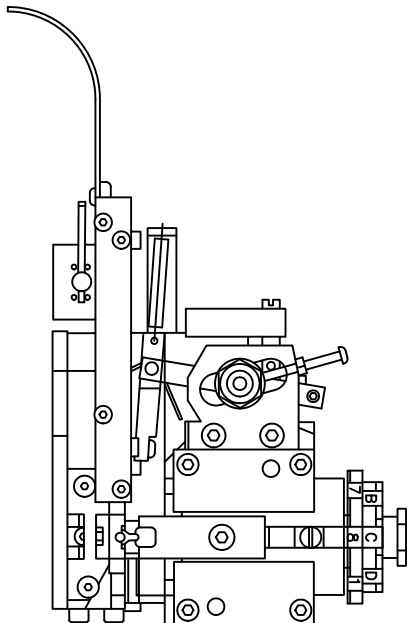
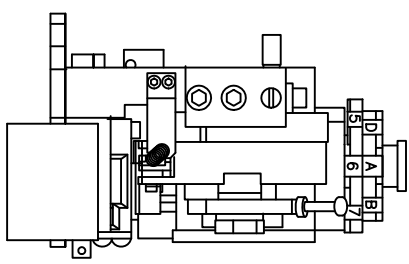
PART NUMBER: [65-54942-16](#)
DESCRIPTION: CONTACT, SOCKET, ROCKSOLID, SIZE 16
AWG RANGE: 16AWG
MATERIAL: COPPER ALLOY
PLATING: GOLD
CONTACT GENERAL DATA SPECIFICATION: S2-15217
AVAILABLE CRIMPERS: CA-5D12 & CA-5E12
CRIMPER SPECIFICATIONS: S2-15219 & S2-15220
CRIMP INFORMATION DRAWING: S2-15218



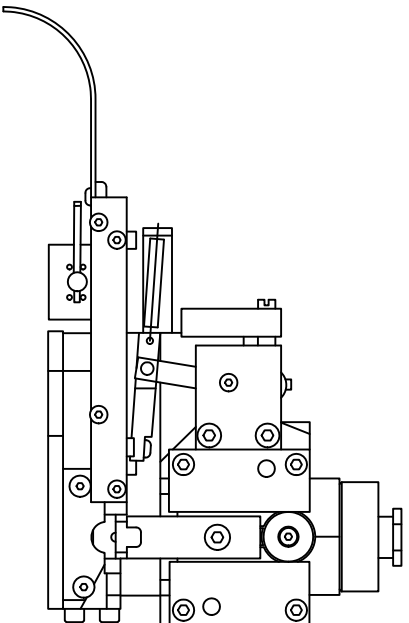
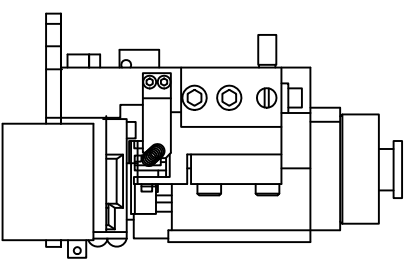
PART NUMBER: [65-54942-20](#)
DESCRIPTION: CONTACT, SOCKET, ROCKSOLID, SIZE 16
AWG RANGE: 20AWG
MATERIAL: COPPER ALLOY
PLATING: GOLD
CONTACT GENERAL DATA SPECIFICATION: S2-15217
AVAILABLE CRIMPERS: CA-5D12 & CA-5E12
CRIMPER SPECIFICATIONS: S2-15219 & S2-15220
CRIMP INFORMATION DRAWING: S2-15218



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



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
	MATERIALS LIST		
UNLESS OTHERWISE SPECIFIED			
1) All dimensions are in inches.			
2) For hole diameters, tolerance is ± 0.0015 .			
3) For hole diameters, tolerance is ± 0.0015 .			
4) For hole diameters, tolerance is ± 0.0015 .			
5) Fabrication Standards Per: SS-20020			
6) Heat Treatment: N/A			
7) Material Specifications: N/A			
PROCESS SPECIFICATIONS:			
N/A			
THE USE OF THIS DRAWING IS LIMITED TO THE SPECIFICATIONS AND PERFORMANCE DATA THEREON. NO WARRANTIES ARE MADE BY TYCO ELECTRONICS, INC. OR ANY OF ITS SUBSIDIARIES. ALL DIMENSIONS ARE SUBJECT TO NORMAL VARIATIONS. REVISED EDITIONS WILL BE INDICATED BY A REVISION SYMBOL.			
SIGNATURES		DATE	
DESIGNED: BERNI	6/9/09		
CHECKED: ROUC	6/9/09		
ENGINEER: BERNI			
APPROVAL: BERNI	6/9/09		
CUSTOMER:		CRIMPER INFORMATION	
M/FX-3950 & M/FX-3953		S2-15224	
SIZE (FSCAL) NOTED ON:		S2-15224	
SCALE: NONE		SHEET 1 OF 1	

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

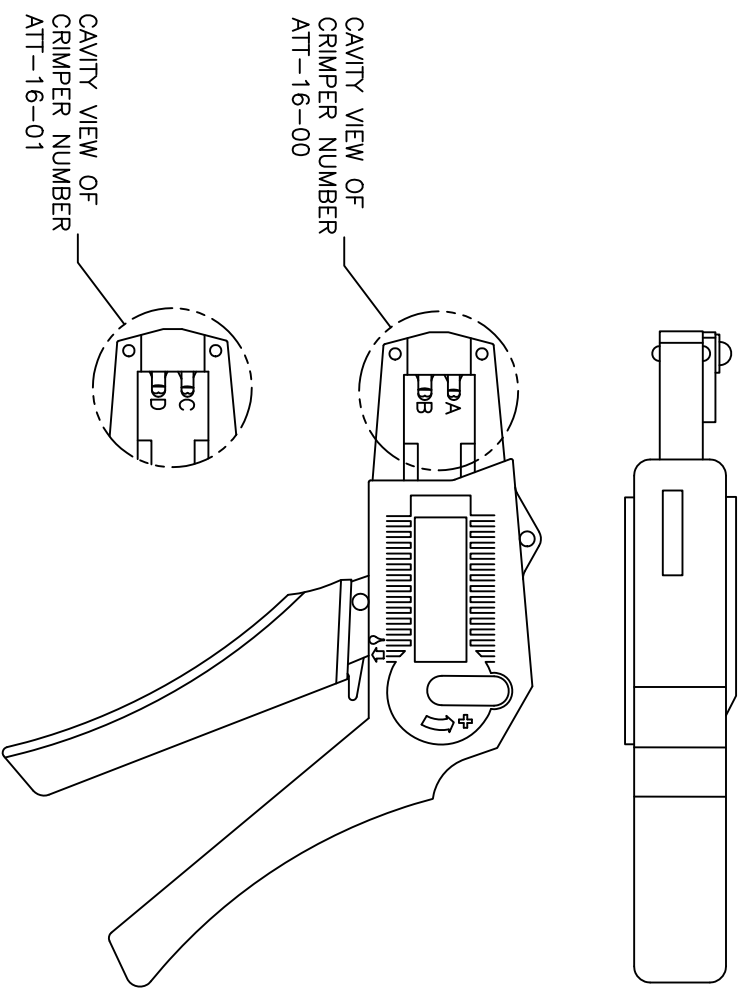
REVISIONS					
REV	ECO	DESCRIPTION	DATE	BY	APPR
A1	-	RELEASE NUMBER 016571	6/12/09	B.D.B.	M.R.F.

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# N01DWS NC#	REVISION
		B 16K44	A1
		SCALE: NONE	
		S2-15223	
		SHEET 1 OF 1	

REVISIONS						
REV	ZONE	ECO	DESCRIPTION	DATE	BY	APP
A1	-	-	RELEASE NUMBER 016871	6/12/09	B.D.B.	M.F.F.

STAMPED CONTACT PART NUMBER 1062=SOCKET	SIZE	CONDUCTOR WIRE SIZE	CRIMP HEIGHT	CRIMP WIDTH	CONDUCTOR PUNCH NUMBER	CONDUCTOR ANVIL NUMBER	CRIMP TENSILE REFERENCE
A780-14-011x A782-14-011x 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) 0.055(1.40) 0.055(1.39) 0.050(1.27) 0.049(1.24) 0.048(1.22)	±0.003 INCH [±0.08 mm]	AT17-002-0200	AT17-101-0200	28(111)
A780-16-011x A782-16-011x 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	0.055(1.40) 0.055(1.40) 0.051(1.35) 0.050(1.27) 0.049(1.24) 0.048(1.22)	±0.003 INCH [±0.08 mm]	AT17-002-0200	AT17-101-0200	28(111)
A780-18-011x A782-18-011x INSULATION RANGE 0.055-0.100(1.40-2.54)	16	16 AWG 1.00mm ² 18 AWG 0.75mm ² 20 AWG 0.50mm ²	0.050(1.27) 0.049(1.24) 0.048(1.22) 0.048(1.22) 0.045(1.14)	±0.003 INCH [±0.08 mm]	AT17-003-0200	AT17-103-0200	28(111) 15(67)

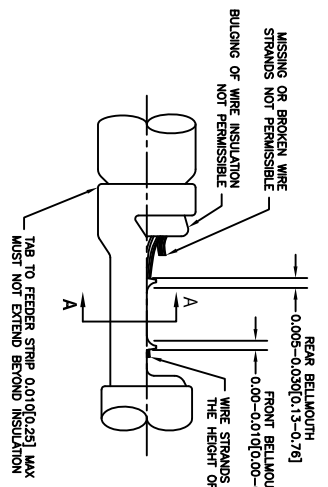
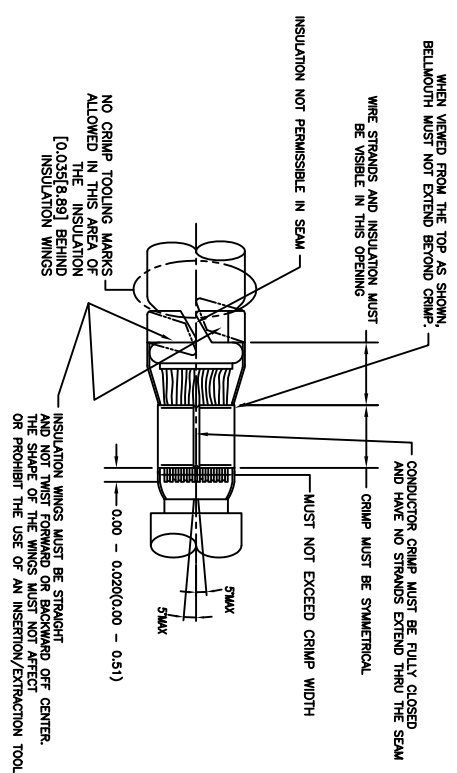
CROSS REFERENCE

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: 0.775±0.029(4.45±0.54). BROKEN OR MISSING CONDUCTOR STRANDS ARE NOT ACCEPTABLE.
- USE A BLADE MICROMETER (0.100(2.54) MIN APERTURE AND 0.060(0.010(1.50)(0.040) ANVIL) TO MEASURE THE CONDUCTOR CRIMP. SEE SECTION AA.
- CRIMP TENSILE STRENGTH IS DETERMINED AT A PULL RATE SPEED OF 1.00 INCH(25.4) 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 6722(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	DESCRIPTION	ITEM
MATERIALS LIST			
UNLESS OTHERWISE SPECIFIED	SIGNATURES	DATE	
1) All dimensions are in inches.	DRAWN: POTER	4/7/09	
2) Pl. DEC 20.00	CHECKED: RONE	6/8/09	
3) Pl. DEC 20.00	ENGINEER: BERLIN	6/8/09	
4) Pl. DEC 20.00	APPROVAL: BERLIN	6/8/09	
5) Production Standard Per: S2-20020	CUSTOMER:		
6) Material Specification: NA			
PROCESS SPECIFICATIONS:	THE USE OF THIS DRAWING IS SPECIFIC TO THE DESIGN AND PERFORMANCE OF THE PART. ANY CHANGE TO THE PART OR DIMENSIONS ARE SUBJECT TO REMOVAL OF THIS DRAWING WITHOUT NOTICE. DOCUMENTS RETAINED HEREON MAY CONTAIN UNCLASSIFIED INFORMATION.		
PROCESS SPECIFICATIONS:	THE USE OF THIS DRAWING IS SPECIFIC TO THE DESIGN AND PERFORMANCE OF THE PART. ANY CHANGE TO THE PART OR DIMENSIONS ARE SUBJECT TO REMOVAL OF THIS DRAWING WITHOUT NOTICE. DOCUMENTS RETAINED HEREON MAY CONTAIN UNCLASSIFIED INFORMATION.		
SIZE: 1/32 INCH (0.762 mm)	SCALE: NONE	S2-15222	SHEET 1 OF 1

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		CRIMP WIDTH		CONDUCTOR PUNCH NUMBER	CONDUCTOR ANVIL NUMBER	CRIMP TENSILE REFERENCE (LBS/IN)
			+0.001/+0.002 INCH (+0.025/+0.05 mm)	-0.003 INCH (-0.08 mm)	±0.013 INCH (±0.08 mm)	±0.013 INCH (±0.08 mm)			
A160-14-011X A162-14-011X INSULATION RANGE 0.095-0.150(2.41-3.81)	16	14 AWG	0.055(1.40)	0.094(2.39)					
		2.00mm ²	0.055(1.40)	0.094(2.39)					
		1.50mm ²	0.053(1.33)	0.094(2.39)					
		16 AWG	0.050(1.27)	0.094(2.39)	A117-083-0200	A117-183-0200	29(111)		
A160-16-011X A162-16-011X INSULATION RANGE 0.075-0.140(1.91-3.59)	16	14 AWG	0.055(1.40)	0.094(2.39)					
		2.00mm ²	0.055(1.40)	0.094(2.39)					
		1.50mm ²	0.053(1.33)	0.094(2.39)					
		16 AWG	0.050(1.27)	0.094(2.39)	A117-083-0200	A117-183-0200	29(111)		
		1.00mm ²	0.050(1.27)	0.094(2.39)					
		18 AWG	0.048(1.24)	0.094(2.39)					
		0.75mm ²	0.048(1.24)	0.094(2.39)					
		16 AWG	0.050(1.27)	0.079(2.01)					
A160-15-069X A162-15-069X INSULATION RANGE 0.055-0.100(1.40-2.54)	16	18 AWG	0.050(1.27)	0.079(2.01)					
		0.75mm ²	0.048(1.24)	0.079(2.01)					
		20 AWG	0.048(1.24)	0.079(2.01)					
		0.50mm ²	0.045(1.14)	0.079(2.01)					

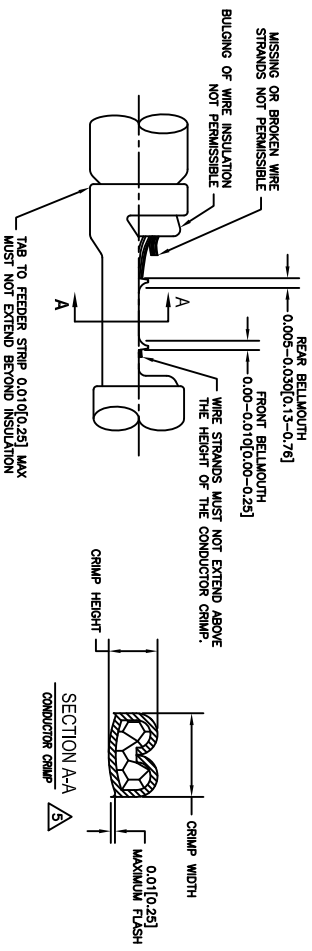
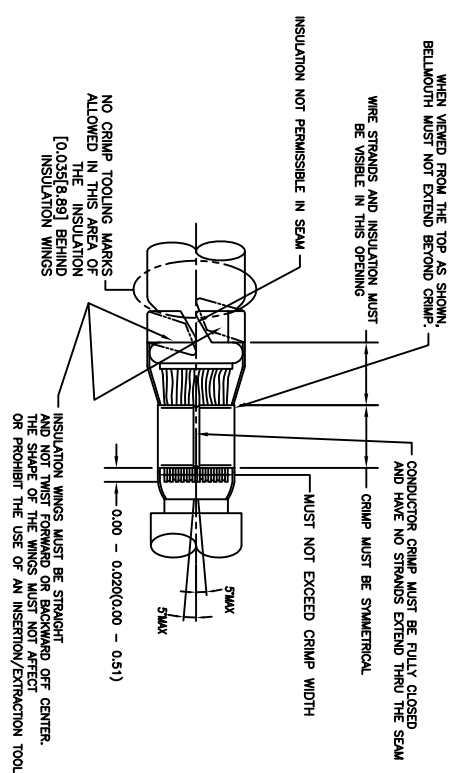
CROSS REFERENCE

INSULATION DIAMETER RANGE	INSULATION PUNCH NUMBER	INSULATION ANVIL NUMBER
0.120-0.150 [3.05-3.81]	A117-225-0200	A117-325-0200
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	A117-329-0200
0.050-0.075 [1.27-1.91]	A117-230-0200	A117-330-0200

SINE PART NUMBER	DEUTSCH PART NUMBER
MFX-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±0.54). 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 6722(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.			
2) Plating: 24 hr. 5000 mg. 1/4" diameter			
3) Plating: 24 hr. 5000 mg. 1/4" diameter			
4) Plating: 24 hr. 5000 mg. 1/4" diameter			
5) Reduction Standards Per: MIL-STD-20020			
6) Material: S2-20020			
7) Material: S2-20020			
8) Material: S2-20020			
9) Material: S2-20020			
10) Material: S2-20020			
11) Material: S2-20020			
12) Material: S2-20020			
13) Material: S2-20020			
14) Material: S2-20020			
15) Material: S2-20020			
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98) Material: S2-20020			
99) Material: S2-20020			
100) Material: S2-20020			

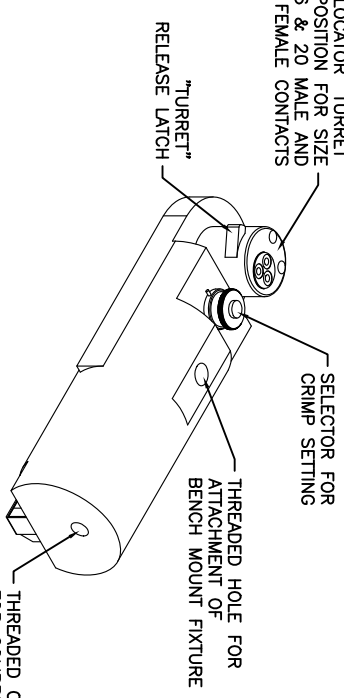
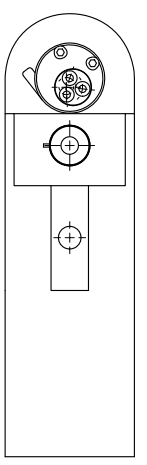
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A Subsidiary of Amphenol Corporation
44724 Moley Drive
Clinton Township, MI 48036

CRIMP DATA, STAMPED CONTACTS FOR CRIMPER MFX-3953

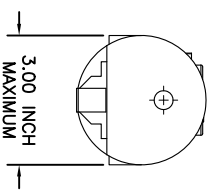
SIZE	SCALE	DATE	BY	APP.
10K44	1:1	6/8/09	B.O.B.	M.F.F.
S2-15221				
SHEET				
1				

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

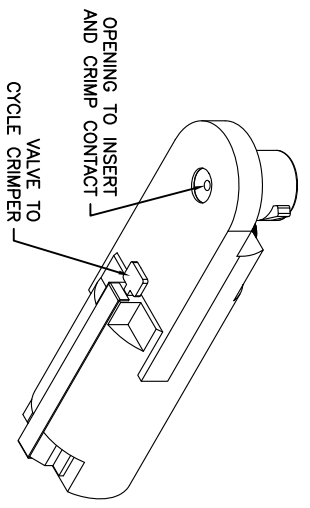
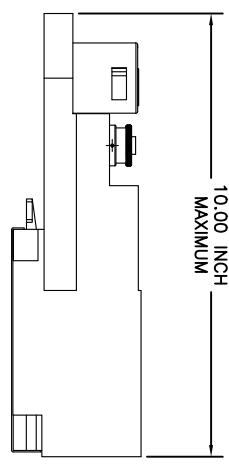
CONTACT LOCATOR "TURRET"
THREE POSITION FOR SIZE
12, 16 & 20 MALE AND
FEMALE CONTACTS



THREADED OPENING
FOR COMPRESSED
AIR FITTING



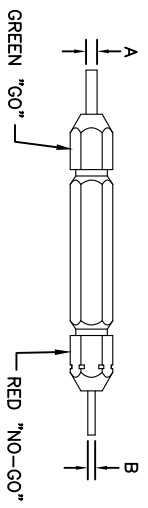
10.00 INCH
MAXIMUM



OPENING TO INSERT
AND CRIMP CONTACT

VALVE TO
CYCLE CRIMP

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



A

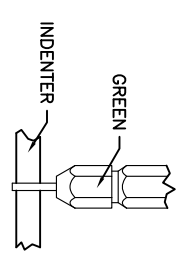
B

GAGING INSTRUCTIONS

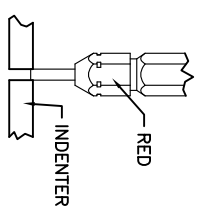
CAUTION!
DO NOT CRIMP GAGE!

"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



- 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).
- 80-120 PSI COMPRESSED AIR.
- WEIGHT: 3.1 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: GRASP THE SELECTOR AND ROTATE TO THE DESIRED NUMBER.

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

QUANTITY PART NUMBER MATERIALS LIST DESCRIPTION ITEM

UNLESS OTHERWISE SPECIFIED	SIGNATURES	DATE
1. All dimensions are in inches.	DATE: 6/2/09	
2. Pl. DEC 2000 1 Position 31/4"	DATE: 6/3/09	
3. Pl. DEC 2000 1 Position 31/4"	DATE: 6/3/09	
4) Rev. SS-20020	DATE: 6/3/09	

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Canton Township, MI 48036

INSTRUCTIONS FOR CA-5E12
CRIMPER, PNEUMATIC

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

REVOLUTIONS			
REV ZONE	ECO	DESCRIPTION	DATE
A1	-	RELEASE NUMBER 016571	6/12/08
			B.D.B.
			M.R.F.

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

6.25 INCH
MAXIMUM
OPEN

"TURRET" RELEASE LATCH

2.30 INCH
MAXIMUM
CLOSED

SELECTOR FOR CRIMP
SETTING

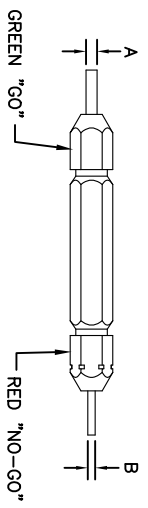
9.75 INCH MAXIMUM

1.125 INCH MAX.

1.00 INCH MAX.

- 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.

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

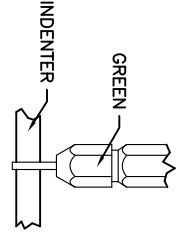


GAGING INSTRUCTIONS

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

CONTACT SIZE	LOCATOR "TURRET" POSITION	WIRE COLOR	SELECTOR NUMBER		
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		

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Canton Township, MI 48036

INSTRUCTIONS FOR CA-5D12
CRIMPER, HAND, MACHINED CONTACTS

UNLESS OTHERWISE SPECIFIED	ALL DIMENSIONS ARE IN INCHES.
1) FINISH	SEE DRAWING
2) TOLERANCES	UNLESS OTHERWISE SPECIFIED
3) FINISHES	SEE DRAWING
4) MATERIAL	SEE DRAWING
5) DRAWING	SEE DRAWING

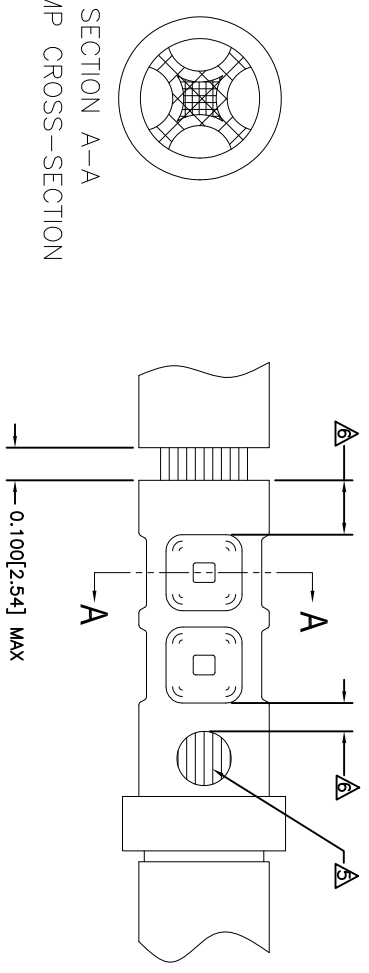
REVOLUTIONS		DESCRIPTION	DATE	BY	APPR
REV	ZONE	ECO	RELEASE NUMBER	B.D.B.	M.R.F.
A1	-	-	016571	6/12/09	

CONTACT P/N	SIZE TYPE	WIRE SIZE	REF. ONLY TENSILE LBS[FN]
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 WHEN XX=141, CONTACT PLATING IS NICKEL
 - 3. PULL RATE OF 1.0 IN [25.4] PER MINUTE. ACTUAL STRENGTH DEPENDS ON WIRE SIZE.
 - 4. FOR CONTACT PERFORMANCE, MATERIAL SPECIFICATIONS AND APPLICATION DETAILS, SEE DRAWING S2-15217. CONDUCTOR STRANDS MUST BE VISIBLE THRU THE INSPECTION HOLE PRIOR TO CRIMP.
 - 5. PROPER CRIMP TOOLING WILL PRODUCE A CRIMP CENTERED BETWEEN THE INSPECTION HOLE AND CRIMP BARREL END.
 - 6. 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.
 - 7. 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			
1) All dimensions are in inches.			
2) For dimensions in millimeters, see drawing.			
3) Pl. SEE 30.00 [Angles 31/64]			
4) Pl. SEE 30.01 [Angles 31/64]			
5) Fabrication Standards Per:			
a) MIL-STD-20020			
b) MIL-STD-20020			
c) MIL-STD-20020			
d) MIL-STD-20020			
MATERIAL SPECIFICATIONS:			
MA			
PROCESS SPECIFICATIONS:			
THE USE OF THIS DRAWING IS LIMITED TO THE SPECIFIC APPLICATIONS AND PERFORMANCE SPECIFICATIONS AND PERFORMANCE PRESENTED ON THIS DRAWING. ALL DIMENSIONS ARE SUBJECT TO NORMAL DOCUMENTS REFERENCED HEREON UNLESS OTHERWISE NOTED.			
SIGNATURES		DATE	
DESIGNER: BERNIM	6/3/09		
CHECKER: RONE	6/3/09		
ENGINEER: BERNIM			
APPROVAL: BERNIM	6/3/09		
CUSTOMER: MA			
THE USE OF THIS DRAWING IS LIMITED TO THE SPECIFIC APPLICATIONS AND PERFORMANCE SPECIFICATIONS AND PERFORMANCE PRESENTED ON THIS DRAWING. ALL DIMENSIONS ARE SUBJECT TO NORMAL DOCUMENTS REFERENCED HEREON UNLESS OTHERWISE NOTED.			
SIZE	SCALE	SCALE	SCALE
10K44	1:1	1:1	1:1
CRIMP INFORMATION		S2-15218	
SOLID MACHINED CONTACTS		S2-15218	
REV: A1	SHEET: 1	OF: 1	

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44724 Moley Drive
Clinton Township, MI 48036

REVISIONS						
REV	ZONE	ECO	DESCRIPTION	DATE	BY	APPR
A1	-	-	RELEASE NUMBER 016571	6/12/08	B.D.B.	M.R.F.

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

WIRE AWG	CONTACT RESISTANCE STRENGTH (LESS DROP THROUGH WIRE)		
	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	DATE	
1) All dimensions are in inches.	DATE	4/5/09	
2) Pl. SEE 30.00	ORDERED BY	6/3/09	
3) Pl. SEE 30.00	ENGINEER	BERNIE	
4) Pl. SEE 30.00	APPROVAL	BERNIE	
5) Fabrication Standards Per: SS-20020	CUSTOMER	6/3/09	
6) Pl. SEE 30.00	APPROVAL		
7) Pl. SEE 30.00	CUSTOMER		
8) Pl. SEE 30.00	APPROVAL		
9) Pl. SEE 30.00	CUSTOMER		
10) Pl. SEE 30.00	APPROVAL		
11) Pl. SEE 30.00	CUSTOMER		
12) Pl. SEE 30.00	APPROVAL		
13) Pl. SEE 30.00	CUSTOMER		
14) Pl. SEE 30.00	APPROVAL		
15) Pl. SEE 30.00	CUSTOMER		
16) Pl. SEE 30.00	APPROVAL		
17) Pl. SEE 30.00	CUSTOMER		
18) Pl. SEE 30.00	APPROVAL		
19) Pl. SEE 30.00	CUSTOMER		
20) Pl. SEE 30.00	APPROVAL		
21) Pl. SEE 30.00	CUSTOMER		
22) Pl. SEE 30.00	APPROVAL		
23) Pl. SEE 30.00	CUSTOMER		
24) Pl. SEE 30.00	APPROVAL		
25) Pl. SEE 30.00	CUSTOMER		
26) Pl. SEE 30.00	APPROVAL		
27) Pl. SEE 30.00	CUSTOMER		
28) Pl. SEE 30.00	APPROVAL		
29) Pl. SEE 30.00	CUSTOMER		
30) Pl. SEE 30.00	APPROVAL		
31) Pl. SEE 30.00	CUSTOMER		
32) Pl. SEE 30.00	APPROVAL		
33) Pl. SEE 30.00	CUSTOMER		
34) Pl. SEE 30.00	APPROVAL		
35) Pl. SEE 30.00	CUSTOMER		
36) Pl. SEE 30.00	APPROVAL		
37) Pl. SEE 30.00	CUSTOMER		
38) Pl. SEE 30.00	APPROVAL		
39) Pl. SEE 30.00	CUSTOMER		
40) Pl. SEE 30.00	APPROVAL		
41) Pl. SEE 30.00	CUSTOMER		
42) Pl. SEE 30.00	APPROVAL		
43) Pl. SEE 30.00	CUSTOMER		
44) Pl. SEE 30.00	APPROVAL		
45) Pl. SEE 30.00	CUSTOMER		
46) Pl. SEE 30.00	APPROVAL		
47) Pl. SEE 30.00	CUSTOMER		
48) Pl. SEE 30.00	APPROVAL		
49) Pl. SEE 30.00	CUSTOMER		
50) Pl. SEE 30.00	APPROVAL		
51) Pl. SEE 30.00	CUSTOMER		
52) Pl. SEE 30.00	APPROVAL		
53) Pl. SEE 30.00	CUSTOMER		
54) Pl. SEE 30.00	APPROVAL		
55) Pl. SEE 30.00	CUSTOMER		
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58) Pl. SEE 30.00	APPROVAL		
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60) Pl. SEE 30.00	APPROVAL		
61) Pl. SEE 30.00	CUSTOMER		
62) Pl. SEE 30.00	APPROVAL		
63) Pl. SEE 30.00	CUSTOMER		
64) Pl. SEE 30.00	APPROVAL		
65) Pl. SEE 30.00	CUSTOMER		
66) Pl. SEE 30.00	APPROVAL		
67) Pl. SEE 30.00	CUSTOMER		
68) Pl. SEE 30.00	APPROVAL		
69) Pl. SEE 30.00	CUSTOMER		
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71) Pl. SEE 30.00	CUSTOMER		
72) Pl. SEE 30.00	APPROVAL		
73) Pl. SEE 30.00	CUSTOMER		
74) Pl. SEE 30.00	APPROVAL		
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92) Pl. SEE 30.00	APPROVAL		
93) Pl. SEE 30.00	CUSTOMER		
94) Pl. SEE 30.00	APPROVAL		
95) Pl. SEE 30.00	CUSTOMER		
96) Pl. SEE 30.00	APPROVAL		
97) Pl. SEE 30.00	CUSTOMER		
98) Pl. SEE 30.00	APPROVAL		
99) Pl. SEE 30.00	CUSTOMER		
100) Pl. SEE 30.00	APPROVAL		

SINE Systems Corporation
A Subsidiary of Amphenol Corporation
441724 Moley Drive
Clinton Township, MI 48036

GENERAL DATA, CONTACTS STAMPED AND FORMED / MACHINED

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