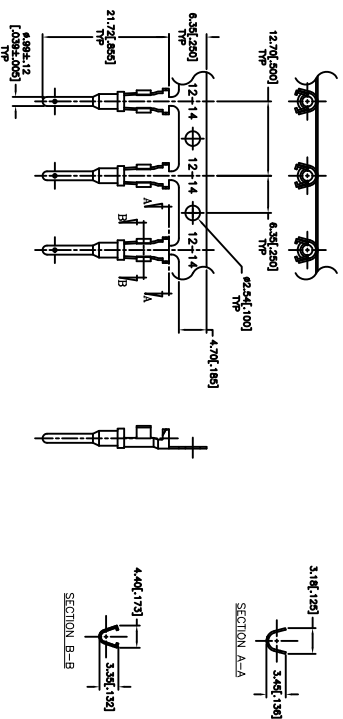
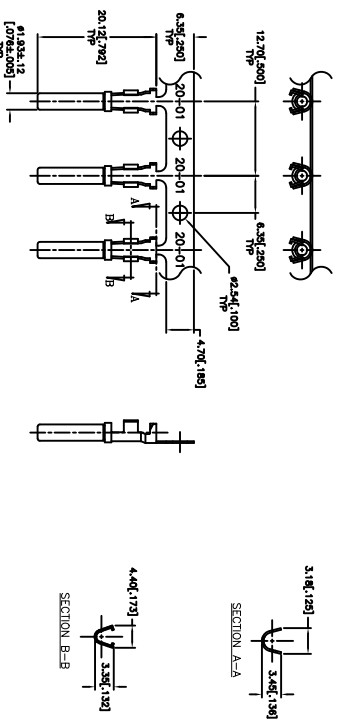


ATM-SERIES STAMPED AND FORMED CONTACTS

PART NUMBER: AT62-20-01XX
 DESCRIPTION: CONTACT, SOCKET, STAMPED, SIZE 20
 MATERIAL: CONTACT BODY: COPPER ALLOY
 HOOD: STAINLESS STEEL
 PLATING SUFFIX CODE:
 XX=22 NICKEL PLATING
 XX=44 GOLD PLATING
 CONTACT GENERAL DATA SPECIFICATION: S2-15247
 AVAILABLE CRIMPERS: ATT-20-00, MFX-3974
 CRIMP SPECIFICATIONS: S2-15245 & S2-15246
 CRIMP INFORMATION DRAWING: S2-15244
 CONTACTS PER REEL: APPROX. 4000 (PARTIAL REELS AVAILABLE)

PART NUMBER: AT60-20-01XX
 DESCRIPTION: CONTACT, PIN, STAMPED, SIZE 20
 MATERIAL: COPPER ALLOY
 PLATING SUFFIX CODE:
 XX=22 NICKEL PLATING
 XX=44 GOLD PLATING
 CONTACT GENERAL DATA SPECIFICATION: S2-15247
 AVAILABLE CRIMPERS: ATT-20-00, MFX-3974
 CRIMP SPECIFICATIONS: S2-15245 & S2-15246
 CRIMP INFORMATION DRAWING: S2-15244
 CONTACTS PER REEL: APPROX. 4000 (PARTIAL REELS AVAILABLE)



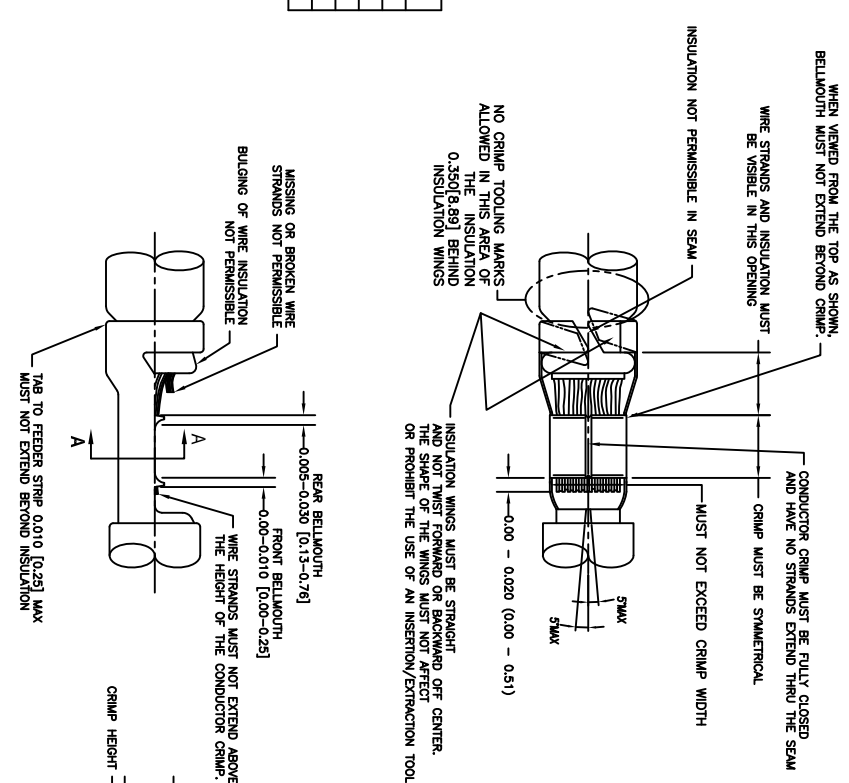
REV ZONE		ECO		RELEASE		REVISIONS	
AT	-	-	-	RELEASE	DATE	BY	APPR
					01/21/13	KMM	REC
DESCRIPTION							

DEUTSCH SHABER CONTACT PART NUMBER (1008-PIN 1008-SOCKET)	SIZE	CONDUCTOR WIRE SIZE	CRIMP HEIGHT	CRIMP WIDTH	CONDUCTOR PUNCH NUMBER	CONDUCTOR ANVIL NUMBER	CRIMP TENSILE REFERENCE
AT60-20-01xx AT62-20-01xx INSULATION RANGE 0.075 - 0.125 [1.91-3.18]	20	1.5mm ² 16 AWG 1.0mm ² 18 AWG 0.75mm ² 20 AWG 0.50mm ² 22 AWG 0.35mm ²	+0.011-0.002 INCH [+0.03-0.05 mm]	+0.003 INCH [+0.08 mm]	AT17-20-0200 AT17-21-0200 AT17-21-0200 AT17-21-0200 AT17-21-0200 AT17-21-0200 AT17-21-0200 AT17-21-0200	AT17-20-0200 AT17-10-0200	20 (89) 15 (97) 10 (44)

CROSS REFERENCE

SINE PART NUMBER	DEUTSCH PART NUMBER
MFX-3974	DOZ20-02-00
AT60-20-0122	1060-20-0122
AT62-20-0122	1062-20-0122
AT60-20-0144	1060-20-0144
AT62-20-0144	1062-20-0144

INSULATION DIAMETER RANGE	INSULATION PUNCH NUMBER	INSULATION ANVIL NUMBER
0.120 - 0.150 [3.05 - 3.81]	AT17-21-0200	AT17-31-0200
0.105 - 0.125 [2.67 - 3.18]	AT17-21-0200	AT17-31-0200
0.085 - 0.111 [2.16 - 2.82]	AT17-21-0200	AT17-31-0200
0.075 - 0.105 [1.91 - 2.67]	AT17-21-0200	AT17-30-0200
0.063 - 0.094 [1.62 - 2.39]	AT17-21-0200	AT17-31-0200
0.050 - 0.075 [1.27 - 1.91]	AT17-21-0200	AT17-31-0200



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: 0.715±0.025(4)±0.45±0.04. BROKEN OR MISSING CONDUCTOR STRANDS ARE NOT ACCEPTABLE.
5. USE A BLADE MICROMEETER (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(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 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 J128(AWG) AND ISO 6722(METRIC)
10. FOR CONTACT MATERIAL AND PERFORMANCE DATA, SEE DRAWING S2-15247.
11. REFER TO S2-15245 AND S2-15246 AND CROSS REFERENCE CHARTS FOR CRIMP TOOL DATA.

QUANTITY	PART NUMBER	MATERIALS LIST	DESCRIPTION	ITEM
UNLESS OTHERWISE SPECIFIED				
1) All dimensions are in inches.				
2) R. SEE 30.00 [7.62] POSITION 31/4				
3) R. SEE 30.00 [7.62] POSITION 31/4				
4) Reduction Standard Per:				
a) MIL-STD-20020				
b) MIL-STD-20020				
APPROVAL: R. CURRY 01/21/13				
CUSTOMER:				
THE USE OF THIS DRAWING & SPECIFICATIONS AND PERFORMANCE DIMENSIONS ARE SUBJECT TO NORMAL DOCUMENTS RETAINED HEREON. ANY CHANGES REFERENCED HEREON MAY				
PROCESS SPECIFICATIONS:				
M/A				
SIZE (PICKUP NUMBER) S2-15244				
SCALE NONE				
SHEET 4 OF 7				

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

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

ATM CRIMP DATA, STAMPED CONTACTS FOR CRIMPER MFX-3974

REVISIONS					
REV	ECO	DESCRIPTION	DATE	BY	APPR
A1	-	RELEASE	01/21/13	KMM	RFC

USE CRIMPER NUMBER:
ATT-20-00 WITH CAVITIES 20, 18 & 16

CONTACT P/N:	INSULATION ϕ	CAVITY	WIRE SIZE
AT60-20-01222 PIN	0.75 - .125 [1.91 - 3.18]	20	20 AWG [0.50 - 0.80mm ²]
AT62-20-01222 SOC	0.75 - .125 [1.91 - 3.18]	18	18 AWG [0.60 - 0.80mm ²]
AT60-20-01444 PIN	0.75 - .125 [1.91 - 3.18]	16	16 - 18 AWG [0.75 - 1.50mm ²]
AT62-20-01444 SOC	0.75 - .125 [1.91 - 3.18]	16	16 - 18 AWG [0.75 - 1.50mm ²]

GRAPHIC REPRESENTATION OF
HAND CRIMP TOOL T.B.D.

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]
 - PLATING CODES = "01222"-NICKEL; "01444"-GOLD
 - THIS TOOL IS FOR CRIMPING SIZE 20 CONTACTS ONLY TO WIRES LISTED IN THE CHARTS.
 - DEUTSCH IPD CROSS REFERENCE PART NUMBER IS DTT-20-00.

QUANTITY	PART NUMBER	DESCRIPTION	ITEM
		MATERIALS LIST	
<small>1) All dimensions are in inches. 2) Tolerances are as follows: 3 Ft. DEC 3000 Precision $\pm 2^{nd}/104$ 3 Ft. DEC 50000 Precision $\pm 2^{nd}/13$ 3) Finish: SS 30020 4) Hole Reference = Δ MATERIAL SPECIFICATIONS: N/A PROCESS SPECIFICATIONS: N/A NEXT ASST:</small>			
SIGNATURES		DATE	
DESIGNED: KMM	DATE: 01/21/13		
CHECKED: KMM	DATE: 01/21/13		
ENGINEER: KMM	DATE: 01/21/13		
APPROVAL: R. CURRY	DATE: 01/21/13		
CUSTOMER:		<small>THE USE OF THIS DOCUMENT IS UNLIMITED. DESIGN FEATURES, SPECIFIC DATA SHOWN, METHOD AND THE PROPERTY OF AMPHENOL CORP. ALL DIMENSIONS AND TOLERANCES ARE THE PROPERTY OF AMPHENOL CORPORATION. DOCUMENTS REFERENCED HEREON MAY CONTAIN LIMITED RIGHTS DATA.</small>	
SINE Systems Corporation A Subsidiary of Amphenol Corporation 44724 Morley Drive Clinton Township, MI 48036		INSTRUCTIONS, ATT-20-00 ATM HAND CRIMPER, STAMPED CONTACTS	SIZE: B SCALE: NONE REVISION: A1
REV: A1	DWG NO: S2-15245	TITLE: INSTRUCTIONS, ATM HAND CRIMPER	
SHEET 5	OF 7		

4

3

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REVISIONS			
REV	ZONE	ECO	DESCRIPTION
01	-	-	RELEASE
			01/21/13
			KMM
			RFC

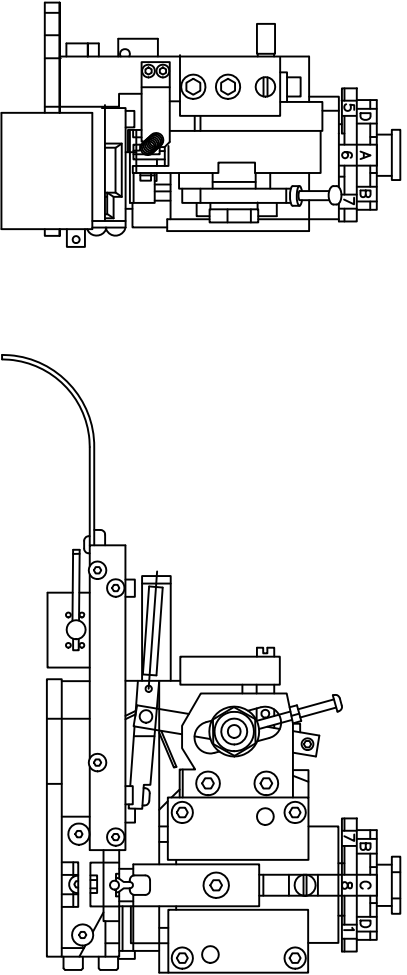
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D

C

C

SINE PART NUMBER	MFX-3974
DEUTSCH PART NUMBER	DCT20-02-00



B

ATM CRIMPER INFORMATION

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

PART NUMBER			DESCRIPTION			ITEM					
QUANTITY	MATERIALS LIST	DATE	SIGNATURES	DATE	SIGNATURES	DATE	SIZE	SCALE	NONES	RESION	
		01/21/13	KMM	01/21/13	KMM	01/21/13	A	10K44	S2-15246	A1	
UNLESS OTHERWISE SPECIFIED			1) All dimensions are in inches.			SINE Systems Corporation			A Subsidiary of Amphenol Corporation		
2) R. DEC 20.00			1 Precision 31/64			44724 Moley Drive			Clinton Township, MI 48036		
3) R. DEC 20.00			1 Angles 3:1			ATM CRIMPER INFORMATION			MFX-3974		
4) Fabrication Standard Per: A			APPROVAL: R. CURRY			01/21/13					
5) Rev. SS-20020											
6) Material Specifications:											
7) M/A											
PROCESS SPECIFICATIONS:											
NEXT ASSY:											

A

NOTE:
IT IS RECOMMENDED TO USE A CONTACT LUBRICATION SYSTEM TO PROMOTE EXTENDED DIE LIFE AND PROPER CONTACT CRIMPING.

UNIVERSAL OILER: P/N 354550-3
TERMINAL LUBRICANT: STONER P/N E807

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ATM CRIMPER INFORMATION

DWG NO: S2-15246

REV: A1

DATE: 01/21/13

BY: KMM

APP: RFC

SHEET: 6 OF 7

REVOLUTIONS		DATE	BY	APP
REV	ZONE	ECO	DESCRIPTION	
A1	-	-	RELEASE	01/21/13 KMM RFC

SOLID CONTACT SIZE	SOLID CONTACT PART NUMBERS		WIRE SIZE AWG(mm ²)	RECOMMENDED STRIP LENGTH INCH [mm]	MIN CONTACT RETENTION LBS [N]	REF CRIMP TENSILE LBS [N]	MAX RATED AMPS@125°C CONTINUOUS
	PN	SOCKET					
20	AT80-202-20141	AT82-201-20141	20 AWG 0.50mm ²	.156 - .218 [3.96 - 5.54]	20 [89]	20 [89]	7.5
	AT80-202-2031	AT82-201-2031					

S&P CONTACT SIZE	STAMPED CONTACT PART NUMBERS		WIRE SIZE AWG [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
	PN	SOCKET						
20	AT80-200-1**	AT82-200-1**	1.5mm ²	0.75 - .125 [1.91 - 3.18]	.175+/- .025 [4.45+/-0.64]	20 [89]	20 [89]	7.5
			16 AWG					
			1.0mm ²					
			18 AWG					
			0.75mm ²					
			0.60mm ²					
20 AWG								
			0.50mm ²					
			22 AWG					
			0.35mm ²					

CONTACT RESISTANCE STRENGTH (LESS DROP THROUGH WIRE)			
CONTACT SIZE	TEST CURRENT	MILLIVOLT DROP SOLID	MILLIVOLT DROP S&P
12	25	60	100
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: **A**
31= GOLD*
141= NICKEL

STAMPED CONTACT PLATING OPTIONS: **A**
22= NICKEL*
44= GOLD*

GOLD= PLATING IS AVAILABLE (RECOMMENDED) FOR ONLY (<SV) 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).
- A** CONTACT RETENTION TEST PULL RATE SHALL BE 1.0 INCH/2S. 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
S2-15243	20	S2-15244	20

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

QUANTITY	PART NUMBER	DESCRIPTION	ITEM
<p>UNLESS OTHERWISE SPECIFIED:</p> <p>1) All dimensions are in inches.</p> <p>2) Plating is standard unless otherwise specified.</p> <p>3) Plating is standard unless otherwise specified.</p> <p>4) Plating is standard unless otherwise specified.</p> <p>5) Production Standards Per: SS-20020</p> <p>6) Material Specifications: A</p> <p>7) Material Specifications: MA</p>			
SIGNATURES		DATE	
DESIGNER: KMM	DATE: 01/21/13		
CHECKED: KMM	DATE: 01/21/13		
ENGINEER: KMM	DATE: 01/21/13		
APPROVAL: R CURRY	DATE: 01/21/13		
CUSTOMER:		GENERAL CONTRACT DATA	
SINE SYSTEMS CORPORATION		STAMPED AND FORMED / MACHINED	
A Subsidiary of Amphenol Corporation		SCALE: NONE	
44724 Moley Drive		SIZE: P/SDA NO. TMS 805	
Clinton Township, MI 48036		C 10K44	
		S2-15247	
		SHEET 7 OF 7	
		REVISION: A1	