

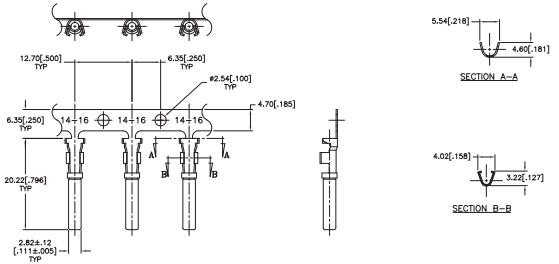
## STAMPED AND FORMED CONTACTS, PG 1 of 2

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

### OPTIONS

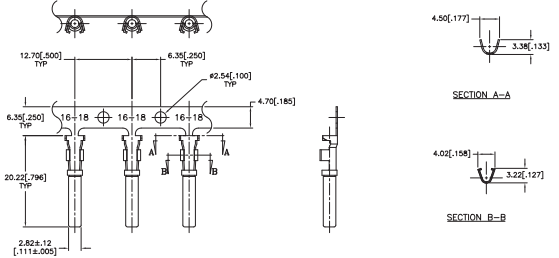
**PART NUMBER:** [AT62-14-01XX](#)  
**DESCRIPTION:** CONTACT, SOCKET, STAMPED, SIZE 16

**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)



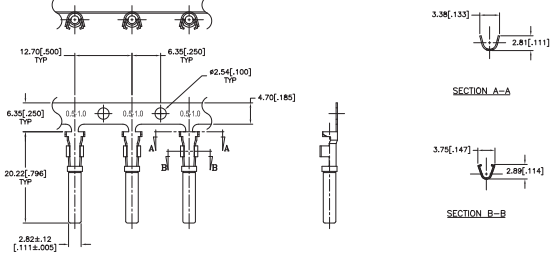
**PART NUMBER:** [AT62-16-01XX](#)  
**DESCRIPTION:** CONTACT, SOCKET, STAMPED, SIZE 16

**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)



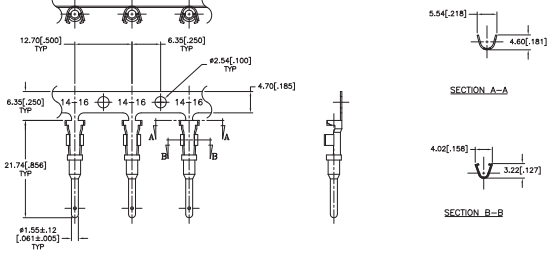
**PART NUMBER:** [AT62-16-06XX](#)  
**DESCRIPTION:** CONTACT, SOCKET, STAMPED, SIZE 16

**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)

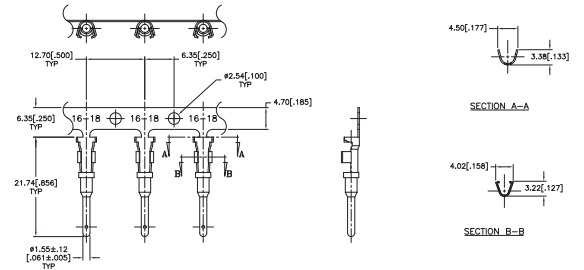


## STAMPED AND FORMED CONTACTS, PG 2 of 2

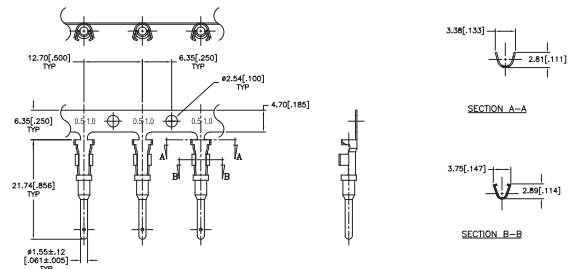
Click on [blue underlined part numbers](#) to be taken to their spec sheets.

### 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)



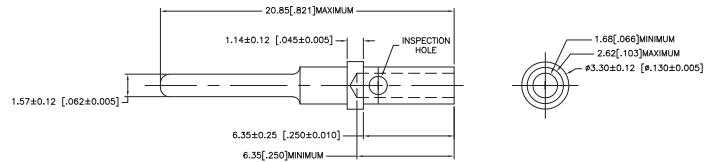
## SOLID/MACHINED CONTACTS

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

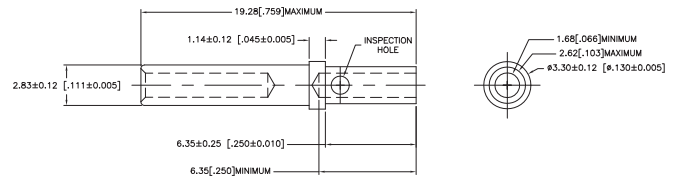
### OPTIONS

MILITARY-STYLE

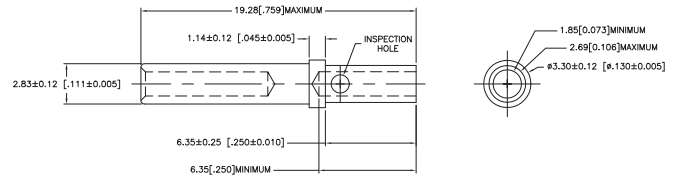
**PART NUMBER:** [AT60-202-16XX](#)  
**DESCRIPTION:** CONTACT, PIN, SOLID MACHINED, SIZE 16  
**MATERIAL:** COPPER ALLOY  
**PLATING SUFFIX CODE:**  
 XX=141 NICKEL PLATING  
 XX=31 GOLD PLATING  
**CONTACT GENERAL DATA SPECIFICATION:** S2-15217  
**AVAILABLE CRIMPERS:** CA-5D12 & CA-5E12  
**CRIMPER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

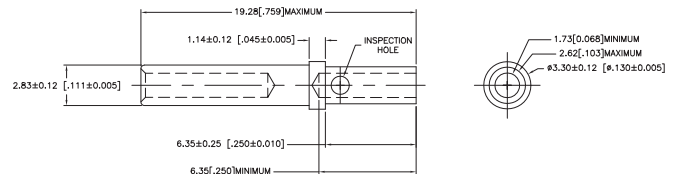


**PART NUMBER:** [65-54942-14](#)  
**DESCRIPTION:** CONTACT, SOCKET, ROCKSOLID, SIZE 16  
**AWG RANGE:** 14AWG  
**MATERIAL:** COPPER ALLOY  
**PLATING:** GOLD  
**CONTACT GENERAL DATA SPECIFICATION:** S2-15217  
**AVAILABLE CRIMPERS:** CA-5D12 & CA-5E12  
**CRIMPER SPECIFICATIONS:** S2-15219 & S2-15220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

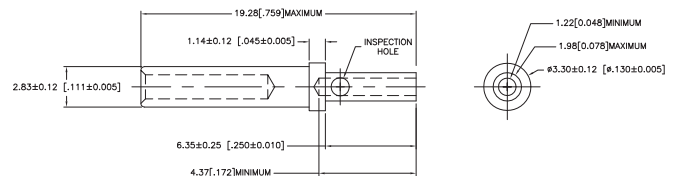


ROCKSOLID™ CONTACTS

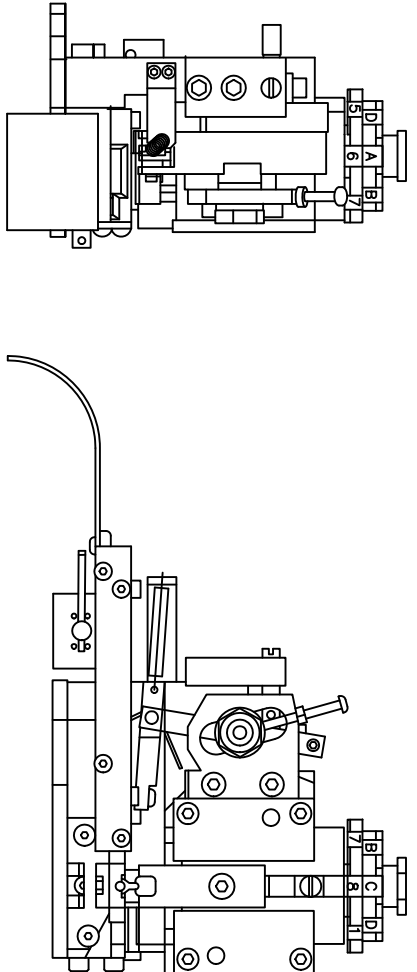
**PART NUMBER:** [65-54942-16](#)  
**DESCRIPTION:** CONTACT, SOCKET, ROCKSOLID, SIZE 16  
**AWG RANGE:** 16AWG  
**MATERIAL:** COPPER ALLOY  
**PLATING:** GOLD  
**CONTACT GENERAL DATA SPECIFICATION:** S2-15217  
**AVAILABLE CRIMPERS:** CA-5D12 & CA-5E12  
**CRIMPER SPECIFICATIONS:** S2-15219 & S2-15220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



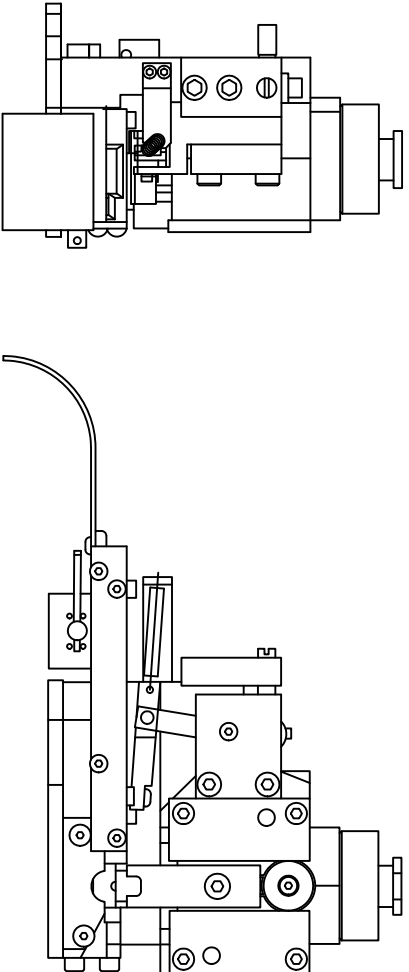
**PART NUMBER:** [65-54942-20](#)  
**DESCRIPTION:** CONTACT, SOCKET, ROCKSOLID, SIZE 16  
**AWG RANGE:** 20AWG  
**MATERIAL:** COPPER ALLOY  
**PLATING:** GOLD  
**CONTACT GENERAL DATA SPECIFICATION:** S2-15217  
**AVAILABLE CRIMPERS:** CA-5D12 & CA-5E12  
**CRIMPER SPECIFICATIONS:** S2-15219 & S2-15220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



REVISIONS						
REV	ZONE	ECO	DESCRIPTION	DATE	BY	APPR
A1	-	-	RELEASE NUMBER 016571	6/12/08	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
<b>MATERIALS LIST</b>			
UNLESS OTHERWISE SPECIFIED			
1) All dimensions are in inches.			
2) Pl. DEC 20.00 1 Precision 31/64			
3) Pl. DEC 20.00 1 Angles 31/64			
4) Fabrication Standards Per: <input type="checkbox"/> U <input type="checkbox"/> A			
5) Heat: SS-20020			
6) Heat: <input type="checkbox"/> <input type="checkbox"/>			
MATERIAL SPECIFICATIONS:			
N/A			
PROCESS SPECIFICATIONS:			
N/A			
NEXT ASSY:			
SIGNATURES		DATE	
DESIGNER: BERNIM	6/9/09		
CHECKER: TONE	6/9/09		
ENGINEER: BERNIM			
APPROVAL: BERNIM	6/9/09		
CUSTOMER:			
THE USE OF THIS DRAWING IS LIMITED TO THE SPECIFIC APPLICATIONS, SPECIFICATIONS, AND PERFORMANCE INDICATED THEREON. ANY OTHER USE WITHOUT THE WRITTEN PERMISSION OF AMPHENOL CORP. ALL DIMENSIONS ARE SUBJECT TO NORMAL VARIATIONS AND TOLERANCES. DRAWINGS RETAINED HEREON MAY CONTAIN UNCLASSIFIED INFORMATION.			
SIZE	TYPICAL NUMBER	SCALE	NONONE
C	10K44	S2-15224	A1
CRIMPER INFORMATION			
MFX-3950 & MFX-3953			
A Subsidiary of Amphenol Corporation			
44724 Moley Drive			
Clinton Township, MI 48036			
DWG NO: S2-15224			
MFG. INFORMATION			
REV: A1	SHEET 1 OF 1		

4 3 2 1

4 3 2 1

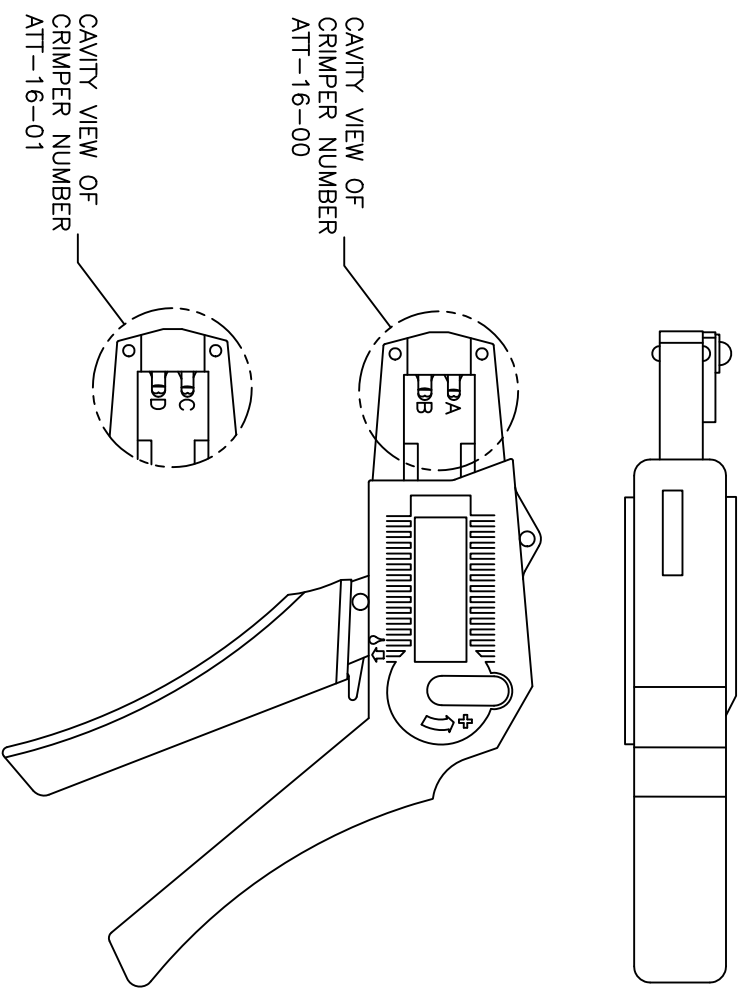
REVISIONS					
REV	ECO	DESCRIPTION	DATE	BY	APPR
A1	-	RELEASE NUMBER 016571	6/12/09	B.D.B.	M.R.F.

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>

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>



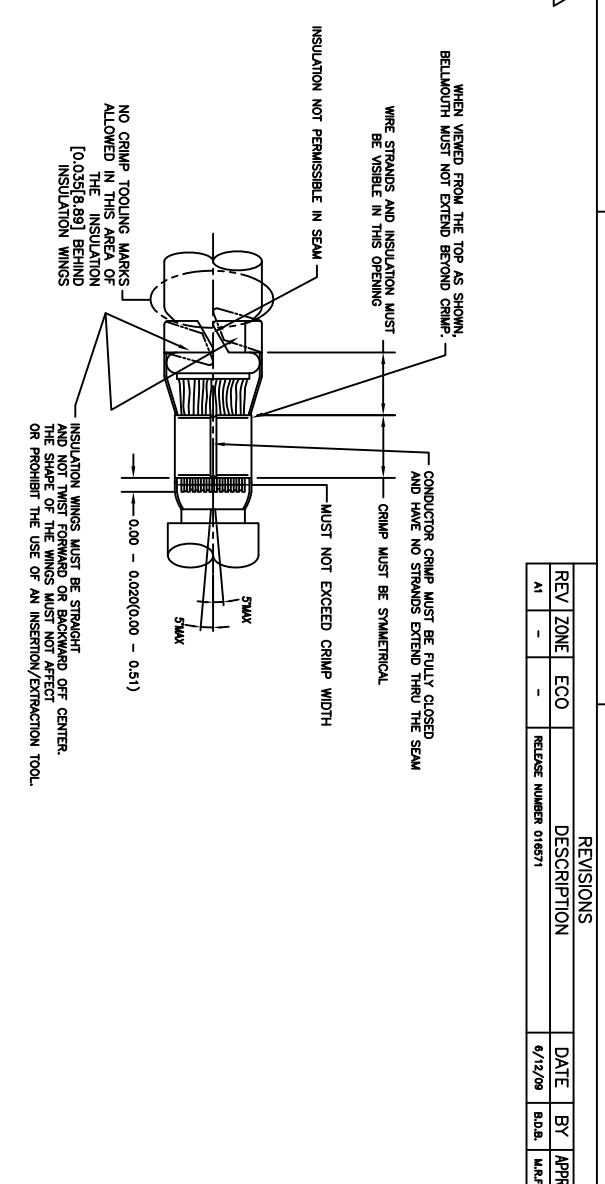
ALL REFERENCES TO DEUTSCH PRODUCTS OR SPECIFICATIONS ARE FOR COMPARISON PURPOSES ONLY, AND REFER TO DEUTSCH INDUSTRIAL PRODUCTS.

- 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			
<p><b>SINE</b> Systems Corporation            A Subsidiary of Amphenol Corporation            44724 Morley Drive            Clinton Township, MI 48036</p>			
<p>UNLESS OTHERWISE SPECIFIED            1) All dimensions are in inches.            2) Tolerances are as follows:            3) For DEC 3000            4) Hole Reference = A</p>		<p>THE USE OF THIS DOCUMENT IS UNLIMITED DESIGN FEATURES. SPECIAL DATA SHEETS ARE THE PROPERTY OF AMPHENOL CORP. ALL DIMENSIONS REFERENCED HEREON ARE UNLESS OTHERWISE SPECIFIED.            DOCUMENTS REFERENCED HEREON ARE: DEUTSCH INDUSTRIAL PARTS DATA.</p>	
<p>PROCESS SPECIFICATIONS            N/A</p>		<p>APPROVAL: <b>BERNIE</b> 6/8/09</p>	
<p>DATE: 6/8/09</p>		<p>SIZE: FSCM NO/DWG NO:            B 16K44</p>	
<p>DATE: 6/8/09</p>		<p>INSTRUCTIONS: ATT-16-00 &amp; 01            CRIMPER, HAND, STAMPED CONTACTS</p>	
<p>DATE: 6/8/09</p>		<p>SCALE: NONE</p>	
<p>DATE: 6/8/09</p>		<p>SHEET 1 OF 1</p>	

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

STAMPED CONTACT PART NUMBER 1062=PIN 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 INCH [±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	16 AWG 1.00mm <sup>2</sup> 18 AWG 0.75mm <sup>2</sup>	0.050(1.27) 0.051(1.30) 0.049(1.24) 0.048(1.22)	±0.003 INCH [±0.08 mm]	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> 20 AWG 0.50mm <sup>2</sup>	0.050(1.27) 0.049(1.24) 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**

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 MICROMEETER (0.100(2.54) MIN SPREAD 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(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.
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 TEFION INSULATION MAY BE AN EXCEPTION). INSULATION CRIMP SHALL NOT AFFECT REMOVAL TOOL PERFORMANCE AND SHALL NOT DAMAGE CONNECTOR BROWNIE 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	MATERIALS LIST	DESCRIPTION	ITEM
UNLESS OTHERWISE SPECIFIED				
1) All dimensions are in inches.				
2) Plating is as shown on drawing.				
3) Plating is as shown on drawing.				
4) Plating is as shown on drawing.				
5) Reduction Standard Per: AMS 2000				
6) Material: SS-20020				
7) Material Specification: A				
8) Material Specification: A				
9) Material Specification: A				
10) Material Specification: A				
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97) Material Specification: A				
98) Material Specification: A				
99) Material Specification: A				
100) Material Specification: A				

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

CRIMP DATA, STAMPED CONTACTS FOR CRIMPER MX-3950  
SIZE: PUNCH NO. 1062=PIN 1062=SOCKET  
SCALE: NONE  
S2-15222  
SHEET 1 OF 1

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

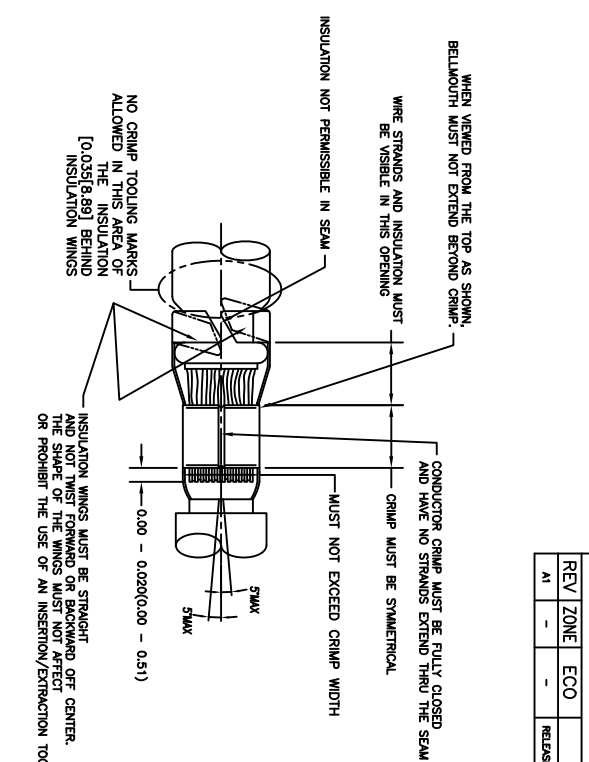
STAMPED CONTACT PART NUMBER 1008-FIN 1008-SOCKET	SIZE	CONDUCTOR WIRE SIZE	CRIMP HEIGHT +0.001/-0.002 INCH (+0.025/-0.05 mm)	CRIMP WIDTH ±0.013 INCH (±0.08 mm)	CONDUCTOR PUNCH NUMBER	CONDUCTOR ANVIL NUMBER	CRIMP TENSILE REFERENCE (LBS/IN)
A160-14-011x A162-14-011x INSULATION RANGE 0.095-0.150(2.41-3.81)	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) 0.084(2.39) 0.084(2.39)		AT17-4083-0200 AT17-183-0200	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 0.75mm <sup>2</sup>	0.0591(1.40) 0.0591(1.40) 0.0591(1.40) 0.0501(1.27) 0.0491(1.24) 0.0491(1.24)	0.094(2.39) 0.094(2.39) 0.094(2.39) 0.084(2.39) 0.084(2.39) 0.084(2.39)		AT17-4083-0200 AT17-183-0200	29(111)
A160-18-068x 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>	0.0501(1.27) 0.0491(1.24) 0.0491(1.24) 0.0491(1.24) 0.0491(1.4)	0.079(2.01) 0.079(2.01) 0.079(2.01) 0.079(2.01) 0.079(2.01)		AT17-4082-0200 AT17-182-0200	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]	AT17-225-0200	AT17-326-0200	MFX-3953	DCH1620-02-00
0.105-0.125 [2.67-3.18]	AT17-226-0200	AT17-326-0200	AT17-083-0200	1017-083-0200
0.085-0.111 [2.16-2.82]	AT17-227-0200	AT17-327-0200	AT17-082-0200	1017-082-0200
0.075-0.105 [1.91-2.67]	AT17-228-0200	AT17-328-0200	AT17-183-0200	1017-183-0200
0.063-0.094 [1.62-2.39]	AT17-229-0200	AT17-329-0200	AT17-182-0200	1017-182-0200
0.050-0.075 [1.27-1.91]	AT17-230-0200	AT17-330-0200	AT17-225-0200	1017-225-0200
			AT17-226-0200	1017-226-0200
			AT17-227-0200	1017-227-0200
			AT17-228-0200	1017-228-0200
			AT17-229-0200	1017-229-0200
			AT17-230-0200	1017-230-0200
			AT17-325-0200	1017-325-0200
			AT17-326-0200	1017-326-0200
			AT17-327-0200	1017-327-0200
			AT17-328-0200	1017-328-0200
			AT17-329-0200	1017-329-0200
			AT17-330-0200	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[0.0101(1.500[0.40] 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 TEFION 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 SA/E11(28(AWG)) AND ISO 67(2(METRIC))
10. FOR CONTACT MATERIAL AND PERFORMANCE DATA, SEE DRAWING S2-15217.
11. REFER TO S2-18223 AND S2-15224 AND CROSS REFERENCE CHARTS FOR CRIMP TOOL DATA.



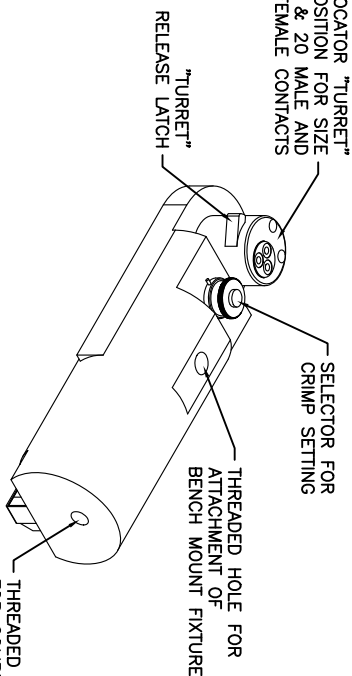
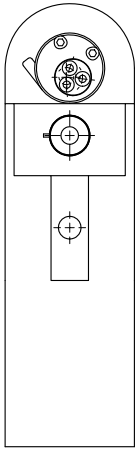
QUANTITY	PART NUMBER	MATERIALS LIST	DESCRIPTION	ITEM
			SINE SYSTEMS CORPORATION	
ALL REFERENCES TO DEUTSCH PRODUCTS OR SPECIFICATIONS ARE FOR COMPARISON PURPOSES ONLY, AND REFER TO DEUTSCH INDUSTRIAL PRODUCTS.				
UNLESS OTHERWISE SPECIFIED:				
1) All dimensions are in inches.				
2) Force is in pounds (lbf) 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 [0.0101 (1.500 [0.40] 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 SA/E11(28(AWG)) and ISO 67(2(METRIC))				
10) For contact material and performance data, see drawing S2-15217.				
11) Refer to S2-18223 and S2-15224 and cross reference charts for crimp tool data.				
PROCESS SPECIFICATIONS:				
MATERIAL SPECIFICATIONS:				
CUSTOMER:				
THE USE OF THIS DRAWING IS SPECIFIC TO THE PART AND PERFORMANCE DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE. ALL DIMENSIONS REFERENCED HEREON ARE DIMENSIONS REFERENCED HEREON UNLESS OTHERWISE SPECIFIED.				
CRIMP DATA, STAMPED CONTACTS FOR CRIMPER MFX-3953				
SIZE: 10K/44				
SCALE: NONE				
SHEET: 1 OF 1				

SIGNATURES	DATE
DESIGNER: POTTOR	4/7/09
CHECKER: RONE	6/8/09
ENGINEER: BERNIM	6/8/09
APPROVAL: BERNIM	6/8/09

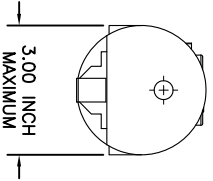
A Subsidiary of Amphenol Corporation  
 44724 Moley Drive  
 Clinton Township, MI 48036

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

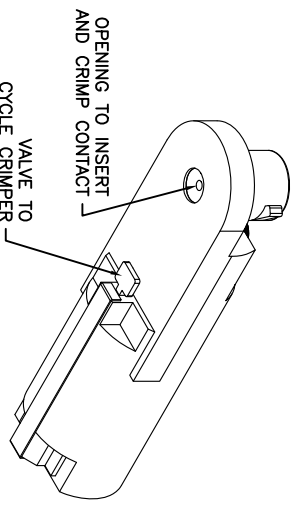
CONTACT LOCATOR "TURRET"  
THREE POSITION FOR SIZE  
12, 16 & 20 MALE AND  
FEMALE CONTACTS



THREADED OPENING  
FOR COMPRESSED  
AIR FITTING



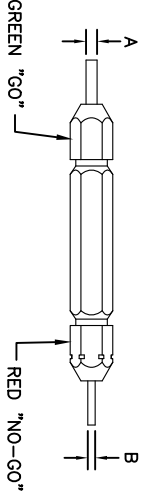
- NOTES:
1. THE CA-5E12 IS A COMPRESSED AIR OPERATED HAND CRIMPER FOR ELECTRICAL CONTACTS. IT IS ADJUSTABLE TO 3 CONTACT SIZES (12, 16 & 20) AND 8 INDENTER CRIMP POSITIONS FOR DIFFERENT WIRE SIZES (12AWG THRU 26 AWG).
  2. 80-120 PSI COMPRESSED AIR.
  3. WEIGHT: 3.1 LBS
  4. SELECTING CONTACT SIZE: PRESS 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

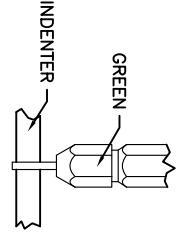
GAGING INSTRUCTIONS

CAUTION!  
DO NOT CRIMP GAGE!

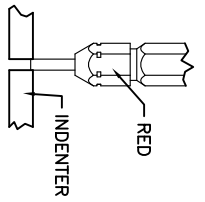


"GO" GAGING: OPERATE TOOL TO FULLY CLOSED POSITION. INSERT "GO" GAGE END AS SHOWN. GAGE MUST PASS FREELY BETWEEN INDENTER TIPS.

"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 1 Position 31/16			
3) Pl. DEC 2000 1 Position 31/16			
4) Pl. DEC 2000 1 Position 31/16			
5) Revision Standard Per: A			
6) Rev. SS-20020			
APPROVAL SIGNATURES			
DESIGNED BY: BERNUM	DATE: 6/2/09		
CHECKED BY: BERNUM	DATE: 6/3/09		
APPROVED BY: BERNUM	DATE: 6/3/09		
CUSTOMER: SINE SYSTEMS CORPORATION			
THE USE OF THIS DRAWING IS LIMITED TO THE SPECIFICATIONS AND REQUIREMENTS OF THE ORIGINAL DRAWING. ANY REVISIONS OR MODIFICATIONS MUST BE APPROVED BY THE ORIGINAL DRAWING ENGINEER AND APPROVED BY THE ORIGINAL DRAWING ENGINEER.			
PROCESS SPECIFICATIONS: N/A			
NEXT ASSY: S2-15220			

**SINE Systems Corporation**  
A Subsidiary of Amphenol Corporation  
44724 Mowley Drive  
Carlton Township, MI 48036

**INSTRUCTIONS FOR CA-5E12 CRIMPER, PNEUMATIC**



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

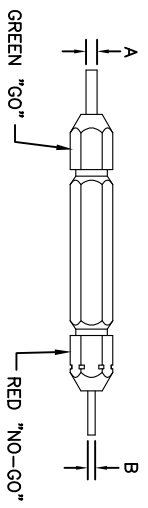
1.00 INCH MAX.

- 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

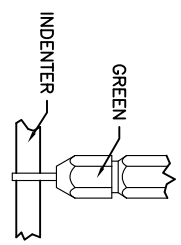
GAGING INSTRUCTIONS

CAUTION!  
DO NOT CRIMP GAGE!

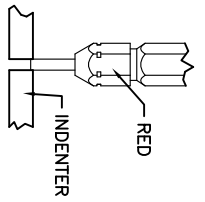


"GO" GAGING: OPERATE TOOL TO FULLY CLOSED POSITION. INSERT "GO" GAGE END AS SHOWN. GAGE MUST PASS FREELY BETWEEN INDENTER TIPS.

"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 POSITION	WIRE COLOR	1	2	3	4	5	6	7	8
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 MATERIALS LIST DESCRIPTION ITEM

UNLESS OTHERWISE SPECIFIED  
1) All dimensions are in inches.  
2) Pl. Sec. 34.00  
3) Pl. Sec. 34.00  
4) Pl. Sec. 34.00  
5) Pl. Sec. 34.00  
6) Pl. Sec. 34.00  
7) Pl. Sec. 34.00  
8) Pl. Sec. 34.00  
9) Pl. Sec. 34.00  
10) Pl. Sec. 34.00  
11) Pl. Sec. 34.00  
12) Pl. Sec. 34.00  
13) Pl. Sec. 34.00  
14) Pl. Sec. 34.00  
15) Pl. Sec. 34.00  
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21) Pl. Sec. 34.00  
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95) Pl. Sec. 34.00  
96) Pl. Sec. 34.00  
97) Pl. Sec. 34.00  
98) Pl. Sec. 34.00  
99) Pl. Sec. 34.00  
100) Pl. Sec. 34.00

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

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

SIZE: 10K44  
SCALE: NONE  
S2-15219  
SHEET: 1 OF 1

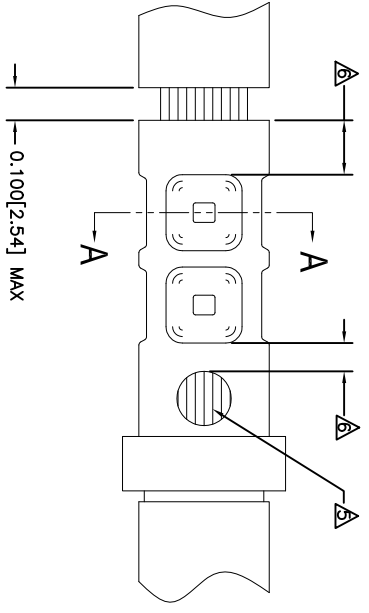
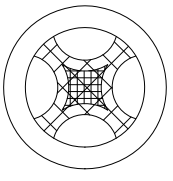
REVOLUTIONS		DESCRIPTION	DATE	BY	APPR
REV	ZONE	ECO	RELEASE NUMBER 016571	B.D.B.	M.R.F.
A1	-	-	6/12/09		

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.



SECTION A-A  
CRIMP CROSS-SECTION

QUANTITY	PART NUMBER	DESCRIPTION	ITEM
	MATERIALS LIST		
	SIGNATURES	DATE	
	DESIGNED: BERNIM	6/3/09	
	CHECKED: TONCE	6/3/09	
	ENGINEER: BERNIM		
	APPROVAL: BERNIM	6/3/09	
	CUSTOMER:		
	SINE Systems Corporation A Subsidiary of Amphenol Corporation 44724 Moley Drive Clinton Township, MI 48036		
	CRIMP INFORMATION SOLID MACHINED CONTACTS		
	SIZE [PICK NUMBER]	S2-15218	REVISION A1
	SCALE NONE	S2-15218	SHEET 1 OF 1

UNLESS OTHERWISE SPECIFIED  
 1) All dimensions are in inches.  
 2) See drawing for tolerances.  
 3) Pl. SEE 40.011 Precision 31/64  
 4) Pl. SEE 40.011 Angles 31/64  
 5) Fabrication Standards Per:  
 a) MIL-STD-20020  
 MATERIAL SPECIFICATIONS:  
 MA  
 PROCESS SPECIFICATIONS:  
 NEXT ASSY:

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 <sup>2</sup> )	RECOMMENDED STRIP LENGTH INCH (mm)	MIN CONTACT RETENTION LBS (N)	REF CRIMP TENSILE LBS (N)	MAX RATED AMPS @ 125°C CONTINUOUS
	PN	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 <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
	PN	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**

PN: COPPER ALLOY  
 SOCKET: COPPER ALLOY WITH STAINLESS STEEL SLEEVE

SOLID MACHINED CONTACT PLATING OPTIONS: **A**  
 31= GOLD\*  
 141= NICKEL

STAMPED CONTACT PLATING OPTIONS: **A**  
 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**

- ALL DIMENSIONS ARE INCHES(MM).
  - ALL FORCES ARE IN LBS(POUNDS) AND "N" (NEWTONS).
  - 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.
  - 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 |
- MAXIMUM RATED CURRENT IN CHART DEPENDS ON CONTACT SIZE. ACTUAL RATED CURRENT DEPENDS ON WIRE SIZE.  
 CONTACT FACTORY FOR ALL AVAILABLE PLATING ON SPECIFIC CONTACTS.  
 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	
2) Pl. SEE 30.00	DATE	4/5/09	
3) Pl. SEE 30.00	ORDERED BY	6/3/09	
4) Pl. SEE 30.00	ENGINEER	BERNIE	
5) Fabrication Standards Per:	APPROVAL	BERNIE	6/3/09
6) Pl. SEE 30.00	CUSTOMER		
7) Pl. SEE 30.00	APPROVAL		
8) Pl. SEE 30.00	CUSTOMER		
9) Pl. SEE 30.00	APPROVAL		
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11) Pl. SEE 30.00	APPROVAL		
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98) Pl. SEE 30.00	CUSTOMER		
99) Pl. SEE 30.00	APPROVAL		
100) Pl. SEE 30.00	CUSTOMER		

CONTACT DATA, GENERAL

DWG NO: S2-15217

REV: A1

DATE: 6/12/08

BY: B.D.B.

APPR: M.R.F.