Interconnect Components & Hardware

CATALOG 985

KEYSTONE
ELECTRONICS CORP.

INTRODUCTION

This **New** and Comprehensive Catalog with its ***"Designer's Choice"*** logo, signifies that our products are engineered specifically for use by OEM Designers and Engineers who create and develop state-of-the-art electronic products, instruments and systems.

For nearly fifty years, Keystone has been manufacturing precision electronic interconnect components and hardware — supplying quality products at competitive prices to industry, worldwide.

Design and engineering, precision tool and die capabilities, close tolerance stamping, machining and assembly, computer based quality control and responsive customer service are all vital in-house resources which constitute Keystone's capabilities.

While our catalog products meet most standard requirements, modifications as well as custom fabrications can be manufactured to meet your special needs **(See Page 94)**.

Listed below is a quick reference to the *NEW* products included in this catalog.

PRODUCT	PAGE
Banana Plugs	30
Battery Contacts	12, 13
Battery Holders (Molded)	3, 4, 5, 11
Captive Hardware	42, 43
Coin Cell Holders	4, 5
Computer Hardware	35
Connector Hardware	35, 68
Encapsulation Shells	52
Force-Fit Standoffs	38
Fuse Clips & Holders	23-25
Insulated Standoffs	36, 41
LED Spacers	59
Metric Standoffs	36
Phono Plugs	32, 33
Quick-Fit Terminals	64, 65, 67
Screw Terminals	66, 67
Shorting Plugs	68
Test Points	63, 64

TABLE OF CONTENTS

Designers' Choice KEYSTONE

A — Page
ALLIGATOR CLIPS ... 16
B
BANANA PLUGS & JACKS ... 30, 31
BATTERY HOLDERS
Aluminum ... 8, 10
Clips ... 13, 14
Contacts ... 12, 13
Coin Cell (Lithium) ... 4, 5
Connectors ... 11, 12
Interconnect, Series ... 10
Molded ... 3, 4, 5, 11
Plugs ... 15
Printed Circuit ... 3, 4, 5, 10, 11, 13
Steel ... 6, 10
Accessories ... 15
BINDING POSTS ... 34
BOARD GUIDES, PC ... 60
BRACKETS (Mounting) ... 44, 45
BUMPERS, RUBBER/VINYL ... 54
BUSHINGS, GROMMET ... 54, 57
C
CABLE CLAMPS (Nylon & Steel) ... 56, 57
CAPS, LED LENS ... 58
CAPTIVE HARDWARE ... 42, 43
CARD EJECTORS, PC ... 60
CARRIER BOARDS ... 82
CASES
Enclosures ... 53
Instrument & Meter ... 51
Relay & Module ... 80
CERAMIC STANDOFFS ... 41
CLIPS
Alligator ... 16
Battery & Components ... 13, 14
Fuse ... 23, 24
COMPUTER HARDWARE ... 35
CONNECTORS
Battery Snap-ons ... 11, 12
Hardware ... 35
Phono ... 32, 33
Shorting Plugs ... 68
CONTACTS (Battery) ... 12, 13
CRIMP LUGS ... 62, 75, 76, 77
E
ENCAPSULATION SHELLS ... 52
ENCLOSURES ... 51,53,80
EYELETS ... 61
F
FAN/FINGER GUARDS ... 46, 47
FIBRE WASHERS (Flat & Shoulder) ... 55
FUSE CLIPS & HOLDERS ... 23, 24, 25
G
GROMMETS, RUBBER/NYLON ... 54
GUARDS, FAN/FINGER ... 46, 47
H
HANDLES, INSTRUMENTATION ... 48-50
HEADERS (Plug-in) ... 80
HINGED STANDOFFS ... 39
HOLE PLUGS (Steel/Nylon) ... 57
HOUSINGS (Relay & Module) ... 80
I
I.C. SOCKET CONTACTS ... 68, 69
INSULATING HARDWARE
LED Spacer Mounts ... 59
Spacers & Standoffs ... 36, 41
Washers (Flat & Shoulder) ... 55
INSTRUMENT CASES ... 51
J — Page
JACKS
Banana ... 31
Micro ... 69
Phono ... 32, 33
Test ... 29
Tip ... 28
JACK SCREWS ... 35
K
KITS
Probe ... 26
Spacer ... 39
Staking Tool ... 78
Terminal Board ... 60
Test Lead ... 26
Transistor Mounting ... 20, 21
L
LED LENS CAPS ... 58
LED SPACER MOUNTS ... 59
LOCKNUTS ... 43
LUGS
Crimp (Ring & Spade) ... 62, 76, 77
Extruded ... 64, 87
Lockwasher ... 62
Printed Circuit ... 15, 63, 64
Quick-Fit ... 64, 65, 67, 76, 77
M
MICA INSULATORS ... 22
MICRO PINS & JACKS ... 68, 69
N
NUTS, PANEL ... 43
P
PANEL HARDWARE ... 42, 43
PHENOLIC SPACERS ... 41
PHONO JACKS & PLUGS ... 32, 33
PINS (Micro, Socket & Wirewrap) ... 68, 69, 75
PLUGS
Banana ... 30
Battery ... 15
Hole ... 57
Phono ... 33
Shorting ... 68
Tip ... 27
PLUG-IN HOUSINGS ... 80
PRE-PUNCHED BOARDS (Breadboards) ... 81
PRINTED CIRCUIT COMPONENTS
Battery Holders ... 3, 4, 5, 10, 11, 13
Battery Contacts ... 13
Board Guides ... 60
Card Ejectors ... 60
Fuse Clips & Holders ... 24, 25
LED Spacers ... 59
Phono ... 32
Quick-Fit ... 65
Sockets ... 17-19
Terminals ... 15, 63-73
Test Jacks ... 29
Test Points ... 63, 64
PROBES, TEST ... 26
Q
QUICK-FIT COMPONENTS
Boots ... 64
Connectors ... 64, 65, 67, 76, 77
Fuse Clips ... 23
Lugs ... 15, 64
Terminals ... 64, 65, 67, 76, 77
Terminal Boards ... 86
R — Page
RELAY COVERS & HEADERS ... 80
RIVETS ... 61
RUBBER BUMPERS & GROMMETS ... 54
S
SCREW TERMINALS ... 66, 67
SCREWS
Captive ... 42, 43
Jack ... 35
Shoulder ... 42
Thumb ... 42, 43
SHAFT LOCKS & COUPLINGS ... 43
SHORTING PLUGS ... 68
SOCKET CONTACTS ... 69
SOCKETS
Micro ... 69
Phono ... 32, 33
Transistor ... 17-21
SOLDERLESS TERMINALS ... 70-72
SPADE BOLTS ... 66
SPACERS (Aluminum, Brass, Nylon & Phenolic) ... 36-41
LED ... 59
STANDOFFS (Aluminum, Brass, Ceramic, Nylon, Phenolic & Stainless) ... 36-41
T
TERMINALS
Extruded Lug ... 64, 87
I.C. Socket ... 68, 69
Lockwasher ... 62
Micro ... 68
Push-in ... 74
Printed Circuit ... 15, 63-73
Quick-Fit ... 64, 65, 67
Screw ... 66, 67
Spade ... 66
Turret (Rivet Type) ... 71-73
TERMINAL BOARDS
Carrier ... 82
Extruded Lug ... 86, 87
Feed-Thru ... 86
Military ... 82
Quick-Fit ... 86
Pre-Punched (Breadboard) ... 81
Scored ... 82, 83
Screw Terminals ... 86
Turret Terminals ... 82-85
TERMINAL STRIPS
Miniature & Standard ... 87
Screw Terminals ... 86
TEST POINTS ... 63, 64
TEST SOCKETS ... 69
TEST TIPS & JACKS ... 27-29
THUMB SCREWS ... 42-43
TOOLS
Crimper ... 79
Hand Punch ... 79
Staking ... 78, 79
TRANSISTOR SOCKETS & HARDWARE
Covers ... 21
Mica Insulators ... 22
Mounting Kits & Hardware ... 20, 21
Mounts, Insulated ... 20
Printed Circuit ... 17-19
Snap-in ... 18
Sockets ... 17-19
W
WASHERS
Fibre (Flat & Shoulder) ... 55
Nylon (Flat & Shoulder) ... 55

RECEIVED
DEC 07 1993
P. BARNES-ROBERTS

All products unconditionally guaranteed against defects in material and workmanship.

Keystone components are guaranteed to be free from defects in material and workmanship for a reasonable period of time after delivery. Our liability shall be limited to replacement of defective material only. Neither seller or manufacturer shall be liable for any injury, loss or damage, direct or consequential, rising out of the use of or the inability to use the products. Before using, user shall determine the suitability of the product for his intended use, user assumes all risk and liability whatsoever in connection therewith.

We reserve the right to change specifications on any and all items shown in this catalog or any supplements without prior notice providing the performance or appearance will not change the function of the item.
Keystone has carefully prepared the catalog specifications contained herein. These specifications are for reference only, any inaccuracies may be due to typographical errors or changes made after the publication of this catalog.
©Copyright 1992 by Keystone Electronics Corp. Printed in U.S.A.

FEDERAL SUPPLY CODE
FSCM
91833

25J492

BATTERY HARDWARE

Keystone offers the most complete, proven line of battery components and hardware in the world.

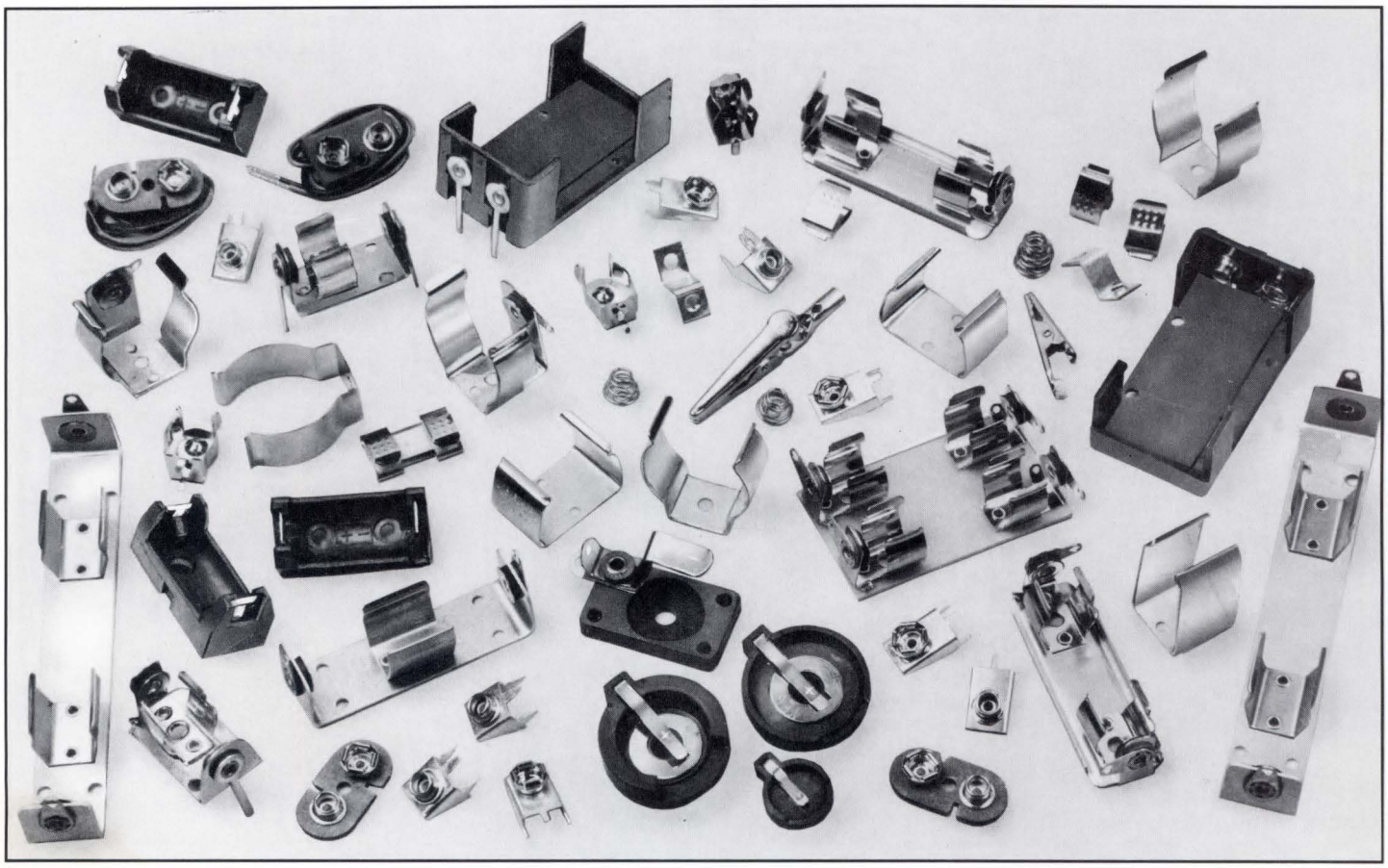
Pioneering new products to high standards of engineering excellence, our expertise is exemplified by the broad range of battery components we manufacture.

Our battery hardware will accommodate "AAA", "AA", "A", "C", "D", "9 Volt", "Button" and "Coin Cell" sizes, in the complete range of energy systems—Alkaline, NiCd, Lithium, Mercury and Zinc type batteries.

Designed and engineered for equipment manufacturers in Industry, Commerce and Defense, the prime feature of our products is their "high reliability" . They maintain constant spring tension, assuring low contact resistance.

Custom designs and variations of our standard parts can be manufactured to meet your specific requirements.

HOLDERS, CLIPS, CONTACTS AND ACCESSORIES

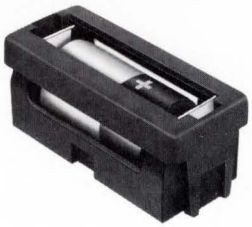


PC BATTERY HOLDERS

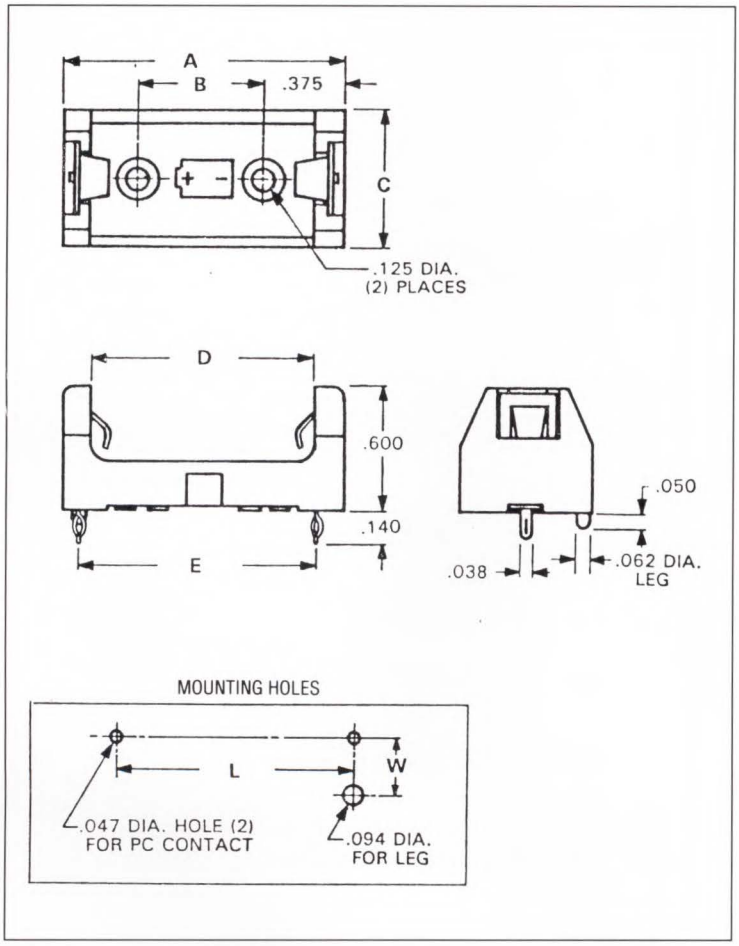
Designers' Choice KEYSTONE

FOR "1/2 AA", "AA" AND "2/3 A" SIZES

LOW PROFILE – SNAP-IN



RETAINER COVERS
CAT. NO. 108C (used with #108)
CAT. NO. 1028C (used with #1028)
CAT. NO. 1029C (used with #1029)



SPECIFICATIONS

- **Holder:** Glass filled Nylon— UL rated 94V-0.
- **Contacts:** Spring steel .012 thick.
- **Plating:** Bright Electro-Tin over Duplex nickel; over copper plate.
- **Retainer Cover:** ABS, UL rated 94V-0.

FEATURES:

- Snap-In PC contact design holds in position for wave solderability.
- Tin over nickel plated PC contacts for excellent solderability.
- Polarity marking and orientation.
- Low Profile,space-saving.
- Snap-on retainer cover (optional). Retains battery securely to withstand severe shock and vibration. Helps protect against shorting. Tamper proof.

APPLICATIONS:

- Computer memory, power transfer and back-up systems.
- Video and telecommunications power back-up.
- Preprogrammed video and electronic games.
- Microprocessors and Microcomputers memory hold.
- Emergency power systems.
- Industrial and commercial security and alarm systems.
- Communications power sources.
- Miniaturized battery power devices.

		DIMENSIONS					MOUNTING DIMENSIONS		
CAT. NO.	SIZE & TYPE	A (MAX)	B	C	D	E	L	W	BATTERY CROSS REFERENCE
108	1/2 AA	1.360	.610	.640	1.030	1.160	1.160	.279	**Eveready** 544, **Duracell** PX28L, **Kodak** K28A & KS28, **Panasonic** CR14250, **Saft** LCP3, **Electrochem** 3B955, **Maxell** 4LR44, **Sanyo** CR14250SE.
1028	AA	2.360	1.610	.640	2.030	2.160	2.160	.279	**Eveready** E9, EV15, E91, E177, 505, 1015. **Duracell** ZM9, NC 15, M15F, TR177, M505, MN1500, PC1500. **Panasonic** UM-3 & P-45AA. **Sanyo** N-600AA & N-700AA. **Rayovac** 5AA, 7A, 615, 815.
1029	2/3 A	1.700	.950	.720	1.375	1.500	1.500	.320	**Duracell** DL2/3A, **Electrochem** 3B793 & 3B950, **Panasonic** CR123A, **Saft** 450SC & VR0450, **Sanyo** CR17335SE, **Kodak** K123L.

LITHIUM BATTERY HOLDERS

LITHIUM BATTERY HOLDERS

Available from stock with or without printed circuit lugs in phenolic, aluminum or steel.

NOTE: Holders for battery types not shown can be manufactured to suit your requirements. Prompt quotations rendered.

PHENOLIC BASE
PHOS. BRONZE SPRING

FIG. 1

ALL STEEL

STANDARD LUGS

FIG. 2

P.C. LUGS

FIG. 3

ALL STEEL

STANDARD LUGS

FIG. 4

P.C. LUGS

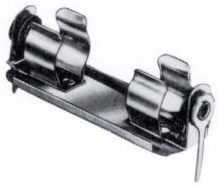


FIG. 5

ALUMINUM

STANDARD LUGS

FIG. 6

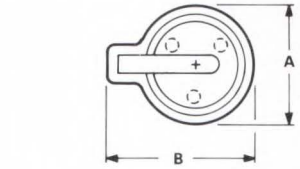
P.C. LUGS

FIG. 7

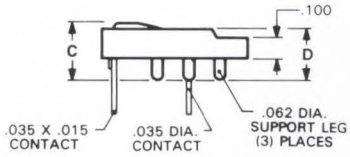
LITHIUM BATTERY HOLDERS					WITH STANDARD LUGS		WITH P.C. LUGS	
DURACELL	PANA–SONIC	SANYO G.E.	POWER CONV.	SIZE O.D. X H	CAT NO.	FIG. NO.	CAT. NO.	FIG. NO.
DL-1/3N	—	CR-1/3N	—	.457 x .415	**102**	1	—	—
PX28L	CR14250	CR14250SE	G04/11	.51 x .99	**1103**	2	**2103**	3
—	BR-1/2A	—	G31/11	.611 x .886	**1105**	2	**2105**	3
DL-2/3A	BR-2/3A	CR17335SE	G06/11	.661 x 1.315	**132**	6	**131**	7
DL-2N	—	CR12600SE	—	.47 x 2.36	**130**	6	**129**	7
—	—	—	G20/11	1.31 x 4.75	**2186**	4	**2184**	5

12mm & 16mm COIN CELL HOLDERS

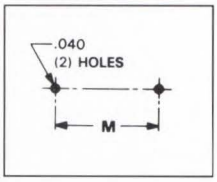
- Single and Dual holders designed to accommodate 3 Volt lithium coin cells.
- Provides for proper polarity.
- Low profile for high density packaging.
- Mounts Directly to Printed Circuit boards.



ITEM	DESCRIPTION	MATERIAL
1	BASE BLACK	GLASS FILLED NYLON
2	POS. CONT.	.015 SPRING STEEL NICKEL PLATE OVER COPPER
3	NEG. CONT.	



MOUNTING HOLES



CAT. NO.	NUMBER OF CELLS	A	B	C	D	M	TYPE
500	1	.593	.750	.312	.250	.393	12mm
501	2	.593	.750	.400	.350	.393	12mm
502	1	.750	.897	.312	.250	.463	16mm

6 VOLT LITHIUM BATTERY HOLDERS

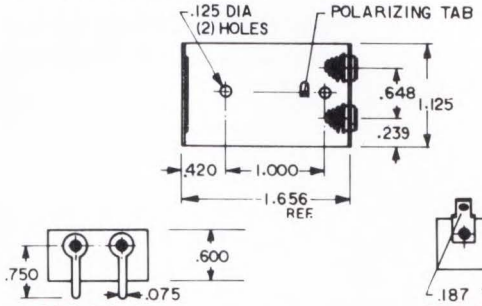
FOR DURACELL DL223A OR EQUIVALENT BATTERIES.

With Printed Circuit Terminals or Quick-Disconnect/Solder Lug Terminals.

- Guaranteed polarity, non-reversible.
- Instant and efficient operation even at sub-zero temperatures.
- Lightweight, maintenance-free, pre-tested for rugged use.

SPECIFICATIONS:

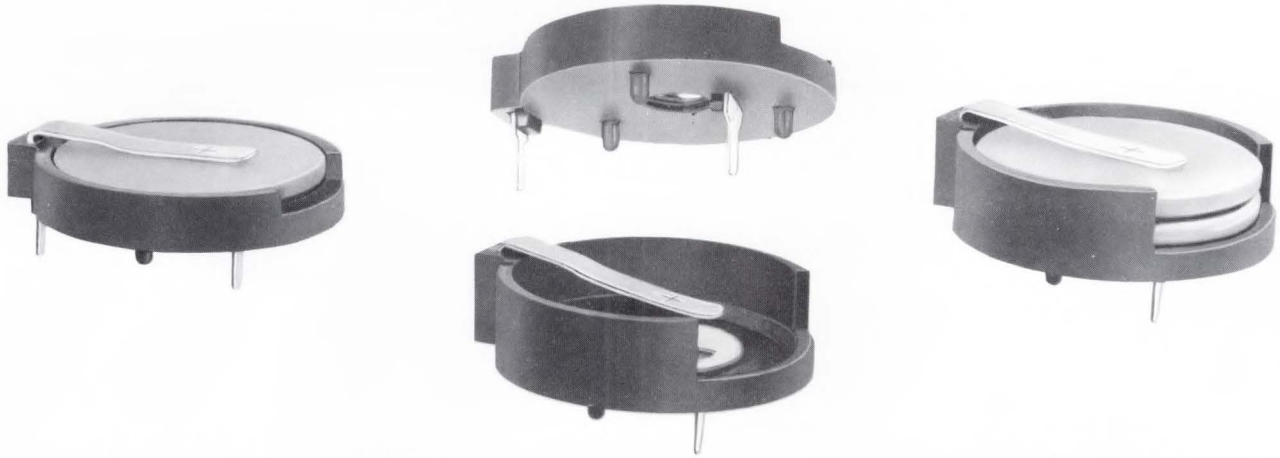
Frame: Aluminum 2024T-3
Contacts: Spring Steel, Nickel Plated music wire.
Terminals: Brass, Tin Plated.



CAT. NO. 224
with printed circuit terminals.

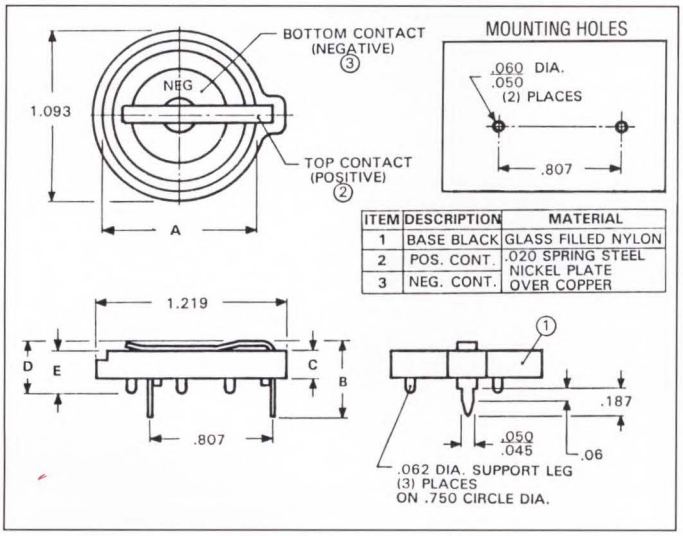
CAT. NO. 223
with combination quick-disconnect solder lug terminals.

FOR MEMORY BACK-UP APPLICATIONS ... 20 TO 24mm SIZES



SINGLE CELL HOLDER
(3-VOLT)

Single and Dual Cell Holders designed for Lithium Coin Cells. An advanced, low profile, coin cell holder for 3 and 6 volts that accommodates 20 to 24 mm (dia.) Lithium batteries with 1.6 to 5.0 mm (hts.). Mounts directly to printed circuit boards and features new air-flow design-support legs for easy, safe, flow soldering. Battery insertion is quick and easy. The nickel-plated spring steel contacts have clearly marked polarities. Made of UL approved, glass-filled Nylon, 94 V-O.



ITEM	DESCRIPTION	MATERIAL
1	BASE BLACK	GLASS FILLED NYLON
2	POS. CONT.	.020 SPRING STEEL NICKEL PLATE OVER COPPER
3	NEG. CONT.	

DUAL CELL HOLDER
(6-VOLT)

SPECIAL FEATURES: All holders have the same outside diameter and mounting configurations. This permits change of design to accommodate larger or smaller capacity batteries without altering the PC boards.

IDEALLY SUITED FOR...

- Duracell, Eveready, Panasonic, Ray-O-Vac, Sanyo, Varta, Toshiba, Seiko and other major battery manufacturers.
- Computer memory, power transfer and back-up systems.
- Video and telecommunications power back-up.
- Preprogrammed video and electronic games.
- Microprocessors and Microcomputer memory hold.
- Emergency power systems.
- Industrial and commercial security and alarm systems.
- Communications power sources.
- Miniaturized battery power devices.

DESIGN ADVANTAGES...

- Accommodates 20 to 24 mm (dia.) by 1.6 to 5.0mm (hts.) Lithium coin cell batteries. Low profile for high density packaging.
- Unique notched slots assure quick and easy battery insertion and replacement.
- Made of tough, punishment-proven, black, glass-filled Nylon, UL rated 94 V-0. Impervious to most industrial solvents.
- Operating temperature range: -50°C to +145°C.
- Advanced air-flow design pattern enhances air circulation around battery.
- Nickel-over-copper plated spring steel contacts feature clearly marked polarities to help guard against improper insertion.
- Lightweight, rugged construction.

		DIMENSIONS					BATTERY CROSS REFERENCE				
CAT. NO	NUMBER OF CELLS	A	B	C	D	E	SANYO	TOSHIBA VARTA	DURACELL	RAY-O-VAC PANASONIC	EVEREADY ELECTROCHEM
105	1	.985	.513	.195	.335	.295	CR2420	CR2420	DL2430	—	—
1025	2	.985	.630	.312	.452	.412	CR2430	CR2430	DL2450*	—	—
106	1	.796	.513	.195	.335	.295	CR2016	CR2016	DL2016	BR2016	CR2016
1026	2	.796	.630	.312	.452	.412	CR2025 CR2032	CR2025 CR2032	DL2025 DL2032	CR2016 CR2025 BR2032	CR2025 CR2023 CR2032
107	1	.911	.513	.195	.335	.295	CR2320	CR2316 CR2320	CR2316 —	BR2320 CR2320 BR2330	—
1027	2	.911	.630	.312	.452	.412					

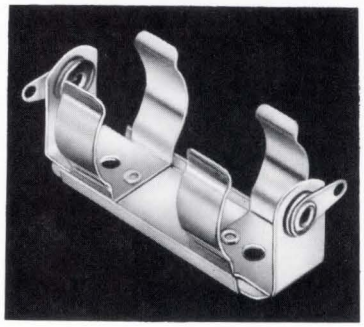
*Applicable for Part Number 1025 for 1 Battery only.

STEEL BATTERY HOLDERS

SEE PAGE 7 FOR MATERIAL SPECIFICATIONS AND DIMENSIONAL DRAWINGS

RUGGED STEEL BATTERY HOLDERS

An important advance in design that has gained wide acceptance for commercial and military applications. Batteries are held under constant spring tension assuring low contact resistance. Retainer clips available to lock batteries in place which prevents shifting or loosening of batteries in holders. Recommended for use where shock or severe vibration is encountered. Special fabrication for more than four batteries or variation from standard stock parts can be assembled to meet your requirements. Prompt quotation rendered.



- CORROSION RESISTANT NICKEL PLATED
- BRASS CONTACTS NICKEL PLATED
- MOISTURE PROOF RESIN IMPREGNATED, FIBRE INSULATING WASHERS
- IDEAL FOR NiCd, ALKALINE, MERCURY, CARBON, ZINC AND LITHIUM CELLS

INSULATOR TUBES SUPPLIED FOR 2-3-4 CELLS END TO END

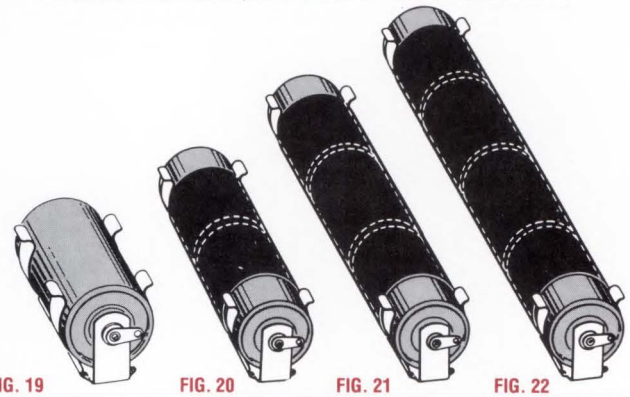


FIG. 19 FIG. 20 FIG. 21 FIG. 22

PHENOLIC BASE

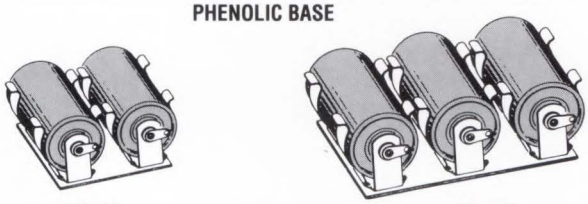


FIG. 23 FIG. 24

PHENOLIC BASE

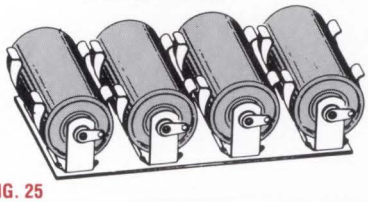
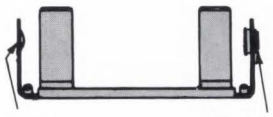


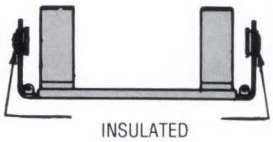
FIG. 25

1100 SERIES
(GROUNDED ONE SIDE)



DIMPLE CONTACT — INSULATED CONTACT

2100 SERIES
(FULLY INSULATED)



INSULATED CONTACTS

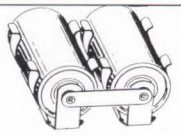
1100 SERIES ONE CONTACT INSULATED CAT. NO.	2100 SERIES ALL CONTACTS INSULATED CAT. NO.	FIG. NO.	HOLDS NO. OF CELLS	BATTERY CROSS REFERENCE — ALL BATTERIES LISTED WITHIN BOXES ARE IN THE SAME SIZE GROUP: EVEREADY	DURACELL	RAY-O-VAC	NEDA
"AA" CELL HOLDERS (BATTERY SIZE .531/.565 O.D. × 1.906/1.988 H)							
1139	2139	19	1	E9, EV15, EN91, CH15. E133, E133N, E177, 505, 523, 1015,1215	ZM9, RM12R, NC15AA, M15F, M15AA, TR133R, TR177, M505, MN1500, PC1500	5AA, 615, 815, 7AA	15,15A,15C, 15D,15F, 15M,15NC, 221,1101M, 1113M, 1306AP, 1306M, 1314M,1606M
—	2140*	23	2				
—	2171*	24	3				
—	2182*	25	4				
1189	2189	20	2				
1191	2191	21	3				
1194	2194	22	4				
"C" CELL HOLDERS (BATTERY SIZE .875/1.125 O.D. × 1.875/1.969 H)							
1173	2173	19	1	CH35, E93, 935, 1235, EV35, EN93	M14F, M14HD, NC14C, TR286, MN1400, PC1400	1C, 614, 814	14A, 14C, 14D,14F, 14NC, 1600M
—	2174*	23	2				
—	2187*	24	3				
—	2188*	25	4				
1185	2185	20	2				
1195	2195	21	3				
1198	2198	22	4				
"D" CELL HOLDERS (BATTERY SIZE 1.187/1.375 O.D. × 2.312/2.412 H)							
1175	2175	19	1	CH50, E95, 950, 1250, EV50, EN95	M13F, NC13D, S42, M13HD, TR289, MN1300, PC1300	2D, 6D, 613, 813	13A, 13C, 13D, 13F, 13NC, 1115M, 1810M
—	2176*	23	2				
—	2190*	24	3				
—	2192*	25	4				
1186	2186	20	2				
1199	2199	21	3				
1162	2162	22	4				

*Clips mounted on Phenolic 1/16" thick

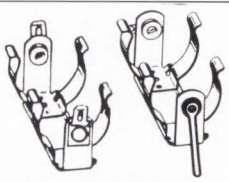
MODIFICATIONS AVAILABLE

Use our engineering services for your custom battery holders or modifications to our standard products.

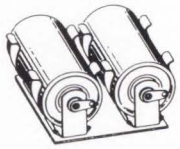
JUMPERS
Jumpers permit cost saving and eliminates wiring.



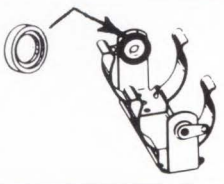
SPECIAL LUGS
Printed Circuit, Solderless or Quick-Disconnect Lugs available for your special connection requirements.



MULTIPLE UNITS
Jumpers, special lugs and polarized contacts available for custom applications.



POLARIZED CONTACTS
Assure proper battery insertion and correct polarity.



STEEL BATTERY HOLDERS

Designers' Choice — KEYSTONE

MATERIAL SPECIFICATIONS

Clips: SAE 1050 Steel
Heat treated to spring temper. Nickel Plated.
Contact Eyelets: Brass, Nickel Plated.
Insulating Washers: Moisture proof, resin impregnated fibre.
Terminal Lugs: Brass
Tin plate per MIL-T-10727
Phenolic Base: Type PBE, Per MIL-P-3115C.
Base: Ribbed stainless steel, for added support.

DIMENSIONAL DRAWINGS FOR STEEL BATTERY HOLDERS

FIG. 1

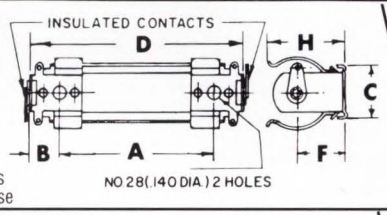


FIG. 2

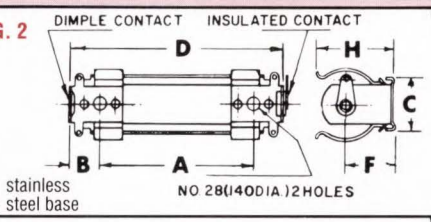


FIG. 3

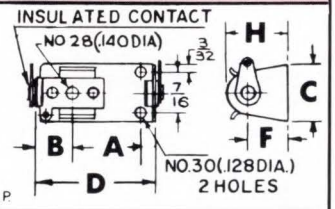


FIG. 4

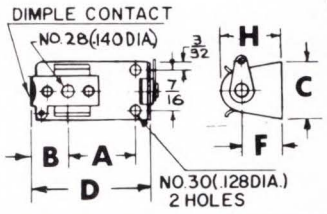


FIG. 5

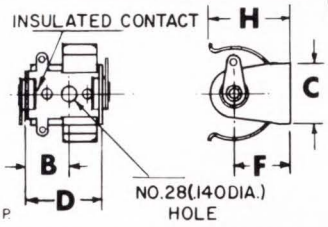


FIG. 6

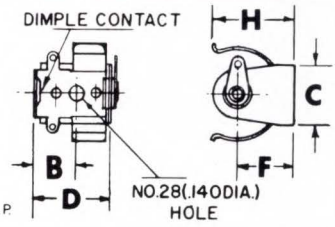


FIG. 7

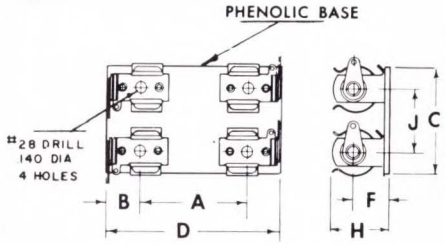


FIG. 8

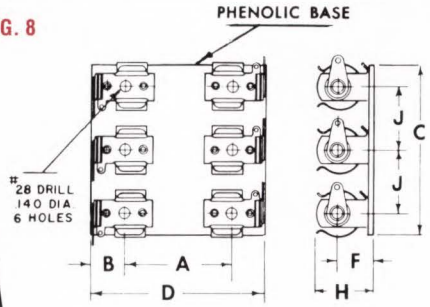
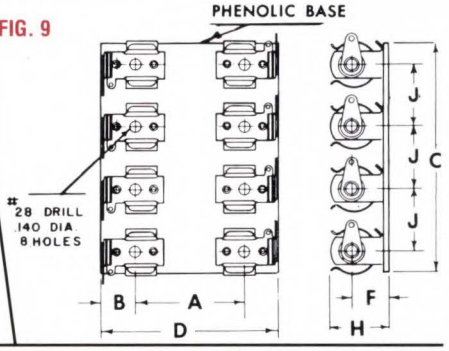


FIG. 9



CAT. NO.	FIG.	±.005 A	±.015 B	±.010 C	±.015 D	±.010 F	±.020 H
*1101	4	.281	.391	.625	.812	.437	.656
*1104	6	—	.468	.625	.890	.750	1.281
*1109	2	1.156	.391	.687	1.937	.437	.656
*1110	2	1.562	.391	.687	2.343	.437	.656
*1113	4	.484	.391	.625	1.031	.437	.656
*1114	4	.671	.391	.625	1.218	.437	.656
*1116	4	.734	.391	.625	1.281	.437	.656
*1125	2	3.906	.391	.687	4.687	.437	.656
*1132	4	.937	.391	.625	1.484	.437	.656
*1134	2	2.000	.391	.687	2.781	.437	.656
*1135	2	2.625	.391	.687	3.406	.437	.656
1139	2	1.343	.391	.687	2.125	.437	.656
*1142	2	1.265	.391	.687	2.047	.437	.656
*1144	2	2.000	.391	.687	2.781	.625	1.000
*1145	4	.828	.391	.625	1.312	.437	.656
1162	2	8.687	.468	.687	9.625	.796	1.281
1173	2	1.343	.391	.687	2.125	.625	1.000
1175	2	1.625	.468	.687	2.562	.796	1.281
1185	2	3.312	.391	.687	4.093	.625	1.032
1186	2	4.000	.468	.687	4.937	.796	1.281
1189	2	3.312	.391	.687	4.093	.437	.656
1191	2	5.218	.391	.687	6.000	.437	.656
1194	2	7.205	.391	.687	7.985	.437	.656
1195	2	5.156	.391	.687	5.937	.625	1.000
1198	2	7.125	.391	.687	7.906	.625	1.000
1199	2	6.343	.468	.687	7.281	.796	1.281
*2101	3	.281	.391	.625	.812	.437	.656
*2104	5	—	.468	.625	.890	.750	1.281
*2109	1	1.156	.391	.687	1.937	.437	.656
*2110	1	1.562	.391	.687	2.343	.437	.656
*2113	3	.484	.391	.625	1.031	.437	.656
*2114	3	.671	.391	.625	1.218	.437	.656

CAT. NO.	FIG.	±005 A	±.015 B	±.010 C	±.015 D	±.010 F	±.020 H	±.005 J
*2116	3	.718	.391	.625	1.281	.437	.656	—
*2125	1	3.906	.391	.687	4.687	.437	.656	—
*2132	3	.937	.391	.625	1.484	.437	.656	—
*2134	1	2.000	.391	.687	2.781	.437	.656	—
*2135	1	2.625	.391	.687	3.406	.437	.656	—
2139	1	1.343	.391	.687	2.125	.437	.656	—
2140	7	1.343	.406	1.250	2.125	.437	.656	.750
*2142	1	1.265	.391	.687	2.047	.437	.656	—
*2144	1	2.000	.391	.687	2.781	.625	1.000	—
*2145	3	.828	.391	.625	1.312	.437	.656	—
2162	1	8.687	.468	.687	9.625	.796	1.281	—
2171	8	1.343	.406	2.000	2.125	.437	.656	.750
2173	1	1.343	.391	.687	2.125	.625	1.000	—
2174	7	1.343	.356	1.750	2.062	.625	1.000	1.187
2175	1	1.625	.468	.687	2.562	.796	1.281	—
2176	7	1.625	.468	2.125	2.562	.796	1.281	1.562
2182	9	1.343	.406	2.750	2.125	.437	.656	.750
2185	1	3.312	.391	.687	4.093	.625	1.000	—
2186	1	4.000	.468	.687	4.937	.796	1.281	—
2187	8	1.343	.356	2.937	2.062	.625	1.000	1.187
2188	9	1.343	.356	4.125	2.062	.625	1.000	1.187
2189	1	3.312	.391	.687	4.093	.437	.656	—
2190	8	1.625	.468	3.687	2.562	.796	1.281	1.562
2191	1	5.250	.391	.687	6.030	.437	.656	—
2192	9	1.625	.468	5.250	2.562	.796	1.281	1.562
2194	1	7.230	.391	.687	8.010	.437	.656	—
2195	1	5.156	.391	.687	5.937	.625	1.000	—
2198	1	7.125	.391	.687	7.906	.625	1.000	—
2199	1	6.343	.468	.687	7.281	.796	1.281	—

*Special order only.
Dimensions B, D, F, H should be used for reference only.

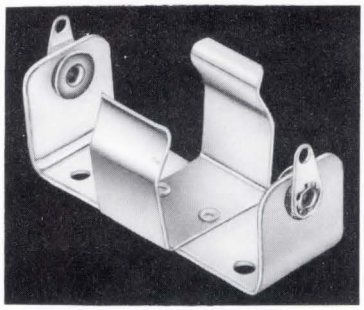
KEYSTONE *Designers' Choice*

ALUMINUM BATTERY HOLDERS

A standard line of battery holders available for immediate shipment from stock. Low cost, lightweight and sturdily constructed of quality materials. Good electrical contact, low leakage current and snap-fit clips are the outstanding features.

SPECIAL LUGS: Printed Circuit, Solderless Connections and Quick Disconnect Lugs Available on special order.

MODIFICATIONS: We welcome the opportunity to quote on variations of standard items. Use our engineering service for your special custom-built holders.



- BRASS EYELETS, NICKEL PLATED
- BRASS LUGS, TIN PLATED
- MOISTURE PROOF, RESIN IMPREGNATED, FIBRE INSULATING WASHERS
- FRAME & CLIP 2024-T3 ALUMINUM

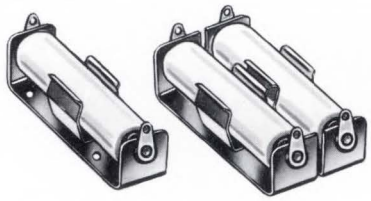


FIG. 1

FIG. 2

FIG. 3

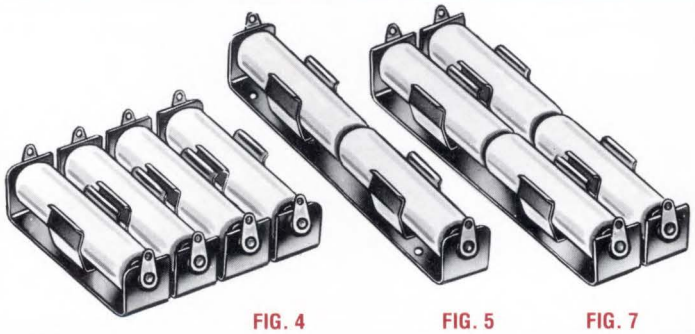


FIG. 4 FIG. 5 FIG. 7

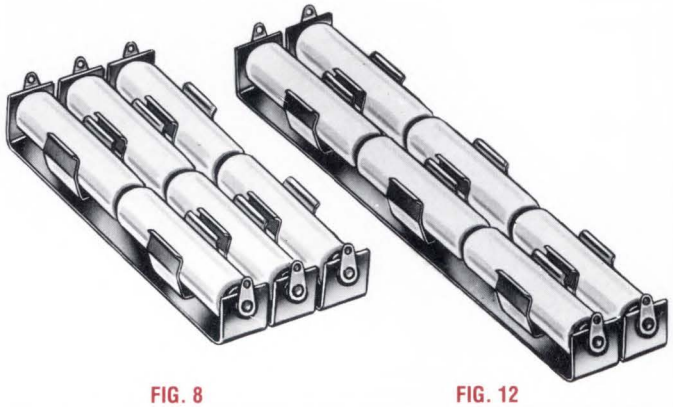


FIG. 8 FIG. 12

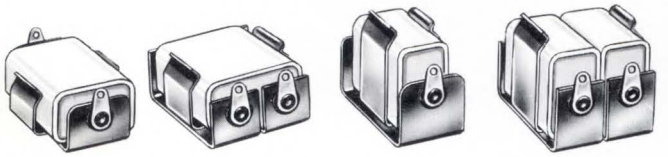


FIG. 9 FIG. 10 FIG. 11 FIG. 14

Ideal for Alkaline, Carbon, Zinc, Mercury, NiCd and Lithium Cells.

DIMENSIONAL DRAWINGS ON THE FOLLOWING PAGE

CAT. NO.	HOLDS NO. OF CELLS	FIG. NO.	BATTERY CROSS REFERENCE — ALL BATTERIES LISTED WITHIN BOXES ARE IN THE SAME SIZE GROUP			
			EVEREADY	DURACELL	RAY-O-VAC	NEDA
"AAA" CELL HOLDERS (BATTERY SIZE .375 / .468 O.D. × 1.673 / 1.752 H)						
137	1	1	E92, 912, CH12	M24F, MN2400	824	24A, 24F, 24P
138	2	2				
169	3	3				
170	4	4				
"AA" CELL HOLDERS (BATTERY SIZE .531 / .565 O.D. × 1.906 / 1.988 H)						
139	1	1	E9, EV15, EN91, CH15, E133, E133N, E177, 505, 523, 1015, 1215	ZM9, RM12R, NC15AA, M15F, M15AA, TR133R, TR177, M505, MN1500, PC 1500	5AA, 615, 815, 7AA	15, 15A, 15C, 15D, 15F, 15M, 15NC, 221, 1101M, 1113M, 1306AP, 1306M, 1314M, 1606M
140	2	2				
171	3	3				
182	4	4				
189	2	5				
192	4	7				
193	6	8				
"C" CELL HOLDERS (BATTERY SIZE .875 / 1.125 O.D. × 1.875 / 1.969 H)						
173	1	1	CH35, E93, 935, 1235, EV35, EN93	M14F, M14HD, NC14C, TR286, MN1400, PC1400	1C, 614, 814	14A, 14C, 14D, 14F, 14NC, 1600M
174	2	2*				
187	3	3				
185	2	5				
196	4	7*				
197	6	8				
"D" CELL HOLDERS (BATTERY SIZE 1.187 / 1.375 O.D. × 2.312 / 2.412 H)						
175	1	1	CH50, E95, 950, 1250, EV50, EN95	M13F, NC13D, S42, M13HD, TR289, MN1300, PC1300	2D, 6D, 613, 813	13A, 13C, 13D, 13F, 13NC, 1115M, 1810M
176	2	2*				
190	3	3				
186	2	5				
200	4	7*				
201	6	8				
205	6	12*				
"N" CELL HOLDERS (BATTERY SIZE .375 / .468 O.D. × 1.110 / 1.189 H)						
154	1	1	E90, E340E, E401E, EP401E	MP401H	R401, RP401, 810	910A, 910F, 910M, 1117M, 1118M MN9100
155	2	2				
156	3	3				
"9 VOLT" BATTERY HOLDERS						
139B	1	1	206	M1611	—	1611
173P	1	1	226	—	—	1600
203P	1	10	CH22, EN22, E146X, 216, 522, 1222, E303396	TR146X, M1604, M1604HD, MN1604, PC146X, PC1604	A1604, D1604, 1604	1604, 1604A, 1604C, 1604D, 1604M, 1604NC, 1619M
1290	REF. PAGE 11					
1291						
"15 VOLT" BATTERY HOLDERS						
163	1	9	—	—	—	224
161	1	9	411	—	—	208
166	1	11				
167	2	14				
225	1	1	504	—	—	220
226	2	2				
"22 1/2 VOLT" BATTERY HOLDERS						
139	1	1	505	—	—	221
168	1	9	420	—	—	225
177	1	11	412	M215	—	215
178	2	14				
"30 VOLT" BATTERY HOLDERS						
183	1	11	413	—	—	210
184	2	14				

*"C" Cell Holders-Dual #97 clips used.
"D" Cell Holders-Dual #98 clips used.

MATERIAL SPECIFICATIONS

Insulating Washers: Moisture proof, resin impregnated fibre.
Terminal Lugs: Brass, tin plate.
Frame and Clips: Aluminum 2024-T3
Contact Eyelet: Brass, nickel plated.

DIMENSIONS ARE FOR REFERENCE ONLY

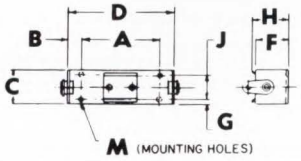


FIG. 1

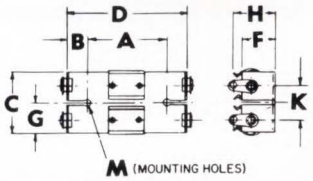


FIG. 2

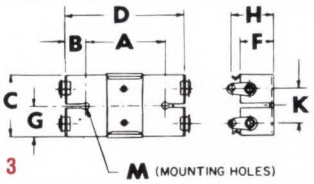


FIG. 3

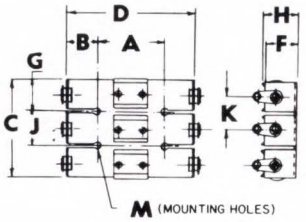


FIG. 4

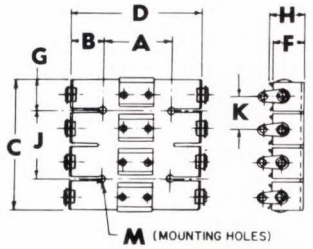


FIG. 5

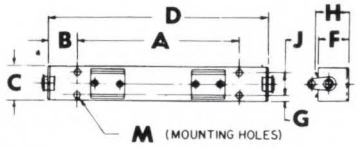


FIG. 6

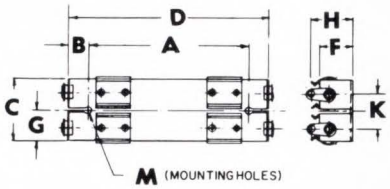


FIG. 7

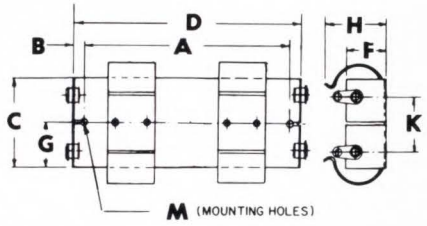


FIG. 8

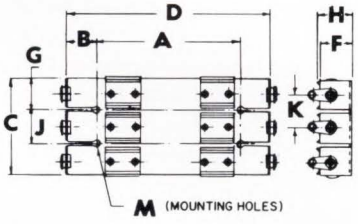


FIG. 9

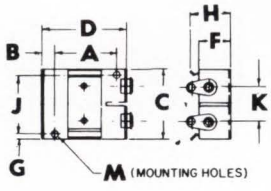


FIG. 10

CAT. NO.	FIG. NO.	±.010 A	±.015 B	±.010 C	±.015 D	±.010 F	±.010 G	±.015 H	±.005 J	±.010 K	MTG HOLES M ±.003
*109	1	1.500	.218	.625	1.937	.609	.109	.625	.406	—	4#30(.128 Dia)
*110	1	1.500	.437	.625	2.374	.625	.109	.625	.406	—	4#30(.128 Dia)
132	1	1.125	.171	.625	1.468	.640	.093	.625	.437	—	4#34(.111 Dia)
*134	1	1.812	.484	.625	2.781	.609	.093	.625	.437	—	4#34(.111 Dia)
*135	6	2.500	.464	.625	3.430	.610	.093	.625	.437	—	4#30(.128 Dia)
137	1	1.500	.218	.437	1.915	.468	.093	.484	.250	—	2#34(.111 Dia)
138	2	.875	.531	.812	1.915	.468	.406	.484	—	.437	2#28(.140 Dia)
139	1	1.500	.312	.625	2.140	.625	.109	.580	.406	—	4#34(.111 Dia)
140	2	1.218	.461	1.125	2.140	.625	.562	.625	—	.625	2#28(.140 Dia)
154	1	.906	.242	.437	1.343	.468	.093	.531	.250	—	2#34(.111 Dia)
155	2	.875	.245	.937	1.343	.484	.468	.531	—	.500	2#34(.111 Dia)
156	4	.875	.257	1.500	1.343	.475	.468	.531	.562	.531	4#34(.111 Dia)
*157	10	1.125	.218	1.250	1.562	.578	.109	.718	1.032	.593	2#34(.111 Dia)
*160	1	3.500	.406	1.000	4.312	.960	.141	1.218	.718	—	2#28(.140 Dia)
*163	1	1.125	.312	1.000	1.750	.687	.141	1.218	.718	—	2#28(.140 Dia)
*164	1	1.625	.402	1.000	2.430	.687	.125	1.218	.750	—	2#28(.140 Dia)
*165	1	2.187	.390	1.000	2.968	.687	.141	1.218	.718	—	2#28(.140 Dia)
166	1	1.000	.312	.750	1.625	.768	.093	1.156	.562	—	4#28(.140 Dia)
167	3	1.000	.312	1.125	1.593	.750	.562	1.264	—	.593	2#28(.140 Dia)
*168	1	1.500	.377	.750	2.275	.718	.125	.937	.500	—	4#28(.140 Dia)
170	5	.875	.531	1.687	1.915	.468	.406	.484	.875	.437	4#28(.140 Dia)
171	4	1.218	.461	1.750	2.140	.625	.562	.625	.625	.625	4#28(.140 Dia)
173	1	1.500	.296	.750	2.093	.781	.156	.953	.437	—	4#28(.140 Dia)
174	3	1.750	.172	1.625	2.093	.781	.812	1.105	—	1.000	2#28(.140 Dia)
175	1	1.750	.406	1.000	2.562	.937	.125	1.218	.750	—	4#30(.128 Dia)
176	3	2.093	.248	2.062	2.578	.937	1.030	1.437	—	1.312	2#28(.140 Dia)
177	1	1.500	.312	.750	2.125	.781	.156	1.156	.437	—	4#28(.140 Dia)
178	3	1.218	.453	1.125	2.215	.781	.562	1.218	—	.625	2#28(.140 Dia)
*179	1	.937	.250	1.000	1.425	.930	.125	1.218	.750	—	4#30(.128 Dia)
182	5	1.218	.461	2.656	2.140	.625	.609	.625	1.437	.718	4#28(.140 Dia)
183	1	1.750	.445	.750	2.687	.812	.093	1.156	.562	—	4#34(.111 Dia)
184	3	1.812	.414	1.125	2.640	.812	.562	1.218	—	.625	2#28(.140 Dia)
185	6	3.187	.419	.750	4.025	.812	.125	.953	.500	—	4#28(.140 Dia)
186	6	4.125	.370	1.000	4.865	.968	.156	1.218	.687	—	4#30(.128 Dia)
187	4	1.250	.435	2.840	2.093	.781	.812	.953	1.125	1.125	4#28(.140 Dia)
189	6	3.000	.538	.625	4.075	.625	.093	.625	.437	—	4#30(.128 Dia)
190	4	1.937	.321	3.375	2.578	.968	1.125	1.218	1.125	1.343	4#28(.140 Dia)
192	7	3.093	.542	1.125	4.093	.625	.593	.625	—	.625	2#28(.140 Dia)
193	9	3.125	.484	1.750	4.075	.625	.562	.625	.625	.625	4#28(.140 Dia)
196	8	3.187	.419	1.625	4.025	.781	.812	1.125	—	1.000	2#28(.140 Dia)
197	9	3.187	.419	2.875	4.025	.812	.937	.968	1.000	1.171	4#28(.140 Dia)
200	8	4.375	.245	2.062	4.865	.968	1.032	1.468	—	1.312	2#28(.140 Dia)
201	9	4.275	.245	3.375	4.865	.968	1.125	1.218	1.125	1.343	4#28(.140 Dia)
203P	10	1.375	.312	1.125	2.000	.547	.125	.793	.875	.500	4#30(.128 Dia)
205	8	6.812	.250	2.062	7.230	.937	1.030	1.437	—	1.312	4#28(.140 Dia)
*225	1	1.125	.226	.625	1.578	.609	.093	.625	.437	—	4#34(.111 Dia)
*226	2	.875	.351	1.125	1.578	.609	.562	.625	—	.625	2#28(.140 Dia)
1290	10	1.375	.218	1.185	1.890	.562	.125	.718	.875	.500	4#30(.128 Dia)
1291	10	1.375	.218	1.185	1.890	.562	.125	.718	.875	.500	4#30(.128 Dia)

*Special order only.

INTERCONNECT BATTERY HOLDERS

ALUMINUM HOLDERS CONNECTED IN SERIES

ELIMINATES WIRING • LABOR SAVING

Features pre-connected jumper strap insulated from the Aluminum base. Batteries held in series circuit without need of additional wiring.

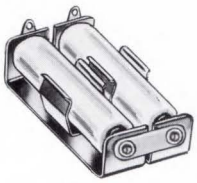


FIG. 2

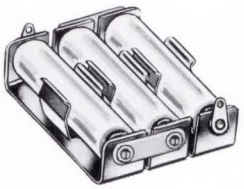


FIG. 3

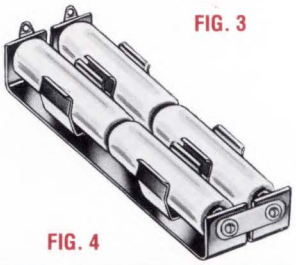


FIG. 4

CAT. NO.	HOLDS NO. OF CELLS	FIG. NO.	BATTERY CROSS REFERENCE (All Batteries listed within boxes are in the same size group) EVEREADY	DURACELL	RAY-O-VAC	NEDA
"AA" CELL HOLDERS (BATTERY SIZE .531 / .565 O.D.× 1.906 / 1.988 H)						
146	2	2	E9, EV15, EN91, CH15, E133, E133N, E177, 505, 523, 1015, 1215	ZM9, RM12R, NC15AA, M15F, M15AA, TR133R, TR177, M505, MN1500, PC1500	5AA, 615, 815, 7AA	15, 15A, 15C, 15D, 15F, 15M, 15NC, 221, 1101M, 1113M, 1306AP, 1306M, 1314M, 1606M
147	3	3				
148	4	4				
"C" CELL HOLDERS (BATTERY SIZE .875 / 1.125 O.D.× 1.875 / 1.969 H)						
149	2	2	CH35, E93, 935, 1235, EV35, EN93	M14F, M14HD, NC14C, TR286, MN1400, PC1400	1C, 614, 814	14A, 14C, 14D, 14F, 14NC, 1600M
150	3	3				
151	4	4				
"D" CELL HOLDERS (BATTERY SIZE 1.187 / 1.375 O.D.× 2.312 / 2.412 H)						
152	2	2	CH50, E95, 950, 1250, EV50, EN95	M13F, NC13D, S42, M13HD, TR289, MN1300, PC1300	2D, 6D, 613, 813	13A, 13C, 13D, 13F, 13NC, 1115M, 1810M
153	3	3				
158	4	4				

ALUMINUM HOLDERS WITH PC LUGS

ELIMINATES WIRING • LABOR SAVING

For printed circuitry we have standardized our most popular holders with PC Lugs. Choice of single or multiple holders "AA" and "C" assembled with #4002 lug. "D" assembled with #4003 lug as shown on page15.

FIG. 1

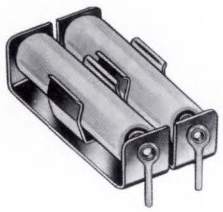


FIG. 2

CAT. NO.	HOLDS NO. OF CELLS	FIG. NO.	BATTERY CROSS REFERENCE (All Batteries listed within boxes are in the same size group) EVEREADY	DURACELL	RAY-O-VAC	NEDA
"AA" CELL HOLDERS (BATTERY SIZE .531 / .565 O.D.× 1.906 / 1.988 H)						
2222	1	1	E9, EV15, EN91, CH15, E133, E133N, E177, 505, 523, 1015, 1215	ZM9, RM12R, NC15AA, M15F, M15AA, TR133R, TR177, M505, MN1500, PC1500	5AA, 615, 815, 7AA	15, 15A, 15C, 15D, 15F, 15M, 15NC, 221, 1101M, 1113M, 1306AP, 1306M, 1314M, 1606M
2223	2	2				
"C" CELL HOLDERS (BATTERY SIZE .875 / 1.125 O.D.× 1.875 / 1.969 H)						
2224	1	1	CH35, E93, 935, 1235, EV35, EN93	M14F, M14HD, NC14C, TR286, MN1400, PC1400	1C, 614, 814	14A, 14C, 14D, 14F, 14NC, 1600M
2225	2	2				
"D" CELL HOLDERS (BATTERY SIZE 1.187 / 1.375 O.D.× 2.312 / 2.412 H)						
2226	1	1	CH50, E95,950, 1250, EV50, EN95	M13F, NC13D, S42, M13HD, TR289, MN1300, PC1300	2D, 6D, 613, 813	13A, 13C, 13D, 13F, 13NC, 1115M, 1810M
2227	2	2				

STEEL HOLDERS WITH PC LUGS

ELIMINATES WIRING • LABOR SAVING

For printed circuitry we have standardized our most popular holders with PC Lugs. Choice of single or multiple holders "AA" and "C" assembled with #4002 lug. "D" assembled with #4003 lug as shown on page15.

FIG.3

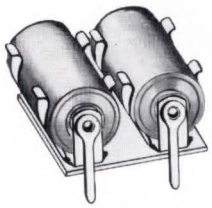


FIG.4

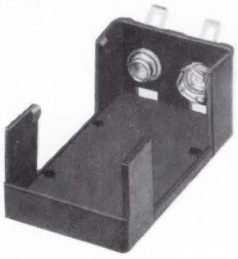
CAT. NO.	HOLDS NO. OF CELLS	FIG. NO.	BATTERY CROSS REFERENCE (All Batteries listed within boxes are in the same size group) EVEREADY	DURACELL	RAY-O-VAC	NEDA
"AA" CELL HOLDERS (BATTERY SIZE .531 / .565 O.D.× 1.906 / 1.988 H)						
2228	1	3	E9, EV15, EN91, CH15, E133, E133N, E177, 505, 523, 1015, 1215	ZM9, RM12R, NC15AA, M15F, M15AA, TR133R, TR177, M505, MN1500, PC1500	5AA, 615, 815, 7AA	15, 15A, 15C, 15D, 15F, 15M, 15NC, 221, 1101M, 1113M, 1306AP, 1306M, 1314M, 1606M
2229	2	4				
"C" CELL HOLDERS (BATTERY SIZE .875 / 1.125 O.D.× 1.875 / 1.969 H)						
2230	1	3	CH35, E93, 935, 1235, EV35, EN93	M14F, M14HD, NC14C, TR286, MN1400, PC1400	1C, 614, 814	14A, 14C, 14D, 14F, 14NC, 1600M
2231	2	4				
"D" CELL HOLDERS (BATTERY SIZE 1.187 / 1.375 O.D.× 2.312 / 2.412 H)						
2232	1	3	CH50, E95,950, 1250, EV50, EN95	M13F, NC13D, S42, M13HD, TR289, MN1300, PC1300	2D, 6D, 613, 813	13A, 13C, 13D, 13F, 13NC, 1115M, 1810M
2233	2	4				

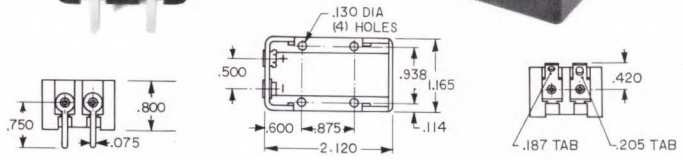
9 VOLT HOLDERS & CONNECTORS

Designers' Choice KEYSTONE

UNIVERSAL 9 VOLT BATTERY HOLDERS

With Printed Circuit Terminals or Combination Quick-Disconnect Solder Lug Terminals.





CAT. NO. 1294
with printed circuit terminals

CAT. NO. 1295
with combination quick-disconnect solder lug terminals.

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

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

- Male-female snap-in terminals assure positive contact and proper polarity.
- Durable, rugged construction.
- Excellent spring retention—holds battery in place.
- Withstands severe shock and vibration.
- Operating temperature range: –40°C to +130°C.
- Impervious to most industrial solvents.

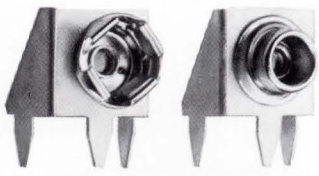
MATERIALS:
Body: Molded from high impact, 30% glass filled Nylon.
Terminals: Brass, Tin Plated.
Contacts: Steel, Nickel Plated, highly corrosion resistant.

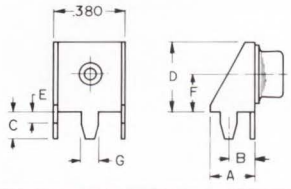
PRINTED CIRCUIT SNAP-ONS ("9" VOLT)

MOUNT DIRECTLY TO PRINTED CIRCUIT BOARD

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

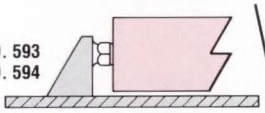
MATERIAL:
Frame: Steel, Tin Plate
Contacts: Steel Nickel Plate





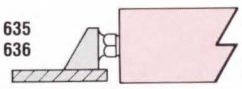
SIDE VIEW MOUNTING POSITION

For:
CAT. NO. 593
CAT. NO. 594



To Mount Battery On Board

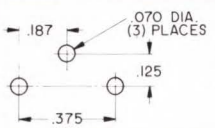
For:
CAT. NO. 635
CAT. NO. 636



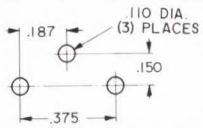
To Mount Battery Off Board

MOUNTING HOLES

For:
CAT. NO. 593
CAT. NO. 594



For:
CAT. NO. 635
CAT. NO. 636



CAT. NO.	CONTACT	A	B	C	D	E	F	G
593	MALE	.156	.125	.120	.550	.050	.350	.062
594	FEMALE	.156	.125	.120	.550	.050	.350	.062
635	MALE	.250	.150	.180	.380	.062	.190	.100
636	FEMALE	.250	.150	.180	.380	.062	.190	.100

BATTERY STRAPS

Sturdily constructed. Male and female snap contacts are steel, nickel plated. Highly corrosion resistant. Female contacts are heat treated to spring temper. Maintains constant spring tension. Accepts numerous insertions to meet U.L. approved standards. Provides excellent mechanical strength and low electrical contact resistance. Wire leads firmly soldered to contacts. Wires have tinned copper conductors, 22 gauge, 7/30 pre-bond, with PVC insulation. Rated to 80°C and 300V. Meets requirements of UL Style #1061.

MODIFICATIONS AVAILABLE WITH LONGER OR SHORTER LEAD LENGTHS.

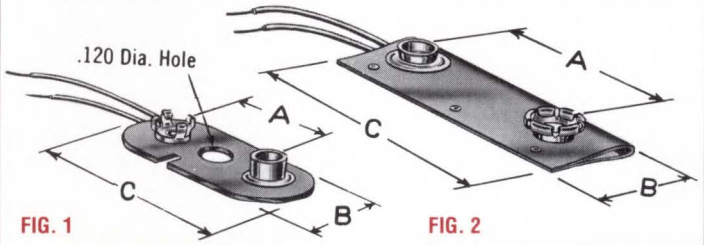


FIG. 1 FIG. 2

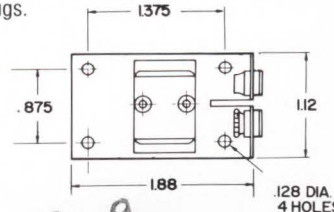
CAT. NO.	FIG. NO.	A	B	C	*LENGTH OF WIRE 3/8" STRIP	BATTERY CROSS REFERENCE ALL BATTERIES LISTED WITHIN BOXES ARE IN THE SAME SIZE GROUP			
						EVEREADY	DURACELL	RAY-O-VAC	NEDA
68	1	.500	.535	1.030	None	CH22, E146X, 216, 246, 415, 416, 522, 1222, E303396	M1604HD, TR146X, M1604, ID1604, MN1604, 303396, PC1604, PC146X	D1604, 1604, A1604	1604NC, 1604C, 1604M, 1604, 1602, 213, 217, 1604A, 1604D, 1619M
72	1	.500	.535	1.030	6.50				
83	2	.500	.565	.875	6.50				
The connectors above will fit all standard "9 Volt" batteries as listed. The connectors listed below are for various types of Snap Connector Batteries. Made of Spring Brass and Nickel Plated. Refer to battery listings as shown.									
73	2	.750	.720	1.750	9.00	266	—	—	1605
74	2	.937	.720	1.843	8.50	477, 479, 2356N	—	—	211, 214, 1612
75	2	1.375	.720	2.500	8.50	276	—	—	1603
76	2	1.500	.720	2.615	8.00	455, 457, 467	—	—	201, 203, 200
77	2	2.500	.720	3.429	7.00	490	—	—	204

*Tolerance on lead lengths ± .500

"9" VOLT SNAP-IN BATTERY HOLDER

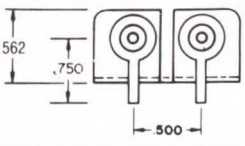
For use with standard "9" Volt battery. Battery snaps in place to insure positive contact. Ideal where severe shock and vibration are encountered. Available with standard solder lugs or printed circuit lugs.

MATERIAL:
Frame: Aluminum.
Solder Lugs: Brass Hot Tin.
Contacts & Clips: Steel Nickel Plate.
Insulation: Resin Impregnated Fibre.
P.C. Lugs: Brass Hot Tin.

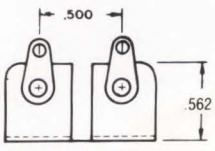


NOTE: For batteries with thickness over .640 specify #1290-79 or #1291-79.

CAT. NO. 1291
Printed Circuit Lugs



CAT. NO. 1290
Standard Solder Lugs

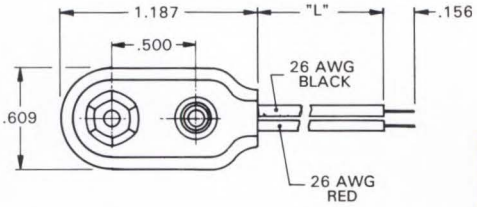


BATTERY CONTACTS & CONNECTORS

FULLY INSULATED "9" VOLT BATTERY STRAPS

This connector is completely insulated with PVC. Contacts are brass, nickel plated.

Wire is 26 AWG, 1007 UL/CSA approved, stripped and tinned. Strain relief designed to support 15lb tension for 10 seconds.



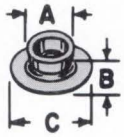
CAT. NO.	LEAD LENGTHS "L"(inches)
232	4"
233	6"
234	8"

BATTERY SNAP-ONS (Miniature and Standard)

1001 uses for most electronic applications requiring a quick connect and disconnect of circuit. Commonly used for transistor or regular Batteries designed for snap fasteners. Ideal for temporary or permanent means of connecting without soldering. Can be cascaded together for multiple connections.

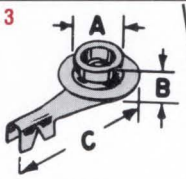
DIMENSIONS FOR REFERENCE ONLY.

FIG. 1



Stud only

FIG. 3



Stud w/Crimp Lug

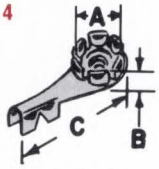
FIG. 5

on Phenolic Washer

FIG. 2

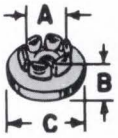
Socket only

FIG. 4



Socket w/Crimp Lug

FIG. 6



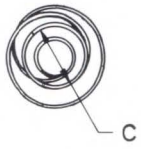
on Phenolic Washer

CAT. NO.	FIG. NO.	A	B	C	DESCRIPTION
261	1	.225	.135	.312	Jr. Stud only-.093 hole
262	1	.283	.143	.425	Sr. Stud only-.125 hole
269	2	.205	.156	—	Jr. Socket only-.093 hole
270	2	.265	.156	—	Sr. Socket only-.125 hole
263	3	.225	.170	.790	Jr. Stud w/ Lug
264	3	.283	.185	.840	Sr. Stud w/ Lug
271	4	.205	.200	.790	Jr. Socket w/ Lug
272	4	.265	.185	.835	Sr. Socket w/ Lug
265	5	.225	.205	.500	Jr. Stud on Phenolic Washer
266	6	.205	.205	.500	Jr. Socket on Phenolic Washer
273	5	.283	.200	.500	Sr. Stud on Phenolic Washer
274	6	.265	.225	.500	Sr. Socket on Phenolic Washer

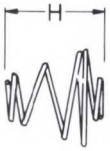
BATTERY SPRING CONTACT

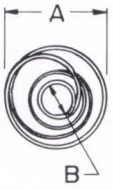
For"AA", "A", "C" and "D" Size.

Easy to assemble with eyelets or rivets.



(FRONT) CONTACT





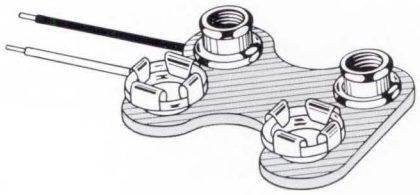
(BACK) MOUNTING

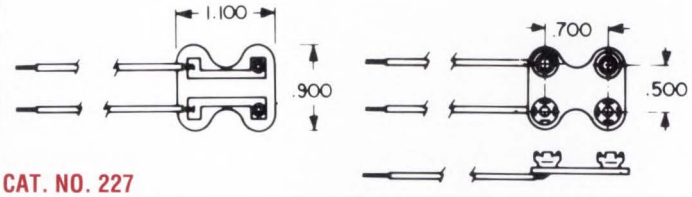
CAT. NO.	H	A	B	C	MATERIAL
211 ("A" & "AA")	.290	.335	.100	.140	.025 MUSIC WIRE
211-D ("C" &"D")	.850	.650	.162	.300	.040 MUSIC WIRE

PLATING: Nickel

PARALLEL "9" VOLT BATTERY STRAP

This dual battery strap is pre-wired for connecting two 9 Volt batteries in parallel to increase current capabilities. Steel, Nickel Plated contacts. Fibre base. 22 gauge, 7/30 pre-bond. P.V.C. insulation. 7" long leads.



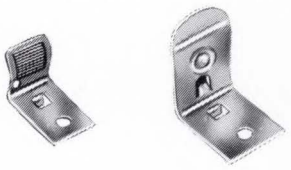


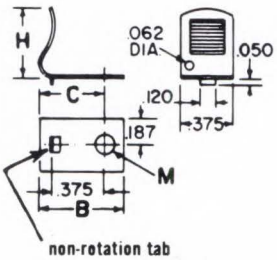
CAT. NO. 227

ECONOMY CLIPS FOR "AA", "C" & "D" CELLS

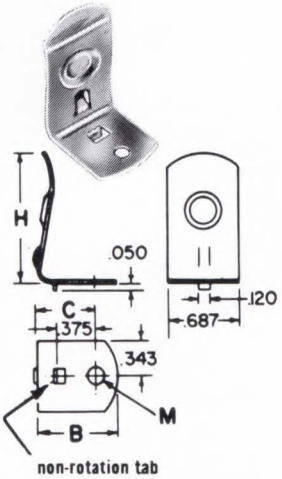
Designed for mounting in self-contained, non-metallic battery compartments. Reliable spring tension assures low contact resistance. Recessed contact holds battery in place. All clips have anti-rotation tab.

MATERIAL: Spring tempered Steel Nickel Plated.





CAT. NO. 206



CAT. NO. 207/ 208

CAT. NO.	B	C	H	M MTG. HOLE	FOR CELLS	THICK-NESS
206	.609	.469	.500	.128	AA	.012
207	.687	.547	.875	.128	C	.016
208	.765	.562	1.290	.128	D	.016

BATTERY CONTACTS

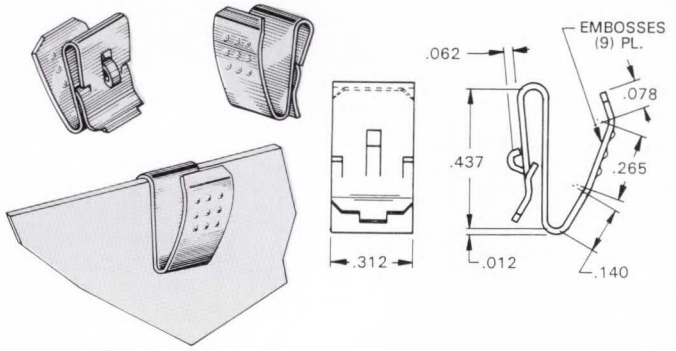
Designers' Choice KEYSTONE

SINGLE "AA" CELL SNAP-ON CLIPS

• IDEAL FOR MOLDED CASES • SELF-ANCHORING
• LOW COST • SNAG FREE BATTERY INSERTION

Clips over panels from .060 to .070 thk, and is anchored by sharp barbs, eliminating the need for special grooves, slots or holes. Spring-tension of contact leg provides excellent contact and takes up any variation of battery length. External solder "ear" will hold wire for easy soldering.

MATERIAL: Spring Tempered Steel, Nickel Plated.

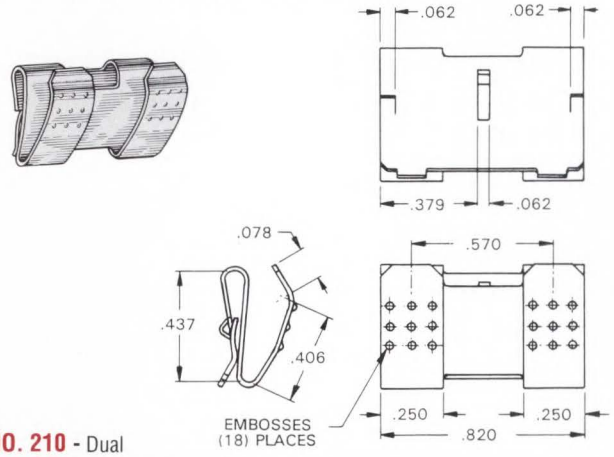


CAT. NO. 209 - Single

DUAL "AA" CELL SNAP-ON CLIP

New Dual design provides an economical and convenient method of mounting two batteries in series without wiring. Clips over panels from .060 to.070 thick and is securely anchored by sharp barbs.

MATERIAL: Spring Tempered Steel, Nickel Plated.

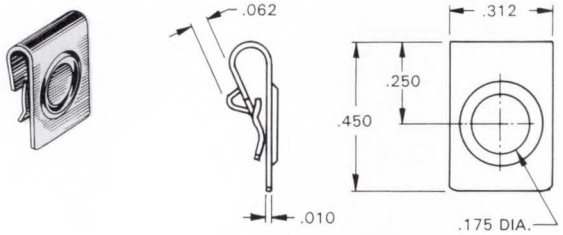


CAT. NO. 210 - Dual

"AA" POSITIVE SNAP-ON CLIP

This clip helps prevent battery from shifting when installed. Battery tip sits securely in the indented contact. Anchors securely by sharp barbs to panel from.060 to .070 thick. No grooves, slots or holes needed. External "ear" simplifies soldering.

MATERIAL: Spring Tempered Steel, Nickel Plated.



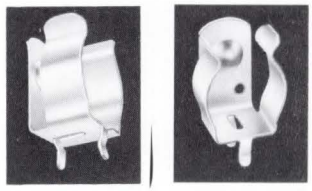
CAT. NO. 228

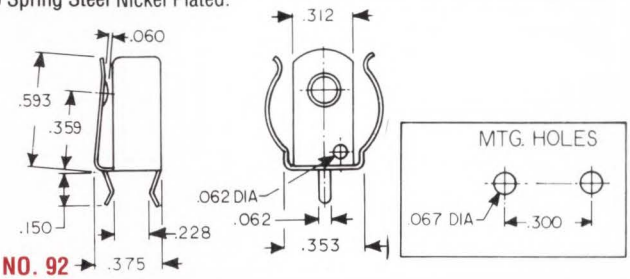
PC "A" & "AA" BATTERY CLIP

For"A" & "AA" type batteries with diameters from .531 to .665.

Mount directly to PC board, eliminating need for wiring. Clip retains battery securely to withstand shock and vibration. Snap-in design holds in position for wave soldering. Low profile, space saving and economical.

MATERIAL:
.015 Spring Steel Nickel Plated.





CAT. NO. 92

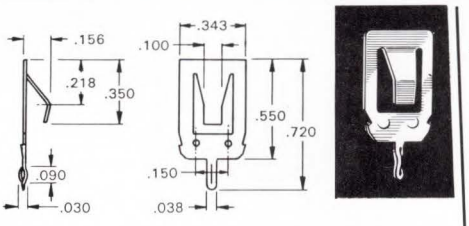
PC BATTERY CONTACTS

ECONOMICAL • SPACE SAVING

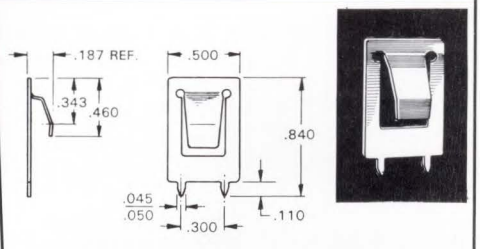
Designed for PC board mounting in self-contained, non-metallic battery compartments.

Reliable spring tension assures low contact resistance.

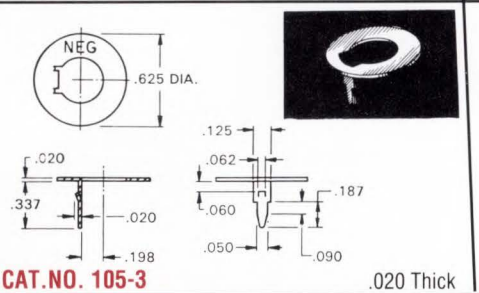
MATERIAL: Spring Tempered Steel, Nickel Plated.



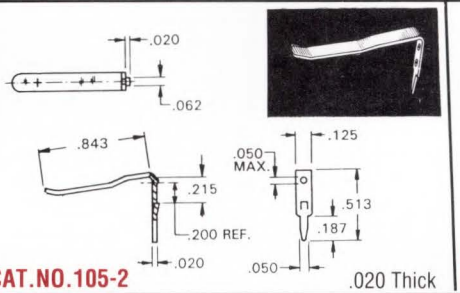
CAT.NO.108-2 .012 Thick



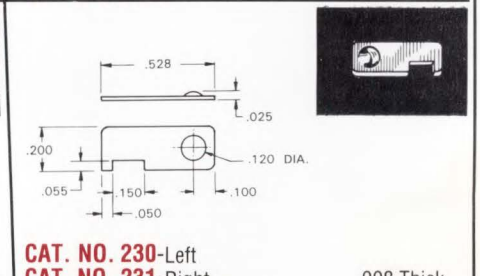
CAT.NO.109-2 .012 Thick



CAT.NO. 105-3 .020 Thick



CAT.NO.105-2 .020 Thick



CAT. NO. 230-Left
CAT. NO. 231-Right .008 Thick

BATTERY & COMPONENT CLIPS

STEEL SPACE SAVER BATTERY CLIPS

FOR "AA", "C" AND "D" CELLS

IDEAL FOR • CARBON ZINC • NiCd • MERCURY • LITHIUM • ALKALINE BATTERIES

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

MATERIAL SPECIFICATIONS:

Clips: Carbon Steel, SAE 1050,HeatTreated to Spring Tempered ,Nickel Plate Finish, Corrosion resistant.

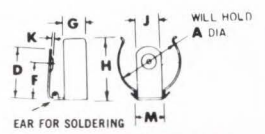
Contact Eyelets: Brass, Nickel Plated.

Insulating Washers: Moisture proof, resin impregnated fibre.

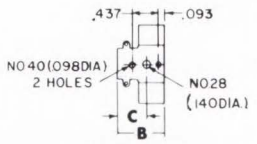
Terminal Lugs : Brass Tin Plate.

86
89
99

FIG. NO. 1



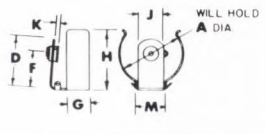
NON-INSULATED CONTACT



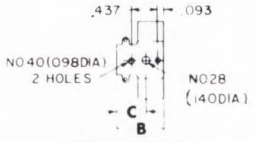
BOTTOM VIEW

87
88
100

FIG. NO. 2



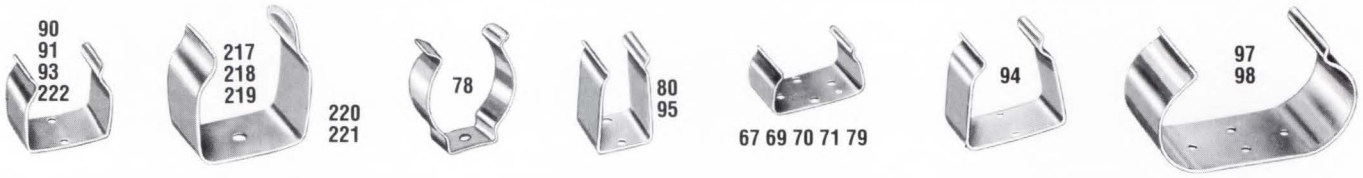
INSULATED CONTACT



BOTTOM VIEW

CAT. NO.	FIG. NO.	CONTACT	A DIA. MIN.- MAX.	FOR CELLS	±.015 B	±.010 C	±.015 D	±.015 F	±.005 G	±.020 H	±.005 J	±.005 K	±.015 M	STEEL THICK-NESS
86	1	NON-INSULATED	.875 to 1.125	C	.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



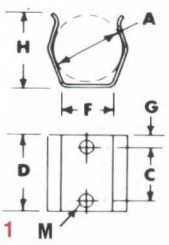


FIG. 1

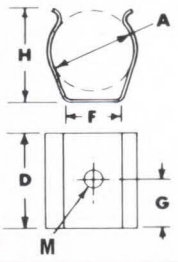


FIG. 2

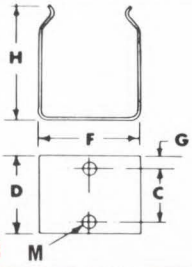


FIG.3

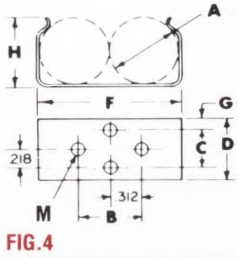


FIG.4

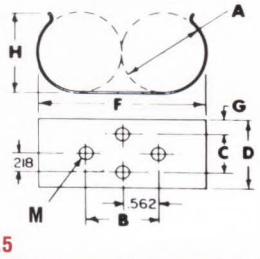


FIG.5

Precision made spring tempered clips. Available in a wide range of sizes for round, square and rectangular components and batteries.

MATERIAL SPECIFICATIONS:

Aluminum Clips: 2024-T3

Steel Clips: Carbon Steel, SAE 1050, Heat treated to Spring Temper, Nickel Plate Finish.

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

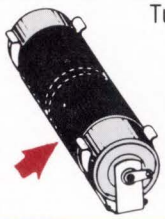
CAT. NO.	FIG. NO.	A MIN MAX DIA. OR SIZE	*FOR CELLS	±.005 B	±.005 C	±.005 D	±.005 F	±.010 G	±.015 H	±.003 M MTG HOLES.	MATERIAL
67	3	.375 × .125	CRYSTAL	—	.187	.375	.410	.093	.210	2#51(.067)	.016 Steel
69	4	.562(2)	(2) AA	.625	.437	.625	1.125	.093	.562	4#40(.098)	.015 Steel
70	4	.656 (2)	(2) RM12	.625	.437	.625	1.343	.093	.687	4#40(.098)	.020 Alum.
71	3	.593 × 1.031	"9" VOLT	—	.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 × 1.280	TR146X	.625	.437	.625	1.050	.093	.765	4#40(.098)	.015 Steel
80	3	.650 × 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)	.016 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 × 1000	"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	1.468	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	C	—	.437	.625	.937	.093	.921	2#40(.098)	.020 Steel

ACCESSORIES FOR BATTERY HOLDERS

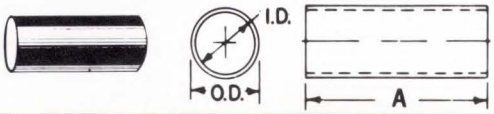
Designers' Choice

KEYSTONE

BATTERY CELL TUBES



Tubes hold 2, 3 or 4 batteries in line when end clips are used. Tube is black wound paper. Retains stiffness and provides accurate fit for the batteries.

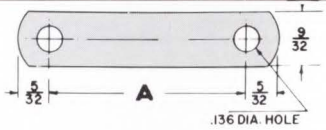


CAT. NO.	LENGTH "A"	INSIDE DIA "I.D."	OUTSIDE DIA "O.D."	HOLDS NO.CELLS	BATTERY TYPE
4023	2.750	.670	.730	2	AA
4024	4.687	.670	.730	3	AA
4025	6.625	.670	.730	4	AA
4026	2.500	1.050	1.100	2	C
4027	4.437	1.050	1.100	3	C
4028	6.375	1.050	1.100	4	C
4029	3.250	1.345	1.395	2	D
4030	5.562	1.345	1.395	3	D
4031	7.750	1.345	1.395	4	D

CONNECTOR STRAPS (JUMPERS)

Various lengths suitable for many applications in electronics assemblies.

MATERIAL:.015 Brass,Tinned

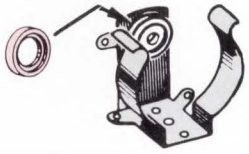


CAT. NO.	A	CAT. NO.	A	CAT. NO.	A
4006	.437	4011	.781	4016	1.312
4007	.625	4012	.812	4017	1.343
4008	.687	4013	.875	4018	1.500
4009	.718	4014	1.000	4019	1.562
4010	.750	4015	1.187	4020	1.625

INSULATED POLARIZING WASHERS

Eliminates danger of damage and short circuit to expensive transistor equipment. Washers hold securely when snapped over eyelets. Used on our standardized battery holders. For AA, C & D cells.

MATERIAL: Molded Polyethylene

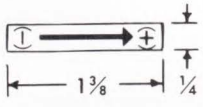


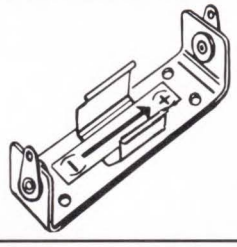
CAT. NO. 59 (RED) **CAT. NO. 60** (BLACK)

POLARITY INDICATING LABEL

• NO GLUING OR WETTING NEEDED • PRESSURE SENSITIVE ADHESIVE BACK • ECONOMICAL • ADHERES TO ALL SURFACES

Recommended where proper polarity of battery insertion or circuit polarity is to be shown. Labels are two color, (+) positive side red, arrow; (-) negative side blue.



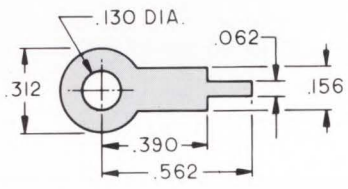


CAT. NO. 58

PRINTED CIRCUIT TERMINAL

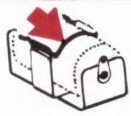
Designed for use with our "AA" cell holders either Aluminum or Steel. It has a built in stop for ease in assembly.

MATERIAL: .015 Brass, Tin Plate.



CAT. NO. 680

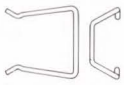
BATTERY RETAINER CLIPS



- Prevents battery loosening in battery holder.
- Slips into the ears of the clip of battery holder.
- Made of hi-carbon steel, spring tempered zinc plated.

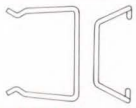
Retainer for "AA" or Mercury cells with diameters of .532" to .562". Used with Keystone Battery Clips #91,92,95,99 and 100.

CAT. NO. 61



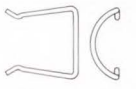
Retainer for "C" cells or similar size batteries to 1.032" diameter. Used with Keystone Battery Clips #86, 87, 93 and 222.

CAT. NO. 62



Retainer for "D" cells or similar size batteries to 1.343" diameter. Used with Keystone Battery Clips #88, 89 and 94.

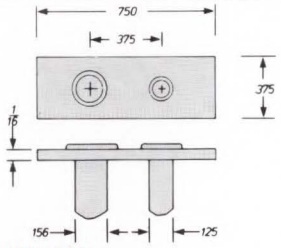
CAT. NO. 63



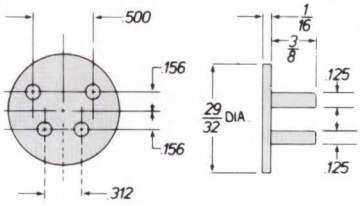
Retainer for Mercury cells with diameter of 650" that fit Keystone Battery Clips #99 and 100.

CAT. NO. 66

BATTERY PLUGS



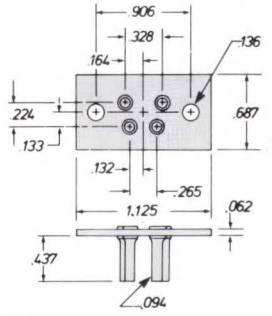
CAT. NO. 212



CAT. NO. 213

SPECIFICATIONS:
Wafer:1/16 XP Phenolic
Pins: Brass, Nickel Plate

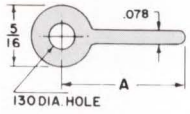
NOTE: Other variations can be made to your specifications.



CAT. NO. 214

CONTACT ASSEMBLY TERMINAL LUGS

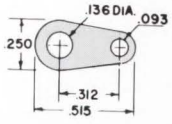
PRINTED CIRCUIT OR WIRE WRAP TERM.



MAT.:.020 BrassTinned Can be substituted for the standard lug used on our holders.

CAT. NO.	A	CAT. NO.	A
4000	.500	4002	.750
4001	.562	4003	1.000

STANDARD TERMINAL

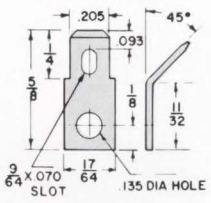


MAT.: .016 Copper Tinned

Universal terminal proven popular in electronic assemblies and Battery Holders.

CAT. NO. 4004

KWIK CONNECT



MAT.: .020 Brass Tinned

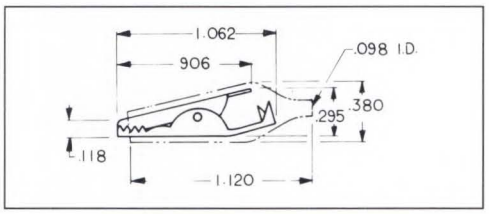
For solderless connection applications. Will accept .205 female disconnect.

CAT. NO. 4005

ALLIGATOR CLIPS

MATERIAL: Steel, Nickel Plated — Insulation Vinyl

SMALL
SOLDER CONNECTION WITH STRAIN RELIEF



INSULATED
(complete with boot)

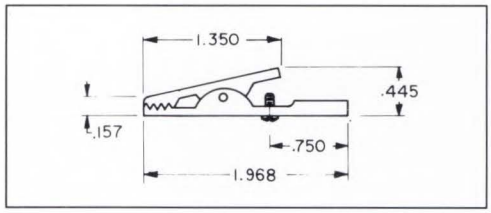
NON-INSULATED

CAT. NO.	COLOR
5034	RED
5035	BLACK
5036	GREEN
5037	YELLOW

CAT. NO. 5033

Maximum Jaw Spread:.236
Teeth Length:.393
Teeth Width:.098

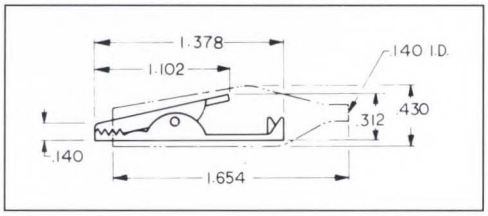
LARGE
SCREW CONNECTION



CAT. NO. 5048

Maximum Jaw Spread:.315
Teeth Width:.118

MEDIUM
SOLDER CONNECTION WITH STRAIN RELIEF



INSULATED
(complete with boot)

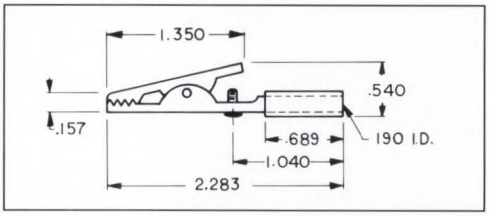
NON-INSULATED

CAT. NO. 5038

CAT. NO.	COLOR
5039	RED
5040	BLACK

Maximum Jaw Spread:.236
Teeth Length:.500
Teeth Width:.118

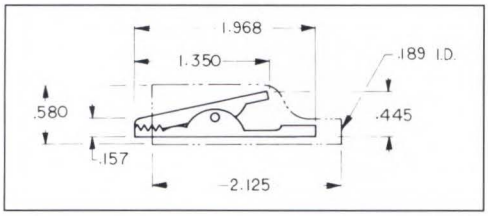
LARGE
SCREW CONNECTION WITH STRAIN RELIEF HANDLE. SLIM JAWS CAN BE USED IN LIMITED ACCESS PLACES. BARREL ACCEPTS STANDARD BANANA PLUGS.



CAT. NO.	COLOR
5056	RED
5057	BLACK

Maximum Jaw Spread:.315
Teeth Width:.118

LARGE
SOLDER CONNECTION BARREL ACCEPTS WIRE OR BANANA PLUG



INSULATED
(complete with boot)

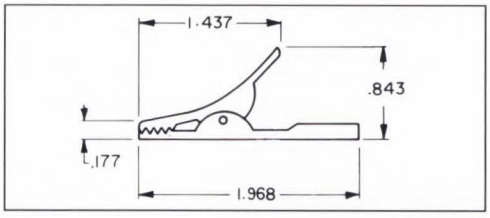
NON-INSULATED

CAT. NO. 5044

CAT. NO.	COLOR
5045	RED
5046	BLACK

Maximum Jaw Spread:.315
Teeth Length:.551
Teeth Width:.118

LARGE
SOLDER CONNECTION



CAT. NO. 5055

Maximum Jaw Spread:.590
Teeth Width:.228

TO-66 POWER TRANSISTOR SOCKETS

Designers' Choice

KEYSTONE

SPACE SAVER • LABOR SAVING • EASIER SERVICING • SIMPLER MOUNTING • FROM STOCK IMMEDIATELY

Achieve better electrical performance and mechanical sturdiness by using these low cost, compact, rugged sockets. Avoids soldering directly to the semiconductor. Sockets are easier and faster to mount with the least amount of hardware required. Metal parts of the socket are corrosion resistant and tin plated. Spring brass contacts provide very low resistance electrical continuity. Hard steel collector plates with 6-20 threaded formings at each end engage screws and hold securely with maximum torque of 9 inch/lbs. Various boss heights on the precision molded nylon tops eliminate the need for loose bushings.

MATERIAL SPECIFICATIONS:

Collector Plate: Steel tin plated
Contacts: .012 thick brass tin plated.
MATERIALS: Molded Nylon plates per ASTM D4066 Phenolic PBE Grade Natural Color

MODIFICATIONS AVAILABLE

Variety of stock parts permits fast delivery on special requirements. Contact our engineering department.

SPECIAL LUGS

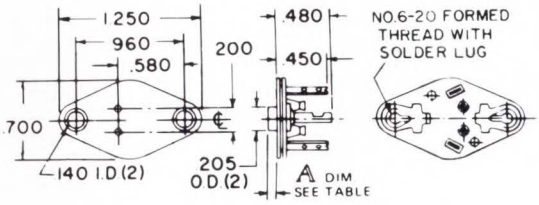
Printed Circuit Lugs Available on special order.

FOR TO-66 CASE

GREATER FLEXIBILITY • TIME SAVING • BETTER THERMAL EFFICIENCY • UNIFORM • AVAILABLE FROM STOCK

The socket is held underneath the chassis and the semi-conductor is inserted into the contacts of the socket holding the assembly in position. To complete the mounting, use 6-20 screws to engage the formed holes in the collector plate.

VARIOUS BOSS HEIGHTS AVAILABLE FROM STOCK

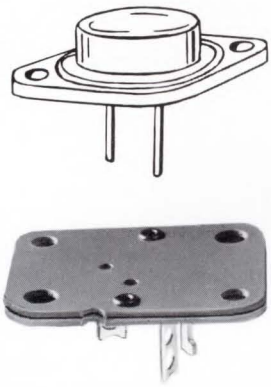


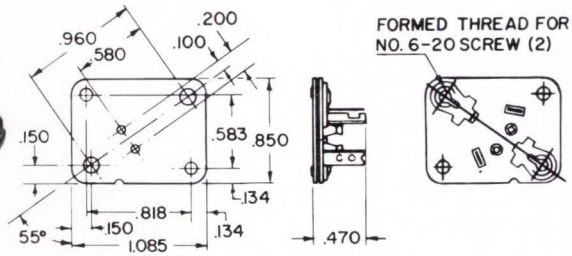
MATERIALS:
Top Plate: Molded Nylon
Base: Phenolic

CAT. NO.	A DIM.
4611	.030
4612	.045
4613	.060
4614	.090

FOR TO-66 CASE

Pre-assembling the socket to the chassis by eyelets or rivets permits the installation of the semiconductor at a later stage in the assembly.



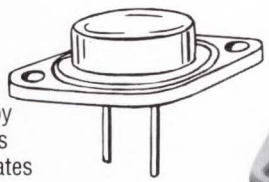


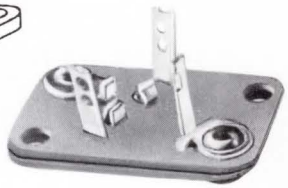
CAT. NO. 4615

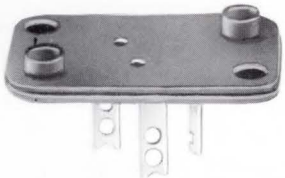
MATERIALS:
Top Plate: Phenolic
Base: Phenolic

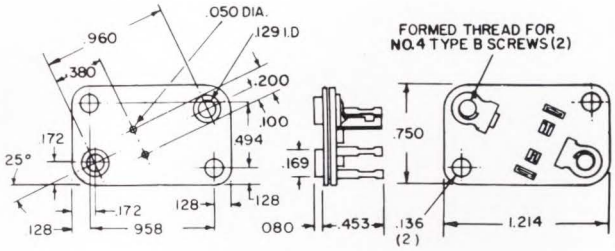
FOR TO-66 CASE

These sockets are pre-assembled to the chassis by either eyelets or rivets. Has .080 high boss and eliminates the need for washers or bushings.









CAT. NO. 4625

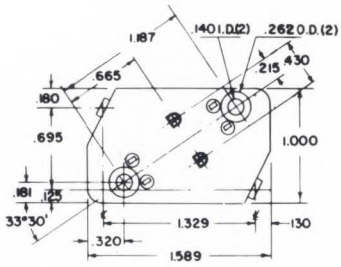
MATERIALS:
Top Plate: Molded Nylon
Base: Phenolic

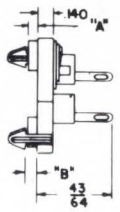
TO-3 MOLDED TRANSISTOR SOCKETS

SNAP-IN SOCKET FOR TO-3

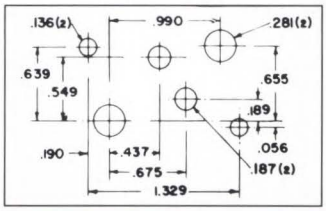
Fully molded compact construction, will Snap-Fit into .040 and .080 thick Heat Sinks or Panels. Speeds assembly of transistors. Will take insertion force of transistor without falling out of position.

MATERIAL: Monsanto M340FR (Flame Retardant)
Collector Lug: Steel Tin Plate
Contacts: Brass Tin Plate





MOUNTING HOLES

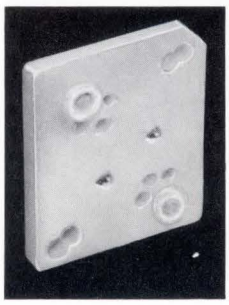


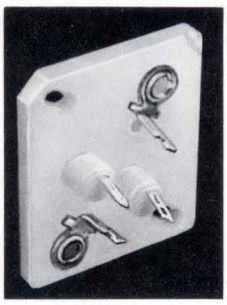
CAT. NO.	"A"	"B"
4599-1	.040	.075
4599-2	.080	.105

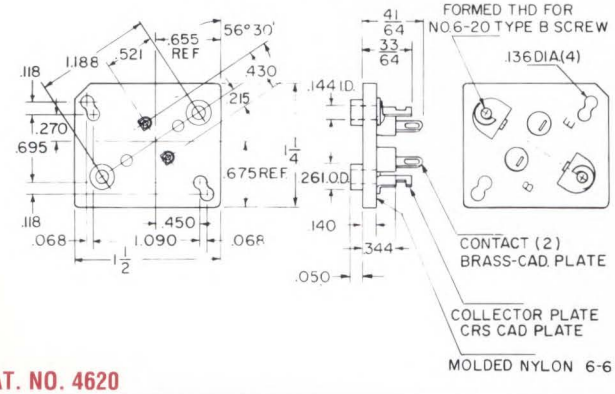
FULLY MOLDED TO-3 SOCKET

Pre-assembling the socket to the chassis by eyelets or rivets permits the installation of the semiconductor at a later stage in the assembly. The molded top boss eliminates hardware.

Ideal where high temperature is incurred. Molded from Nylon 6/6.







CAT. NO. 4620

HEAVY DUTY SOCKET FOR TO-3

Features an all-in-one mounting plate and solder tabs, providing complete electrical isolation of the solder tab connections.

CHOICE OF SINGLE OR DUAL COLLECTOR SOLDER TABS

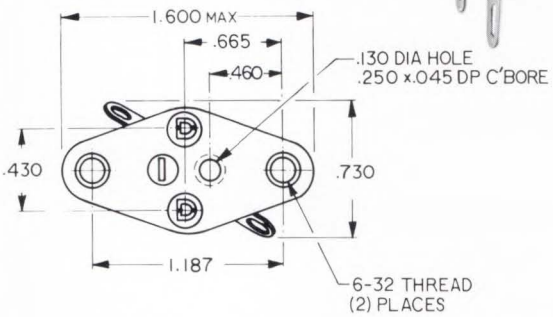
MATERIAL: Insulating base glass filled reinforced polyester – 94V-0 rating.
Contacts: Phosphor bronze tin plate.
Mtg. Bracket: Brass tin plate.

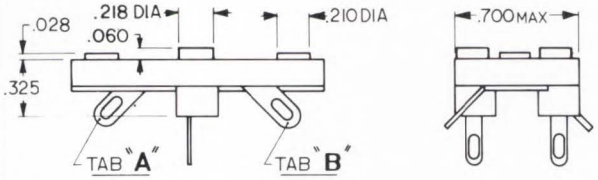
Rated 5 amps DC continuous and 15 amps DC intermittent

With transistor lead-in insulating shoulders

Choice of Single or Dual Tabs

CAT. NO.	WITH TAB
4513	"A" ONLY
4514	"A" &"B"

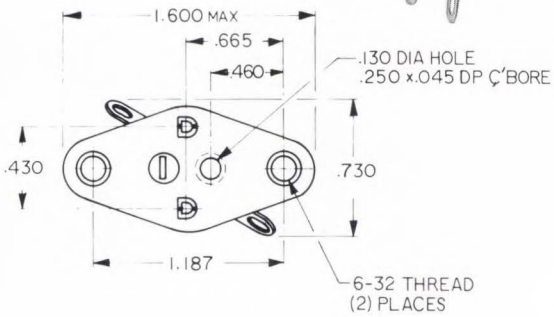


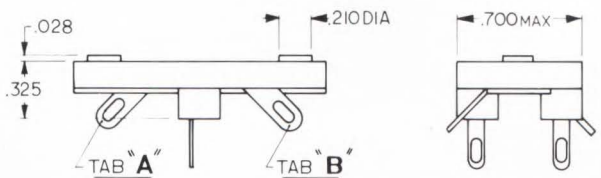


Less transistor lead-in insulating shoulders

Choice of Single or Dual Tabs

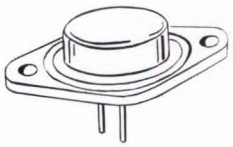
CAT. NO.	WITH TAB
4515	"A" ONLY
4516	"A" &"B"





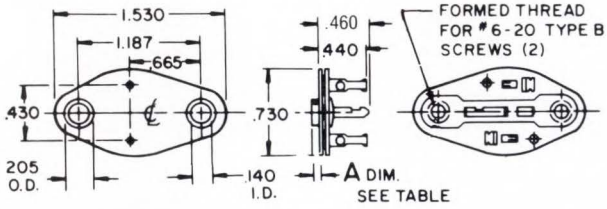
SOCKETS FOR TO-3 CASE

VARIOUS MOLDED BOSS HEIGHTS



The socket is held underneath the chassis and the semiconductor is inserted into the contacts of the socket holding the assembly in position. To complete the mounting, use 6-20 screws to engage the formed holes in the collector plate.

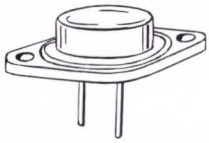
CAT.NO.	A DIM.
4603	.030
4602	.045
4601	.090



MATERIAL:
Top Plate: Molded Nylon
Base: Phenolic

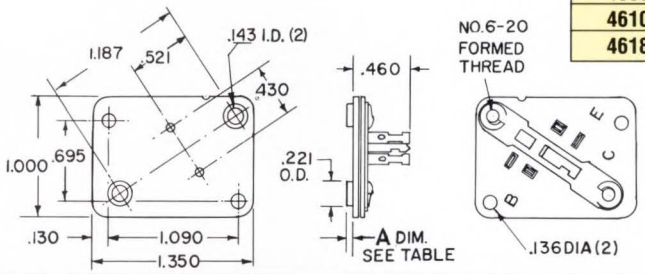
SOCKETS FOR TO-3 CASE

VARIOUS MOLDED BOSS HEIGHTS



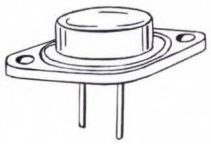
Pre-assembling the socket to the chassis by eyelets or rivets permits the installation of the semiconductor at a later stage in the assembly.

CAT.NO.	A DIM.
4607	.030
4608	.045
4609	.060
4610	.090
4618	.125

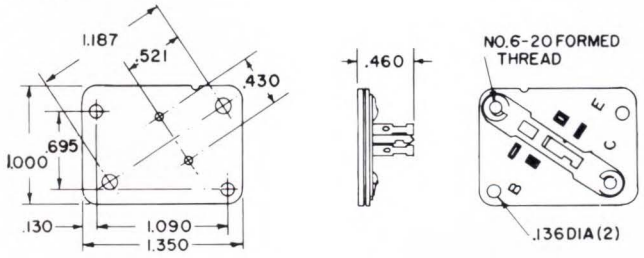


MATERIAL:
Top Plate: Molded Nylon
Base: Phenolic

FOR TO-3 CASE (ALL PHENOLIC SOCKET)



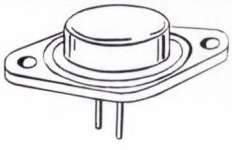
This socket is eyeletted or riveted to the chassis and use external bushings to insulate the screws in the final mounting. The semiconductor may be installed at the last stage of the assembly.



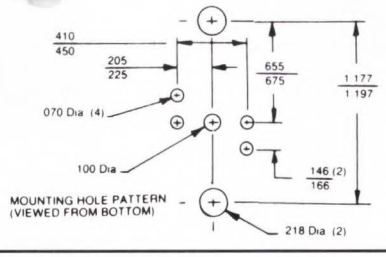
MATERIAL:
Top Plate: Phenolic
Base: Phenolic

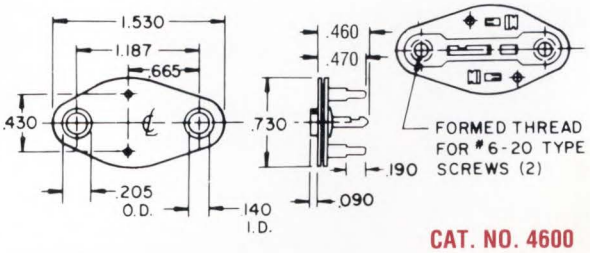
CAT. NO. 4606

SOCKET FOR TO-3 (PRINTED CIRCUIT)



Easily assembles onto printed circuit board. Eliminates wiring. Stops on P.C. terminals provide sufficient spacing between socket and P.C. board to permit proper assembly of transistor to socket. Can be screwed down tightly to heat sink.





MATERIAL:
Top Plate: Molded Nylon
Base: Phenolic

CAT. NO. 4600

KEYSTONE *Designers' Choice*

TRANSISTOR SOCKET KITS

• LABOR SAVING • EASY MOUNTING TO CHASSIS • BETTER THERMAL EFFICIENCY

An improved, simpler, less costly method of semiconductor mounting. Avoid soldering directly to the semiconductor. Easier to service, economical, more efficient.

ORDERING INFORMATION:

Complete Kits or Individual Hardware

Purchase the complete kit by catalog number as shown or individual items in minimum 100 piece packages. Keystone does not supply semiconductors.

MATERIAL SPECIFICATIONS:

Phenolic: XP grade per Federal L-P-509, Type 1, Form S.

Contacts: Brass Electro Tin Plate.

Socket: Nylon101 per ASTM D4066.

Screws: Steel, Type B, 4-40 or 6-20 as required.

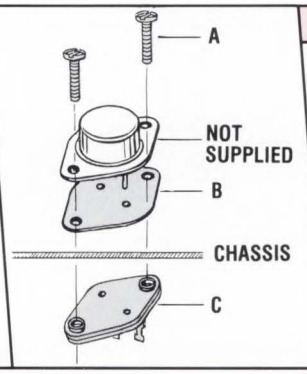
Collector Plate: Steel .030 Thick, Electro Tin Plate.

SOCKET MOUNTING FOR TO-3 CASE

The socket and transistor are assembled without previous attachment to the chassis. Contacts are spaced .430 apart. The .045 high boss on the nylon top eliminates the need of washers or bushings.

ITEM	CAT. NO.	DESCRIPTION	QUANTITY
A	**4706**	6-20 screws	2
B	**4651**	Mica Insulator	1
C	**4602**	Socket	1

CAT. NO. 4732 Complete Mounting Kit (includes all of the above)



SOCKET MOUNTING FOR TO-66 CASE

Construction of this socket is similar to the TO-3 socket but it is much smaller in size and contacts are spaced on .200 centers. The .045 high boss on the nylon top eliminates the need of washers or bushings.

ITEM	CAT. NO.	DESCRIPTION	QUANTITY
A	**4706**	6-20 screws	2
B	**4666**	Mica Insulator	1
C	**4612**	Socket	1

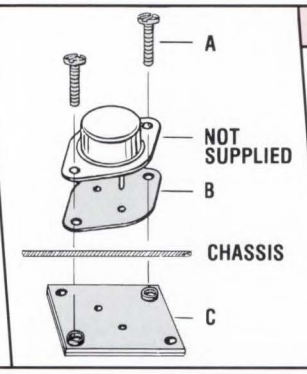
CAT. NO. 4736 Complete Mounting Kit (includes all of the above)

SOCKET MOUNTING FOR TO-3 CASE

These sockets are pre-assembled to the chassis by either eyelets or rivets. Spacing of contacts is .430 centers. The .045 high boss on the nylon top eliminates the need of washers or bushings.

ITEM	CAT. NO.	DESCRIPTION	QUANTITY
A	**4706**	6-20 screws	2
B	**4651**	Mica Insulator	1
C	**4608**	Square Socket	1

CAT. NO. 4733 Complete Mounting Kit (includes all of the above)



SOCKET MOUNTING FOR TO-66 CASE

One piece molded nylon top socket compact, low cost, easy to pre-assemble to chassis. Has .078 High Boss and eliminates the need for washers or bushings. Contacts spaced .200 centers.

ITEM	CAT. NO.	DESCRIPTION	QUANTITY
A	**4697**	#4 Screws	2
B	**4666**	Mica Insulator	1
C	**4625**	Molded Socket	1

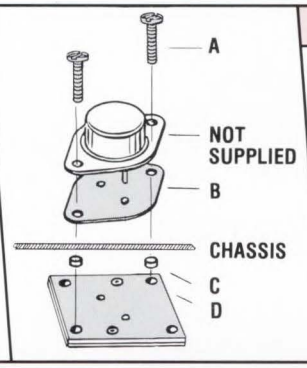
CAT. NO. 4737 Complete Mounting Kit (includes all of the above)

SOCKET MOUNTING FOR TO-3 CASE

An all phenolic socket that is pre-assembled to the chassis by eyelets or rivets. Spacing and brass contacts .430 centers.

ITEM	CAT. NO.	DESCRIPTION	QUANTITY
A	**4706**	6-20 screws	2
B	**4651**	Mica Insulator	1
C	**4684**	Nylon Bushings	4
D	**4606**	Sq.Phenol. Socket	1

CAT. NO. 4734 Complete Mounting Kit (includes all of the above)



SOCKET MOUNTING FOR TO-66 CASE

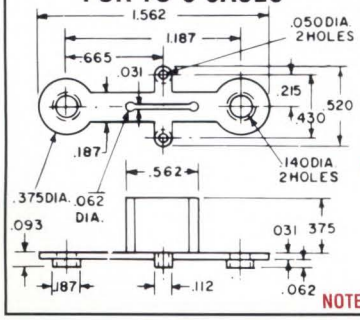
All phenolic socket assembled with contacts on .200 centers sturdily constructed for heavy duty usage, pre-assembled to the chassis by eyelets or rivets.

ITEM	CAT. NO.	DESCRIPTION	QUANTITY
A	**4706**	6-20 Screws	2
B	**4666**	Mica Insulator	1
C	**4684**	Spacers	4
D	**4615**	Sockets	1

CAT. NO. 4738 Complete Mounting Kit (includes all of the above)

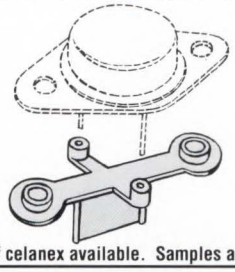
NYLON POWER TRANSISTOR MOUNT

FOR TO-3 CASES



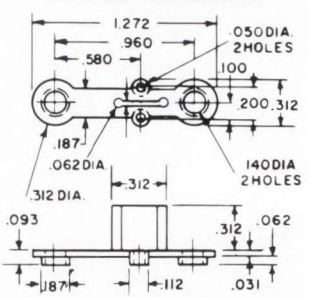
Barrier insulator, molded of type 6/6 natural colored nylon, functionally replaces up to six pieces of conventional insulation required with previous methods of mounting power transistors. Built-in barrier eliminates need for sleeving of connections.

CAT. NO. 4616



CAT. NO. 4617

FOR TO-66 CASES



NOTE: Heavy Duty Insulator made of celanex available. Samples and quote upon request.

TRANSISTOR MOUNTING KITS

Designers' Choice KEYSTONE

• COMPLETE KITS OR INDIVIDUAL HARDWARE • PRE PACKAGED • UNIFORM HARDWARE AT LOW COST

These pre-packaged universal mounting kits provide all the necessary hardware and insulators required to securely mount the semiconductor to the chassis. Purchase the complete kit consisting of all hardware included in one package.

Your choice of individual items available in 100 piece packages. We welcome suggestions for improving these kits and will render prompt quotations for specially packaged hardware.

Keystone does not supply any semiconductors.

ORDERING INFORMATION: Individual parts are sold in not less than 100 pieces of an item. Complete kits are ordered by specifying the complete mounting kit catalog number.

FOR TO-3 CASE

FIG. 1

Item	Cat. No.	Description	Quan
A	4696	6-32 Screws	2
B	4651	Mica Insulator	1
C	4698	Shoulder Washers	2
D	4699	Metal Washers	2
E	4004	Solder Terminal	1
F	4700	Lockwashers	2
G	4701	6-32 Nuts	2

CAT.NO. 4725 Complete Mounting Kit

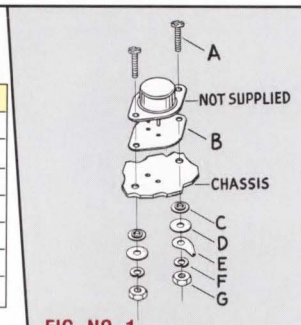


FIG. NO. 1

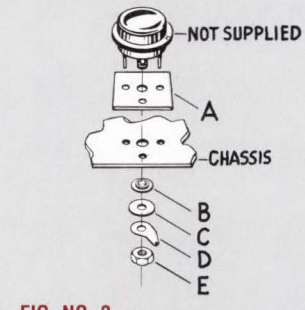


FIG. NO. 2

FOR TO-66 CASE

FIG. 1

Item	Cat.No.	Description	Quan.
A	4696	6-32 Screws	2
B	4666	Mica Insulator	1
C	4698	Shoulder Washers	2
D	4699	Metal Washers	2
E	4004	Solder Terminal	1
F	4700	Lockwashers	2
G	4701	6-32 Nuts	2

CAT.NO. 4726 Complete Mounting Kit

FOR TO-36 CASE

FIG. 2

Item	Cat. No.	Description	Quan.
A	4656	Mica Insulator	1
B	4702	Shoulder Washer	1
C	4703	Metal Washer	1
D	4704	Solder Terminal	1
E	4705	10-32 Nut	1

CAT.NO. 4727 Complete Mounting Kit

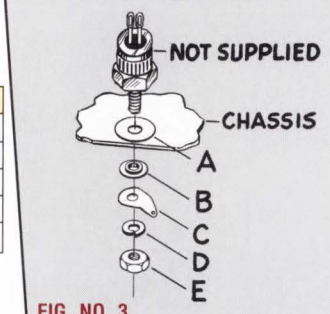


FIG. NO. 3

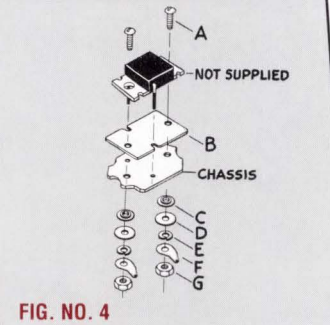


FIG. NO. 4

FOR PLASTIC CASE

FIG.4

Item	Cat. No.	Description	Quan.
A	4690	4-40 Screws	2
B	4663	Mica Insulator	1
C	343	Shoulder Washers	2
D	4692	Metal Washers	2
E	4693	Lockwashers	2
F	4695	Solder Terminal	2
G	4694	4-40 Nuts	2

CAT.NO. 4728 Complete Mounting Kit

FOR DO-4, TO -59, TO-60, T0-62 CASE

FIG. 3

Item	Cat. No.	Description	Quan.
A	4681	Mica Insulator	1
B	4702	Shoulder Washer	1
C	4704	Solder Terminal	1
D	1477	Lockwasher	1
E	4705	10-32 Nut	1

CAT.NO. 4729 Complete Mounting Kit

FOR DO-5, TO-48, TO-61 CASE

FIG. 3

Item	Cat. No.	Description	Quan.
A	4682	Mica Insulator	1
B	4711	Shoulder Washer	1
C	4712	Solder Terminal	1
D	1476	Lockwasher	1
E	4713	1/4-28 Nut	1

CAT.NO. 4730 Complete Mounting Kit

FOR TO-220 CASE

FIG. 4

Item	Cat. No.	Description	Quan.
A	4690	4-40 Screws	1
B	4672	Mica Insulator	1
C	3049	Shoulder Washer	1
E	4693	Lockwasher	1
G	4694	4-40 Nuts	1

CAT.NO. 4724 Complete Mounting Kit

FOR TO-63 CASE

FIG. 3

Item	Cat. No.	Description	Quan.
A	4683	Mica Insulator	1
B	3241	Shoulder Washer	1
D	1485	Lockwasher	1
E	4716	5/16-24 Nut	1

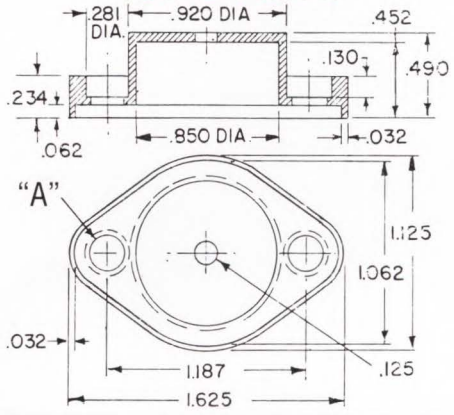
CAT.NO. 4731 Complete Mounting Kit

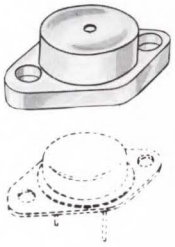
POWER TRANSISTOR COVERS

Molded nylon covers easily mount over and insulate the power transistor. Will withstand temperatures to approx. 300°F.

Available with or without brass eyelets installed in mounting holes to assure proper electrical contact with collector/case.

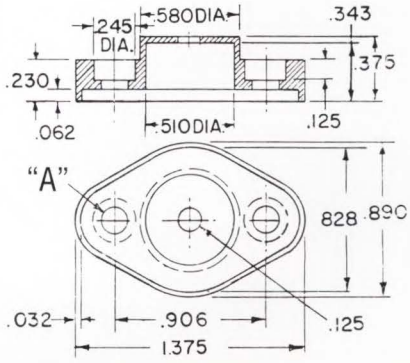
FOR TO-3 CASES





CAT. NO.	FOR	EYELETS INSTALLED	I.D. "A"
4632	TO-3	NONE	.210
4634	TO-3	TWO	.140
4633	TO-66	NONE	.155
4635	TO-66	TWO	.130

FOR TO-66 CASES



KEYSTONE *Designers' Choice*

TRANSISTOR MICA INSULATORS

• RAPID HEAT DISSIPATION • HIGH DIELECTRIC STRENGTH • NON-TOXIC • LOW COST • FROM STOCK

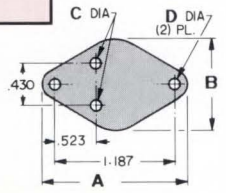
These precision stamped mica insulators provide good thermal conductivity (.009 watts per square inch per degree celsius per inch in thickness). Excellent thermal resistance 1100°F. Dielectric constant of 7 at 1000 Kilohertz.

ORDERING INFORMATION: Minimum quantity 100 pieces of an item.

MATERIAL SPECIFICATIONS: .003 thick mica is used for all the insulators on this page. Tolerance for thickness is plus or minus .001.

Modifications: Special thickness and other materials available on special order. Prompt quotations will be rendered.

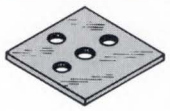
FOR TO-3 CASES

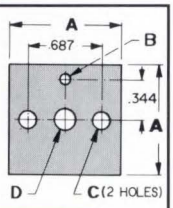


.003 THICK MICA

CAT. NO.	A	B	C	D
4651	1.625	1.093	.093	.166
4652	1.560	1.050	.203	.171
4653	1.655	1.063	.166	.166
4636	1.655	1.063	.052	.166
4644	1.655	1.063	.270	.166

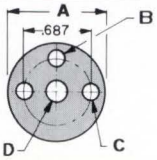
FOR TO-36 CASES





.003 THICK MICA

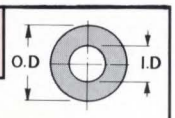
CAT. NO.	A	B	C	D
4655	1.125	.130	.187	.203
4656	1.250	.140	.156	.203



.003 THICK MICA

CAT. NO.	A	B	C	D
4657	1.062	.187	.187	.187
4670	1.187	.140	.156	.203
4659	1.187	.187	.187	.250

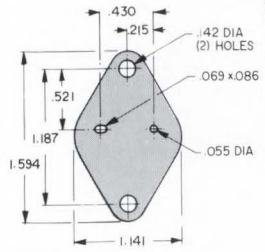
FOR TRANSISTOR CASES THREADED STUD



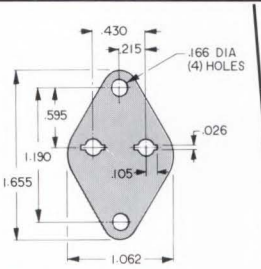
.003 THICK MICA

CAT. NO.	ID Inside Dia.	OD Outside Dia.	For Screw Size
4678	.120	.375	4
4679	.140	.375	6
4680	.171	.500	8
4681	.187	.625	10
4682	.265	.750	1/4
4683	.328	.875	5/16

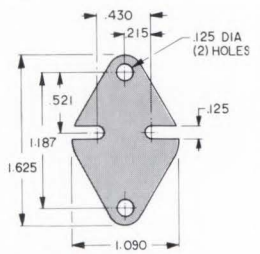
INSULATORS FOR VARIOUS TO-3 CASES



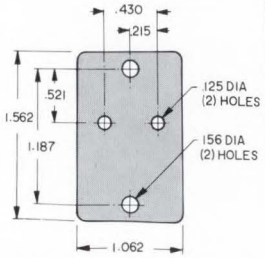
CAT. NO. 4662



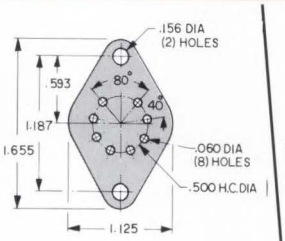
CAT. NO. 4667



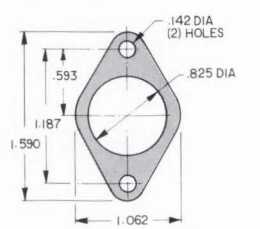
CAT. NO. 4674



CAT. NO. 4661

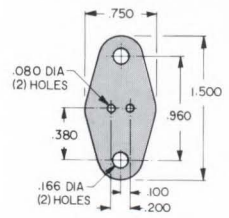


CAT. NO. 4658

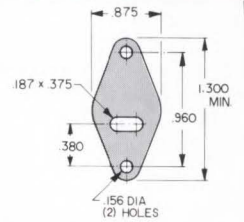


CAT. NO. 4660

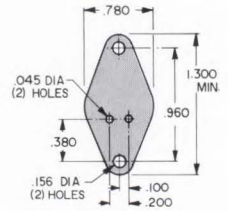
INSULATORS FOR VARIOUS TO-66 CASES



CAT. NO. 4664

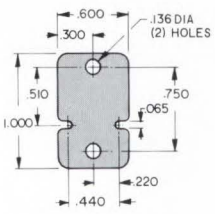


CAT. NO. 4665

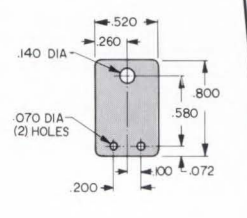


CAT. NO.4666

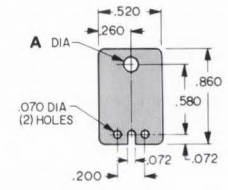
PLASTIC CASE MICA INSULATORS



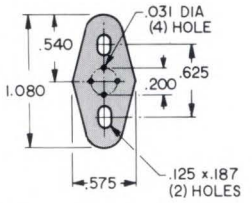
CAT. NO. 4663



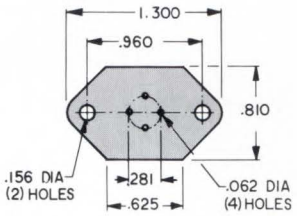
CAT. NO. 4671



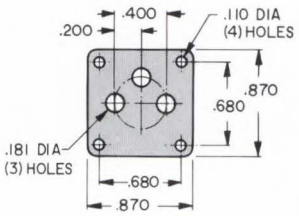
CAT. NO. 4672 .141
CAT. NO. 4673 .115



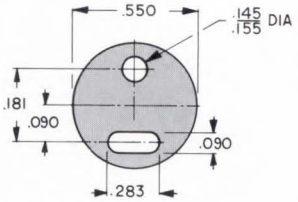
CAT. NO. 4637



CAT. NO. 4640



CAT. NO. 4669



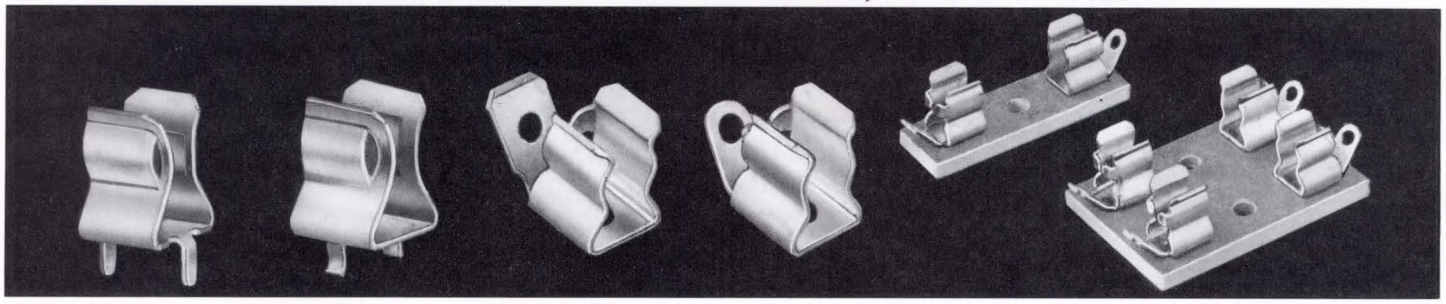
CAT. NO. 4668

FUSE CLIPS/HOLDERS

Designers' Choice

KEYSTONE

PCB MOUNT AND RIVET TYPES...FOR 2AG, 3AG & 5mm FUSES



Printed Circuit Types (2AG, 3AG & 5mm)

- Snap-fit and Press-fit designs for wave soldering.
- Low profile, space saving.
- Available with orientation tabs and end stops.
- Economical and easy to assemble.
- Low contact resistance.
- Rated 15 Amps.

Rivet Types

- For use with 1/4" (3AG) fuses.
- Available with straight or 45 degree solder lugs.
- Available with quick-disconnect tabs; .187, .205, .250 widths.
- Low contact resistance.
- Cost effective, easy-to-use.
- Low profile, space saving.
- Rated 15 Amps.

3AG & 5mm Fuse Holders

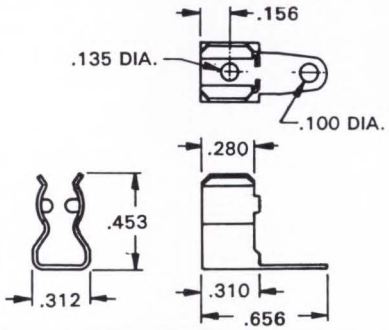
- PCB and Rivet mounts.
- Solder-tab, quick-disconnect or PC contacts.
- Insulation material, Flame retardant, UL94-VO rated.
- Single and multiple fuse configurations.
- Rated 15 Amps.

We also offer...

- Modifications.
- Custom fabrications to specifications.

3AG FUSE CLIP

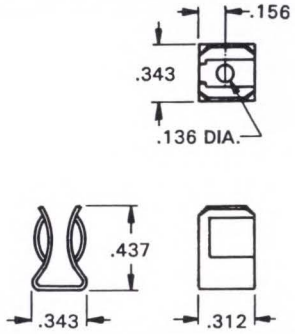
.020 Brass,
Nickel Plate.
For 1/4" dia. fuses



CAT. NO. 3533

3AG FUSE CLIP

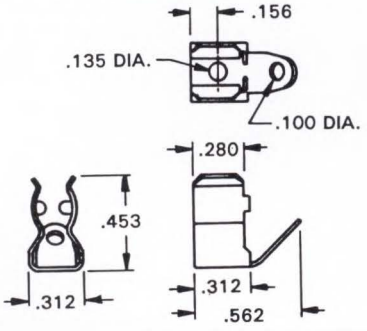
.020 Brass,
Nickel Plate.
For 1/4" dia. fuses



CAT. NO. 3532

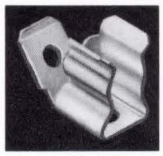
3AG FUSE CLIP

.020 Brass,
Nickel Plate.
For 1/4" dia. fuses



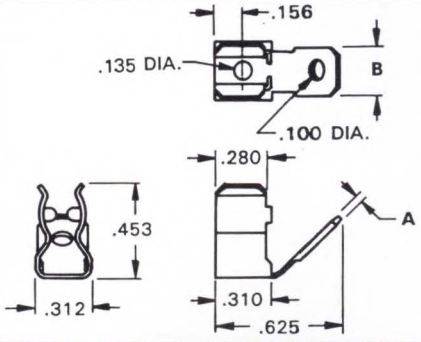
CAT. NO. 3535

3AG WITH QUICK-FIT TAB

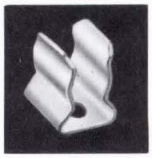


Brass, Nickel Plate.
For 1/4" dia. fuses

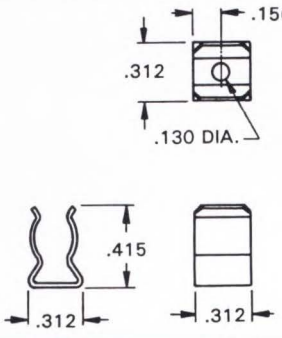
CAT. NO.	"A"	"B"
4244	.032	.250
4246	.020	.187
4247	.020	.205



3AG FUSE CLIP



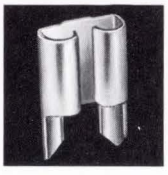
020 Brass,
Nickel Plate.
For 1/4" dia. fuses



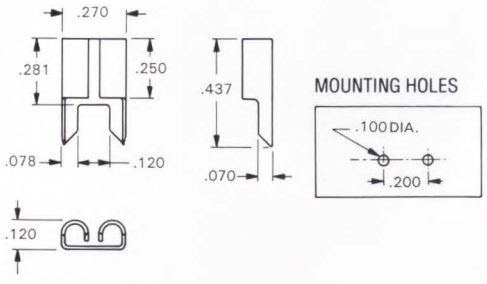
CAT. NO. 3531

PC AUTO FUSE CLIP

For .205 tab × .025 thick.



.016 Brass
Tin Plate



CAT. NO. 3522

KEYSTONE *Designers' Choice*

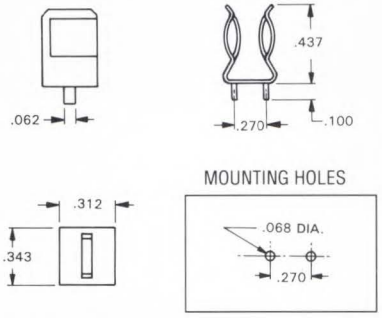
PRINTED CIRCUIT FUSE CLIPS

FOR 2AG, 3AG & 5mm FUSES

- Snap-fit and Press-fit designs for wave soldering
- Low profile, space saving
- Available with orientation tabs and end stops
- Low contact resistance
- Rated 15 amps
- Economical and easy to assemble

3AG PC CLIP

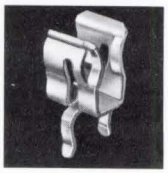
.020 Brass, Tin Plate.
For 1/4" dia. fuses.



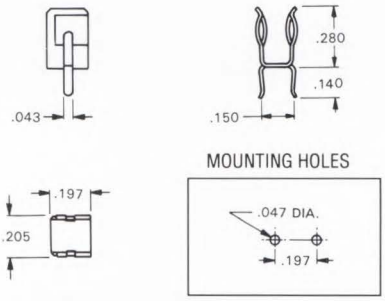
CAT. NO. 3530

2AG/5mm PC CLIP

LOW PROFILE



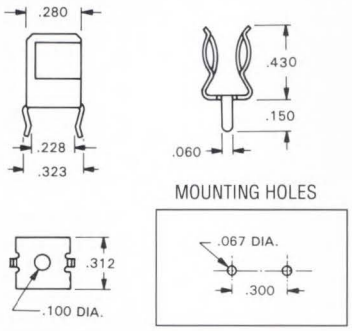
.016 Brass, Tin Plated.



CAT. NO. 3521

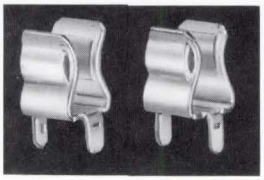
3AG SNAP-IN PC CLIP

.020 Brass, Tin Plate.
For 1/4" dia. fuses.



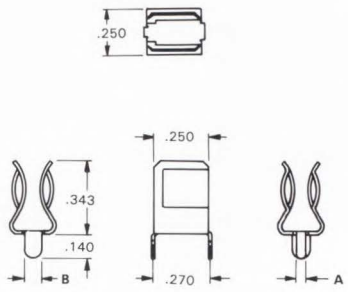
CAT. NO. 3513

5mm PC POLARITY CLIP



.020 Brass, Tin Plated.

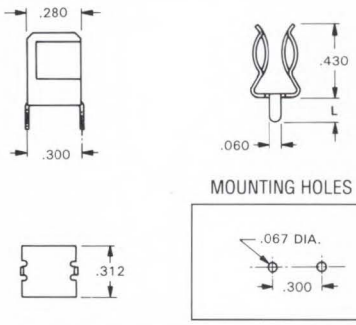
CAT. NO.	"A"	"B"
3517	.060	.060
3518P	.060	.093



3AG PC CLIPS

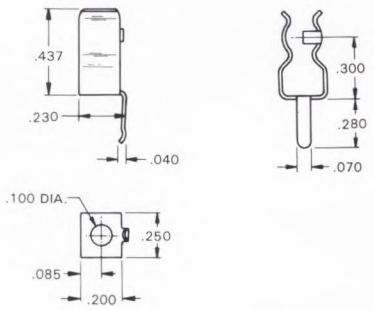
.020 Brass, Tin Plate.
For 1/4" dia. fuses.

CAT. NO.	"L"
3529	.140"
3514	.250"



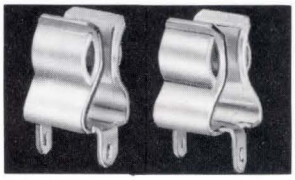
5mm PC CLIP

.016 Brass, Tin Plated.



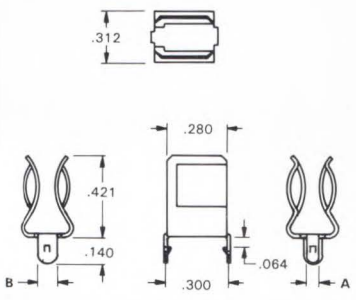
CAT. NO. 3520

3AG SNAP-IN PC POLARITY CLIP



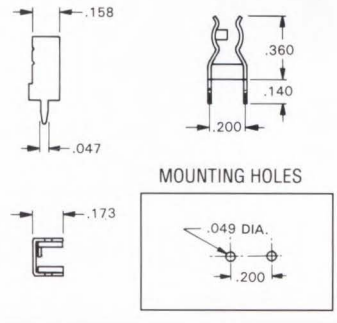
.020 Brass, Tin Plate.
For 1/4" dia. fuses.

CAT. NO.	"A"	"B"
3515	.060	.060
3516P	.060	.120



5mm PC CLIP

.016 Brass, Tin Plated.



CAT. NO. 3519

5mm & 3AG FUSE HOLDERS

Designers' Choice

KEYSTONE

UL APPROVED MATERIALS • LOW COST • LOW CONTACT RESISTANCE • FLAME RETARDANT

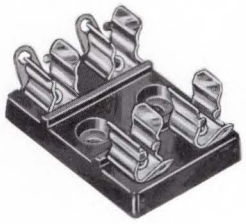
MOLDED 3AG FUSE HOLDERS

A new improved Fuse Holder for the popular 3AG fuse. Molded with barriers to prevent and withstand test of 1080 VRMS at 60HZ for 1 minute and 3000 V. DC for 1 minute.

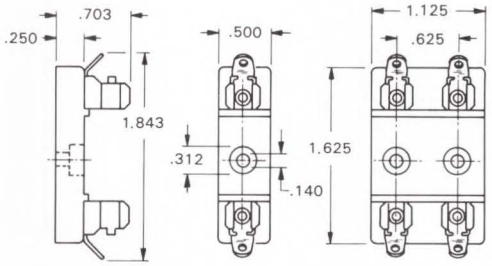
MOLDED BASE: Mineral filled flame retardant Alklyd. UL rated 94V-O and conforms to the 180 seconds arc tracking test spec per ASTM 495-D.
CLIPS: Brass, Bright Finish.

CONTACT RESISTANCE: Will not exceed 50 milliohms before and after being in an atmosphere of 100% R.H. at 65°C for 48 hours, then air dried 1 hour.

CAT. NO. 3523



CAT. NO. 3524



FUSE HOLDERS FOR 3AG FUSES

Black Phenolic: NEMA Grade XXXP - FED. LP-513, paper base electrical phenolic Max. operating temp. continuous 250°F. .125 thick.
Fiberglass: Fiberglass Reinforced Polyester NEMA Grade. GPO-3 with a 155°C (300°F) Temp. 94V-O rating. .125 thick.
Clips: Brass, Nickel Plated.

ASSEMBLED WITH CLIP NO. 3535				
BLACK PHENOLIC CAT.NO.	FIBER-GLASS CAT. NO	HOLDS NO. OF FUSES	FIG. NO.	A
3536	3540	1	1	.500
3537	3541	2	2	1.125
3538	3542	3	2	1.750
3539	3543	4	2	2.375

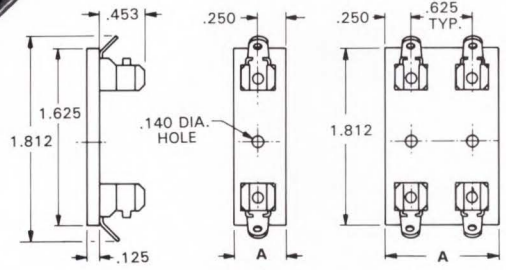
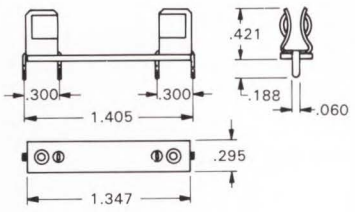
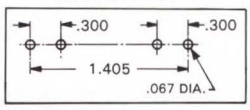


FIG. NO. 1 FIG. NO. 2

PRINTED CIRCUIT 3AG HOLDER

For 1/4" diameter fuse 3AG. Ideal for use where space is a factor. Economical & compact. Provides greater mechanical strength than individual clips. Increase production, PC contacts are ideal for wave soldering.
MATERIAL:
Base: .062 GPO-3, 94V-0.
Clips: Brass, Tin Plate.





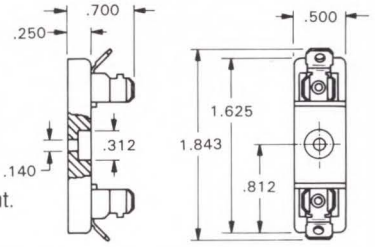
CAT. NO. 4245

QUICK-FIT 3AG HOLDER

FOR 1/4" (.250) DIAMETER FUSES.
Fuse clip is one piece construction. Quick-fit tab is .250 wide × .032 thick. Accepts standard .250 quick disconnect terminal, eliminating the need for soldering. Brass, Nickel Plate.

MATERIAL:
Base: Molded Plastic, flame retardant. UL rated 94V-O.

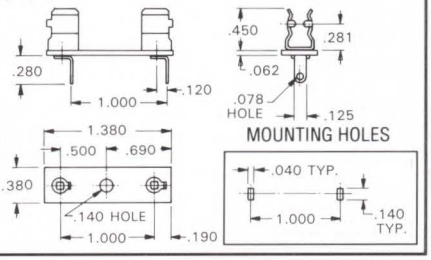
CAT. NO. 4243



FUSE HOLDER FOR 3AG FUSES

Leads are terminated on the bottom of strip. Ideal for use where space is a factor. Excellent for printed circuit boards. No wiring required.
MATERIAL: Base: .062 GPO-3, 94V-0.
Clip: Brass, Tin plate.
Lug: Brass, Tin plate.

CAT. NO. 3526

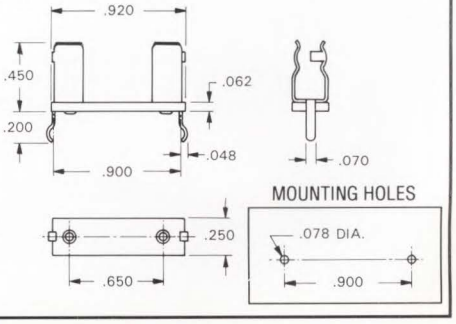


PRINTED CIRCUIT 5mm FUSE HOLDER

- Snap-fit for wave soldering
- Low contact resistance
- Low profile, space saving
- Reliable and economical

MATERIALS:
Base: G-10, Glass Epoxy, 94V-O.
Clips: Brass, Tin Plated.

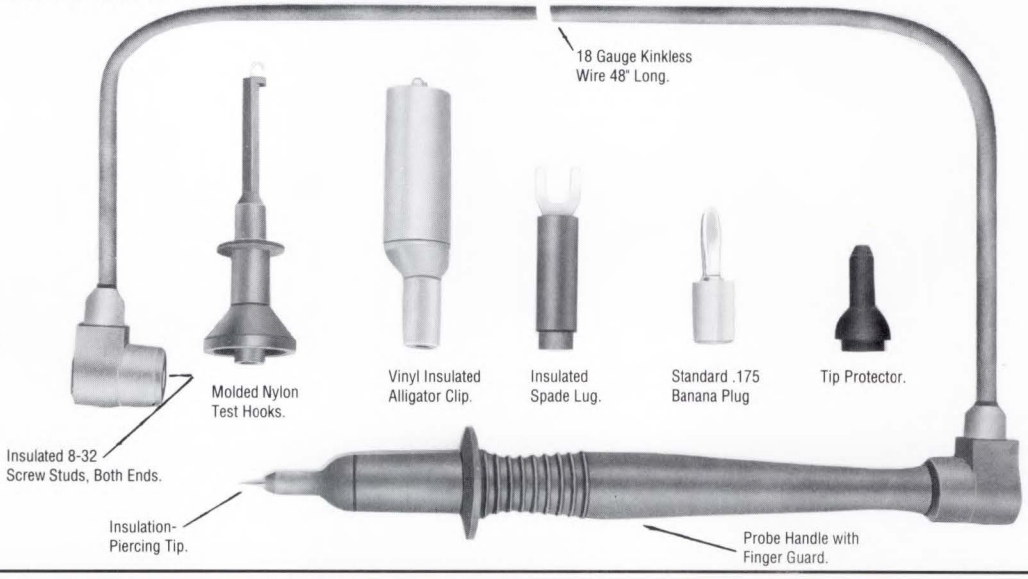
CAT. NO. 3527



TEST LEAD PROBES & KITS

SAFE 'N SURE UNIVERSAL TEST LEAD KIT

This Universal Kit features the flexibility to interchange all accessories at either end, and in any combination you desire. With it you can make Test Leads, Jumper Cables, Clip Leads, Patch Cords, and Test Hook Leads. Both the wire and accessories have an 8-32 threaded portion which facilitates interchangeability. Complete with velcro carry pouch. Built-in belt loop.



COMPLETE KIT:
CAT. NO. 8025

SWITCHABLE OSCILLOSCOPE PROBE KIT

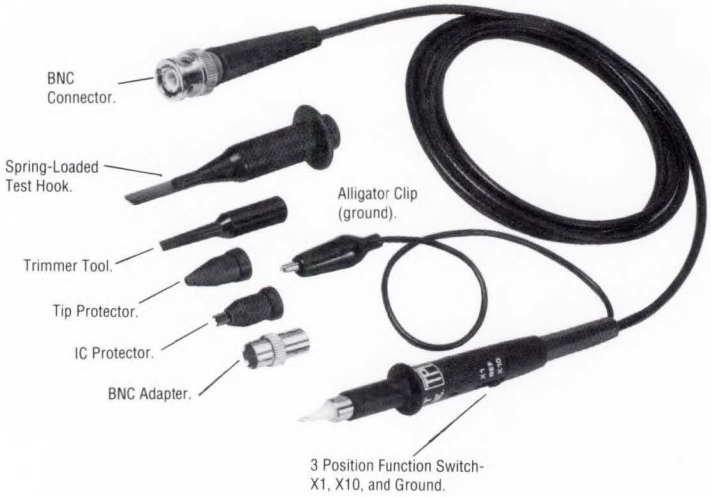
Used with all scopes to 100 MHz range, including Tektronix, Hewlett-Packard and Philips. This passive X1, X10 probe has a 3-position slide for function select, including ground. Tip is sharp, heavy-duty. 5' cable is slender and very flexible. Break-resistant center conductor. 10-60 pF compensation range. All accessories supplied as shown.

SPECIFICATIONS:

Position X1
Bandwith: DC to 10 MHz.
Input Resistance: 1mΩ (oscilloscope input).
Input Capacity: 40pF plus oscilloscope capacity.
Working Voltage: 600 VDC (including Peak AC).

Position Ref.
Probe tip grounded via 9MΩ resistor, oscilloscope input grounded.

Position X10
Bandwith: DC to 100 MHz
Rise Time: 3.5 nS.
Input Resistance: 10MΩ ±1% used with oscilloscope with 1MΩ input.
Input Capacity: 11.5 pF used with oscilloscope having 30 pF input capacity.
Compensation Range: 10-60 pF.
Working Voltage: 600 VDC (including Peak AC).

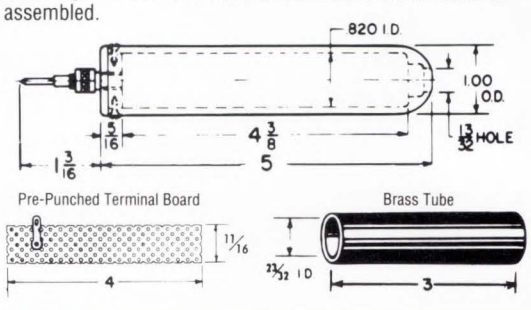


COMPLETE PROBE KIT:
CAT. NO. 8060

TEST PROBE KITS

• PRECISION MOLDED • EASILY BUILT • LOW COST•STURDY

A quality, durable accessory for Signal Generators, VTVM, Oscilloscopes etc., can be built by using the No. 1810 Test Probe Kit. It is designed to contain circuitry required for Signal Tracers, Demodulator, Attenuator and Isolation Probes. Easily assembled.



CAT. NO. 1810

KIT CONSISTS OF: One each (unassembled) Black Hi-Impact Plastic Handle, Black Phenolic Cap, Pre-Punched Terminal Board and Terminals (Push-In Type). Brass Shield, Senior Solderless Brass N. P. Phone Tip and Screws for fastening Cap to Handle.

CAT. NO. 1811

KIT CONSISTS OF: One each (unassembled) Probe Handle and Cap with Solderless Phone Tip only. (Less Terminal Board, Terminals and Brass Tube.)

PHONE TIPS

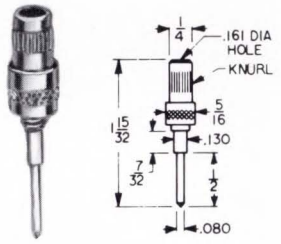
Designers' Choice

KEYSTONE

MATERIAL SPECIFICATIONS: Tips- Brass Nickel Plated
Handles- Molded plastic (Nylon 6/6) 3/8" O.D.× 3/16" I.D. Available in Red or Black
RATING: 12 Amps AC for 10°C Temp. rise, continuous duty.

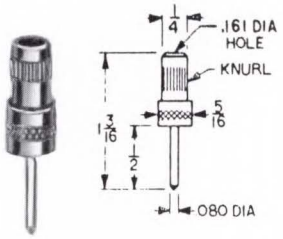
FORCE FIT SOLDERLESS PHONE TIPS

SENIOR



CAT. NO. 1690

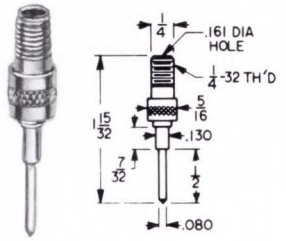
JUNIOR



CAT. NO. 1680

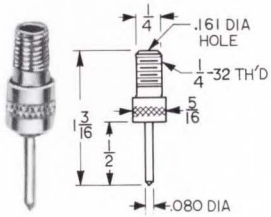
THREADED SOLDERLESS PHONE TIP

SENIOR



CAT. NO. 1691

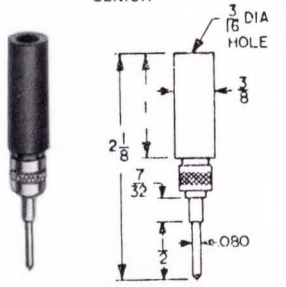
JUNIOR



CAT. NO. 1681

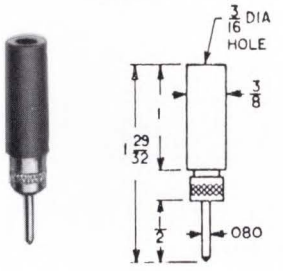
INSULATED SOLDERLESS PHONE TIP

SENIOR



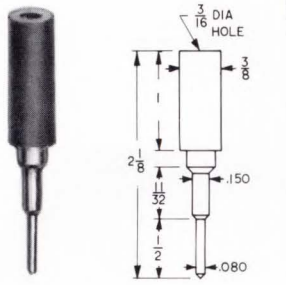
CAT. NO. 1660- RED
CAT. NO. 1661- BLACK

JUNIOR

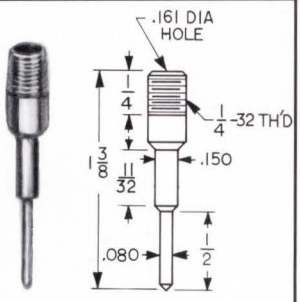


CAT. NO. 1670 - RED
CAT. NO. 1671 - BLACK

HEAVY DUTY PHONE TIPS



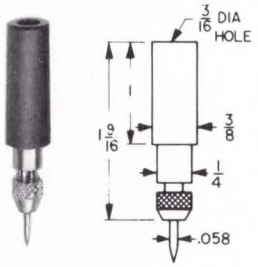
CAT. NO. 3017 - RED
CAT. NO. 3018 - BLACK



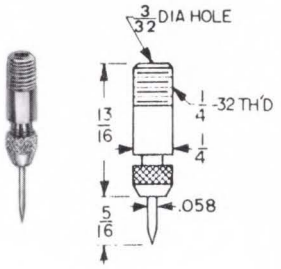
CAT. NO. 3019

PHONO NEEDLE CHUCK TIP

Chuck removable for easy tip replacement. Needle pierces insulation for positive contact.



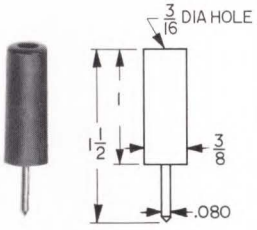
CAT. NO. 3015 - RED
CAT. NO. 3016 - BLACK



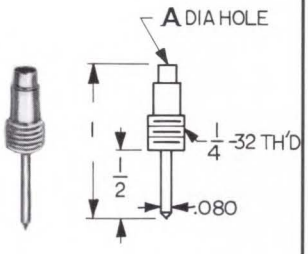
CAT. NO. 3014

STREAMLINE PHONE TIPS

No metal exposed. Large well for soldering.



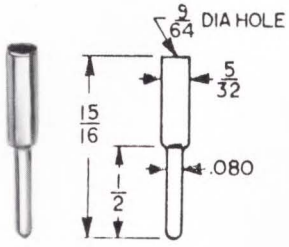
CAT. NO. 1615 - RED
CAT. NO. 1616 - BLACK



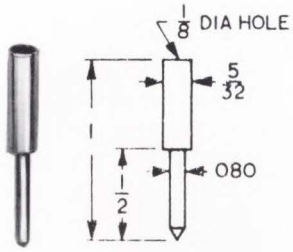
CAT. NO.	A
3022-12	.120
3022-20	.093

STANDARD PHONE TIPS

Ideal replacement tip for headset, speaker, or extension cord. 1601 Tip accommodates heavier wire.



CAT. NO. 1600

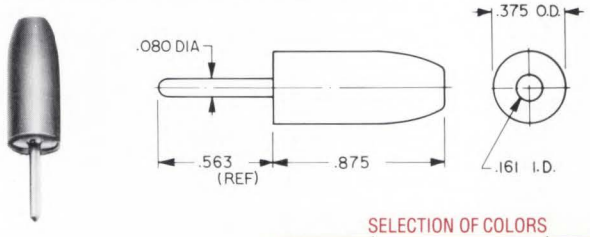


CAT. NO. 1601

TEST TIPS AND JACKS

SOLDERLESS TIP PLUG WITH .080" DIA.

Fully insulated molded nylon sleeve. Maximum reliability with minimum contact resistance. Recessed metal head eliminates possibility of shock or grounding. Designed for solderless connection of up to 16 gauge stranded wire which fits through handle and tip and is secured by screwing handle tight. Current rating 10 amps. Fits all standard tip jacks.



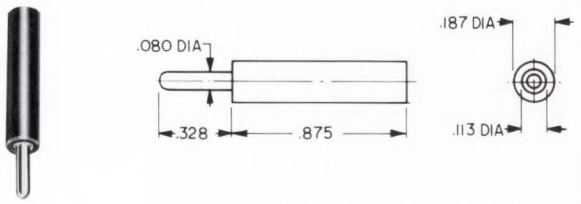
MATERIALS:
Handle: Nylon PER ASTM D4066
Tip: Brass, Nickel Plated.

SELECTION OF COLORS

CAT. NO.	COLOR	CAT. NO.	COLOR
6000	WHITE	6003	GREEN
6001	RED	6004	YELLOW
6002	BLACK	6005	BLUE

MINIATURE TIP PLUG WITH .080" DIA.

Designed for miniaturization where space is critical. Solder lead connection. Maximum reliability with minimum contact resistance. Base of tip is recessed to eliminate shock or grounding. Fits horizontal tip jacks. Current rating: 10 amps.



MATERIALS:
Handle: Nylon PER ASTM D4066
Tip: Brass, Nickel Plated.

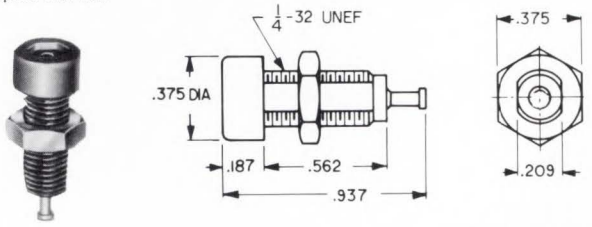
SELECTION OF COLORS

CAT. NO.	COLOR	CAT. NO.	COLOR
6006	WHITE	6009	GREEN
6007	RED	6010	YELLOW
6008	BLACK	6011	BLUE

FULLY INSULATED DELUXE TIP JACK

ACCEPTS .080" TIP (WITH CLOSED ENTRY CONTACT)

Fully molded body with recessed closed entry design. Assures maximum retention with minimum contact resistance. Prevents accidental insertion of larger diameter probes. Current rating: 10 amps. Peak voltage 11,000 volts. Capacitance to metal panel 2.0 pF. Supplied with nut.



MATERIALS:
Body: Molded Nylon ASTM D4066.
Contact: Beryllium Copper, Silver Plated.
Terminal: Brass, Tin Plated.

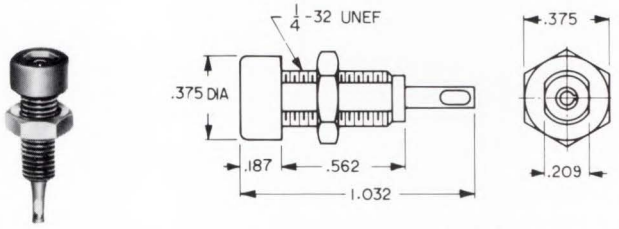
SELECTION OF COLORS

CAT. NO.	COLOR
6030	WHITE
6031	RED
6032	BLACK
6033	GREEN
6034	YELLOW
6035	BLUE

FULLY-INSULATED STANDARD TIP JACK

ACCEPTS .080" TIP

Economical tip jacks with molded Nylon body. Recessed for ease in insertion. Low contact resistance. Formed phosphor bronze contact with solder hole for ease in attaching wire. Current rating 10 amps. Peak Voltage 8000 volts. Capacitance to metal panel 3.8 pF. Supplied with nut.



MATERIALS:
Body: Molded Nylon ASTM D4066
Contact: Phosphor Bronze, Tin Plated.

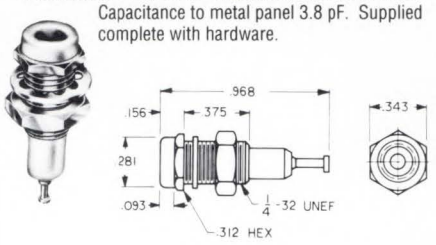
SELECTION OF COLORS

CAT. NO.	COLOR
6018	WHITE
6019	RED
6020	BLACK
6021	GREEN
6022	YELLOW
6023	BLUE

METAL-CLAD TIP JACK (MIL)

ACCEPTS .080" TIP (WITH CLOSED ENTRY CONTACT)

High quality tip jack for high reliability industrial applications. Ideal for use where required to withstand severe environmental conditions, temperature, vibration and salt spray. Recessed closed entry contact. Current rating: 5 amps. Peak voltage: 8000 volts. Meets MS-16108 Rev. F of MIL-STD-242A and MIL-C-39024/10. Capacitance to metal panel 3.8 pF. Supplied complete with hardware.



MATERIALS:
Body: Molded Nylon ASTM D4066.
Shell & Nut: Brass QQ-B-626. Nickel Plated QQ-N-290.
Contact: Beryllium copper PER QQ-C-533. Gold Plated MIL-G-45204.

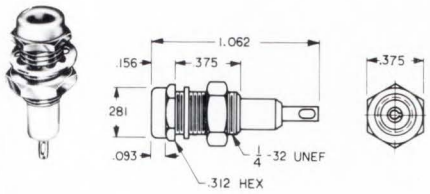
SELECTION OF COLORS

CAT. NO.	COLOR
6012	WHITE
6013	RED
6014	BLACK
6015	GREEN
6016	YELLOW
6017	BLUE

METAL-CLAD TIP JACK (STD)

ACCEPTS .080" TIP

Molded Nylon body with metal jacket. Contact is formed from phosphor bronze with solder hole for ease in attaching wire. Designed for positive contact, easy insertion and withdrawal. Current rating: 10 amps. Peak voltage: 7000 volts. Capacitance to metal panel 3.8 pF. Supplied with nut.



MATERIALS:
Body: Molded Nylon ASTM D4066.
Shell: Brass, Nickel Plate.
Contact: Phosphor Bronze, Silver Plated.

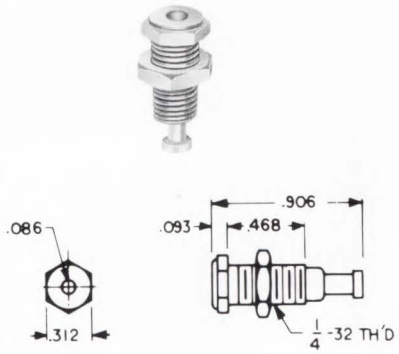
SELECTION OF COLORS

CAT. NO.	COLOR
6024	WHITE
6025	RED
6026	BLACK
6027	GREEN
6028	YELLOW
6029	BLUE

UNINSULATED TIP JACK

ACCEPTS .080" TIP

Quality, precision machined tip jack made of brass. Ideal for use on metal panels where grounding is required. Fits panels up to 3/8" thk. Complete with hex nut.



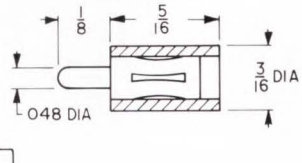
MATERIALS:
Body: Brass, Nickel Plated.
Contact: Bronze
Rating: 15 Amps.

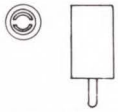
CAT. NO. 6097

VERTICAL P C TEST JACK

ACCEPTS .080" TIP

This low profile vertical jack allows dense packaging where space is limited. Mounts into a .052" diameter hole. Provides easy access and positive electrical contact. The contact is recessed to prevent accidental shorting. Capacitance between two adjacent jacks less than 1.0 pF at 1 MHz. Operating voltage is 1500 volts RMS. Current rating 5 amps max.





ACTUAL SIZE

SELECTION OF COLORS

CAT. NO.	COLOR
6036	WHITE
6037	RED
6038	BLACK
6039	YELLOW
6040	GREEN
6041	BLUE

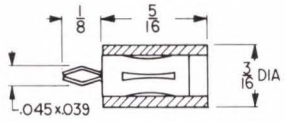
MATERIALS:
Body: Nylon per ASTM D4066.
Contact: Beryllium Copper, Silver Plated.

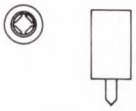
SNAP-IN P C VERTICAL TEST JACK

ACCEPTS .080" TIP

Low cost, compact and dependable snap-in vertical test jack features a unique spring shank which retains the jack throughout wave soldering procedure. Ideal for use on circuit boards of audio, digital and R.F. circuitry. Contact recessed to prevent accidental shorting. Current rating: 5 amps. Operating voltage 1500 volts RMS. Capacitance between two adjacent jacks less than 1.0 pF at 1 MHz.

MOUNTING: Snap-fits into .052 hole.





ACTUAL SIZE

SELECTION OF COLORS

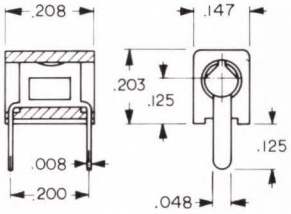
CAT. NO.	COLOR
6042	WHITE
6043	RED
6044	BLACK
6045	YELLOW
6046	GREEN
6047	BLUE

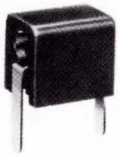
MATERIALS:
Body: Nylon per ASTM D4066
Contact: Machined Beryllium Copper, Silver Plated.

MINIATURE HORIZONTAL P C TEST JACK

ACCEPTS .080" TIP

Space saver test jack designed for use where space is a limiting factor. Half the size of standard jacks. Accepts .080" tip plug in either end. Mounts on .200" centers in .052" holes. Can be spaced side by side on .160" centers minimum. Two common terminals. Current rating: 5 amps. Breakdown voltage: 3000 volts D.C. Capacitance 1.0 pF.





ACTUAL SIZE

SELECTION OF COLORS

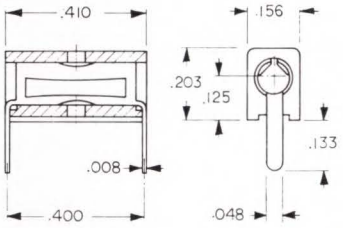
CAT. NO.	COLOR
6048	WHITE
6049	RED
6050	BLACK
6051	YELLOW
6052	GREEN
6053	BLUE

MATERIALS:
Body: Nylon per ASTM D4066
Contact: Formed Beryllium Copper, Silver Plated.

UNIVERSAL HORIZONTAL P C TEST JACK

ACCEPTS .080" TIP

This universal design accepts .080" tip plug in either end, or from top or bottom. Top contact will also accept hook-type oscilloscope probe. Two common terminals. Current rating: 5 amps. Breakdown voltage: 3000 volts D.C. Capacitance 1.0 pF. Mounts on .400" centers in .052" holes. Side by side mounting on .160" centers.



ACTUAL SIZE

SELECTION OF COLORS

CAT. NO.	COLOR
6054	WHITE
6055	RED
6056	BLACK
6057	YELLOW
6058	GREEN
6059	BLUE

MATERIALS:
Body: Nylon per ASTM D4066.
Contact: Beryllium Copper, Silver Plated.

LOW PROFILE HORIZONTAL P C TEST JACK

ACCEPTS .080" TIP

This low profile double-entry design is recognized for its dependability, and allows dense packaging on .160" centers. Side by side mounting. Closed entry design will not accept tips larger than .084", and will accept probes of .074" minimum diameter. Reliability is designed into this rugged low cost jack. Mounts on .400" centers in .052" holes. Current rating: 5 amps. W.V.A.C. 1500 volts max. Contact resistance 0.01 ohms maximum.

MATERIALS:
Body: Nylon per ASTM D4066.
Contact: Beryllium Copper, Silver or Gold Plated.

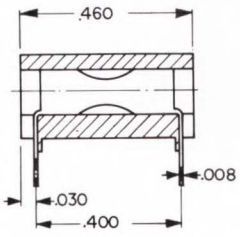
Choice of Gold or Silver Plated Contacts

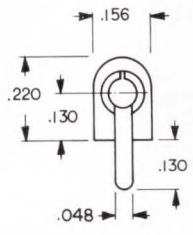
WITH GOLD PLATING SELECTION OF COLORS

CAT. NO.	COLOR
6060	WHITE
6061	RED
6062	BLACK
6063	YELLOW
6064	GREEN
6065	BLUE

WITH SILVER PLATING SELECTION OF COLORS

CAT. NO.	COLOR
6066	WHITE
6067	RED
6068	BLACK
6069	YELLOW
6070	GREEN
6071	BLUE



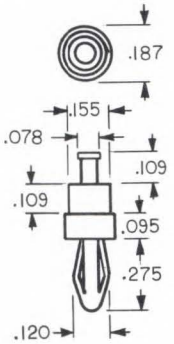


ACTUAL SIZE

BANANA PLUGS

MINIATURE RIVET

.120 PLUG

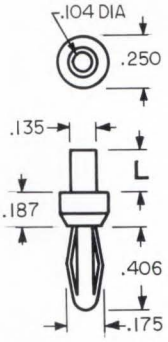


MATERIALS:
Spring: Beryllium Copper.
Body: Brass, Bright Tin Plate.

CAT. NO. 452

STANDARD RIVET

.175 PLUG

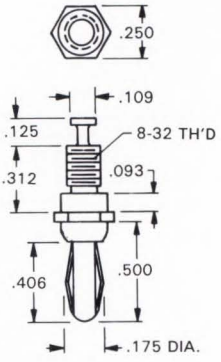


MATERIALS:
Spring: Beryllium Copper.
Body: Brass, Nickel Plate.

CAT. NO.	L
552-3	.187
552-4	.218

EXTERNAL THREAD

.175 PLUG

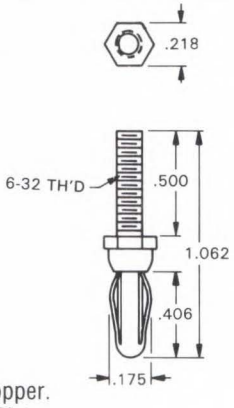


MATERIALS:
Spring: Beryllium Copper.
Body: Brass, Nickel Plate.

CAT. NO. 652

EXTERNAL THREAD

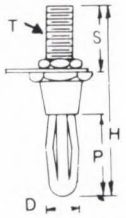
.175 PLUG



MATERIALS:
Spring: Beryllium Copper.
Body: Brass, Nickel Plate.

CAT. NO. 653

EXTERNAL THREAD

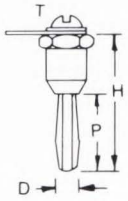


MATERIALS:
Spring: Nickel Silver.
Body: Brass, Nickel Plate.

Supplied with lug and nut.

CAT. NO.	D	P	H	S	T
6074-1	.175	.531	1 1/8	.375	6-32
6074-2	.175	.531	1 1/2	.750	6-32
6075	.300	.750	1 3/4	.625	1/4-28

INTERNAL THREAD



MATERIALS:
Spring: Nickel Silver.
Body: Brass, Nickel Plate.

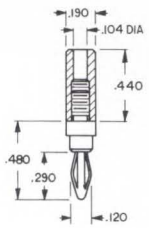
Supplied with screw and lug.

CAT. NO.	D	P	H	T
6072	.175	.531	.937	6-32
6073	.300	.750	1.12	10-32

INSULATED PLUG

SOLDER CONNECTION

.120 PLUG
MINIATURE



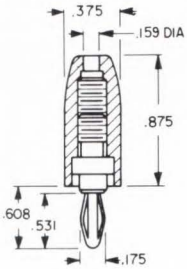
MATERIAL:
Spring: Beryllium Copper, Nickel Plate.
Body: Brass, Nickel Plate.
Handle: Nylon.

CAT. NO.	COLOR
6076	RED
6077	BLACK

INSULATED PLUG

SOLDERLESS CONNECTION

.175 PLUG



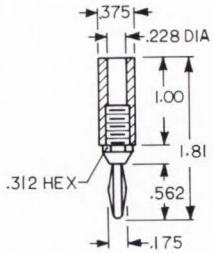
MATERIAL:
Spring: Nickel Silver.
Body: Brass, Nickel Plate
Handle: Nylon.

CAT. NO.	COLOR
6078	RED
6079	BLACK

INSULATED PLUG

SOLDERLESS CONNECTION

.175 PLUG



MATERIAL:
Spring: Nickel Silver.
Body: Brass, Nickel Plate.
Handle: Nylon.

CAT. NO.	COLOR
6082	RED
6083	BLACK

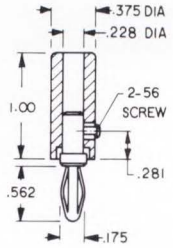
BANANA PLUGS & JACKS

Designers' Choice KEYSTONE

INSULATED PLUG

SOLDERLESS WITH SET SCREW

.175 PLUG



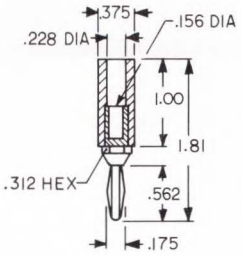
MATERIALS:
Spring: Nickel Silver.
Body: Brass, Nickel Plate.
Handle: Nylon.

CAT. NO.	COLOR
6084	RED
6085	BLACK

INSULATED PLUG

SOLDER CONNECTION

.175 PLUG

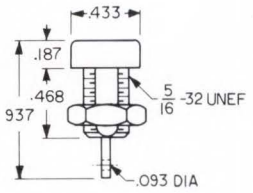


MATERIAL:
Spring: Nickel Silver.
Body: Brass, Nickel Plate.
Handle: Nylon.

CAT. NO.	COLOR
6080	RED
6081	BLACK

INSULATED JACK

FULLY INSULATED



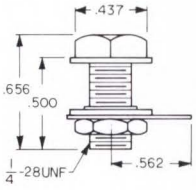
ACCEPTS .175 PLUG

MATERIALS:
Body: Nylon.
Contact: Brass, Tin Plate.

CAT. NO.	COLOR
6091	RED
6092	BLACK

INSULATED JACK

SOLDER CONNECTION

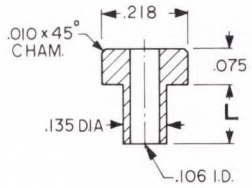


ACCEPTS .175 PLUG

MATERIALS:
Body: Brass, Nickel Plate.
Terminal: Copper, Tinned.
Hex Head: Nylon.

CAT. NO.	COLOR
6093	RED
6094	BLACK

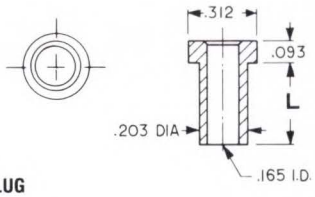
NON-INSULATED JACKS (STAKING)



ACCEPTS .120 PLUG MINIATURE

MATERIAL: Brass, Tin Plate.

CAT. NO.	L
476-2	.125
476-3	.165
476-4	.187



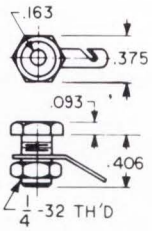
ACCEPTS .175 PLUG

MATERIAL: Brass, Nickel Plate.

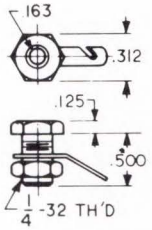
CAT. NO.	L
575-4	.218
575-6	.265
575-8	.350

NON-INSULATED JACKS

RECESSED HEAD
Fits panel up to 5/16" thick



STANDARD HEAD
Fits panel up to 3/8" thick

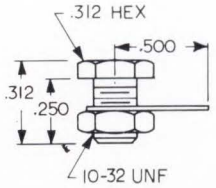


Will accept .175 plug. Complete with hex nut and lug.
MATERIALS: Brass, Nickel Plate.
Rating: 15 Amps

CAT. NO. 6095 **CAT. NO. 6096**

MINIATURE JACK

NON-INSULATED



ACCEPTS .120 PLUG

MATERIAL:
Body: Brass, Nickel Plate.
Terminal: Copper, Tinned.

CAT. NO. 6090

PC PHONO JACKS

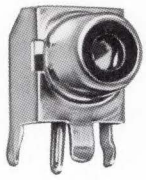
NOTE: All jacks on this page mate with 1/8" diameter pins.

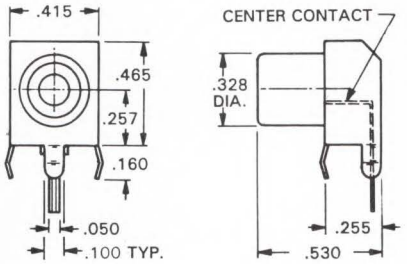
SNAP-FIT 90° PC PHONO JACK

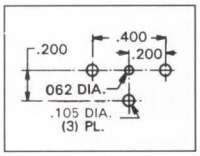
YOUR CHOICE OF TIN OR GOLD PLATE.

Complete one piece jack for insertion into PC board. Time Saving. No Wiring Required. Snap-fits into PC board.

MATERIALS:
Shell: Steel
Contact: Brass
Plating: Tin or Gold.



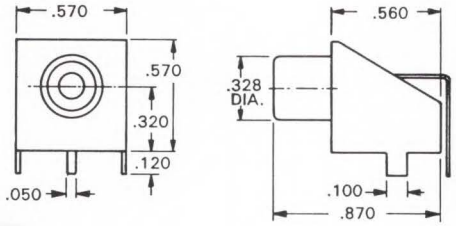


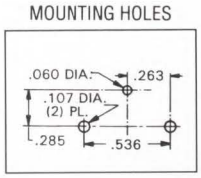


CAT. NO. 901 (TIN PLATE)
CAT. NO. 900 (GOLD PLATE)

90° PC PHONO JACK

MATERIALS:
Shell: Steel
Contact: Brass
Plating: Tin



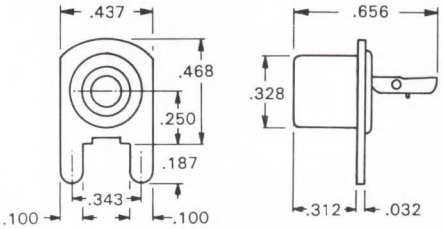


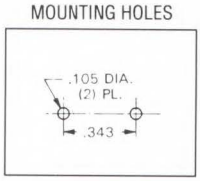
CAT. NO. 902

90° PC PHONO JACK

Mounted on bracket ready for insertion into pre-drilled holes.

MATERIALS:
Shell: Steel
Contact: Brass
Plating: Tin



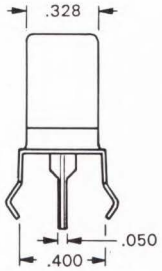


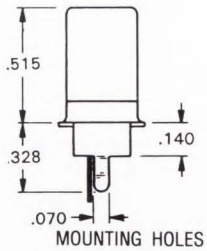
CAT. NO. 571

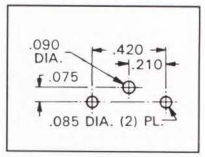
SNAP-FIT VERTICAL PC PHONO JACK

Extra long, one piece shell to accept plugs with longer pins for greater contact. Snaps into holes on PC Board and firmly held for soldering. No staking required.

MATERIALS:
Shell: Steel.
Contact: Brass
Plating: Tin





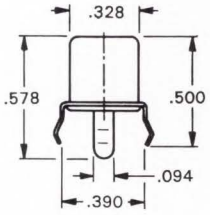


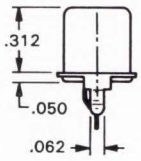
CAT. NO. 577

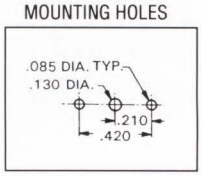
SNAP-FIT VERTICAL PC PHONO JACK

Snaps into holes on PC Board and firmly held for soldering. No staking required

MATERIALS:
Shell: Steel
Contact: Brass
Plating: Tin





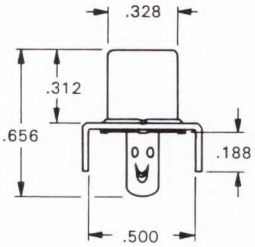


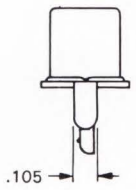
CAT. NO. 572

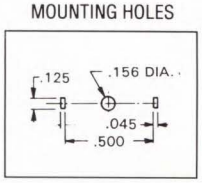
VERTICAL PC PHONO JACK

For applications requiring staking to product.

MATERIALS:
Shell: Steel
Contact: Brass
Plating: Tin







CAT. NO. 573

PHONO JACKS & PLUGS

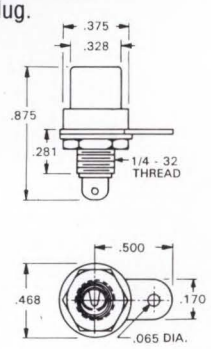
Designers' Choice KEYSTONE

NOTE: All jacks on this page mate with 1/8" diameter pins.

PANEL MOUNT ROUND BASE PHONO JACK

Color coded for ease of identification.

Mounts on top of panel in .296 Dia. hole.
Complete with nut and solder lug.

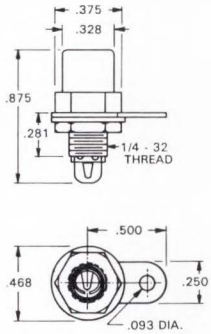


CAT. NO. 580 (RED INSULATOR)
CAT. NO. 574 (BLACK INSULATOR)

MATERIALS:
Shell: Brass
Contact: Brass
Lug: Brass
Plating: Nickel

PANEL MOUNT HEX BASE PHONO JACK

Mounts on top of panel in .296 Dia. hole.
Complete with nut and solder lug.

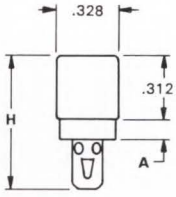


CAT. NO. 576

MATERIALS:
Shell: Brass
Contact: Brass
Lug: Steel
Plating: Tin

RIVET TYPE PHONO JACKS

Rivet type - mounts in .296 Dia. hole.
Available for material 1/16, 3/32 or 1/8 thick.

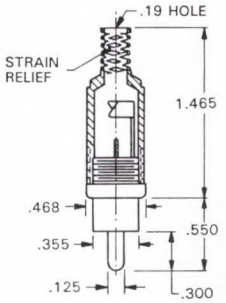


CAT. NO.	A	H	For Insulator
568	.078	.656	1/16"
569	.109	.812	3/32"
570	.140	.812	1/8"

MATERIALS:
Shell: Steel
Contact: Brass
Plating: Tin

INSULATED PHONO PLUGS

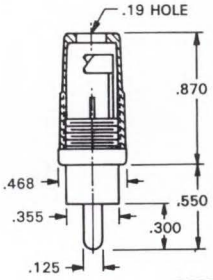
STRAIN RELIEF



CAT. NO. 1085-R RED
CAT. NO. 1085-B BLACK

MATERIALS:
Insulation: Nylon
Contact: Brass
Plating: Nickel

INSULATED PHONO PLUGS



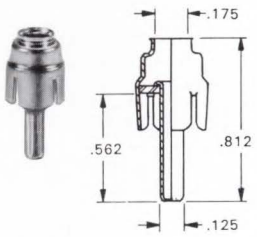
CAT. NO. 1084-R RED
CAT. NO. 1084-B BLACK

MATERIALS:
Insulation: Nylon
Contact: Brass
Plating: Nickel

PHONO-PLUGS

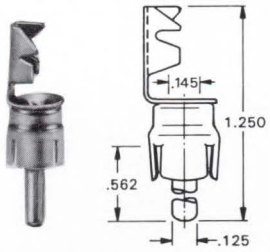
MATERIALS: **Shell:** Steel, Tin Plate
Pins: Brass, Nickel Plate

Conventional Type



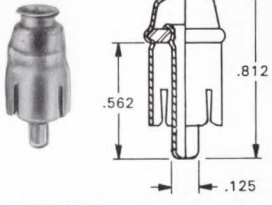
CAT. NO. 561

Strain Relief Lug
Crimps to Wire Insulation



CAT. NO. 565

Longer Skirt
for Better Grip.



CAT. NO. 566

Crimp or Solder Type
Extra Long Handles

CAT. NO. 567

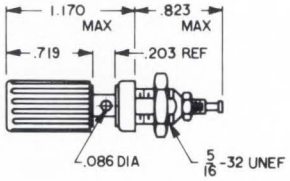
BINDING POSTS

These multi-purpose binding posts feature high current rating, captivated heads anti-rotation stud mounting.

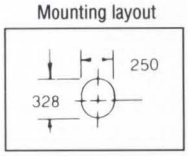
All Keystone binding posts are designed to prevent accidental contact with current carrying parts. They feature a "limited opening" captivated head to insure safety. Ideal for audio circuitry, R.F. circuitry, oscilloscopes, power supplies and various other applications.

NOTE: Binding Posts accept .175" Banana Plugs, .080" Tip Plugs, Spade Lugs, Alligator Clips and Wire.

STANDARD BINDING POST



Mounting layout



MATERIAL:
Stud: Brass per ASTM-B16.
Finish: Silver plate.
Insulation: Nylon

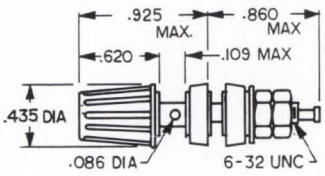
RATINGS:
Current: 15 Amps.
Breakdown voltage: 8000 V.D.C.
Stud to panel capacitance: 3.3 pF Nominal.

FOR PANELS UP TO .281" THICK

CAT. NO.	COLOR
7004	RED
7005	BLACK

MINIATURE "FLUTED" HEAD

Rated 15 Amperes,1000 VAC working. Studs: Brass per ASTM-B16. Nylon insulation. Choice of Gold or Tin Plate.



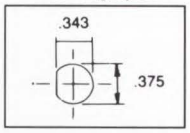
GOLD PLATE

CAT. NO.	COLOR
7012	RED
7013	BLACK

BRIGHT TIN PLATE

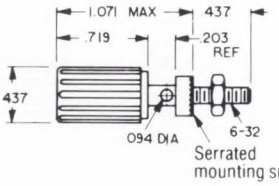
CAT. NO.	COLOR
7014	RED
7015	BLACK

Mounting layout



ECONOMY BINDING POST

Rated 15 Amperes, 1000 VAC working.
Stud: Brass per ASTM-B16.
Finish: Nickel plate.
Insulation: Nylon

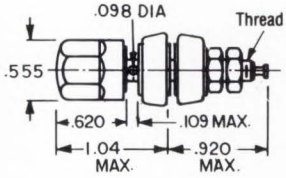


FOR PANELS UP TO.313 THICK

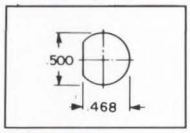
CAT. NO.	COLOR
7006	RED
7007	BLACK

STANDARD "HEX" HEAD

Rated 30 Amperes,1000 VAC working. Nylon insulation
Stud: Brass per ASTM-B16. Choice of Gold or Tin Plate.



Mounting Layout



GOLD PLATE

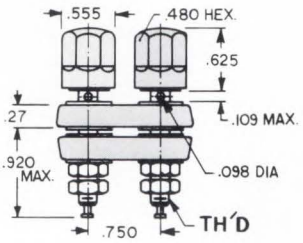
CAT. NO.	TH'D	COLOR
4096	8-32	RED
4097	8-32	BLACK
7016	10-32	RED
7017	10-32	BLACK

TIN PLATE

CAT. NO.	TH'D	COLOR
4091	8-32	RED
4092	8-32	BLACK
4093	10-32	RED
4094	10-32	BLACK

STANDARD "DUAL" HEAD

Rated 30 Amperes,1000 VAC working. Studs: Brass per ASTM-B16. Nylon insulation. Mounts on .750 centers. Supplied with: 1 Red-1 Black head. Choice of Gold or Tin Plate.



GOLD PLATE

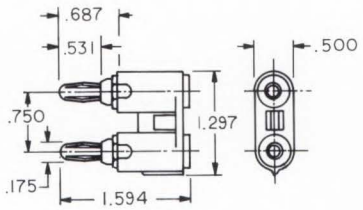
CAT. NO.	THREAD
4108	8-32
4109	10-32

TIN PLATE

CAT. NO.	THREAD
7018	8-32
7019	10-32

DUAL BANANA PLUGS

Spring: Nickel Silver. Body: Brass per ASTM-B16. Finish: Nickel Plate. Insulation: Molded Nylon. .750 Mounting Centers.



SOLDERLESS

CAT. NO.	COLOR
6086	RED
6087	BLACK

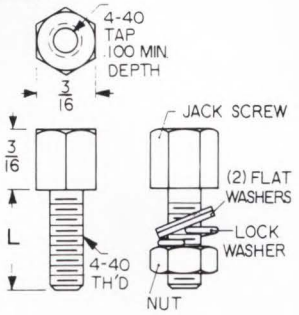
SOLDERLESS WITH SET SCREW

CAT. NO.	COLOR
6088	RED
6089	BLACK

JACK SCREWS

"D" Subminiature Connector Mounting Screw. Per MIL-C-24308/26. Equivalent to AMP, CANNON & TRW Jack screws. Other sizes upon request.

MATERIAL: Steel, Zinc Plate & Gold Iridite.



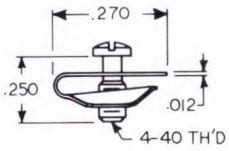
"L"	JACK ONLY CAT. NO.	JACK WITH HARDWARE (supplied un-assembled bulk)
.250	**7228**	**7229**
.312	**7230**	**7231**
.625	**7232**	**7233**

NOTE: ALSO AVAILABLE WITH ZINC & CLEAR CHROMATE FINISH. ADD -5 TO BASIC PART NUMBER.

MOUNTING HARDWARE

Our assortment of standard clips and washers offer the needed flexibility to secure your connectors in the manner best suited to your instrumentation and design.

"U" CLIP

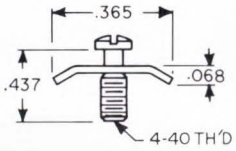


Per Mil-C-24308/25-6

MATERIAL:
Clip and Screw:
Steel, Zinc Plate & Gold Iridite.
CAT. NO. 2062

Supplied Un-assembled

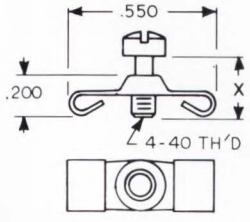
SADDLE WASHER



MATERIAL:
Washer and Screw:
Steel, Zinc Plate & Gold Iridite.
CAT. NO. 2063

Supplied Un-assembled

"BOW TIE" RETAINING CLIP



Per Mil-C-24308/25-9

MATERIAL:
Clip and Screw: Steel, Zinc Plate & Gold Iridite.

CAT. NO.	"X"
2060	4-40 x 1/4
2061	4-40 x 9/32

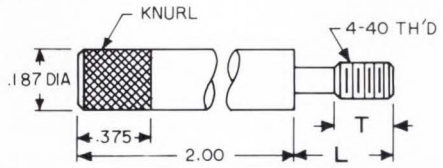
Supplied Un-assembled

TURNABLE JACK SCREWS

Turnable jack screws, available with or without screwdriver slot make mating and disconnecting computer connectors quick and easy.

DIRECT ACCESS

AVAILABLE WITH OR WITHOUT SCREWDRIVER SLOT.

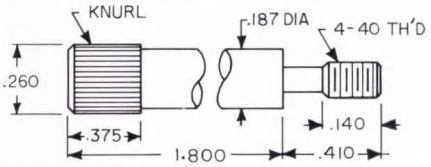


MATERIAL: Steel-Black Zinc Plate.

"T" DIM	"L" DIM	CAT. NO. WITHOUT SLOT	CAT. NO. WITH SLOT
.125	.250	**2064**	**2065**
.250	.437	**2066**	**2067**

STRAIGHT KNURL

AVAILABLE WITH OR WITHOUT SCREWDRIVER SLOT.

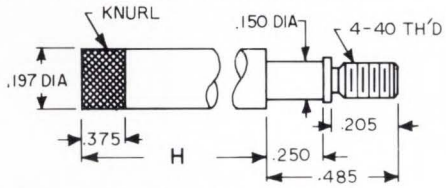


MATERIAL: Steel-Clear Zinc Plate.

CAT. NO. WITHOUT SLOT	CAT. NO. WITH SLOT
2072	**2073**

DIAMOND KNURL

AVAILABLE WITH OR WITHOUT SCREWDRIVER SLOT.

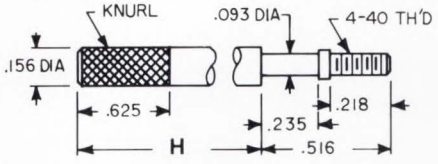


MATERIAL: Steel, Zinc Plate& Gold Iridite.

"H" DIM	CAT. NO. WITHOUT SLOT	CAT. NO. WITH SLOT
1.390	**2074**	**2076**
1.890	**2075**	**2077**

SLIM LINE

AVAILABLE WITH OR WITHOUT SCREWDRIVER SLOT.



MATERIAL: Steel-Nickel Plate.

"H" DIM	CAT. NO. WITHOUT SLOT	CAT. NO. WITH SLOT
1.250	**2068**	**2069**
1.750	**2070**	**2071**

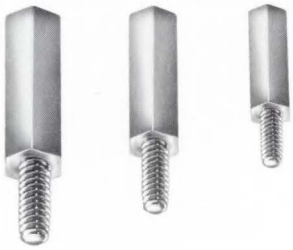
HEX MALE/FEMALE STANDOFFS

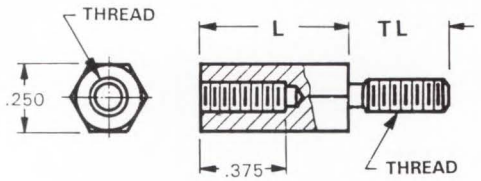
MALE/FEMALE .250 HEX THREADED STANDOFFS

CHOICE OF:

Brass: Nickel Plate (QQ-N-290)
Aluminum: Iridite (MIL-C-5541)
Stainless Steel: (QQ-S-764 CL. 303)

EXTERNAL THREAD	TL
4-40	3/16 (.187)
6-32	1/4 (.250)
8-32	3/8 (.375)





	4-40 THREAD		
LENGTH INCHES "L"	STAINLESS STEEL CAT. NO.	BRASS CAT. NO.	ALUMINUM CAT. NO.
1/4 (.250)***	8712	8713	8714
3/8 (.375)**	2087	7200	8400
1/2 (.500)	2088	1944	8401
5/8 (.625)	2089	1945	8402
3/4 (.750)	2090	1946	8403
7/8 (.875)	2091	7201	8404
1 (1.000)	2092	1947	8405
1-1/8 (1.125)	2093	7202	8406
1-1/4 (1.250)	2094	1948	8407
1-3/8 (1.375)	2095	1949	8408
1-1/2 (1.500)	2096	1950	8409
1-5/8 (1.625)	2097	7203	8410
1-3/4 (1.750)	2098	7205	8411
2 (2.000)	2099	1951	8412

	6-32 THREAD		
LENGTH INCHES "L"	STAINLESS STEEL CAT. NO.	BRASS CAT. NO.	ALUMINUM CAT. NO.
1/4 (.250)***	8715	8716	8717
3/8 (.375)**	2119	7210	8413
1/2 (.500)	2120	1952	8414
5/8 (.625)	2121	1953	8415
3/4 (.750)	2122	1954	8416
7/8 (.875)	2123	7211	8417
1 (1.000)	2124	1644	8418
1-1/8 (1.125)	2125	7212	8419
1-1/4 (1.250)	2126	1955	8420
1-3/8 (1.375)	2127	1956	8421
1-1/2 (1.500)	2128	1645	8422
1-5/8 (1.625)	2129	7214	8423
1-3/4 (1.750)	2130	7215	8424
2 (2.000)	2131	1646	8425

	8-32 THREAD		
LENGTH INCHES "L"	STAINLESS STEEL CAT. NO.	BRASS CAT. NO.	ALUMINUM CAT. NO.
——	—	—	—
3/8 (.375)**	2149	7220	8426
1/2 (.500)	2150	1957	8427
5/8 (.625)	2151	1958	8428
3/4 (.750)	2152	1959	8429
7/8 (.875)	2153	7221	8430
1 (1.000)	2154	1960	8431
1-1/8 (1.125)	2155	7222	8432
1-1/4 (1.250)	2156	1961	8433
1-3/8 (1.375)	2157	1962	8434
1-1/2 (1.500)	2158	1963	8435
1-5/8 (1.625)	2159	7224	8436
1-3/4 (1.750)	2160	7225	8437
2 (2.000)	2161	1964	8438

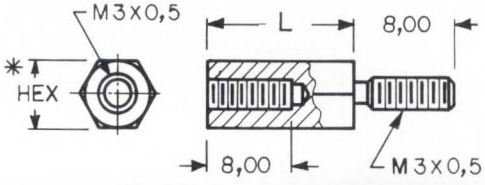
**Internal Thread .250 Deep ***Internal Thread .130/.150 Deep

METRIC MALE/FEMALE

HEX THREADED STANDOFFS (5mm & 5.5mm)

A comprehensive range of precision made metric male/female spacers.

MATERIAL: Brass, Nickel Plate.



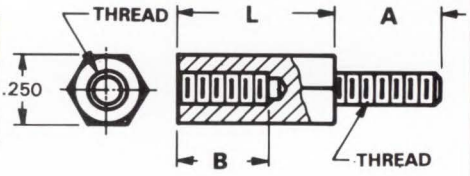
5mm HEX*	
CAT. NO.	"L"
4313	10mm
4314	12mm
4315	15mm
4316	18mm
4317	20mm
4318	25mm

5.5mm HEX*	
CAT. NO.	"L"
4319	10mm
4320	12mm
4321	15mm
4322	18mm
4323	20mm
4324	25mm

NYLON MALE/FEMALE .250 HEX

MATERIAL: Nylon 6/6

THREAD SIZE	A	B
4-40	3/16	3/16
6-32	1/4	1/4
8-32	3/8	3/8

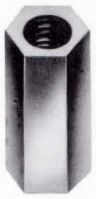


LENGTH INCHES "L"	4-40 THREAD CAT.NO.	6-32 THREAD CAT.NO.	8-32 THREAD CAT.NO.
1/4 (.250)	4800	4814*	4828*
3/8 (.375)	4801	4815	4829**
1/2 (.500)	4802	4816	4830
5/8 (.625)	4803	4817	4831
3/4 (.750)	4804	4818	4832
7/8 (.875)	4805	4819	4833
1 (1.000)	4806	4820	4834
1-1/8 (1.125)	4807	4821	4835
1-1/4 (1.250)	4808	4822	4836
1-3/8 (1.375)	4809	4823	4837
1-1/2 (1.500)	4810	4824	4838
1-5/8 (1.625)	4811	4825	4839
1-3/4 (1.750)	4812	4826	4840
2 (2.000)	4813	4827	4841

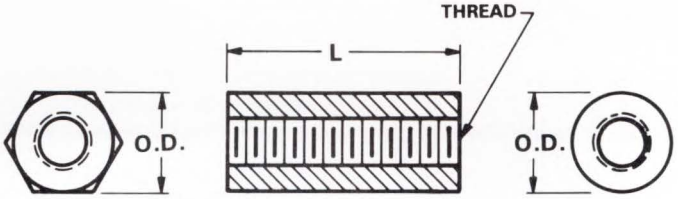
* Internal Thread .130/.150 Deep **Internal Thread .250 Deep

THREADED STANDOFFS

Designers' Choice



HEX



ROUND

MATERIALS:
Brass: per ASTM-B16
Aluminum: QQ-A-225/3, Alloy 2011-T3

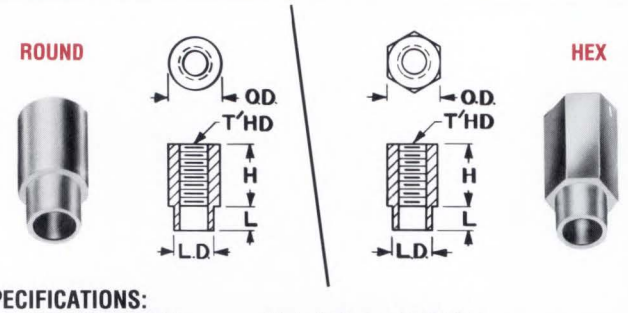
PLATING:
Zinc; QQ-Z-325B
Iridite Finish; MIL-C-5541

THREAD	O.D.	LENGTH	ALUMINUM IRIDITE FINISH HEX CAT. NO.	ALUMINUM IRIDITE FINISH ROUND CAT. NO.	BRASS ZINC PLATE HEX CAT. NO.	BRASS ZINC PLATE ROUND CAT. NO.
2-56	.156 (5/32)	3/16 (.187)	1797A	1801A	1798A	1802A
		1/4 (.250)	1797B	1801B	1798B	1802B
		5/16 (.312)	1797C	1801C	1798C	1802C
		3/8 (.375)	1797D	1801D	1798D	1802D
4-40	.187 (3/16)	1/4 (.250)	1891	2025	1450	1547
		3/8 (.375)	1892	2026	1803	1864
		1/2 (.500)	1893	2027	1656	1657
		5/8 (.625)	1894	2028	1804	1865
		3/4 (.750)	1895	2029	1656A	1657A
		7/8 (.875)	1896	2030	1805	1866
		1 (1.000)	1897	2031	1656B	1657B
4-40	.250 (1/4)	1/4 (.250)	2201	3478	1450A	1547A
		3/8 (.375)	2202	3479	1450B	1547B
		1/2 (.500)	2203	3480	1450C	1547C
		5/8 (.625)	1808	1839	1829	1867
		3/4 (.750)	2204	3481	1450D	1547D
		7/8 (.875)	1809	1846	1830	1876
		1 (1.000)	2205	3482	1450E	1547E
		1-1/2 (1.500)	2206	3483	1831	1877
		2 (2.000)	2207	3484	1832	1878
6-32	.250 (1/4)	1/4 (.250)	2208	3485	1451A	1548A
		3/8 (.375)	2209	3486	1451B	1548B
		1/2 (.500)	2210	3487	1451C	1548C
		5/8 (.625)	1813	1847	1451D	1548D
		3/4 (.750)	2211	3488	1451E	1548E
		7/8 (.875)	1816	1848	1833	1879
		1 (1.000)	2212	3489	1635	1548F
		1-1/4 (1.250)	1818	1853	1636	1881
		1-1/2 (1.500)	2213	3490	1637	1882
		1-3/4 (1.750)	1819	1855	1638	1883
		2 (2.000)	2214	3491	1639	1884
		2-1/4 (2.250)	1820	1856	1642	1885
		2-1/2 (2.500)	1825	1857	1643	1886
8-32	.250 (1/4)	1/4 (.250)	2215	3492	1474A	1692A
		3/8 (.375)	2216	3493	1474B	1692B
		1/2 (.500)	2217	3494	1474C	1692C
		5/8 (.625)	1827	1858	1834	1887
		3/4 (.750)	2218	3495	1474D	1692D
		7/8 (.875)	1828	1859	1836	1888
		1 (1.000)	2219	3496	1474E	1692E
		1-1/2 (1.500)	2220	3497	1837	1889
		2 (2.000)	2221	3498	1838	1899
8-32	.375 (3/8)	3/8 (.375)	1926A	2315A	1452A	1549A
		1/2 (.500)	1926B	2315B	1452B	1549B
		5/8 (.625)	1926C	2315C	1452C	1549C
		3/4 (.750)	1926D	2315D	1452D	1549D
		1 (1.000)	1926E	2315E	1452E	1549E

NOTE: Spacers over 1.000 long are tapped .375 deep each end.

SWAGE/FORCE-FIT STANDOFFS

SWAGE THREADED STANDOFFS



SPECIFICATIONS:
Brass: per ASTM-B16 **Nickel Plate:** QQ-N-290

ROUND CAT. NO.	H Height Above Panel	L Shank Length	For Panel Thickness	LD Shank Diameter	HEX CAT. NO.
2-56 THREAD × .156 O.D. (5/32")					
1589-2	.125	.109	1/16	.125	1731-2
1589-3	.125	.140	3/32	.125	1731-3
1590-2	.187	.109	1/16	.125	1734-2
1590-3	.187	.140	3/32	.125	1734-3
1591-2	.250	.109	1/16	.125	1740-2
1591-3	.250	.140	3/32	.125	1740-3
1596-2	.375	.109	1/16	.125	1743-2
1596-3	.375	.140	3/32	.125	1743-3
4-40 THREAD × .250 O.D. (1/4")					
1560 A	.125	.109	1/16	.187	1653-2
1560 F	.125	.140	3/32	.187	1653-3
1790-2	.187	.109	1/16	.187	1746-2
1790-3	.187	.140	3/32	.187	1746-3
1650-2	.250	.109	1/16	.187	1627-2
1650-3	.250	.140	3/32	.187	1627-3
1651-2	.375	.109	1/16	.187	1628-2
1651-3	.375	.140	3/32	.187	1628-3
1623-2	.500	.109	1/16	.187	1629-2
1623-3	.500	.140	3/32	.187	1629-3
1624-2	.625	.109	1/16	.187	1654-2
1624-3	.625	.140	3/32	.187	1654-3
1625-2	.750	.109	1/16	.187	1655-2
1625-3	.750	.140	3/32	.187	1655-3
1792-2	.875	.109	1/16	.187	1749-2
1792-3	.875	.140	3/32	.187	1749-3
1652-2	1.000	.109	1/16	.187	1630-2
1652-3	1.000	.140	3/32	.187	1630-3
6-32 THREAD × .250 O.D. (1/4")					
1560 B	.125	.109	1/16	.187	1620-2
1560 C	.125	.140	3/32	.187	1620-3
1612-2	.187	.109	1/16	.187	1752-2
1612-3	.187	.140	3/32	.187	1752-3
1546	.250	.109	1/16	.187	1621-2
1546 B	.250	.140	1/32	.187	1621-3
1546 D	.250	.171	1/8	.187	1621-4
1561 B	.375	.109	1/16	.187	1622-2
1561 C	.375	.140	3/32	.187	1622-3
1561 D	.375	.171	1/8	.187	1622-4
1604-2	.500	.109	1/16	.187	1758-2
1604-3	.500	.140	3/32	.187	1758-3
1604-4	.500	.171	1/8	.187	1758-4
1605-2	.625	.109	1/16	.187	1759-2
1605-3	.625	.140	3/32	.187	1759-3
1608-2	.750	.109	1/16	.187	1761-2
1608-3	.750	.140	3/32	.187	1761-3
1796-2	.875	.109	1/16	.187	1775-2
1796-3	.875	.140	3/32	.187	1775-3
1609-2	1.000	.109	1/16	.187	1784-2
1609-3	1.000	.140	3/32	.187	1784-3

STAKING TOOLS FOR SWAGE STANDOFFS

Precision made tools-heat treated and plated. Will give your job the professional appearance. Set of tools consists of: Top Staking Tool and Anvil.

CAT. NO. TL-19	For Bushing 5/32 OD with 2-56 Thd.
CAT. NO. TL-20	For Bushing 1/4 OD with 4-40 Thd.
CAT. NO. TL-21	For Bushing 1/4 OD with 6-32 Thd.

FORCE-FIT STANDOFFS

A broaching-type fastener/standoff for installation in panels and circuit boards .060 inch and thicker made of plastic and other non-ductile materials. Available threaded or with clearance holes. Easy to install, presses into punched or drilled holes.

MATERIAL: 303 Stainless Steel.
Finish: Passivated, MIL-F-14072, finish E300.
Threads: Class 2B, MIL-S-7742.

Mounting Holes:
.147 hole for 2-56.
.166 hole for 4-40.
.213 hole for 6-32.
Tolerance on Mounting Holes:
+.003/-.000.

THREADED				
CAT. NO.	THREAD	"L" LENGTH	O.D.	"A"
4860	2-56	.065	.219	.165
4861	4-40	.065	.219	.184
4862	4-40	.125	.219	.184
4863	4-40	.250	.219	.184
4864	4-40	.375	.219	.184
*4865	4-40	.500	.219	.184
4866	6-32	.065	.281	.231
4867	6-32	.125	.281	.231
4868	6-32	.250	.281	.231
4869	6-32	.375	.281	.231
*4870	6-32	.500	.281	.231

*Thread depth .375

CLEAR HOLE				
CAT. NO.	I.D.	LENGTH	O.D.	"A"
4850	#4 (.116)	.065	.219	.184
4851	#4 (.116)	.125	.219	.184
4852	#4 (.116)	.250	.219	.184
4853	#4 (.116)	.375	.219	.184
4854	#4 (.116)	.500	.219	.184
4855	#6 (.143)	.065	.281	.231
4856	#6 (.143)	.125	.281	.231
4857*	#6 (.143)	.250	.281	.231
4858	#6 (.143)	.375	.281	.231
4859	#6 (.143)	.500	.281	.231

SPECIAL REQUIREMENTS?

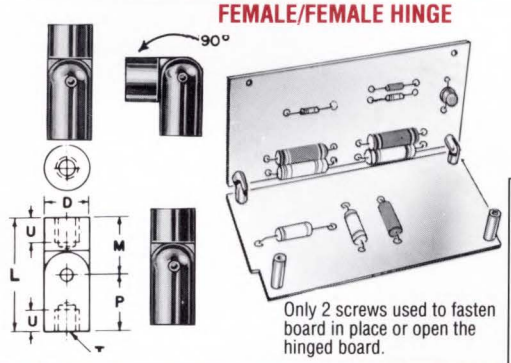
Use our Engineering and Production Facilities to design and develop new products or modify existing components to meet your specific needs.

HINGED STANDOFFS

APPLICATIONS UNLIMITED • TIME SAVING • SPACE SAVING • INTERCONNECT CIRCUITS OR SERVICES WITHOUT DANGER OF SHORTING • WIRING EXPOSED FOR EASY TEST

MATERIAL:
Brass: per ASTM-B16
Finish: Zinc plate and Gold Iridite

FEMALE/FEMALE HINGE



Only 2 screws used to fasten board in place or open the hinged board.

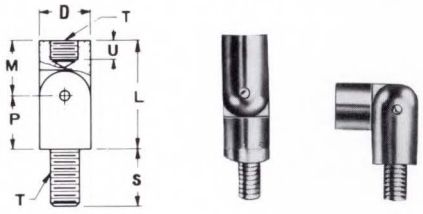
These standoffs mount at front of the board.

STANDOFF ONLY
For Front of Board

CAT. NO.	T THREAD	D DIA.	L LENGTH	U	M	P
351	4-40	.187	.750	.172	.375	.375
352	4-40	.187	1.000	.250	.375	.625
330	4-40	.187	1.250	.250	.625	.625
353	6-32	.250	.750	.172	.375	.375
354	6-32	.250	1.000	.250	.375	.625
331	6-32	.250	1.250	.250	.625	.625
355	8-32	.250	.750	.172	.375	.375
356	8-32	.250	1.000	.250	.375	.625
332	8-32	.250	1.250	.250	.625	.625

CAT. NO.	LENGTH
1657A	.750
1657B	1.000
1881	1.250
1548E	.750
1548F	1.000
1881	1.250
1692D	.750
1692E	1.000
1881	1.250

MALE/FEMALE HINGE



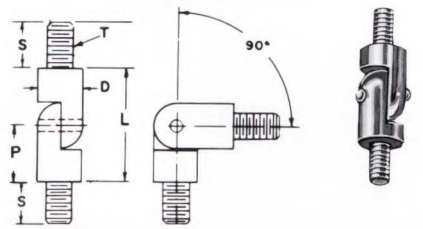
These standoffs mount at front of the board.

STANDOFF ONLY
For Front of Board

CAT. NO.	T THREAD	L LENGTH	D DIA.	S	U	P	M
333	4-40	.625	.187	.250	.172	.250	.375
334	4-40	.875	.187	.250	.250	.250	.625
335	6-32	.625	.250	.312	.172	.250	.375
336	6-32	.875	.250	.312	.250	.250	.625
337	8-32	.625	.250	.312	.172	.250	.375
338	8-32	.875	.250	.312	.250	.250	.625

CAT. NO.	LENGTH
1865	.625
1866	.875
1548D	.625
1879	.875
1887	.625
1888	.875

MALE/MALE HINGE



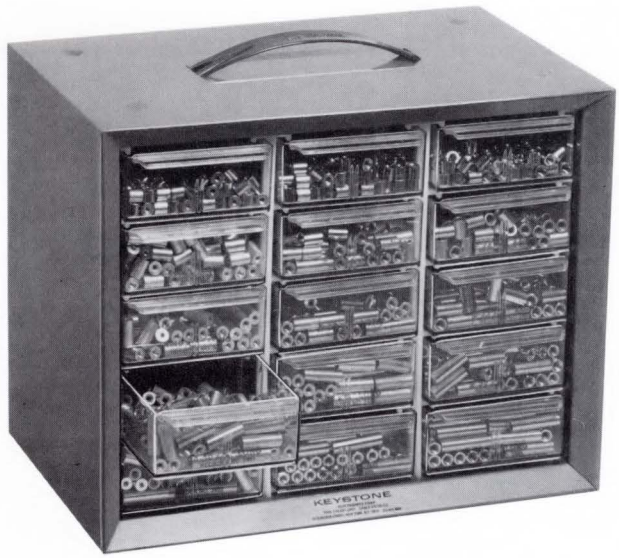
These standoffs mount at front of the board.

STANDOFF ONLY
For Front of Board

CAT. NO.	T THREAD	L LENGTH	D DIA.	S	P
357	4-40	.500	.187	.250	.250
358	6-32	.500	.250	.312	.250
359	8-32	.500	.250	.312	.250

CAT. NO.	LENGTH
1657	.500
1548C	.500
1692C	.500

SPACER/STANDOFF ORGANIZER



Maintain a neat complete inventory of the most frequently used spacers and standoffs in day-to-day operations. Choice of "8" different kits of the most popular spacers and standoffs. An assortment of various sizes and styles in Brass, Aluminum and Nylon with tapped or thru-hole. Metal cabinet designed to be stacked on one another or wall mounted. Clear plastic drawers labeled for easy identification.

THE FOLLOWING ORGANIZER KITS ARE AVAILABLE FROM STOCK !

1/4" ROUND THREADED

Brass Zinc Plated
Assortment of 1500 pcs. in 1/4", 3/8",1/2", 3/4" and 1" lengths. With thread sizes of 4-40, 6-32 and 8-32. 100 pcs. of each size complete with cabinet.

KIT. NO. STR-15

Aluminum Iridite Finish
Assortment of 1500 pcs. in 1/4", 3/8",1/2", 3/4" and 1" lengths. With thread sizes of 4-40, 6-32 and 8-32. 100 pcs. of each size complete with cabinet.

KIT. NO. STR-35

1/4" HEX THREADED

Brass Zinc Plated
Assortment of 1500 pcs. in 1/4", 3/8",1/2", 3/4" and 1" lengths. With thread sizes of 4-40, 6-32 and 8-32. 100 pcs. of each size complete with cabinet.

KIT. NO. STH-14

Aluminum Iridite Finish
Assortment of 1500 pcs. in 1/4", 3/8",1/2", 3/4" and 1" lengths. With thread sizes of 4-40, 6-32 and 8-32. 100 pcs. of each size complete with cabinet.

KIT. NO. STH-22

1/4" ROUND CLEAR

Brass Nickel Plated
Assortment of 1500 pcs. in 1/4", 3/8",1/2", 3/4" and 1" lengths. With clearance holes for #4, #6 and #8. 100 pcs. of each size complete with cabinet.

KIT. NO. SPR-13

Aluminum Iridite
Assortment of 1500 pcs. in 1/4", 3/8",1/2", 3/4" and 1" lengths. With clearance holes for #4, #6 and #8. 100 pcs. of each size complete with cabinet.

KIT. NO. SPR-34

1/4" ROUND CLEAR

Nylon 6/6
Assortment of 1500 pcs. in 1/4", 3/8",1/2", 3/4" and 1" lengths. With clearance holes for #4, #6 and #8. 100 pcs. of each size complete with cabinet.

KIT. NO. SPR-8

1/4" HEX MALE/FEMALE

Brass Nickel Plated
Assortment of 750 pcs. in 1/2", 3/4" , 1", 1 1/4" and 1 1/2" lengths. With thread sizes of 4-40, 6-32 and 8-32 . 50 pcs. of each size complete with cabinet.

KIT. NO. STH-19

SPACERS & STANDOFFS

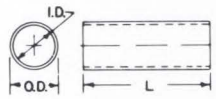
ALUMINUM ECONOMY SPACERS

• PRECISION FORMED • NO BURRS

Made of flat strip aluminum and rolled on precision equipment. Assures maximum bearing surface, square ends.

Aluminum: Per 5052-H34 per QQ-A-250/8b

Tight Joint on Outside Diameter



L Length	#4 Screw CAT.NO.	# 6 Screw CAT. NO.	# 8 Screw CAT. NO.
3/16	397	—	—
1/4	398	405	412
5/16	399	406	413
3/8	400	407	414
7/16	401	408	415
1/2	402	409	416
5/8	403	410	417
3/4	418	425	432
7/8	419	426	433
1	420	427	434
1 1/4	421	428	435
1 1/2	422	429	436
1 3/4	—	430	437
2	—	—	438

Description and Tol.

SPACER FOR	I.D. ±.005	O.D. ±.007
#4	.125	.167
#6	.151	.193
#8	.178	.232

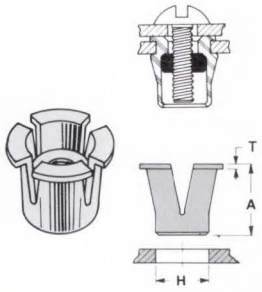
BLIND CAPTIVE NUTS — PRESS FIT

MOUNT CHASSIS, PANELS, HEAT SINKS, SOCKETS

MATERIAL: Molded Nylon with Brass threaded insert.

- EASY ASSEMBLY
- DAMPENS VIBRATION
- ELIMINATES INSULATING WASHER
- HI-DIELECTRIC STRENGTH

A unique reusable fastener made of NYLON which contains a threaded brass nut. Finger pressure or light tap seals it in a pre-drilled hole. The nut is drawn up causing a Nylon bulge behind the workpiece. Screw may be removed or replaced.

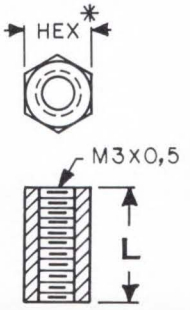


CAT. NO.	THREAD	"H" HOLE SIZE REQ'D.	IDEAL SHEET THICKNESS	A	T
4341	4-40	.250	.047	.312	.030
4342	6-32	.312	.078	.375	.030
4343	8-32	.406	.093	.500	.030

METRIC HEX THREADED STANDOFFS

A comprehensive range of precision made metric hex spacers.

MATERIAL: Brass, Nickel Plated(QQ-N-290)



5mm HEX*	
CAT. NO.	"L"
4390	5mm
4391	10mm
4392	15mm
4393	20mm
4394	25mm

5.5mm HEX*	
CAT. NO.	"L"
4395	5mm
4396	10mm
4397	15mm
4398	20mm
4399	25mm

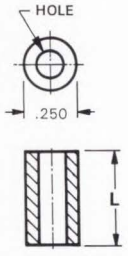
ROUND CLEAR SPACERS

BRASS OR ALUMINUM

MATERIALS:
Brass: Nickel plate (QQ-N-290)
Aluminum: Iridite Finish (MIL-C-5541)

L LENGTH	C HOLE	BRASS CAT. NO.	ALUMINUM CAT. NO.
.125	.120	1909	2036
.250	.120	1454A	3457
.375	.120	1454B	3458
.500	.120	1454C	3459
.625	.120	1919	2314
.750	.120	1454D	3460
.875	.120	1920	3402
1.000	.120	1454E	3461
1.500	.120	1924	3462
2.000	.120	1925	3463
.125	.140	1934	3403
.250	.140	1457A	3464
.375	.140	1457B	3465
.500	.140	1457C	3466
.625	.140	1935	3429
.750	.140	1457D	3467
.875	.140	1936	3438
1.000	.140	1457E	3468
1.500	.140	1937	3469
2.000	.140	1938	3470
.125	.171	1942	4258
.250	.171	1480	3471
.375	.171	1481	3472
.500	.171	1482	3473
.625	.171	2032	4259
.750	.171	1483	3474
.875	.171	2033	4260
1.000	.171	1484	3475
1.500	.171	2034	3476
2.000	.171	2035	3477

CLEARANCE HOLE:
- .120 for #4 screw
- .140 for #6 screw
- .171 for #8 screw

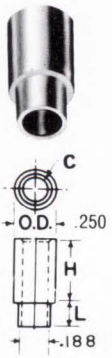


ROUND SWAGE CLEAR SPACERS

MATERIAL: Brass, Nickel Plate (QQ-N-290)

CLEARANCE HOLE:
- .120 for #4 screw
- .140 for #6 screw

CAT. NO.	H HEIGHT	FOR PANEL THICKNESS	C HOLE	L
5060-2	.250	1/16	.120	.109
5060-3	.250	3/32	.120	.141
5061-2	.375	1/16	.120	.109
5061-3	.375	3/32	.120	.141
5062-2	.500	1/16	.120	.109
5062-3	.500	3/32	.120	.141
5063-2	.250	1/16	.140	.109
5063-3	.250	3/32	.140	.141
5064-2	.375	1/16	.140	.109
5064-3	.375	3/32	.140	.141
5065-2	.500	1/16	.140	.109
5065-3	.500	3/32	.140	.141



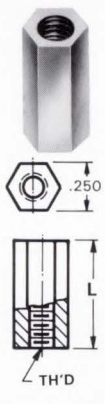
HEX STAINLESS THREADED STANDOFFS

MATERIAL: Stainless Steel per QQ-S-764, Class 303

- Corrosion Resistant

L Length Inches	4-40 Thread CAT. NO.	6-32 Thread CAT. NO.	8-32 Thread CAT. NO.
1/4 (.250)	1921	1922	1923
3/8 (.375)	1921A	1922A	1923A
1/2 (.500)	1921B	1922B	1923B
3/4 (.750)	1921C	1922C	1923C
1 (1.000)	1921D	1922D	1923D
1 1/2 (1.500)	1921E	1922E	1923E
2 (2.000)	1921F	1922F	1923F

- 4-40 thread on 1/2" and over tapped 1/4"each end
- 6-32 & 8-32 thread on 1" and over tapped 3/8"each end



INSULATED SPACERS/STANDOFFS

Designers' Choice

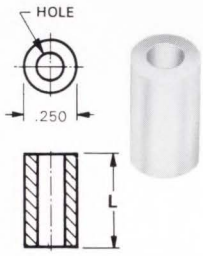
KEYSTONE

NYLON SPACERS/STANDOFFS

Economical for terminal or printed circuit board supports.

ROUND THRU-HOLE SPACERS

MATERIAL: Nylon 6/6.



"L" Length Inches	#4 Screw .120 Hole CAT. NO.	#6 Screw .140 Hole CAT. NO.	#8 Screw .171 Hole CAT. NO.
1/8 (.125)	875	883	891
1/4 (.250)	876	884	892
3/8 (.375)	877	885	893
1/2 (.500)	878	886	894
5/8 (.625)	879	887	895
3/4 (.750)	880	888	896
7/8 (.875)	881	889	897
1 (1.000)	882	890	898

HEX THREADED STANDOFFS

MATERIAL: Nylon 6/6.

"L" Length Inches	4-40 Thread CAT. NO.	6-32 Thread CAT. NO.	8-32 Thread CAT. NO.
1/4 (.250)	1902A	1903A	1904A
3/8 (.375)	1902B	1903B	1904B
1/2 (.500)	1902C	1903C	1904C
5/8 (.625)	1902F	1903F	1904F
3/4 (.750)	1902D	1903D	1904D
7/8 (.875)	1902G	1903G	1904G
1 (1.000)	1902E	1903E	1904E

FLAME RETARDANT HEX THREADED STANDOFFS

MATERIAL: Flame retardant Nylon per 94V-0.

"L" Length Inches	4-40 Thread CAT. NO.	6-32 Thread CAT. NO.	8-32 Thread CAT. NO.
1/4 (.250)	8440A	8441A	8442A
3/8 (.375)	8440B	8441B	8442B
1/2 (.500)	8440C	8441C	8442C
5/8 (.625)	8440D	8441D	8442D
3/4 (.750)	8440E	8441E	8442E
7/8 (.875)	8440F	8441F	8442F
1 (1.000)	8440G	8441G	8442G

NYLON SPACER SUPPORTS

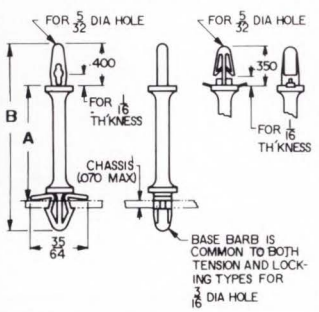
LOCKING OR TENSION

MATERIAL: Flame retardant Nylon per 94V-0.

- EASY TO INSTALL • ECONOMICAL
- SECURE & STABLE • RELEASABLE

CAT. NO.	A	TYPE	B
1927A	1/4	Tension	.937
1927B		Locking	.890
1928A	3/8	Tension	1.062
1928B		Locking	1.015
1929A	1/2	Tension	1.187
1929B		Locking	1.140
1930A	5/8	Tension	1.312
1930B		Locking	1.265
1931A	3/4	Tension	1.437
1931B		Locking	1.390
1932A	7/8	Tension	1.562
1932B		Locking	1.515
1933A	1	Tension	1.687
1933B		Locking	1.640

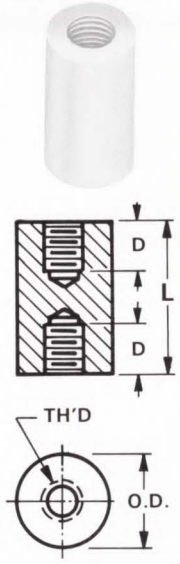
TENSION BARB LOCKING BARB



CERAMIC STANDOFFS

Ideal insulator for high temperature conditions.

MATERIAL: Grade L5 Ceramic, glazed MIL-1-10



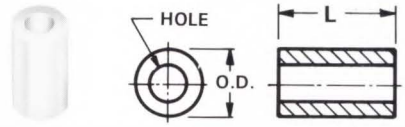
CAT NO.	LENGTH	O.D.	T THREAD	D(2) DEPTH	NL #
7661	.500	.375	6-32	.156	NL523W01-004
7662	.625	.375	6-32	.250	NL523W01-005
7663	.625	.500	8-32	.187	NL523W02-005
7664	.750	.375	6-32	.250	NL523W01-006
7665	.750	.500	8-32	.250	NL523W02-006
7666	1.000	.375	6-32	.375	NL523W01-008
7667	1.000	.500	8-32	.375	NL523W02-008
7668	1.000	.750	10-32	.375	NL523W03-008
7669	1.250	.375	6-32	.375	NL523W01-010
7670	1.250	.500	8-32	.375	NL523W02-010
7671	1.250	1.000	1/4-20	.437	NL523W04-010
7672	1.500	.375	6-32	.375	NL523W01-012
7673	1.500	.500	8-32	.375	NL523W02-012
7674	1.500	.750	10-32	.375	NL523W03-012
7675	1.500	1.000	1/4-20	.500	NL523W04-012
7676	2.000	.375	6-32	.375	NL523W01-016
7677	2.000	.500	8-32	.375	NL523W02-016
7678	2.000	.750	10-32	.375	NL523W03-016

PHENOLIC SPACERS/STANDOFFS

- RESISTS ABRASIONS & CHEMICALS • EXCELLENT DIELECTRIC STRENGTH
- LOW MOISTURE ABSORPTION • GOOD MECHANICAL STRENGTH

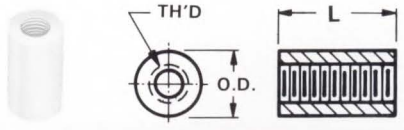
MATERIAL: PBE Grade Natural Color Phenolic.

CLEAR HOLE SPACERS



"L" Length Inches	.250 O.D. (1/4) #4 Screw .120 Hole CAT. NO.	.250 O.D. (1/4) #6 Screw .140 Hole CAT. NO.	.250 O.D. (1/4) #8 Screw .171 Hole CAT. NO.	.312 O.D. #10 Screw .200 Hole CAT. NO.
1/4 (.250)	360	367	1490	453
3/8 (.375)	361	368	1491	454
1/2 (.500)	362	369	1492	455
3/4 (.750)	363	370	1493	456
1 (1.000)	364	371	1494	457
1 1/2 (1.500)	365	372	374	458
2 (2.000)	366	373	375	459

THREADED STANDOFFS



"L" Length Inches	.250 O.D. (1/4) 4-40 Th'd CAT.NO.	.250 O.D. (1/4) 6-32 Th'd CAT.NO.	.250 O.D. (1/4) 8-32 Th'd CAT.NO.	.312 O.D. 8-32 CAT.NO.	.312 O.D. 10-32 CAT.NO.
1/4 (.250)	376	383	390	460	467
3/8 (.375)	377	384	391	461	468
1/2 (.500)	378	385	392	462	469
3/4 (.750)	379	386	393	463	470
1 (1.000)	380	387	394	464	471
1 1/2 (1.500)	381	388	395	465	472
2 (2.000)	382	389	396	466	473

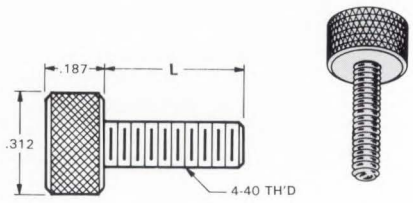
NOTE: 1 1/2" and 2" spacers are tapped 3/8" deep each end.

PANEL HARDWARE

MATERIAL: Stainless Steel per ASTM-A581 /A-582 (Non-magnetic)

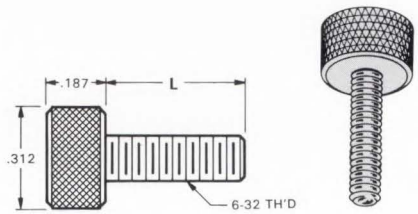
THUMB SCREWS

4-40



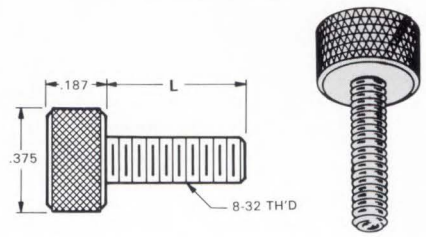
CAT. NO.	LENGTH
2400	.312
2401	.375
2402	.437
2403	.500

6-32



CAT. NO.	LENGTH
2404	.312
2405	.375
2406	.437
2407	.500

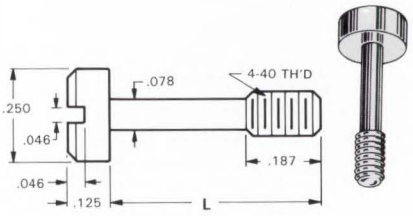
8-32



CAT. NO.	LENGTH
2408	.375
2409	.437
2410	.500
2411	.562
2412	.625

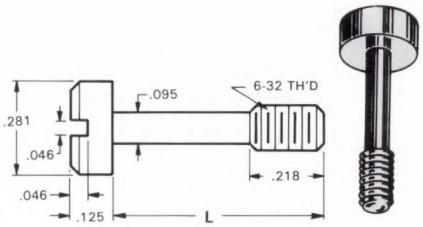
CAPTIVE SCREWS

4-40



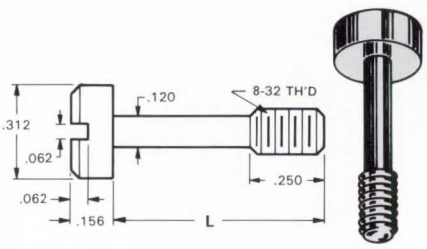
CAT. NO.	LENGTH
2413	.469
2414	.531

6-32



CAT. NO.	LENGTH
2415	.531
2416	.593
2417	.656

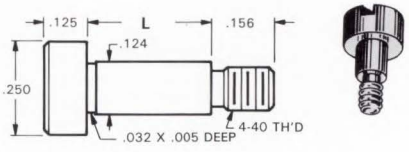
8-32



CAT. NO.	LENGTH
2418	.656
2419	.718
2420	.781

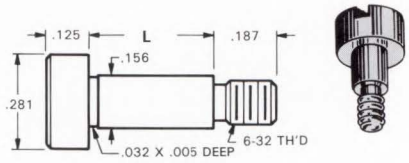
SHOULDER SCREWS

4-40



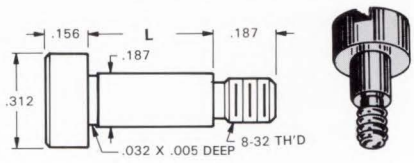
CAT. NO.	LENGTH	CAT. NO.
2421	.125	2441
2422	.250	2442
2423	.375	2443
2424	.500	2444

6-32



CAT. NO.	LENGTH	CAT. NO.
2425	.125	2445
2426	.250	2446
2427	.375	2447
2428	.500	2448
2429	.625	2449
2430	.750	2450

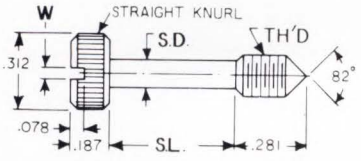
8-32



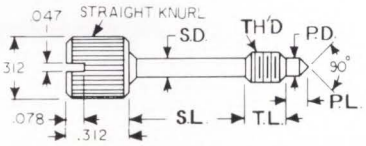
CAT. NO.	LENGTH	CAT. NO.
2431	.125	2451
2432	.250	2452
2433	.375	2453
2434	.500	2454
2435	.625	2455
2436	.750	2456
2437	1.000	2457

STAINLESS STEEL CAPTIVE PANEL SCREWS

MATERIAL: Stainless Steel per ASTM-A581 /A-582 (Non-magnetic) Passivated per MIL-F-14072-E-300



CAT. NO.	TH'D	S.D. ±.005	S.L. ±.010	W +.005 -.000
8700	4-40	.078	.375	.036
8701	4-40	.078	.500	.036
8702	4-40	.078	.625	.036
8703	6-32	.095	.375	.045
8704	6-32	.095	.500	.045
8705	6-32	.095	.625	.045

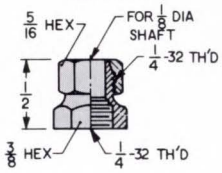


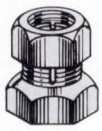
CAT. NO.	TH'D	T.L. +.000 -.015	S.D +.005	S.L. ±.010	P.D. +.000 -.010	P.L. ±.015
8706	4-40	.125	.078	.171	.078	.078
8707	4-40	.125	.078	.296	.078	.078
8708	4-40	.125	.078	.421	.078	.078
8709	6-32	.218	.095	.187	.095	.093
8710	6-32	.218	.095	.312	.095	.093
8711	6-32	.218	.095	.437	.095	.093

SHAFT LOCKS (1/8" & 1/4")

MATERIAL: Brass, per QQ-B-626, Comp. 22, 1/2 hard Nickel Plated per QQ-N-290.

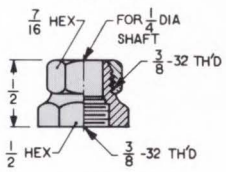
1/8" Shaft





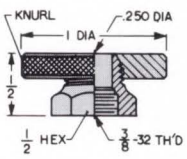
CAT. NO. 1700

1/4" Shaft



CAT. NO. 1701

1/4" Shaft

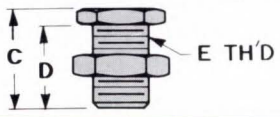


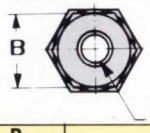
CAT. NO. 1702

PANEL BEARINGS

STANDARD AND MINIATURE

MATERIAL: Brass, Nickel Plated (QQ-N-290). Supplied unassembled.



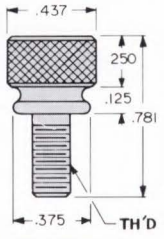


CAT. NO.	A	B	C	D	E
1705	.253	7/16	1/2	7/16	3/8—32 Standard
1706	.128	11/32	7/16	3/8	1/4—32 Miniature

THUMB SCREWS

For quick removal of panel from chassis.
Other variations available see page 42.
MATERIAL: Brass, Nickel Plated (QQ-N-290).

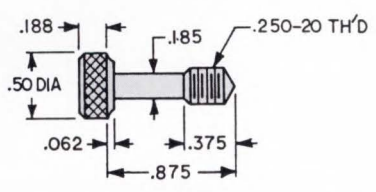
CAT. NO.	THREAD
1708	6-32
1709	8-32
1710	10-32



STAINLESS STEEL CAPTIVE SCREW

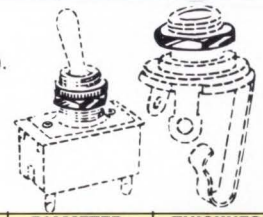
For quick removal of panel from chassis. Other variations available see page 42.
MATERIAL: Stainless Steel per ASTM-A581 /A-582 (Non-magnetic)

CAT. NO. 1704



PRECISION PANEL NUTS

For Volume Controls, Switches, Capacitors, Tip Jacks, etc.
MATERIAL: Brass, Nickel Plated (QQ-N-290).

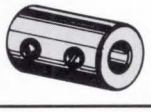


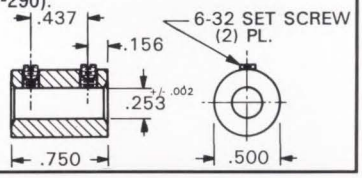
CAT. NO.	FOR	THREAD	DIAMETER	THICKNESS
1448	Mounting	1/4-32	3/8 Hex	3/32"
1449	Mini. Control	1/4-32	5/16 Hex	5/64"
1456	Vol. Control	3/8-32	1/2 Hex	3/32"
1458	Switch	15/32-32	9/16 Hex	5/64"
1459	Switch Ring	15/32-32	5/8 Knurled	1/16"
1472	Filter	5/16-32	3/8 Hex	3/32"

1/4" - 1/4" SHAFT COUPLING

MATERIAL: Brass, Nickel Plated (QQ-N-290).
Two set screws hold shaft securely.
Supplied unassembled.

CAT. NO. 1453

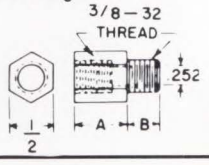




VOLUME CONTROL EXTENDERS

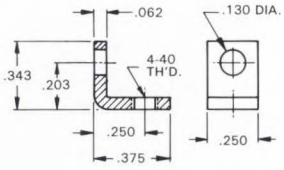
For 1/4" volume control shafts having 3/8-32 threaded bushings.
MATERIAL: Brass, Nickel Plated (QQ-N-290).

CAT. NO.	A	B
1464	5/8	1/4
1465	5/8	3/8
1466	11/16	1/2
1467	3/4	1/4



THREADED MOUNTING BRACKETS

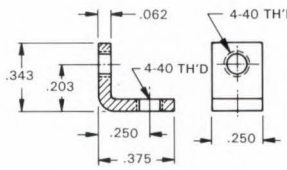
4-40 THREAD



CAT. NO. 612

.062 Steel
Zinc Plate

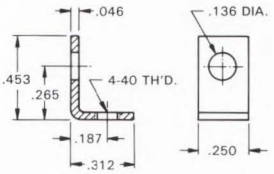
4-40 THREAD



CAT. NO. 621

.062 Steel
Zinc Plate

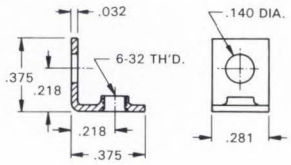
4-40 THREAD



CAT. NO. 616

.047 Brass
Tin Plate

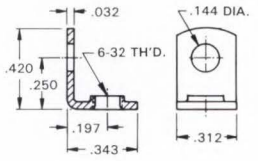
6-32 THREAD



CAT. NO. 634

.032 Brass
Nickel Plate

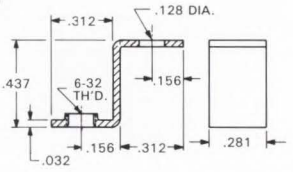
6-32 THREAD



CAT. NO. 614

.032 Brass
Tin Plate

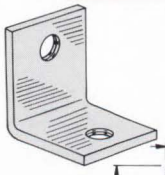
6-32 THREAD

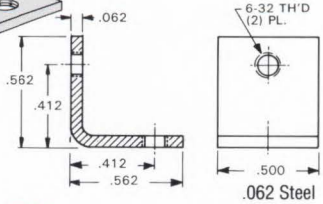


CAT. NO. 630

.032 Brass
Tin Plate

6-32 THREAD

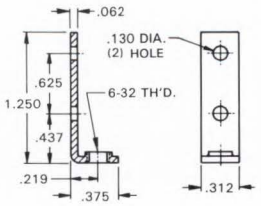




CAT. NO. 4334

.062 Steel
Nickel Plate

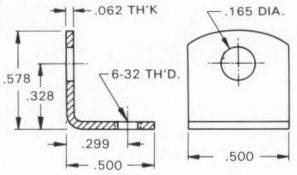
6-32 THREAD



CAT. NO. 708

.062 Steel
Nickel Plate

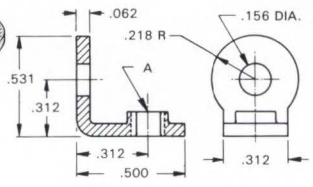
6-32 THREAD



CAT. NO. 617

.062 Steel
Tin Plate

6-32 OR 8-32 THREAD

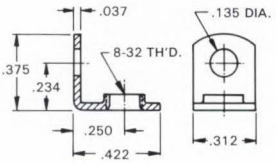


"A"

CAT. NO. 4332 #6-32
CAT. NO. 4333 #8-32

.062 Brass
Nickel Plate

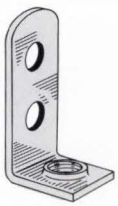
8-32 THREAD

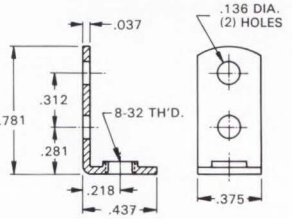


CAT. NO. 611

.037 Brass
Tin Plate

8-32 THREAD





CAT. NO. 631

.037 Steel
Tin Plate

CLEAR HOLE MOUNTING BRACKETS

Designers' Choice KEYSTONE

BOARD BRACKETS

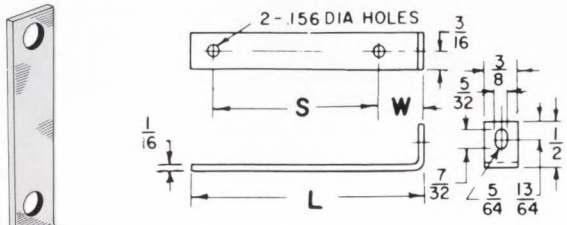
Originally designed for our line of standardized terminal boards; these brackets can also be used in other applications.

Choice of Steel or Aluminum

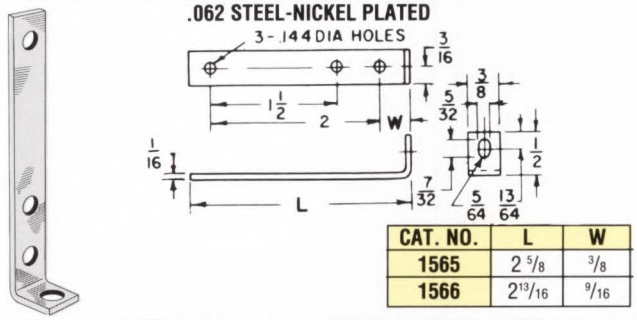
MATERIAL:

.062 thick Steel: Per Mil Spec. QQ-S-633B Grade FS-1010. Nickel plated per QQ- N-290.

.062 thick Aluminum: Per QQ-A-250/8b



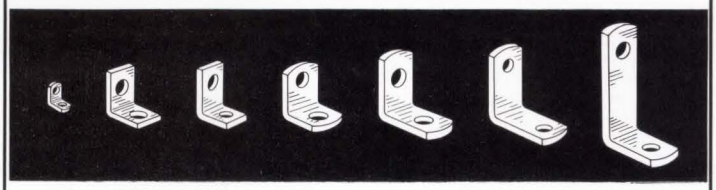
CAT. NO. Steel	CAT. NO. Alum.	W	L	S	For Use With Board No's (see page 81)		
1556	622	3/8	1 5/8	1	15032	15072	15092
1567	623	3/8	2 1/8	1 1/2	15033	15073	15093
1568	624	3/8	2 5/8	2	15034	15074	15094
1569	625	3/8	3 1/8	2 1/2	15035	15075	15095
1570	626	9/32	1 3/16	3/4	15022	15024	15030
1571	627	9/32	1 5/8	1 3/16	15036	15076	15096



CAT. NO.	L	W
1565	2 5/8	3/8
1566	2 13/16	9/16

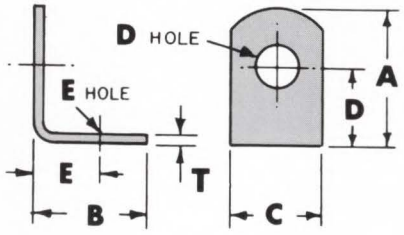
UNIVERSAL BRACKETS

A wide range of brackets for various mounting applications.



610 633 613 615 618 4335 4336 619 620 4326

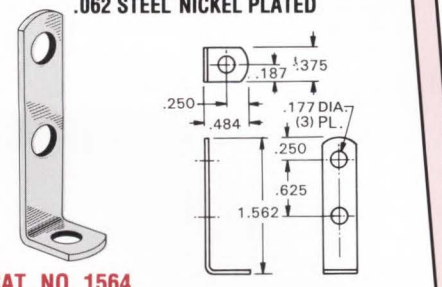
STANDARD BRACKETS
(Brass and Steel)



Selection of Brackets with Clear Holes.

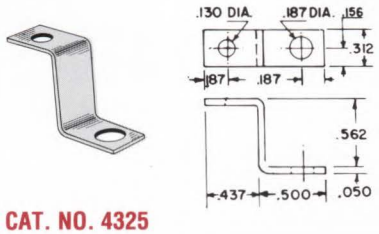
CAT. NO.	A	B	C	D	D Hole Dia.	E	E Hole Dia.	T Material	Finish
610	.171	.171	.125	.109	.067	.109	.067	.018 Brass	Tin
633	.375	.375	.281	.218	.140	.218	.140	.032 Brass	Nickel
613	.390	.453	.375	.234	.147	.299	.128	.032 Brass	Nickel
615	.437	.343	.281	.281	.144	.203	.125	.032 Brass	Tin
4335	.562	.562	.500	.412	.120	.412	.120	.062 Steel	Nickel
4336	.562	.562	.500	.412	.144	.412	.144	.062 Steel	Nickel
618	.628	.628	.375	.378	.169	.378	.169	.050 Brass	Nickel
619	.687	.687	.375	.500	.144	.500	.144	.032 Steel	Tin
4326	1.013	.487	.312	.816	.140	.332	.140	.050 Steel	Nickel
620	1.156	.656	.375	.906	.169	.406	.169	.032 Steel	Tin

.062 STEEL NICKEL PLATED



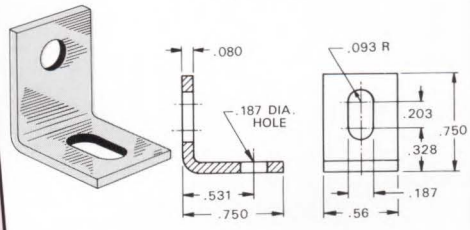
CAT. NO. 1564

.050 STEEL NICKEL PLATED



CAT. NO. 4325

.080 ALUMINUM

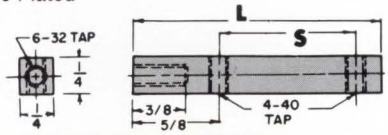


CAT. NO. 4337

BOARD SUPPORT BRACKETS

MATERIAL: Brass, Zinc Plated

A sturdy support for mounting of standardized terminal boards.



CAT. NO.	Overall Length "L"	Spacing "S"
1647	2 3/8	1 1/2
1648	2 7/8	2
1649	3 3/8	2 1/2

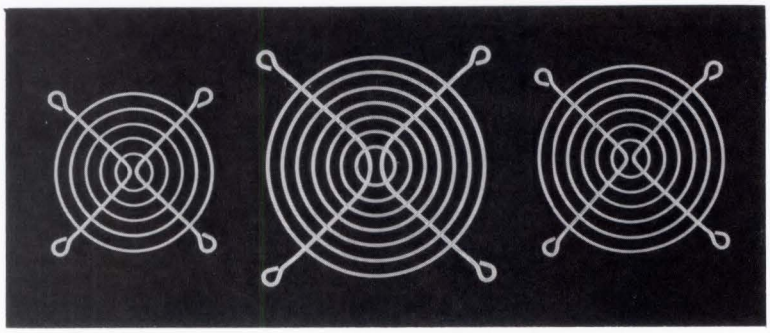
CUSTOM METAL STAMPINGS

Complete facilities available for both short and long run metal stampings and sub-assemblies. Quotations on Special Stampings furnished promptly upon receipt of sample, sketch or blueprints.

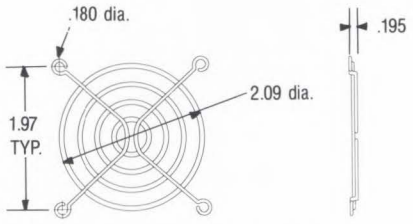
METAL GUARDS

METAL GUARDS

Made of high quality carbon steel wire (C-1010) which combines strength with superior forming. The units offer clean, strong butt welds with minimum flash and have consistent guard diameters to enhance maximum air-flow and venting. Guards are nickel chrome plated.



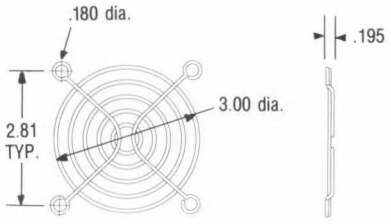
FITS 2 1/2" FANS



CONSTRUCTION
Rings—.063 wire dia.
Ribs—.063 wire dia.

CAT. NO. 8449

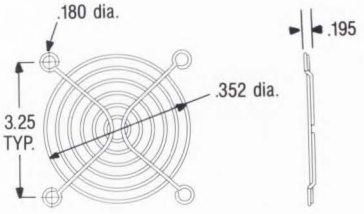
FITS 3 1/8" FANS



CONSTRUCTION
Rings—.063 wire dia.
Ribs—.071 wire dia.

CAT. NO. 8450

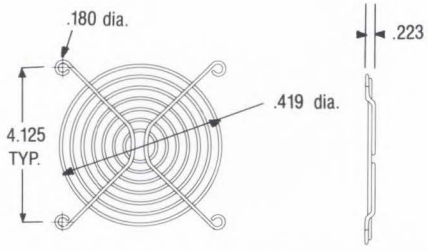
FITS 3 5/8" FANS



CONSTRUCTION
Rings—.063 wire dia.
Ribs—.071 wire dia.

CAT. NO. 8451

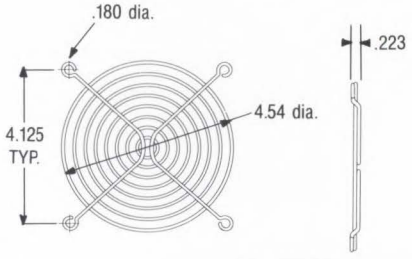
FITS 4 1/2" FANS



CONSTRUCTION
Rings—.071 wire dia.
Ribs—.091 wire dia.

CAT. NO. 8452

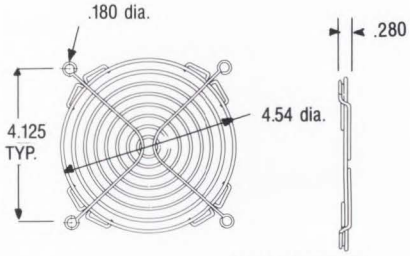
FITS 4 1/2" FANS



CONSTRUCTION
Rings—.071 wire dia.
Ribs—.091 wire dia.

CAT. NO. 8453

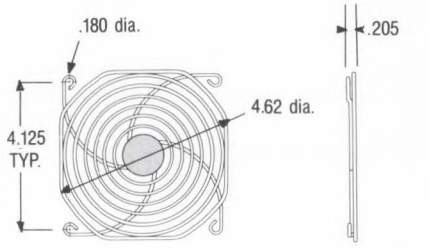
FITS 4 1/2" FANS



CONSTRUCTION
Rings—.071 wire dia.
Ribs—.091 wire dia.

CAT. NO. 8454

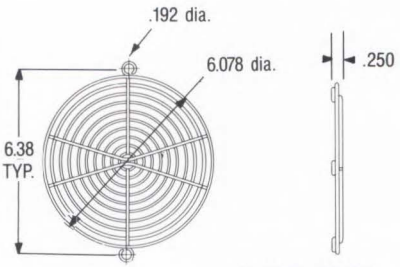
FITS 4 1/2" FANS



CONSTRUCTION
Rings—.063 wire dia.
Ribs—.080 wire dia.

CAT. NO. 8456

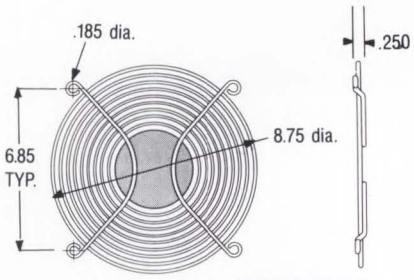
FITS 6" FANS



CONSTRUCTION
Rings—.071 wire dia.
Ribs—.091 wire dia.

CAT. NO. 8455

FITS 10" FANS

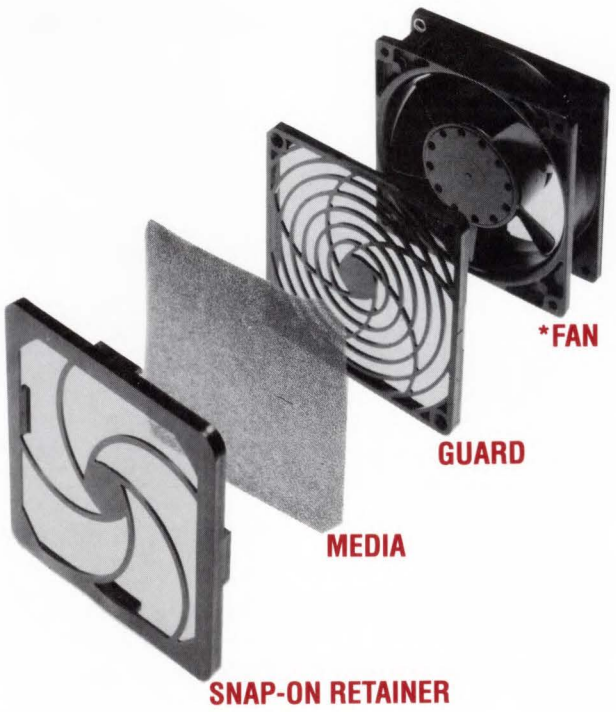


CONSTRUCTION
Rings—.091 wire dia.
Ribs—.091 wire dia.

CAT. NO. 8457

Meets UL .25" Plug Gauge Test

A unique package consisting of guard, filter media and retainer. The guard and retainer are manufactured with UL listed 94-VO material. The filter media is made of polyurethane foam (30PPI) and allows free passage of air with minimum air resistance and pressure drop. A major feature of this assembly is that when the filter media requires maintenance you simply remove the snap-on retainer to clean or replace the filter leaving the guard attached to the fan. This assures protection from the fan blade and eliminate damage to the fan during cleaning.



*Not Supplied

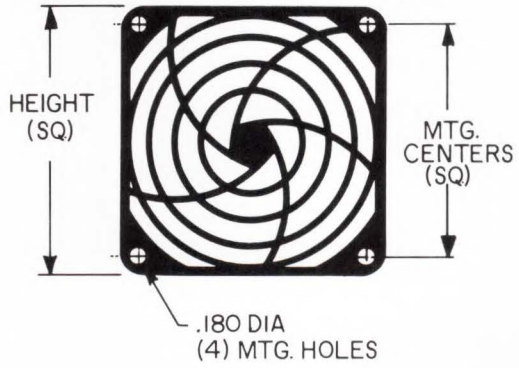
COMPONENTS

RETAINER
- UL listed 94-VO material.
- Snap-on construction.
- Designed for minimal air restriction.

MEDIA
- Polyurethane foam material is constructed to allow free passage of air with minimum air resistance and pressure drop.
- Has a high surface-area contact for impingement of dust particles.
- 30PPI material gives a wide range of particle filtration (PPI denotes pores per inch).
- Helps reduce external fan noise.
- Easily cleaned by vacuuming or washing with most soaps, detergents or cleaning solvents.

GUARD
- UL listed 94-VO material.
- 1/4" max. ring spacing.
- Decreased noise level due to design.
- Countersunk mounting holes.
- Withstands high impact.

*FAN
- Customer supplied.

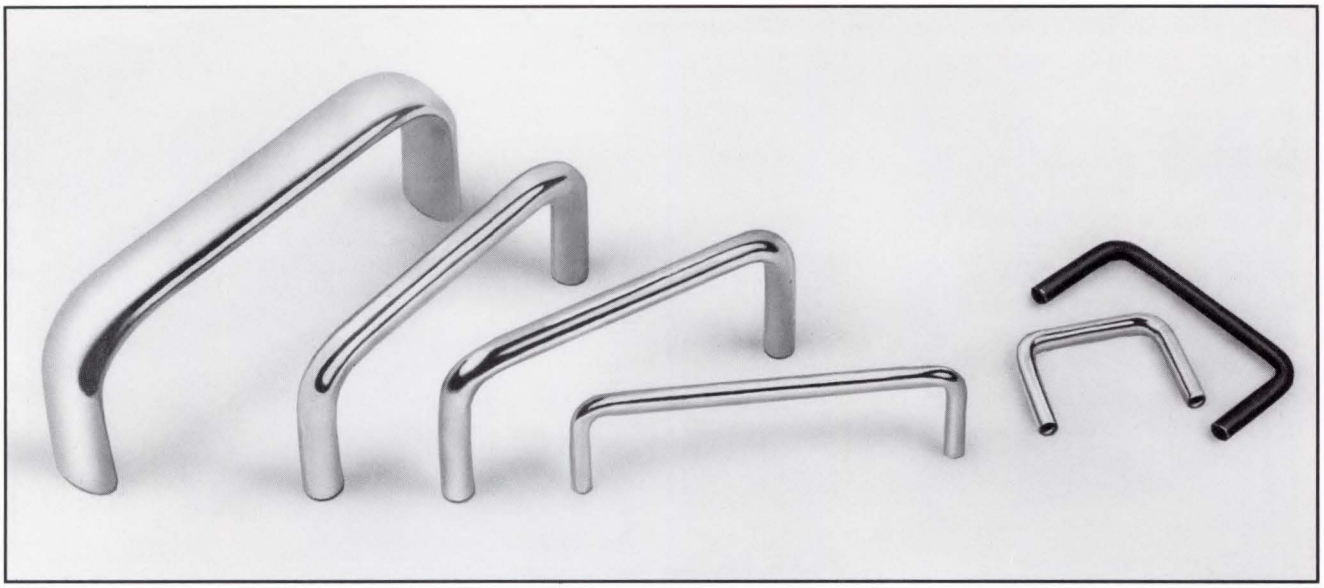


† COMPLETE ASSEMBLY				
CAT. NO.	For Fan Size	Height	Thickness	Mounting Centers
8458	3 1/8"	3.29	.393	2.810
8459	3 5/8"	3.80	.393	3.245
8460	4 1/2"	4.87	.420	4.125

† Cat. No. consists: Guard, Media and Retainer

FAN GUARD ONLY				
CAT. NO.	For Fan Size	Height	Thickness	Mounting Centers
8461	3 1/8"	3.15	.257	2.810
8462	3 5/8"	3.62	.250	3.245
8463	4 1/2"	4.65	.279	4.125

INSTRUMENTATION HANDLES



Choice of: Brass or Aluminum — Round or Oval

These instrumentation handles are manufactured in a wide variety of diameters, lengths, platings and internal thread sizes. They will enhance the look of quality products and equipment and provide the sturdy support needed for contemporary equipment.

ROUND

- .156, .250, .312 and .375 diameters
- Mounting centers from 1.250 to 6.000
- Internal threads 4-40, 8-32 and 10-32
- Heights from 1.000 to 1.750

MATERIAL SPECIFICATIONS
Brass: per ASTM-B16
Aluminum: QQ-A-325, alloy 6061-T6

PLATING
Brass: Nickel plated per QQ-N-290
Aluminum: Black anodize per MIL-A-8625

OVAL

- .625 × .281" diameter
- Mounting centers from 4.000 to 6.437
- Internal threads 10-32
- Heights form 1.375 to 2.000

MATERIAL SPECIFICATIONS
Brass: per ASTM-B16
Aluminum: QQ-A-325, alloy 6061-T6

PLATINGS
Brass: Nickel plated per QQ-N-290
Aluminum: Black anodized per MIL-A-8625

CARRYING HANDLES

Also available from Keystone is our Designers' Choice series of handles in genuine leather and high impact plastic. The leather handles are available with a spring glide mechanism or with a retracto-link design. Both types lie flat on the case when not in use. The plastic handles are available in molded polypropylene with a leather-grain look or in high impact styrene. Both types fold flat on the case when not in use.

Rounding out this "Designers' Choice" selection is a group of contemporary styled handles made of zinc with a satin brushed, chrome plated finish. Custom sizes, materials and platings are available in production quantities.

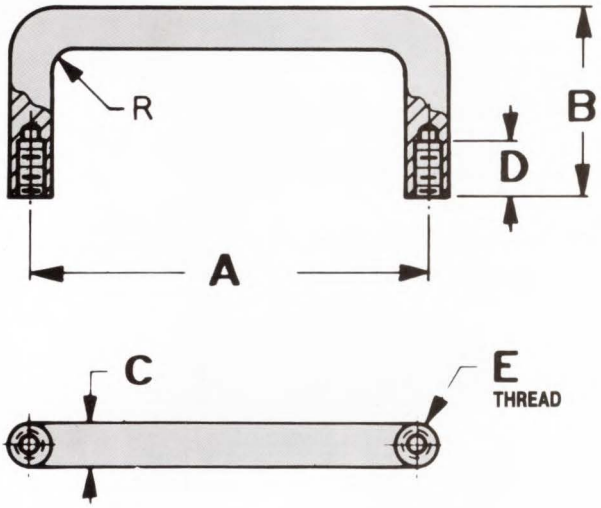
INSTRUMENTATION HANDLES

Designers' Choice

KEYSTONE

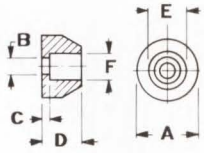
Choice of: Brass or Aluminum — Round or Oval

ROUND INSTRUMENTATION HANDLES



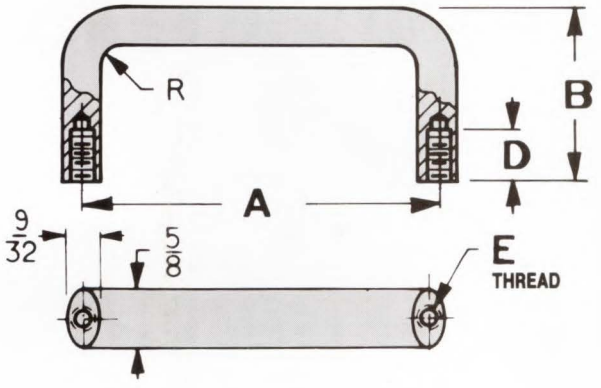
BRASS CAT. NO.	ALUMINUM CAT. NO.	A	B	DIA. C	D	TH'D E	R
7140	7170	1.250	1.000	.156	.375	4-40	.156
7141	7171	2.000	1.000	.156	.375	4-40	.156
7142	7172	3.000	1.000	.156	.375	4-40	.156
7143	7173	3.000	1.500	.250	.562	8-32	.250
480	510	3.500	1.500	.250	.562	8-32	.250
7144	7174	4.000	1.500	.250	.562	8-32	.250
481	511	4.500	1.500	.250	.562	8-32	.250
482	512	5.000	1.500	.250	.562	8-32	.250
483	513	5.500	1.500	.250	.562	8-32	.250
484	514	6.000	1.500	.250	.562	8-32	.250
485	515	3.000	1.750	.250	.562	8-32	.250
486	516	4.000	1.750	.250	.562	8-32	.250
487	517	4.500	1.750	.250	.562	8-32	.250
488	518	5.000	1.750	.250	.562	8-32	.250
489	519	6.000	1.750	.250	.562	8-32	.250
7145	7175	3.000	1.500	.312	.500	10-32	.312
7146	7176	4.000	1.500	.312	.625	10-32	.312
490	520	4.500	1.500	.312	.625	10-32	.312
7147	7177	4.562	1.500	.312	.625	10-32	.312
491	521	5.000	1.500	.312	.625	10-32	.312
492	522	5.500	1.500	.312	.625	10-32	.312
7148	7178	6.000	1.500	.312	.625	10-32	.312
493	523	4.000	1.750	.312	.625	10-32	.312
494	524	4.500	1.750	.312	.625	10-32	.312
495	525	5.000	1.750	.312	.625	10-32	.312
496	526	6.000	1.750	.312	.625	10-32	.312
7149	7179	6.437	1.750	.312	.625	10-32	.312
7150	7180	4.000	1.375	.375	.375	10-32	.375
7151	7181	6.000	1.375	.375	.375	10-32	.375

FERRULES FOR ROUND HANDLES



BRASS CAT. NO.	ALUMINUM CAT. NO.	FOR DIA.	A	B	C	D	E	F
7162	7192	.156	.250	.116	.047	.125	.200	.161
7163	7193	.250	.375	.204	.062	.187	.320	.260
7164	7194	.312	.562	.218	.062	.250	.406	.320

OVAL INSTRUMENTATION HANDLES (.625 X .281)

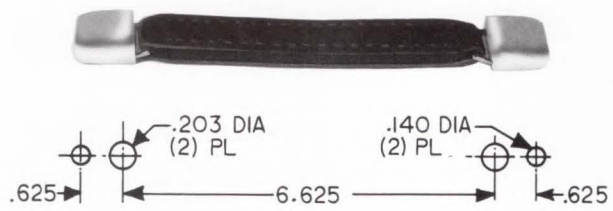


BRASS CAT. NO.	ALUMINUM CAT. NO.	A	B	D	TH'D E	R
7156	7186	4.000	1.750	.500	10-32	.500
530	540	4.500	1.750	.500	10-32	.500
531	541	5.000	1.750	.500	10-32	.500
532	542	5.500	1.750	.500	10-32	.500
533	543	6.000	1.750	.500	10-32	.500
7158	7188	6.437	1.750	.500	10-32	.500
534	544	4.000	2.000	.500	10-32	.500
535	545	4.500	2.000	.500	10-32	.500
536	546	5.000	2.000	.500	10-32	.500
537	547	5.500	2.000	.500	10-32	.500
538	548	6.000	2.000	.500	10-32	.500
7157	7187	6.000	1.375	.375	10-32	.500

HANDLES

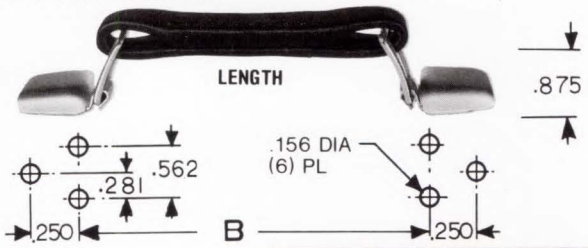
CARRYING HANDLES

Spring glide handle, manufactured of black genuine leather with chrome plated steel hardware. Handle lies flat on case when not in use. Will not rattle under vibration. Maximum extended height at center line, 1 1/4 inches. Mounts with #10-32 screws (not supplied).



CAT. NO. 8350

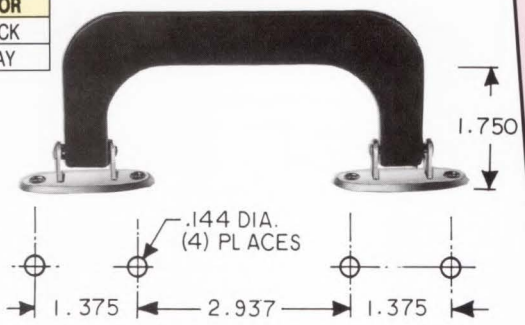
The retracto link handle manufactured of black genuine leather with nickel plated steel hardware, is internally constructed of rubber impregnated cellulose over a spring steel core. Handle folds flat on case when not in use. Mounts with #6 size screws.



CAT. N O.	LENGTH	"B"
8351	4-1/2	5-3/4
8352	5-1/2	6-5/8
8353	6-3/4	7-7/8

Molded of polypropylene with a leather grain look. Folds flat on case when not in use. Mounts with rivets or #6 screws (not supplied).

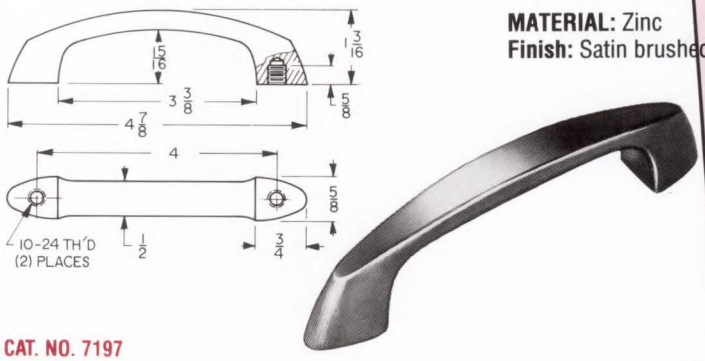
CAT. NO.	COLOR
8356	BLACK
8357	GRAY



Molded of high impact styrene with steel nickel plated hardware. Folds flat on case when not in use. Mounts with #10-32 screws (not supplied).

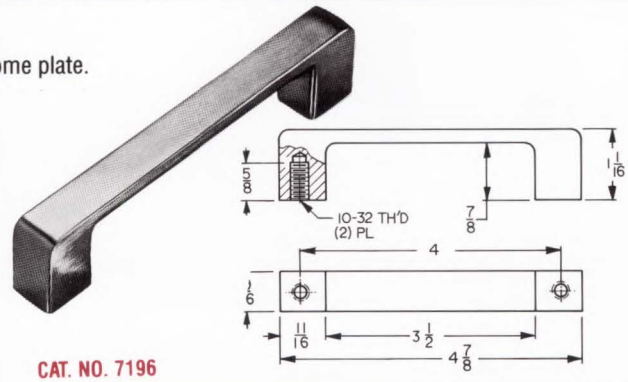
CAT. NO.	COLOR
8354	BLACK
8355	GRAY

CONTEMPORARY HANDLES

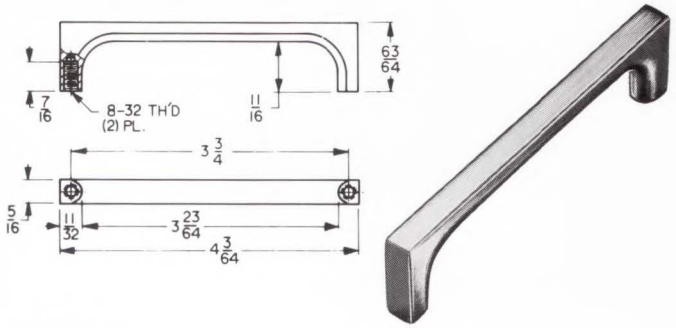


MATERIAL: Zinc
Finish: Satin brushed, chrome plate.

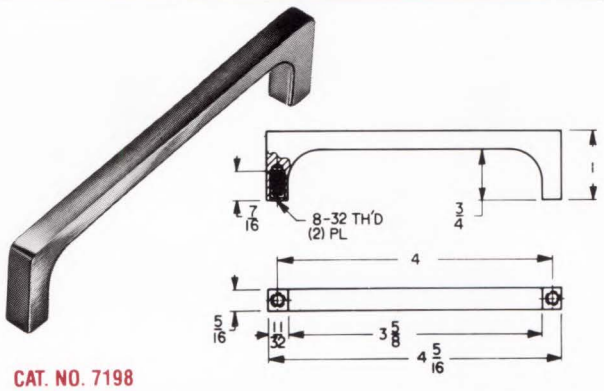
CAT. NO. 7197



CAT. NO. 7196



CAT. NO. 7199



CAT. NO. 7198

PHENOLIC INSTRUMENT CASES

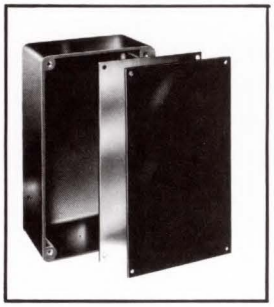
- **CHOICE OF 7 POPULAR SIZES**
- **STURDY CONSTRUCTION**
- **FLUSH MOUNTING PANELS**

CASES: Precision molded with rounded outside corners and 6-32 × 3/16" deep threaded brass inserts imbedded in each corner. .125 Thick walls Molded Glossy Black Phenolic MIL-M-14, CFG.

Panel Mounts Flush Inside of Case.
PHENOLIC PANEL: 3/32" thick glossy black MIL-P-3115 C.
ALUMINUM PANEL: .062 thick, #5052-H34 per QQ 318 C. Bright finished surface covered with a protective pressure sensitive tape.

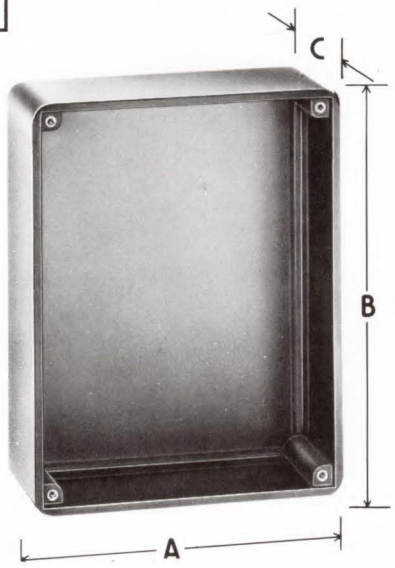
PANELS OR CASES CAN BE FABRICATED TO YOUR SPECIFICATIONS

SEND PRINT OR SKETCH FOR QUOTATION



Your choice of Aluminum or Phenolic Panels

Purchase with or without panels to match



Case Only CAT. NO.	A	B	C	Black Phenolic Panel Only CAT. NO.	Aluminum Panel Only CAT. NO.
*715	2.500	3.500	1.250	2050	2051
*703	2.875	4.000	1.562	2042	2044
**705	2.875	4.000	1.562	2042	2044
*704	3.125	5.875	2.250	2043	2045
700	3.750	6.250	2.000	2037	2046
716	4.250	5.000	1.750	2052	2053
701	5.250	6.812	2.312	2038	2047
702	7.375	8.375	3.000	2039	2048

TOLERANCE: PLUS OR MINUS .032
* **703, 704 and 715** HAVE 4-40 TAPPED HOLES IN EACH CORNER-NO BRASS INSERT.
****705** MOUNTING HOLES UNTAPPED-USE #4 SELF TAPPING SCREW

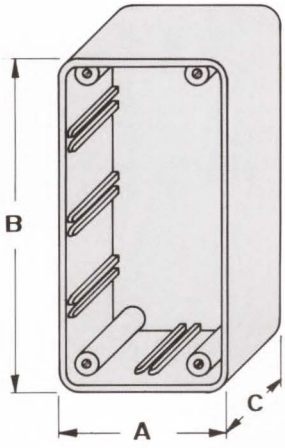
PLASTIC INSTRUMENT CASES

- **LOW COST • CHOICE OF 7 SIZES • STURDY CONSTRUCTION**

Economical cases molded of high impact styrene. Mating cover has interlocking flange on lid, countersunk holes for flush mounting. Internal grooved guides to hold P.C. boards and circuit cards from .062 to .093 thick.

COLOR OF CASE AND LID-BLUE
IDEAL FOR PROTOTYPE OR PRODUCTION USAGE

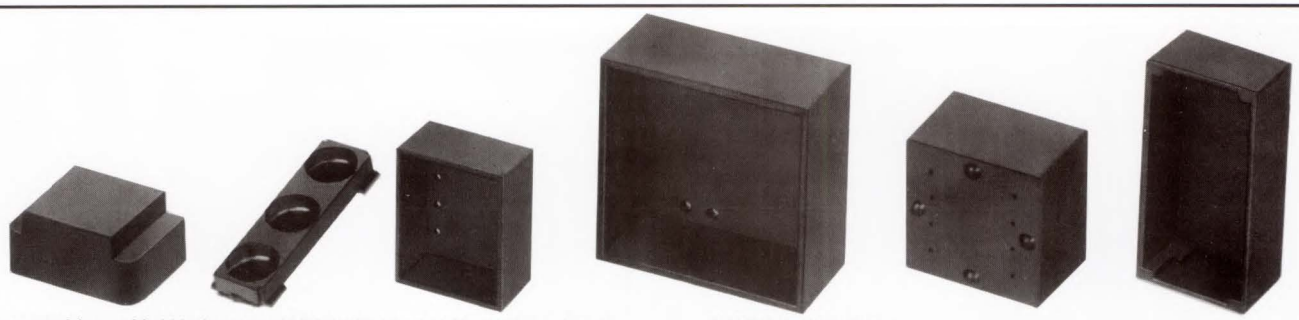
SUPPLIED COMPLETE WITH COVER AND FOUR SCREWS



CAT. NO.	A	B	C
760	2.000	4.000	.812
761	2.437	4.375	1.062
762	2.500	4.750	1.400
*706	2.875	4.000	1.562
763	3.150	6.000	1.840
*707	3.750	6.250	2.000
764	4.330	7.500	2.220

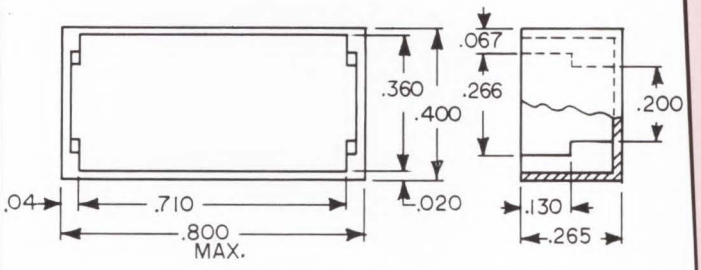
*Molded from A.B.S. Impact Resistant. Black satin finish.

ENCAPSULATION SHELLS

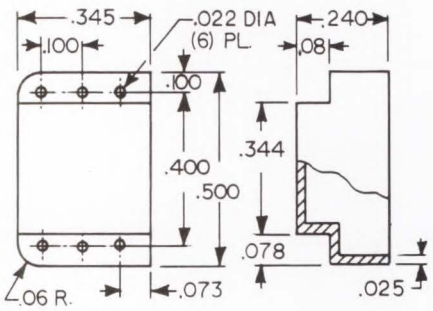


These precision molded black encapsulation shells are used for maximum density packaging. These shells are ideal for encapsulating delay lines, relays, coils, circuits, miniature components and assemblies.

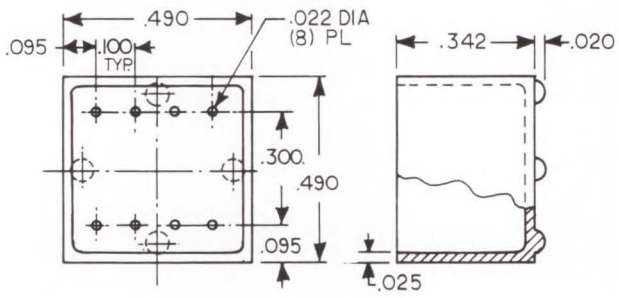
MATERIAL: Black Ryton
UL Rated 94V-0



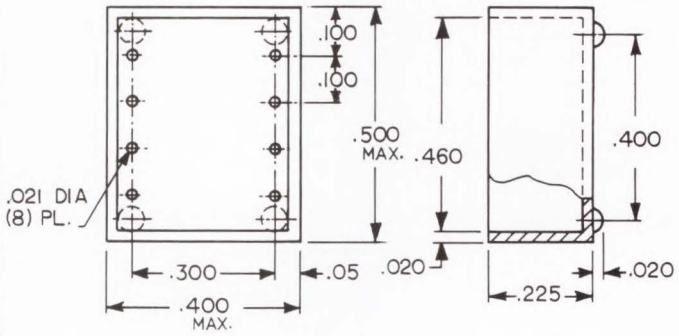
CAT. NO. 1241



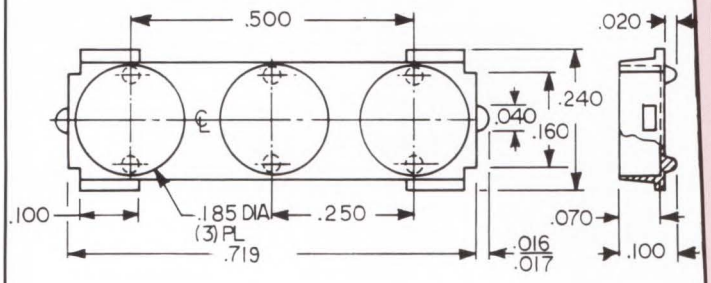
CAT. NO. 1242



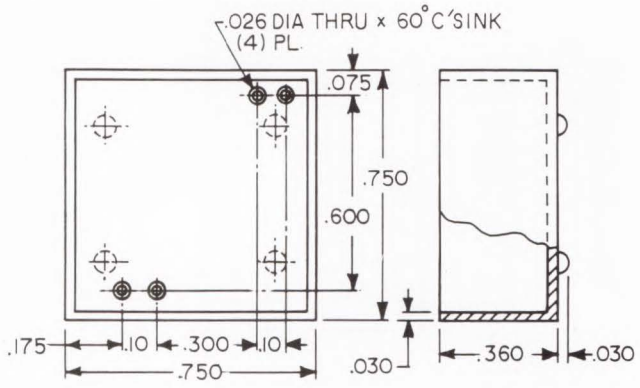
CAT. NO. 1243



CAT. NO. 1244



CAT. NO. 1245



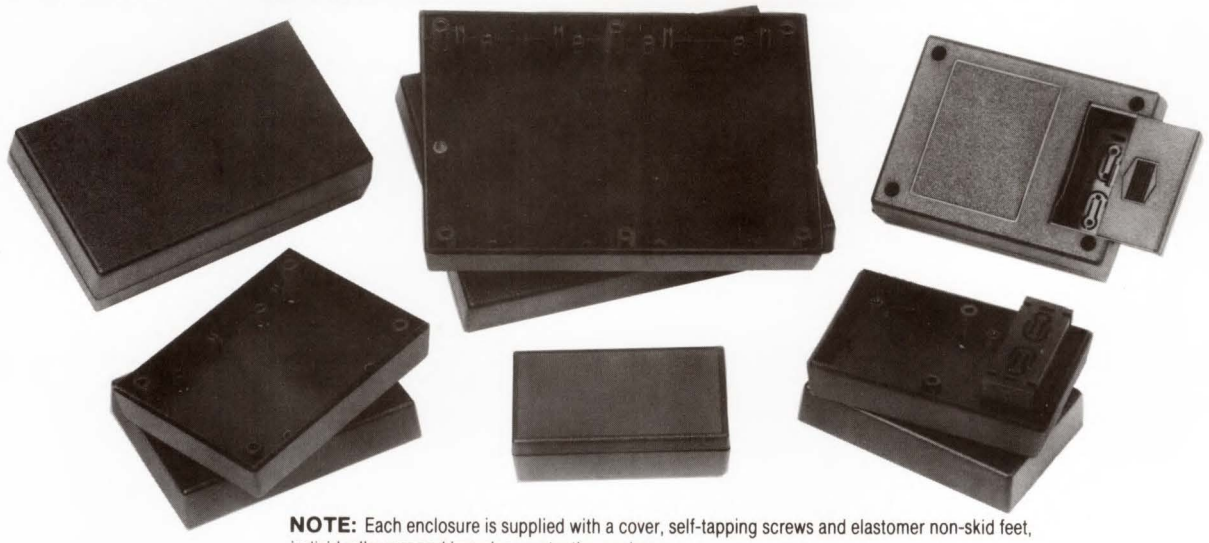
CAT. NO. 1246

FOR PROTOTYPE AND PRODUCTION

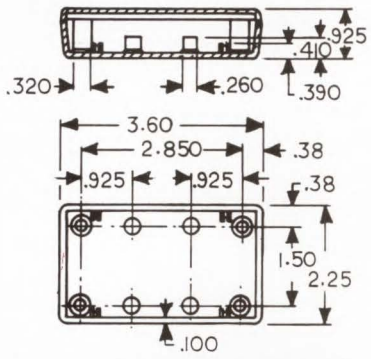
New Designer series enclosures takes you from prototype to production without the cost of a package design or tooling expense.

Our standard off-the-shelf units are designed to enhance your product and give it that "high-tech futuristic look" at minimal expense.

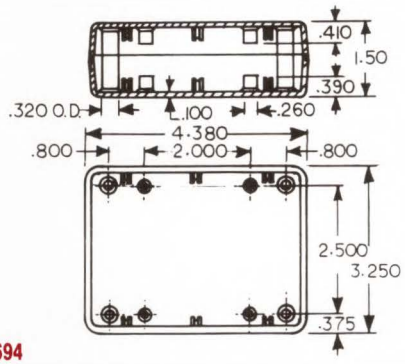
All enclosures are molded using UL rated high impact black ABS with a scratch resistant grain finish at a level of quality that compliments your product. Some models have easy access 9V battery compartments.



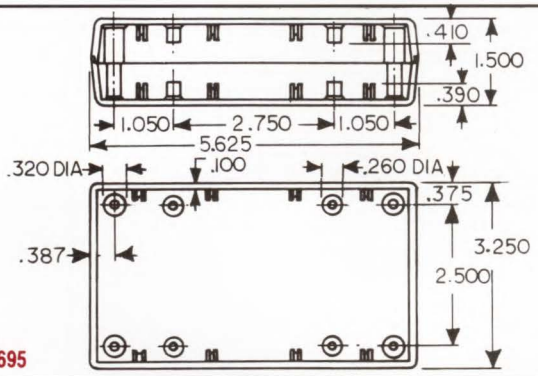
NOTE: Each enclosure is supplied with a cover, self-tapping screws and elastomer non-skid feet, individually wrapped in a clear protective package.



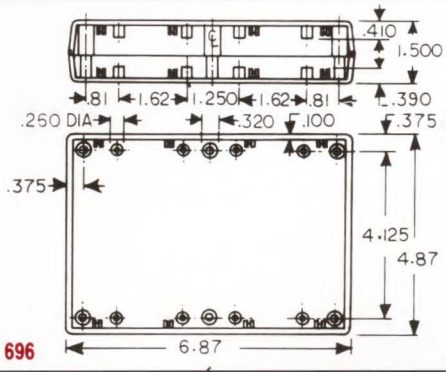
CAT. NO. 698



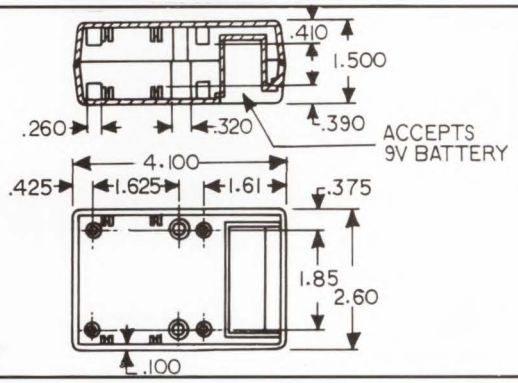
CAT. NO. 694



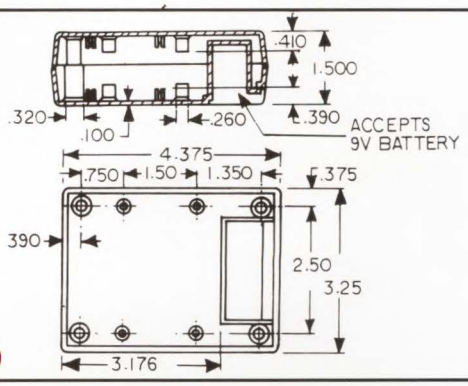
CAT. NO. 695



CAT. NO. 696



CAT. NO. 697

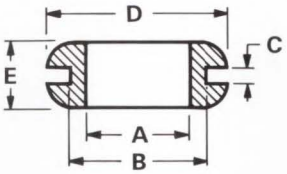


CAT. NO. 699

GROMMETS, BUMPERS & BUSHINGS

RUBBER GROMMETS

Ideal for electrical insulation and mechanical damping. Made from BUNA S.



Cat. No.	I.D. "A"	For Hole Size "B"	For Panel "C"	"D"	"E"
730	.125	.187	.062	.312	.187
733	.125	.250	.062	.343	.156
734	.125	.437	.062	.625	.187
735	.125	.375	.093	.500	.312
736	.187	.312	.062	.437	.187
731	.187	.312	.062	.437	.218
737	.187	.281	.093	.437	.218
738	.250	.437	.062	.625	.187
739	.250	.375	.062	.500	.218
740	.250	.375	.093	.500	.250
741	.312	.562	.062	.625	.281
742	.312	.437	.062	.625	.281
743	.312	.437	.093	.625	.312
744	.375	.625	.062	.875	.312
745	.375	.500	.062	.625	.250
732	.437	.562	.062	.750	.250
746	.437	.687	.062	.937	.312
747	.500	.812	.062	1.062	.312
748	.500	1.250	.062	1.500	.250
749	.500	.750	.093	.875	.343
750	.562	.812	.062	1.062	.312
752	.625	.875	.062	1.125	.312
753	.625	1.250	.062	1.500	.250
755	.750	1.062	.062	1.375	.375
756	.750	1.437	.062	1.812	.375
757	.875	1.250	.062	1.625	.437

RECESSED BUMPERS

Provides excellent traction and shock absorbing qualities. Available with or without Molded-In Washers.

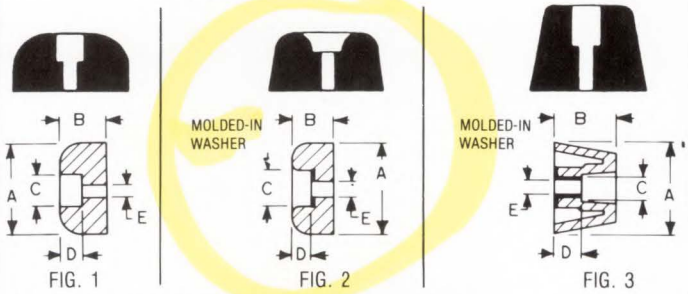


FIG. 1 FIG. 2 FIG. 3

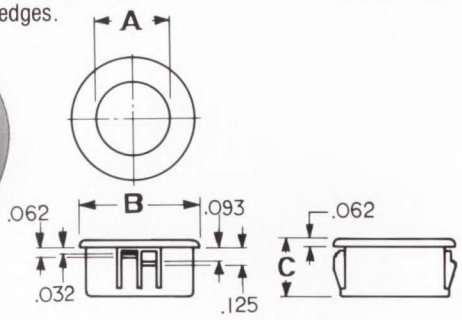
Materials: Rubber, BUNA S, (figs. 1 & 2) Vinyl, (fig. 3)

Cat. No.	Fig.	A	B	C	D	E	Screw Size
720	1	.500	.250	.250	.125	.125	#4
721	1	.625	.312	.250	.187	.125	#4
722	1	.718	.437	.250	.218	.125	#4
723	2	.937	.375	.375	.187	.187	#8
*724	3	.687	.250	.343	.125	.155	#6
*725	3	.875	.312	.406	.187	.187	#8
*726	3	1.062	.437	.468	.234	.200	#10
727	3	.562	.375	.218	.187	.115	#4
728	3	.750	.437	.265	.250	.148	#6
729	3	.937	.625	.359	.328	.174	#8

* Gray - all others black.

NYLON INSULATING BUSHINGS

Snaps into panel hole to provide protection for wire, cable and tubing from sharp uneven edges.

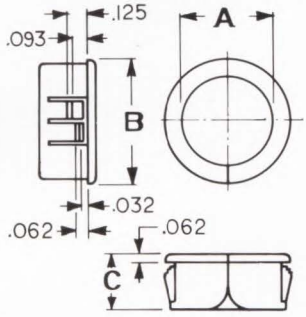


MATERIAL: Nylon 6/6, Black

CAT. NO.	HOLE SIZE REQUIRED	MAXIMUM CHASSIS THICKNESS	A INSIDE DIA.	B HEAD DIA.	C OVERALL HEIGHT
8470	.250	.062	.125	.312	.312
8471	.312	.062	.187	.375	.312
8472	.375	.125	.250	.468	.406
8473	.437	.125	.312	.531	.406
8474	.500	.125	.375	.578	.406
8475	.562	.125	.437	.656	.406
8476	.625	.125	.500	.718	.406
8477	.750	.125	.562	.843	.406
8478	.875	.125	.625	.953	.453
8479	1.000	.125	.750	1.125	.453
8480	1.187	.125	.937	1.312	.453
8481	1.250	.125	.937	1.359	.453
8482	1.375	.125	1.000	1.468	.453
8483	1.500	.125	1.062	1.609	.453
8484	1.750	.125	1.375	1.875	.453
8485	2.000	.125	1.625	2.125	.453
8486	2.500	.250	1.968	2.656	.718

NYLON SPLIT BUSHINGS

Designed to be assembled into holes that already contain wire or cable. Versatile bushing can be used on all chassis from 1/32 to 1/8" thick.



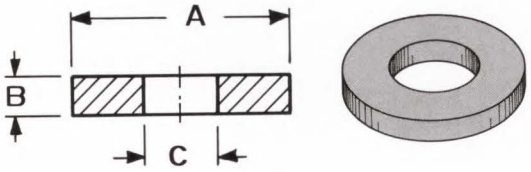
MATERIAL: Nylon 6/6, Black

CAT. NO.	HOLE SIZE REQUIRED	A INSIDE DIA.	B HEAD DIA.	C OVERALL HEIGHT
8490	.375	.265	.421	.406
8491	.500	.312	.562	.406
8492	.562	.390	.640	.406
8493	.625	.453	.687	.406
8494	.750	.546	.796	.406
8495	.875	.671	.921	.406
8496	1.000	.796	1.062	.406

FLAT WASHERS-NYLON & FIBRE

Quotations on other size washers furnished promptly upon receipt of sample, sketch or blue print.

MATERIAL:
Fibre: Commercial Grade per ASTM D710
Nylon: Grade 6/6 per ASTM D4066

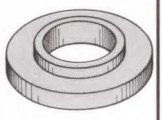


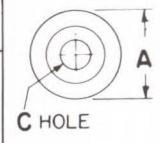
MATERIAL	SCREW SIZE	C I.D.	A O.D.	B THICKNESS .032 Cat. No.	.047 Cat. No.	.062 Cat. No.
FIBRE	#2	.098	.187	3111	3148	3366
			.250	3112	3149	3367
			.312	3113	3150	3194
NYLON	#2	.098	.187	3114	3151	3356
			.250	3347	3152	3357
			.312	3115	3153	3195
FIBRE	#4	.120	.250	3116	3154	3368
			.312	348	3155	3196
			.375	3117	3156	3197
NYLON	#4	.120	.250	3348	345	3358
			.312	3359	3157	3198
			.375	3118	3158	3200
FIBRE	#6	.140	.250	3119	3159	3369
			.312	3120	3160	3370
			.375	3121	3161	3201
NYLON	#6	.140	.250	3122	3162	3360
			.312	3349	346	3361
			.375	3123	3163	3202
FIBRE	#8	.171	.312	3124	3164	3203
			.375	3125	3165	3372
			.437	3126	3166	3204
NYLON	#8	.171	.312	3127	3167	3205
			.375	3350	3168	3363
			.437	3128	3169	3206
FIBRE	#10	.196	.312	349	3170	3207
			.375	3129	3171	3208
			.437	3130	3172	3209
			.500	3131	3173	3210
NYLON	#10	.196	.312	3364	3174	3211
			.375	3352	3175	3212
			.437	3132	3176	3213
			.500	3133	3177	3214
FIBRE	1/4	.260	.437	3134	3178	3215
			.500	3135	3179	3373
			.625	3136	3180	3216
			.750	3137	3181	3217
NYLON	1/4	.260	.437	3138	3182	3218
			.500	3353	3183	3365
			.625	3139	3184	3219
			.750	3140	3185	3220
FIBRE	3/8	.385	.500	3141	3186	3221
			.625	3142	3187	3222
			.750	3143	3188	3223
			1.000	3144	3189	3224
NYLON	3/8	.385	.500	3145	3190	3225
			.625	3354	3191	3226
			.750	3146	3192	3227
			1.000	3147	3193	3228

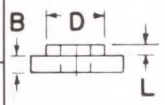
FIBRE SHOULDER WASHERS

MATERIAL: Fibre, Commercial Grade per ASTM D710

CAT. NO.	SCREW SIZE	L	A	B	C	D
3229	#2	.025	.250	.047	.093	.123
3061	#2	.025	.250	.047	.093	.156
344	#4	.015	.312	.062	.125	.203
343	#4	.025	.312	.062	.125	.203
3062	#4	.031	.250	.031	.115	.187
3230	#4	.031	.281	.062	.115	.175
3231	#4	.031	.312	.062	.120	.180
4698	#6	.031	.250	.062	.140	.187
3064	#6	.031	.312	.062	.140	.187
3232	#6	.031	.375	.062	.140	.210
3233	#6	.031	.375	.062	.140	.240
3234	#6	.031	.500	.062	.140	.240
3065	#8	.031	.375	.062	.170	.246
3066	#8	.031	.417	.062	.170	.210
3235	#8	.031	.312	.062	.170	.218
3236	#8	.031	.375	.062	.170	.215
3237	#8	.031	.500	.062	.170	.240
4702	#10	.031	.375	.062	.194	.308
3238	#10	.031	.375	.062	.194	.240
3239	#10	.031	.500	.062	.196	.240
4711	1/4	.031	.500	.062	.253	.308
3240	1/4	.031	.625	.062	.265	.359
3069	3/8	.031	.625	.062	.385	.498
3241	3/8	.031	.750	.062	.385	.498



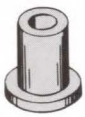


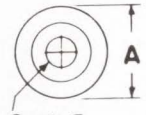


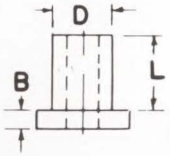
NYLON SHOULDER WASHERS/BUSHINGS

MATERIAL: Nylon 6/6 per ASTM D4066

CAT. NO.	SCREW SIZE	L	A	B	C	D
7680	#2	.025	.260	.030	.095	.154
3051	#2	.125	.181	.047	.090	.120
3101	#2	.187	.181	.047	.090	.120
3052	#2	.250	.181	.047	.090	.120
3049	#4	.031	.218	.040	.115	.135
7681	#4	.047	.250	.032	.115	.185
3053	#4	.093	.235	.047	.115	.145
3102	#4	.125	.235	.047	.115	.145
3103	#4	.187	.235	.047	.115	.145
340	#4	.250	.235	.047	.115	.145
7682	#6	.032	.385	.062	.145	.240
7683	#6	.032	.250	.062	.140	.187
7684	#6	.032	.312	.062	.140	.187
3054	#6	.125	.290	.047	.140	.170
3104	#6	.187	.290	.047	.140	.170
341	#6	.250	.290	.047	.140	.170
3055	#6	.500	.290	.047	.140	.170
7685	#8	.032	.375	.032	.171	.250
3056	#8	.140	.344	.062	.171	.205
3105	#8	.250	.344	.062	.171	.205
342	#8	.375	.344	.062	.171	.205
3106	#8	.500	.344	.062	.171	.205
7686	#10	.032	.375	.062	.196	.308
3107	#10	.093	.438	.062	.200	.260
3108	#10	.250	.399	.062	.200	.260
3057	#10	.500	.399	.062	.200	.260
3058	#10	.750	.399	.062	.200	.260
7687	1/4	.032	.437	.032	.253	.310
7688	1/4	.078	.500	.032	.265	.318
3059	1/4	.187	.513	.062	.260	.312
3109	1/4	.250	.513	.062	.260	.312
3110	1/4	.375	.513	.062	.260	.312
3060	1/4	.500	.513	.062	.260	.312



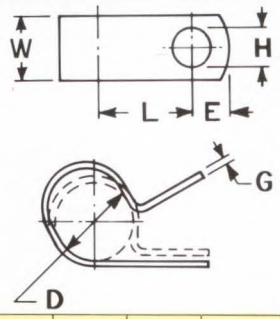




METAL CABLE CLAMPS

STEEL CABLE CLAMPS

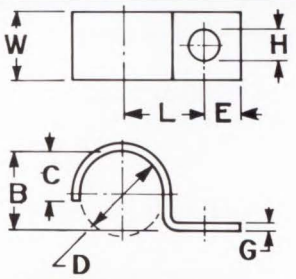
MATERIAL: CR Steel, C-1010
FINISH: Zinc Plated



CAT. NO.	D FOR DIA	H HOLE DIA	L CTR TO CTR	W	E HOLE CTR	G THK
8100	.187	.203	.375	.500	.218	.032
8101	.250	.203	.406	.500	.218	.032
8102	.312	.203	.437	.500	.218	.032
8103	.375	.203	.468	.500	.218	.032
8104	.437	.203	.500	.500	.218	.032
8105	.500	.203	.531	.500	.218	.032
8106	.562	.203	.562	.500	.218	.032
8107	.625	.203	.594	.500	.218	.032
8108	.687	.203	.625	.500	.218	.032
8109	.750	.203	.656	.500	.218	.032
8110	.812	.203	.687	.500	.218	.032
8111	.875	.203	.718	.500	.218	.032
8112	.937	.203	.750	.500	.218	.032
8113	1.000	.203	.781	.500	.218	.032

STEEL HALF CLAMPS

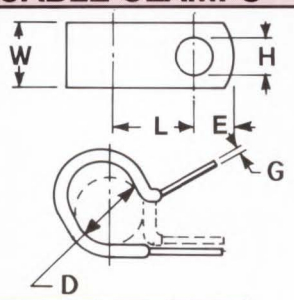
MATERIAL: CR Steel, C-1010
FINISH: Zinc Plated



CAT. NO.	D FOR DIA	H HOLE DIA	L CTR TO CTR	E	B	C	G THK	W
8140	.125	.218	.437	.250	.125	.093	.032	.500
8141	.187	.218	.437	.250	.156	.093	.032	.500
8142	.250	.218	.437	.250	.187	.156	.032	.500
8143	.312	.218	.500	.250	.250	.187	.048	.500
8144	.375	.218	.531	.312	.312	.218	.048	.625
8145	.437	.218	.562	.312	.375	.281	.048	.625
8146	.500	.218	.625	.312	.437	.312	.060	.625
8147	.562	.218	.687	.312	.500	.343	.060	.625
8148	.625	.218	.750	.312	.562	.437	.060	.625
8149	.687	.218	.812	.312	.625	.406	.060	.625
8150	.750	.218	.812	.312	.687	.437	.060	.625
8151	.812	.218	.875	.312	.750	.468	.060	.625
8152	.875	.281	.937	.375	.812	.531	.060	.750
8153	.937	.281	.968	.437	.812	.593	.060	.750
8154	1.000	.281	1.000	.437	.937	.625	.060	.750

INSULATED STEEL CABLE CLAMPS

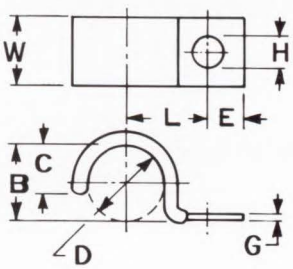
MATERIAL: CR Steel, C-1010
FINISH: Zinc Plated
CUSHION: Black Vinyl, 1/32'' Thick



CAT. NO.	D FOR DIA	H HOLE DIA	L CTR TO CTR	W	E	G THK
8120	.125	.203	.375	.500	.218	.032
8121	.187	.203	.406	.500	.218	.032
8122	.250	.203	.437	.500	.218	.032
8123	.312	.203	.468	.500	.218	.032
8124	.375	.203	.500	.500	.218	.032
8125	.437	.203	.531	.500	.218	.032
8126	.500	.203	.562	.500	.218	.032
8127	.562	.203	.594	.500	.218	.032
8128	.625	.203	.625	.500	.218	.032
8129	.687	.203	.656	.500	.218	.032
8130	.750	.203	.687	.500	.218	.032
8131	.812	.203	.718	.500	.218	.032
8132	.875	.203	.750	.500	.218	.032
8133	.937	.203	.781	.500	.218	.032
8134	1.000	.203	.812	.500	.218	.032

INSULATED STEEL HALF CLAMPS

MATERIAL: CR Steel, C-1010
FINISH: Zinc Plated
CUSHION: Black Vinyl, 1/32'' Thick



CAT. NO.	D FOR DIA	H HOLE DIA	L CTR TO CTR	E	B	C	G THK	W
8160	.187	.218	.437	.250	.187	.156	.032	.500
8161	.250	.218	.500	.250	.250	.187	.048	.500
8162	.312	.218	.531	.312	.312	.218	.048	.625
8163	.375	.218	.562	.312	.375	.281	.048	.625
8164	.437	.218	.625	.312	.437	.312	.060	.625
8165	.500	.218	.687	.312	.500	.343	.060	.625
8166	.562	.218	.750	.312	.562	.437	.060	.625
8167	.625	.218	.812	.312	.625	.406	.060	.625
8168	.687	.218	.812	.312	.687	.437	.060	.625
8169	.750	.218	.875	.312	.750	.468	.060	.625
8170	.812	.281	.937	.375	.812	.531	.060	.750
8171	.875	.281	.968	.437	.812	.593	.060	.750
8172	.937	.281	1.000	.437	.937	.625	.060	.750
8173	1.000	.281	1.062	.437	1.000	.687	.060	.750

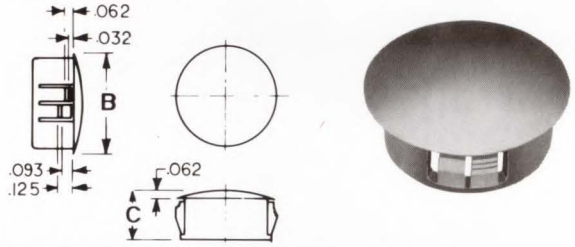
HOLE PLUGS/CABLE CLAMPS

Designers' Choice

KEYSTONE

NYLON HOLE PLUGS

Closes unused chassis holes quickly and economically. Plugs are abrasion and vibration resistant.



MATERIAL: Nylon 6/6, Black Matte Finish

CAT. NO.	HOLE DIA.	PANEL THICKNESS	B	C
8600	.250	.062	.312	.312
8601	.312	.062	.375	.312
8602	.375	.125	.468	.406
8603	.500	.125	.578	.406
8604	.625	.125	.718	.406
8605	.750	.125	.921	.406
8606	.875	.125	1.015	.453
8607	1.000	.125	1.203	.453
8608	1.125	.125	1.218	.453
8609	1.250	.125	1.375	.453
8610	1.375	.125	1.500	.453
8611	1.500	.125	1.671	.453

STEEL HOLE PLUGS

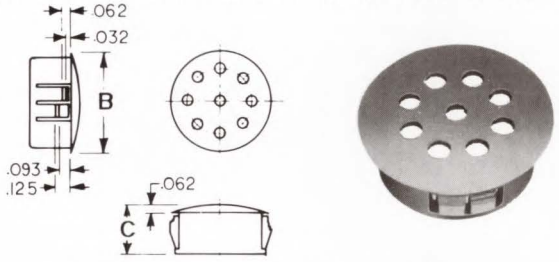
Excellent spring retention. Plugs will cover chassis holes, wiring outlets, access holes or unused openings.

Material: Steel, Nickel Plated.

CAT. NO.	Hole Dia.	Panel Thickness	A	B	C	Prongs
7600	.250	.032-.062	.406	.234	.062	6
7601	.312	.047-.078	.437	.250	.062	6
7602	.375	.047-.062	.500	.234	.062	6
7603	.500	.031-.062	.656	.281	.078	8
7604	.625	.062-.093	.812	.296	.078	8
7605	.750	.062-.093	.921	.296	.078	12
7606	.875	.062-.093	1.062	.296	.062	12
7607	1.000	.062-.156	1.140	.328	.093	12
7608	1.125	.031-.125	1.312	.343	.093	12
7609	1.250	.062-.093	1.437	.343	.093	12
7610	1.375	.031-.125	1.562	.406	.078	12
7611	1.500	.031-.062	1.640	.406	.093	12

NYLON VENT PLUGS

Used to cover chassis holes while allowing air flow for ventilation.



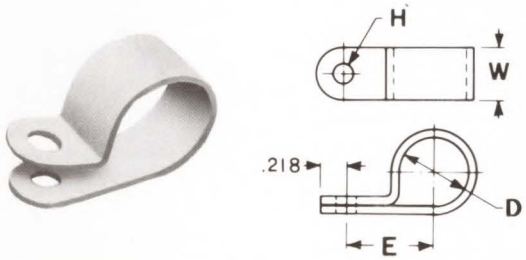
MATERIAL: Nylon 6/6, Black Matte Finish

CAT. NO.	HOLE DIA.	PANEL THICKNESS	B	C
8612	.875	.125	1.015	.453
8613	1.000	.125	1.203	.453

NYLON CABLE CLAMPS

Ideal for securing, insulating and routing cable wiring, piping, tubing, components and fibre optics.

MATERIAL: Nylon 6/6, white .050 thick.



CAT.NO.	D	E	W	H
7620	.125	.325	.375	.140
7621	.125	.325	.375	.203
7622	.187	.380	.375	.140
7623	.187	.380	.375	.203
7624	.250	.410	.375	.140
7625	.250	.410	.375	.203
7626	.312	.445	.375	.140
7627	.312	.445	.375	.203
7628	.375	.475	.375	.140
7629	.375	.475	.375	.203
7630	.437	.525	.375	.140
7631	.437	.525	.375	.203
7632	.500	.550	.375	.140
7633	.500	.550	.375	.203
7634	.562	.625	.500	.203
7635	.625	.660	.500	.203
7636	.750	.785	.500	.203
7637	.875	.845	.500	.203
7638	1.000	.910	.500	.203
7639	1.125	.970	.500	.203
7640	1.250	1.060	.500	.203

FLEXIBLE GROMMETING

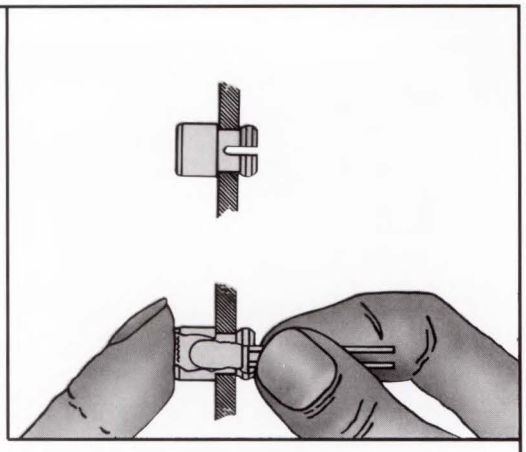
Ideal for maintenance, short-run production, R&D or prototyping. Supplied in 25 ft. rolls. Make your own grommets to fit any size or shape required.

MATERIAL: Black Nylon Type 6/6

CAT. NO.	A	B	C	D	E
8615	.052	.150	.040	.190	.125
8616	.085	.155	.045	.200	.162
8617	.125	.155	.045	.220	.206

LED LENS CAPS

FOR T-1 AND T-1 3/4 LEDS



Designed for use with T-1 or T-1¾ LEDs, these Lens Caps are available in round or square configurations. They snap-mount through the front panel for easy, light-finger pressure, installation. The LED is inserted into the cap from behind the panel and held securely in place.

The Lens Cap protects the LED from physical damage while guarding the components from electrostatic discharge (ESD), up to 16KV. More economical than indicator light assemblies, the caps feature striated lines and fresnel rings which permit up to 180° degree viewing angles with either diffused or non-diffused LED's. They provide exceptionally high contrast and visibility.

Material: Polycarbonate.

Available in Red, Green, Yellow and Clear.

ROUND CAPS

Fig. 1

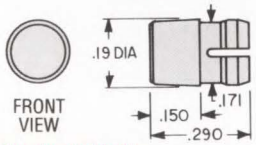
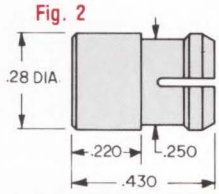


Fig. 2



Standard Height

CAT. NO.	FIG. NO.	LED SIZE	COLOR	MTG. HOLE SIZE	MIN. MTG. CENTERS	PANEL THICKNESS
8650	1	T1	RED	.171	.250	.031/.062
8651	1	T1	GREEN	.171	.250	.031/.062
8652	1	T1	YELLOW	.171	.250	.031/.062
8653	1	T1	CLEAR	.171	.250	.031/.062
8662	2	T1 3/4	RED	.250	.375	.062/.125
8663	2	T1 3/4	GREEN	.250	.375	.062/.125
8664	2	T1 3/4	YELLOW	.250	.375	.062/.125
8665	2	T1 3/4	CLEAR	.250	.375	.062/.125

Fig. 3

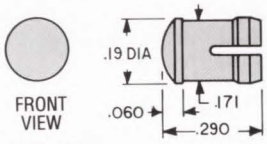
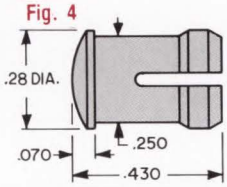


Fig. 4



Low Profile

CAT. NO.	FIG. NO.	LED SIZE	COLOR	MTG. HOLE SIZE	MIN. MTG. CENTERS	PANEL THICKNESS
8656	3	T1	RED	.171	.250	.062/.125
8657	3	T1	GREEN	.171	.250	.062/.125
8658	3	T1	YELLOW	.171	.250	.062/.125
8659	3	T1	CLEAR	.171	.250	.062/.125
8668	4	T1 3/4	RED	.250	.375	.031/.250*
8669	4	T1 3/4	GREEN	.250	.375	.031/.250*
8670	4	T1 3/4	YELLOW	.250	.375	.031/.250*
8671	4	T1 3/4	CLEAR	.250	.375	.031/.250*

SQUARE CAPS

Fig. 5

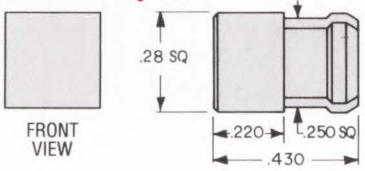


Fig. 6

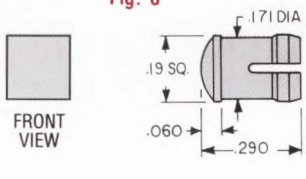
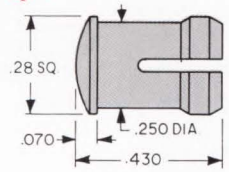


Fig. 7



Standard Height

CAT. NO.	FIG. NO.	LED SIZE	COLOR	MTG. HOLE SIZE	MIN. MTG. CENTERS	PANEL THICKNESS
8680	5	T1 3/4	RED	.250 Sq.	.375	.062/.125
8681	5	T1 3/4	GREEN	.250 Sq.	.375	.062/.125
8682	5	T1 3/4	YELLOW	.250 Sq.	.375	.062/.125
8683	5	T1 3/4	CLEAR	.250 Sq.	.375	.062/.125

Low Profile

CAT. NO.	FIG. NO.	LED SIZE	COLOR	MTG. HOLE SIZE	MIN. MTG. CENTERS	PANEL THICKNESS
8674	6	T1	RED	.171	.250	.062/.125
8675	6	T1	GREEN	.171	.250	.062/.125
8676	6	T1	YELLOW	.171	.250	.062/.125
8677	6	T1	CLEAR	.171	.250	.062/.125
8686	7	T1 3/4	RED	.250	.375	.031/.250*
8687	7	T1 3/4	GREEN	.250	.375	.031/.250*
8688	7	T1 3/4	YELLOW	.250	.375	.031/.250*
8689	7	T1 3/4	CLEAR	.250	.375	.031/.250*

* When mounting T-1 3/4 Low Profile Caps (Fig. 4 or Fig. 7) in panels .125 thick or less a spacer must be used. **Spacer CAT. NO. 8692** **MATERIAL:** White Nylon 3/8 O.D. × 1/4 I.D. × 1/8 Lg.

LED SPACER MOUNTS

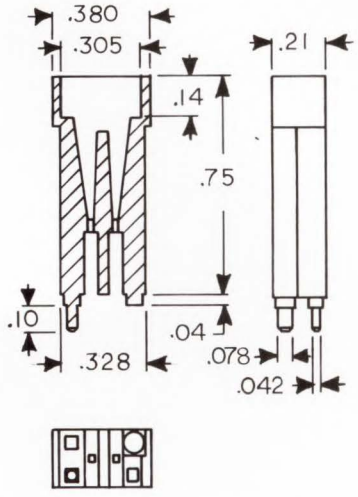
Designers' Choice

KEYSTONE

FOR SQUARE LED MOUNT

- Fits all standard LEDs (.195 max. width/.090 max. thickness).
- Internal barrier design guides the leads to a positive self-alignment on .100 centers.
- Snap-in feature allows for pre-assembly and positive retention during handling.
- Location post for ease of mounting.
- Internal design prevents leads from shorting.
- Molded black nylon. UL rated 94V-2.

CAT. NO 8344



FOR T-1 & T-1 3/4 LEDS

These unique, new self-aligning LED mounting spacers, for T-1 and T-1 ¾ LEDs, reduce labor costs by simplifying preassembly to the printed circuit board.

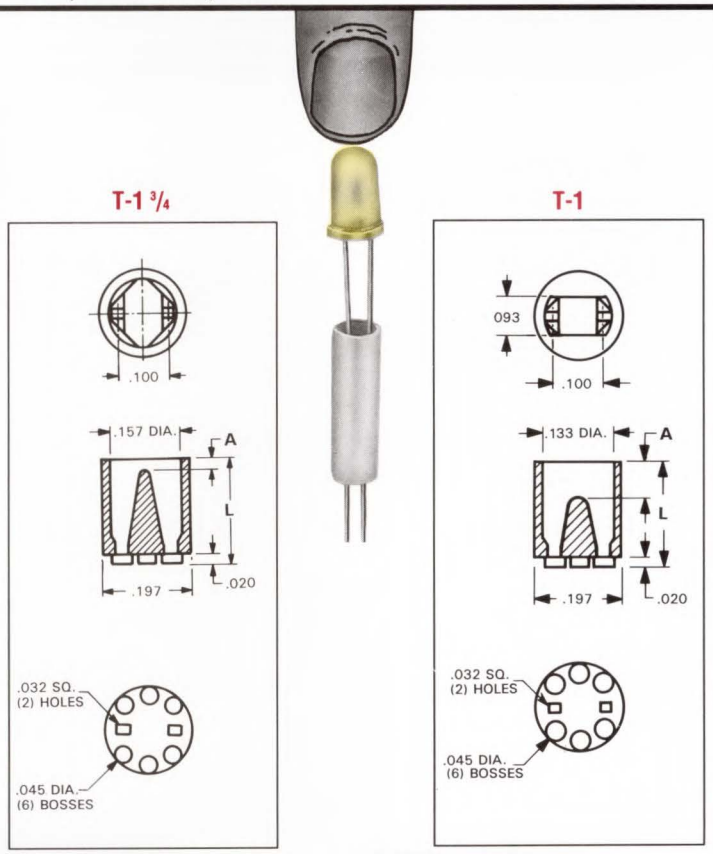
The spacer features an internally tapered barrier which guides the leads and eliminates the possibility of crimping or shorting. The internal configuration also assures positive self-alignment on .100 centers.

The bosses serve the dual purpose of heat dissipation and easy post soldering cleanup.

Available in a range of lengths from .120 to .925 long. Molded from 6/6 nylon, UL rated 94V-2.

Key Features...

- Internal design eliminmates crimping or shorting of leads.
- Positive self-alignment of leads on .100 centers.
- Cost and labor saving.
- No special tools required.

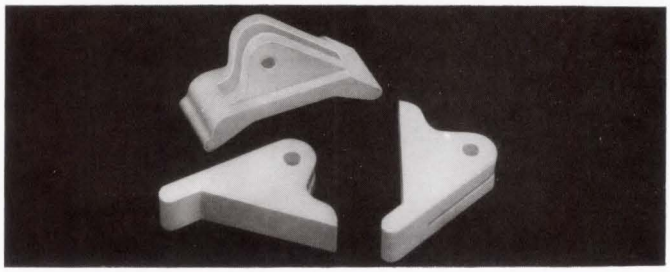


T-1¾ CAT. NO.	T-1 CAT. NO.	LENGTH "L"	"A"	T-1¾ CAT. NO.	T-1 CAT. NO.	LENGTH "L"	"A"
8311	7351	.120	.025	8327	7367	.400	.055
8312	7352	.140	.045	8328	7368	.420	.075
8313	7353	.160	.065	8329	7369	.440	.095
8314	7354	.180	.085	8330	7370	.450	.105
8315	7355	.200	.105	8331	7371	.460	.115
8316	7356	.220	.125	8332	7372	.480	.135
8317	7357	.240	.145	8333	7373	.500	.035
8318	7358	.250	.030	8334	7374	.550	.085
8319	7359	.260	.040	8335	7375	.600	.135
8320	7360	.280	.060	8336	7376	.650	.050
8321	7361	.300	.080	8337	7377	.700	.100
8322	7362	.320	.100	8338	7378	.750	.040
8323	7363	.340	.120	8339	7379	.800	.090
8324	7364	.350	.130	8340	7380	.850	.140
8325	7365	.360	.140	8341	7381	.900	.190
8326	7366	.380	.035	8342	7382	.925	.215

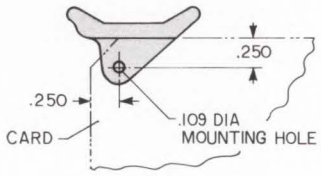
PC BOARD ACCESSORIES/KIT

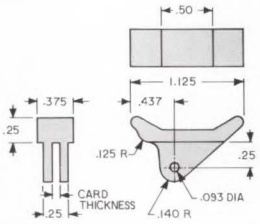
LEVER ACTION CARD EJECTORS

Designed for 1/16'' P.C. Cards. Lever action aids in the insertion and extraction of P.C. Cards. Supplied with stainless steel spring pin.
MATERIAL: White Nylon 6/6, U.L. Rating 94V-2.
MARKING: For coding Circuit Boards, Card Ejectors can be hot-stamped numerically, alphabetically, or both. Quotation upon request.



CARD MOUNTING DIMENSIONS





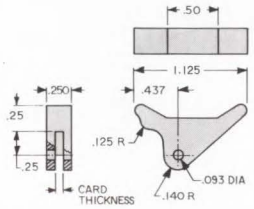
CAT. NO. 8640

PROTOTYPE KIT

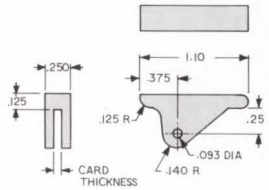
An essential ''Do-It-Yourself'' building block
for experimental or production runs

For construction of 1/16" and 3/32" thick terminal boards. This is the least expensive way to purchase a complete assortment of basic materials and staking tools needed. Ideal for experimental or short production runs. SAVE COSTLY TOOLING AND SETUP CHARGES. Kit consists of 1/16" and 3/32" bakelite, blank and pre-punched boards. Assortment of hardware such as eyelets, terminals, brackets, bushings and push-in terminals. A complete terminal staking tool kit and instructions.

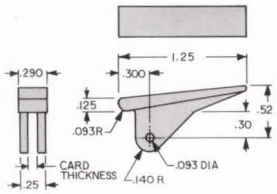
CAT. NO. 1723



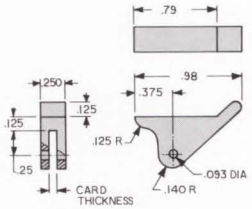
CAT. NO. 8641



CAT. NO. 8642



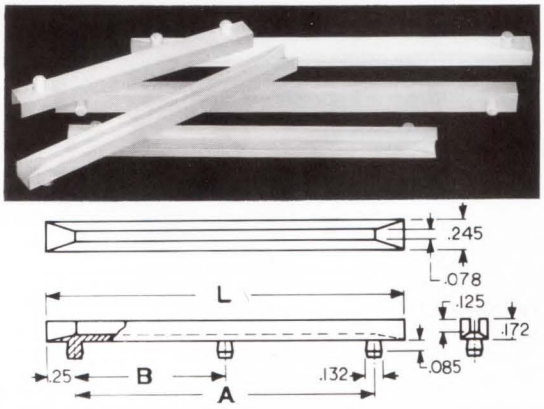
CAT. NO. 8643



CAT. NO. 8644

PRINTED CIRCUIT BOARD GUIDES

Guides may be used horizontally or vertically and snap into .125 dia. holes. Narrow width allows maximum density and optimum airflow. Simple press-fit, secure installation.



MATERIAL: Natural Nylon 6/6. U.L. Rating 94V-2.

CAT. NO.	''L'' INCHES	''A'' INCHES	''B'' INCHES
8620	2.5	2.0	—
8621	3.0	2.5	—
8622	3.5	3.0	—
8623	4.0	3.5	—
8624	4.5	4.0	—
8625	5.0	4.5	—
8626	5.5	5.0	—
8627	6.0	5.5	—
8628	6.5	6.0	—
8629	7.0	6.5	—
8630	7.0	6.5	3.25
8631	7.5	7.0	—
8632	7.5	7.0	3.50
8633	8.0	7.5	—
8634	8.0	7.5	3.75
8635	8.5	8.0	—
8636	8.5	8.0	4.00

WIDE ROLL EYELETS

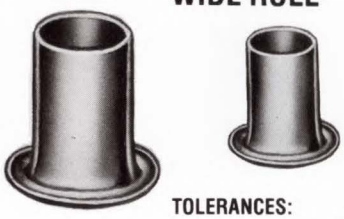
• PRECISION MADE • SOLDERABILITY RETAINED INDEFINITELY • LOW COST • FROM STOCK

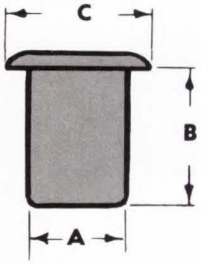
Highest engineering standards maintained to produce these eyelets to uniform dimensions. Guaranteed to be within listed tolerances. A choice of most popular sizes in general use for Electronic circuitry.

MATERIAL: Brass

PLATING: Bright Electro Tin, MIL-F-14072. Recommended for longer shelf life and better solderability. Other platings can be furnished.

WIDE ROLL





TOLERANCES:

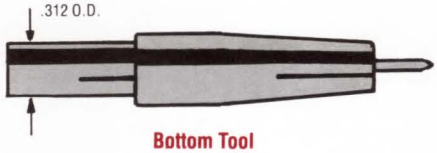
A Plus or Minus .003.
B Plus or Minus .008.
C Plus or Minus .005

Cat No.	A Outside Diameter Barrel	B Length Under Flange	C Flange Diameter	Hole Size of Material to be Eyeleted
22	All Are .059 O.D. .045 I.D.	.062	All Are .105 dia.	.062 (1/16") Use Drill #52
23		.093		
24		.125		
25		.156		
26		.187		
27		.219		
33	All Are .089 O.D. .070 I.D.	.093	All Are .150 dia.	.093 (3/32") Use Drill #42
34		.125		
35		.156		
36		.187		
37		.219		
43	All Are .121 O.D. .102 I.D.	.093	All Are .200 dia.	.125 (1/8") Use Drill #30
44		.125		
45		.156		
46		.187		
47		.219		
48		.250		

EYELET STAKING TOOLS

Set of tools consisting of top & bottom tool.
Made from Tool Steel and highly polished.

Top Tool



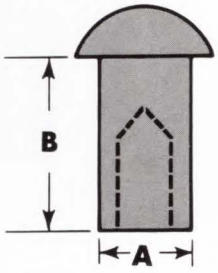
Bottom Tool

Cat. No. 3075 – For 1/16" Eyelet
Cat. No. 3076 – For 3/32" Eyelet
Cat. No. 3077 – For 1/8" Eyelet

SEMI-TUBULAR BRASS RIVETS

• UNIFORM • LOWER COST • CLOSE TOLERANCES • CORROSION RESISTANT

These standardized brass rivets typify the scope and variety of popular rivets that will provide faster and stronger assemblies at lower cost. The "A" dimension includes the necessary clinch allowances but we suggest you rivet and test a sample before purchasing large quantities for your application.



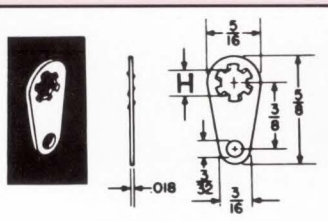
MATERIAL:

Brass, Nickel Plated.

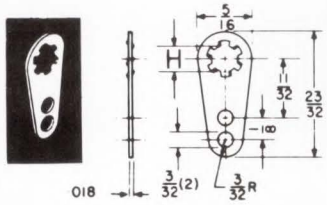
Cat. No.	"A" Shank Diam.	"B" Length Under Head	Head Diam. Tol. ± .005	Hole Size of Material To Be Riveted
3381	.058 TO .061	.125	.109	.067 DIA. USE #51 DRILL
3382		.156		
3383		.187		
3384	.085 TO .089	.156	.147	.093 DIA. USE #42 DRILL
3385		.187		
3386		.218		
3387		.250		
3388	.118 TO .123	.156	.218	.128 DIA. USE #30 DRILL
3389		.187		
3390		.218		
3391		.250		

LUGS & TERMINALS

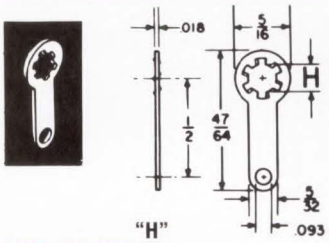
LOCKWASHER TERMINAL LUGS



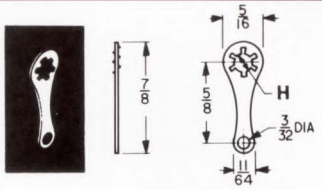
"H"
CAT. NO. 908 (#4)
CAT. NO. 914 (#6)
CAT. NO. 915 (#8)
.018 Brass Tin Plate



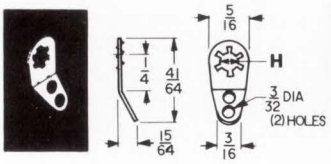
"H"
CAT. NO. 910 (#4)
CAT. NO. 918 (#6)
CAT. NO. 906 (#8)
.018 Brass Tin Plate



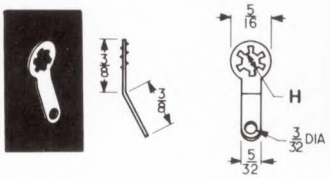
"H"
CAT. NO. 909 (#4)
CAT. NO. 916 (#6)
CAT. NO. 917 (#8)
.018 Brass Tin Plate



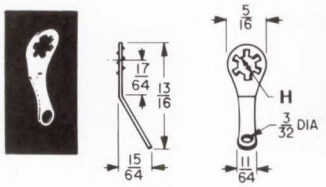
"H"
CAT. NO. 903 (#4)
CAT. NO. 904 (#6)
CAT. NO. 905 (#8)
.018 Brass Tin Plate



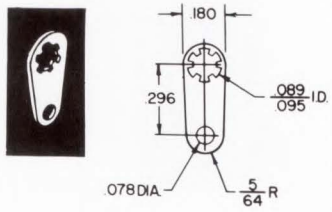
"H"
CAT. NO. 7311 (#4)
CAT. NO. 7312 (#6)
CAT. NO. 7313 (#8)
.018 Brass Tin Plate



"H"
CAT. NO. 7314 (#4)
CAT. NO. 7315 (#6)
CAT. NO. 7316 (#8)
.018 Brass Tin Plate

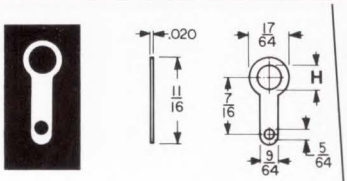


"H"
CAT. NO. 7317 (#4)
CAT. NO. 7318 (#6)
CAT. NO. 7319 (#8)
.018 Brass Tin Plate

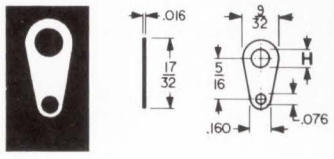


CAT. NO. 907
.013 Bronze Tin Plate

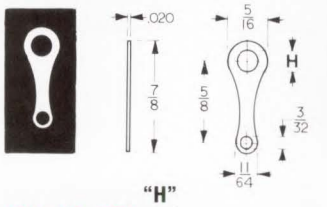
SOLDER TERMINAL LUGS



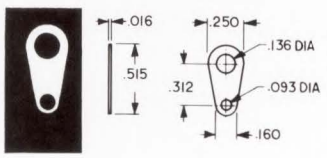
"H"
CAT. NO. 7325 (#4)
CAT. NO. 7326 (#6)
CAT. NO. 7327 (#8)
.020 Brass Tin Plate



"H"
CAT. NO. 7328 (#4)
CAT. NO. 7329 (#6)
CAT. NO. 7330 (#8)
.015 Copper Tin Plate

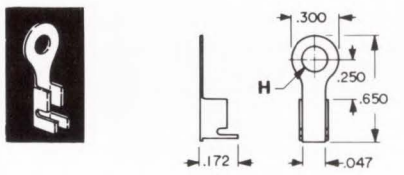


"H"
CAT. NO. 7331 (#4)
CAT. NO. 7332 (#6)
CAT. NO. 7333 (#8)
.020 Brass Tin Plate

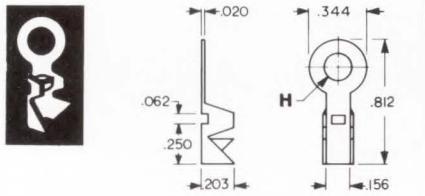


CAT. NO. 4004
.016 Copper Tin Plate

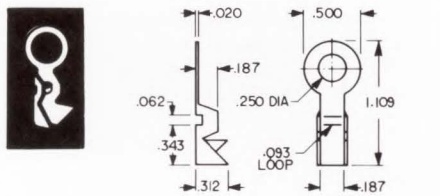
CRIMP TERMINAL LUGS



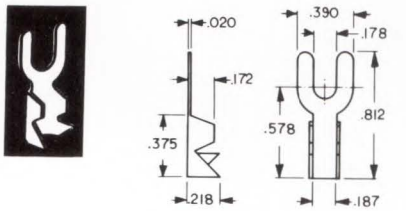
"H"
CAT. NO. 1274 (#4)
CAT. NO. 1275 (#6)
CAT. NO. 1276 (#8)
.020 Brass Tin Plate



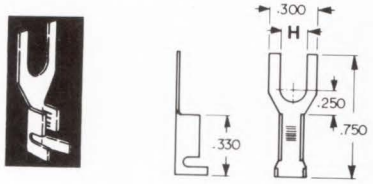
"H"
CAT. NO. 7334 (#8)
CAT. NO. 7335 (#10)
.020 Copper Tin Plate



CAT. NO. 7339
.020 Copper Tin Plate

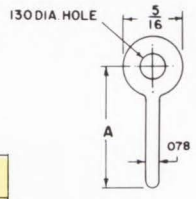


CAT. NO. 7337
.020 Copper Tin Plate



"H"
CAT. NO. 1278 (#6)
CAT. NO. 1279 (#8)
.020 Brass Tin Plate

PRINTED CIRCUIT OR WIRE WRAP TERM.



CAT. NO.	A	CAT. NO.	A
4000	.500	4002	.750
4001	.562	4003	1.000

.020 Brass Tin Plate

PCB TEST POINT TERMINALS

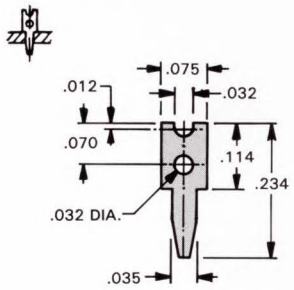
Designers' Choice

KEYSTONE

- Low Profile, space saving designs for high density packaging.
- Wide variety of configurations to suit most applications.
- A safe, practical, economical replacement for wire-wrap posts.
- Easy mount design, ideal for wave soldering.
- Re-fit PC boards without the need for re-design.
- Provides easy access for production testing and field service trouble shooting
- Positive grip when using "J" hooks, "E-Z" hooks, grabbers, clips, tips and probes.

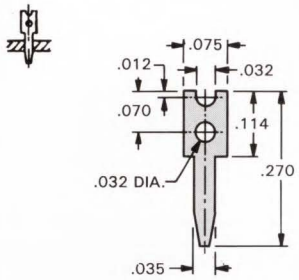
NOTE: Other platings available upon request.

CAT. NO. 1030



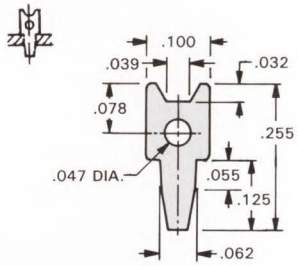
.025 Brass, Tin Plate

CAT. NO. 1031



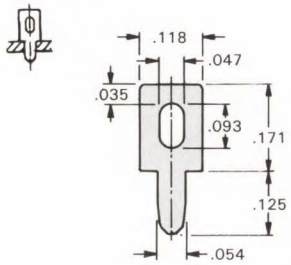
.020 Brass, Tin Plate

CAT. NO. 1032



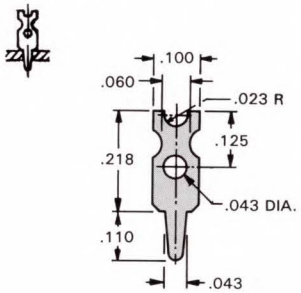
.025 Brass, Tin Plate

CAT. NO. 1033



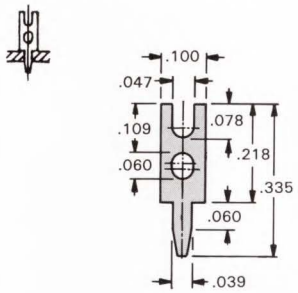
.025 Brass, Tin Plate

CAT. NO. 1034



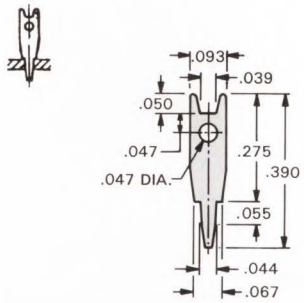
.025 Brass, Tin Plate

CAT. NO. 1035



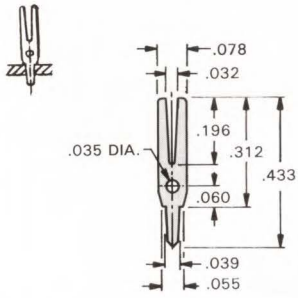
.020 Brass, Tin Plate

CAT. NO. 1036



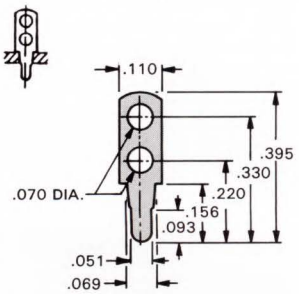
.025 Brass, Tin Plate

CAT. NO. 1037



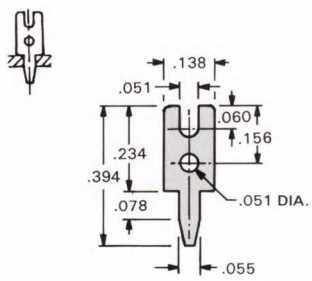
.016 Brass, Tin Plate

CAT. NO. 1038



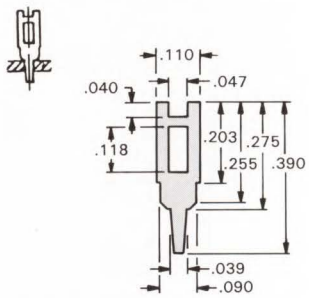
.020 Brass, Tin Plate

CAT. NO. 1039



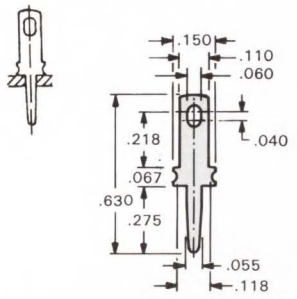
.025 Brass, Tin Plate

CAT. NO. 1040



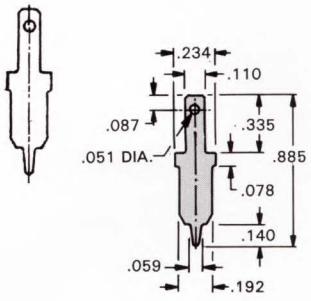
.025 Brass, Tin Plate

CAT. NO. 1041



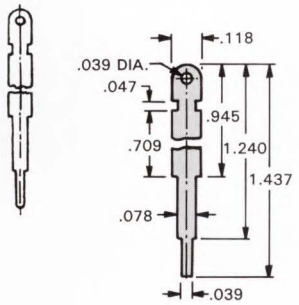
.032 Brass, Tin Plate

CAT. NO. 1042



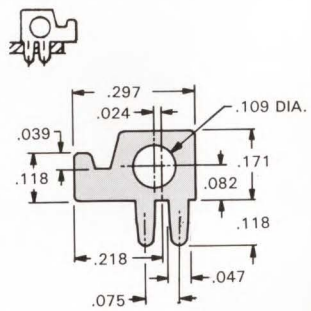
.032 Brass, Tin Plate

CAT. NO. 1043



.020 Brass, Tin Plate

CAT. NO. 1044



.025 Brass, Tin Plate

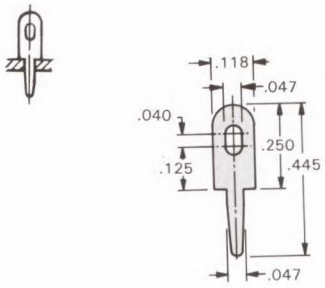
Custom Metal Stamping

Complete facilities available for both short and long run metal stampings and sub-assemblies. Quotations on Special Stampings furnished promptly upon receipt of sample, sketch or blueprints.

TEST POINTS /QUICK-FIT TERMINALS

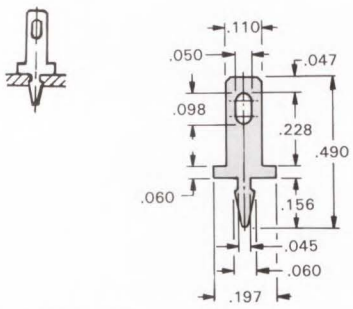
LOW PROFILE — PC TEST POINT TERMINALS

CAT. NO. 1249



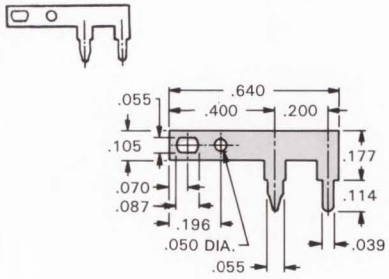
.025 Brass, Tin Plate

CAT. NO. 1250



.020 Brass, Tin Plate

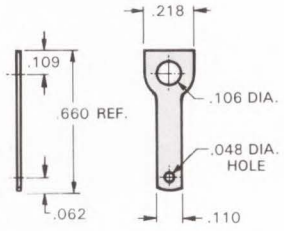
CAT. NO. 1045



.025 Brass, Tin Plate

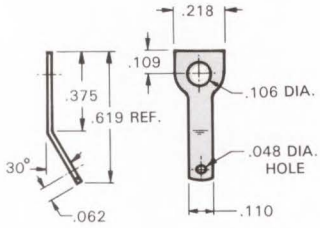
.110, .187,.205 QUICK-FIT TERMINALS

.110



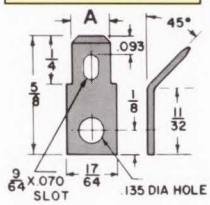
CAT. NO. 1269 — .020 Brass Tin Plate

.110



CAT. NO. 1270 — .020 Brass Tin Plate

.187-.205



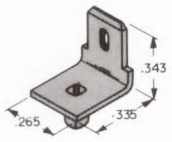
CAT. NO.	A
4005	.205
4095	.187

.020 Brass Tin Plate

.205 QUICK-FIT WITH EYELET BASE

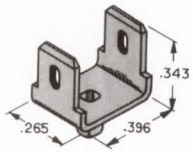
MOUNTING HOLE .140 ROUND OR .125 SQUARE

SINGLE



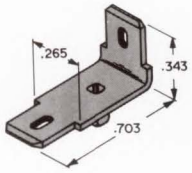
CAT. NO. 1253 — .018 Brass Tin Plate

DUAL



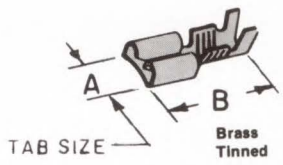
CAT. NO. 1254 — .018 Brass Tin Plate

"L" DUAL



CAT. NO. 1255 — .018 Brass Tin Plate

QUICK-FIT FEMALE

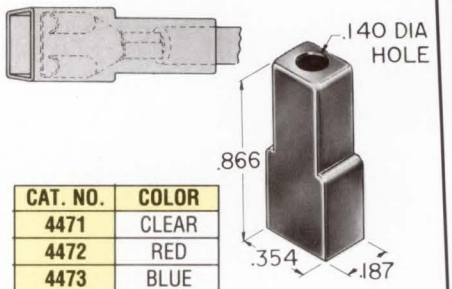


CAT. NO.	A	B	WIRE RANGE	MAT.
1252	.110	.640	18-22	.010
1264	.187	.576	16-22	.013
4469	.205	.640	16-20	.013
4470	.250	.750	16-20	.016

VINYL PLASTIC BOOT

FOR USE WITH .250 QUICK-FIT FEMALES

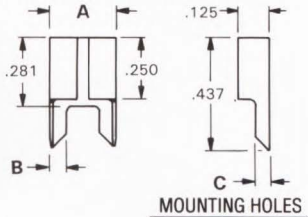
- Easily slips over terminal.
- Insulated and protects.



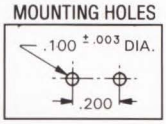
CAT. NO.	COLOR
4471	CLEAR
4472	RED
4473	BLUE
4474	YELLOW

PC QUICK-FIT FEMALE

FOR .205 AND .250 TABS



MOUNTING HOLES



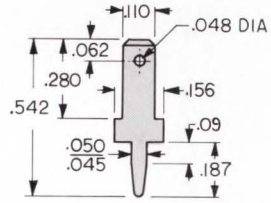
MATERIAL: Brass, Tin Plate.

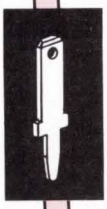
CAT. NO.	ACCEPTS	A	B	C	MAT.
3525	.205	.271	.075	.060	:012
3528	.250	.291	.090	.050	.016

PRINTED CIRCUIT TYPES

.110 TAB

MATERIAL:Brass Tinned



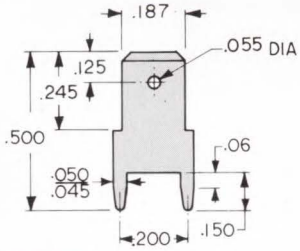


CAT. NO. 1267 (.020 Thick)
CAT. NO. 1211 (.032 Thick)

Mounting Hole: .046 Dia.

.187 TAB

MATERIAL: Brass Tinned

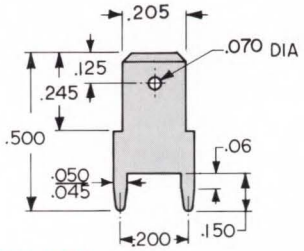


CAT. NO. 1285 (.020Thick)
CAT. NO. 1212 (.032 Thick)
Hand Insertion Tool Cat. No.1288

Mounting Holes: .046 Dia.

.205 TAB

MATERIAL: Brass Tinned

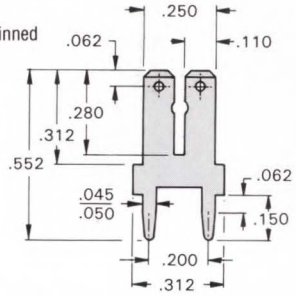


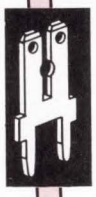
CAT. NO. 1286 (.020 Thick)
CAT. NO. 1213 (.032 Thick)
Hand Insertion Tool Cat. No.1288

Mounting Holes: .046 Dia.

DUAL .110/.250 TAB

MATERIAL:
.032 Brass Tinned



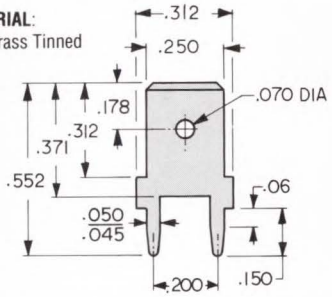


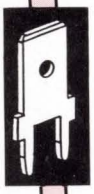
CAT. NO. 1282
Hand Insertion Tool Cat. No.1288

Mounting Holes: .052 Dia.

.250 TAB

MATERIAL:
.032 Brass Tinned



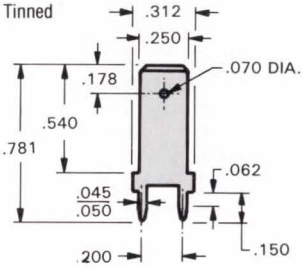


CAT. NO. 1287
Hand Insertion Tool Cat. No.1288

Mounting Holes: .052 Dia.

.250 TAB

MATERIAL:
.032 Brass Tinned

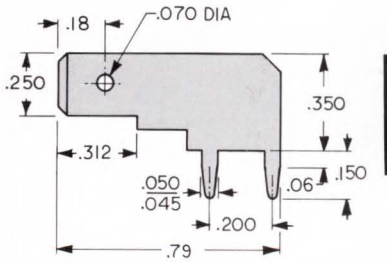


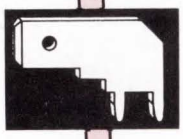
CAT. NO. 1289
Hand Insertion Tool Cat. No.1288

Mounting Holes: .052 Dia.

.250 TAB

MATERIAL:.032 Brass Tinned



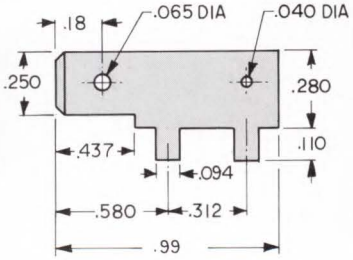


CAT. NO. 1266

Mounting Holes: .052 Dia.

.250 TAB

MATERIAL:.032 Brass Tinned

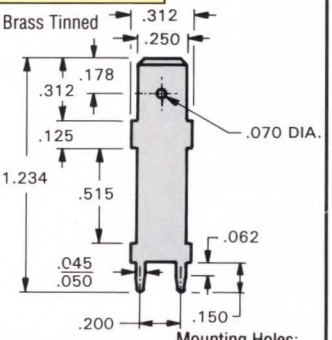


CAT. NO. 1265

Mounting Holes: .106 Dia.

.250 TAB

MATERIAL:.032 Brass Tinned

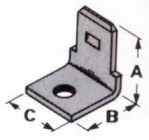


CAT. NO. 1281

Mounting Holes: .052 Dia.

RIVET TYPE (.187 & .250) TABS

MATERIAL: Bright Brass



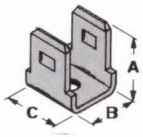
90°DEGREE

CAT. NO.	A	B	C	TAB	MAT.	HOLE
1261	.312	.250	.250	.187	.020	.099
1256	.405	.312	.312	.250	.032	.130

45°DEGREE

1271	.312	.250	.250	.187	.020	.099
1280	.405	.312	.312	.250	.032	.130

MATERIAL: Bright Brass



90°DEGREE

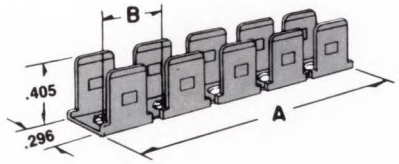
CAT. NO.	A	B	C	TAB	MAT.	HOLE
1262	.312	.250	.250	.187	.020	.099
1257	.405	.343	.312	.250	.032	.130

45°DEGREE

1263	.343	.375	.265	.187	.020	.135
1258	.405	.343	.312	.250	.032	.130

MULTIPLE TYPE–.250 TABS

MATERIAL: .032 Bright Brass

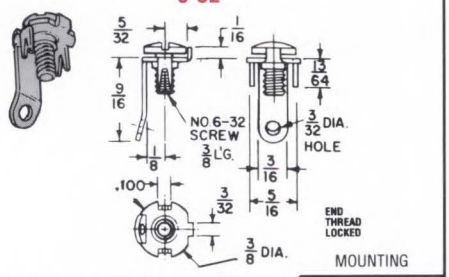


CAT. NO.	A	B	HOLE	PAIRS
1005	.703	.375	.130	2
1006	1.075	.375	.130	3
1007	1.422	.375	.130	4
1008	1.837	.375	.130	5

SCREW TERMINALS

OFFSET LEG

6-32

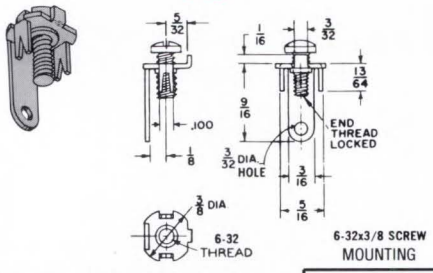


Terminal: .032 Steel-Cadmium Plated.
Screw: Steel, Nickel Plate

CAT. NO. 1248

STRAIGHT LEG

6-32

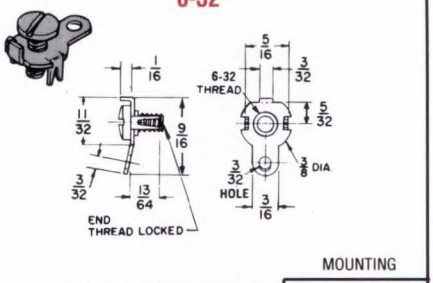


Terminal: .032 Steel-Cadmium Plated.
Screw: Steel, Nickel Plate

CAT. NO. 1215

SOLDER TAB

6-32

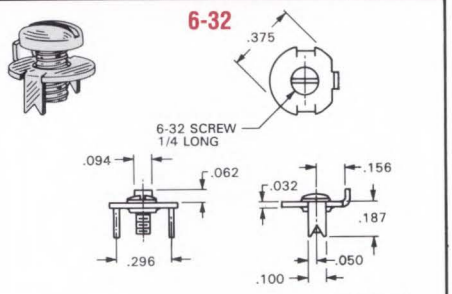


Terminal: .032 Steel- Cadmium Plated.
Screw: Steel, Nickel Plate.

CAT. NO. 1232

INSERT TERMINAL

6-32

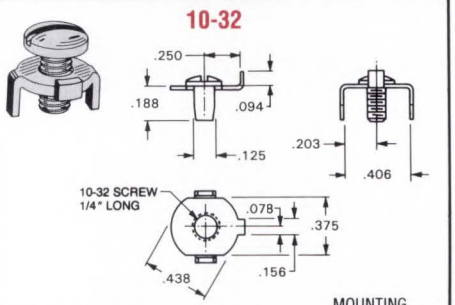


Terminal: .032 Brass-Tin Plated.
Screw: Brass - Nickel Plated

CAT. NO. 1201

HEAVY DUTY

10-32

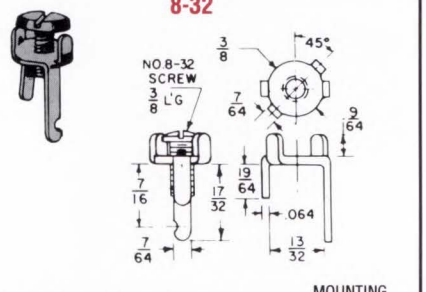


Terminal: .062 Brass-Tin Plated.
Screw: Brass - Nickel Plated

CAT. NO. 1202

HEAVY DUTY

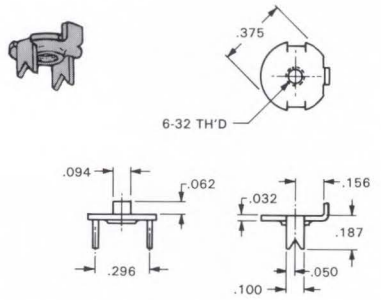
8-32



Terminal: .064 Brass-Tin Plated.
Screw: Brass -Tin Plated.

CAT. NO. 1209

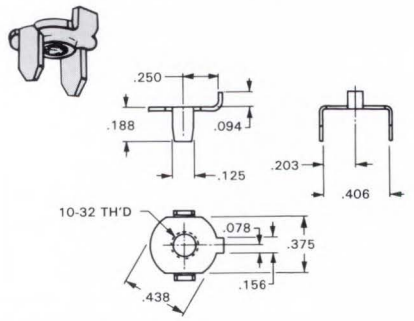
6-32 LESS SCREW



MATERIAL: .032 Brass-Tin Plated.

CAT. NO. 1284

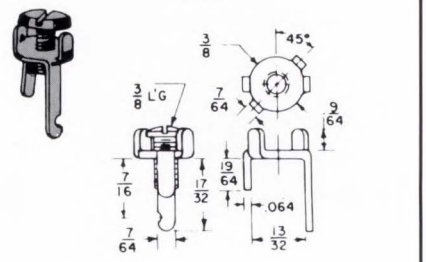
10-32 LESS SCREW



MATERIAL: .062 Brass-Tin Plated.

CAT. NO. 1293

10-32

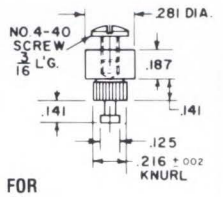


Terminal: .064 Brass-Tin Plated.
Screw: Brass-Tin Plated.

CAT. NO. 1283

BINDING POST TERMINALS (RIVET TYPE)

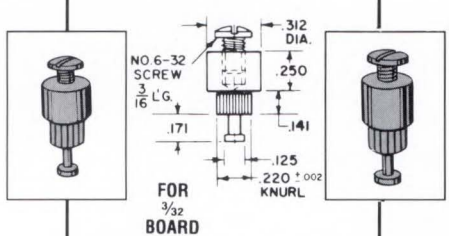
4-40



Terminal: Brass-Tin Plated.
Screw: Brass- Nickel Plated.

CAT. NO. 1537

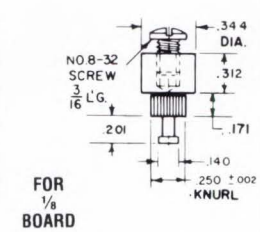
6-32



Terminal: Brass-Tin Plated.
Screw: Brass- Nickel Plated.

CAT. NO. 1535

8-32

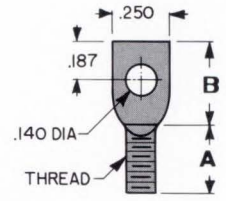


Terminal: Brass-Tin Plated.
Screw: Brass- Nickel Plated.

CAT. NO. 1536

SPADE BOLTS

6-32 & 8-32



MATERIAL: Steel Zinc Plate

CAT. NO.	A	B	Thread
1259	3/8	13/32	6-32
1260	3/8	1/2	8-32

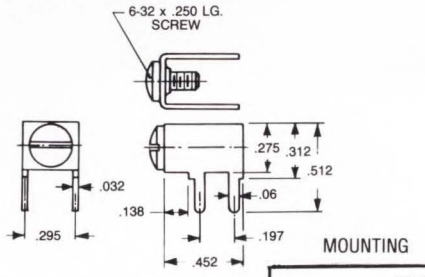
SCREW TERMINALS

Designers' Choice KEYSTONE

PC SCREW TERMINAL

HORIZONTAL TYPE (6-32)

Screw supplied unassembled



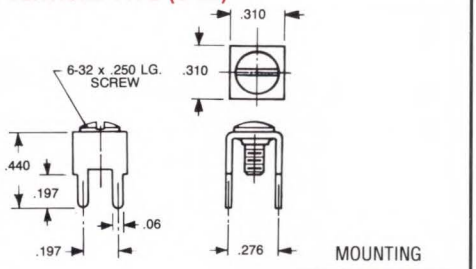
MATERIAL:
Rating: 15A
Screw: 6-32 × 1/4 LG
Terminal: Brass, Tin Plated, .032 Thick.

CAT. NO. 8190

PC SCREW TERMINAL

VERTICAL TYPE (6-32)

Screw supplied unassembled

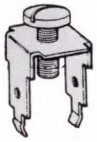


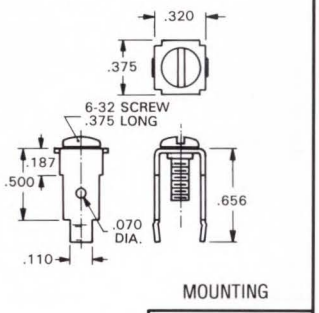
MATERIAL:
Rating: 15A
Screw: 6-32 × 1/4 LG
Terminal: Brass, Tin Plated,.032 Thick.

CAT. NO. 8191

PC SCREW TERMINAL

6-32

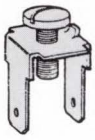


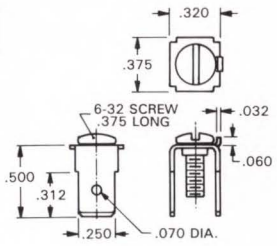


CAT. NO. 8192 .032 Brass Tin Plated

QUICK-FIT SCREW TERMINAL

.250 TABS

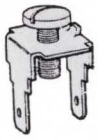


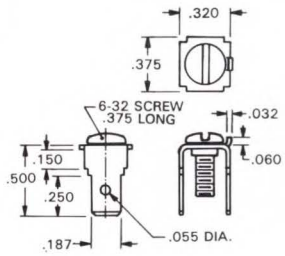


CAT. NO. 8193 .032 Brass Brass Finish

QUICK-FIT SCREW TERMINAL

.187 TABS



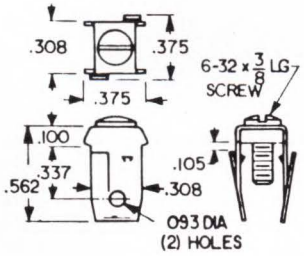


CAT. NO. 8194 .032 Brass Brass Finish

PRESS-FIT SCREW TERMINALS

SOLDER TYPE

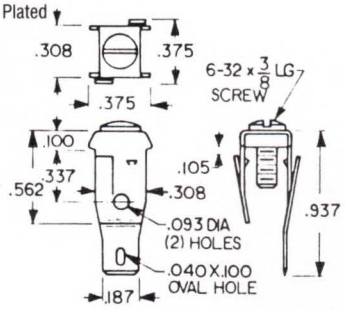
MATERIAL: .020 Steel Cadmium Plated



CAT. NO. 1272 Press-fit into .312 sq. hole

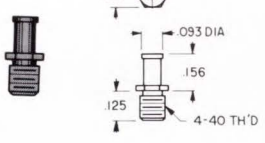
.187 QUICK-FIT TYPE

MATERIAL: .020 Steel Cadmium Plated

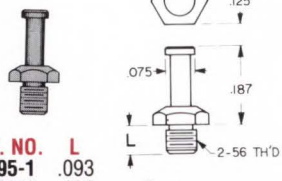


CAT. NO. 1273 Press-fit into .312 sq. hole

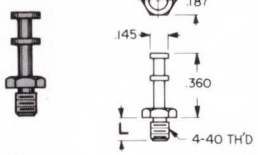
TURRET TERMINALS – THREADED BASES



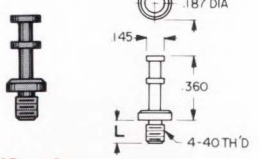
CAT. NO. 1563 Brass Bright Electro Tin



CAT. NO.	L	
1595-1	.093	Brass
1595-2	.125	Bright Electro Tin
1595-3	.188	



CAT. NO.	L	
1587-1	.125	Brass
1587-2	.188	Bright Electro Tin



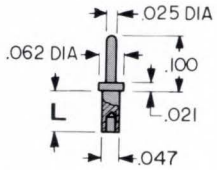
CAT. NO.	L	
1558-1	.125	Brass
1558-2	.188	Bright Electro Tin

MICRO PINS

Availabile with.025, .040 and .080 pin diameters. Precision engineered and designed for tight space saving applications for both conventional and printed circuit boards. Ideally suited to mate with our standard line of micro jacks.

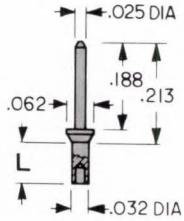
SPECIFICATIONS:
BRASS: ASTM-B16
PLATING: **Gold:** .000020 (MIL-G-45204, Type II)
Tin: .000200 to .000300 (MIL-T-10727, Type 1)

.025 Pin



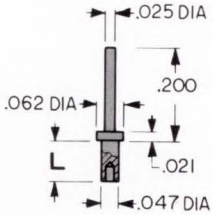
GOLD PLATED CAT. NO	TIN PLATED CAT. NO.	"L" Lgth.	Bd Thk.
1404-1	1424-1	.051	.032
1404-2	1424-2	.082	.062
1404-3	1424-3	.113	.093
1404-4	1424-4	.145	.125

.025 Pin



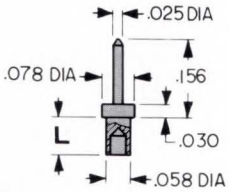
GOLD PLATED CAT. NO.	TIN PLATED CAT. NO.	"L" Lgth.	Bd Thk.
1406-1	1426-1	.047	.032
1406-2	1426-2	.078	.062
1406-3	1426-3	.110	.093
1406-4	1426-4	.141	.125

.025 Pin



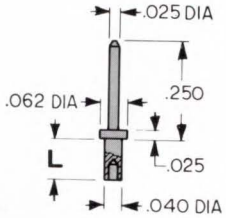
GOLD PLATED CAT. NO.	TIN PLATED CAT. NO.	"L" Lgth.	Bd Thk.
1407-1	1427-1	.051	.032
1407-2	1427-2	.082	.062
1407-3	1427-3	.113	.093
1407-4	1427-4	.145	.125

.025 Pin



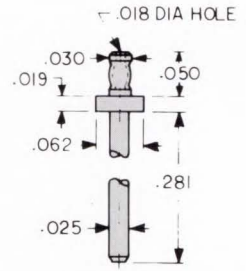
GOLD PLATED CAT. NO.	TIN PLATED CAT. NO.	"L" Lgth.	Bd Thk.
1408-1	1428-1	.062	.032
1408-2	1428-2	.094	.062
1408-3	1428-3	.125	.093
1408-4	1428-4	.156	.125

.025 Pin



GOLD PLATED CAT. NO.	TIN PLATED CAT. NO.	"L" Lgth.	Bd Thk.
1401-1	1421-1	.065	.032

.025 Pin

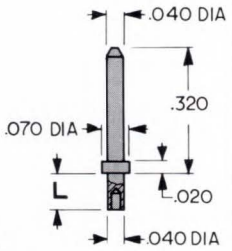


For .010 Thick Flex Circuit. .031 Mounting Hole

CAT. NO. 1440

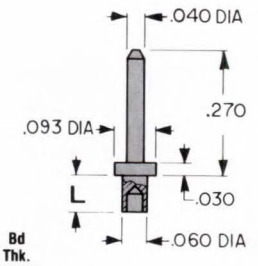
Electro-Solder Hammer Swage Mounted

.040 Pin



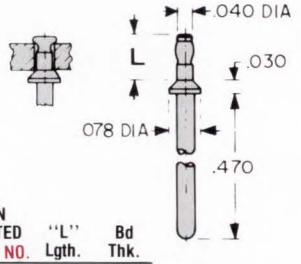
GOLD PLATED CAT. NO	TIN PLATED CAT. NO.	"L" Lgth.	Bd Thk.
1405-1	1425-1	.051	.032
1405-2	1425-2	.082	.062
1405-3	1425-3	.113	

.040 Pin



GOLD PLATED CAT. NO	TIN PLATED CAT. NO.	"L" Lgth.	Bd Thk.
1402-3	1422-3	.125	.093

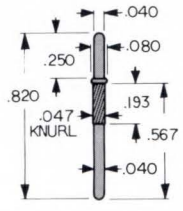
.040 Pin



GOLD PLATED CAT. NO.	TIN PLATED CAT. NO.	"L" Lgth.	Bd Thk.
1403-1	1423-1	.080	.031
1403-2	1423-2	.110	.062

Hammer Swage Mounted

.040 Pin

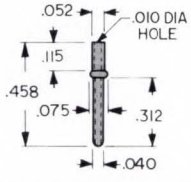


KAY PIN

Made of solid Nickel Silver. These are force fitted into pre-drilled hole.

CAT. NO. 1218

.040 Pin

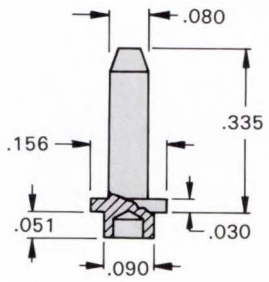


TUBULAR HOLLOW PIN

Made of Brass, Electro Tinned These are staked to 1/16" thick insulator.

CAT. NO. 1219

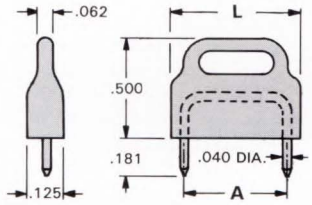
.080 Pin



GOLD PLATE CAT. NO.	TIN PLATE CAT. NO.	Bd Thk
1447-1	1455-1	.032

INSULATED SHORTING PLUG with .040 dia. pins

Insulator: Plastic (Red or Black)
Pins: Brass, Gold Plated



RED CAT. NO.	BLACK CAT. NO.	A CENTERS	L
1460R	1460B	.200	.375
1461R	1461B	.250	.375
1462R	1462B	.400	.620
1463R	1463B	.500	.620

MICRO JACKS

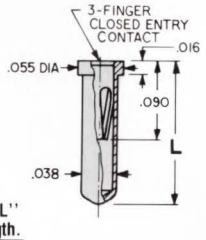
Designers' Choice

KEYSTONE

Closed entry. Beryllium copper spring maintains retention after numerous insertions. Ideal for mounting transistors, resistors, diodes, I.C.'s and other miniature components. Designed for tight space-saving applications for both conventional and printed circuit boards. Easy removal and replacement for module repair purposes.

SPECIFICATIONS:
BODY: Brass ASTM-B16
SPRING: Beryllium Copper (QQ-C-533)
PLATING: **Gold:** .000020 (MIL-G-45204, Type II)
Tin: .000200 to.000300 (MIL-T-10727, Type 1)
over nickel .000100 to .000150 (QQ-N-290)

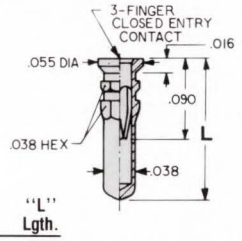
For .015 - .021 Pin



GOLD PLATED CAT. NO.	TIN PLATED CAT. NO.	"L" Lgth.
1411-1	1431-1	.140
1411-2	1431-2	.170

SOLDER MOUNT
MOUNTING HOLE
.040 DIA.

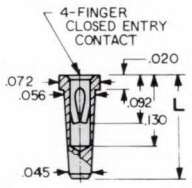
For .015 - .021 Pin



GOLD PLATED CAT. NO.	TIN PLATED CAT. NO.	"L" Lgth.
1412-1	1432-1	.140
1412-2	1432-2	.170
1412-3	1432-2	.282

PRESS-FIT
MOUNTING HOLE
.040 DIA.

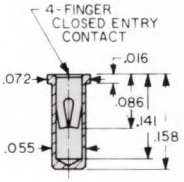
For .015 - .025 Pin



GOLD PLATED CAT. NO.	TIN PLATED CAT. NO.	"L" Lgth.
1415-1	1435-1	.160
1415-2	1435-2	.190

TAPER-FIT
MOUNTING HOLE
.055 DIA.

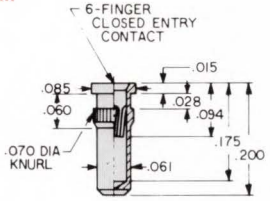
For .015 - .025 Pin



CAT. NO. 1413 Gold Plated
CAT. NO. 1433 Tin Plated

SOLDER MOUNT
MOUNTING HOLE
.057 DIA.

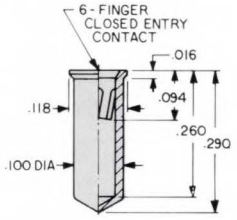
For .022 - .034 Pin



CAT. NO. 1416 Gold Plated
CAT. NO. 1436 Tin Plated

PRESS-FIT
MOUNTING HOLE
.067 DIA.

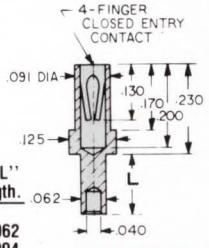
For .040 - .050 Pin



CAT. NO. 1418 Gold Plated
CAT. NO. 1438 Tin Plated

SOLDER MOUNT
MOUNTING HOLE
.102 DIA.

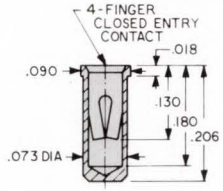
For .032 - .046 Pin



GOLD PLATED CAT. NO.	TIN PLATED CAT. NO.	"L" Lgth.
1419-1	1439-1	.062
1419-2	1439-2	.094
1419-3	1439-3	.125
1419-4	1439-4	.156

SWAGE MOUNT
MOUNTING HOLE
.067 DIA.

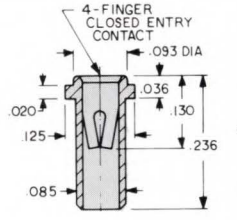
For .032 - .046 Pin



CAT. NO. 1417 Gold Plated
CAT. NO. 1437 Tin Plated

SOLDER MOUNT
MOUNTING HOLE
.076 DIA.

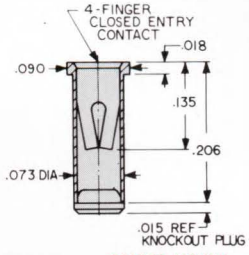
For .032 - .046 Pin



CAT. NO. 1414 Gold Plated
CAT. NO. 1434 Tin Plated

SOLDER MOUNT
MOUNTING HOLE
.089 DIA.

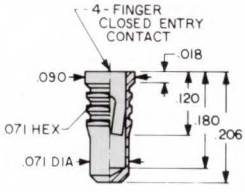
For .032 - .046 Pin



CAT. NO. 1441 Gold Plated
CAT. NO. 1444 Tin Plated

SOLDER MOUNT
MOUNTING HOLE
.076 DIA.

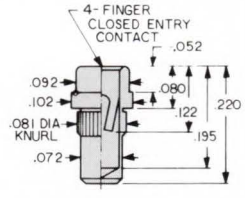
For .032 - .046 Pin



CAT. NO. 1442 Gold Plated
CAT. NO. 1445 Tin Plated

PRESS-FIT
MOUNTING HOLE
.076 DIA.

For .032 - .046 Pin

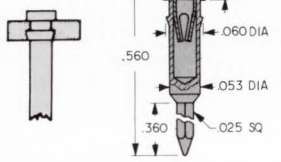


CAT. NO. 1443 Gold Plated
CAT. NO. 1446 Tin Plated

PRESS-FIT
MOUNTING HOLE
.078 DIA.

I.C.SOCKET CONTACTS
For .015 - .025 Leads

Retains .016 to .022 Dia. Leads. 4 Finger Contacts.

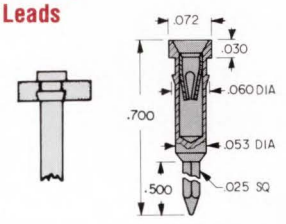


CAT. NO.3501 Gold Plated
CAT. NO.3505 Tin Plated

PRESS-FIT
MOUNTING HOLE
.055 DIA.

I.C.SOCKET CONTACTS
For .015 - .025 Leads

Retains .016 to .022 Dia. Leads. 4 Finger Contacts.

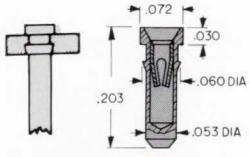


CAT. NO.3502 Gold Plated
CAT. NO.3506 Tin Plated

PRESS-FIT
MOUNTING HOLE
.055 DIA.

I.C.SOCKET CONTACTS
For .015 - .025 Leads

Retains .016 to .022 Dia. Leads. 4 Finger Contacts.



CAT. NO.3503 Gold Plated
CAT. NO.3507 Tin Plated

PRESS-FIT
MOUNTING HOLE
.055 DIA.

KEYSTONE *Designers' Choice*

ILLUSTRATED TERMINAL INDEX

Standardize with KEYSTONE terminals: We have supplied these precision made terminals to government agencies and industrial users for over forty years.

Material: Machined of free cutting 1/2 hard Brass ASTM-B16

Tooling: Individual sets of staking tools and kits of tools available from stock.

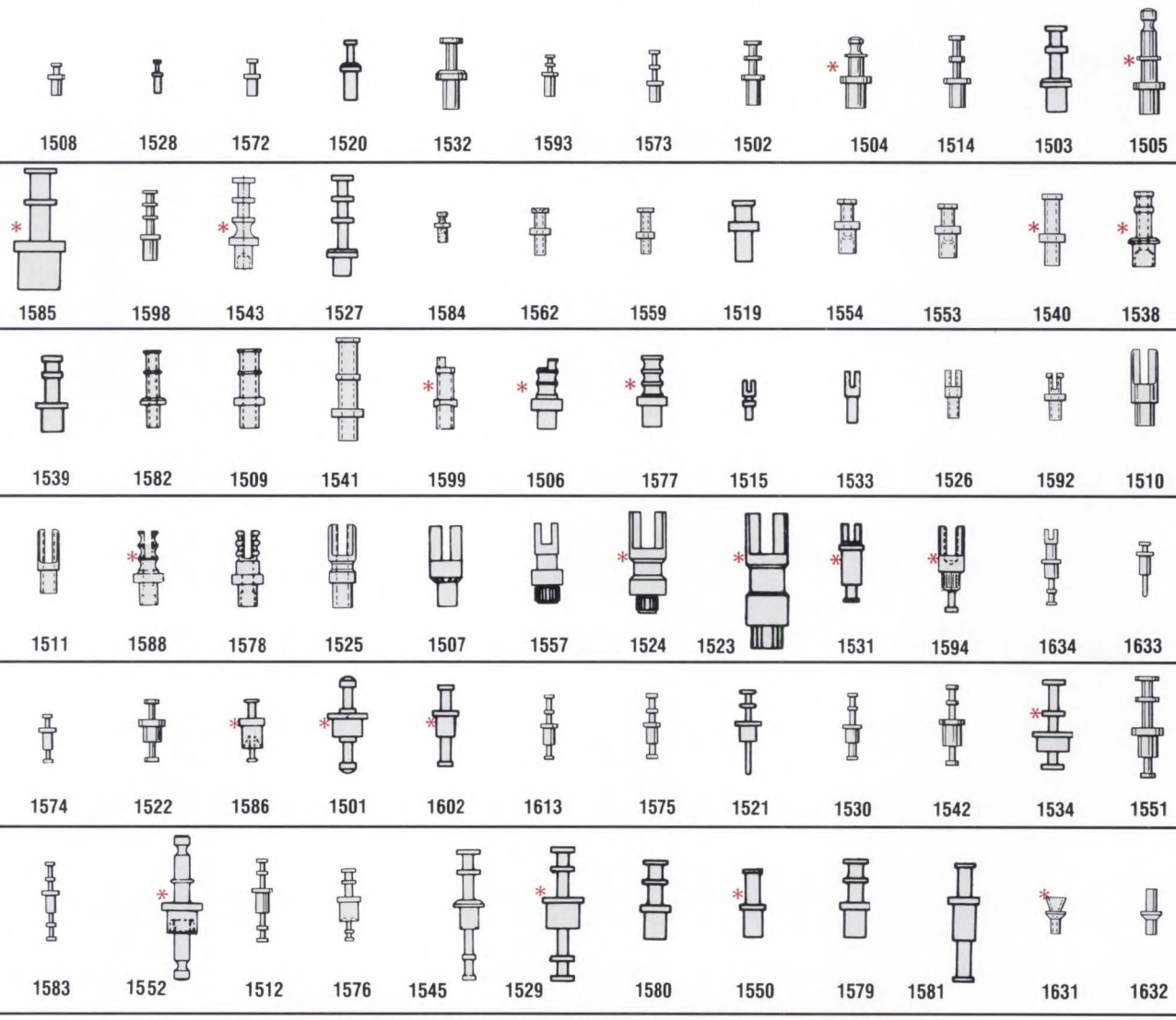
Tolerances: Decimals plus or minus.005.

Plating: Terminals are stocked in **Bright Electro-Tin Plate** per MIL-T-10727 Type 1. Economical, excellent conductivity, solderability and shelf life. Other platings available such as Silver, Gold, Electro-Tin, Hot Tin Dip on special request only.

Special Terminals: Made to your exacting specifications, platings and tolerances. Prompt quotations rendered.

Custom-Built Boards: We are specialists in the assembly of terminals, eyelets, clips and special hardware. Submit your drawings and prompt quotation will be rendered.

ALL ILLUSTRATIONS ARE ACTUAL SIZE



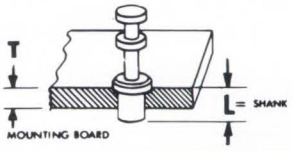
DETAILED DIMENSIONAL DRAWINGS ON THE FOLLOWING PAGES

*On Special Order Only

ORDERING INFORMATION:

TERMINALS

Specify catalog number of terminal selected and add the dash number or mention the thickness of the insulator to be used, for example: **1503-1** for **1/32"** insulator, **1503-2** for **1/16"** insulator etc.



–1 for insulating board 1/32" thick
–2 for insulating board 1/16" thick
–3 for insulating board 3/32" thick
–4 for insulating board 1/8" thick

STAKING TOOLS

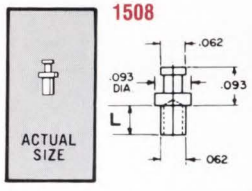
Catalog No. TL-series designates a set of tools, consisting of **TOP (staking)** and **BOTTOM (holder)**. Some sets of tools can be used for other terminals with similar dimensions. Tools are made of 1/4" dia. steel and **cadmium plated. Precision Machined** and carefully **hardened** to insure **long wear.**

NOTE: Where tools are not listed they are available on special order only.

STAKING TOOLS AND STAKING TOOL KITS PAGES 78, 79

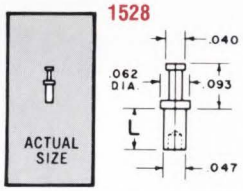
SINGLE, DOUBLE & THREE TURRET SERIES

1508



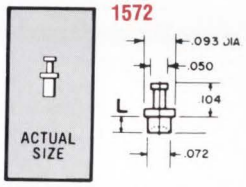
CAT. NO.	L	T	STAKING TOOLS
1508-1	.053	1/32	No. TL-1
1508-2	.084	1/16	
1508-3	.115	3/32	
1508-4	.147	1/8	

1528



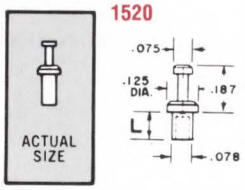
CAT. NO.	L	T	STAKING TOOLS
1528-1	.051	1/32	Special Order
1528-2	.082	1/16	
1528-3	.113	3/32	
1528-4	.145	1/8	

1572



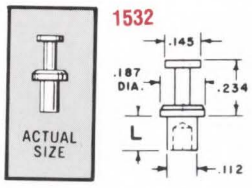
CAT. NO.	L	T	STAKING TOOLS
1572-1	.051	1/32	No. TL-1
1572-2	.082	1/16	
1572-3	.113	3/32	
1572-4	.145	1/8	

1520



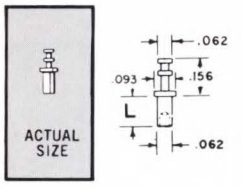
CAT. NO.	L	T	STAKING TOOLS
1520-1	.078	1/32	No. TL-2
1520-2	.109	1/16	
1520-3	.141	3/32	
1520-4	.172	1/8	

1532



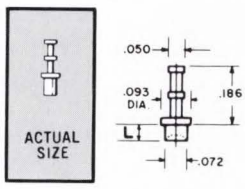
CAT. NO.	L	T	STAKING TOOLS
1532-1	.078	1/32	No. TL-8
1532-2	.109	1/16	
1532-3	.141	3/32	
1532-4	.172	1/8	

1593



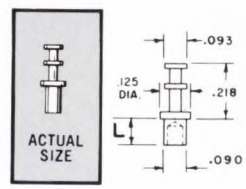
CAT. NO.	L	T	STAKING TOOLS
1593-1	.054	1/32	No. TL-1
1593-2	.084	1/16	
1593-3	.115	3/32	
1593-4	.147	1/8	

1573



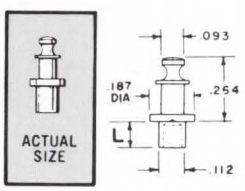
CAT. NO.	L	T	STAKING TOOLS
1573-1	.051	1/32	No. TL-1
1573-2	.082	1/16	
1573-3	.113	3/32	
1573-4	.145	1/8	

1502



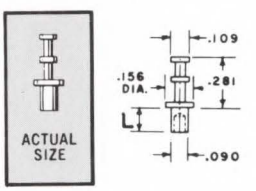
CAT. NO.	L	T	STAKING TOOLS
1502-1	.078	1/32	No. TL-2
1502-2	.109	1/16	
1502-3	.141	3/32	
1502-4	.172	1/8	

*1504



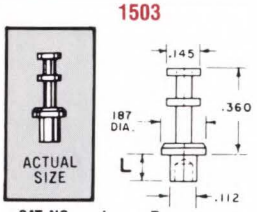
CAT. NO.	L	T	STAKING TOOLS
*1504-1	.078	1/32	No. TL-8
*1504-2	.109	1/16	
*1504-3	.141	3/32	
*1504-4	.172	1/8	

1514



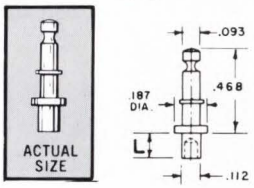
CAT. NO.	L	T	STAKING TOOLS
1514-1	.078	1/32	No. TL-5
1514-2	.109	1/16	
1514-3	.141	3/32	
1514-4	.172	1/8	

1503



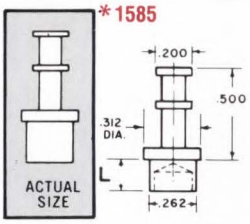
CAT. NO.	L	T	STAKING TOOLS
1503-1	.078	1/32	No. TL-8
1503-2	.109	1/16	
1503-3	.141	3/32	
1503-4	.172	1/8	
1503-6	.234	3/16	
1503-8	.297	1/4	

*1505



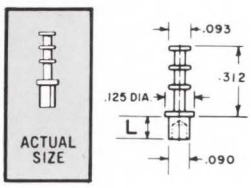
CAT. NO.	L	T	STAKING TOOLS
*1505-1	.078	1/32	No. TL-8
*1505-2	.109	1/16	
*1505-3	.141	3/32	
*1505-4	.172	1/8	

*1585



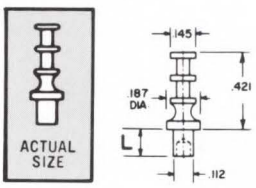
CAT. NO.	L	T	STAKING TOOLS
*1585-2	.109	1/16	Special Order
*1585-3	.141	3/32	
*1585-4	.172	1/8	

1598



CAT. NO.	L	T	STAKING TOOLS
1598-1	.062	1/32	No. TL-2
1598-2	.094	1/16	
1598-3	.125	3/32	
1598-4	.156	1/8	

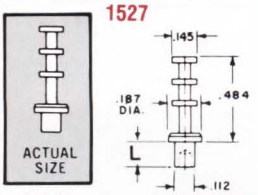
*1543



CAT. NO.	L	T	STAKING TOOLS
*1543-1	.078	1/32	No. TL-8
*1543-2	.109	1/16	
*1543-3	.141	3/32	
*1543-4	.172	1/8	

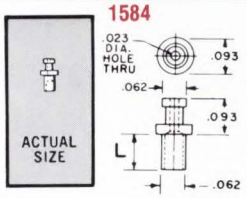
TUBULAR TERMINAL SERIES (HOLLOW)

1527



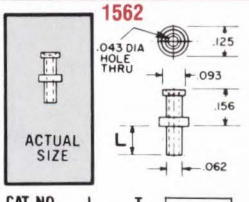
CAT. NO.	L	T	STAKING TOOLS
1527-1	.078	1/32	No. TL-8
1527-2	.109	1/16	
1527-3	.141	3/32	
1527-4	.172	1/8	

1584



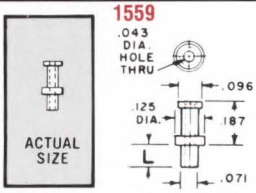
CAT. NO.	L	T	STAKING TOOLS
1584-1	.053	1/32	No. TL-1
1584-2	.084	1/16	
1584-3	.115	3/32	

1562



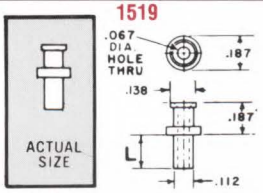
CAT. NO.	L	T	STAKING TOOLS
1562-1	.054	1/32	No. TL-2
1562-2	.084	1/16	
1562-3	.115	3/32	
1562-4	.147	1/8	

1559



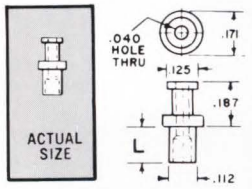
CAT. NO.	L	T	STAKING TOOLS
1559-1	.062	1/32	No. TL-2
1559-2	.094	1/16	
1559-3	.125	3/32	
1559-4	.156	1/8	

1519



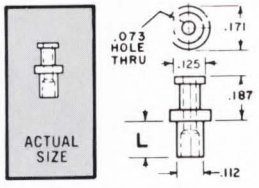
CAT. NO.	L	T	STAKING TOOLS
1519-1	.078	1/32	No. TL-8
1519-2	.109	1/16	
1519-3	.141	3/32	
1519-4	.172	1/8	

1554



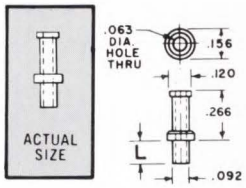
CAT. NO.	L	T	STAKING TOOLS
1554-1	.078	1/32	No. TL-8
1554-2	.109	1/16	
1554-3	.141	3/32	
1554-4	.172	1/8	

1553



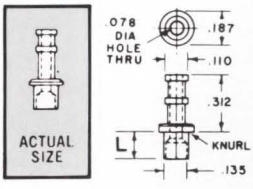
CAT. NO.	L	T	STAKING TOOLS
1553-1	.078	1/32	No. TL-8
1553-2	.109	1/16	
1553-3	.141	3/32	
1553-4	.172	1/8	

1540



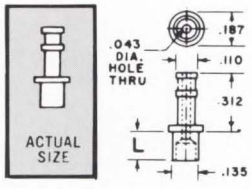
CAT. NO.	L	T	STAKING TOOLS
1540-2	.109	1/16	No. TL-5
1540-3	.141	3/32	
1540-4	.172	1/8	

*1538



CAT. NO.	L	T	STAKING TOOLS
*1538-1	.078	1/32	No. TL-8
*1538-2	.109	1/16	
*1538-3	.141	3/32	
*1538-4	.172	1/8	

1539



CAT. NO.	L	T	STAKING TOOLS
1539-1	.078	1/32	No. TL-8
1539-2	.109	1/16	
1539-3	.141	3/32	
1539-4	.172	1/8	

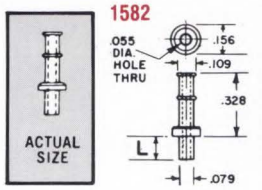
* Parts asterisked serve special applications and may not always be in stock for immediate shipment. It is necessary to manufacture these parts to special order only.

STANDARDIZED TERMINALS

STAKING TOOLS AND STAKING TOOL KITS PAGES 78, 79

TUBULAR TERMINAL SERIES (HOLLOW)

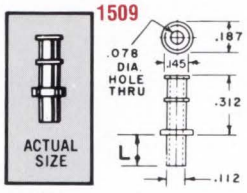
1582



CAT. NO.	L	T
1582-1	.075	1/32
1582-2	.105	1/16
1582-3	.135	3/32
1582-4	.165	1/8

STAKING TOOLS NO. TL-5

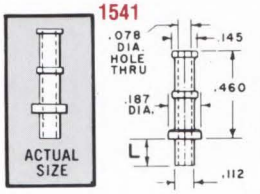
1509



CAT. NO.	L	T
1509-1	.078	1/32
1509-2	.109	1/16
1509-3	.141	3/32
1509-4	.172	1/8
1509-6	.234	3/16
1509-8	.297	1/4

STAKING TOOLS NO. TL-8

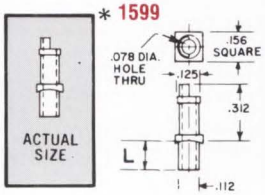
1541



CAT. NO.	L	T
1541-2	.109	1/16
1541-3	.141	3/32
1541-4	.172	1/8

STAKING TOOLS NO. TL-8

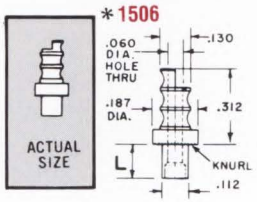
* 1599



CAT. NO.	L	T
*1599-2	.109	1/16
*1599-3	.141	3/32
*1599-4	.172	1/8

STAKING TOOLS NO. TL-8

* 1506

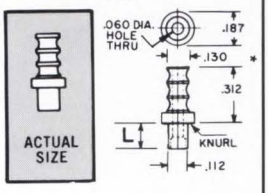


CAT. NO.	L	T
*1506-1	.078	1/32
*1506-2	.109	1/16
*1506-3	.141	3/32
*1506-4	.172	1/8

STAKING TOOLS No. TL-8

SPLIT TYPE TERMINAL SERIES

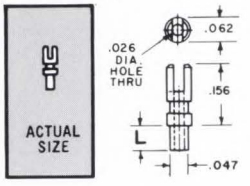
1577



CAT. NO.	L	T
*1577-2	.109	1/16
*1577-3	.141	3/32
*1577-4	.172	1/8

STAKING TOOLS NO. TL-8

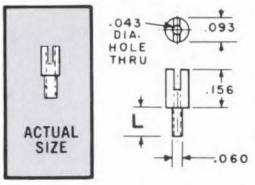
1515



CAT. NO.	L	T
1515-1	.051	1/32
1515-2	.082	1/16
1515-3	.113	1/32
1515-4	.145	1/8

STAKING TOOLS Special Order

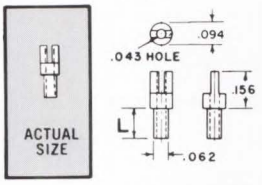
1533



CAT. NO.	L	T
1533-1	.054	1/32
1533-2	.084	1/16
1533-3	.115	3/32
1533-4	.147	1/8

STAKING TOOLS Special Order

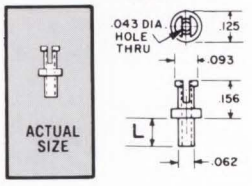
1526



CAT. NO.	L	T
1526-1	.054	1/32
1526-2	.084	1/16
1526-3	.115	3/32
1526-4	.147	1/8

STAKING TOOLS NO. TL-3

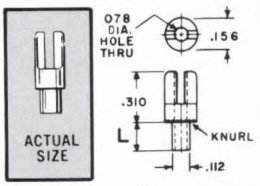
1592



CAT. NO.	L	T
1592-1	.051	1/32
1592-2	.082	1/16
1592-3	.113	3/32
1592-4	.145	1/8

STAKING TOOLS NO. TL-2

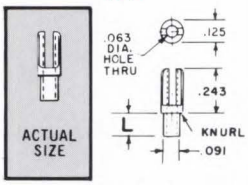
1510



CAT. NO.	L	T
1510-1	.078	1/32
1510-2	.109	1/16
1510-3	.141	3/32
1510-4	.172	1/8

STAKING TOOLS No. TL-9

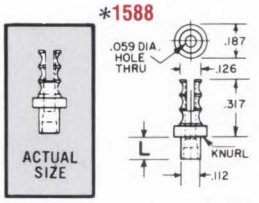
1511



CAT. NO.	L	T
1511-1	.078	1/32
1511-2	.109	1/16
1511-3	.141	3/32
1511-4	.172	1/8

STAKING TOOLS NO. TL-3

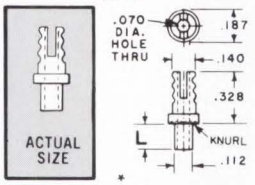
*1588



CAT. NO.	L	T
*1588-1	.078	1/32
*1588-2	.109	1/16
*1588-3	.141	3/32
*1588-4	.172	1/8

STAKING TOOLS NO. TL-8

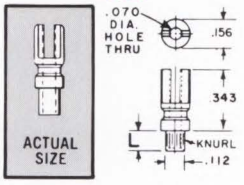
1578



CAT. NO.	L	T
1578-1	.078	1/32
1578-2	.109	1/16
1578-3	.141	3/32
1578-4	.172	1/8

STAKING TOOLS No. TL-8

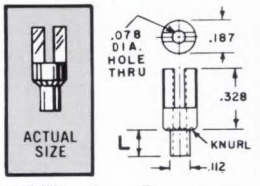
1525



CAT. NO.	L	T
1525-2	.109	1/16
1525-3	.141	3/32
1525-4	.172	1/8

STAKING TOOLS NO. TL-9

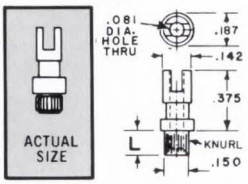
1507



CAT. NO.	L	T
1507-1	.078	1/32
1507-2	.109	1/16
1507-3	.141	3/32
1507-4	.172	1/8

STAKING TOOLS No. TL-9

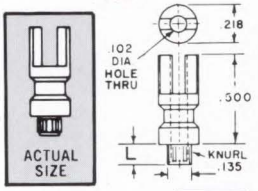
1557



CAT. NO.	L	T
1557-2	.109	1/16
1557-3	.141	3/32
1557-4	.172	1/8

STAKING TOOLS Special Order

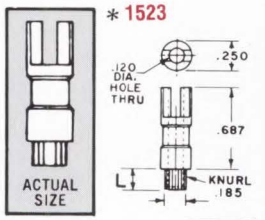
*1524



CAT. NO.	L	T
*1524-2	.109	1/16
*1524-3	.141	3/32
*1524-4	.172	1/8

STAKING TOOLS Special Order

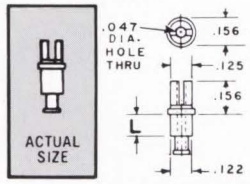
* 1523



CAT. NO.	L	T
*1523-3	.141	3/32
*1523-4	.172	1/8

STAKING TOOLS Special Order

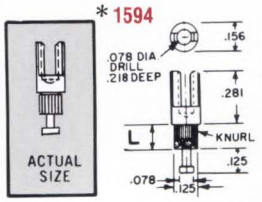
* 1531



CAT. NO.	L	T
*1531-1	.062	1/32
*1531-2	.094	1/16
*1531-3	.125	3/32
*1531-4	.156	1/8

STAKING TOOLS Special Order

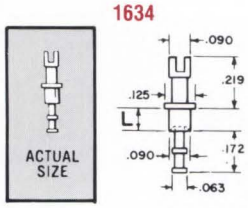
* 1594



CAT. NO.	L	T
*1594-2	.105	1/16
*1594-3	.135	3/32
*1594-4	.165	1/8

STAKING TOOLS NO. TL-10

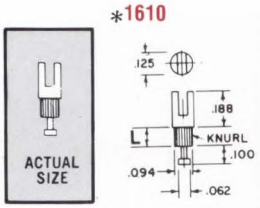
1634



CAT. NO.	L	T
1634-2	.105	1/16
1634-3	.135	3/32
1634-4	.165	1/8

STAKING TOOLS No. TL-10

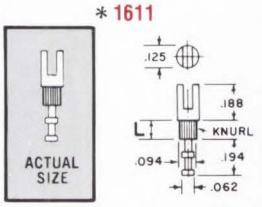
*1610



CAT. NO.	L	T
*1610-2	.094	1/16
*1610-3	.125	3/32
*1610-4	.156	1/8

STAKING TOOLS Special Order

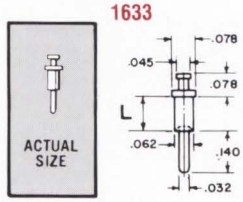
* 1611



CAT. NO.	L	T
*1611-2	.094	1/16
*1611-3	.125	3/32
*1611-4	.156	1/8

STAKING TOOLS Special Order

1633



CAT. NO.	L	T
*1633-1	.051	1/32
*1633-2	.082	1/16
*1633-3	.113	3/32
*1633-4	.147	1/8

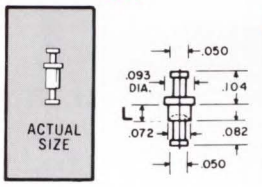
STAKING TOOLS Special Order

* Parts asterisked serve special applications and may not always be in stock for immediate shipment. It is necessary to manufacture these parts to special order only.

STAKING TOOLS AND STAKING TOOL KITS PAGES 78, 79

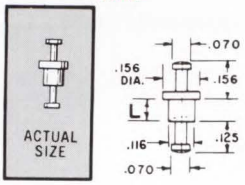
DOUBLE-END TERMINAL SERIES

1574



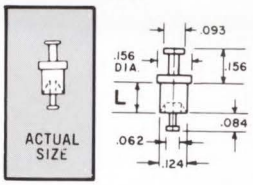
CAT. NO.	L	T	Staking Tools No.
1574-1	.051	1/32	TL-4
1574-2	.082	1/16	
1574-3	.113	3/32	
1574-4	.145	1/8	

1522



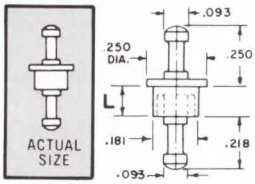
CAT. NO	L	T	Staking Tools No.
1522-1	.062	1/32	TL-11
1522-2	.094	1/16	
1522-3	.125	3/32	
1522-4	.156	1/8	

*1586



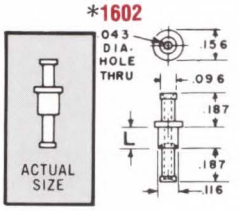
CAT. NO.	L	T	Staking Tools No.
*1586-1	.075	1/32	TL-10
*1586-2	.105	1/16	
*1586-3	.135	3/32	
*1586-4	.165	1/8	

*1501



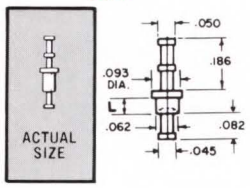
CAT. NO	L	T	Staking Tools No.
*1501-1	.078	1/32	TL-15
*1501-2	.109	1/16	
*1501-3	.141	3/32	
*1501-4	.172	1/8	

*1602



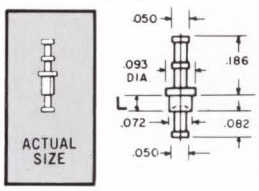
CAT. NO	L	T	Staking Tools
*1602-1	.062	1/32	Special Order
*1602-2	.094	1/16	
*1602-3	.125	3/32	
*1602-4	.156	1/8	

1613



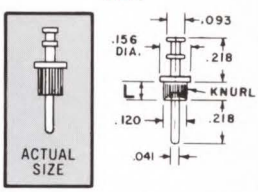
CAT. NO	L	T	Staking Tools No.
1613-1	.051	1/32	TL-4
1613-2	.082	1/16	
1613-3	.113	3/32	
1613-4	.145	1/8	

1575



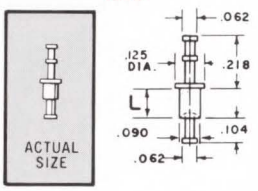
CAT. NO	L	T	Staking Tools No.
1575-1	.051	1/32	TL-4
1575-2	.082	1/16	
1575-3	.113	3/32	
1575-4	.145	1/8	

1521



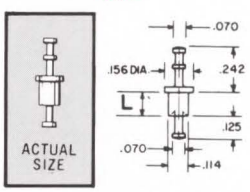
CAT. NO.	L	T	Staking Tools No.
1521-1	.062	1/32	TL-18
1521-2	.094	1/16	
1521-3	.125	3/32	
1521-4	.156	1/8	

1530



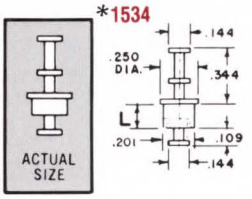
CAT. NO.	L	T	Staking Tools No.
1530-1	.062	1/32	TL-6
1530-2	.094	1/16	
1530-3	.125	3/16	
1530-4	.156	1/8	

1542



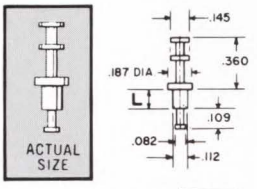
CAT. NO	L	T	Staking Tools No.
1542-1	.075	1/32	TL-11
1542-2	.105	1/16	
1542-3	.135	3/32	
1542-4	.165	1/8	

*1534



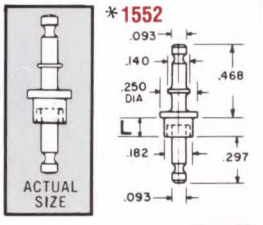
CAT. NO.	L	T	Staking Tools
*1534-1	.062	1/32	Special Order
*1534-2	.094	1/16	
*1534-3	.125	3/32	
*1534-4	.156	1/8	

1551



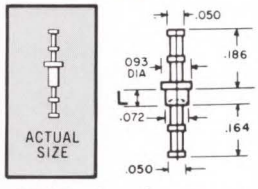
CAT. NO.	L	T	Staking Tools No.
1551-2	.105	1/16	TL-12
1551-3	.135	3/32	
1551-4	.165	1/8	

*1552



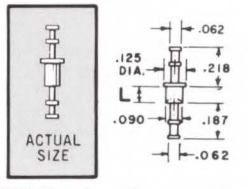
CAT. NO.	L	T	Staking Tools No.
*1552-2	.109	1/16	TL-15
*1552-3	.141	3/32	
*1552-4	.172	1/8	

1583



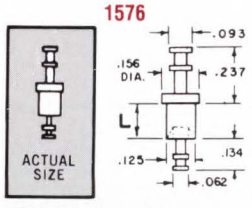
CAT. NO.	L	T	Staking Tools No.
1583-1	.051	1/32	TL-4
1583-2	.082	1/16	
1583-3	.113	3/32	
1583-4	.145	1/8	

1512



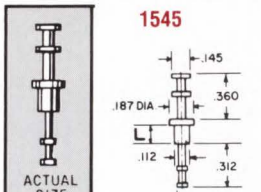
CAT. NO.	L	T	Staking Tools No.
1512-1	.062	1/32	TL-6
1512-2	.094	1/16	
1512-3	.125	3/32	
1512-4	.156	1/8	

1576



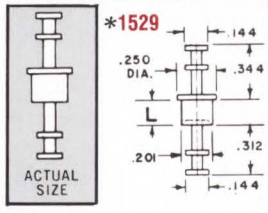
CAT. NO.	L	T	Staking Tools No.
1576-1	.075	1/32	TL-10
1576-2	.105	1/16	
1576-3	.135	3/32	
1576-4	.165	1/8	

1545



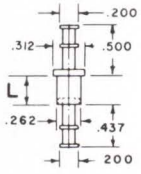
CAT. NO.	L	T	Staking Tools No.
1545-2	.105	1/16	TL-12
1545-3	.135	3/32	
1545-4	.165	1/8	

*1529



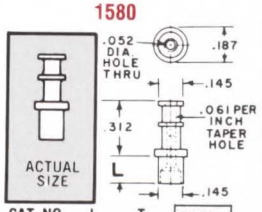
CAT. NO	L	T	Staking Tools
*1529-2	.094	1/16	Special Order
*1529-3	.125	3/32	
*1529-4	.156	1/8	
*1529-6	.219	3/16	

*1518



CAT. NO.	L	T	Staking Tools
*1518-2	.094	1/16	Special Order
*1518-3	.125	3/32	
*1518-4	.156	1/8	

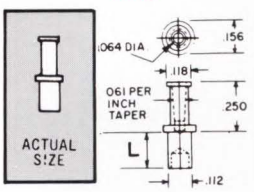
1580



CAT. NO	L	T	Staking Tools
1580-1	.078	1/32	Special Order
1580-2	.109	1/16	
1580-3	.141	3/32	
1580-4	.172	1/8	

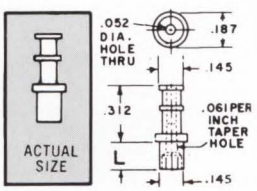
TAPER PIN AND PRINTED CIRCUIT SERIES

*1550



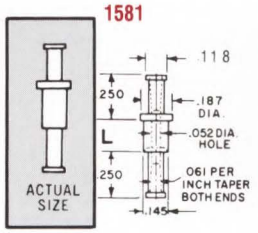
CAT. NO	L	T	Staking Tools No.
*1550-1	.078	1/32	TL-8
*1550-2	.109	1/16	
*1550-3	.141	3/32	
*1550-4	.172	1/8	

1579



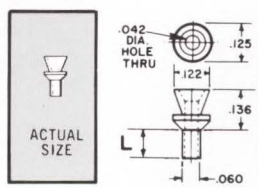
CAT. NO.	L	T	Staking Tools
1579-1	.078	1/32	Special Order
1579-2	.109	1/16	
1579-3	.141	3/32	
1579-4	.172	1/8	

1581



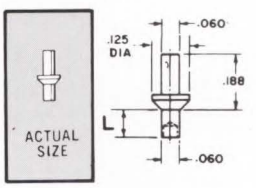
CAT. NO	L	T	Staking Tools
1581-1	.062	1/32	Special Order
1581-2	.094	1/16	
1581-3	.125	3/32	
1581-4	.156	1/8	

*1631



CAT. NO.	L	T	Staking Tools
*1631-1	.062	1/32	Special Order
*1631-2	.094	1/16	
*1631-3	.125	3/32	
*1631-4	.156	1/8	

1632



CAT. NO	L	T	Staking Tools No.
1632-1	.062	1/32	TL-1
1632-2	.094	1/16	
1632-3	.125	3/32	
1632-4	.156	1/8	

* Parts asterisked serve special applications and may not always be in for immediate shipment. It is necessary to manufacture these parts to special order only.

PUSH-IN TERMINALS

For .062 & .093 Dia. Holes

Terminals are pressed into the holes of the board manually; or a low cost insertion tool can be supplied for use at the bench, or in an arbor or drill press.

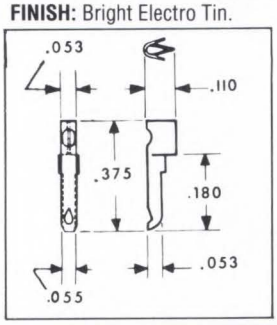
- **QUICK & EASY TO INSTALL**
- **NO STAKING REQUIRED**
- **FOR PRODUCTION OR EXPERIMENTAL USE**

"FLEA" CLIP

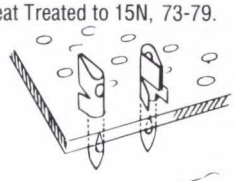
.062 Dia. Holes

For subminiature applications where conventional terminals are too large or too costly. The design engineer will find them most useful; and the serviceman will need these for quick repairs of printed circuitry. Simply insert wire thru hole and it is held firmly by spring wipe action assuring continued positive contact.

MATERIAL:
.008 thick Beryllium Copper per QQ-C-533 and Heat Treated to 15N, 73-79.
FINISH: Bright Electro Tin.



ACTUAL SIZE



CAT. NO. 1500
(BRIGHT ELECTRO TIN)

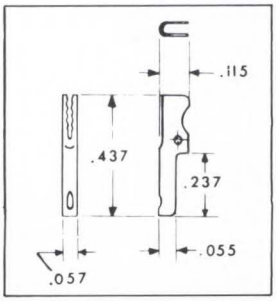
Insertion Tool Cat. No. 1322

"IMP" TERMINAL

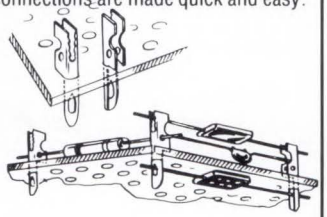
.062 Dia. Holes

The name implies the miniature characteristics of this terminal. It is only slightly larger than the "FLEA" clip. Excellent for point to point or feed thru wiring. Slot is serrated to grip component leads. Multiple connections are made quick and easy.

MATERIAL: .008 thick Beryllium Copper.
FINISH: Bright Electro Tin or Silver Plate.



ACTUAL SIZE



CAT. NO. 1499-FT
(BRIGHT ELECTRO TIN)
CAT. NO. 1499-SP
(SILVER PLATE)

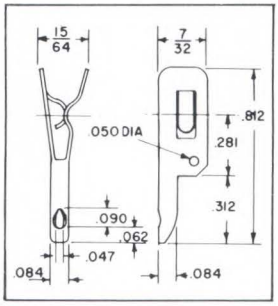
Insertion Tool Cat. No. 1322

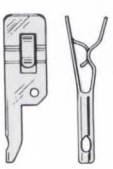
SOLDERLESS TERMINAL

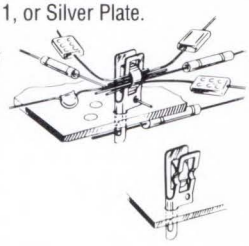
.093 Dia. Holes

Our newly designed terminal for production or breadboarding use. Holds as many as 7 leads without soldering. A rugged, **spring action** precision stamped terminal.

MATERIAL: .015 Spring Steel.
FINISH: Bright Electro Tin per MIL-T-10727 Type 1, or Silver Plate.




ACTUAL SIZE



CAT. NO. 1498-CP
(BRIGHT ELECTRO TIN)
CAT. NO. 1498-SP
(SILVER PLATE)

Insertion Tool Cat. No. 1323

MINIATURE TUBULAR TERMINALS

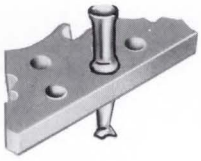
.062–.067 Dia. Holes

- **IDEAL FOR PRINTED CIRCUITRY**
- **TAPERED SECTION RETAINS WIRE LEADS**
- **MOUNT TRANSISTORS, RESISTORS, NEONS**
- **POSITIVE LOCKING IN HOLE – NO STAKING REQUIRED**

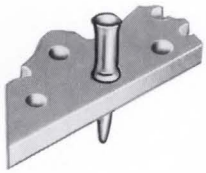
Will firmly hold a wire in range of .010 to .050 diam.

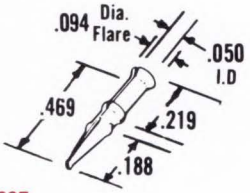
These terminals are often used for transistor and Bi-Pin lamp sockets. Terminals snap into a .062-.067 diam. hole of a 1/16" thick insulator and are firmly held without the need of staking. Wire leads can be inserted from either end and retained. Terminals 1236 and 1237 have tapered socket spring forming that will hold a number of leads in position and allow multiple dip soldering.
Terminals are pre-tinned for easy soldering.

MATERIAL: .006 thick Brass.
Precision Formed and Pre-Tinned.

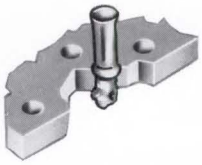


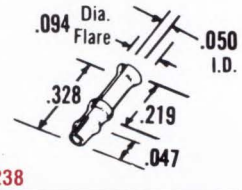
CAT. NO. 1236



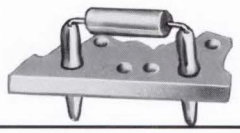


CAT. NO. 1237



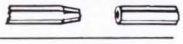


CAT. NO. 1238



INSERTION TOOL FOR ABOVE

For Arbor Press or similar reciprocating device.
Specify **CAT. NO. TL-11**

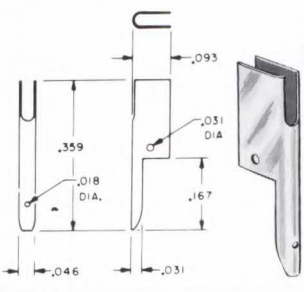


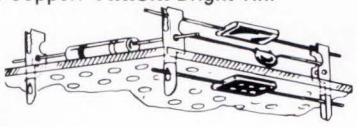
For Hand Insertion Tool.
Specify **CAT. NO. 1214**

"MICRO" TERMINAL

Easily press-fit into a **.042 dia.** hole without staking or the base may be flared for permanent installations. Ideally designed for use in micro-circuitry to support components when space is at a premium.

MATERIAL: .008 thick Beryllium Copper. **FINISH:** Bright Tin.



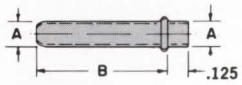


CAT. NO. 1495

Insertion Tool Cat. No. 1322

CONTACT PINS (SEAMLESS)

3/32, 1/8 & 5/32 PINS



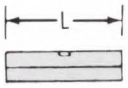
These pins can be staked to 1/16" or 3/32" insulator.

MATERIAL: Brass & Nickel Plate

CAT. NO.	A	B
1223	.093	.293
1224	.093	.357
1226	.093	.437
1200	.125	.379
1210	.125	.566
1230	.156	.379
1231	.156	.566

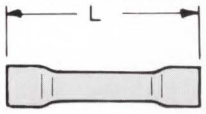
BUTT CONNECTOR BUTTED SEAM

NON-INSULATED



CAT. NO.	WIRE RANGE (AWG)	L	THK	BARREL	
				LENGTH	I.D.
8301	22/18	.56	.030	.25	.070
8302	16/14	.56	.030	.25	.090
8303	12/10	.56	.040	.25	.135

VINYL INSULATED



CAT. NO.	WIRE RANGE (AWG)	L	THK	BARREL		MAX. INSUL. DIA.
				LENGTH	I.D.	
8304	22/18 (Red)	1.02	.030	.25	.070	.145
8305	16/14 (Blue)	1.02	.030	.25	.090	.170
8306	12/10 (Yellow)	1.05	.040	.25	.135	.250

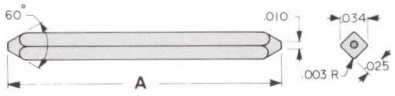
CLOSED END CONNECTOR

CAT. NO.	WIRE RANGE (AWG)	L	BARREL	
			LENGTH	I.D.
8307	22/14	.61	.31	.091
8308	18/10	.85	.34	.152

.025 SQUARE WIRE WRAP PINS

Completely burr free straight to within .003 per inch. Conical ends of square-wire with smooth blend-in radius on corners assures ease of insertion with minimum damage to pre-plated PCB holes, which ensures trouble free insertion into printed circuit boards or when used with plug-in terminals.

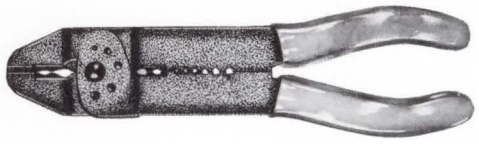
MATERIAL:
Phosphor Bronze
Tin Plated



CAT. NO.	"A" LENGTH	CAT. NO.	"A" LENGTH
5070	.400	5077	.642
5071	.440	5078	.675
5072	.515	5079	.720
5073	.535	5080	.850
5074	.600	5081	.916
5075	.615	5082	.995
5076	.625	5083	1.130

VERSATILE HAND CRIMPER

High quality combination hand tool designed to crimp all terminals and connectors in the 22-10 AWG wire range both non-insulated and insulated. Has a wire cutter up front, strips 22-10 AWG wire and has a built in bolt cutter for #4 to #10 threads. A soft cushion grip handle makes it easy and comfortable to use.

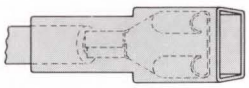


CAT. NO. 1345

MOLDED VINYL PLASTIC BOOT

FOR .250 QUICK-FIT FEMALE

• Molded Vinyl • No Assembly Tools Required • Insulated and Protects • Faster Assembly • Easily Slips Over Terminal



Available in the following colors:

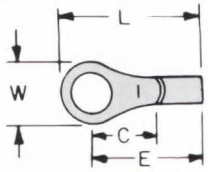
CAT. NO.	COLORS
4471	CLEAR
4472	RED
4473	BLUE
4474	YELLOW

SOLDERLESS TERMINALS

Solderless terminals are made of pure electrolytic (ETP) copper and tin plated. Insulation is color coded vinyl. U.L. and C.S.A. listed.

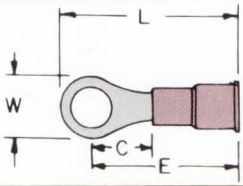
RING TONGUE BUTTED SEAM

NON-INSULATED



CAT. NO.	WIRE RANGE (AWG)	FOR STUD SIZE	W	C	L	E	THK	BARREL LENGTH	BARREL I.D.
8200	22/18	6	.25	.22	.60	.47	.030	.25	.070
8201		8	.33	.29	.70	.54	.030	.25	.070
8202		10	.33	.29	.70	.54	.030	.25	.070
8203	16/14	6	.25	.22	.60	.47	.030	.25	.090
8204		8	.33	.29	.70	.54	.030	.25	.090
8205		10	.33	.29	.70	.54	.030	.25	.090
8206	12/10	6	.28	.29	.68	.54	.040	.25	.135
8207		8	.38	.29	.73	.54	.040	.25	.135
8208		10	.38	.29	.73	.54	.040	.25	.135

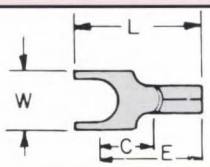
VINYL INSULATED



CAT. NO.	WIRE RANGE (AWG)	FOR STUD SIZE	W	C	L	E	THK	BARREL LENGTH	BARREL I.D.	MAX. INSUL. DIA.
8209	22/18 (Red)	6	.25	.22	.80	.67	.030	.25	.070	.145
8210		8	.33	.29	.90	.74	.030	.25	.070	.145
8211		10	.33	.29	.90	.74	.030	.25	.070	.145
8212	16/14 (Blue)	6	.25	.22	.80	.67	.030	.25	.090	.170
8213		8	.33	.29	.90	.74	.030	.25	.090	.170
8214		10	.33	.29	.90	.74	.030	.25	.090	.170
8215	12/10 (Yellow)	6	.28	.29	.98	.84	.040	.25	.135	.250
8216		8	.38	.29	1.03	.84	.040	.25	.135	.250
8217		10	.38	.29	1.03	.84	.040	.25	.135	.250

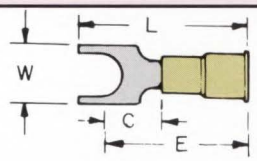
BLOCK SPADE BUTTED SEAM

NON-INSULATED



CAT. NO.	WIRE RANGE (AWG)	FOR STUD SIZE	W	C	L	E	THK	BARREL LENGTH	BARREL I.D.
8218	22/18	6	.30	.25	.65	.50	.030	.25	.070
8219		8	.30	.25	.65	.50	.030	.25	.070
8220		10	.30	.25	.65	.50	.030	.25	.070
8221	16/14	6	.30	.25	.65	.50	.030	.25	.090
8222		8	.30	.25	.65	.50	.030	.25	.090
8223		10	.30	.25	.65	.50	.030	.25	.090
8224	12/10	6	.32	.29	.73	.54	.040	.25	.135
8225		8	.32	.29	.73	.54	.040	.25	.135
8226		10	.32	.29	.73	.54	.040	.25	.135

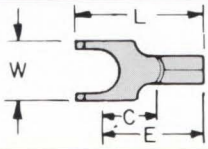
VINYL INSULATED



CAT. NO.	WIRE RANGE (AWG)	FOR STUD SIZE	W	C	L	E	THK	BARREL LENGTH	BARREL I.D.	MAX. INSUL. DIA.
8227	22/18 (Red)	6	.30	.25	.85	.70	.030	.25	.070	.145
8228		8	.30	.25	.85	.70	.030	.25	.070	.145
8229		10	.30	.25	.85	.70	.030	.25	.070	.145
8230	16/14 (Blue)	6	.30	.25	.85	.70	.030	.25	.090	.175
8231		8	.30	.25	.85	.70	.030	.25	.090	.175
8232		10	.30	.25	.85	.70	.030	.25	.090	.175
8233	12/10 (Yellow)	6	.32	.29	1.03	.84	.040	.25	.135	.255
8234		8	.32	.29	1.03	.84	.040	.25	.135	.255
8235		10	.32	.29	1.03	.84	.040	.25	.135	.255

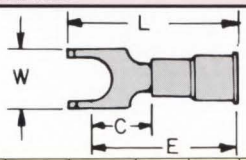
FLANGED BLOCK SPADE BUTTED SEAM

NON-INSULATED



CAT. NO.	WIRE RANGE (AWG)	FOR STUD SIZE	W	C	L	E	THK	BARREL LENGTH	BARREL I.D.
8236	22/18	6	.30	.25	.65	.50	.030	.25	.070
8237		8	.30	.25	.65	.50	.030	.25	.070
8238		10	.30	.25	.65	.50	.030	.25	.070
8239	16/14	6	.30	.25	.65	.50	.030	.25	.090
8240		8	.30	.25	.65	.50	.030	.25	.090
8241		10	.30	.25	.65	.50	.030	.25	.090
8242	12/10	6	.32	.29	.73	.54	.040	.25	.135
8243		8	.32	.29	.73	.54	.040	.25	.135
8244		10	.32	.29	.73	.54	.040	.25	.135

VINYL INSULATED



CAT. NO.	WIRE RANGE (AWG)	FOR STUD SIZE	W	C	L	E	THK	BARREL LENGTH	BARREL I.D.	MAX. INSUL. DIA.
8245	22/18 (Red)	6	.30	.25	.85	.70	.030	.25	.070	.145
8246		8	.30	.25	.85	.70	.030	.25	.070	.145
8247		10	.30	.25	.85	.70	.030	.25	.070	.145
8248	16/14 (Blue)	6	.30	.25	.85	.70	.030	.25	.090	.170
8249		8	.30	.25	.85	.70	.030	.25	.090	.170
8250		10	.30	.25	.85	.70	.030	.25	.090	.170
8251	12/10 (Yellow)	6	.32	.29	1.03	.84	.040	.25	.135	.250
8252		8	.32	.29	1.03	.84	.040	.25	.135	.250
8253		10	.32	.29	1.03	.84	.040	.25	.135	.250

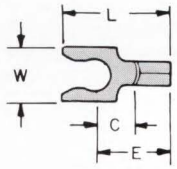
SOLDERLESS TERMINALS

Designers' Choice KEYSTONE

Solderless terminals are made of pure electrolytic (ETP) copper annealed and tin plated. Insulation is color coded vinyl. U.L. and C.S.A. listed.

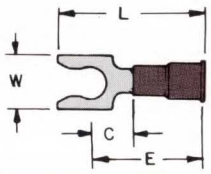
SNAP-SPADE BUTTED SEAM

NON-INSULATED



CAT. NO.	WIRE RANGE (AWG)	FOR STUD SIZE	W	C	L	E	THK	BARREL LENGTH	BARREL I.D.
8254	22/18	6	.25	.25	.68	.50	.030	.25	.070
8255		8	.30	.25	.68	.50	.030	.25	.070
8256		10	.32	.25	.68	.50	.030	.25	.070
8257	16/14	6	.25	.25	.68	.50	.030	.25	.090
8258		8	.30	.25	.68	.50	.030	.25	.090
8259		10	.32	.25	.68	.50	.030	.25	.135
8260	12/10	6	.28	.28	.73	.53	.040	.25	.135
8261		8	.32	.28	.73	.53	.040	.25	.135
8262		10	.32	.28	.73	.53	.040	.25	.135

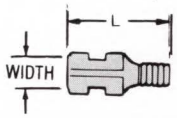
VINYL INSULATED



CAT. NO.	WIRE RANGE (AWG)	FOR STUD SIZE	W	C	L	E	THK	BARREL LENGTH	BARREL I.D.	MAX. INSUL. DIA.
8263	22/18 (Red)	6	.25	.25	.88	.70	.030	.25	.070	.145
8264		8	.30	.25	.88	.70	.030	.25	.070	.145
8265		10	.32	.25	.88	.70	.030	.25	.070	.145
8266	16/14 (Blue)	6	.25	.25	.88	.70	.030	.25	.090	.170
8267		8	.30	.25	.88	.70	.30	.25	.090	.170
8268		10	.32	.25	.88	.70	.030	.25	.090	.170
8269	12/10 (Yellow)	6	.28	.28	1.03	.83	.040	.25	.135	.250
8270		8	.32	.28	1.03	.83	.040	.25	.135	.250
8271		10	.32	.28	1.03	.83	.040	.25	.135	.250

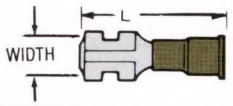
QUICK SLIDE BUTTED SEAM

FEMALE NON-INSULATED



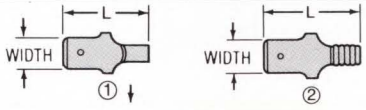
CAT. NO.	WIRE RANGE (AWG)	MATES WITH MALE TAB WIDTH × THK	L	BARREL LENGTH	BARREL I.D.
8272	22/18	.187 × .020	.58	.25	.085
8273		.250 × .032	.66	.25	.080
8274	16/14	.187 × .020	.58	.25	.085
8275		.250 × .032	.66	.25	.080

FEMALE VINYL INSULATED



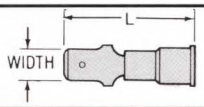
CAT. NO.	WIRE RANGE (AWG)	MATES WITH MALE TAB WIDTH × THK	L	BARREL LENGTH	BARREL I.D.	MAX. INSUL. DIA.
8276	22/18 (Red)	.187 × .020	.78	.25	.085	.145
8277		.250 × .032	.87	.25	.080	.145
8278	16/14 (Blue)	.187 × .020	.78	.25	.085	.145
8279		.250 × .032	.87	.25	.080	.145
8280	12/10 (Yellow)	.250 × .032	.96	.25	.165	.250

MALE NON-INSULATED



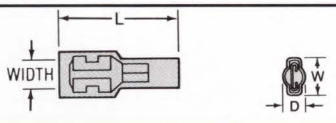
CAT. NO.	WIRE RANGE (AWG)	MALE TAB WIDTH×THK	L	BARREL LENGTH	BARREL I.D.
8281	22/18 ②	.187 × .020	.64	.24	.080
8282	22/18 ①	.250 × .032	.73	.25	.065
8283	16/14 ②	.187 × .020	.64	.24	.080
8284	16/14 ①	.250 × .032	.73	.25	.085
8285	12/10 ①	.250 × .032	.75	.25	.150

MALE VINYL INSULATED



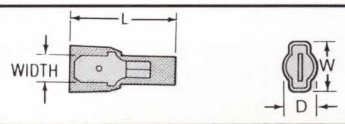
CAT. NO.	WIRE RANGE (AWG)	MALE TAB WIDTH × THK	L	BARREL LENGTH	BARREL I.D.	MAX. INSUL. DIA.
8286	22/18 (Red)	.187 × .020	.85	.24	.080	.145
8287		.250 × .032	.93	.25	.065	.145
8288	16/14 (Blue)	.187 × .020	.85	.24	.080	.145
8289		.250 × .032	.93	.25	.085	.170
8290	12/10 (Yellow)	.250 × .032	1.05	.25	.150	.250

FEMALE FULLY INSULATED NYLON



CAT. NO.	WIRE RANGE (AWG)	MATES WITH MALE TAB WIDTH × THK	L	W	D	BARREL LENGTH	BARREL I.D.	MAX. INSUL. DIA.
8291	22/18 (Red)	.187 × .020	.81	.30	.23	.25	.085	.145
8292		.250 × .032	.87	.37	.23	.25	.080	.145
8293	16/14 (Blue)	.187 × .020	.81	.30	.23	.25	.085	.145
8294		.250 × .032	.87	.37	.23	.25	.080	.170
8295	12/10 (Yellow)	.250 × .032	.99	.39	.32	.25	.165	.250

MALE FULLY INSULATED NYLON



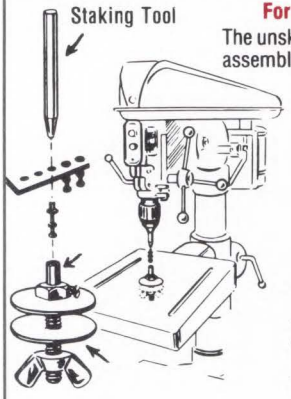
CAT. NO.	WIRE RANGE (AWG)	MALE TAB WIDTH × THK	L	W	D	BARREL LENGTH	BARREL I.D.	MAX. INSUL. DIA.
8296	22/18 (Red)	.187 × .020	.87	.37	.30	.24	.080	.145
8297		.250 × .032	.95	.44	.30	.25	.065	.145
8298	16/14 (Blue)	.187 × .020	.87	.37	.30	.24	.080	.170
8299		.250 × .032	.95	.44	.30	.25	.085	.170
8300	12/10 (Yellow)	.250 × .032	1.05	.47	.39	.25	.150	.250

KEYSTONE *Designers' Choice*

STAKING TOOL KITS

FOR MANUAL USE AND ADAPTABLE TO ANY ARBOR PRESS — KICKPRESS — DRILL PRESS
STAKES — EYELETS — RIVETS — TERMINALS • 10001 USES IN THE LABORATORY OR FACTORY
PRODUCE PROFESSIONAL RESULTS • UNIFORMITY ASSURED • QUICK • SIMPLE • LOW COST

"BASIC" STAKING KIT

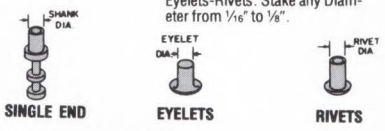


In Drill Press with Power off

For Single End Terminals, Eyelets or Rivets

The unskilled Operator can produce Professional looking assemblies quickly and with little effort.

For Single End Turret Terminals-Eyelets-Rivets. Stake any Diameter from 1/16" to 1/8".



SINGLE END — EYELETS — RIVETS

Easily stake the following Terminals, Eyelets and Rivets.

"BASIC" KIT Consists of: ONE EACH—

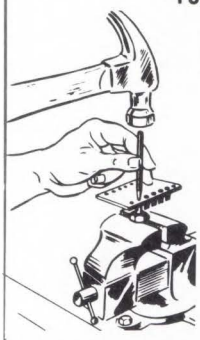
TOOL HOLDER NO. 1719 (Will hold any 1/4" dia. Tools) complete with 2 Washers and Wing Nut.

TOOLS:1 each—1714,1715,1716,1717. Instructions included.

Specify **Cat. No. 1721 Kit** complete.

"MASTER" STAKING KIT

Use in Vise

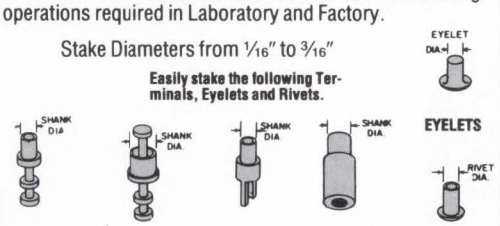


FOR SINGLE END, DOUBLE END (FEED-THRU) AND FORK TERMINALS EXTRUDED LUGS, EYELETS, RIVETS, ETC.

A New Kit includes all Basic Tooling incorporated in the No. 1721 KIT PLUS additional Tools to do most staking operations required in Laboratory and Factory.

Stake Diameters from 1/16" to 3/16"

Easily stake the following Terminals, Eyelets and Rivets.



SINGLE END — DOUBLE FEED THRU — MILLED FORK TYPE — BUSHINGS

TOOL HOLDER NO. 1719 (Will hold any 1/4" dia. Tools) complete with 2 Washers and Wing Nut.

TOOLS:1 each—1304, 1305, 1306, 1307, 1315, 1316, 1321, 1324, 1325, 1326, 1714, 1715, 1716, 1717 1719, 1722, 1726.
Instructions included.

Specify **Cat. No. 1713 Kit** complete.

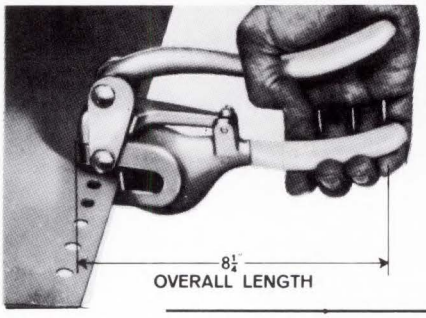
ALL PURPOSE HAND PUNCH

FOR METAL, PLASTICS OR MASONITE

- **EQUIPPED WITH ADJUSTABLE GAUGE • 1¼" DEPTH OF THROAT**
- **REPLACE INNUMERABLE DRILL PRESS OPERATIONS**

USES: AS A NIBBLER — SHEARS EYELETS — HOLE PUNCH FOR SHEET MATERIAL OR TUBING.

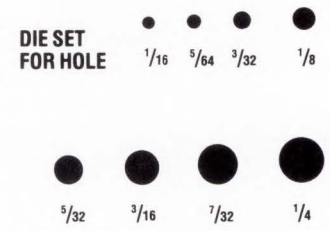
Anyone can punch sharp, burr-free holes in a variety of materials to 1/16" thick untempered metals, 3/32" phenolic, 1/4" masonite. Interchangeable die sets from 1/16" dia. in increments of 1/32" with largest die set 1/4" diam. Punches tubing as small as 3/4" diam. Powerful leverage requires little effort to operate. Shears eyelets and leaves clear undamaged hole.



HAND PUNCH ONLY
CAT. NO. 1330

INDIVIDUAL DIE SETS

Consist of Top and Bottom Tool	
CAT. NO.	DIE SET For Hole
1331	1/16
1332	5/64
1333	3/32
1334	1/8
1335	5/32
1336	3/16
1337	7/32
1338	1/4



COMPLETE KIT
with Hand Punch and all Die Sets as shown.
Specify Cat. No. 1339

"IMPACT" STAKING KIT

FOR TERMINALS - EYELETS - RIVETS

FOR SINGLE END, DOUBLE END (FEED-THRU) AND FORK TERMINALS EXTRUDED LUGS, EYELETS, RIVETS, ETC.

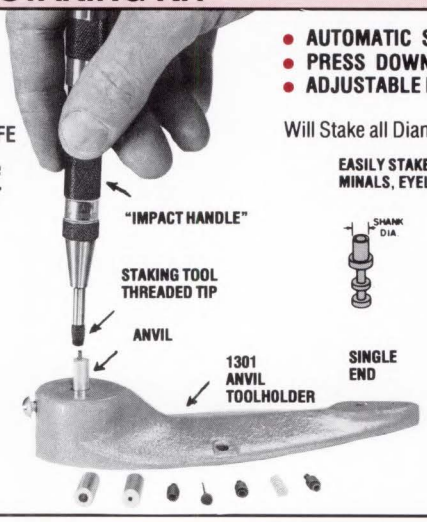
• MOVING PARTS HARDENED • SIMPLE CONSTRUCTION • FOOLPROOF • SAFE

Anyone can perform assembly operations anywhere in the Lab, Shop, or Home on a Desk or at the Bench. Compactly packaged to be carried in Briefcase or Tool Box.
The "Impact Handle" will produce a light or heavy blow which is adjustable by turning the spring tension cap.

"IMPACT" KIT Consists of: ONE EACH—

TOOL HOLDER NO. 1301 Anvil Tool Holder.
"IMPACT" HANDLE No. 1302
TOOLS:1 each—1310, 1311, 1312, 1313, 1315, 1316, 1321, 1716, 1717, 1722, 1726.
Instructions included.

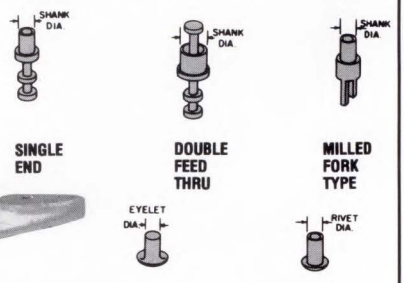
Cat. No. 1707 Kit complete.



- **AUTOMATIC SINGLE HAND OPERATION**
- **PRESS DOWN AND IT STAKES**
- **ADJUSTABLE FROM LIGHT TO HEAVY BLOW**

Will Stake all Diameters to 3/32" max. capacity.

EASILY STAKE THE FOLLOWING TERMINALS, EYELETS AND RIVETS.

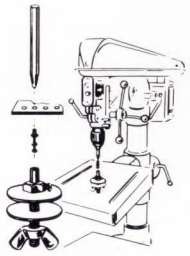


SINGLE END — DOUBLE FEED THRU — MILLED FORK TYPE

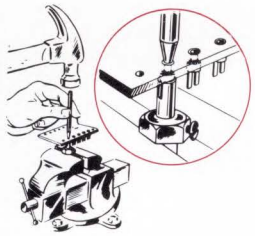
STAKING TOOLS

Designers' Choice KEYSTONE

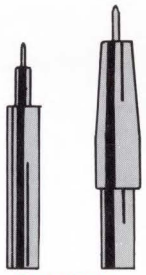
• BUILD TERMINAL BOARDS • MOUNT COMPONENTS QUICKLY and EASILY •
Repair Circuits • Make prototypes at Your Desk • SAFE-VERSATILE-ECONOMICAL



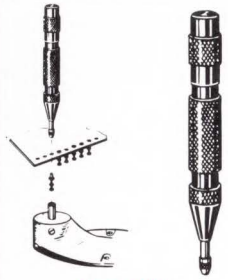
In Drill Press with Power off



Use in Vise



Eyelet Tools



Impact Staker

ALL TOOLS ARE PRECISION CRAFTED, HEAT TREATED AND PLATED TO ASSURE DEPENDABILITY AND SATISFACTORY SERVICE.

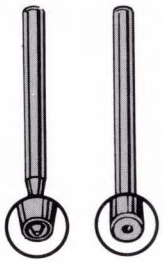
COMPLETE SIMPLE INSTRUCTIONS ARE FURNISHED WITH ALL TOOLS

INDIVIDUAL TOOLS AS SUPPLIED IN "BASIC" & "MASTER" KITS

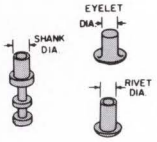
¼" Diameter Tools

TOP SETTING TOOLS (Swager)

For Single End Terminals, Eyelets or Rivets



Cat.No.	For Shank Diam's.
1714	.062 to .098
1715	.110 to .125



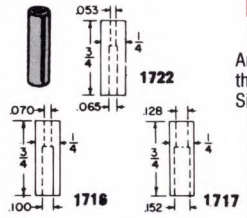
For Dubl End (Feed-thru)

Hole in tool fits over Pin head and securely stakes the rivet part of terminal.

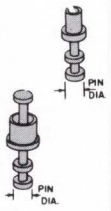
Cat. No.	For Pin on Rivet end
1304	.051 Hole Diam.
1305	.063 Hole Diam.
1306	.073 Hole Diam.
1307	.086 Hole Diam.
1324	.098 Hole Diam.

BOTTOM ANVILS

For Single End or Dubl End Terminals

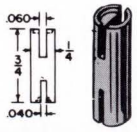


Anvils have different size holes in each end therefore will accept 2 sizes of Pins of either Single or Dubl end Turret type Terminals.



Cat. No.	Hole one end	Hole other end
1722	.053	.065
1716	.070	.100
1717	.128	.152

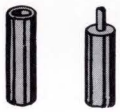
ANVIL FOR FORK TYPE TERMINALS



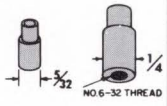
Accepts Diameter of 3/32 to 5/32 at one end and diam. of 3/16 other end.
.040 slot one end and .060 slot at other end.

CAT. NO.1726

ANVIL FOR STANDOFF BUSHINGS

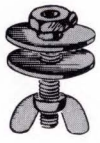


Cat. No.
1326 Holds Bushing with 5/32" O.D.
1325 For Bushing with No. 6-32 Thr'd
1309 For Bushing with No. 4-40 Thr'd



TOOLHOLDERS

For 1/4" Diameter Anvils



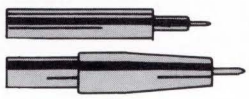
For use in Vise, Arbor, Kickpress, Punch Press, Drill Press etc. Consists of: Holder, 2 washers and wing nut plus instructions.

CAT. NO. 1719

EYELET STAKING TOOLS

For **1/16"** Eyelet **CAT. NO. 3075**
For **3/32"** Eyelet **CAT. NO. 3076**
For **1/8"** Eyelet **CAT. NO. 3077**

NOTE:SHANK DIAMETER OF TOOLS .312



INDIVIDUAL TOOLS AS SUPPLIED IN "IMPACT" STAKER KITS

"IMPACT" STAKERS (Less Tools)

Automatic, Uniform striking action Adjustable from light to heavy blows. Compact, simple one hand operated device. 1/2" diameter by 5" long-Accepts No. 3-56 threaded tips.

CAT. NO. 1302

TOP SETTING TOOLS (Swager)

Top Setting Tools For Impact Staker

Cat. No.	For Shank Diam.'s
1312	.040 to .072
1313	.078 to .093

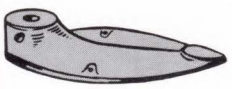
For Dubl-end Terminals (Feed-thru)

Hole in tool fits over Pin head and Firmly Stakes the rivet part of terminal.

Cat. No.	Hole Diam.
1310	.053
1311	.062

TOOLHOLDERS (BASE)

For 1/4" Diameter Anvils



This toolholder is ideal for use at the desk or can be mounted permanently-mounting holes provided. A felt pad is glued to the base and prevents marring finished surfaces. Small, compact easily fits briefcase or corner of tool box.

CAT. NO. 1301

SPECIAL TOOLING REQUIREMENTS?

Use our engineering and tooling facilities to help design and develop assembly tools to meet your specific needs.

HOUSINGS & HEADERS

PLUG-IN HOUSINGS

Enhance the appearance and give a professional look to your products using these molded housings. Ideally suited for packaging relays, logic packages, networks and miniature circuitry. Durable, lightweight covers withstand vibrations and rough usage.

HEADERS: Molded of G.P. black phenolic. Fits standard sockets. **PINS:** Brass, Nickel Plated.

MATERIAL CHARACTERISTICS:

• Variety of molded materials • Good chemical resistance.

POLYSTYRENE: For general purpose use where high impact strength is not required and temperature would not exceed 170°F.

LEXAN: 3 Times the impact strength of Polystyrene. Excellent electrical properties. Use wherever temperatures of 280°F exist.

Housing with Octal Header & 4 Screws CAT. NO.	Housing Only CAT. NO.	Fig. No.	Type	Material	Color
660	670	1	Mini	Lexan	Clear
661	671	1	Mini	Lexan	White
662	672	1	Mini	Polystyrene	Clear
641	645	1	Mini	Polystyrene	Opaque Black
663	673	2	Small	Lexan	Clear
664	674	2	Small	Lexan	White
665	676	2	Small	Polystyrene	Clear
643	647	2	Small	Polystyrene	Opaque Black
650	649	3	Large	Lexan	Clear
668	679	3	Large	Polystyrene	Clear
677	666	3	Large	Polystyrene	Opaque Black
639	640	4	Xtra-L'ge	Polystyrene	Clear
710	711	4	Xtra-L'ge	Polystyrene	Opaque Black
712	713	4	Xtra-L'ge	Lexan	Clear

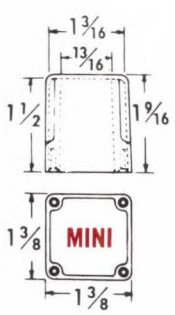


FIG. 1

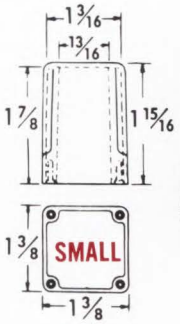
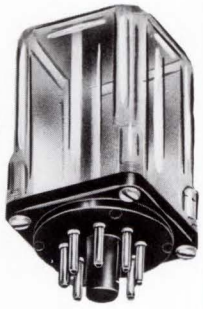


FIG. 2



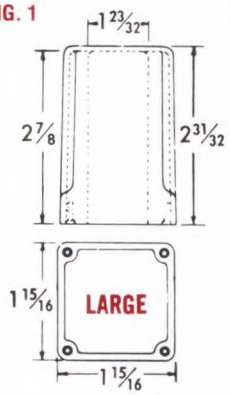


FIG. 3

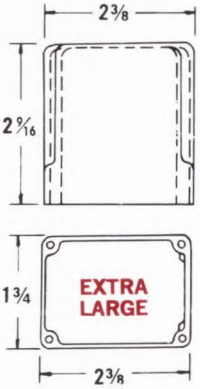


FIG. 4

HEADERS FOR THE ABOVE HOUSINGS

HEADERS: Headers are available in a variety of pin configurations that fit standard sockets. molded of general purpose phenolic with brass nickel plated pins sturdily staked.

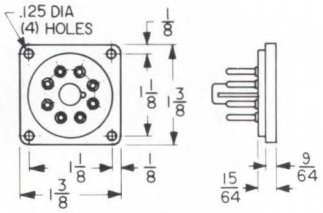


FIG. 1

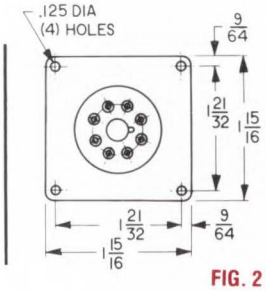
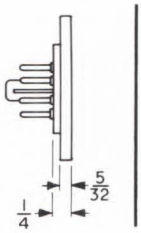


FIG. 2



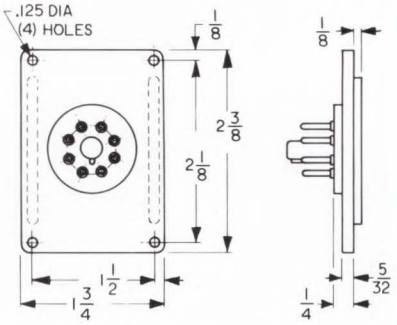


FIG. 3

1 3/8 Sq. Headers for Mini & Small Housing (Fig. 1 Above) CAT. NO.	Pin Configuration	1 15/16 Sq. Headers for Large Housing (Fig. 2 Above) CAT. NO.	1 3/4 × 2 3/8 Headers for Extra Large Housing (Fig. 3 Above) CAT. NO.
681	Octal	685	690
682	Nine Pin	Not Available	Not Available
683	Eleven Pin	686	714

SELF-TAPPING SCREW

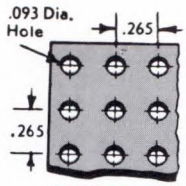
CAT. NO. 689–For covers #4 × 3/8 Lg.

BREADBOARDS

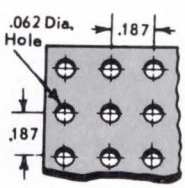
Designers' Choice KEYSTONE

STANDARDIZED PERFORATED BAKELITE BOARDS

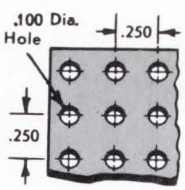
- Time Saving
- Economical
- Permits Flexibility of Circuit Design
- Six Popular Patterns for Most Applications



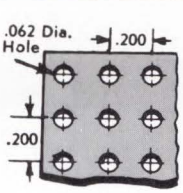
"A" PATTERN



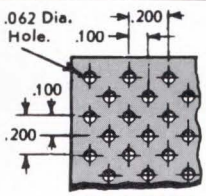
"B" PATTERN



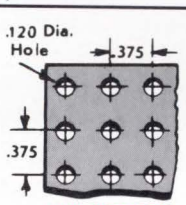
"E" PATTERN



"F" PATTERN



"G" PATTERN



"H" PATTERN

STANDARDIZED KEYBOARDS: Permits time saving, low cost, assembly of components. Used extensively in development of prototype breadboarding,test design or production runs. A large selection of sizes and materials offers the designer the flexibility and convenience needed to create special circuitry on short notice.

ELECTRONIC HARDWARE: A large selection of turret, push-in and stamped terminals, brackets, eyelets, etc. available from stock.

STAKING TOOLS: Inexpensive tooling supplied for staking eyelets, bushings, turret terminals, etc. You can do an entire assembly at your bench with ease, using our impact tool. Other tools for arbor, kickpress, drill press. See Staking Tool pages 78-79.

SPECIAL SERVICES: We will install eyelets or terminals to suit your application. We invite inquiries for special sizes or additional holes drilled. Prompt quotations rendered at no cost to you.

MATERIAL: XXXP NATURAL (MIL-P-3115C, TEMP. 250°F MAX.) 1/16 AND 3/32 THICK
G-10 GLASS EPOXY (MIL-P-18177, TEMP. 300°F MAX.) 1/16 THICK

PUSH-IN TERMINALS FOR BREADBOARDS SEE PAGE 74

"A" PATTERN

.093 DIA. HOLES ON .265 X .265 CENTERS

SIZE WIDTH & LENGTH	NO. OF HOLES	XXXP NAT. CAT. NO.	GLASS EPOXY CAT. NO.
.062 THICK (1/16")			
1.88 x 8.50	7 x 32	1737	1791
2.44 x 8.50	9 x 32	1738	1788
3.25 x 8.50	13 x 32	1785	1789
3.25 x 17.00	13 x 64	1786	1787
4.88 x 4.88	18 x 18	1806	1807
4.88 x 17.00	18 x 64	1739	1793
8.50 x 8.50	32 x 32	1732	1794
8.50 x 17.00	32 x 64	1733	1795
.093 THICK (3/32")			
1.38 x 4.00	5 x 15	1760	—
3.25 x 8.50	13 x 32	1814	—
4.88 x 8.50	18 x 32	1756	—
4.88 x 17.00	18 x 64	1742	—
8.50 x 17.00	32 x 64	1757	—

"B" PATTERN

.062 DIA. HOLES ON .187 x .187 CENTERS

SIZE WIDTH & LENGTH	NUMBER OF HOLES	XXXP NATURAL CAT NO.
.062 THICK (1/16")		
2.44 x 3.38	12 x 17	1812
2.84 x 8.50	15 x 45	1735
3.66 x 6.75	19 x 35	1824
5.69 x 8.50	30 x 45	1762
5.69 x 17.00	30 x 90	1736
6.75 x 7.31	35 x 39	1826
8.50 x 17.00	45 x 90	1763

"E" PATTERN

.100 DIA. HOLES ON .250 x .250 CENTERS

SIZE WIDTH & LENGTH	NUMBER OF HOLES	XXXP NATURAL CAT NO.
.062 THICK (1/16")		
2.13 x 4.00	8 x 16	1750
2.13 x 8.50	8 x 34	1765
3.63 x 8.50	14 x 34	1766
8.50 x 8.50	34 x 34	1767
8.50 x 17.00	34 x 68	1768
.093 THICK (3/32")		
2.13 x 8.50	8 x 34	1770
8.50 x 8.50	34 x 34	1771
8.50 x 17.00	34 x 68	1772

"F" PATTERN

.062 DIA. HOLES ON .200 X .200 CENTERS

SIZE WIDTH & LENGTH	NO. OF HOLES	XXXP NAT. CAT. NO.	GLASS EPOXY CAT. NO.
.062 THICK (1/16")			
1.25 x 8.50	6 x 42	1730	1844
3.00 x 4.50	15 x 22	1835	1845
3.63 x 8.50	18 x 42	1773	1854
4.50 x 6.50	22 x 30	1868	1870
4.50 x 8.50	22 x 42	1869	1871
4.88 x 8.50	24 x 42	1774	1872
4.88 x 17.00	24 x 85	1776	1873
8.50 x 8.50	42 x 42	1777	1874
8.50 x 17.00	42 x 45	1778	1875

"G" PATTERN

.062 DIA. HOLES ON .200 x .100 ALT. C.

SIZE WIDTH & LENGTH	NO. OF HOLES	XXXP NAT. CAT. NO.	GLASS EPOXY CAT. NO.
.062 THICK (1/16")			
2.25 x 8.50	(11x42)x2	1754	1910
3.50 x 4.00	(17x19)x2	1753	1911
3.50 x 8.50	(17x42)x2	1905	1912
3.50 x 17.00	(17x85)x2	1906	1913
3.88 x 8.50	(19x42)x2	1907	1914
4.88 x 8.50	(24x42)x2	1908	1915
4.88 x 17.00	(24x85)x2	1779	1916
8.50 x 17.00	(42x42)x2	1780	1917
8.50 x 17.00	(42x85)x2	1781	1918

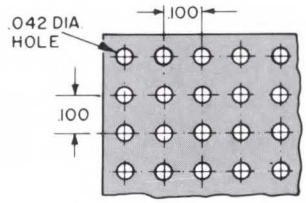
"H" PATTERN

.120 DIA. HOLES ON .375 x .375 CENTERS

SIZE WIDTH & LENGTH	NO. OF HOLES	XXXP NATURAL CAT. NO.
.062 THICK (1/16")		
2.25 x 8.25	6 x 22	1744
4.13 x 8.25	11 x 22	1782
4.13 x 16.50	11 x 44	1745
.093 THICK (3/32")		
2.25 x 8.25	6 x 22	1747
4.13 x 8.25	11 x 22	1783
4.13 x 16.50	11 x 44	1748
6.00 x 8.25	16 x 22	1941
8.25 x 8.25	22 x 22	1943
8.25 x 16.50	22 x 44	1939

MICRO-MINIATURE BREADBOARDS WITH .042 DIA. HOLES

- FOR MODULE STACKS
- SMALLER PLUG–IN CARDS POSSIBLE
- PERMITS HIGHER COMPONENT DENSITY FOR SUBMINIATURE CIRCUITRY



"P" PATTERN

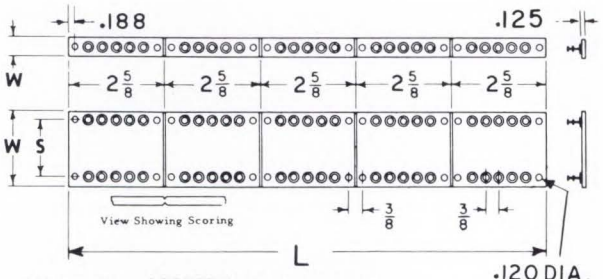
"P" PATTERN .042 HOLES .100 × .100

WIDTH & LENGTH	NO. HOLES W & L	GLASS EPOXY CAT. NO.	XXXP NATURAL PHENOLIC CAT. NO.
.032 THICK (1/32")			
2.00 × 4.50	19 × 44	4225	—
2.00 × 6.00	19 × 59	4226	—
4.50 × 6.00	44 × 59	4227	—
6.00 × 17.00	59 × 169	4228	—
.047 THICK (3/64")			
2.00 × 4.50	19 × 44	4229	—
2.00 × 6.00	19 × 59	4230	—
4.50 × 6.00	44 × 59	4231	—
6.00 × 17.00	59 × 169	4232	—
.062 THICK (1/16")			
2.00 × 4.50	19 × 44	3405	3396
2.00 × 6.00	19 × 59	3406	3397
2.73 × 17.00	26 × 169	3407	3398
3.00 × 4.50	29 × 44	3408	3399
4.50 × 6.00	44 × 59	3409	3400
4.50 × 6.50	44 × 64	3410	3404
4.50 × 8.50	44 × 84	3411	3425
4.50 × 17.00	44 × 169	3412	3426
6.00 × 17.00	59 × 169	3413	3427

MILITARY TERMINAL BOARDS

Terminal boards meet military specifications per MS27249.

SPECIFICATIONS:
Board Material: MIL-P-18177 TYPE GEE or TYPE GEB. 1/8" thick
Terminal Studs: SE12XCO9 PER MIL-T-55155



Five sections **SCORED** for easy separation.
M'tg. holes in each section.

W	S	L	NO. OF TERMS EACH SIDE	MATERIAL GEB CAT. NO.	MATERIAL GEE CAT. NO.
1/2	Single Row	2 5/8	5	MS27249-1B1	MS27249-1E1
		5 1/4	10	MS27249-1B2	MS27249-1E2
		7 7/8	15	MS27249-1B3	MS27249-1E3
		10 1/2	20	MS27249-1B4	MS27249-1E4
		13 1/8	25	MS27249-1B5	MS27249-1E5
1 1/2	1	2 5/8	5	MS27249-2B1	MS27249-2E1
		5 1/4	10	MS27249-2B2	MS27249-2E2
		7 7/8	15	MS27249-2B3	MS27249-2E3
		10 1/2	20	MS27249-2B4	MS27249-2E4
		13 1/8	25	MS27249-2B5	MS27249-2E5
2	1 1/2	2 5/8	5	MS27249-3B1	MS27249-3E1
		5 1/4	10	MS27249-3B2	MS27249-3E2
		7 7/8	15	MS27249-3B3	MS27249-3E3
		10 1/2	20	MS27249-3B4	MS27249-3E4
		13 1/8	25	MS27249-3B5	MS27249-3E5
2 1/2	2	2 5/8	5	MS27249-4B1	MS27249-4E1
		5 1/4	10	MS27249-4B2	MS27249-4E2
		7 7/8	15	MS27249-4B3	MS27249-4E3
		10 1/2	20	MS27249-4B4	MS27249-4E4
		13 1/8	25	MS27249-4B5	MS27249-4E5
3	2 1/2	2 5/8	5	MS27249-5B1	MS27249-5E1
		5 1/4	10	MS27249-5B2	MS27249-5E2
		7 7/8	15	MS27249-5B3	MS27249-5E3
		10 1/2	20	MS27249-5B4	MS27249-5E4
		13 1/8	25	MS27249-5B5	MS27249-5E5

COMPONENT CARRIERS

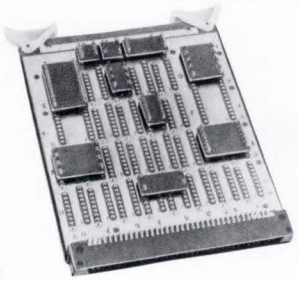
Designed for mounting discrete components such as resistors, capacitors, diodes and other electronic components. Carriers plug directly into panel boards or sockets.

FEATURES

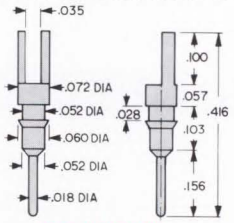
- FLAME RETARDANT EPOXY GLASS BASE
  will not degrade during soldering or cleaning.
- SCREW MACHINE CONTACTS
  contact replaceability
  slotted pin style
  gold over nickel plate
- VARIETY
  - Contact row spacing of .300", 600", .800"
  - Contacts on .100" , .200" and .300" centers

BASE: Laminated glass epoxy .062" thick

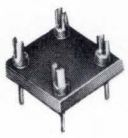
TERMINAL: Brass, gold over nickel plated



SLOTTED PIN STYLE
Terminal used on Carrier Boards



CAT. NO. 7100
Terminal Only



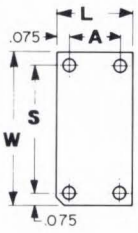
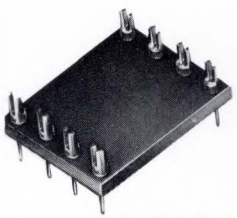


FIG. 1 .300 SPACING



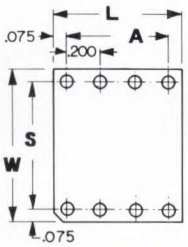
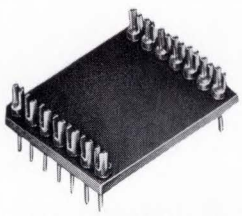


FIG. 2 .200 SPACING



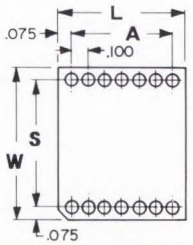


FIG. 3 .100 SPACING

FIG	CATALOG NUMBER	NO. OF PINS	ROW SPACING S	A	LENGTH L	WIDTH W
3	7110	8	.300	.300	.450	.450
1	7111	4	.300	.300	.450	.450
3	7112	14	.300	.600	.750	.450
2	7113	8	.300	.600	.750	.450
3	7114	8	.800	.300	.450	.950
1	7115	4	.800	.300	.450	.950
3	7116	14	.800	.600	.750	.950

FIG	CATALOG NUMBER	NO. OF PINS	ROW SPACING S	A	LENGTH L	WIDTH W
2	7120	8	.800	.600	.750	.950
3	7121	18	.600	.800	.950	.750
2	7122	10	.600	.800	.950	.750
3	7123	24	.600	1.100	1.250	.750
2	7124	12	.600	1.000	1.250	.750
3	7125	16	.300	.700	.850	.450
3	7126	16	.800	.700	.850	.950

SCORED TURRET TERMINAL BOARDS

Designers' Choice

STANDARD TURRET TERMINAL BOARDS

Cut your production cost by eliminating the tooling and setup charge usually applied to nonstandardized boards. Terminals are securely riveted and hot tinned for easy soldering.

Terminals: Brass, ASTM-B16

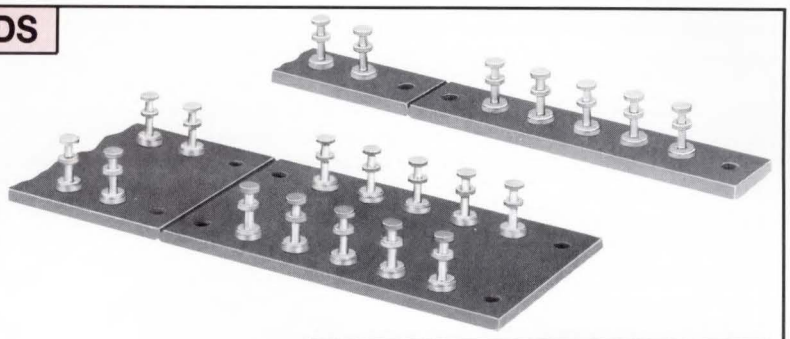
Plating: Hot Tin Dipped, MIL-T-10727. Recommended for longer shelf life and better solderability. Other platings can be furnished.

MATERIAL: Your choice of either PBE or GEE phenolic.

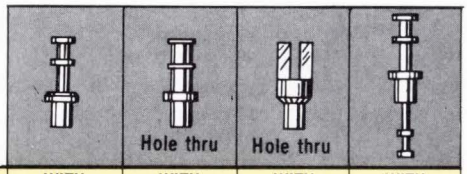
PBE: Paper base electrical, MIL-P-3115C, Type XXXP natural, Temp. 250°F max.

GEE: Glass epoxy, MIL-P-18177, Type G-10, 300°F max.

Modifications: Boards can be modified with other materials or terminals of your choice. Can be supplied with terminals staked in all holes or without terminals staked. Marking can be added. Prices on request.

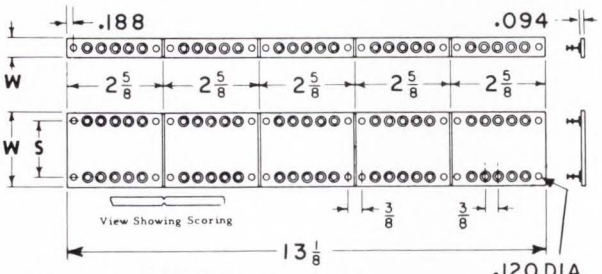


ALL TERMINAL DRAWINGS ARE ACTUAL SIZE. CHOICE OF TERMINALS



3/8" SPACING AND SCORED

3/32" THICK PHENOLIC – Choice of 4 Types of Terminals
Overall Length of Board 13⅛", Five 2⅝" Sections

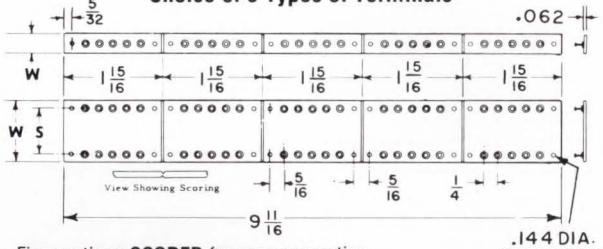


Five sections **SCORED** for easy separation.
M'tg. holes in each section.

W	S	NO. OF TERMS.	MATERIAL	WITH 1503 TERM. CAT. NO.	WITH 1509 TERM. CAT. NO.	WITH 1507 TERM. CAT. NO.	WITH 1545 TERM. CAT. NO.
½	Single Row	25	PBE	15031	15091	15071	15041
			GEE	15231	15291	15271	15241
1½	1	50	PBE	15032	15092	15072	15042
			GEE	15232	15292	15272	15242
1½	1 3/16	50	PBE	15036	15096	15076	15046
			GEE	15236	15296	15276	15246
2	1½	50	PBE	15033	15093	15073	15043
			GEE	15233	15293	15273	15243
2½	2	50	PBE	15034	15094	15074	15044
			GEE	15234	15294	15274	15244
3	2½	50	PBE	15035	15095	15075	15045
			GEE	15235	15295	15275	15245

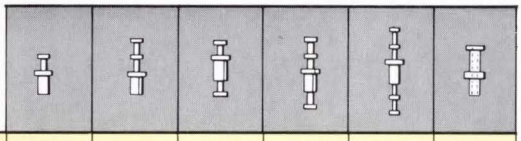
MINIATURE TURRET TERMINAL BOARDS

1/4" SPACING AND SCORED – 1/16" THICK PHENOLIC
Overall Length of Board is 9 11/16", Five 1 15/16" Sections
Choice of 6 Types of Terminals



Five sections **SCORED** for easy separation.
M'tg. holes in each section.

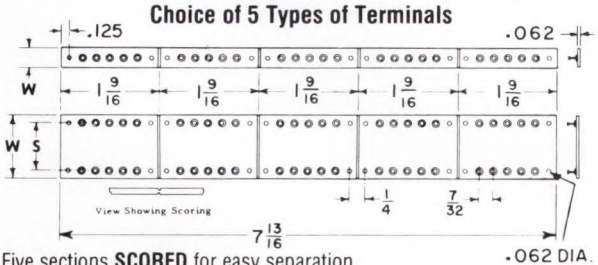
ALL TERMINAL DRAWINGS ARE ACTUAL SIZE. CHOICE OF TERMINALS



W	S	NO. OF TERMS.	MATERIAL	WITH 1572 TERM. CAT. NO.	WITH 1573 TERM. CAT. NO.	WITH 1574 TERM. CAT. NO.	WITH 1575 TERM. CAT. NO.	WITH 1583 TERM. CAT. NO.	WITH 1559 TERM. CAT. NO.
5/16	Single Row	25	PBE	15047	15057	15067	15077	15087	15097
			GEE	15247	15257	15267	15277	15287	15297
7/8	9/16	50	PBE	15048	15058	15068	15078	15088	15098
			GEE	15248	15258	15268	15278	15288	15298
1 1/8	13/16	50	PBE	15049	15059	15069	15079	15089	15099
			GEE	15249	15259	15269	15279	15289	15299

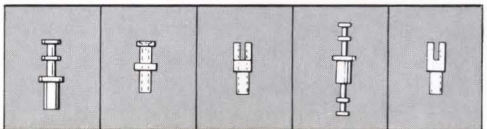
MINIATURE TURRET TERMINAL BOARDS

7/32" SPACING AND SCORED – 1/16" THICK PHENOLIC
Overall Length of Board 7 13/16", Five 1 9/16" Sections
Choice of 5 Types of Terminals



Five sections **SCORED** for easy separation,
M'tg. holes in each section.

ALL TERMINAL DRAWINGS ARE ACTUAL SIZE. CHOICE OF TERMINALS



W	S	NO. OF TERMS.	MATERIAL	WITH 1502 TERM. CAT. NO.	WITH 1562 TERM. CAT. NO.	WITH 1526 TERM. CAT. NO.	WITH 1512 TERM. CAT. NO.	WITH 1533 TERM CAT. NO.
5/16	Single Row	25	PBE	15021	15023	15025	15063	15053
			GEE	15221	15223	15225	15263	15253
3/4	½	50	PBE	15028	15029	15026	15064	15054
			GEE	15228	15229	15226	15264	15254
1	¾	50	PBE	15022	15024	15030	15065	15056
			GEE	15222	15224	15230	15265	15256

TURRET TERMINAL BOARDS

- SAVE TOOLING • ECONOMICAL
- COMPLETE RANGE OF SIZES

Readi-Made Terminal Borads: Low cost, meets commercial and military specifications. Produced in large quantites, making it possible to eliminate tooling and setup charges usually applied to non-standard boards.

Terminals: Brass,ASTM-B16. Terminals are staked in all holes except end mounting holes.

Plating: Hot Tin Dipped, MIL-T-10727. Recommended for longer shelf life and better solderability. Other plating can be furnished.

MATERIAL: Your choice of either PBE or GEE phenolic.
PBE: Paper base electrical, FED. LP-513, Type XXXP. natural, Temp. 250°F max.
GEE: Glass epoxy, MIL-P-18177, Type G-10, Temp. 300°F max.

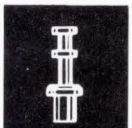
MODIFICATIONS: Boards can be modified with other materials or terminals of your choice. Can be supplied with terminals staked in all holes or without terminals staked. Marking can be added. Prices on request.

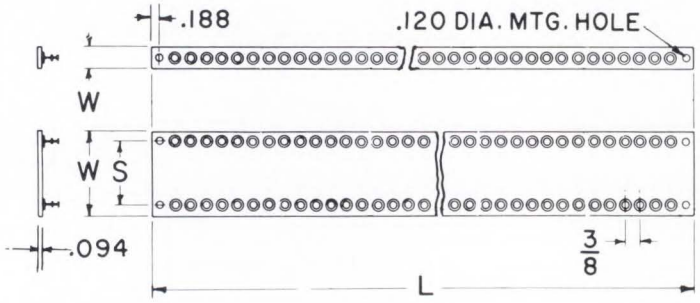
BOARDS ON THIS PAGE ARE NOT SCORED

TURRET TERMINAL BOARDS 3/8" SPACING

choice of sizes

Terminal: 1503-3 Brass Hot Tin Dipped. Height above board 23/64"
MATERIAL: Choice of **PBE** or **GEE 3/32" thick.**





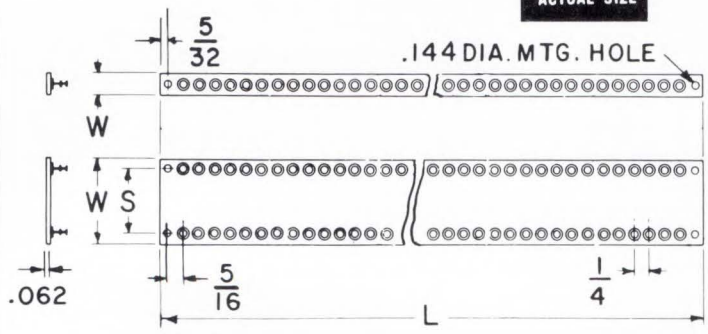
SEE BRACKET PAGE FOR SUITABLE MOUNTING HARDWARE.

W	S	L	NO. OF TERMS EACH SIDE	MATERIAL PBE CAT. NO.	MATERIAL GEE CAT. NO.
1/2	Single Row	2 5/8	5	15101	15301
		5 1/4	12	15102	15302
		7 7/8	19	15103	15303
		10 1/2	26	15104	15304
		13 1/8	33	15105	15305
1 3/16	3/4	2 5/8	5	15106	15306
		5 1/4	12	15107	15307
		7 7/8	19	15108	15308
		10 1/2	26	15109	15309
		13 1/8	33	15110	15310
1 1/2	1	2 5/8	5	15111	15311
		5 1/4	12	15112	15312
		7 7/8	19	15113	15313
		10 1/2	26	15114	15314
		13 1/8	33	15115	15315
2	1 1/2	2 5/8	5	15116	15316
		5 1/4	12	15117	15317
		7 7/8	19	15118	15318
		10 1/2	26	15119	15319
		13 1/8	33	15120	15320
2 1/2	2	2 5/8	5	15121	15321
		5 1/4	12	15122	15322
		7 7/8	19	15123	15323
		10 1/2	26	15124	15324
		13 1/8	33	15125	15325
3	2 1/2	2 5/8	5	15126	15326
		5 1/4	12	15127	15327
		7 7/8	19	15128	15328
		10 1/2	26	15129	15329
		13 1/8	33	15130	15330

MINIATURE TURRET TERMINAL BOARDS 1/4" SPACING

choice of sizes

Terminal: 1573-2 Brass, Hot Tin Dipped. Height above board 3/16"
MATERIAL: Choice of **PBE** or **GEE 1/16" thick.**



W	S	L	NO. OF TERMS EACH SIDE	MATERIAL PBE CAT. NO.	MATERIAL GEE CAT. NO.
5/16	Single Row	1 15/16	5	15431	15531
		3 11/16	12	15432	15532
		5 7/16	19	15433	15533
		7 3/16	26	15434	15534
		8 15/16	33	15435	15535
7/8	9/16	1 15/16	5	15436	15536
		3 11/16	12	15437	15537
		5 7/16	19	15438	15538
		7 3/16	26	15439	15539
		8 15/16	33	15440	15540
1 1/8	13/16	1 15/16	5	15441	15541
		3 11/16	12	15442	15542
		5 7/16	19	15443	15543
		7 3/16	26	15444	15544
		8 15/16	33	15445	15545

TURRET TERMINAL BOARDS

Designers' Choice KEYSTONE

MINIATURE TURRET TERMINAL BOARDS

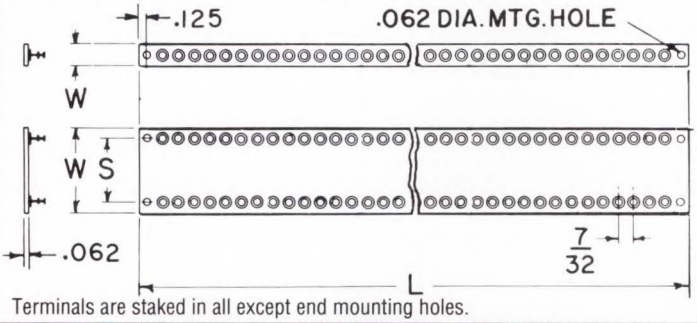
Terminals: Brass,ASTM-B16. Terminals are staked in all holes except end mounting holes.

Plating: Hot Tin Dipped, MIL-T-10727. Recommended for longer shelf life and better solderability. Other plating can be furnished.

MATERIAL: Your choice of either PBE or GEE phenolic, 1/16" thick.
PBE: Paper base electrical, FED. LP-513. Type XXXP natural, Temp. 250°F max.
GEE: Glass epoxy, MIL-P-18177, Type G-10, Temp. 300°F max.

The 1562 terminal is often specified for support and connection of transistors, resistors and small component parts. There is a .043 dia. hole thru the terminal and it stands 5/32" above the board.

MODIFICATIONS: Boards can be modified with other materials or terminals of your choice. Can be supplied with terminals staked in all holes or without terminals staked. Marking can be added. Prices on request.



Terminals are staked in all except end mounting holes.

7/32" SPACING

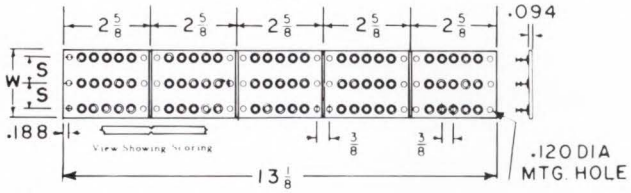
1562 ACTUAL SIZE

W	S	L	NO. OF TERMS. EACH SIDE	MATERIAL PBE CAT. NO.	MATERIAL GEE CAT. NO.
5/16	Single Row	1 9/16	5	15401	15501
		3 3/32	12	15402	15502
		4 5/8	19	15403	15503
		6 5/32	26	15404	15504
		7 11/16	33	15405	15505
3/4	1/2	1 9/16	5	15406	15506
		3 3/32	12	15407	15507
		4 5/8	19	15408	15508
		6 5/32	26	15409	15509
		7 11/16	33	15410	15510
1	3/4	1 9/16	5	15411	15511
		3 3/32	12	15412	15512
		4 5/8	19	15413	15513
		6 5/32	26	15414	15514
		7 11/16	33	15415	15515

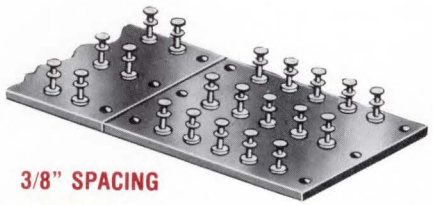
UNIVERSAL TERMINAL BOARDS

Designed for production or experimental use. Well suited for any electronic application requiring a sturdy mounting surface for resistors, and components.

MATERIAL: Your choice of either PBE or GEE phenolic, 3/32" thick.
PBE: Paper base electrical, FED. LP-513, Type XXXP natural, Temp. 250 deg. F max.
GEE: Glass epoxy, MIL-P-18177, Type G-10, Temp. 300 deg. F max.



NOTE: 5 Sections Scored for easy separation. 3 Rows of Terminals.



3/8" SPACING

1503 ACTUAL SIZE

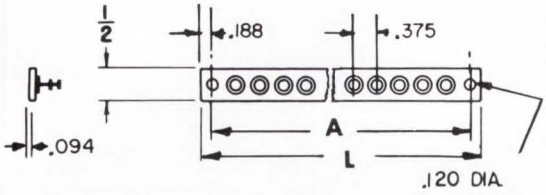
W	S	TOTAL NO. OF TERMS.	MATERIAL	CAT. NO.
2 1/2	1	75	PBE	15332
			GEE	15342
3 1/2	1 1/2	75	PBE	15333
			GEE	15343

MODIFICATIONS: Other materials and terminals of your choice supplied. Marking may be added.

TURRET TERMINAL BOARDS

3/8" SPACING

ALL TERMINAL DRAWINGS ARE ACTUAL SIZE. CHOICE OF TERMINALS.



Terminals are staked in all holes except end mounting holes.

L	A	NO. OF TERMS	WITH 1503 TERM. CAT. NO.	Hole thru WITH 1509 TERM. CAT. NO.5	WITH 1545 TERM. CAT. NO.	Hole thru WITH 1507 TERM. CAT. NO.
1 1/8	3/4	1	603-1	609-1	604-1	607-1
1 1/2	1 1/8	2	603-2	609-2	604-2	607-2
1 7/8	1 1/2	3	603-3	609-3	604-3	607-3
2 1/4	1 7/8	4	603-4	609-4	604-4	607-4
2 5/8	2 1/4	5	603-5	609-5	604-5	607-5
3	2 5/8	6	603-6	609-6	604-6	607-6
3 3/8	3	7	603-7	609-7	604-7	607-7
3 3/4	3 3/8	8	603-8	609-8	604-8	607-8
4 1/8	3 3/4	9	603-9	609-9	604-9	607-9
4 1/2	4 1/8	10	603-10	609-10	604-10	607-10

MODIFICATIONS: WE CAN MAKE THESE BOARDS IN LONGER LENGTHS WITH OTHER MATERIALS AND USING ANY OTHER STANDARD TERMINALS

TERMINAL STRIPS

STANDARD BINDING POST STRIPS

MATERIAL SPECIFICATIONS FOR ALL BINDING POST STRIPS

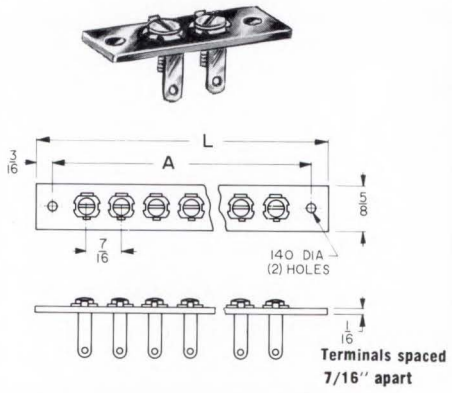
FIBERGLASS: Reinforced Polyester NEMA Grade GPO-3 rated for 300° F. (155°C).

GEE: Glass Epoxy, MIL P-18177 temp., 300° F. Max. type G-10

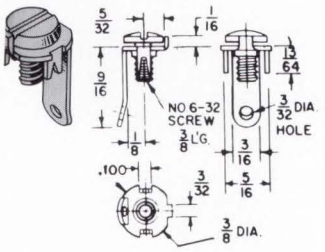
PBE: Paper base electrical, FED. LP-513 Type XP natural, Temp. 250 deg. F max.

1/16'' THICK MATERIAL 5/8'' WIDE

XP PHENOLIC CAT. NO.	GLASS EPOXY CAT. NO.	FIBER-GLASS CAT. NO.	L LENGTH	A MTG. C'TRS.	NO. TERM
4187	4177	4167	1¼	⅞	1
4188	4178	4168	1 1/16	1 5/16	2
4189	4179	4169	2⅛	1¾	3
4190	4180	4170	2 9/16	2 3/16	4
4191	4181	4171	3	2⅝	5
4192	4182	4172	3 7/16	3 1/16	6
4193	4183	4173	3⅞	3½	7
4194	4184	4174	4 5/16	3 15/16	8
4195	4185	4175	4¾	4⅜	9
4196	4186	4176	5 3/16	4 13/16	10



Terminals supplied on these strips



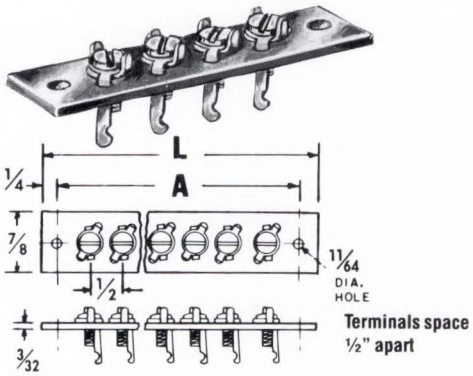
Terminal: .032 Steel-Cadmium Plated.
Screw: Steel, Nickel Plate

CAT. NO. 1248

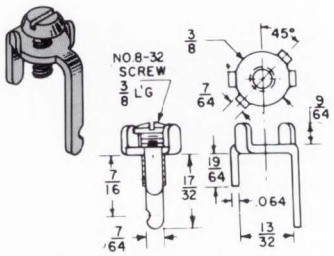
HEAVY DUTY BINDING POST STRIPS

3/32'' THICK MATERIAL 7/8'' WIDE

GLASS EPOXY CAT. NO.	FIBER-GLASS CAT. NO.	L LENGTH	A MTG. C'TRS.	NO. TERM
4147	4157	1½	1	1
4148	4158	2	1½	2
4149	4159	2½	2	3
4150	4160	3	2½	4
4151	4161	3½	3	5
4152	4162	4	3½	6
4153	4163	4½	4	7
4154	4164	5	4½	8
4155	4165	5½	5	9
4156	4166	6	5½	10



Terminals supplied on these strips



Terminal: .064 Brass-Tin Plated.
Screw: Brass - Tin Plated.

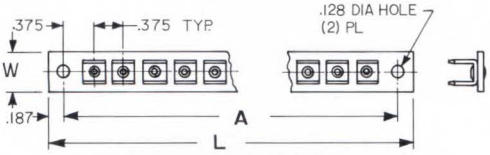
CAT. NO. 1209

QUICK-FIT TERMINAL STRIPS

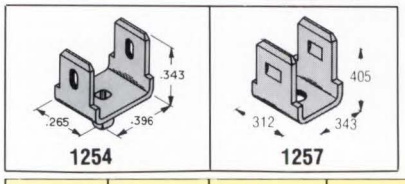
Quick-fit boards permit solderless connections of several circuits. For temporary or permanent connections. Eliminates excess wiring and soldering.

MATERIAL: Fiberglass– NEMA GRADE GPO-3. A glass polyester rated for continuous operation at 155°C or 300°F. 1/16" thick.

Backing Strips: 1/32" thick fibre with mounting holes drilled only.
Terminals: Brass,
CAT. NO. 1254 .018 Thick, Bright Electro Tin MIL-F-14072
CAT. NO.1257 .032 Thick Bright Brass
Other platings available on special order.



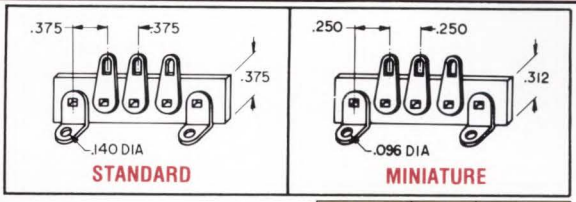
MATERIAL 1/16" THICK FIBERGLASS

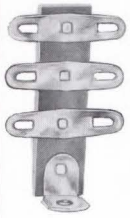


W WIDTH	L LENGTH	A MTG. C'TRS	NO. TERM. EACH SIDE	.205 TAB WITH 1254 TERMINAL CAT. NO.	BACKING INSULATOR 1/32'' THICK FIBRE BACKING STRIP CAT. NO.	.250 TAB WITH 1257 TERMINAL CAT. NO.
½	1½	1⅛	2	4056	4401	4116
	2¼	1⅞	4	4057	4402	4117
	3	2⅝	6	4058	4403	4118
	3¾	3⅜	8	4059	4404	4119
	4½	4⅛	10	4060	4405	4120

TERMINAL STRIPS (Standard & Miniature)

Tin plated steel lugs and brackets. Bakelite XP 1/16" thick. In addition to the strips shown, we manufacture many other varieties in any configuration and materials required. Send samples or sketch for prompt quotation.





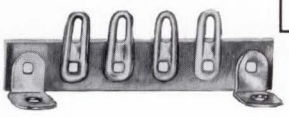


FIG. 1

FIG.2

FIG. 3

FIG. 4

FIG. 5

FIG. 6

FIG. 7

FIG. 8

FIG. 9

FIG. 10

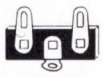


FIG. 11

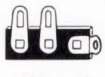


FIG. 12

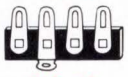


FIG. 13

FIG. 14

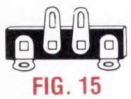


FIG. 15

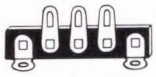


FIG. 16

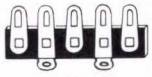


FIG. 17

FIG. 18

FIG. 19

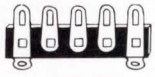


FIG. 20

FIG.21

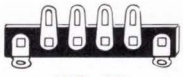


FIG. 22

FIG. 23

FIG. 24

FIG. 25

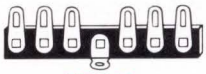


FIG. 26

FIG. 27

FIG. 28

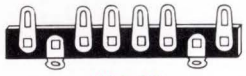


FIG. 29

FIG. 30

FIG. 31

FIG. 32

FIG. 33

FIG. 34

FIG. 35

FIG. 36

FIG. 37

STANDARD CAT. NO.	FIG. NO.	MINIATURE CAT. NO.
800	1	837
801	2	838
802	3	839
803	4	840
804	5	841
805	6	842
806	7	843
807	8	844
808	9	845
809	10	846
810	11	847
811	12	848
812	13	849
813	14	850
814	15	851
815	16	852
816	17	853
817	18	854
818	19	855
819	20	856
820	21	857
821	22	858
822	23	859
823	24	860
824	25	861
825	26	862
826	27	863
827	28	864
828	29	865
829	30	866
830	31	867
831	32	868
832	33	—
833	34	—
834	35	—
835	36	—
836	37	—

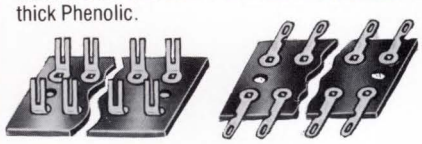
READI-MADE TERMINAL BOARDS

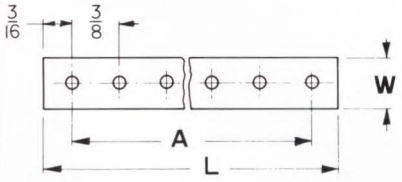
• SAVE TOOLING COST • APPROVED MATERIALS • RANGE OF SIZES

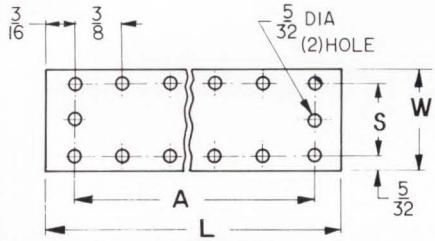
READI-MADE TERMINAL BOARDS are ideal for General Use. Choice of Terminals. **MATERIAL:** 1/16" thick Phenolic.

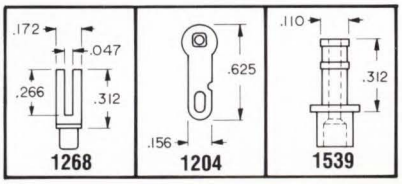
TERMINAL: 1204 and 1268 are stamped from .023 thick brass. 1539 is turned from 3/16" dia. brass rod.

PLATING: Bright Electro Tin









ALL TERMINAL DRAWINGS ARE ACTUAL SIZE

W	L	S	A	TERMINALS EACH SIDE	CHOICE OF TERMINALS: WITH 1268 TERM. CAT. NO.	WITH 1204 TERM. CAT. NO.	WITH 1539 TERM. CAT. NO.
1	1 7/8	11/16	1 1/2	5	1268-10	1204-10	1239-10
1	2 1/4	11/16	1 7/8	6	1268-12	1204-12	1239-12
1	5 1/4	11/16	4 7/8	14	1268-28	1204-28	1239-28
1 3/4	3 3/4	1 7/16	3 3/8	10	1268-20	1204-20	1239-20
1 3/4	4 1/8	1 7/16	3 3/4	11	1268-22	1204-22	1239-22
1 3/4	7 1/8	1 7/16	6 3/4	19	1268-38	1204-38	1239-38
1/2	7 1/8	Single Row	6 3/4	19	1268-19	1204-19	1239-19

DRILL SIZES... IN DECIMALS

Drill Size	Decimal	Drill Size	Decimal	Drill Size	Decimal	Drill Size	Decimal	Drill Size	Decimal	Drill Size	Decimal	Drill Size	Decimal	Drill Size	Decimal
80	.0135	60	.0400	42	.0935	24	.1520	13/64	.2031	9/32	.2812	X	.3970	45/64	.7031
79	.0145	59	.0410	3/32	.0938	23	.1540	6	.2040	L	.2900	Y	.4040	23/32	.7188
1/64	.0156	58	.0420	41	.0960	5/32	.1562	5	.2055	M	.2950	13/32	.4062	47/64	.7344
78	.0160	57	.0430	40	.0980	22	.1570	4	.2090	19/64	.2969	Z	.4130	3/4	.7500
77	.0180	56	.0465	39	.0995	21	.1590	3	.2130	N	.3020	27/64	.4219	49/64	.7656
76	.0200	3/64	.0469	38	.1015	20	.1610	7/32	.2188	5/16	.3125	7/16	.4375	25/32	.7812
75	.0210	55	.0520	37	.1040	19	.1660	2	.2210	0	.3160	29/64	.4531	51/64	.7969
74	.0225	54	.0550	36	.1065	18	.1695	1	.2280	P	.3230	15/32	.4688	13/16	.8125
73	.0240	53	.0595	7/64	.1094	11/64	.1719	A.	.2340	21/64	.3281	31/64	.4844	53/64	.8281
72	.0250	1/16	.0625	35	.1100	17	.1730	15/64	.2344	0	.3320	1/2	.5000	27/32	.8438
71	.0260	52	.0635	34	.1110	16	.1770	B	.2380	R	.3390	33/64	.5156	55/64	.8594
70	.0280	51	.0670	33	.1130	15	.1800	C	.2420	11/32	.3438	17/32	.5312	7/8	.8750
69	.0292	50	.0700	32	.1160	14	.1820	D	.2460	S	.3480	35/64	.5469	57/64	.8906
68	.0310	49	.0730	31	.1200	13	.1850	1/4	.2500	T	.3580	9/16	.5625	29/32	.9062
1/32	.0312	48	.0760	1/8	.1250	3/16	.1875	E	.2500	23/64	.3594	37/64	.5781	59/64	.9219
67	.0320	5/64	.0781	30	.1285	12	.1890	F	.2570	U	.3680	19/32	.5938	15/16	.9375
66	.0330	47	.0785	29	.1360	11	.1910	G	.2610	3/8	.3750	39/64	.6094	61/64	.9531
65	.0350	46	.0810	28	.1405	10	.1935	17/64	.2656	V	.3770	5/8	.6250	31/32	.9688
64	.0360	45	.0820	9/64	.1406	9	.1960	H	.2660	W	.3860	41/64	.6406	63/64	.9844
63	.0370	44	.0860	27	.1440	8	.1990	I	.2720	25/64	.3906	21/32	.6562	1	1.0000
62	.0380	43	.0890	26	.1470	7	.2010	J	.2770			43/64	.6719		
61	.0390			25	.1495			K	.2810			11/16	.6875		

MACHINE SCREW SIZE & CLEARANCE HOLE TABLE

SCREW OR STUD SIZE	MAXIMUM DIAMETER OF SCREW OR STUD	RECOMMENDED CLEARANCE HOLE DIAMETER
0	.060	.067
1	.073	.078
2	.086	.093
3	.099	.105
4	.112	.120
5	.125	.130
6	.138	.144
8	.164	.169
10	.190	.196
12	.216	.220
14	.242	.250
1/4	.250	.257

Fraction/Decimal/Millimeter Conversion Chart

1mm = .03937″ .001″ = .0254mm

	DECIMALS	MILLIMETERS
1/64	0.015625	0.397
1/32	.03125	0.794
3/64	.046875	1.191
1/16	.0625	1.588
5/64	.078125	1.984
3/32	.09375	2.381
7/64	.109375	2.778
1/8	.1250	3.175
9/64	.140625	3.572
5/32	.15625	3.969
11/64	.171875	4.366
3/16	.1875	4.763
13/64	.203125	5.159
7/32	.21875	5.556
15/64	.234375	5.953
1/4	.2500	6.350
17/64	.265625	6.747
9/32	.28125	7.144
19/64	.296875	7.541
5/16	.3125	7.938
21/64	.328125	8.334
11/32	.34375	8.731
23/64	.359375	9.128
3/8	.3750	9.525
25/64	.390625	9.922
13/32	.40625	10.319
27/64	.421875	10.716
7/16	.4375	11.113
29/64	.453125	11.509
15/32	.46875	11.906
31/64	.484375	12.303
1/2	.5000	12.700

	DECIMALS	MILLIMETERS
33/64	0.515625	13.097
17/32	.53125	13.494
35/64	.546875	13.891
9/16	.5625	14.288
37/64	.578125	14.684
19/32	.59375	15.081
39/64	.609375	15.478
5/8	.6250	15.875
41/64	.640625	16.272
21/32	.65625	16.669
43/64	.671875	17.066
11/16	.6875	17.463
45/64	.703125	17.859
23/32	.71875	18.256
47/64	.734375	18.653
3/4	.7500	19.050
49/64	.765625	19.447
25/32	.78125	19.844
51/64	.796875	20.241
13/16	.8125	20.638
53/64	.828125	21.034
27/32	.84375	21.431
55/64	.859375	21.828
7/8	.8750	22.225
57/64	.890625	22.622
29/32	.90625	23.019
59/64	.921875	23.416
15/16	.9375	23.813
61/64	.953125	24.209
31/32	.96875	24.606
63/64	.984375	25.003
1	1.000	25.400

MM	INCHES	MM	INCHES
.1	.0039	46	1.8110
.2	.0079	47	1.8504
.3	.0118	48	1.8898
.4	.0157	49	1.9291
.5	0197	50	1.9685
.6	.0236	51	2.0079
.7	.0276	52	2.0472
.8	.0315	53	2.0866
.9	.0354	54	2.1260
1	.0394	55	2.1654
2	.0787	56	2.2047
3	.1181	57	2.2441
4	.1575	58	2.2835
5	.1969	59	2.3228
6	.2362	60	2.3622
7	.2756	61	2.4016
8	.3150	62	2.4409
9	.3543	63	2.4803
10	.3937	64	2.5197
11	.4331	65	2.5591
12	.4724	66	2.5984
13	.5118	67	2.6378
14	.5512	68	2.6772
15	.5906	69	2.7165
16	.6299	70	2.7559
17	.6693	71	2.7953
18	.7087	72	2.8346
19	.7480	73	2.8740
20	.7874	74	2.9134
21	.8268	75	2.9528
22	.8661	76	2.9921
23	.9055	77	3.0315
24	.9449	78	3.0709
25	.9843	79	3.1102
26	1.0236	80	3.1496
27	1.0630	81	3.1890
28	1.1024	82	3.2283
29	1.1417	83	3.2677
30	1.1811	84	3.3071
31	1.2205	85	3.3465
32	1.2598	86	3.3858
33	1.2992	87	3.4252
34	1.3386	88	3.4646
35	1.3780	89	3.5039
36	1.4173	90	3.5433
37	1.4567	91	3.5827
38	1.4961	92	3.6220
39	1.5354	93	3.6614
40	1.5748	94	3.7008
41	1.6142	95	3.7402
42	1.6535	96	3.7795
43	1.6929	97	3.8189
44	1.7323	98	3.8583
45	1.7717	99	3.8976
		100	3.9370

PERSONAL NOTES

		Telephone	FAX
Company Sales Contact	_____	_____	_____
	_____	_____	_____
Engineering Contact	_____	_____	_____
Q.C. Contact	_____	_____	_____
Distributor Contact 1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____
Sales Representative	_____	_____	_____

NUMERICAL INDEX

Designers' Choice

KEYSTONE

CAT. NO.	PAGE NO.
22 to 27	61
33 to 37	61
43 to 48	61
58 to 63	15
66	15
67	14
68	11
69	14
70	14
71	14
72 to 77	11
78	14
79	14
80	14
83	11
86 to 91	14
92	13
93 to 99	14
100	
100	14
102	4
105	5
105-2	13
105-3	13
106	5
107	5
108	3
108C	3
108-2	13
109	9
109-2	13
110	9
129 to 132	4
134	9
135	9
137	8
138	8
139	8
139B	8
140	8
146 to 153	10
154	8
155	8
156	8
157	9
158	10
160	9
161	8
163	8
164	9
165	9
166	8
167	8
168	8
169	8
170	8
171	8
173P	8
173 to 178	8
179	9
182 to 187	8
189	8
190	8
192	8
193	8
196	8
197	8
200	
200	8
201	8
203P	8
205	8
206	12
205	12
208	12
209	13
210	13
211	12
211-D	12
212	15
213	15
214	15
217 to 222	14
223	4
224	4
225	8
226	8
227	12
228	13
230	13
231	13
232	12
233	12
234	12
261 to 266	12
269 to 274	12
300	
330 to 338	39
340 to 346	55
348	55
349	55
351 to 359	39
360 to 396	41
397 to 399	40
400	
400	40
401	40
402 to 410	40
412 to 422	40
425 to 430	40
432 to 438	40
452	30
453 to 473	41
476	31
480 to 496	49
500	
500	4
501	4
502	4
510 to 538	49
540 to 548	49
552	30
561	33
565 to 570	33
571	32
572	32
573	32
574	33
575	31
576	33
577	32
580	33
593	11
594	11
600	
603-1 to 603-10	85
604-1 to 604-10	85
607-1 to 607-10	85
609-1 to 609-10	85
610	45
611	44
612	44
613	45
614	44
615	45
616-617	44
618	45
618	44
619	45
620	45
621	44
622	45
623	45
624	45
625	45
626	45
627	45
630	44
631	44
633	45
634	44
635	11
636	11
639	80
640	80
641	80
643	80
645	80
647	80
649	80
650	80
652	30
653	30
660 to 668	80
670 to 674	80
676	80
677	80
679	80
680	15
681	80
682	80
683	80
685	80
686	80
689	80
690	80
694 to 699	53
700	
700 to 707	51
708	44
710 to 714	80
715	51
716	51
720 to 757	54
760 to 764	51
800	
800 to 873	87
875 to 898	41
900	
900	32
901	32
902	32
903 to 910	62
914	62
915	62
916	62
917	62
918	62
1000	
1005 to 1008	65
1025 to 1027	5
1028	3
1028C	3
1029	3
1029C	3
1030 to 1044	63
1045	64
1084	33
1085	33
1100	
1101	7
1103	4
1104	7
1105	4
1109	7
1110	7
1113	7
1114	7
1116	7
1125	7
1132	7
1134	7
1135	7
1139	6
1142	7
1144	7
1145	7
1162	6
1173	6
1175	6
1185	6
1186	6
1189	6
1191	6
1194	6
1195	6
1198	6
1199	6
1200	
1200	75
1201	66
1202	66
1204	87
1204-10	87
1204-12	87
1204-19	87
1204-20	87
1204-22	87
1204-28	87
1204-38	87
1209	66
1210	75
1214	74
1215	66
1218	68
1219	68
1223	75
1224	75
1226	75
1230	75
1231	75
1232	66
1236	74
1237	74
1238	74
1239-10	87
1239-12	87
1239-19	87
1239-20	87
1239-22	87
1239-28	87
1239-38	87
1241 to 1246	52
1248	66
1249 to 1255	64
1256	65
1257	65
1258	65
1259	66
1260	66
1261	65
1262	65
1263	65
1264	64
1265	65
1266	65
1267	65
1268	87
1268-10	87
1268-12	87
1268-19	87
1268-20	87
1268-22	87
1268-28	87
1268-38	87
1269	64
1270	64
1271	65
1272	67
1273	67
1274	62
1275	62
1276	62
1278	62
1279	62
1280	65
1281	65
1282	65
1283	66
1284	66
1285	65
1286	65
1287	65
1288	65
1289	65
1290	11
1291	11
1293	66
1294	11
1295	11
1300	
1301	79
1302	79
1304	79
1305	79
1306	79
1307	79
1309	79
1310 to 1313	79
1322	74
1323	74
1324	79
1325	79
1326	79
1331 to 1339	78
1345	75
1400	
1401 to 1408	68
1411	68
1412-1	69
1412-2	69
1412-3	69
1413	69
1414	69
1415	69
1416	69
1417	69
1418	69
1419	69
1421	68
1422	68
1423	68
1424	68
1425	68
1426	68
1427	68
1428	68
1431	69
1432-1	69
1432-2	69
1432-3	69
1433 to 1439	69
1440	68
1441 to 1446	69
1447	68
1448	43
1449	43
1450	37
1450A	37
1450B	37
1450C	37
1450D	37
1450E	37
1451A	37
1451B	37
1451C	37
1451D	37
1451E	37
1452A	37
1452B	37
1452C	37
1452D	37
1452E	37
1453	43
1454A	40
1454B	40
1454C	40
1454D	40
1454E	40
1455	68
1456	43
1457A	40
1457B	40
1457C	40
1457D	40
1457E	40
1458	43
1459	43
1460 to 1463	68
1464 to 1467	43
1472	43
1474A	37
1474B	37
1474C	37
1474D	37
1474E	37
1476	21
1477	21
1480 to 1484	40
1485	21
1490 to 1494	41
1495	74
1498-CP	74
1498-SP	74
1499-FT	74
1499-SP	74
1500	
1500	74
1501	73
1502 to 1505	71
1506	72
1507	72
1508	71
1509	72
1510	72
1511	72
1512	73
1514	71
1515	72
1518	73
1519	71
1520	71
1521	73
1522	73
1523 to 1526	72
1527	71
1528	71
1529	73
1530	73
1531	72
1532	71
1533	72
1534	73
1535	66
1536	66
1537	66
1538	71
1539	71
1540	71
1541	72
1542	73
1543	71

NUMERICAL INDEX

CAT. NO.	PAGE NO.
1545	73
1546	38
1547	37
1547A	37
1547B	37
1547C	37
1547D	37
1547E	37
1548A	37
1548B	37
1548C	37
1548D	37
1548E	37
1549A	37
1549B	37
1549C	37
1549D	37
1549E	37
1550	73
1551	73
1552	73
1553	71
1554	71
1556	45
1558	67
1559	71
1560	37
1560	38
1561	38
1562	71
1563	67
1564 to 1571	45
1572	71
1573	71
1574	73
1575	73
1576	73
1577	72
1578	72
1579	73
1580	73
1581	73
1582	72
1583	73
1584	71
1585	71
1586	73
1587	67
1588	72
1589	38
1590	38
1591	38
1592	72
1593	71
1594	72
1595	67
1596	38
1598	71
1599	72
1600	
1600	27
1601	27
1602	73
1604	38
1605	38
1608	38
1609	38
1610	72
1611	72
1612	38
1613	73
1615	27
1616	27
1620	38
1621 to 1625	38
1627 to 1630	38
1631	73
1632	73
1633	72
1634	72
1635	37
1636 to 1639	37
1642	37
1643	37
1644	36
1645	36
1646	36
1647	45
1648	45
1649	45
1650 to 1655	38
1656	37
1656A	37
1657	37
1657A	37
1660	27
1661	27
1670	27
1671	27
1680	27
1681	27
1690	27
1691	27
1692A	37
1692B	37
1692C	37
1692D	37
1692E	37
1700	
1700	43
1701	43
1702	43
1704	43
1705	43
1706	43
1707	78
1708	43
1709	43
1710	43
1713	78
1714 to 1717	79
1719	79
1721	78
1722	79
1723	60
1726	79
1730	81
1731	38
1732	81
1733	81
1734	38
1735 to 1739	81
1740	38
1742	81
1743	38
1744	81
1745	81
1746	38
1747	81
1748	81
1749	38
1750	81
1752	38
1753	81
1754	81
1756	81
1757	81
1758	38
1759	38
1760	81
1761	38
1762	81
1763	81
1765 to 1768	81
1770	81
1771	81
1772	81
1773	81
1774	81
1775	38
1776	81
1777	81
1778 to 1783	81
1784	38
1785 to 1789	81
1790	38
1791	81
1792	38
1793	81
1794	81
1795	81
1796	38
1797A	37
1797B	37
1797C	37
1797D	37
1798A	37
1798B	37
1798C	37
1798D	37
1800	
1801A	37
1801B	37
1801C	37
1801D	37
1802A	37
1802B	37
1802C	37
1802D	37
1803	37
1804	37
1805	37
1806	81
1807	81
1808	37
1809	37
1810	26
1811	26
1812	81
1813	37
1814	81
1816	37
1818	37
1819	37
1820	37
1824	81
1825	37
1826	81
1827	37
1828	37
1829 to 1834	37
1835	81
1836 to 1839	37
1844	81
1845	81
1846	37
1847	37
1848	37
1853	37
1854	81
1855 to 1859	37
1864 to 1867	37
1868 to 1875	81
1876 to 1879	37
1881 to 1897	37
1899	37
1900	
1902A	41
1902B	41
1902C	41
1902D	41
1902E	41
1902F	41
1902G	41
1903A	41
1903B	41
1903C	41
1903D	41
1903E	41
1903F	41
1903G	41
1904A	41
1904B	41
1904C	41
1904D	41
1904E	41
1904F	41
1904G	41
1905 to 1908	81
1909	40
1910 to 1918	81
1919	40
1920	40
1921	40
1921A	40
1921B	40
1921C	40
1921D	40
1921E	40
1921F	40
1922	40
1922A	40
1922B	40
1922C	40
1922D	40
1922E	40
1922F	40
1923	40
1923A	40
1923B	40
1923C	40
1923D	40
1923E	40
1923F	40
1924	40
1925	40
1926A	37
1926B	37
1926C	37
1926D	37
1926E	37
1927A	41
1927B	41
1928A	41
1928B	41
1929A	41
1929B	41
1930A	41
1930B	41
1931A	41
1931B	41
1932A	41
1932B	41
1933A	41
1933B	41
1934 to 1938	40
1939	81
1941	81
1942	40
1943	81
1944 to 1964	36
2000	
2025 to 2031	37
2032 to 2053	40
2053 to 2060	51
2060 to 2077	35
2087 to 2099	36
2100	
2101	7
2103	4
2104	7
2105	4
2109	7
2110	7
2113	7
2114	7
2116	7
2119	36
2120 to 2131	36
2132	7
2134	7
2135	7
2139	6
2140	6
2142	7
2144	7
2145	7
2149 to 2161	36
2162	6
2171	6
2173	6
2174	6
2175	6
2176	6
2182	6
2184	4
2185	6
2186	4
2187	6
2188	6
2189	6
2190	6
2191	6
2192	6
2194	6
2195	6
2198	6
2199	6
2200	
2201 to 2221	37
2222 to 2233	10
2300	
2314	40
2315A	37
2315B	37
2315C	37
2315D	37
2315E	37
2400	
2400 to 2437	42
2441 to 2457	42
3000	
3014	27
3015	27
3016	27
3017	27
3018	27
3019	27
3022	27
3049	55
3051 to 3062	55
3064	55
3065	55
3066	55
3069	55
3075	61
3076	61
3077	61
3100	
3101 to 3198	55
3200	
3200 to 3241	55
3300	
3347 to 3350	55
3352	55
3353	55
3354	55
3356 to 3370	55
3372	55
3373	55
3381 to 3391	61
3396 to 3399	81
3400	
3400	81
3402	40
3403	40
3404 to 3413	81
3425	81
3426	81
3427	81
3429	40
3438	40
3457	40
3458 to 3477	40
3478 to 3498	37
3500	
3501	69
3502	69
3503	69
3505	69
3506	69
3507	69
3513	24
3514	24
3515	24
3516P	24
3517	24
3518P	24
3519	24
3520	24
3521	24
3522	23
3523	25
3524	25
3525	64
3526	25
3527	25
3528	64
3529	24
3530	24
3531	23
3532	23
3533	23
3535	23
3536 to 3543	25
4000	
4000 to 4003	15
4004	62
4005	64
4006	15
4007 to 4020	15
4023 to 4031	15
4056 to 4060	86
4091 to 4097	34
4100	
4108	34
4109	34
4116 to 4120	86
4147 to 4196	86
4200	
4225 to 4232	81
4243	25
4244	23
4245	25
4246	23
4247	23
4258	40
4259	40
4260	40
4300	
4313 to 4324	36
4325	45
4326	45
4332	44
4333	44
4334	44
4335	45
4336	45
4337	45
4341	40
4342	40
4343	40

NUMERICAL INDEX

Designers' Choice KEYSTONE

CAT. NO.	PAGE NO.
4390 to 4399	40
4400	
4401 to 4405	86
4469 to 4474	64
4500	
4513 to 4516	18
4599-1	18
4599-2	18
4600	
4600 to 4603	19
4606	19
4607 to 4610	19
4611 to 4615	17
4616	20
4617	20
4618	19
4620	18
4625	17
4632 to 4635	21
4636	22
4637	22
4640	22
4644	22
4651	22
4652	22
4653	22
4655 to 4674	22
4678 to 4683	22
4684	20
4690	21
4692	21
4693 to 4696	21
4697	20
4698	55
4699	21
4700	
4700	21
4701	21
4702	55
4703	21
4704	21
4705	21
4706	20
4711	55
4712 to 4731	21
4732	20
4734	20
4736	20
4737	20
4738	20
4800	
4800 to 4841	36
4850 to 4870	38
5000	
5033 to 5040	16
5044	16
5045	16
5046	16
5048	16
5055	16
5056	16
5057	16
5060	40
5061 to 5065	40
5070 to 5083	75
6000	
6000 to 6035	28
6036 to 6071	29
6072 to 6079	30
6080	31
6081	31
6082	30
6083	30
6084	31
6085	31
6086 to 6089	34
6090 to 6096	31
7000	
7004 to 7007	34
7012 to 7019	34
7100	
7100	82
7110 to 7116	82
7120 to 7126	82
7140 to 7151	49
7156	49
7157	49
7158	49
7162	49
7163	49
7164	49
7170 to 7181	49
7186	49
7187	49
7188	49
7192	49
7193	49
7194	49
7196 to 7199	50
7200	
7200 to 7203	36
7205	36
7210	36
7211	36
7212	36
7214	36
7215	36
7220	36
7221	36
7222	36
7224	36
7225	36
7228 to 7233	35
7300	
7311	62
7312	62
7313	62
7314 to 7319	62
7325 to 7335	62
7337	62
7339	62
7351 to 7382	59
7600	
7600 to 7611	57
7620 to 7640	57
7661 to 7678	41
7680	55
7681	55
7682	55
7683	55
7684	55
7685	55
7686	55
7687	55
7688	55
8000	
8025	26
8060	26
8100	
8100 to 8113	56
8120 to 8134	56
8140	56
8141 to 8154	56
8160 to 8173	56
8190 to 8194	67
8200	
8200 to 8253	76
8254 to 8299	77
8300	
8300	77
8301 to 8308	75
8311 to 8342	59
8350 to 8357	50
8400	
8400 to 8438	36
8440A	41
8440B	41
8440C	41
8440D	41
8440E	41
8440F	41
8440G	41
8441A	41
8441B	41
8441C	41
8441D	41
8441E	41
8441F	41
8441G	41
8442A	41
8442B	41
8442C	41
8442D	41
8442E	41
8442F	41
8442G	41
8449 to 8457	46
8458 to 8463	47
8470	54
8471 to 8496	54
8600	
8600 to 8617	57
8620 to 8636	60
8640	60
8641	60
8642	60
8643	60
8644	60
8650	58
8651	58
8652	58
8653	58
8656	58
8657	58
8658	58
8659	58
8662	58
8663	58
8664	58
8665	58
8668	58
8669	58
8670	58
8671	58
8674	58
8675	58
8676	58
8677	58
8680	58
8681	58
8682	58
8683	58
8686	58
8687	58
8688	58
8689	58
8700	
8700 to 8711	43
8712 to 8717	36
15000	
15021 to 15049	83
15053	83
15054	83
15056	83
15057	83
15058	83
15059	83
15063 to 15069	83
15071 to 15079	83
15087	83
15088	83
15089	83
15091	83
15092	83
15903 to 15099	83
15100	
15101 to 15130	84
15200	
15221 to 15226	83
15228	83
15229 to 15236	83
15241 to 15249	83
15253 to 15259	83
15263	83
15264	83
15265	83
15267	83
15268	83
15269	83
15271 to 15279	83
15287	83
15288	83
15289	83
15291 to 15299	83
15300	
15301	84
15302	84
15304 to 15330	84
15332	85
15333	85
15342	85
15343	85
15400	
15401 to 15415	85
15431 to 15445	84
15500	
15501 to 15515	85
15531 to 15545	84
MS	
MS27249	82
SPR	
SPR-8	39
SPR-13	39
SPR-34	39
STH	
STH-14	39
STH-19	39
STH-22	39
STR-15	39
STR-35	39
TL	
TL-1 to TL-20	70

CUSTOM BUILT COMPONENT PARTS AND ACCESSORIES

If Our Standardized Catalogued Items Do Not Meet Your Requirements: WE OFFER YOU.....

FREE DESIGN & ENGINEERING SERVICES Application Engineers who can assist you with cost saving methods and assemblies in the manufacture of your parts.

MODERN FULLY EQUIPPED TOOLROOM All the latest machinery manned by highly skilled efficient personnel, proficient in the design of Tools, Dies, Jigs and Fixtures.

ASSEMBLY FACILITIES Our Engineering staff designs all our tooling and automatic machinery to mass produce at the lowest cost. Our competent production staff trains our employees to assemble unique parts not suitable for automatic equipment.

SCREW MACHINE FACILITIES We maintain up to date modern machinery that will produce your screw machine parts at the lowest possible cost with the highest quality. Our secondary department is manned by highly skilled personnel to assure you of prompt delivery.

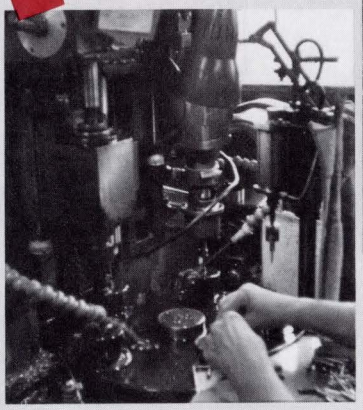
STAMPING FACILITIES Our skilled tool and die makers and experienced production staff use up-to-date, high speed power equipment to manufacture a wide variety of competitively priced stampings for many industries in short or long run quantities. We are equally proficient with all materials including Brass, Aluminum, Copper, Steel, Stainless Steel, Phenolic, Nylon, Bakelite and Fiberglass.

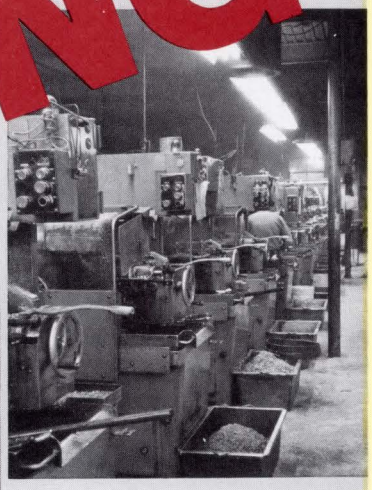
QUALITY ASSURANCE Computer–based data sampling and Statistical Process Control (SPC) are among the many tools Keystone employs to maintain high quality assurance levels. Our QC manual procedure includes: raw material integrity, set-up and in-process product inspections, plating and finishing inspections. We carefully inspect and test mechanically, electronically and visually to assure that only quality products leave our factory. We meet the following military inspection procedures: MIL-Q-9858 and MIL-I-45108.

PROMPT QUOTATIONS RENDERED

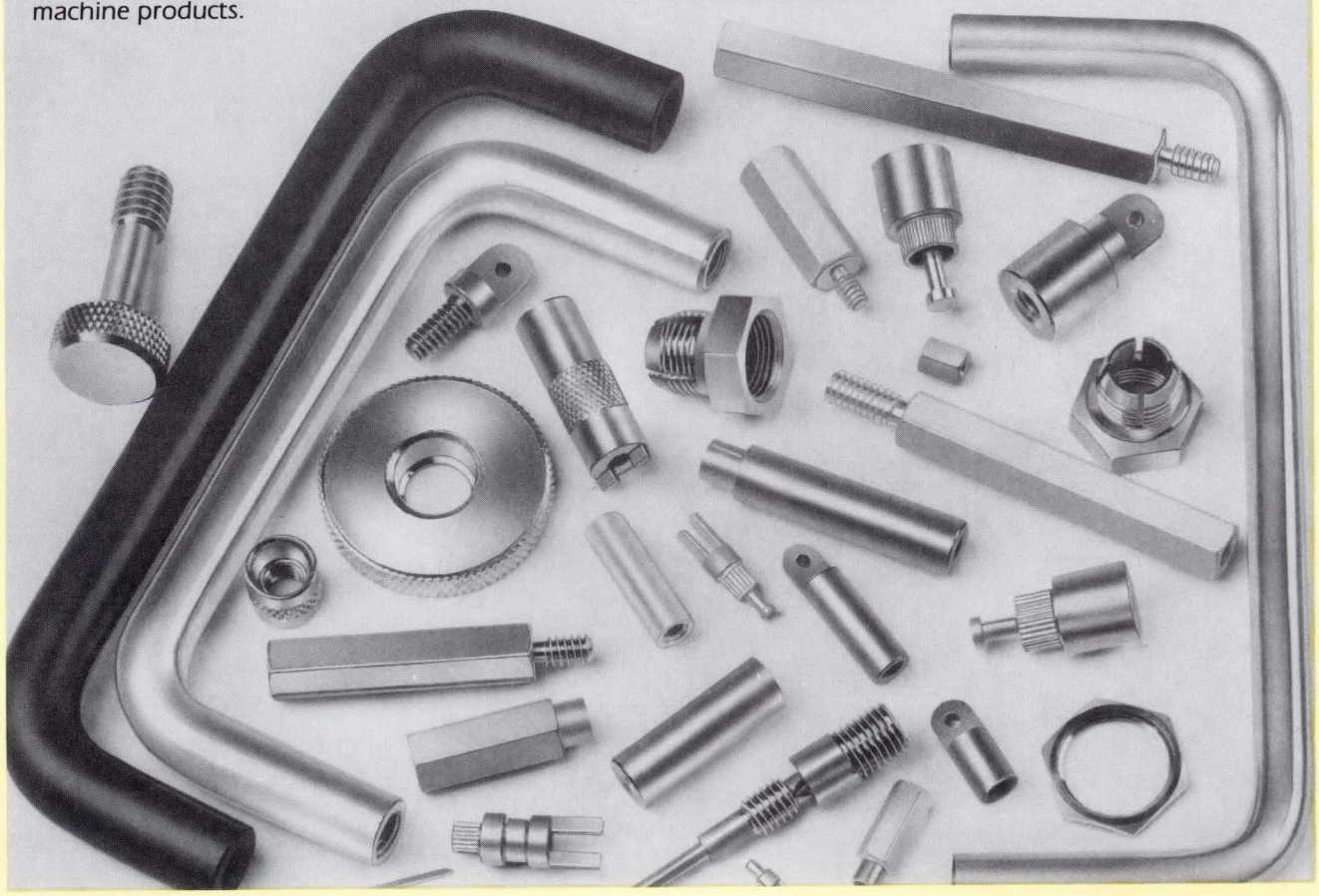
CUSTOM MANUFACTURING DIVISION

MACHINING



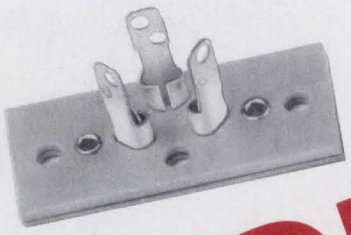


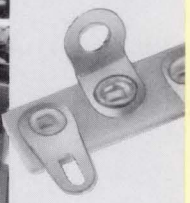
Our automatic machinery and support equipment produce the highest quality machine parts at the lowest costs. Our secondary department is manned by technically skilled personnel whose expertise assures prompt delivery of short run and long run screw machine products.



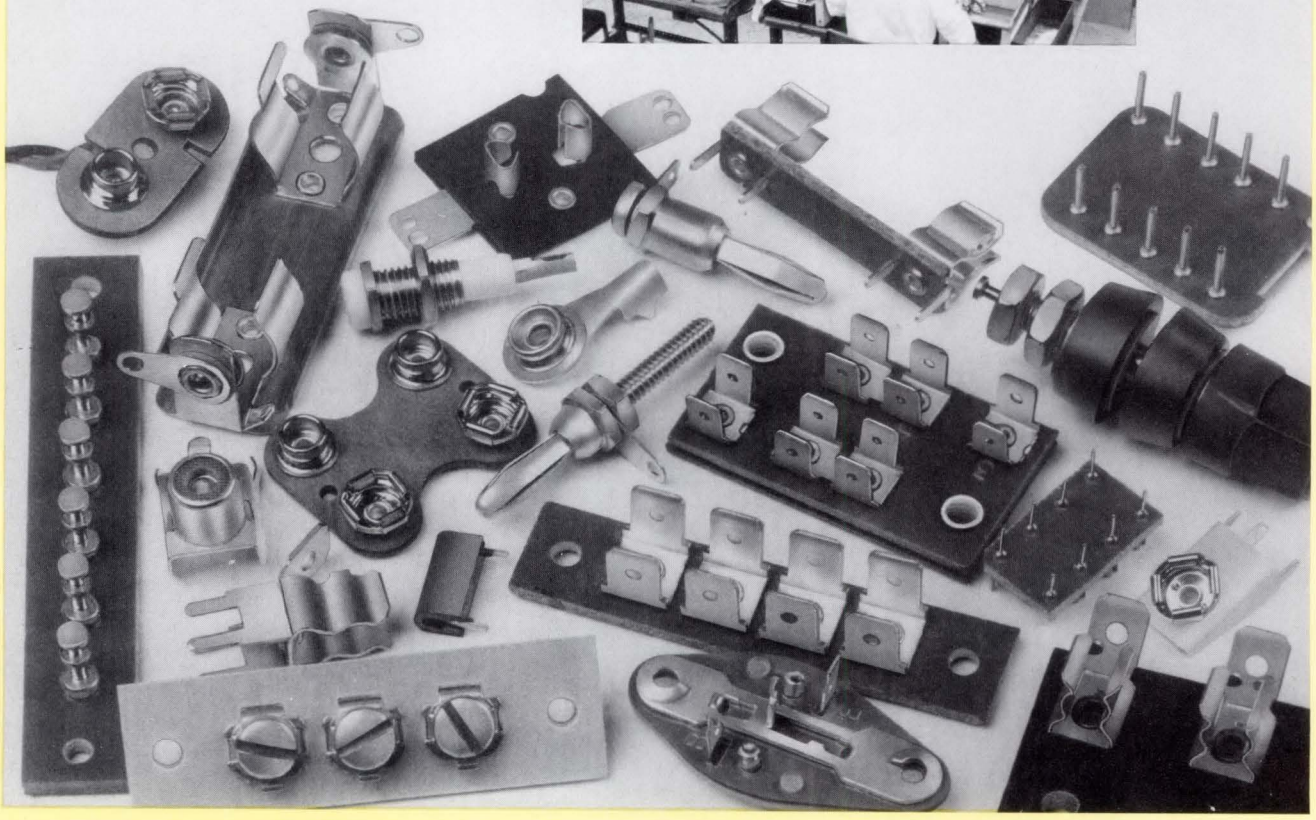
CUSTOM MANUFACTURING DIVISION

ASSEMBLY





Cost-effective assembly procedures, aided by computerized controls, emphasize the continuing Keystone commitment to excellence in product quality, service and dependability. Whether it's crimping, eyeleting, riveting or soldering by single, multi or automatic assembly, our trained production staff coordinates many unique parts into unified, functioning components crafted with care.



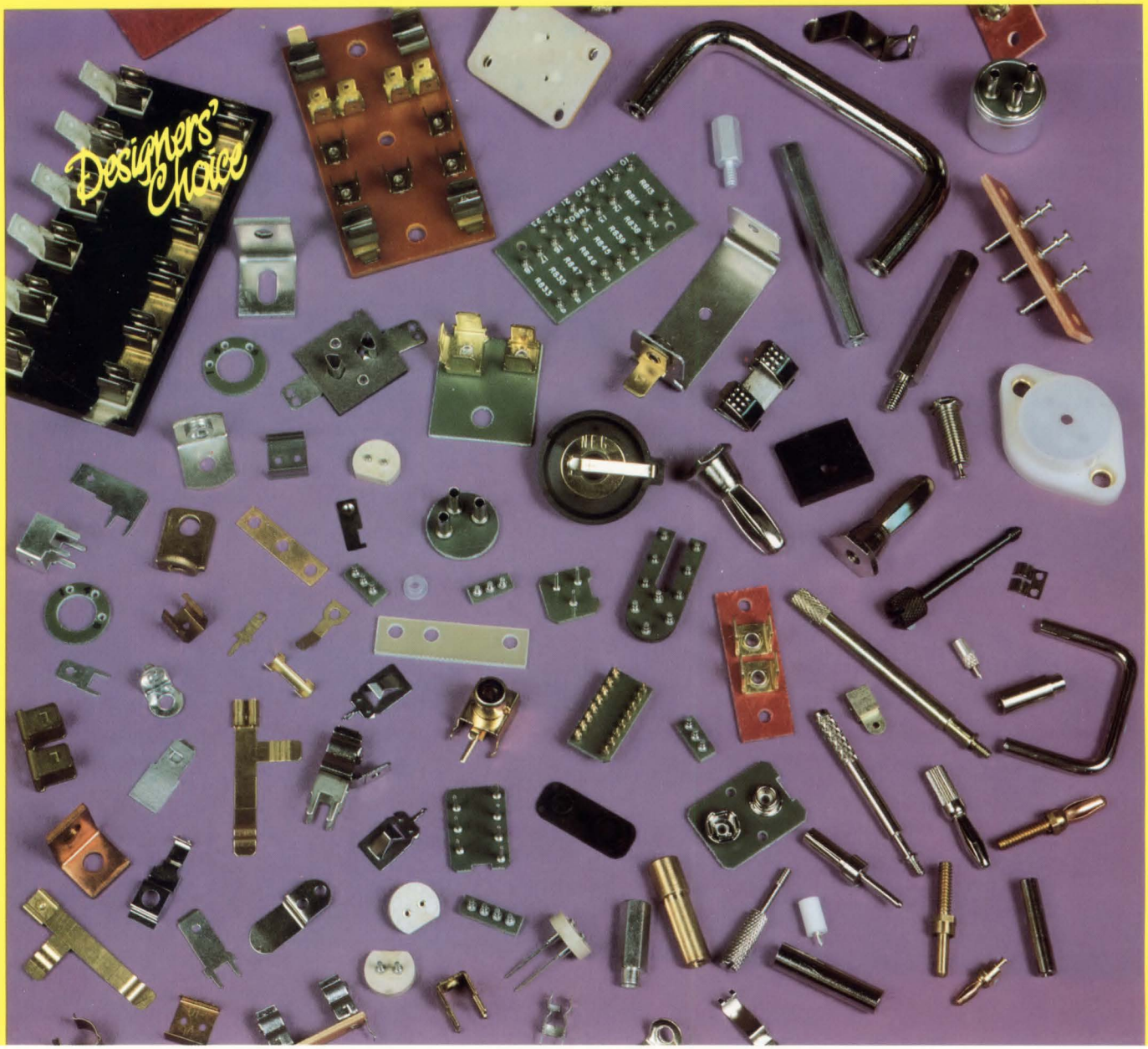
CUSTOM MANUFACTURING DIVISION

STAMPING

With custom built, modified or standard components, Keystone's skilled tool and die makers and experienced production staff use up-to-date, high speed, power equipment to manufacture a wide variety of competitively priced stampings for many industries in short or long run quantities. We are equally proficient with all materials including Brass, Aluminum, Copper, Steel, Stainless Steel, Phenolic, Nylon, Bakelite and Fiberglass.

CUSTOM MANUFACTURING DIVISION

Custom Designs & Assemblies



KEYSTONE
ELECTRONICS CORP.

Corporate Headquarters

31-07 20th Road, Astoria, New York 11105-2017
Tel: (718) 956-8900 FAX: (718) 956-9040

INTERNATIONAL OFFICES

KEYSTONE / EUROPE

71, Rue Orfila, 75020 Paris, France • Tel: 33 (1) 46 36 82 49 FAX: 33 (1) 46 36 81 57

KEYSTONE / CANADA

39 Glen Cameron Road, Thornhill, Ontario, Canada L3T 1P1 • Tel: (416) 889-1204 FAX: (416) 889-1358

KEYSTONE / ASIA

No. 7 Kallang Way 4, Singapore 1334 • Tel: 65-748-4900 FAX: 65-748-0504