## **BATTERY CONTACTS**





## "A" • "AA" • "AAA" • "N" SIZE PC BUTTON & SPRING CONTACTS



- Ideal contacts for "A" "AA" "AAA" "N" size batteries
- Space saving design installs directly onto the PC board
- · Contacts available for .062 and .093 thick PC boards
- Reliable spring and/or button assures low contact resistance



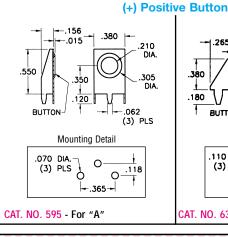


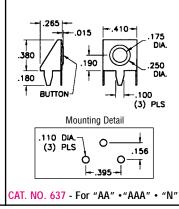


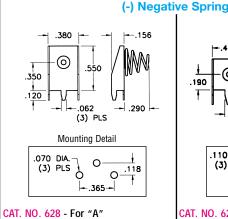


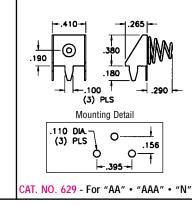
Frame: .015 Steel, Tin Plate Uses Cat. No. 211 Spring Contact MATERIAL:

## MATERIAL: Frame: .015 Steel, Tin Plate

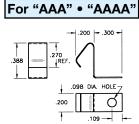








## SURFACE MOUNT BATTERY CONTACTS



CAT. NO. 5230

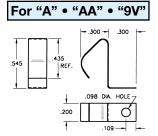
CAT. NO. 5230TR

- · Economical & reliable contacts are ideal for surface mount applications Unique spring tension contacts adjust to variations in battery length
- Reliable spring tension contacts assure low contact resistance
- · SMT solder tail with "flow-hole" design for increased joint strength MATERIAL: .010 Spring Steel, Nickel Plate



CAT. NO. 5231 Tape and Reel Spec's: 24mm wide; 12mm pitch; 13 inch reel (400 pieces per reel)



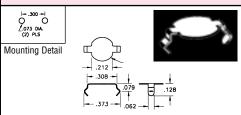


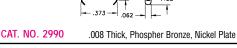
Tape and Reel Spec's:32mm wide; 12mm pitch; 13 inch reel (400 pieces per reel)

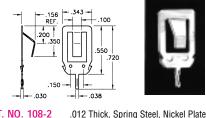
## ECONOMICAL SPACE SAVING

## PC BATTERY CONTACTS

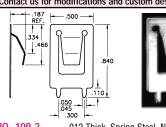
· Ideal for self-contained battery compartments Contact us for modifications and custom design

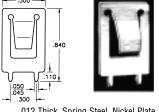




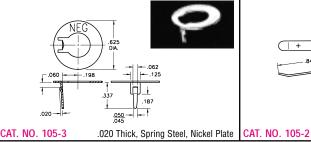


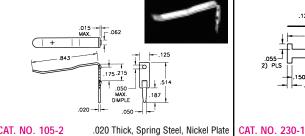


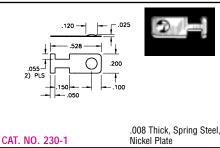




CAT. NO. 108-2 CAT. NO. 109-2 .012 Thick, Spring Steel, Nickel Plate .008 Thick, Phospher Bronze, Nickel Plate







9



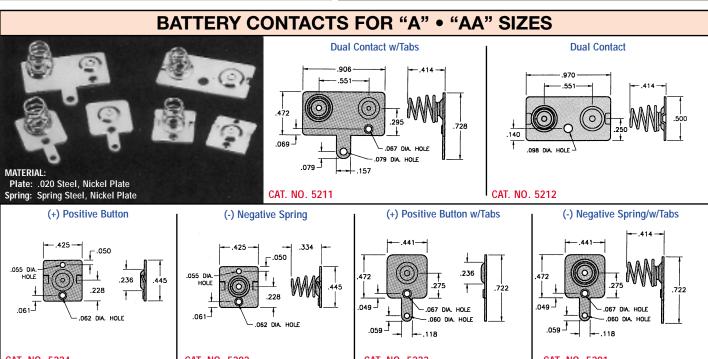


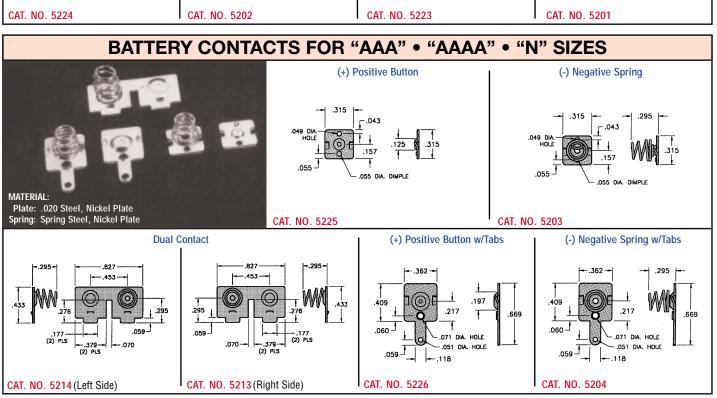
## **BATTERY CONTACTS**

#### **BATTERY SPRING & BUTTON CONTACTS**

- Economical and reliable contacts are ideal for molded cases with self contained battery compartments
- Single and dual contact designs available for "A", "AA", "AAA", "AAAA"
   "N" size batteries
- . "Solder tab" design for either wire lead or PC mounting
- . Unique spring contacts adjust to variations in battery lengths
- Reliable spring contacts assure low contact resistance and a dependable connection
- · Space saving, economical, excellent mechanical construction

# 





## **BATTERY CONTACTS**



For "A" • "AA"

.062



.250

250

.820

.820

.570

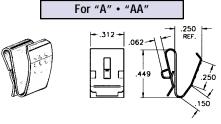
.250

#### SNAP-ON CONTACTS FOR "A" • "AA" • "AAA" • "AAAA" • "N" SIZES



- Economical and reliable contacts are ideal for molded
- cases with self contained battery compartments
- Single & dual contact designs available for "A" "AA" "AAA" "AAAA" "N" size batteries
- Solder "ear" to facilitate soldering of wire lead
- Unique spring tension contact adjusts to variations in battery length
- · Reliable spring tension contacts assure low contact resistance
- Clips easily onto .060 to .070 thick panel edges
- Sharp barbs securely anchor contact in place

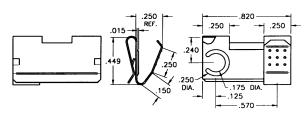
## CAT. NO. 210 MATERIAL: .012 Spring Steel, Nickel Plate For "A" • "AA" **CAT. NO. 288** MATERIAL: .012 Spring Steel, Nickel Plate For "A" • "AA"



CAT. NO. 209

MATERIAL .012 Spring Steel, Nickel Plate

CAT. NO. 290 - Left (shown) CAT. NO. 291 - Right



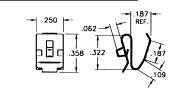
MATERIAL: .012 Spring Steel, Nickel Plate

MATERIAL: .010 Spring Steel, Nickel Plate

## -.312 .250 DIA .175 DIA MATERIAL .010 Spring Steel, Nickel Plate **CAT. NO. 228**

For "A" • "AA"



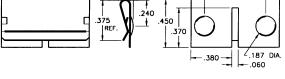


CAT. NO. 204

**MATERIAL** .010 Spring Steel, Nickel Plate

# .380 \_\_

CAT. NO. 292

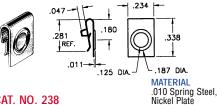


For "AAA" • "AAAA" • "N"

For "A" • "AA"



MATERIAL: .010 Spring Steel, Nickel Plate



For "AAA" • "AAAA" • "N"

CAT. NO. 238

CAT. NO. 202

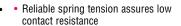




## **BATTERY CLIPS & CONTACTS**

## SNAP-IN PC BATTERY CLIPS FOR "A" • "AA" • "AAA" • "AAAA" • "N" SIZES

- Available for "A" "AA" "AAA" "AAAA" •
   "N" size batteries
- Mounts securely to the PC board with advanced "Snap-In" design for thru hole mounting
- "Snap-In" clip holds firmly for wave soldering



- · Low profile, economical design
- Retains battery securely to withstand shock and vibration

CAT.

NO.

52

92

2915

82

51





BATTERY

SIZE

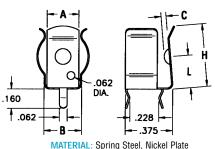
"A" • "AA"

"A" • "AA'

"A" • "AA"

"AAA" ● "N"

"AAAA"



.040 .500

.060 | .593

.060

See drawing below

.040 | .500

.375

.375

.300

Н

.593

.260







010

.010

4

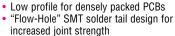
Now

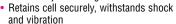
New

## **SURFACE MOUNT BATTERY CLIP**

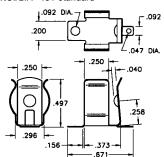
#### For "AAA" • "N"







 All conductive polystyrene carrier tape meets ANSI/EIA -481 standard



MATERIAL: .010 Spring Steel, Tin Plate
Tape & Reel Spec's: 32mm wide; 16mm pitch;
13 inch reel. (300 pieces per reel)

## "AAAA"

.250

.312

.312

.250

MATERIAL: .010 Spring Steel, Nickel Plate

CAT. NO. 51

**BATTERY** 

DIA.

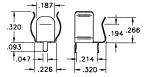
No Ears

.531-.665

.531-.665

.375-.460

.300-.350



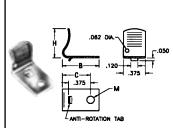
Mounting Detail

## "D" 017E0

## ECONOMY CLIPS FOR "AA" • "C" • "D" SIZES

Designed for mounting in self-contained, non-metallic battery compartments. Reliable spring tension assures low contact resistance. Recessed contact holds battery in place. All clips have anti-rotation tab.

MATERIAL: .016 Spring Steel, Nickel Plate



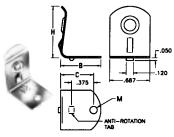


FIG. 1

FIG. 2

	CAT. NO.	FIG. NO.	В	С	Н	M MTG. HOLE	CELL SIZE
2	206	1	.625	.480	.500	.128	AA
- 2	207	2	.687	.547	.875	.128	С
2	208	2	.750	.562	1.260	.128	D

#### **BATTERY RETAINER CLIPS**



CAT. NO. 55TR (Tape and Reel)

CAT. NO. 55 (Bulk)

Pad Layout

- Prevents battery from loosening in battery holder
   Retainer clip slips on the ears of the battery holder clip
- Manufactured from Spring Steel, Nickel plate



Retainer for "AA" or cells with diameters of .532" to .562". Used with Keystone Battery Clips Cat. No. 91, 92, 92-015, 95, 99 and 100.



Retainer for "C" cells or similar size batteries to 1.032" diameter. Used with Keystone Battery Clips Cat. No. 86, 87, 93 and 222.



Retainer for "D" cells or similar size batteries to 1.343" diameter. Used with Keystone Battery Clips Cat. No. 88, 89 and 94.

#### **BATTERY SPRING CONTACTS**

For "A" • "AA" • "C" • "D" Sizes

Easy to assemble with eyelets or rivets.







(FRONT) CONTACT

(BACK) CONTACT

CAT. NO.	Н	Α	В	С	MATERIAL
211 ("A" • "AA" )	.290	.335	.100	.140	.025 Dia. Spring Steel, Nickel Plate
211-D ("C" • "D")	.850	.650	.162	.300	.040 Dia. Spring Steel, Nickel Plate

## **BATTERY & COMPONENT CLIPS**





#### STEEL SPACE SAVER BATTERY CLIPS

FOR "AA" • "C" • "D" SIZES

IDEAL FOR • CARBON ZINC • NICd • NIMH • LITHIUM • ALKALINE BATTERIES





Available with insulated or non-insulated contact. Positive contact grips battery securely.









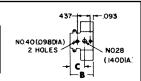
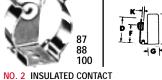


FIG. NO. 1 NON-INSULATED CONTACT

**BOTTOM VIEW** 







**BOTTOM VIEW** 

N0.28

(I40DIA.)

SPF	CIF	ICAT.	IONS

Clips: Spring Steel, Nickel Plate Contact Eyelets: Brass, Nickel Plate Insulating Washers: Moisture Proof, Resin Impregnated Fibre

Terminal Lugs: Brass, Tin Plate

					± .015	± .010	± .015	± .015	± .005	± .020	±005	± .005	± .015	STEEL
CAT. NO.	FIG. No.	CONTACT	A DIA. MIN MAX.	FOR CELLS	В	С	D	F	G	Н	J	K	M	THICK- NESS
86	1	NON-INSULATED	.875 to 1.125	С	.703	.391	.812	.593	.375	.937	.500	.050	.605	.020
87	2	INSULATED	.875 to 1.125	C	.703	.391	.812	.593	.375	.937	.500	.070	.605	.020
88	2	INSULATED	1.187 to 1.350	D	.775	.463	1.075	.750	.437	1.187	.500	.070	.609	.020
89	1	NON-INSULATED	1.187 to 1.350	D	.775	.463	1.075	.750	.437	1.187	.500	.050	.609	.020
99	1	NON-INSULATED	.531 to .650	AA	.703	.391	.609	.375	.375	.609	.312	.050	.353	.015
100	2	INSULATED	.531 to .650	AA	.703	.391	.609	.375	.375	.609	.312	.070	.353	.015

#### **ALUMINUM & STEEL COMPONENT CLIPS**





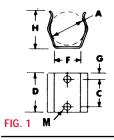


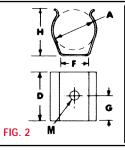


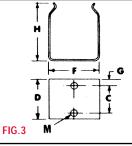


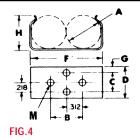


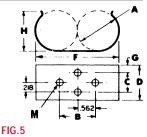












Precision made spring clips are available in a wide range of sizes. These clips will hold round, square and rectangular batteries or components with similar dimensions. Clips are manufactured from Aluminum or Spring Steel.

#### MATERIAL

Steel Clips: Spring Steel, Nickel Plate Aluminum Clips: 2024-T3

\*These clips will hold batteries or components of similar dimensions.

,	CAT. NO.	FIG. NO.	MIN MAX DIA. OR SIZE	*FOR CELLS	± .005 B	± .005 C	± .005 <b>D</b>	± .005 <b>F</b>	± .010 <b>G</b>	± .015 <b>H</b>	M M MTG HOLES.	MATERIAL
	67	3	.375 ×.125	CRYSTAL	_	.187	.375	.410	.093	.210	2#51(.067)	.016 Steel
	69	4	.562 (2)	(2) AA	.625	.437	.625	1.125	.093	.562	4#40(.098)	.015 Steel
	70	4	.656 (2)	(2) RM12	.625	.437	.625	1.343	.093	.740	4#40(.098)	.025 Alum.
	71	3	$.593 \times 1.031$	"9" VOLT	<b>—</b>	.437	.625	1.031	.093	.687	2#40(.098)	.015 Steel
	78	2	1.187 to 1.350	D	—	—	.500	.562	.250	1.218	1#29(.136)	.020 Steel
	79	4	$.650 \times 1.280$	TR146X	.625	.437	.625	1.050	.093	.765	4#40(.098)	.015 Steel
	80	3	$.650 \times 1.280$	"9" VOLT	—	.437	.625	.675	.093	1.187	2#40(.098)	.015 Steel
	90	1	.375 to .468	AAA	—	.437	.625	.312	.093	.453	2#40(.098)	.020 Alum.
	91	1	.531 to .656	AA	—	.437	.625	.406	.093	.562	2#40(.098)	.020 Alum.
	93	1	.875 to 1.125	C	—	.437	.625	.937	.093	.921	2#40(.098)	.020 Alum.
	94	3	1.187 to 1.375	D	—	.437	.625	1.250	.093	1.218	2#40(.098)	.032 Alum.
	95	3	$.625 \times 1.000$	"9" VOLT	—	.437	.625	.656	.093	1.125	2#40(.098)	.020 Alum.
	97	5	1.031 (2)	(2) C	—	.437	.625	2.062	.093	1.125	2#40(.098)	.020 Alum.
	98	5	1.312 (2)	(2) D	1.125	.437	1.000	2.656	.281	1.437	4#40(.098)	.032 Alum.
	217	2	1.375 to 1.500	NiCd	—	—	.812	1.218	.406	1.430	1#22(.157)	.025 Steel
	218	2	1.437 to 1.687	NiCd	—	—	.812	1.375	.406	1.531	1#22(.157)	.025 Steel
	219	2	2.000 to 2.500	NiCd	—	—	.812	1.687	.406	2.156	1#22(.157)	.025 Steel
	220	2	.187 to .203	5mm	—	—	.315	.158	.157	.280	1#42(.093)	.010 Steel
	221	2	.859 to .890	.875	—	—	.468	.828	.234	.906	1#22(.157)	.020 Steel
	222	1	.875 to 1.125	l C	I —	.437	.625	.937	.093	.921	2#40(.098)	.020 Steel

## 9 VOLT HOLDERS & CONNECTORS





## **HORIZONTAL 9 VOLT PC SNAP-ONS**

#### MOUNTS DIRECTLY TO PRINTED CIRCUIT BOARD

PC Male/Female for any standard 9 Volt Battery. Cut costs by eliminating wiring. Compact Space Saver.

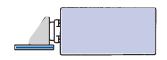
· Space saving design installs directly onto the PC board

· Contacts available for .062 and .093 thick PC boards Ideal for self-contained battery compartments



To Mount Battery "On" PC Board Use Cat. No. 593 and Cat. No. 594

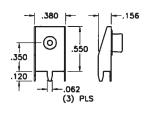




To Mount Battery "Off" PC Board Use Cat. No. 635 and Cat. No. 636

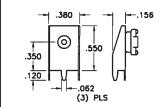
MATERIAL: Frame: .015 Steel, Tin Plate; Contacts: Steel, Nickel Plate

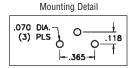
## "On-Board"



Mounting Detail .070 DIA (3) PLS .118 .365

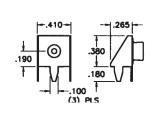
CAT. NO. 593 - Male



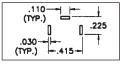


CAT. NO. 594 - Female

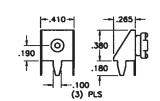
## "Off-Board"



Mounting Detail



CAT. NO. 635 - Male

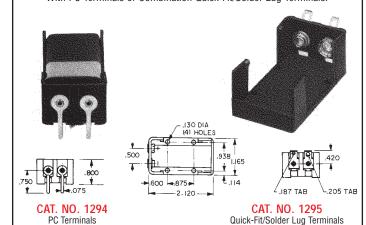


Mounting Detail .225 (TYP.)

CAT. NO. 636 - Female

#### **UNIVERSAL 9 VOLT BATTERY HOLDERS**

With PC Terminals or Combination Quick-Fit/Solder Lug Terminals.



Holds any size, any shape, standard 9 Volt battery.

Eliminates need to specify an exact battery brand, size or shape. Ideal for power source or memory back-up use in minicomputers, telecommunications, data processing, security systems, clocks, radios, toys and appliances.

**SPECIFICATIONS** 

Body: Molded from high impact, Glass Filled Nylon

Terminals: Brass, Tin Plate

Contacts: Steel. Nickel Plate

- Male-female snap-in terminals assure positive contact and proper polarity Durable, rugged construction
- Excellent spring retentionholds battery in place
- Withstands severe shock and vibration
- Operating temperature range: -40°F to +266°F (-40°C to +130°C)
- Impervious to most industrial solvents

## 9 VOLT SNAP-IN BATTERY HOLDERS

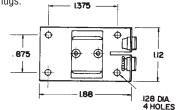
For use with standard 9 Volt battery. Battery snaps in place to insure positive contact. Ideal where severe shock and vibration are encountered. Available with standard solder lugs or printed circuit lugs.

#### SPECIFICATIONS

Frame: Aluminum

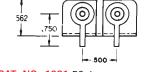
Solder Lugs: Brass, Tin Plate PC Lugs: Brass, Tin Plate

Contacts & Clips: Steel, Nickel Plate Insulation: Resin Impregnated Fibre

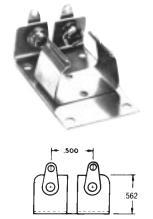


NOTE: For battery thicknesses over .640; specify Cat. No. 1290-79 or 1291-79.





CAT. NO. 1291 PC Lugs



CAT. NO. 1290 Solder Lugs

## **ENGINEERING DATA**





DRII	LL S	SIZE	DIA	MET	ER	TABI	E
Diameter	Drill Size	Diameter	Drill Size	Diameter	Drill Size	Diameter	Drill Size
.0135	80	.0935	42	.2031	13/64	.4040	Υ
.0145	79	.0938	3/32	.2040	6	.4062	13/32
.0156	1/64	.0960	41	.2055	5	.4130	Z
.0160	78	.0980	40	.2090	4	.4219	27/64
.0180	77	.0995	39	.2130	3	.4375	7/16
.0200	<b>76</b> .1015 <b>38</b> .2188		7/32	.4531	29/64		
.0210	75	.1040	37	.2210	2	.4688	15/32
.0225	74	.1065	36	.2280	1	.4844	31/64
.0240	73	.1094	7/64	.2340	A	.5000	1/2
.0250	72 71	.1100 .1110	35 34	.2344	15/64 B	.5156 .5312	33/64
.0260	70	.1110	33	.2380	С	.5312	17/32 35/64
.0292	69	.1160	32	.2420	D	.5625	9/16
.0292	68	.1200	31	.2500	1/4	.5781	37/64
.0310	1/32	.1250	1/8	.2500	F	.5938	19/32
.0320	67	.1285	30	.2570	F	.6094	39/64
.0330	66	.1360	29	.2610	G	.6250	5/8
.0350	65	.1405	28	.2656	17/64	.6406	41/64
.0360	64	.1406	9/64	.2660	Н	.6562	21/32
.0370	63	.1440	27	.2720	ı	.6719	43/64
.0380	62	.1470	26	.2770	J	.6875	11/16
.0390	61	.1495	25	.2810	K	.7031	45/64
.0400	60	.1520	24	.2812	9/32	.7188	23/32
.0410	59	.1540	23	.2900	L	.7344	47/64
.0420	58	.1562	5/32	.2950	М	.7500	3/4
.0430	57	.1570	22	.2969	19/64	.7656	49/64
.0465	56	.1590	21	.3020	N	.7812	25/32
.0469	3/64	.1610	20	.3125	5/16	.7969	51/64
.0520	55	.1660	19	.3160	0	.8120	13/16
.0550	54	.1695	18	.3230	Р	.8281	53/64
.0595	53	.1719	11/64	.3281	21/64	.8438	27/32
.0625	1/16	.1730	17	.3320	0	.8594	55/64
.0635	52	.1770	16	.3390	R	.8750	7/8
.0670 .0700	51 50	.1800 .1820	15 14	.3438	11/32 S	.8906 .9062	57/64 29/32
.0700	49	.1820	13	.3580	5 T	.9062	59/64
.0760	49	.1875	3/16	.3594	23/64	.9375	15/16
.0781	5/64	.1890	12	.3680	23/04 U	.9531	61/64
.0785	47	.1910	11	.3750	3/8	.9688	31/32
.0810	46	.1935	10	.3770	V	.9844	63/64
.0820	45	.1960	9	.3860	W	1.0000	1/1
.0860	44	.1990	8	.3906	25/64		
.0890	43	.2010	7	.3970	X		

.0625							Q .8594 <b>55/64</b>				
.0635	52		770	16	.3390	R	.8750	7/8	3.1 3.17		
.0670	51		300	15	.3438	11/32	.8906	57/64	3.2		
.0700	50	.18	320	14	.3480	S	.9062	29/32	3.3		
.0730	49		350	13	.3580	T	.9219	59/64	3.4		
.0760	48	.18	375	3/16	.3594	23/64	.9375	15/16	3.57		
.0781	5/64		390	12	.3680	U	.9531	61/64	3.6		
.0785	47		910	11	.3750	3/8	.9688	31/32	3.7		
.0810	46	.19	935	10	.3770	V	.9844	63/64	3.8		
.0820	45	.19	960	9	.3860	W	1.0000	1/1	3.9		
.0860	44		990	8	.3906	25/64			3.96 4.0		
.0890	43	.20	)10	7	.3970	Х			4.0		
									4.2		
									4.3		
SCRE	W/S'	TUE	) C	LEA	RANCE	E HO	LE TA	BLE	4.36		
••••	, •					1			4.4		
_				_			commer		4.6		
	w/Stu	d	,		v/Stud		Clearance				
S	ize			Dia.	Max.		Hole Dia.				
	0			0	60		.067		4.8		
	1		.073				.078				
	2		.086				.093				
	3			.0	99		.105				
	4			.1	12		.120				
	5			. 1	25		.130				
	6			.1	38		.144				
	0			- 1	C 1						
	8			. !	64		.169		5.9		
	10			.1	90		.196		5. <b>9</b> 5 6.0		
	12				16		220		6.1		
							.220		6.2		
•	14			.2	42		.250		6.3		
	1//			2	50		257		6.35		
	1/4 .250 .257								6.4		
31-07 20th Road • Astoria, New York 11105-2017											
e-mail: kec											

	М	11 1 11	MFT	FR	CON	JVF	RSIC	ר אכ	ΆΒΙ	F	"
	Decimal	Fraction	VI I	Decimal	Fraction	TV E	Decimal	Fraction	ADI	Decimal	Fraction
ММ	Inches	Inches	MM	Inches	Inches	MM	Inches	Inches	MM	Inches	Inches
0.1	.0039		6.5	.2559		12.8 12.9	.5039 .5079		19.2 19.3	.7559	
0.2	.0079		6.6 6.7	.2598		13.0	.5079		19.3	.7598 .7638	
0.397	.0156	1/64	6.747	.2656	17/64	13.097	.5156	33/64	19.447	.7656	49/64
0.4	.0157		6.8	.2677		13.1	.5157		19.5	.7677	
0.5	.0197		6.9	.2717		13.2	.5197		19.6	.7717	
0.6	.0236		7.0 7.1	.2756 .2795		13.3 13.4	.5236 .5276		19.7 19.8	.7756 .7795	
0.794	.0313	1/32	7.144	.2813	9/32	13.494	.5313	17/32	19.844	.7813	25/32
0.8	.0315		7.2	.2835		13.5	.5315		19.9	.7835	
0.9	.0354		7.3	.2874		13.6	.5354		20.0	.7874	
1.0	.0394		7.4 7.5	.2913 .2953		13.7 13.8	.5394 .5433		20.1	.7913 .7953	
1.191	.0469	3/64	7.541	.2969	19/64	13.891	.5469	35/64	20.241	.7969	51/64
1.2	.0472		7.6	.2992		13.9	.5472		20.3	.7992	
1.3	.0512		7.7	.3031		14.0	.5512		20.4	.8031	
1.4	.0551 .0591		7.8 7.9	.3071 .3110		14.1 14.2	.5551 .5591		20.5	.8071 .8110	
1.588	.0625	1/16	7.938	.3125	5/16	14.288	.5625	9/16	20.638	.8125	13/16
1.6	.0630	1,10	8.0	.3150	-,	14.3	.5630	.,	20.7	.8150	
1.7	.0669		8.1	.3189		14.4	.5669		20.8	.8189	
1.8 1.9	.0709 .0748		8.2 8.3	.3228 .3268		14.5 14.6	.5709 .5748		20.9	.8228 .8268	
1.984	.0746	5/64	8.334	.3281	21/64	14.684	.5746	37/64	21.034	.8281	53/64
2.0	.0787	0,0.	8.4	.3307	2	14.7	.5787	07701	21.1	.8307	00/01
2.1	.0827		8.5	.3346		14.8	.5827		21.2	.8346	
2.2	.0866		8.6	.3386		14.9	.5866		21.3	.8386	
2.3 2.381	.0906 . <b>0938</b>	3/32	8.7 8.731	.3425	11/32	15.0 15.081	.5906 .5938	19/32	21.4 21.431	.8425 .8438	27/32
2.301	.0945	3/32	8.8	.3465	11/32	15.1	.5945	17/32	21.5	.8465	21132
2.5	.0984		8.9	.3504		15.2	.5984		21.6	.8504	
2.6	.1024		9.0	.3543		15.3	.6024		21.7	.8543	
2.7 2.778	.1063 .1094	7/64	9.1 <b>9.128</b>	.3583 .3594	23/64	15.4 15.478	.6063 . <b>6094</b>	39/64	21.8 21.828	.8583 . <b>8594</b>	55/64
2.776	.11094	7/04	9.126	.3622	23/04	15.476	.6102	39/04	21.020	.8622	33/04
2.9	.1142		9.3	.3661		15.6	.6142		22.0	.8661	
3.0	.1181		9.4	.3701		15.7	.6181		22.1	.8701	
3.1 3.175	.1220 .1 <b>250</b>	1/8	9.5 <b>9.52</b> 5	.3740 .3 <b>750</b>	3/8	15.8 15.875	.6220 . <b>6250</b>	5/8	22.2 22.225	.8740 . <b>8750</b>	7/8
3.175	.1260	1/0	9.525	.3780	3/0	15.875	.6260	3/6	22.223	.8780	7/0
3.3	.1299		9.7	.3819		16.0	.6299		22.4	.8819	
3.4	.1339		9.8	.3858		16.1	.6339		22.5	.8858	
3.5 3.572	.1378 . <b>1406</b>	9/64	9.9 <b>9.922</b>	.3898 . <b>3906</b>	25/64	16.2 16.272	.6378 . <b>6406</b>	41/64	22.6 22.622	.8898 . <b>8906</b>	57/64
3.6	.1417	9/04	10.0	.3937	23/04	16.272	.6417	41/04	22.622	.8937	37/04
3.7	.1457		10.1	.3976		16.4	.6457		22.8	.8976	
3.8	.1496		10.2	.4016		16.5	.6496		22.9	.9016	
3.9 3.969	.1535 . <b>1563</b>	5/32	10.3 10.319	.4055 .4063	13/32	16.6 16.669	.6535 . <b>6563</b>	21/32	23.0 23.019	.9055 . <b>9063</b>	29/32
4.0	.1575	3/32	10.317	.4094	13/32	16.7	.6575	21/32	23.017	.9094	27/32
4.1	.1614		10.5	.4134		16.8	.6614		23.2	.9134	
4.2	.1654		10.6	.4173		16.9	.6654		23.3	.9173	
4.3 4.366	.1693 .1 <b>719</b>	11/64	10.7 10.716	.4213 .4219	27/64	17.0 17.066	.6693 . <b>6719</b>	43/64	23.4 23.416	.9213 . <b>9219</b>	59/64
4.4	.1732	11/04	10.710	.4252	27/04	17.000	.6732	43/04	23.5	.9252	37/04
4.5	.1772		10.9	.4291		17.2	.6772		23.6	.9291	
4.6	.1811		11.0	.4331		17.3	.6811		23.7	.9331	
4.7 4. <b>763</b>	.1850 .1 <b>87</b> 5	3/16	11.1 11.113	.4370 .4375	7/16	17.4 17.463	.6850 . <b>687</b> 5	11/16	23.8 23.813	.9370 . <b>9375</b>	15/16
4.703	.1890	3/10	11.113	.4409	7/10	17.403	.6890	11/10	23.9	.9409	13/10
4.9	.1929		11.3	.4449		17.6	.6929		24.0	.9449	
5.0	.1969		11.4	.4488		17.7	.6968		24.1	.9488	
5.1 5.159	.2008 .2031	13/64	11.5 11.509	.4528 .4531	29/64	17.8 17.859	.7008 . <b>7031</b>	45/64	24.2 24.209	.9528 . <b>9531</b>	61/64
5.139	.2031	13/04	11.6	.4567	27104	17.639	.7047	73/04	24.209	.9567	01/04
5.3	.2087		11.7	.4606		18.0	.7087		24.4	.9606	
5.4	.2126		11.8	.4646		18.1	.7126		24.5	.9646	
5.5 5.556	.2165 . <b>2188</b>	7/32	11.9 11.906	.4685 .4688	15/32	18.2 18.256	.7165 . <b>7188</b>	23/32	24.6 24.606	.9685 . <b>9688</b>	31/32
5.6	.2205	1132	12.0	.4724	13/32	18.3	.7205	23/32	24.7	.9724	31/32
5.7	.2244		12.1	.4764		18.4	.7244		24.8	.9764	
5.8	.2283		12.2	.4803		18.5	.7283		24.9	.9803	
5.9 5.953	.2323 .2344	15/64	12.3 12.303	.4843	31/64	18.6 18.653	.7323 . <b>7344</b>	47/64	25.0 25.003	.9843 . <b>9844</b>	63/64
6.0	.2344	13/04	12.303	.4882	31/04	18.7	.7362	7//04	25.003	.9882	03/04
6.1	.2402		12.5	.4921		18.8	.7402		25.2	.9921	
6.2	.2441		12.6	.4961		18.9	.7441		25.3	.9961	
6.3 6.350	.2480 . <b>2500</b>	1/4	12.7 12.700	.5000 . <b>5000</b>	1/2	19.0 19.050	.7480 . <b>7500</b>	3/4	25.400	1.0000	1
6.350	2520	1/4	12.700	.5000	1/2	19.050	7520	3/4			

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