

## 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)

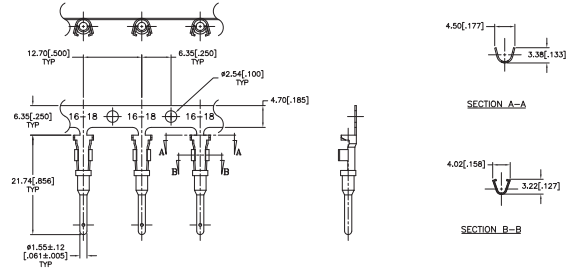


## STAMPED AND FORMED CONTACTS, PG 2 of 2

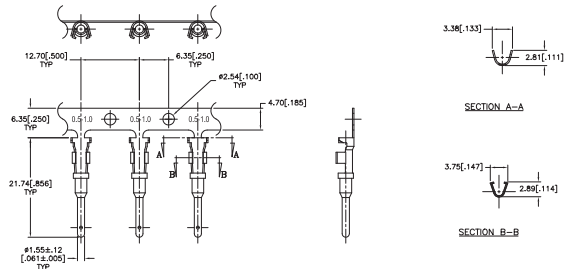
Click on [blue underlined part numbers](#) to be taken to their spec sheets.

### 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.

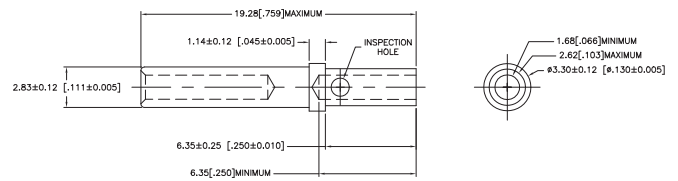
### OPTIONS

MILITARY-STYLE

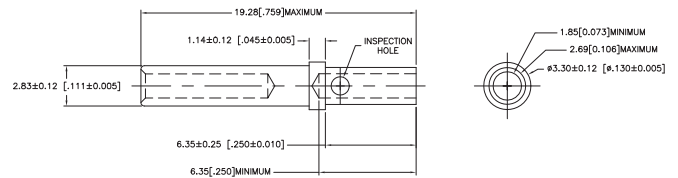
**PART NUMBER:** [AT60-202-16XX](#)  
**DESCRIPTION:** CONTACT, PIN, SOLID MACHINED, SIZE 16  
**MATERIAL:** COPPER ALLOY  
**PLATING SUFFIX CODE:**  
 XX=141 NICKEL PLATING  
 XX=31 GOLD PLATING  
**CONTACT GENERAL DATA SPECIFICATION:** S2-15217  
**AVAILABLE CRIMPERS:** CA-5D12 & CA-5E12  
**CRIMPER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

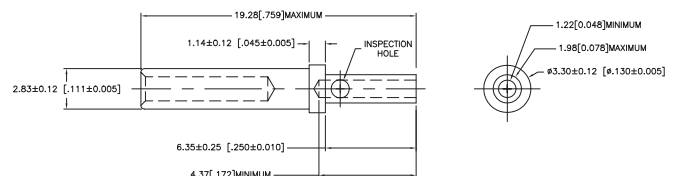


ROCKSOLID™ CONTACTS

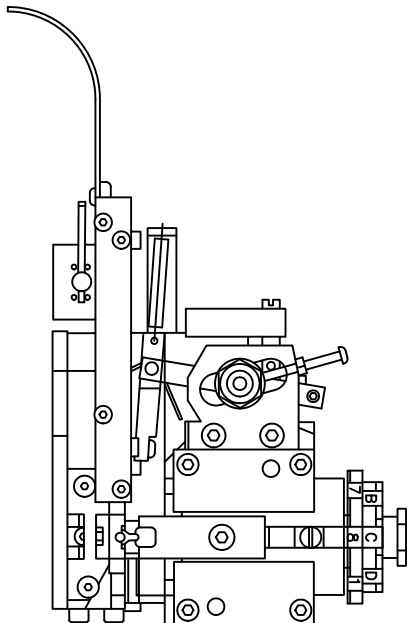
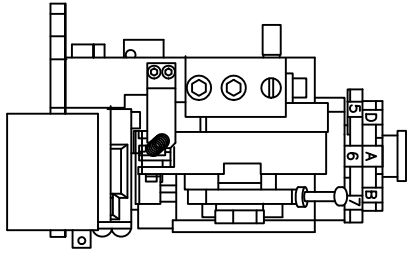
**PART NUMBER:** [65-54942-16](#)  
**DESCRIPTION:** CONTACT, SOCKET, ROCKSOLID, SIZE 16  
**AWG RANGE:** 16AWG  
**MATERIAL:** COPPER ALLOY  
**PLATING:** GOLD  
**CONTACT GENERAL DATA SPECIFICATION:** S2-15217  
**AVAILABLE CRIMPERS:** CA-5D12 & CA-5E12  
**CRIMPER SPECIFICATIONS:** S2-15219 & S2-15220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



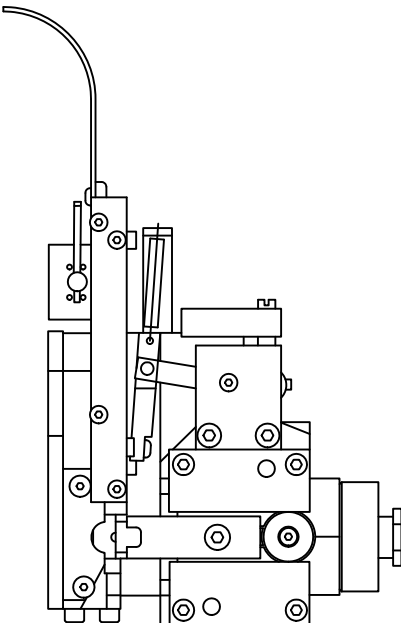
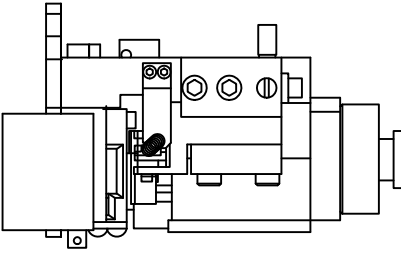
**PART NUMBER:** [65-54942-20](#)  
**DESCRIPTION:** CONTACT, SOCKET, ROCKSOLID, SIZE 16  
**AWG RANGE:** 20AWG  
**MATERIAL:** COPPER ALLOY  
**PLATING:** GOLD  
**CONTACT GENERAL DATA SPECIFICATION:** S2-15217  
**AVAILABLE CRIMPERS:** CA-5D12 & CA-5E12  
**CRIMPER SPECIFICATIONS:** S2-15219 & S2-15220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



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



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.

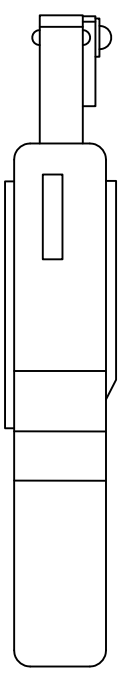
QUANTITY	PART NUMBER	DESCRIPTION	ITEM
UNLESS OTHERWISE SPECIFIED			
1) All dimensions are in inches.			
2) Tolerances are as shown.			
3) Pl. DEC 30.00 1 Precision 31/64			
4) Pl. DEC 30.00 1 Angles 3:1			
5) Fabrication Standards Per:			
a) MIL-STD-20020			
b) MIL-STD-20020			
c) MIL-STD-20020			
d) MIL-STD-20020			
MATERIAL SPECIFICATIONS:			
M/A			
PROCESS SPECIFICATIONS:			
M/A			
NEXT ASSY:			
SIGNATURES		DATE	
DESIGNED: BERNUI	6/9/09		
CHECKED: TONE	6/9/09		
ENGINEER: BERNUI			
APPROVAL: BERNUI	6/9/09		
CUSTOMER:			
M/A			
THE USE OF THIS DRAWING IS LIMITED TO THE SPECIFIC APPLICATIONS, SPECIFICATIONS, AND PERFORMANCE DATA SHOWN HEREON. ANY OTHER USE IS PROHIBITED WITHOUT THE WRITTEN PERMISSION OF AMPHENOL CORP. ALL DIMENSIONS ARE SUBJECT TO NORMAL MANUFACTURING VARIATIONS. THIS DOCUMENT IS UNCLASSIFIED AND IS IN THE PUBLIC DOMAIN. UNLESS OTHERWISE INDICATED, ALL RIGHTS ARE RESERVED BY AMPHENOL CORPORATION.			
SINE SYSTEMS CORPORATION		A Subsidiary of Amphenol Corporation	
44724 Moley Drive		Clinton Township, MI 48036	
CRIMPER INFORMATION			
MFX-3950 & MFX-3953		SCALE: NONE	
SIZE: 1/2" x 1/2" x 1/2"		S2-15224	
C 10K44		S2-15224	
S2-15224		SHEET 1 OF 1	
REVISION		A1	

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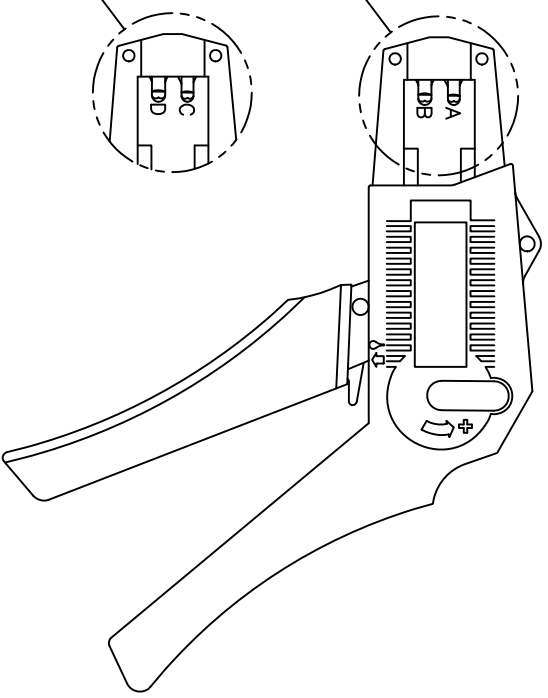
REVISIONS					
REV	ECO	DESCRIPTION	DATE	BY	APPR
A1	-	RELEASE NUMBER 016571	6/12/09	B.D.B.	M.R.F.

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

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



CAVITY VIEW OF  
CRIMPER NUMBER  
ATT-16-00



CAVITY VIEW OF  
CRIMPER NUMBER  
ATT-16-01

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

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

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- 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			
UNLESS OTHERWISE SPECIFIED		SIGNATURES	
1) All dimensions are in inches.		DRAWN: <b>BERNIE</b> 6/8/09	
2) Tolerances are as follows:		CHECKED: <b>FORCE</b> 6/8/09	
3) For DEC 3000 1/16" ± 1/64"		ENGINEER: <b>BERNIE</b>	
3) For DEC 3000 1/32" ± 1/64"		APPROVAL: <b>BERNIE</b> 6/8/09	
3) For DEC 3000 1/64" ± 1/64"		CUSTOMER:	
4) Hole Reference = $\Delta$		DATE: 6/8/09	
INTERNAL SPECIFICATIONS:		SIZE: PCD NODWG NO:	
N/A		B 16K44	
PROCESS SPECIFICATIONS:		SCALE: NONE	
N/A		S2-15223	
NEXT ASSY:		SHEET 1 of 1	

THE USE OF THIS DOCUMENT IS UNLIMITED DESIGN FEATURES, SPECIFIC DATA SHOWN HEREON ARE THE PROPERTY OF AMPHENOL CORP. ALL DIMENSIONS AND TOLERANCES ARE THE PROPERTY OF AMPHENOL CORP. ALL DIMENSIONS AND TOLERANCES ARE THE PROPERTY OF AMPHENOL CORP. ALL DIMENSIONS AND TOLERANCES ARE THE PROPERTY OF AMPHENOL CORP.

REV ZONE		ECO	DESCRIPTION	DATE	BY	APP
AT	-	-	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
AT80-14-011x AT82-14-011x INSULATION RANGE 0.095-0.150(2.41-3.81)	16	14 AWG 2.00mm <sup>2</sup> 1.50mm <sup>2</sup> 16 AWG 1.00mm <sup>2</sup> 18 AWG 0.75mm <sup>2</sup>	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 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 <sup>2</sup> 1.50mm <sup>2</sup> 16 AWG 1.00mm <sup>2</sup> 18 AWG 0.75mm <sup>2</sup>	0.055(1.40) 0.055(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 <sup>2</sup> 0.75mm <sup>2</sup> 20 AWG 0.50mm <sup>2</sup>	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)

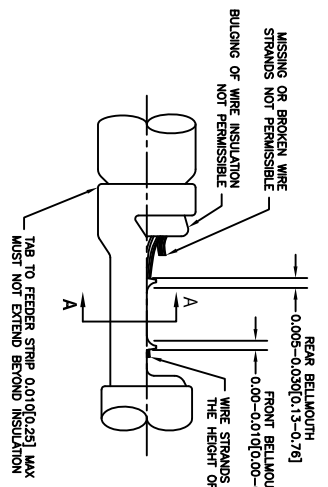
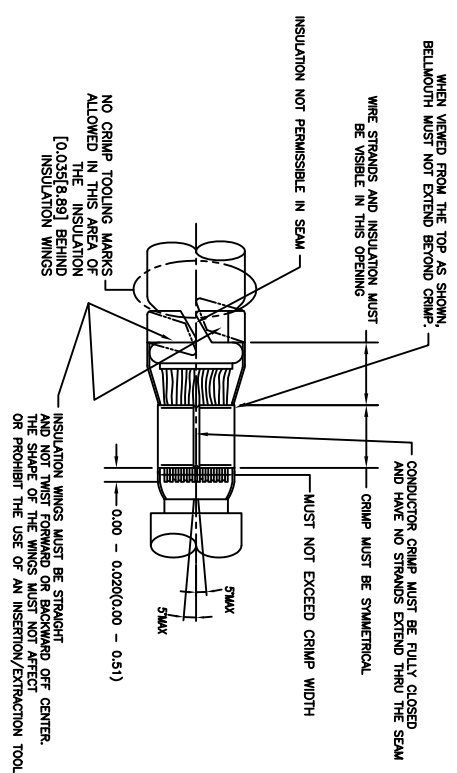
**CROSS REFERENCE**

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 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 BROWNIE 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	DESCRIPTION	ITEM
<b>MATERIALS LIST</b>			
UNLESS OTHERWISE SPECIFIED			
1) All dimensions are in inches.	SIGNATURES		
2) Part 1000 50.00	DATE	DATE	
3) Part 1000 50.00	DATE	DATE	
4) Part 1000 50.00	DATE	DATE	
5) Part 1000 50.00	DATE	DATE	
6) Part 1000 50.00	DATE	DATE	
7) Part 1000 50.00	DATE	DATE	
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94) Part 1000 50.00	DATE	DATE	
95) Part 1000 50.00	DATE	DATE	
96) Part 1000 50.00	DATE	DATE	
97) Part 1000 50.00	DATE	DATE	
98) Part 1000 50.00	DATE	DATE	
99) Part 1000 50.00	DATE	DATE	
100) Part 1000 50.00	DATE	DATE	

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

CRIMP DATA, STAMPED CONTACTS FOR CRIMPER MFX-3950

SIZE: 1000 50.00  
SCALE: NONE

S2-15222

SHEET 1 OF 1

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

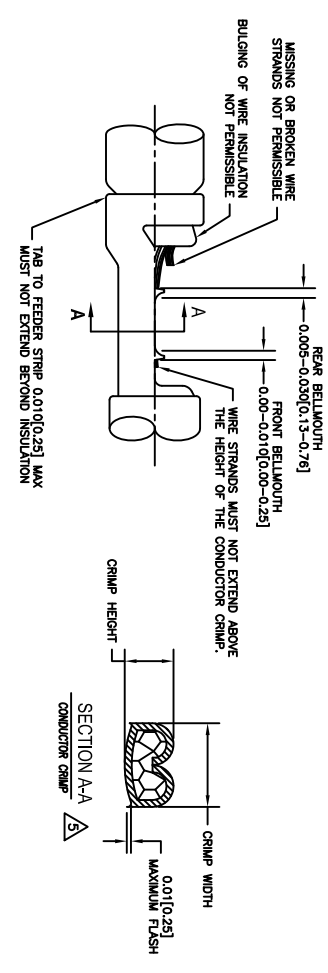
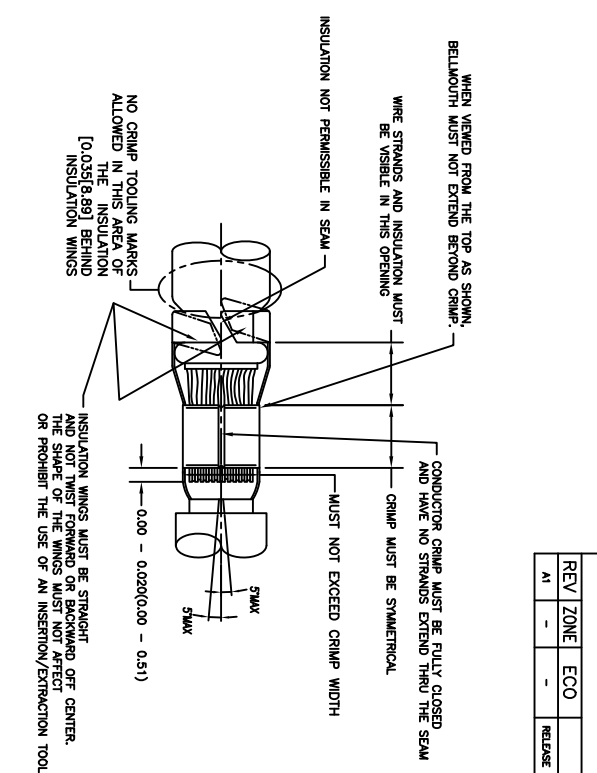
STAMPED CONTACT PART NUMBER (1009=PIN 1009=SOCKET)	SIZE	CONDUCTOR WIRE SIZE	CRIMP HEIGHT +0.001/-0.002 INCH (+0.025/-0.05 mm)	CRIMP WIDTH ±0.013 INCH (±0.08 mm)	CONDUCTOR PUNCH NUMBER	CONDUCTOR ANVIL NUMBER	CRIMP TENSILE REFERENCE (LBS/IN)
A160-14-011x A162-14-011x INSULATION RANGE 0.095-0.150(2.41-3.81)	16	14 AWG 2.00mm <sup>2</sup> 1.50mm <sup>2</sup> 16 AWG 1.00mm <sup>2</sup> 18 AWG	0.0591(1.40) 0.0591(1.40) 0.0591(1.40) 0.0501(1.27) 0.0491(1.24)	0.094(2.39) 0.094(2.39) 0.094(2.39) 0.094(2.39) 0.094(2.39)		A117-4083-0200 A117-183-0200	29(111)
A160-16-011x A162-16-011x INSULATION RANGE 0.075-0.140(1.91-3.59)	16	14 AWG 2.00mm <sup>2</sup> 1.50mm <sup>2</sup> 16 AWG 1.00mm <sup>2</sup> 18 AWG	0.0591(1.40) 0.0591(1.40) 0.0591(1.40) 0.0501(1.27) 0.0491(1.24)	0.094(2.39) 0.094(2.39) 0.094(2.39) 0.094(2.39) 0.094(2.39)		A117-4083-0200 A117-183-0200	29(111)
A160-16-069x A162-16-069x INSULATION RANGE 0.059-0.100(1.40-2.54)	16	16 AWG 1.00mm <sup>2</sup> 0.75mm <sup>2</sup> 20 AWG 0.50mm <sup>2</sup>	0.0501(1.27) 0.0501(1.27) 0.0491(1.24) 0.0491(1.24)	0.079(2.01) 0.079(2.01) 0.079(2.01) 0.079(2.01)		A117-4082-0200 A117-182-0200	29(111) 19(67)

CROSS REFERENCE

INSULATION DIAMETER RANGE	INSULATION PUNCH NUMBER	INSULATION ANVIL NUMBER	SINE PART NUMBER	DEUTSCH PART NUMBER
0.120-0.150 [3.05-3.81]	A117-225-0200	A117-326-0200	MPX-3953	DCT1620-02-00
0.105-0.125 [2.67-3.18]	A117-226-0200	A117-326-0200	A117-083-0200	1017-083-0200
0.085-0.111 [2.16-2.82]	A117-227-0200	A117-327-0200	A117-082-0200	1017-082-0200
0.075-0.105 [1.91-2.67]	A117-228-0200	A117-328-0200	A117-183-0200	1017-183-0200
0.063-0.094 [1.62-2.39]	A117-229-0200	A117-329-0200	A117-182-0200	1017-182-0200
0.050-0.075 [1.27-1.91]	A117-230-0200	A117-330-0200	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(4.43±0.54). BROKEN OR MISSING CONDUCTOR STRANDS ARE NOT ACCEPTABLE. 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.
5. 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.
6. INSULATION DIAMETER RANGE IS DETERMINED BY CONNECTOR AND ITS WIRE SEAL SIZE. SEE CONNECTOR DRAWING FOR INSULATION RANGE.
7. 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.
8. CONDUCTOR TYPE ARE PER SAE J1128(AWG) AND ISO 6122(METRIC)
9. FOR CONTACT MATERIAL AND PERFORMANCE DATA, SEE DRAWING S2-15217.
10. 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) 1 lb. = 16.00 oz.			
3) 1 kg. = 2.20 lb.			
4) 1 mm. = 0.03937 in.			
5) Reduction Standard Per: ASME Y14.5-1994			
6) Material: SS-20020			
7) Material Specification: A			
8) Material Specification: NA			

DATE	SIGNATURES	DATE	SIGNATURES
4/7/09	ROTOR	6/8/09	ROTOR
6/8/09	ENGINEER	6/8/09	ENGINEER
6/8/09	APPROVAL	6/8/09	APPROVAL

CRIMP DATA, STAMPED CONTACTS FOR CRIMPER MPX-3953

SIZE: TYPICAL DIMENSIONS: 10K/44

SCALE: NONE

S2-15221

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

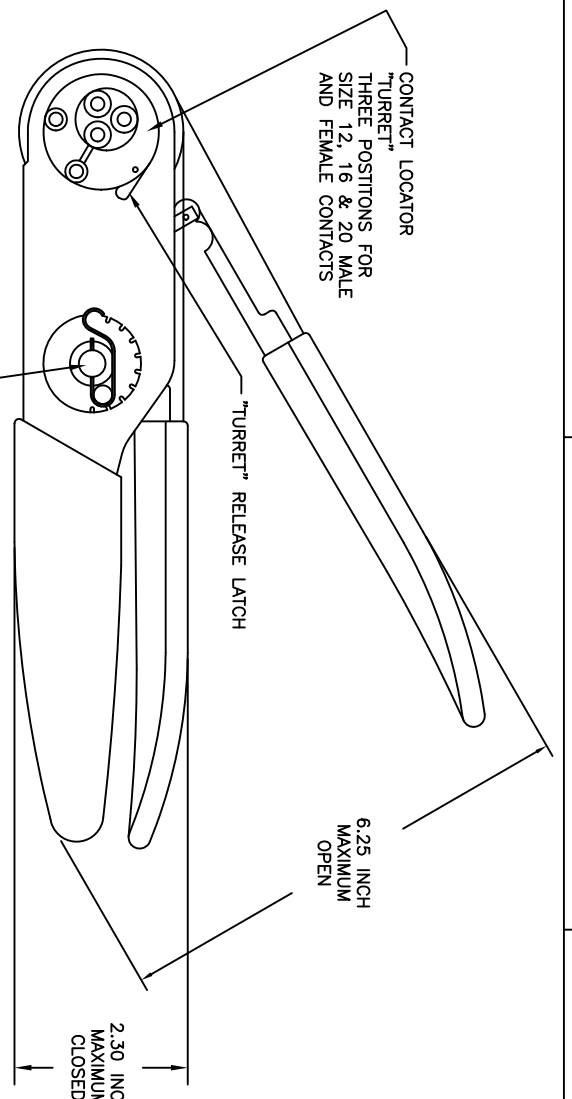
2.30 INCH  
MAXIMUM  
CLOSED

SELECTOR FOR CRIMP  
SETTING

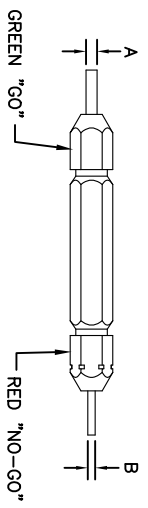
1.125 INCH MAX.

9.75 INCH MAXIMUM

1.00 INCH MAX.



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

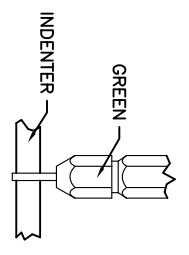


GAGING INSTRUCTIONS

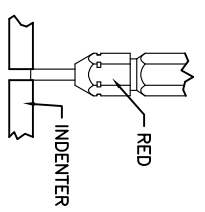
CAUTION!  
DO NOT CRIMP GAGE!

"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 POSITION	WIRE COLOR	WIRE AWG	WIRE AWG	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								8

QUANTITY	PART NUMBER	DESCRIPTION	ITEM

MATERIALS LIST		DESCRIPTION	
UNLESS OTHERWISE SPECIFIED	SIGNATURES	DATE	
1) All dimensions are in inches.	DATE:	6/3/09	
2) Pl. SEC. 30.00	ENGINEER:	RONCE	6/3/09
3) Pl. SEC. 30.00	DRAWN:	BERNIM	6/3/09
4) Pl. SEC. 30.00	CHECKED:	BERNIM	6/3/09
5) Pl. SEC. 30.00	APPROVED:	BERNIM	6/3/09
6) Pl. SEC. 30.00	CUSTOMER:		
7) Pl. SEC. 30.00	APPROVAL:		
8) Pl. SEC. 30.00	DATE:		
9) Pl. SEC. 30.00			
10) Pl. SEC. 30.00			
11) Pl. SEC. 30.00			
12) Pl. SEC. 30.00			
13) Pl. SEC. 30.00			
14) Pl. SEC. 30.00			
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100) Pl. SEC. 30.00			

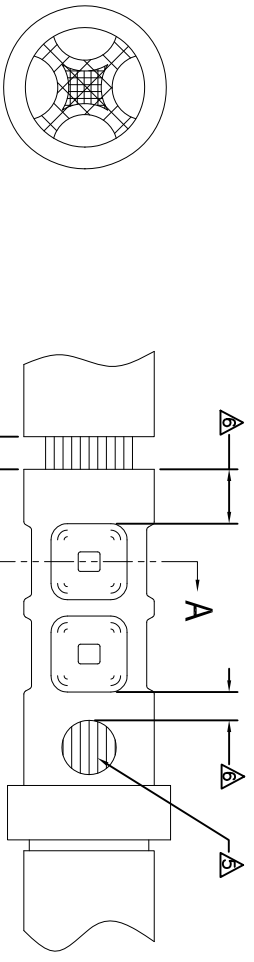
SIZE	SCALE	REV	DATE	BY	APPR
S2-15219	10X44	A1			

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

CONTACT P/N	SIZE TYPE	WIRE SIZE	REF. ONLY TENSILE LBS[FN]
AT60-202-16XX	16PIN	1.5mm <sup>2</sup> 16AWG	35[156]
AT62-201-16XX	16SOC	1.0mm <sup>2</sup> 18AWG 0.75mm <sup>2</sup> 20AWG	25[111]
		0.50mm <sup>2</sup>	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.
  - 5. CONDUCTOR STRANDS MUST BE VISIBLE THRU THE INSPECTION HOLE PRIOR TO CRIMP.
  - 6. PROPER CRIMP TOOLING WILL PRODUCE A CRIMP CENTERED BETWEEN THE INSPECTION HOLE AND CRIMP BARREL END.
  - 7. 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.
  - 8. THE CRIMP HEIGHT DIMENSION AFTER CRIMPING MAY VARY FROM THE VALUES LISTED FOR THE "GO-NOGO" PINS.

QUANTITY	PART NUMBER	DESCRIPTION	ITEM
UNLESS OTHERWISE SPECIFIED			
1) All dimensions are in inches.			
2) Pl. SEE 34.00 [1.73]			
3) Pl. SEE 34.00 [1.73] Position 31/14			
4) Pl. SEE 34.00 [1.73] Position 31/14			
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:			
NEXT ASSY:			

MATERIALS LIST		DESCRIPTION		ITEM
QTY	PART NUMBER	DESCRIPTION	ITEM	
1	S2-15218	CRIMP INFORMATION SOLID MACHINED CONTACTS	A1	

SINE Systems Corporation	
A Subsidiary of Amphenol Corporation 44724 Moley Drive Clinton Township, MI 48036	
DATE	6/3/09
DESIGNED BY	BERNIM
CHECKED BY	BERNIM
ENGINEER	BERNIM
APPROVAL	6/3/09
CUSTOMER	MA
THE USE OF THIS DRAWING IS LIMITED TO THE SPECIFIC APPLICATION AND PERFORMANCE SPECIFICATIONS AND PERFORMANCE PRESENTED ON THIS DRAWING. ALL DIMENSIONS ARE SUBJECT TO NORMAL DOCUMENTS RETAINED HEREON UNLESS OTHERWISE NOTED.	
SIZE	PSMA NOT DIMS
SCALE	1:1
REV	A1
DATE	6/3/09
BY	BERNIM
CHECKED	BERNIM
APPROVAL	6/3/09
CUSTOMER	MA

4 3 2 1

4 3 2 1

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

SOLID CONTACT SIZE	SOLID CONTACT PART NUMBERS		WIRE SIZE AVG (mm <sup>2</sup> )	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 [1.5-4.5]	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 <sup>2</sup> )	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: 31= GOLD* 141= NICKEL
STAMPED CONTACT PLATING OPTIONS: 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	16	S2-15222	16
		S2-15221	16/20

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

QUANTITY		PART NUMBER		DESCRIPTION		ITEM
UNLESS OTHERWISE SPECIFIED						
1) All dimensions are in inches.	SIGNATURES	DATE	MATERIALS LIST			
2) Pl. SEE 40.00	DATE	4/5/09	SINE SYSTEMS CORPORATION			
3) Pl. SEE 40.00	ORDER NO.	6/3/09	A Subsidiary of Amphenol Corporation			
4) Fabrication Standards Per:	ENGINEER	BERNIE	44724 Moley Drive			
5) In House	APPROVAL	BERNIE	Carlton Township, MI 48036			
6) In House	CUSTOMER	6/3/09	GENERAL DATA, CONTACTS			
7) In House	APPROVAL	6/3/09	STAMPED AND FORMED / MACHINED			
8) In House	APPROVAL		SIZE (P&ID) 10K/16			
9) In House	APPROVAL		SCALE NONE			
10) In House	APPROVAL		S2-15217			
11) In House	APPROVAL		SHEET 1 OF 1			
12) In House	APPROVAL		REVISION A1			

REV:	A1
DATE:	6/3/09
BY:	BERNIE
CHKD:	BERNIE
APPD:	BERNIE
TITLE:	CONTACT DATA, GENERAL
DWG NO.:	S2-15217