

517-525
20
517-690

HARWIN

Farnell
COMPONENTS

Hardware

HARDWARE

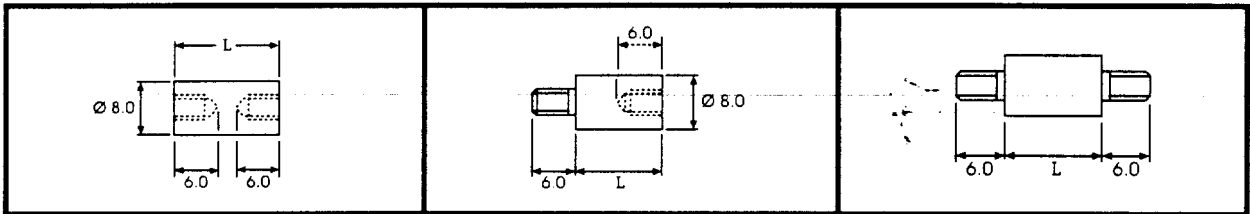
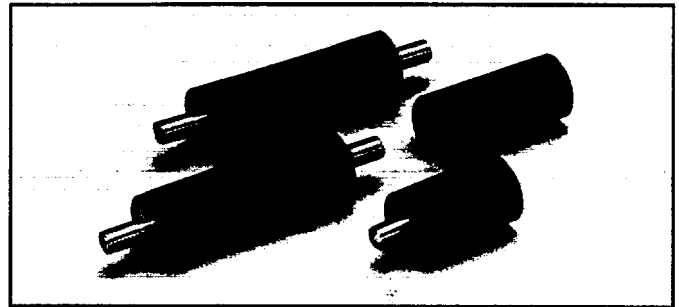
NYLON SPACERS/BRASS INSERTS

- Insulator material: Nylon.
- Insert material: Brass.

In addition to the spacers available from stock as shown the following can be manufactured to order. Special body lengths can be manufactured by specifying the length (L) in the order code:
Example R30-530XX00.

XX denotes body length (L) in mm.

For special sizes please contact Technical sales for a quotation.



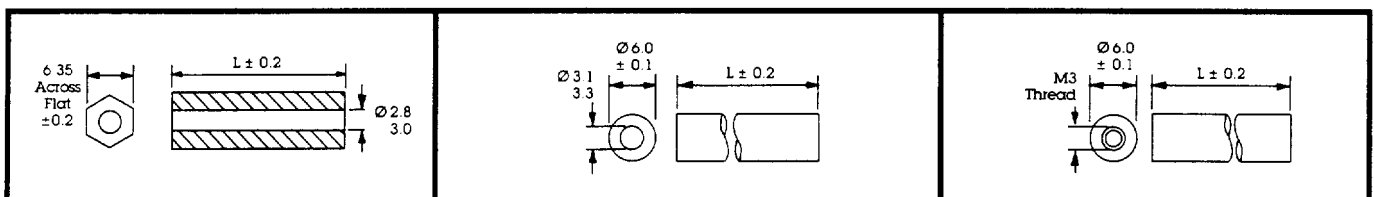
ORDER CODE

| L | M3 THREAD | M3 THREAD | M3 THREAD |
|----|-------------|-------------|-------------|
| 14 | R30-5301400 | R30-7301400 | R30-8301400 |
| 16 | R30-5301600 | R30-7301600 | R30-8301600 |
| 18 | R30-5301800 | R30-7301800 | R30-8301800 |
| 20 | R30-5302000 | R30-7302000 | R30-8302000 |
| 22 | R30-5302200 | R30-7302200 | R30-8302200 |
| 25 | R30-5302500 | R30-7302500 | R30-8302500 |

PLASTIC SPACERS

- PVC or polyacetal plastic spacers.
- Special sizes available to order.

For special sizes please contact Technical sales for a quotation.



ORDER CODE

| L | MATERIAL GREY PVC No 6 SELF TAPPING SCREW | L | MATERIAL GREY PVC M3 CLEARANCE | L | MATERIAL WHITE POLYACETAL M3 THREAD |
|-------|--|----|-----------------------------------|----|--|
| 6.35 | R1800-91 | 6 | R2006-91 | 6 | R1906-94 |
| 8.00 | R1811-91 | 8 | R2008-91 | 8 | R1908-94 |
| 9.5 | R1801-91 | 10 | R2010-91 | 10 | R1910-94 |
| 10.00 | R1812-91 | 12 | R2012-91 | 12 | R1912-94 |
| 12.70 | R1802-91 | 14 | R2014-91 | 14 | R1914-94 |
| 14.00 | R1814-91 | 16 | R2016-91 | 16 | R1916-94 |
| 16.00 | R1815-91 | 18 | R2018-91 | | |
| 18.00 | R1816-91 | 20 | R2020-91 | | |
| 19.00 | R1804-91 | | | | |
| 20.00 | R1817-91 | | | | |
| 25.40 | R1806-91 | | | | |

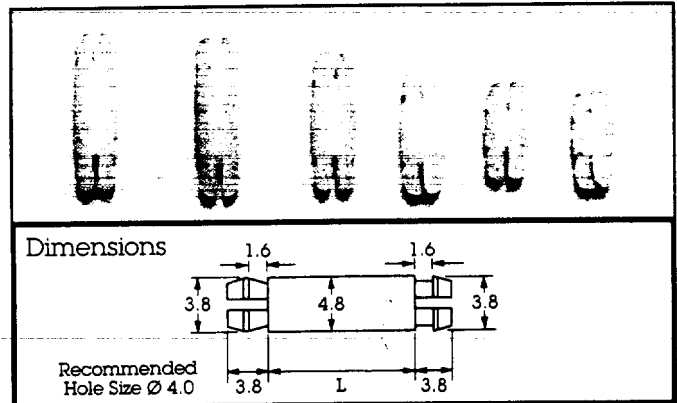
HARDWARE

PLASTIC SPACERS

LOW PROFILE SELF LOCK SPACERS

- Material: Nylon 6/6 UL94V-2.
- Spacer design uses minimum board area.
- Suitable for 1.6mm thick pc board.

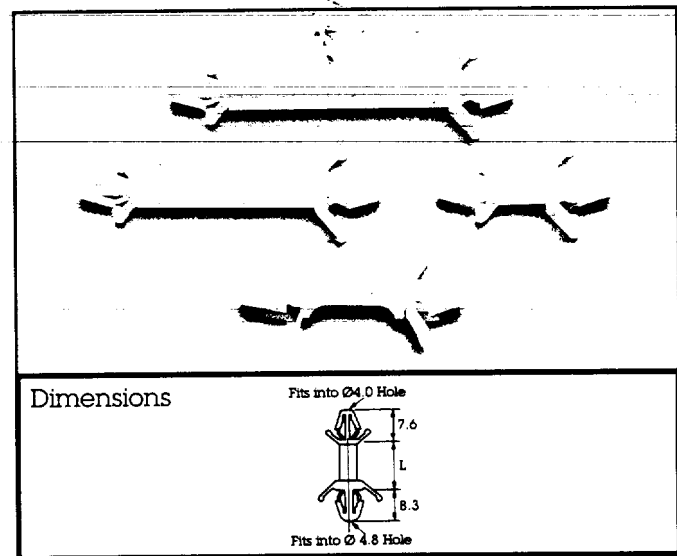
| L | ORDER CODE |
|------|------------|
| 3.2 | R6003-00 |
| 6.3 | R6006-00 |
| 8.0 | R6008-00 |
| 9.5 | R6009-00 |
| 10.5 | R6010-00 |
| 12.7 | R6013-00 |



RIGID SELF LOCK SPACERS

- Material: Nylon 6/6 UL94V-2.
- Spacers have wide ribs with locking fingers to provide a secure, rigid fit with extra stability.

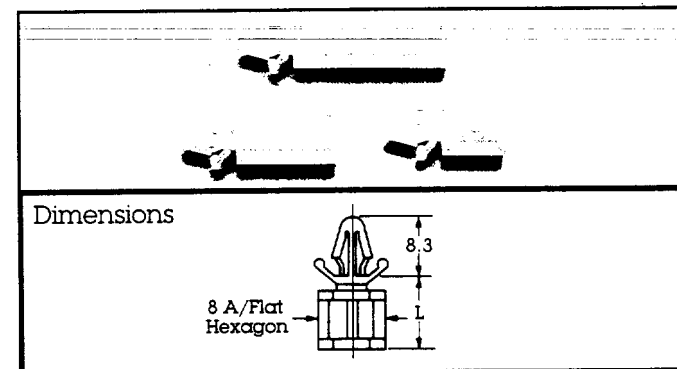
| L | ORDER CODE |
|------|------------|
| 4.8 | R6405-00 |
| 6.4 | R6406-00 |
| 9.6 | R6410-00 |
| 12.7 | R6413-00 |
| 15.9 | R6416-00 |
| 19.1 | R6419-00 |
| 22.2 | R6422-00 |
| 25.4 | R6425-00 |
| 28.5 | R6428-00 |
| 35.0 | R6435-00 |



THREADED SELF-LOCK SPACERS

- Material: Nylon 6/6 UL94V-2.
- Attached to chassis by No. 6 self-tapping screw.
- Drill 3mm hole in chassis.

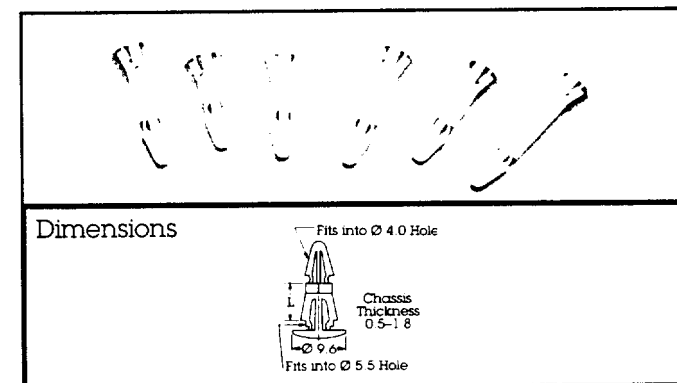
| L | ORDER CODE |
|------|------------|
| 5.0 | R6505-00 |
| 9.6 | R6510-00 |
| 12.7 | R6513-00 |
| 19.1 | R6519-00 |
| 28.5 | R6528-00 |
| 35.0 | R6535-00 |



REVERSE-LOCK SPACERS

- Material: Nylon 6/6 UL94V-2.
- Fit spacers from underside of chassis.

| L | ORDER CODE |
|------|------------|
| 6.4 | R6706-00 |
| 8.0 | R6708-00 |
| 9.6 | R6710-00 |
| 12.0 | R6712-00 |
| 14.0 | R6714-00 |
| 18.0 | R6718-00 |

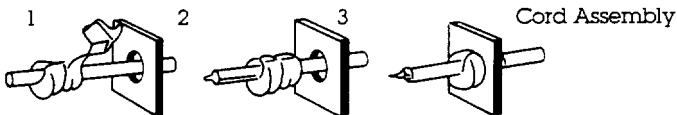


HARDWARE

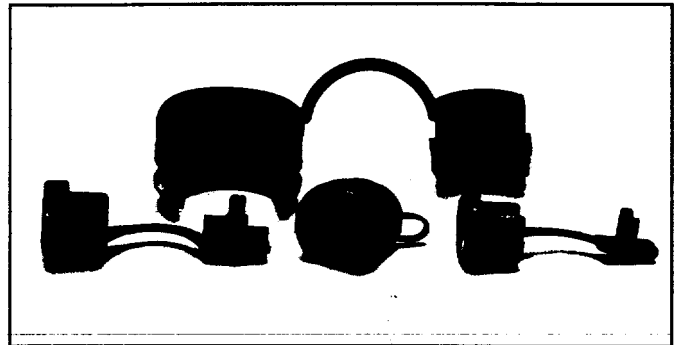
CABLE BUSHES

STRAIN-RELIEF BUSHES

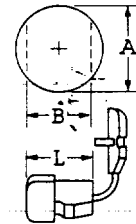
- Material: Nylon 6/6 UL94V-2 (black).
- Easy-to-use, protects cables passing through chassis.
- Provides cable strain relief.



| ORDER CODE | WIRE SIZE | Ø A | DIMENSION | | CHASSIS THICK. |
|------------|-----------|------|-----------|------|----------------|
| | | | B | L | |
| R6570-00 | Ø6.2-7.4 | 12.7 | 11.5 | 11.0 | 0.5-1.6 |
| R6571-00 | Ø6.2-7.4 | 12.7 | 11.5 | 11.0 | 1.8-2.5 |
| R6572-00 | Ø7.4-8.2 | 15.9 | 14.0 | 14.8 | 0.5-1.6 |
| R6573-00 | Ø7.4-8.2 | 15.9 | 14.0 | 14.8 | 1.9-3.2 |
| R6574-00 | Ø8.2-9.2 | 15.9 | 14.0 | 14.8 | 0.5-1.6 |
| R6575-00 | Ø8.2-9.2 | 15.9 | 14.0 | 14.8 | 1.9-3.2 |



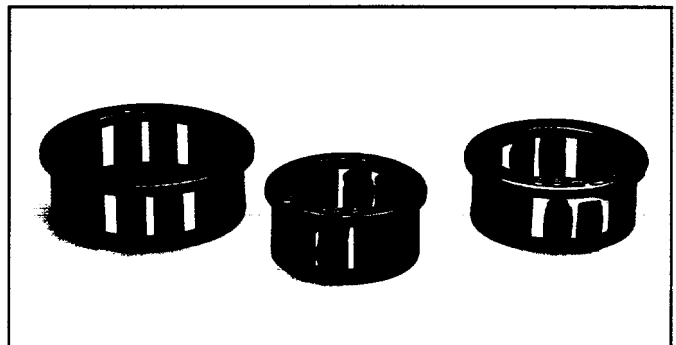
Dimensions



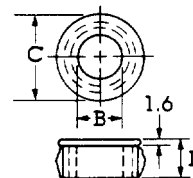
SNAP-FIT BUSHES

- Material: Nylon 6/6 UL94V-2 (black).
- Press fit retention in chassis protects cable.
- Chassis thickness 0.8 to 3.2.

| ORDER CODE | MOUNT. HOLE Ø | DIMENSION | | |
|------------|---------------|-----------|------|------|
| | | B | C | L |
| R6580-00 | 7.9 | 5.2 | 9.4 | 8 |
| R6581-00 | 9.5 | 6.3 | 12.0 | 10.3 |
| R6582-00 | 13.0 | 8.2 | 14.5 | 10.3 |
| R6583-00 | 15.9 | 12.2 | 18.6 | 10.3 |
| R6584-00 | 18.9 | 14.3 | 21.5 | 10.3 |
| R6585-00 | 22.0 | 17.3 | 23.8 | 11.5 |



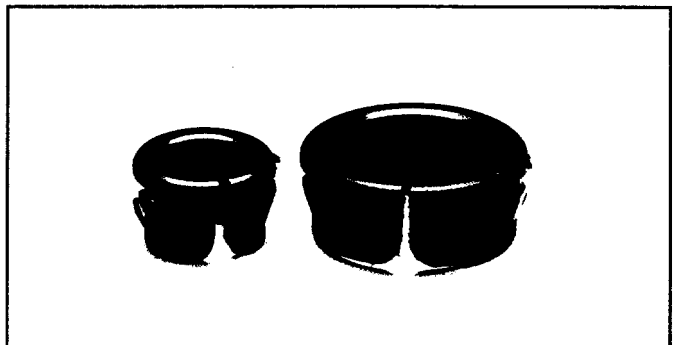
Dimensions



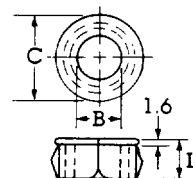
FLEXIBLE SNAP-FIT BUSHES

- Material: Nylon 6/6 UL94V-2 (black).
- Press fit retention in chassis protects cable.
- Can be fitted after cable assembly.
- Chassis thickness 0.8 to 3.2.

| ORDER CODE | MOUNT. HOLE Ø | DIMENSION | | |
|------------|---------------|-----------|------|------|
| | | B | C | L |
| R6590-00 | 9.5 | 6.7 | 10.7 | 10.3 |
| R6591-00 | 12.7 | 8.0 | 14.2 | 10.3 |
| R6592-00 | 15.9 | 11.5 | 17.7 | 10.3 |
| R6593-00 | 19.0 | 13.1 | 20.2 | 10.3 |
| R6594-00 | 22.2 | 17.0 | 23.4 | 10.3 |



Dimensions



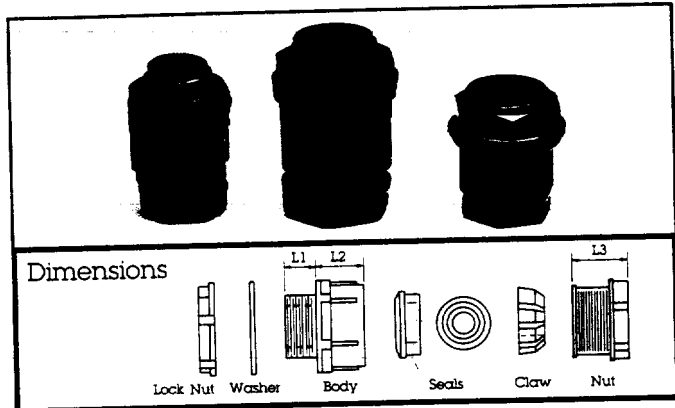
HARDWARE

CABLE GLANDS/CLAMPS

NYLON CABLE GLANDS

- Material: Nylon 6/6 UL94V-2 (black).
- Protects and fixes cable through chassis.

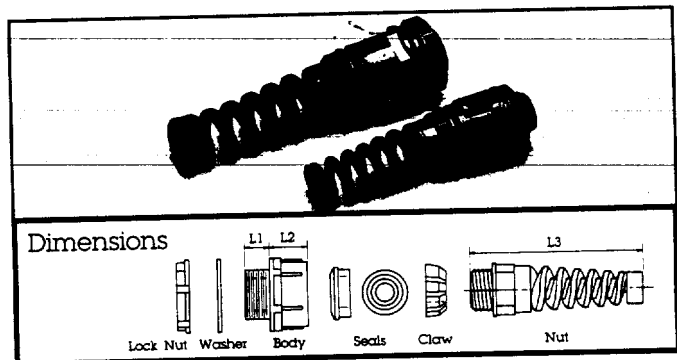
| ORDER CODE | L1 | L2 | L3 | CABLE RANGE |
|------------|----|------|------|-------------|
| R6600-00 | 12 | 17 | 16.5 | Ø5-10 |
| R6601-00 | 13 | 19 | 19.5 | Ø6-13 |
| R6602-00 | 13 | 22 | 21 | Ø10-18 |
| R6603-00 | 15 | 24.5 | 24.5 | Ø16-22 |



STRAIN-RELIEF CABLE GLANDS

- Material: Nylon 6/6 UL94V-2 (black).
- External strain relief gives cable support.

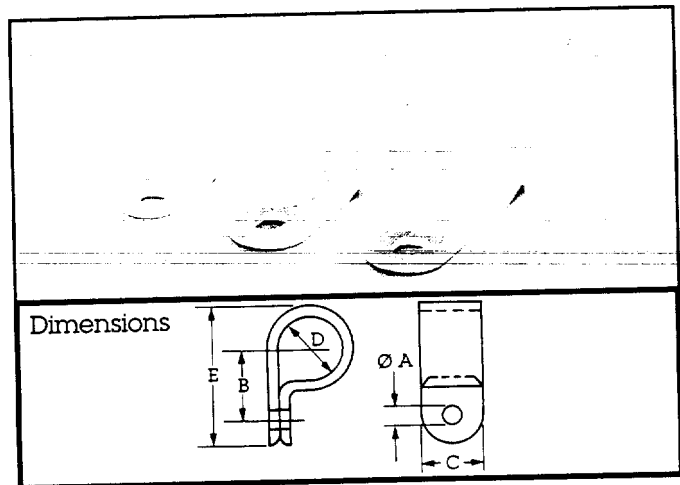
| ORDER CODE | L1 | L2 | L3 | CABLE RANGE |
|------------|----|----|----|-------------|
| R6607-00 | 12 | 17 | 62 | Ø5-10 |
| R6608-00 | 13 | 19 | 78 | Ø6-13 |



CABLE CLAMPS

- Material: Nylon 6/6 UL94V-2.
- Use to clamp cables or components to chassis.
- Interior edges are radiused for protection.

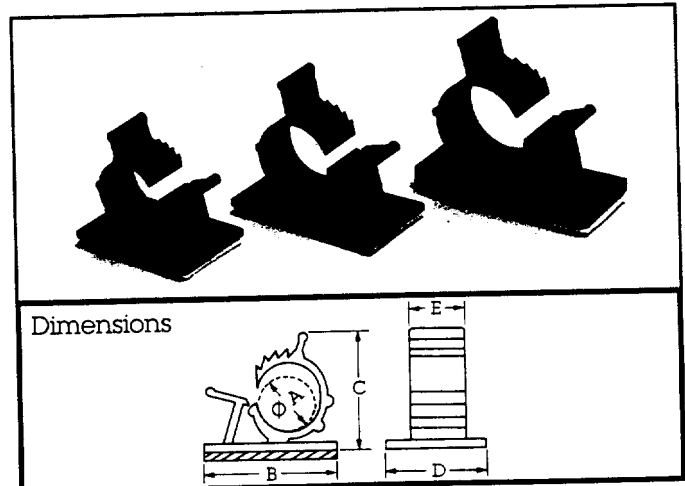
| ORDER CODE | A | B | C | D | E |
|------------|-----|------|------|------|------|
| R6550-00 | 5.0 | 9.5 | 9.6 | 3.2 | 19.8 |
| R6551-00 | 4.6 | 10.5 | 9.6 | 4.8 | 19.8 |
| R6552-00 | 5.0 | 12.0 | 10.0 | 6.35 | 22.0 |
| R6553-00 | 4.6 | 12.0 | 10.0 | 7.9 | 22.0 |
| R6554-00 | 4.6 | 15.2 | 12.0 | 9.5 | 24.0 |
| R6555-00 | 4.6 | 12.5 | 12.0 | 12.7 | 31.0 |
| R6556-00 | 4.6 | 18.2 | 12.0 | 15.8 | 34.3 |



ADJUSTABLE CABLE CLAMPS

- Material: Nylon 6/6 UL94V-2.
- Stock just one size of cable clamp to accommodate a wide range of cable sizes.
- Re-usable clamping feature.
- Peel off backing sheet and apply to clean flat surface.

| ORDER CODE | Ø A | B | C | D | E |
|------------|-----------|------|------|------|------|
| R6490-00 | 7.9-10.3 | 25.4 | 22.2 | 19.1 | 10.2 |
| R6491-00 | 10.0-12.5 | 31.8 | 27.8 | 19.1 | 10.2 |
| R6492-00 | 12.6-15.4 | 38.1 | 31.8 | 19.1 | 12.7 |
| R6493-00 | 16.5-20.1 | 50.8 | 44.5 | 25.4 | 12.7 |

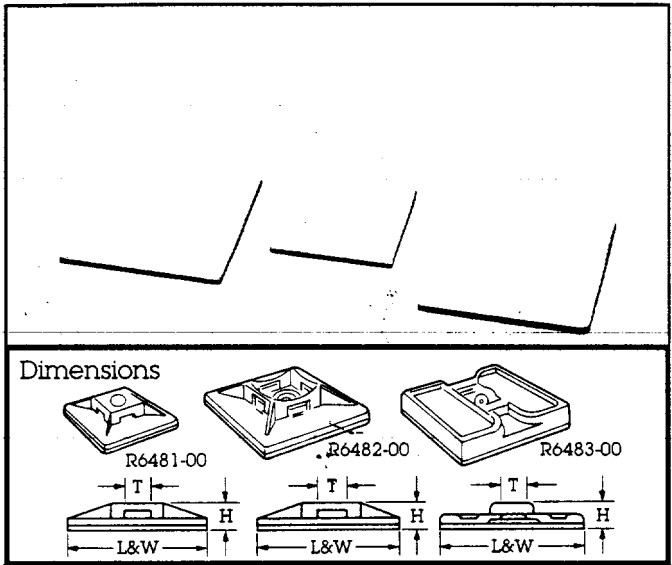


HARDWARE

SELF ADHESIVE TIE MOUNTS

- Material: Nylon 6/6 UL94V-2.
- Peel off backing sheet and apply to clean flat surface. A screw fixing hole is provided for use with heavy cables (not R6481-00).
- Cable ties are ordered separately
- R6481-00 is used with ties R6610-00 to R6613-00.
- R6482-00 and R6483-00 are used with ties R6610-00 to R6619-00.

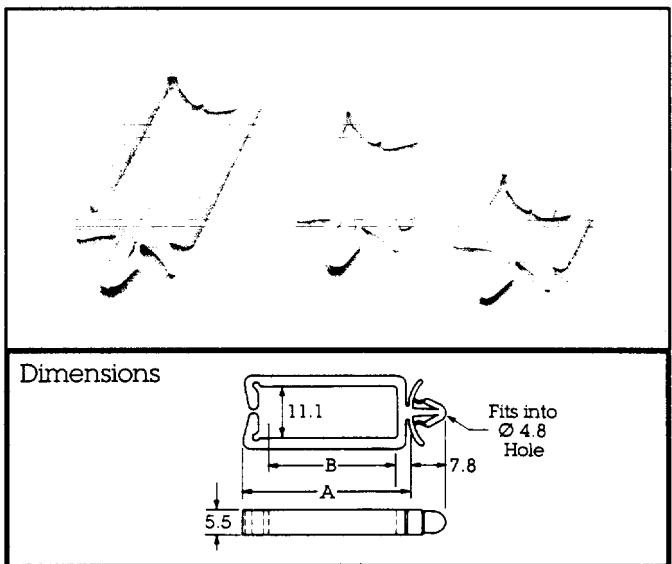
| ORDER CODE | L | W | H | MOUNTING HOLE | T |
|------------|----|----|-----|---------------|-----|
| R6481-00 | 21 | 21 | 3.5 | - | 4.7 |
| R6482-00 | 28 | 28 | 4 | 5.0 | 5.0 |
| R6483-00 | 28 | 28 | 4 | 5.0 | 5.0 |



CABLE SADDLES

- Material: Nylon 6/6 UL94V-2.
- Push cables in through flaps at top of saddle.
- For PCB and chassis up to 2.0mm thick.

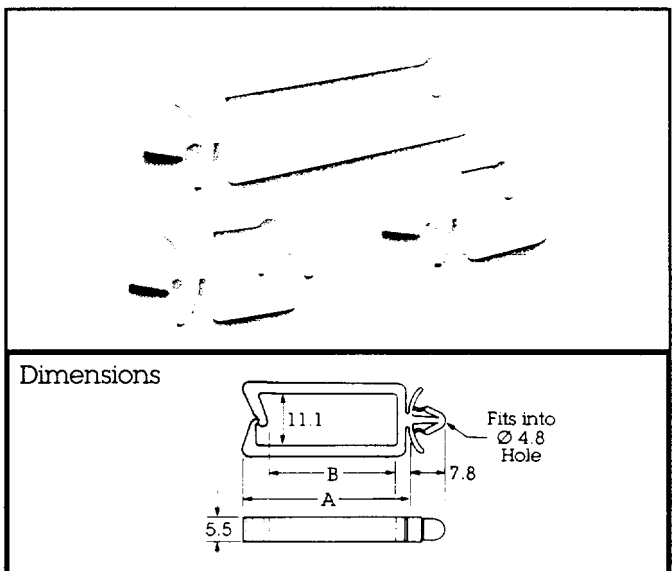
| ORDER CODE | A | B |
|------------|------|------|
| R6440-00 | 12.7 | 2.8 |
| R6441-00 | 17.9 | 8.6 |
| R6442-00 | 26.9 | 18.2 |
| R6443-00 | 34.8 | 26.2 |



CABLE LOCKING SADDLES

- Material: Nylon 6/6 UL94V-2.
- Push cables in through flaps at top of saddle, then lock flaps together.
- For PCB and chassis up to 2.0mm thick.

| ORDER CODE | A | B |
|------------|------|------|
| R6450-00 | 12.7 | 2.8 |
| R6451-00 | 17.9 | 8.6 |
| R6452-00 | 26.9 | 18.2 |
| R6453-00 | 34.8 | 26.2 |

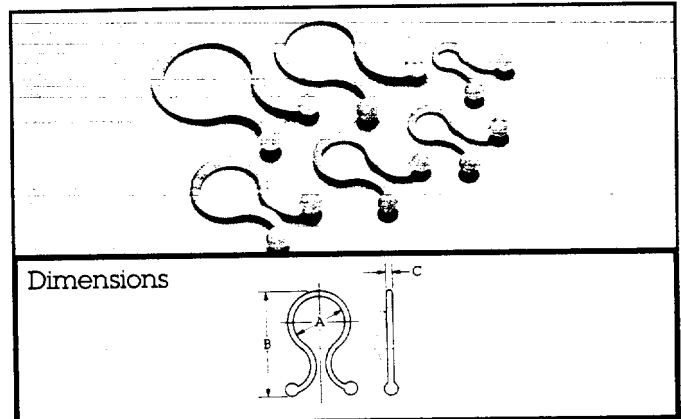


HARDWARE

TWIST TIES

- Material: Nylon 6/6 UL94V-2.
- Place over cables, then twist ends together.

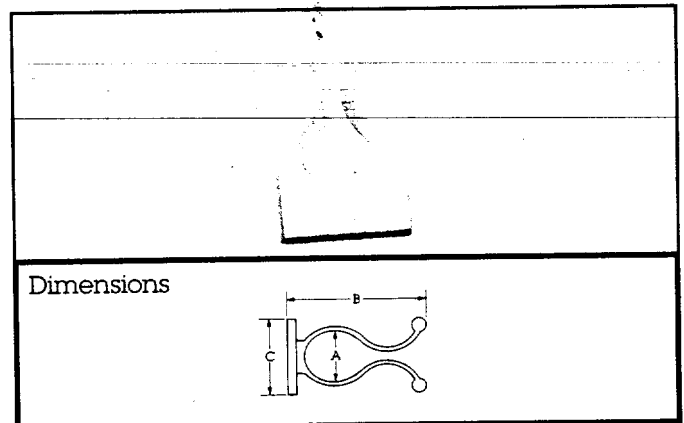
| ORDER CODE | DIMENSION | | | BUNDLE DIAMETER |
|------------|-----------|------|-----|-----------------|
| | Ø A | B | C | |
| R6460-00 | 5.1 | 20.6 | 1.8 | 4-7 |
| R6461-00 | 8.0 | 25.4 | 1.8 | 7-10 |
| R6462-00 | 11.3 | 29.3 | 1.8 | 10-13 |
| R6463-00 | 15.0 | 34.0 | 2.0 | 13-16.5 |
| R6464-00 | 18.6 | 40.0 | 2.0 | 16.5-20 |



MOUNTING TWIST TIES

- Material: Nylon 6/6 UL94V-2.
- Peel off backing sheet and apply to clean flat surface.
- Place cables inside tie then twist ends together.

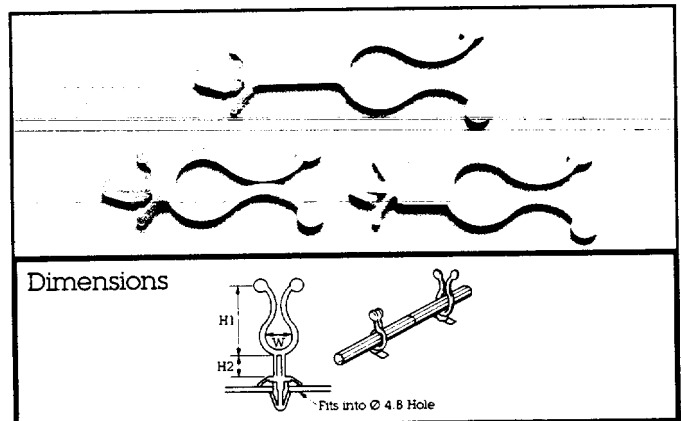
| ORDER CODE | DIMENSION | | | BUNDLE DIAMETER |
|------------|-----------|------|------|-----------------|
| | A | B | C | |
| R6468-00 | 7.9 | 27.5 | 17.4 | 7-10 |



STANDOFF TWIST TIES

- Material: Nylon 6/6 UL94V-2.
- Drill hole Ø 4.8 in chassis and fit tie.
- Place cables inside tie then twist ends together.

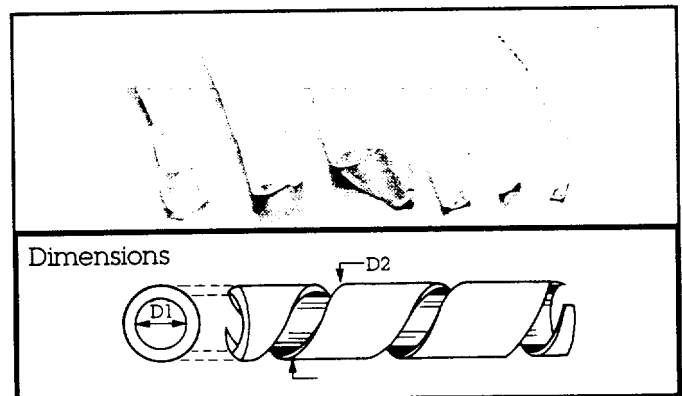
| ORDER CODE | DIMENSION | | |
|------------|-----------|------|------|
| | H1 | H2 | W |
| R6471-00 | 30.0 | 18.0 | 11 |
| R6472-00 | 30.0 | 4.0 | 11 |
| R6476-00 | 30.0 | 12.7 | 11.0 |



SPIRAL CABLE WRAPS

- Material: Polyethylene.
- Binds and protects cables.
- Supplied in 10m lengths.

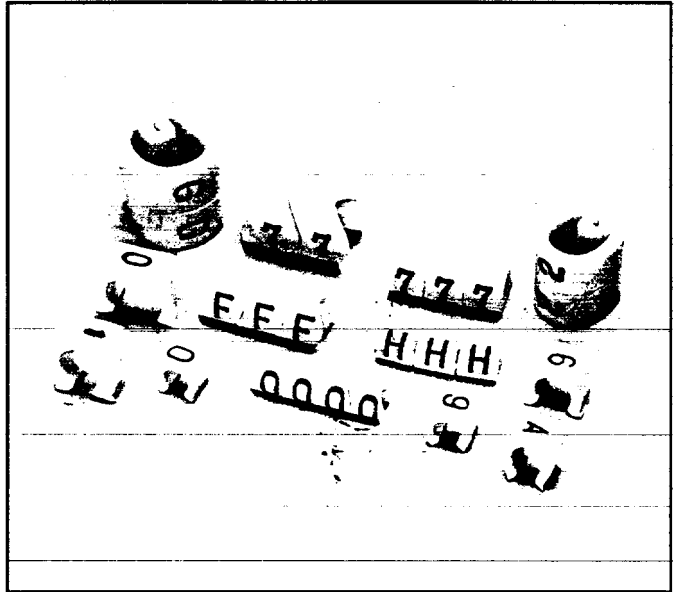
| ORDER CODE | Ø D1 | Ø D2 | WRAPPING RANGE Ø |
|------------|------|------|------------------|
| R6770-00 | 4 | 6 | 10-50 |
| R6773-00 | 9 | 12 | 20-65 |
| R6775-00 | 15 | 19 | 25-100 |



HARDWARE

CABLE MARKERS

- Choice of expandable or clip-on.
- Expandable are yellow PVC with black markings.
- Clip on are white PVC with black markings.



ORDER CODES

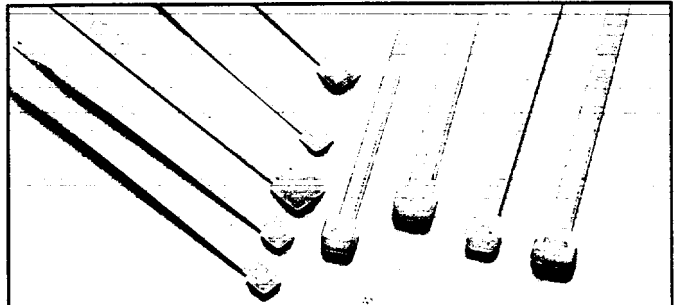
| | EXPANDABLE | | CLIP-ON |
|---------|-------------------------|-------------------------|-------------------------|
| | | | |
| MARKING | CABLE SIZE Ø 2.0-3.2 | CABLE SIZE Ø 3.0-5.2 | CABLE SIZE Ø 2.5-3.0 |
| 0 | R6800-95 | R6820-95 | R6850-94 |
| 1 | R6801-95 | R6821-95 | R6851-94 |
| 2 | R6802-95 | R6822-95 | R6852-94 |
| 3 | R6803-95 | R6823-95 | R6853-94 |
| 4 | R6804-95 | R6824-95 | R6854-94 |
| 5 | R6805-95 | R6825-95 | R6855-94 |
| 6 | R6806-95 | R6826-95 | R6856-94 |
| 7 | R6807-95 | R6827-95 | R6857-94 |
| 8 | R6808-95 | R6828-95 | R6858-94 |
| 9 | R6809-95 | R6829-95 | R6859-94 |
| - | R6810-95 | R6830-95 | R6860-94 |
| + | R6811-95 | R6831-95 | R6861-94 |
| ⊥ | R6812-95 | R6832-95 | R6862-94 |
| L | R6813-95 | R6833-95 | R6863-94 |
| N | R6814-95 | R6834-95 | R6864-94 |
| R | R6815-95 | R6835-95 | R6865-94 |
| S | R6816-95 | R6836-95 | R6866-94 |
| T | R6817-95 | R6837-95 | R6867-94 |

HARDWARE

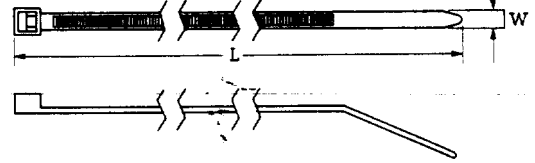
NYLON CABLE TIES

- Material: Nylon 6/6 UL94V-2.
- Temperature range -10°C to 85°C.

| ORDER CODE | L | W | MAX BUNDLE DIAMETER |
|------------|-----|-----|---------------------|
| R6610-00 | 75 | 2.4 | 18 |
| R6611-00 | 100 | 2.5 | 25 |
| R6612-00 | 120 | 3.2 | 30 |
| R6613-00 | 150 | 3.7 | 39 |
| R6615-00 | 203 | 4.6 | 55 |
| R6616-00 | 250 | 5.0 | 74 |
| R6618-00 | 340 | 7.9 | 99 |
| R6619-00 | 385 | 5.0 | 116 |



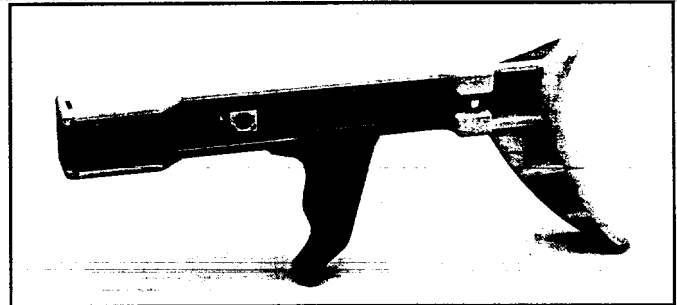
Dimensions



CABLE TIE GUN

- Low cost pocket gun.
- Lightweight (60 grams).
- Twist to cut surplus tie after tightening cables.

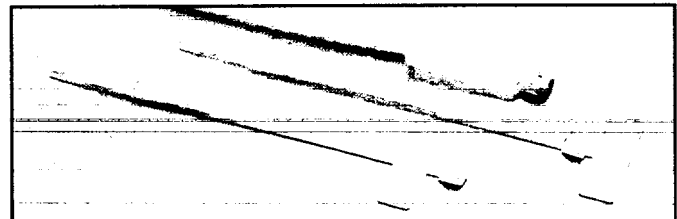
| ORDER CODE | FOR TIE WIDTH |
|------------|---------------|
| R6620-00 | 2.5-5.0 |



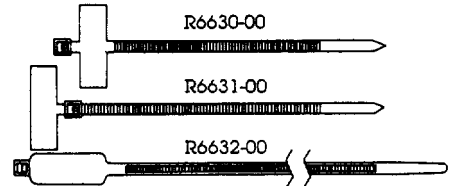
CABLE MARKER TIES

- Material: Nylon 6/6 UL94V-2.
- Cable tie has a flat tab for writing identification.

| ORDER CODE | L | W | MAX BUNDLE DIA. | MARKING PAD SIZE |
|------------|-----|-----|-----------------|------------------|
| R6630-00 | 100 | 2.5 | 25 | 25 x 8 |
| R6631-00 | 110 | 2.5 | 25 | 25 x 8 |
| R6632-00 | 200 | 4.6 | 50 | 28 x 13 |



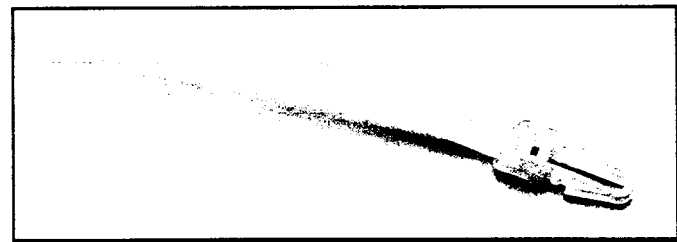
Styles



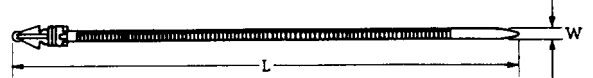
PUSH-MOUNT CABLE TIES

- Material: Nylon 6/6 UL94V-2.
- Drill hole Ø4.8 in chassis.
- Push tie into drilled hole, then use to wrap cables in the normal manner.

| ORDER CODE | L | W | MAX BUNDLE DIAMETER |
|------------|-----|-----|---------------------|
| R6635-00 | 155 | 3.5 | 40 |



Dimensions



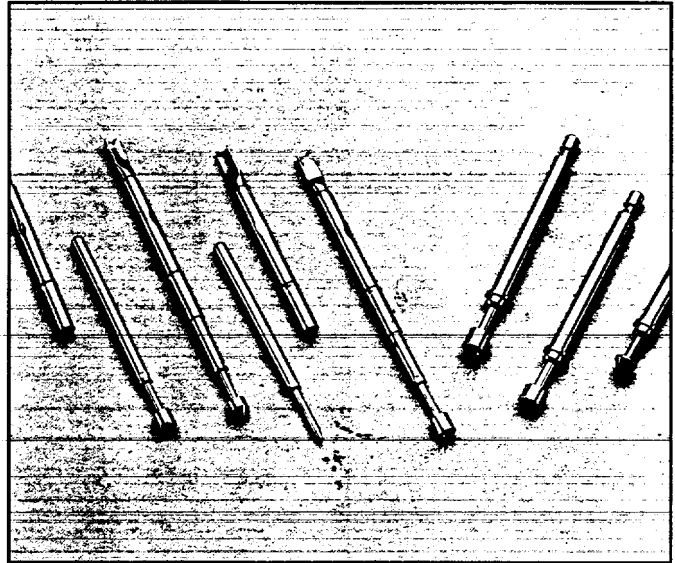
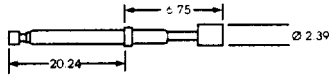
HARDWARE

SINGLE PART ATE SPRING PROBES

A range of low cost single part probes ideal for automatic test equipment where increased strength is required.

PRESS FIT MOUNTING

Body: Brass, gold plated
 Probe: Brass, gold plated or stainless steel
 Spring pressure: 0.5-1.0N or 2-4.5N
 Electrical continuity: 15 milliohms max.
 Current rating: 1A max.
 Mounting hole: Ø2.0
 Probe travel: 3.0



| HEAD CONFIGURATION | PROBE MATERIAL | ORDER CODE | |
|--------------------|----------------|------------|----------|
| | | 0.5-1N | 2-4.5N |
| CONCAVE | BRASS | P1113CA2 | P1113CA8 |
| CONVEX | BRASS | P1113CV2 | P1113CV8 |
| POINTED | S. STEEL | P1113SS2 | P1113SS8 |

TWO-PART ATE SPRING PROBES

A two-part system comprising of a receptacle and test probe which allow damaged probes to be changed from the top surface of the fixture without disturbing the wiring. Suitable for mounting on a 2.54 mm pitch, the receptacles are a force fit in the mounting plate providing air-tight seals without the use of adhesive. The receptacles are crimped to give controlled interference fit with the spring probe. The probes and receptacles are compatible with other manufacturers.

SPECIFICATION:

MATERIALS:

Body: Phosphor bronze, gold plated
 Probe head: Beryllium copper, gold plated
 Receptacle: Phosphor bronze, gold plated
 Spring finish: Silver plated

PERFORMANCE:

Spring force: 0.5 to 1.0N
 Electrical continuity: 15 Milliohms maximum
 Life: Typically well in excess of 1 million operations

HEAD STYLES/ORDER CODES

| | | |
|---|--------------------------------------|-------------------------|
| <p>CONCAVE P1600-05</p> | <p>CROSS CUT P1603-05</p> | <p>Probe Travel 4.0</p> |
| <p>NEEDLE POINT P1602-05</p> | | |

RECEPTACLE

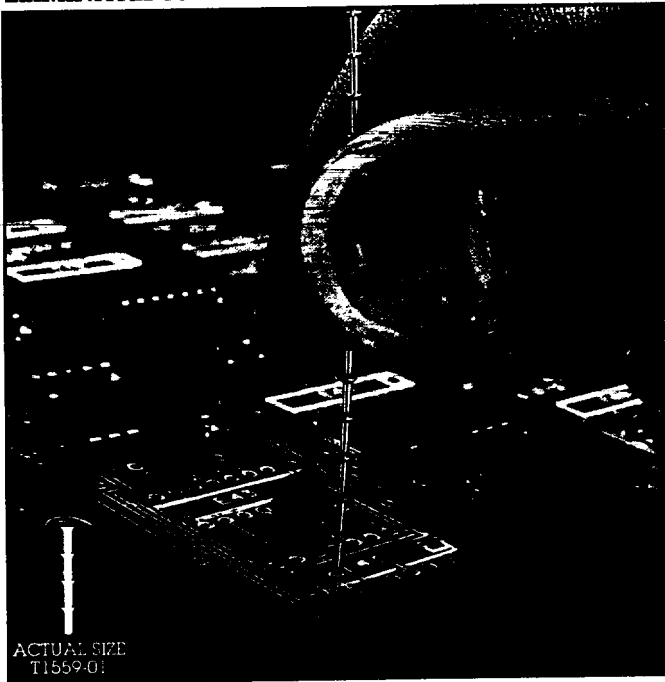
| ORDER CODE S1671-05 |
|--|
| <p>Panel thickness 10.0 - 19.0</p> <p>23.2</p> <p>Ø 1.6</p> <p>Solder bucket accepts 22 to 24 AWG wire</p> <p>Force fit in mounting hole Ø 1.70/1.75</p> |

HARDWARE

TRACK PINS

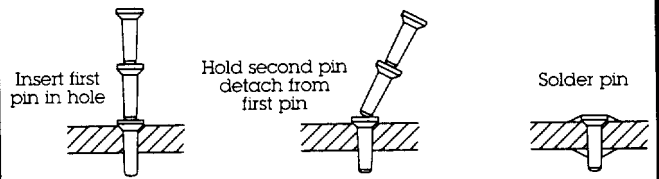
Track pins provide an economical connection between tracks on opposite sides of p.c.b.'s without through hole plating. Available in continuous strip form for fast assembly with no special tooling required. Strip form pins are supplied in multiples of 2500 with approximately 50 pins per length. Pin material - brass, plated 90/10 tin/lead on nickel.

ELIMINATES PLATED THROUGH HOLES



| ORDER CODE | P.C.B. HOLE Ø +0/-0.03 | P.C. BOARD THICKNESS | OVERALL PIN LENGTH |
|------------|---------------------------|----------------------|--------------------|
| T1558-01 | 0.83 | 0.79 | 2.72 |
| T1559-01 | 0.83 | 1.59 | 3.48 |
| T1560-01 | 0.83 | 2.38 | 4.27 |
| T1561-01 | 0.83 | 3.17 | 5.08 |
| T1563-01 | 1.00 | 1.59 | 3.48 |
| T1564-01 | 1.00 | 2.38 | 4.27 |
| T1565-01 | 1.00 | 3.17 | 5.08 |

STRIP FORM (PATENTED)

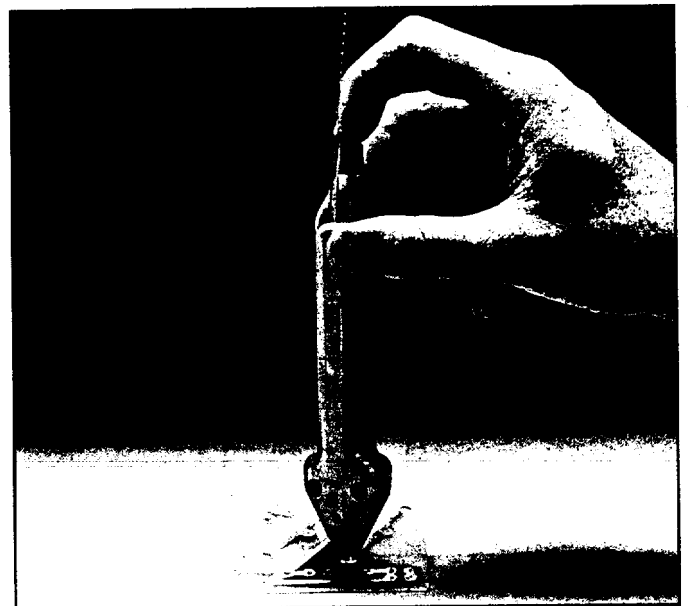
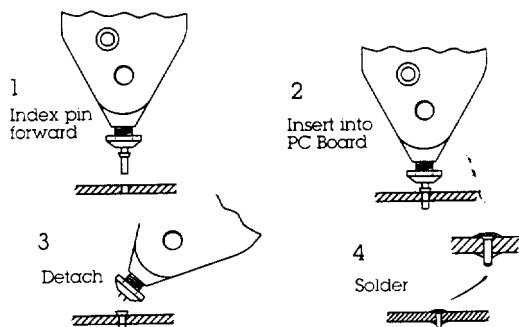


TRACK PIN INSERTER

- Accepts all diameters of track pin in strip form.
- Accepts all lengths of track pin by simple screw-adjustment to the nose of the tool.
- Easy to use thumb or finger operated indexing, with "click-action" feel.
- Light and small in size.

ORDER CODE Z1002-00

SEQUENCE OF OPERATIONS



HARWIN SALES AND MANUFACTURING

Harwin plc

Fitzherbert Road, Farrington,
Portsmouth, Hants PO6 1RT

Tel: (Sales) 0705 370451

Tel: (Admin) 0705 388775

F Fax: 0705 324010

Harwin Inc

P.O. Box 319, New Albany
IN 47151 USA

Tel: 812 285 0055

F Fax: 812 285 0056

Harwin pte

Block 71 Ayer Rajah Cresnet
#04-01/02 Ayer Rajah
Industrial Estate
Singapore 0513

Tel: (Sales) 779 1304

Tel: (Admin) 779 4909

F Fax: 779 3868

Harwin Connectors Ltd

Chung Ang Building
1537-6 Socho-Dong
Socho-Gu, Seoul, Korea

Tel: 2 521 0747/8

F Fax: 2 521 0749

From Conception to Connection

Harwin produce an extensive range of standard items available from stock, but in addition also specialise in custom design. A major part of manufacturing is designed to specific customer requirements starting from original concept right through to mass production within a matter of weeks.

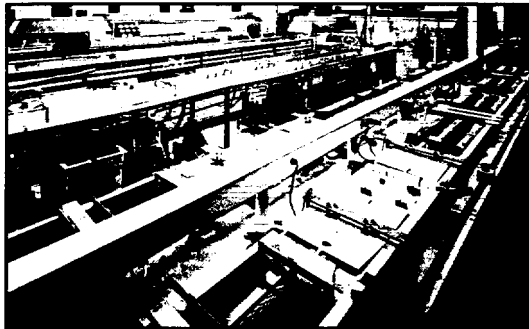
With over 40 years experience in the industry Harwin has grown and developed into a vast number of product fields, showing expertise in stamping, moulding, precision turning, cables assembly and automatic and semiautomatic assembly methods.

If you have a special requirement, please contact Technical Sales for a quotation.

Commitment to Quality

All Harwin manufacturing processes are controlled by our Quality Systems. The Harwin Quality Laboratory houses an array of test and measurement equipment including Atomic Absorption Spectrometer, Fluorescent X-Ray machine, XYZ Optical measuring devices and many other precision test and measuring instruments.

ISO 9001 Approvals



Advanced Plating Technology

Barrel and reel-to-reel technologies offer the facility to electro-plate copper, nickel, tin, tin-lead, silver and gold. Component parts may also be selectively gold striped or selectively gold/tin-lead plated.

High Speed Automatic Assembly

Automatic equipment, designed and manufactured in-house, uses the latest control technology to produce quality product, competitively priced.

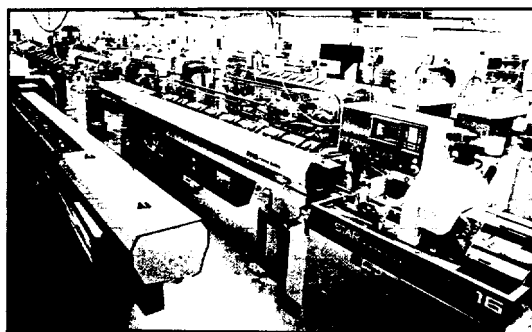


High Speed Stamping

Many millions of precision stamped and formed parts are produced by Harwin. Materials used include beryllium copper, phosphor bronze, brass and steel. High quality stamping dies ensure miniature parts can be produced to near zero tolerance.

Thermo-Plastic Injection Moulding

The latest high technology thermo-plastic materials are used together with multi-cavity and modular mould tools. Stringent process control ensures high performance precision mouldings.



Precision Turning

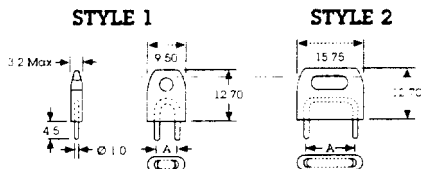
Utilising the latest CNC control systems Harwin manufactures, in volume, miniature turned parts from a variety of materials. A vast range of printed circuit board hardware is produced, together with custom designed parts.

HARDWARE

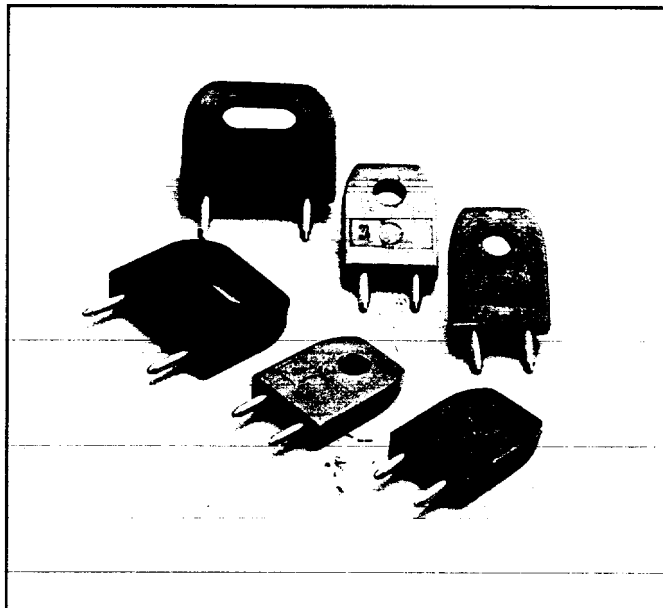
1mm INSULATED PLUGS

Precision 1 mm diameter brass shorting plugs moulded into polyacetal thermoplastic insulators. Choice of colour. Can be used with any 1mm socket.

Plating finish: Gold
Current rating: 10A at 20°C

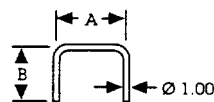


| COLOUR | ORDER CODE | | | |
|--------|------------|----------|----------|----------|
| RED | D3086-99 | D3087-99 | D3088-99 | D3089-99 |
| BLACK | D3086-98 | D3087-98 | D3088-98 | D3089-98 |
| BLUE | D3086-97 | D3087-97 | D3088-97 | D3089-97 |
| STYLE | 1 | 1 | 2 | 2 |
| DIM A | 5.08 | 6.35 | 10.16 | 12.70 |

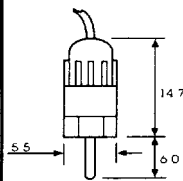
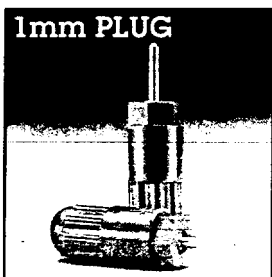


1mm UNINSULATED PLUGS

Precision 1mm diameter brass shorting plugs with choice of plating finish. Can be used with any 1mm socket or may be soldered directly into pc board for permanent linking.



| ORDER CODE | D3080-01 D3080-05 | D3081-01 D3081-05 | D3082-01 D3082-05 |
|------------|----------------------|----------------------|----------------------|
| A | 5.08 | 6.35 | 10.16 |
| B | 9.00 | 9.00 | 9.00 |



Plug contact material:

- brass gold plated, solder termination

Socket contact material:

- spring quality brass, gold plated, solder termination

Cover material:

- Acetal thermoplastic

Current rating:

5A at 20°C

Temperature rating:

70°C

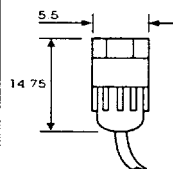
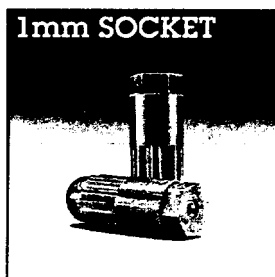
Contact resistance:

10 m Ω max.

Wire size

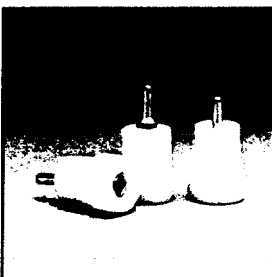
18AWG

| ORDER CODE | COLOUR |
|------------|--------|
| W3001-99 | RED |
| W3001-98 | BLACK |

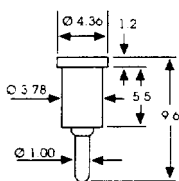


| ORDER CODE | COLOUR |
|------------|--------|
| W3000-99 | RED |
| W3000-98 | BLACK |

1mm PANEL MOUNTED SOCKET



Recommended mounting hole Ø 3.45



Inner contact:

Beryllium copper, gold plated

Outer shell:

Brass, tin/lead plated

Insulator:

PTFE, Black

Current rating:

10A at 20°C

Contact resistance:

10 m Ω

Mating pin diameter:

1.0 ± .05

Insertion force:

7.8N

Withdrawal force:

2.9N

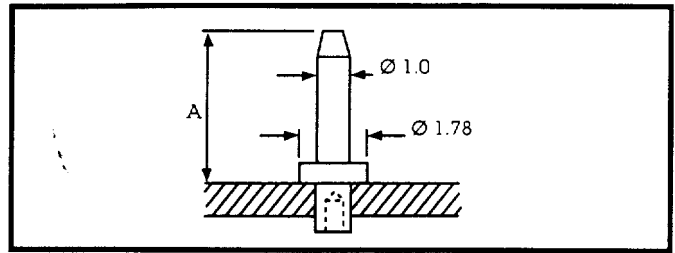
Mechanical endurance: 1000 cycles

| ORDER CODE | COLOUR |
|------------|--------|
| W3002-98 | Black |

HARDWARE

1mm TERMINALS

- Material: brass, finish 90/10 tin/lead, or gold.
- Finish: tin/lead -01, gold -05, example H2174-05 etc.
- For swaging tool change order code to prefix Z and suffix 00 (example Z2174-00).



| ORDER CODE | H2174-01 | H2175-01 | H2173-01 | H2176-01 | H2170-01 | H2171-01 | H2179-01 |
|-----------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| ORDER CODE | H2174-05 | H2175-05 | H2173-05 | H2176-05 | H2170-05 | H2171-05 | H2179-05 |
| Unit Qty. | 500 | 250 | 250 | 250 | 250 | 250 | 250 |
| A | 4.30 | 5.00 | 8.10 | 9.50 | 13.20 | 19.60 | 8.10 |
| Panel Thickness | 1.59 | 1.59 | 1.59 | 1.59 | 1.59 | 1.59 | 2.39 |
| Mounting Hole Ø | 1.04/1.14 | 1.04/1.14 | 1.04/1.14 | 1.04/1.14 | 1.04/1.14 | 1.04/1.14 | 1.04/1.14 |

| ORDER CODE | H2474-01 | ORDER CODE | H9051-01 |
|-----------------|---------------------|-----------------|-----------|
| Unit Qty. | 500 | Unit Qty. | 500 |
| A | 4.25 | A | 6.35 |
| B | 1.35 for 1.59 board | B | 3.18 |
| C | 1.59 | C | 2.39 |
| D | 1.00 | D | 1.02 |
| Panel Thickness | 0.80 to 3.18 | Panel Thickness | 1.59 |
| Mounting Hole Ø | 1.00/1.10 | Mounting Hole Ø | 1.83/1.88 |

STAND-OFF TERMINAL PIN

This pin allows printed circuit boards to be mounted parallel to each other. It is a press fit into a Ø 0.8 hole and plugs into any sub-miniature or standard Harwin IC socket.

- Material: Brass.
- Finish: -05 gold; -01 90/10 tin/lead.
- Self retention press fit.

APPLICATIONS

| ORDER CODE | H2475-01 | H2475-05 |
|------------|----------|----------|
| Unit Qty. | 500 | 500 |

CERAMIC SUBSTRATE PIN

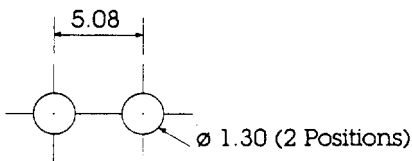
- Material: Brass.
- Finish: Standard finish suffix -01 90/10 tin/lead.
- Rivet over on underside to retain in ceramic substrate.
- For swaging tool order Z3108-00.

| ORDER CODE | H3108-01 |
|-----------------|-----------|
| Unit Qty. | 500 |
| A | 5.70 |
| B | 1.00 |
| C | 0.51 |
| Panel Thickness | 1.02 |
| Mounting Hole | 0.50/0.55 |

90° TAB

- Material: Brass
- Finish: 90/10 tin/lead
- Press fit in to board

Recommended P.C. Board Mounting Holes



ORDER CODE H3281-01

USA
812 285 0055

UK
0705 370451

Korea
2 521 0747

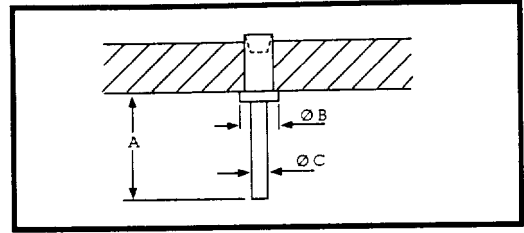
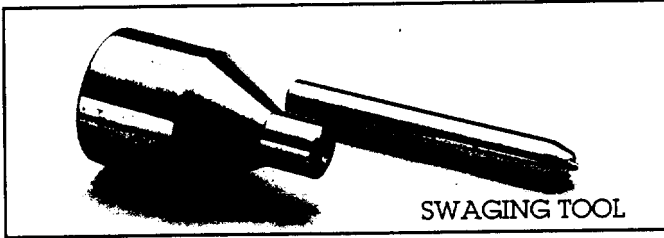
Singapore
779 1304

HARWIN

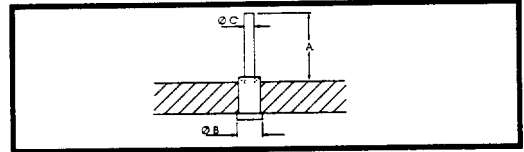
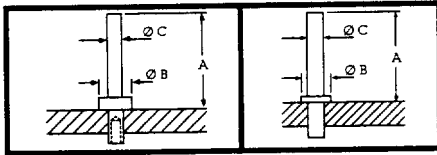
HARDWARE

TERMINAL PINS

- Material: Brass.
- Finish: Standard finish suffix 01: 90/10 tin/lead.
- For swaging tools change order code to prefix Z and suffix 00, i.e. Z2152-00.

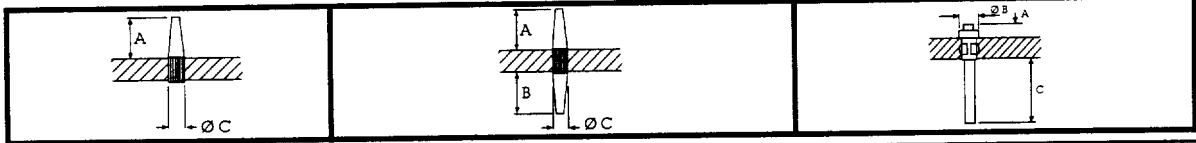


| ORDER CODE | H2101A01 | H2102A01 | H2103A01 | H2105A01 | H2106A01 |
|-----------------|-----------|----------|----------|-----------|----------|
| Unit Qty. | 500 | 500 | 500 | 500 | 500 |
| A | 6.35 | 6.35 | 6.35 | 4.37 | 4.37 |
| B | 2.38 | 2.38 | 2.38 | 2.38 | 2.38 |
| C | 0.96 | 0.96 | 0.96 | 0.81 | 0.81 |
| Panel Thickness | 1.59 | 2.38 | 3.18 | 1.59 | 2.38 |
| Mounting Hole | 1.78/1.86 | | | 1.32/1.40 | |

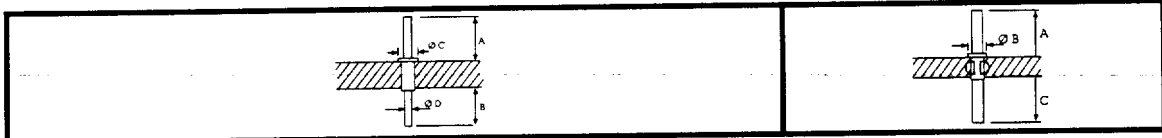


| ORDER CODE | H2152-01 | H2156-01 |
|-----------------|-----------|-----------|
| Unit Qty. | 500 | 500 |
| A | 7.62 | 7.5 |
| B | 2.36 | 2.0 |
| C | 1.10 | 1.20 |
| Panel Thickness | 3.18 | 3.18 |
| Mounting Hole | 1.15/1.20 | 1.27/1.33 |

| ORDER CODE | H2101B01 | H2102B01 | H2103B01 | H2105B01 |
|-----------------|-----------|----------|----------|-----------|
| Unit Qty. | 500 | 500 | 500 | 500 |
| A | 6.75 | 6.75 | 6.75 | 4.76 |
| B | 2.38 | 2.38 | 2.38 | 2.38 |
| C | 0.96 | 0.96 | 0.96 | 0.81 |
| Panel Thickness | 1.59 | 2.38 | 3.18 | 1.59 |
| Mounting Hole | 1.78/1.86 | | | 1.32/1.40 |



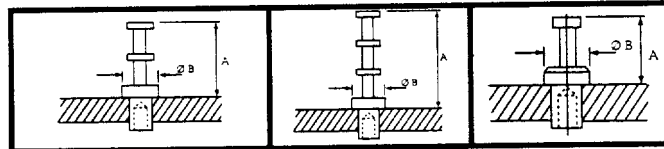
| ORDER CODE | H2081-01 | H2085-01 | H2088-01 | H2082-01 | H2083-01 | H2087-01 | H2089-01 | ORDER CODE | H3150-01 | H2157-01 |
|-----------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------------|-----------|-----------|
| Unit Qty. | 1000 | 1000 | 1000 | 500 | 500 | 500 | 500 | Unit Qty. | 1000 | 1000 |
| A | 6.35 | 4.76 | 4.76 | 6.35 | 6.35 | 4.76 | 4.76 | A | - | 0.50 |
| B | - | - | - | 3.18 | 6.35 | 4.76 | 4.76 | B | 1.59 | 2.00 |
| C | 1.65/1.70 | 1.40/1.45 | 1.10/1.15 | 1.37/1.47 | 1.67/1.70 | 1.40/1.45 | 1.10/1.15 | C | 5.41 | 9.80 |
| Panel Thickness | 3.18 | 2.38 | 2.38 | 3.18 | 3.18 | 2.38 | 2.38 | Panel Thickness | 1.59 | 1.59 |
| Overall Length | 9.53 | 7.14 | 7.14 | 12.70 | 15.88 | 11.91 | 11.91 | Mounting Hole | 0.95/1.00 | 1.30/1.40 |



| ORDER CODE | H2101-01 | H2102-01 | H2105-01 | H2106-01 | ORDER CODE | H3151-01 |
|-----------------|-----------|----------|-----------|----------|-----------------|-----------|
| Unit Qty. | 500 | 500 | 500 | 500 | Unit Qty. | 500 |
| A | 5.95 | 5.95 | 4.37 | 4.37 | A | 4.41 |
| B | 6.75 | 5.95 | 3.37 | 2.78 | B | 1.59 |
| C | 2.38 | 2.38 | 2.38 | 2.38 | C | 4.00 |
| D | 0.91 | 0.91 | 0.81 | 0.81 | Panel Thickness | 1.59 |
| Panel Thickness | 1.59 | 2.38 | 1.59 | 2.38 | Mounting Hole | 0.95/1.00 |
| Mounting Hole | 1.78/1.86 | | 1.32/1.40 | | | |

TURRET LUGS

- Material: Brass.
- Finish: Standard finish suffix 01: 90/10 tin/lead.
- Rivet over on underside of terminal to retain in pcb.
- For swaging tools change order code to prefix Z and suffix 00 (i.e. Z9001-00).

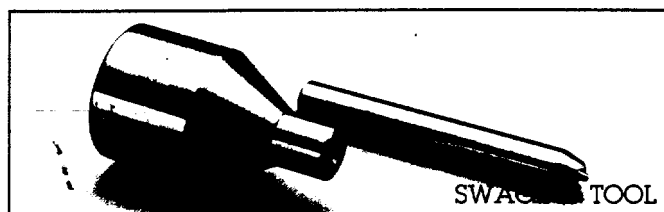


| ORDER CODE | H2121-01 | H9020-01 | H9021-01 | H9001-01 | H9004-01 |
|-----------------|-----------|-----------|-----------|-----------|-----------|
| Unit Qty. | 500 | 500 | 500 | 500 | 500 |
| A | 5.16 | 7.65 | 7.65 | 2.38 | 4.76 |
| B | 3.18 | 3.18 | 3.18 | 1.59 | 3.18 |
| Panel Thickness | 1.59 | 1.59 | 2.38 | 1.59 | 1.59 |
| Mounting Hole | 1.68/1.73 | 2.34/2.49 | 2.34/2.49 | 1.24/1.32 | 2.01/2.09 |

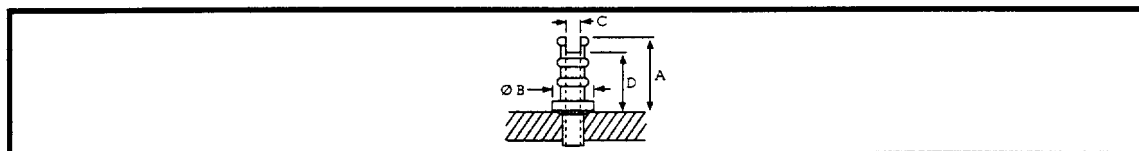
HARDWARE

TURRET LUGS

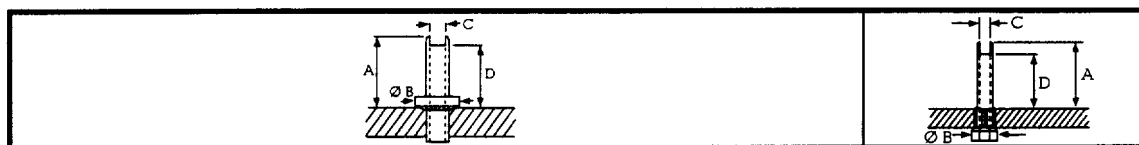
- Material: Brass.
- Finish: Standard finish suffix 01: 90/10 tin/lead.
- Rivet over on underside to retain in pcb.
- For swaging tools change order code to prefix Z and suffix 00, i.e. Z2032-00.



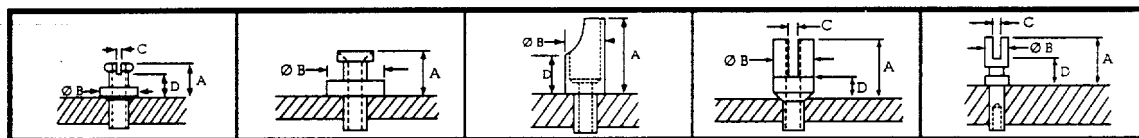
| ORDER CODE | H2051-01 | H2055-01 | H9036-01 | H2032-01 | H2039-01 |
|-----------------|-----------|-----------|-----------|-----------|-----------|
| Unit Qty. | 250 | 500 | 500 | 250 | 250 |
| A | 4.76 | 6.35 | 3.97 | 9.52 | 12.70 |
| B | 3.18 | 3.18 | 2.38 | 4.76 | 5.56 |
| C (Slot) | 0.80 | 1.20 | 0.80 | 1.20 | 1.60 |
| D | 2.39 | 3.18 | 1.60 | 6.35 | 7.96 |
| Hole | 1.02 | 1.70 | 1.07 | 1.70 | 2.18 |
| Panel Thickness | 1.59 | 2.38 | 1.59 | 1.59 | 3.18 |
| Mounting Hole Ø | 1.59/1.67 | 2.39/2.47 | 1.63/1.71 | 2.39/2.47 | 3.18/3.26 |



| ORDER CODE | H2071Z01 | H2071ZS1 | H2072-01 | H2072Z01 | H2072ZL1 | H2073Z01 | H2074Z01 |
|-----------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Unit Qty. | 250 | 250 | 500 | 250 | 250 | 250 | 250 |
| A | 9.13 | 9.13 | 6.35 | 6.35 | 6.35 | 9.13 | 8.73 |
| B | 4.76 | 4.76 | 3.97 | 3.97 | 3.97 | 4.76 | 6.35 |
| C (Slot) | 1.70 | 1.70 | 1.40 | 1.17 | 1.17 | 1.70 | 2.77 |
| D | 7.55 | 7.55 | 5.16 | 5.32 | 5.32 | 7.55 | 7.17 |
| Hole | 1.70 | 1.70 | 1.40 | 1.17 | 1.17 | 1.70 | 2.77 |
| Panel Thickness | 2.38 | 1.59 | 1.59 | 1.59 | 2.38 | 3.18 | 3.18 |
| Mounting Hole Ø | 2.67/2.80 | 2.67/2.80 | 2.16/2.29 | 2.00/2.13 | 2.00/2.13 | 2.67/2.80 | 3.92/4.05 |



| ORDER CODE | H3070-01 | H3072-01 | H3073-01 | H9087-01 |
|-----------------|-----------|-----------|-----------|-----------|
| Unit Qty. | 250 | 250 | 250 | 250 |
| A | 6.35 | 6.35 | 9.13 | 6.12 |
| B | 3.97 | 3.97 | 4.76 | 2.36 |
| C (Slot) | 1.13 | 1.13 | 1.75 | 1.02 |
| D | 5.31 | 5.31 | 7.55 | 5.08 |
| Hole | 1.13 | 1.13 | 1.75 | 1.02 |
| Panel Thickness | 1.59 | 3.18 | 1.59 | 1.59 |
| Mounting Hole Ø | 2.01/2.09 | 2.01/2.09 | 2.67/2.75 | 1.80/1.85 |



| ORDER CODE | H2079-01 | H2061-01 | H9026-01 | H9067-01 | H9023-01 |
|-----------------|-----------|-----------|-----------|-----------|-----------|
| Unit Qty. | 500 | 250 | 250 | 250 | 500 |
| A | 3.57 | 3.18 | 6.35 | 4.75 | 3.97 |
| B | 3.97 | 3.97 | 3.18 | 3.18 | 1.83 |
| C (Slot) | 0.81 | - | - | 0.76 | 0.60 |
| D | 1.44 | - | 3.18 | 2.38 | 2.23 |
| Hole | 1.32 | 1.00 | 1.00 | 1.00 | - |
| Panel Thickness | 2.38 | 1.59 | 2.38 | 2.38 | 1.59 |
| Mounting Hole Ø | 2.41/2.49 | 1.59/1.67 | 1.83/1.93 | 1.52/1.55 | 1.27/1.43 |

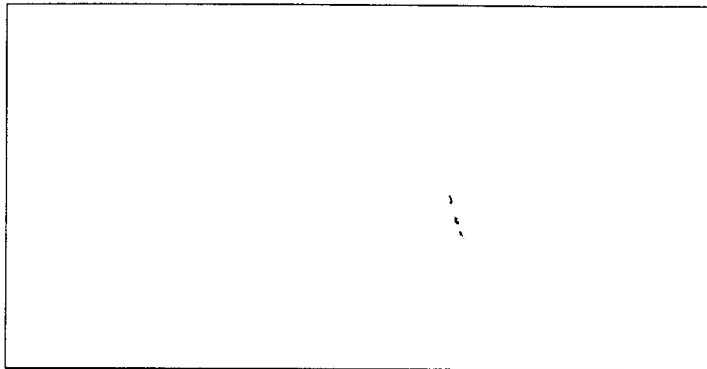
USA
812 285 0055

UK
0705 370451

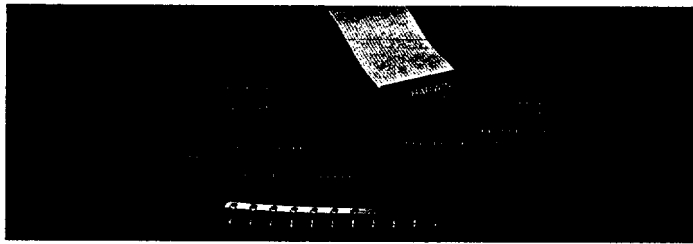
Korea
2 521 0747

Singapore
779 1304

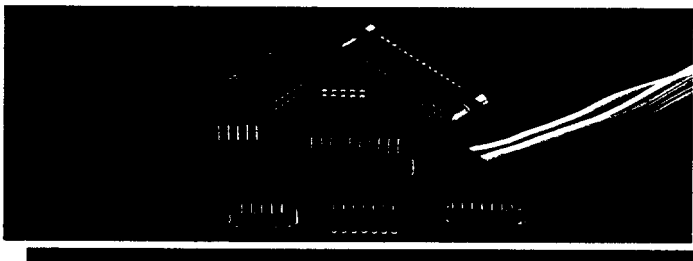
HARWIN



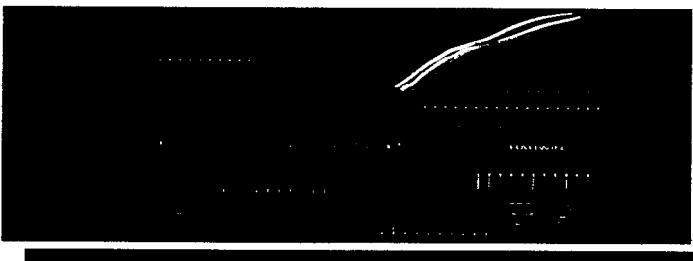
Additional Harwin Product Lines



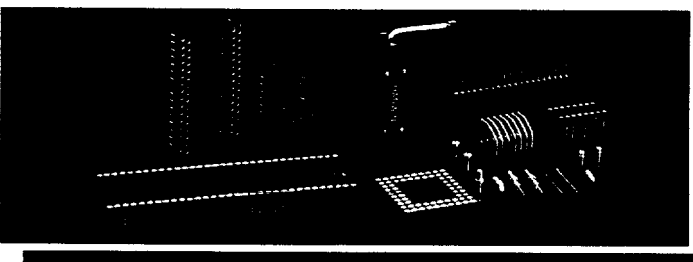
2.00mm Pitch Connectors: Datalinx
1 and 2 row extended, vertical, horizontal pin headers, vertical, horizontal and bottom entry sockets, jumper sockets, IDC connectors and crimp connectors.



2.00mm Pitch Connectors: Datamate
High reliability connectors with four leaf beryllium copper contact. 1, 2 and 3 row vertical and horizontal connectors, crimp connectors, pc board sockets and hoods.



2.54 Pitch Connectors
1 and 2 row horizontal, vertical, bottom entry pc board sockets, extended, latched, vertical, horizontal pin headers, crimp housings, contacts and jumper sockets.



Sockets
Solder, wire-wrap, DIL, SIL sockets. Reeled and loose pc board sub miniature sockets, headers, PLCC and PGA sockets.

Harwin Inc

P.O. Box 319
New Albany
IN 47151
USA
Tel: 812 285 0055
Fax: 812 285 0056

Harwin plc

Fitzherbert Road
Farington, Portsmouth
Hants PO6 1RT
Tel: (Sales) 0705 370451
Tel: (Admin) 0705 388775
Fax: 0705 324010

Harwin pte

Block 71 Ayer Rajah Crescent
#04-01/02 Ayer Rajah Ind. Est
Singapore 0513
Tel: (Sales) 65 7791304
Tel: (Admin) 65 7794909
Fax: 65 7793868

Harwin Connectors Ltd

Chung Ang Building
1537-6 Socho-Dong
Socho-Gu, Seoul
Korea
Tel: 822 521 0747/8
Fax: 822 521 0749

HARWIN

HARDWARE

INDEX

| Page | Description | Page | Description |
|------|----------------------------------|------|-------------------------|
| R1 | Manufacturing & Service | R12 | Cable Glands and Clamps |
| R2 | Index, Square Terminal Pins | R13 | Cable Saddles |
| R3 | Insulators | R14 | Twist Ties |
| R4 | Antivibration Card Guides | R15 | Cable Markers |
| R5 | Circular Metal Threaded Spacers | R16 | Cable Ties |
| R6 | Metal Clearance Spacers | R17 | Spring Probes |
| R7 | Hexagonal Metal Threaded Spacers | R18 | Track Pins |
| R8 | Metal Male/Female Spacers | R19 | Plugs, 1mm |
| R9 | Plastic Spacers, Brass Inserts | R20 | Terminals, 1mm |
| R10 | Plastic Spacers, Self Lock | R21 | Terminal Pins |
| R11 | Cable Bushes | R22 | Turret Lugs |

Have you got our Connector Catalogue? Have you got our Socket Catalogue?
Contact Marketing for your personal copy

Harwin operate an on going development programme. This may result in changes to the product specifications shown in this catalogue.

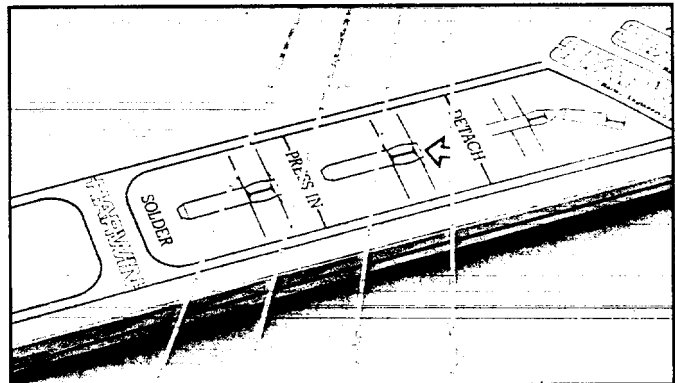
Harwin, with its wide range of manufacturing capabilities also specialise in Custom manufacturing. From specific Custom design through to mass production, with automatic assembly machines, within a matter of weeks.

SQUARE TERMINAL PINS 0.635mm

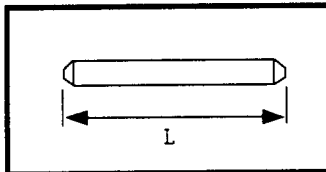
A series of 0.635 mm square posts for wrapping, connector, or test point applications. The diagonals of all posts are suitable for miniature wrap tooling. All posts are a press fit into the recommended hole sizes. Hand held insertion tool Z1016-XX may be used.

MATERIAL:

Pins: Phosphor bronze
Finish: Gold on nickel
Tin on nickel

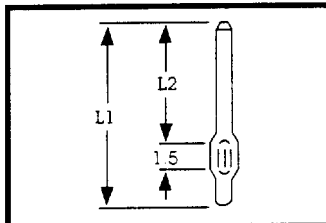


Plain Pin, suitable for $\varnothing 0.74 \pm 0.05$ mm hole supplied loose in multiples of 100. Insert pin into top tool, locate and press home.



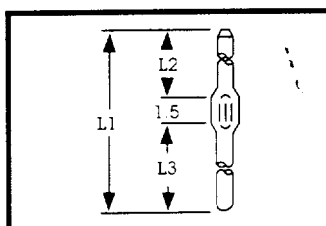
| DIM L | ORDER CODE | | |
|-------|------------|------------|-----------|
| | GOLD | TIN | HAND TOOL |
| 12.4 | 8L251G4900 | 8L251F4900 | Z1016-38 |
| 16.3 | 8L251G6400 | 8L251F6400 | Z1016-52 |

Single Sided Star Pin, suitable for $\varnothing 0.80 \pm 0.05$ mm hole supplied in joined strips in packs of 1000. Insert, snap off and press home.



| DIM L1 | DIM L2 | ORDER CODE | | |
|--------|--------|------------|------------|-----------|
| | | GOLD | TIN | HAND TOOL |
| 10.5 | 7.6 | 8S252G4130 | 8S252F4130 | Z1016-30 |
| 12.4 | 9.7 | 8S252G4938 | 8S252F4938 | Z1016-38 |
| 16.3 | 13.2 | 8S252G6452 | 8S252F6452 | Z1016-52 |

Double Sided Square Star Pin, suitable for $\varnothing 0.80 \pm 0.05$ mm hole supplied in joined strips in packs of 1000. Insert, snap off and press home.

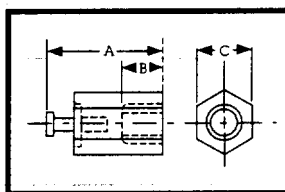
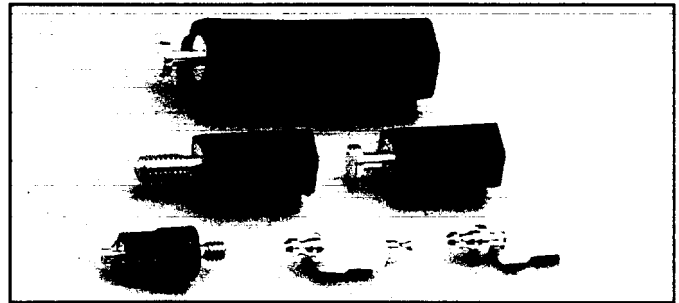


| DIM L1 | DIM L2 | DIM L3 | ORDER CODE | | |
|--------|--------|--------|------------|------------|-----------|
| | | | GOLD | TIN | HAND TOOL |
| 16.3 | 9.7 | 5.1 | 8S252G6438 | 8S252F6438 | Z1016-38 |
| 19.6 | 13.2 | 4.9 | 8S252G7752 | 8S252F7752 | Z1016-52 |
| 24.4 | 13.2 | 9.7 | 8S252G9652 | 8S252F9652 | Z1016-52 |

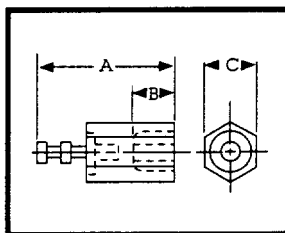
HARDWARE

INSULATORS

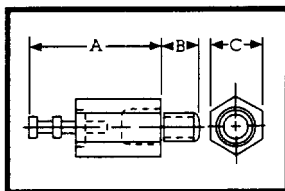
- Body: High temperature thermoplastic.
- Terminal: Brass (90/10 tin/lead plated).
- Threaded insert: Brass (nickel plated).
- Variants assembled using the standard moulding, terminals and inserts shown below can be manufactured to special order.
- For special sizes please contact Technical Sales for a quotation.



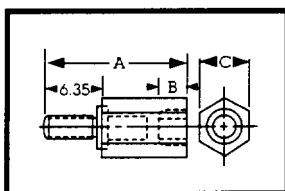
| ORDER CODE | W2230-00 | W2330-00 | W2431-00 | W2630-00 |
|-----------------|-----------|------------|------------|------------|
| A | 9.50 | 15.10 | 27.80 | 15.10 |
| B | 2.40 | 3.20 | 6.35 | 3.20 |
| C | 3.90 | 6.35 | 7.90 | 6.35 |
| Thread | M2 | M3 | M4 | 6BA |
| Current Rating | 5A at 2kv | 10A at 5kv | 10A at 8kv | 10A at 5kv |
| Test voltage kv | 5 | 10 | 15 | 10 |



| ORDER CODE | W2131-00 | W2231-00 | W2331-00 | W2430-00 | W2631-00 | W2831-00 | W2931-00 |
|-----------------|------------|-----------|------------|------------|------------|-----------|------------|
| A | 19.10 | 11.10 | 19.10 | 31.70 | 19.10 | 11.10 | 19.10 |
| B | 3.20 | 2.40 | 3.20 | 6.35 | 3.20 | 2.40 | 3.20 |
| C | 6.35 | 3.90 | 6.35 | 7.90 | 6.35 | 3.90 | 6.35 |
| Thread | M2.5 | M2 | M3 | M4 | 6BA | 8BA | 4.40 UNC |
| Current Rating | 10A at 5kv | 5A at 2kv | 10A at 5kv | 10A at 8kv | 10A at 5kv | 5A at 2kv | 10A at 5kv |
| Test voltage kv | 10 | 5 | 10 | 15 | 10 | 5 | 10 |



| ORDER CODE | W2232-00 | W2332-00 | W2432-00 | W2632-00 |
|-----------------|-----------|------------|------------|------------|
| A | 11.10 | 19.10 | 31.70 | 19.10 |
| B | 3.20 | 6.35 | 6.35 | 6.35 |
| C | 3.90 | 6.35 | 7.90 | 6.35 |
| Thread | M2 | M3 | M4 | 6BA |
| Current Rating | 5A at 2kv | 10A at 5kv | 10A at 8kv | 10A at 5kv |
| Test voltage kv | 5 | 10 | 15 | 10 |

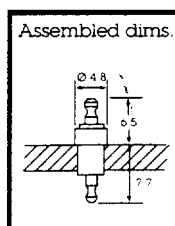


| ORDER CODE | W2334-00 |
|-----------------|------------|
| A | 17.50 |
| B | 3.20 |
| C | 6.35 |
| Thread | M3 |
| Current Rating | 10A at 5kv |
| Test voltage kv | 10 |

P.T.F.E. Feed Through Terminal ORDER CODE W2222-00

Silver plated brass terminal supplied partially assembled with a P.T.F.E. insulating bush. Interference fit with panel when fully assembled.

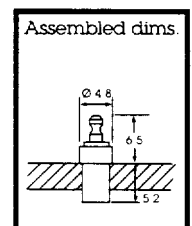
Current rating: 5A
 Test voltage: 5kV
 Max. temp. rating: 200°C
 Mounting hole: 3.96
 Panel thickness: 0.72 to 1.6



P.T.F.E. Insulator ORDER CODE W2225-00

Silver plated brass terminal supplied loose with a P.T.F.E. insulating bush. Interference fit with panel when fully assembled.

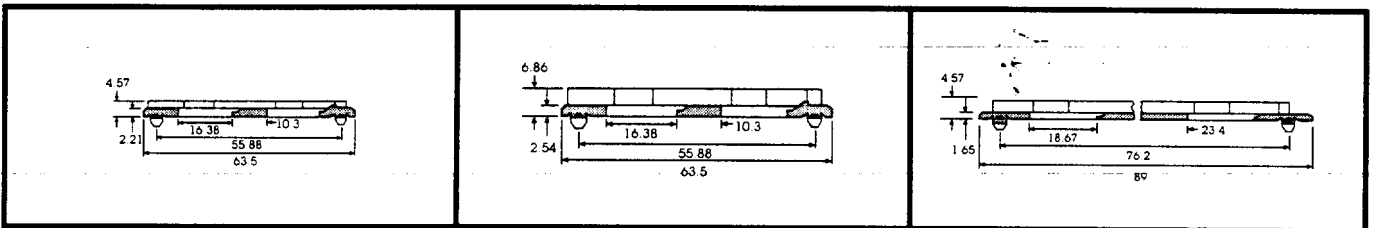
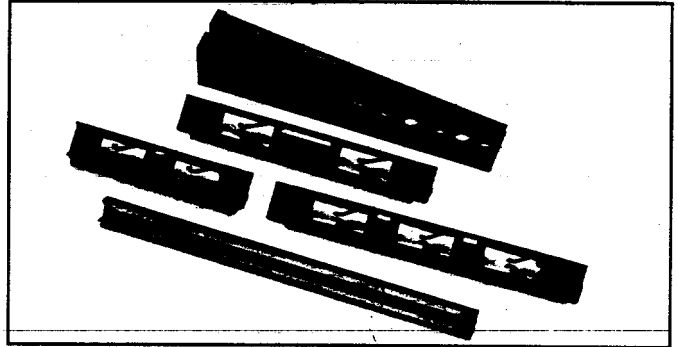
Current rating: 5A
 Test voltage: 5kV
 Max. temp. rating: 200°C
 Mounting hole: 3.96
 Panel thickness: 0.72 to 1.6



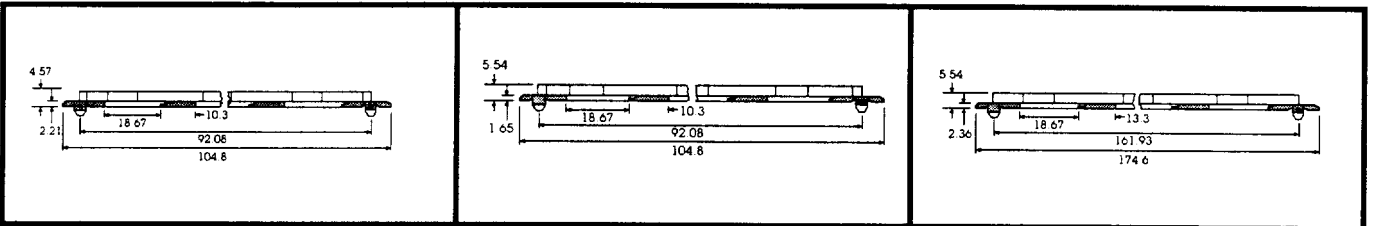
HARDWARE

ANTI-VIBRATION CARD GUIDES

- Moulded-in cantilevers to dampen vibration.
- Fixed Stop to prevent overstressing.
- Accepts 1 to 2.54 mm thick pc boards.
- Minimum surface area for maximum airflow.
- Stable over a wide temperature and vibration range.



ORDER CODE U1400-98 **ORDER CODE U1401-98** **ORDER CODE U1403-98**

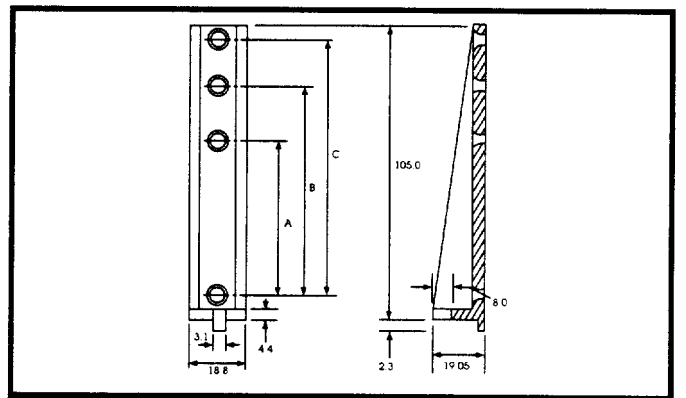


ORDER CODE U1405-98 **ORDER CODE U1407-98** **ORDER CODE U1410-98**

PLASTIC MOUNTING BRACKETS

These polycarbonate brackets are designed to carry the antivibration guides, shown above.

| Hole Positions | Card Guides | |
|----------------|-------------|----------|
| A | U1400-98 | U1401-98 |
| B | U1403-98 | |
| C | U1405-98 | U1407-98 |

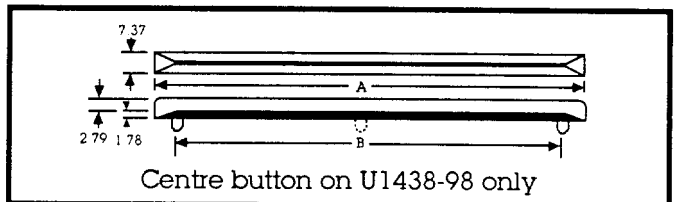


ORDER CODE U1421-98

STANDARD CARD GUIDES

- Mount on 7.62 pitch.
- Fit in 1.59 thick metal, Ø3.3 hole.
- Accept 1.59 thick pc boards.

| ORDER CODE | DIMENSION | |
|------------|-----------|-------|
| | A | B |
| U1436-98 | 152.4 | 139.7 |
| U1438-98 | 203.2 | 190.5 |

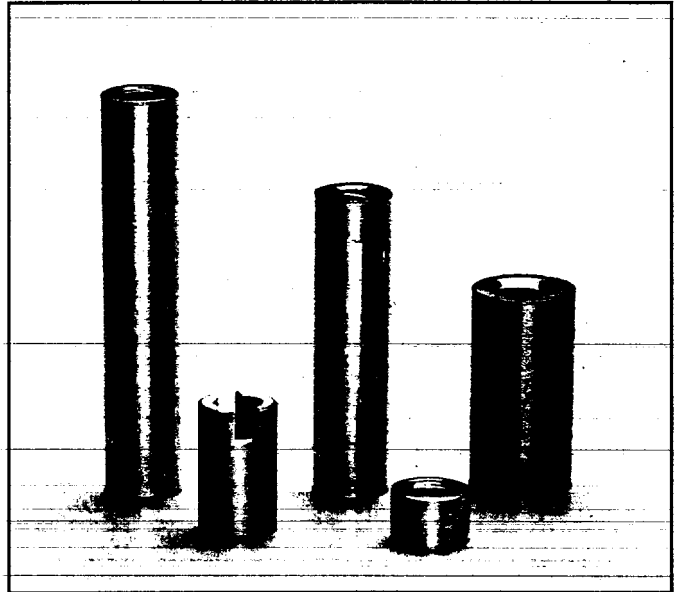
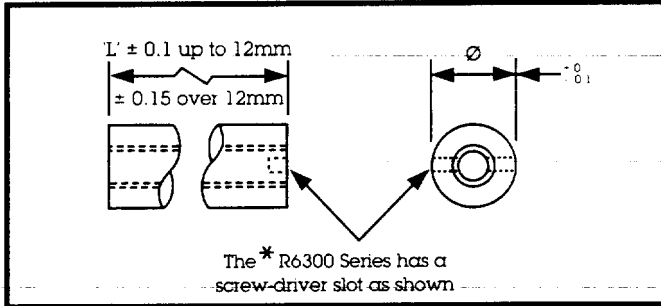


HARDWARE

CIRCULAR METAL THREADED SPACERS

● Material: Brass, nickel plated.
Special body lengths of all types can be manufactured.

For special sizes please contact Technical sales for a quotation.



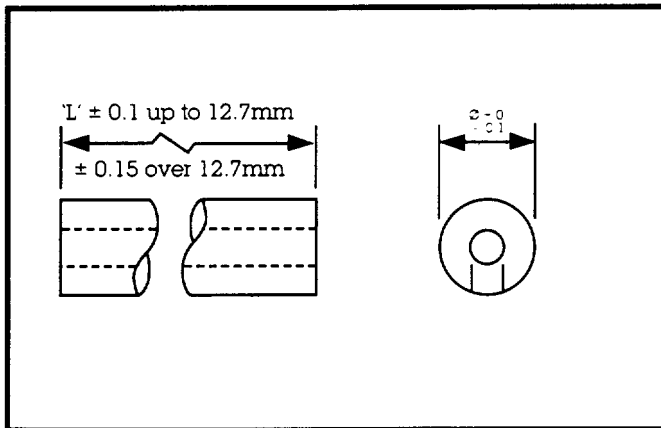
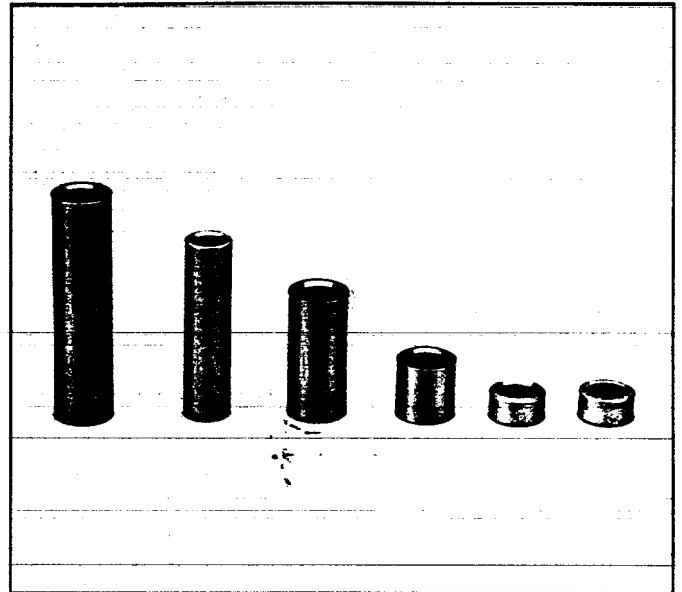
| L | ORDER CODE | | | |
|-------|--------------------|-----------------------------|---------------------|---------------------|
| | METRIC THREADS | | BA THREADS | |
| | M3 THREAD Ø4.75 | * M3 THREAD Ø4.75 (Slot) | 4BA THREAD Ø6.35 | 6BA THREAD Ø4.75 |
| 3.18 | R6350-02 | | | |
| 4.00 | R6321-02 | | | |
| 6.00 | R6322-02 | R6302-02 | | |
| 6.35 | R6351-02 | | R4751-02 | R6651-02 |
| 8.00 | R6323-02 | R6303-02 | | |
| 9.53 | R6352-02 | | R4752-02 | R6652-02 |
| 10.00 | R6324-02 | R6304-02 | | |
| 12.00 | R6325-02 | R6305-02 | | |
| 12.70 | R6353-02 | | R4753-02 | R6653-02 |
| 14.00 | R6326-02 | R6306-02 | | |
| 15.88 | | | R4754-02 | R6654-02 |
| 16.00 | R6327-02 | R6307-02 | | |
| 18.00 | R6328-02 | | | |
| 19.05 | | | R4755-02 | |
| 20.00 | R6329-02 | | | |
| 22.23 | R6356-02 | | | |
| 25.40 | R6357-02 | | R4757-02 | |

HARDWARE

CIRCULAR METAL CLEARANCE SPACERS

● Material: Brass, nickel plated.
Aluminium, protective coating.
Special body lengths of all types can be manufactured.

For special sizes please contact Technical sales for a quotation.



ALUMINIUM

| L | ORDER CODE | |
|----|-------------------------------------|-------------------------------------|
| | M3, 6BA, 4.40 UNC CLEARANCE Ø5.0 | M4, 4BA, 6.32 UNC CLEARANCE Ø6.0 |
| 3 | R2303-14 | R2403-14 |
| 4 | R2304-14 | R2404-14 |
| 6 | R2306-14 | R2406-14 |
| 8 | R2308-14 | R2408-14 |
| 10 | R2310-14 | R2410-14 |
| 12 | R2312-14 | R2412-14 |
| 14 | R2314-14 | R2414-14 |
| 16 | R2316-14 | R2416-14 |
| 20 | R2320-14 | R2420-14 |

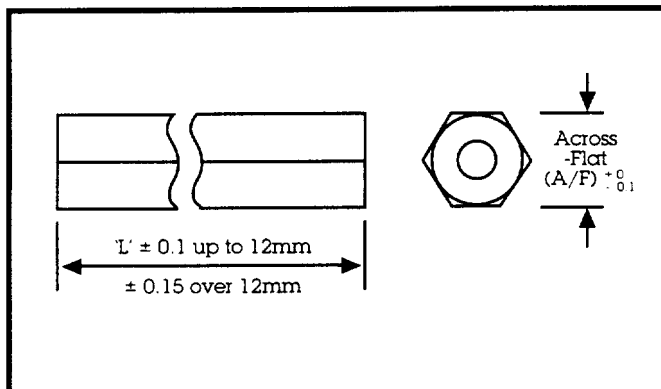
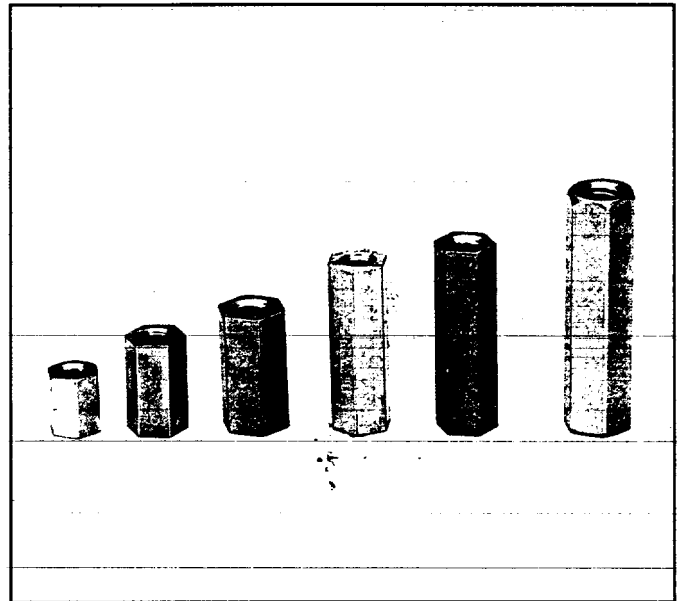
BRASS

| L | ORDER CODE | | | |
|-------|----------------|----------------|-----------------|-----------------|
| | METRIC THREADS | | BA THREADS | |
| | M4 CLEAR Ø6.35 | M3 CLEAR Ø4.75 | 4BA CLEAR Ø6.35 | 6BA CLEAR Ø4.75 |
| 3.18 | R4480-02 | R6380-02 | R4780-02 | R6680-02 |
| 4.00 | R4461-02 | R6361-02 | | |
| 6.00 | R4462-02 | R6362-02 | | |
| 6.35 | R4481-02 | R6381-02 | R4781-02 | R6681-02 |
| 8.00 | R4463-02 | R6363-02 | | |
| 9.53 | R4482-02 | R6382-02 | R4782-02 | R6682-02 |
| 10.00 | R4464-02 | R6364-02 | | |
| 12.00 | R4465-02 | R6365-02 | | |
| 12.70 | R4483-02 | R6383-02 | R4783-02 | R6683-02 |
| 14.00 | R4466-02 | R6366-02 | | |
| 15.88 | | | R4784-02 | R6684-02 |
| 16.00 | R4467-02 | R6367-02 | | |
| 19.05 | | | R4785-02 | R6685-02 |
| 20.00 | R4469-02 | R6369-02 | | |
| 25.40 | | | R4787-02 | |

HARDWARE

HEXAGONAL METAL THREADED SPACERS

- Material: Brass, nickel plated.
- Special body lengths can be manufactured.
For special sizes please contact Technical sales for a quotation.



BA THREADS

| L | ORDER CODE | |
|-------|-----------------------|-----------------------|
| | 4BA THREAD 6.3 A/F | 6BA THREAD 4.9 A/F |
| 6.35 | R4791-02 | R6691-02 |
| 9.53 | R4792-02 | R6692-02 |
| 12.70 | R4793-02 | R6693-02 |
| 15.88 | R4794-02 | R6694-02 |
| 19.05 | R4795-02 | R6695-02 |
| 22.23 | R4796-02 | R6696-02 |
| 25.40 | R4797-02 | R6697-02 |

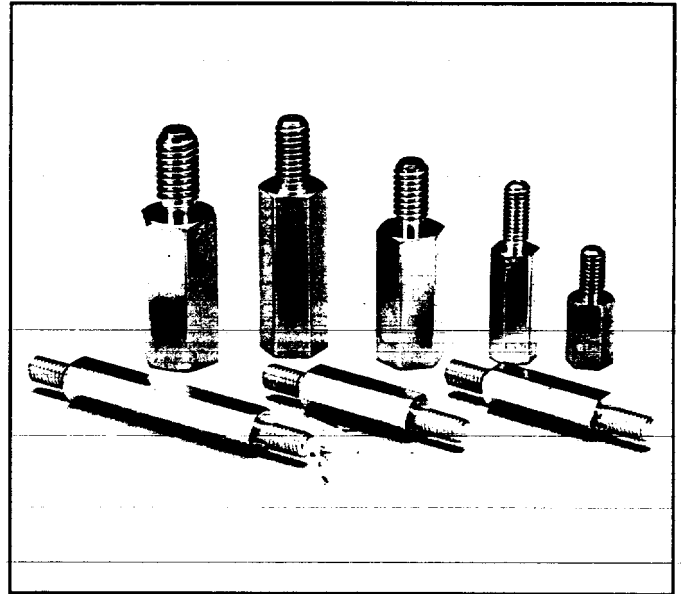
METRIC THREADS

| L | ORDER CODE | | | | |
|------|----------------------|----------------------|----------------------|----------------------|------------------------|
| | M4 THREAD 7.0 A/F | M4 THREAD 6.3 A/F | M3 THREAD 5.5 A/F | M3 THREAD 4.9 A/F | M2.5 THREAD 4.9 A/F |
| 4.00 | | | R6330-02 | R6371-02 | R6171-02 |
| 6.00 | R40-1000602 | R4472-02 | R6331-02 | R6372-02 | R6172-02 |
| 6.35 | | R4491-02 | | R6391-02 | |
| 8.00 | R40-1000802 | R4473-02 | R6332-02 | R6373-02 | R6173-02 |
| 9.53 | | | | R6392-02 | |
| 10.0 | R40-1001002 | R4474-02 | R6333-02 | R6374-02 | R6174-02 |
| 12.0 | R40-1001202 | R4475-02 | R6334-02 | R6375-02 | R6175-02 |
| 12.7 | | R4493-02 | | R6393-02 | |
| 14.0 | R40-1001402 | R4476-02 | R6335-02 | R6376-02 | R6176-02 |
| 16.0 | R40-1001602 | R4477-02 | R6336-02 | R6377-02 | R6177-02 |
| 18.0 | R40-1001802 | R4478-02 | R6337-02 | R6378-02 | R6178-02 |
| 19.0 | | R4495-02 | | R6395-02 | |
| 20.0 | R40-1002002 | R4479-02 | R6338-02 | R6379-02 | R6179-02 |
| 22.2 | | R4496-02 | | R6396-02 | |
| 25.4 | | R4497-02 | R6339-02 | R6397-02 | |

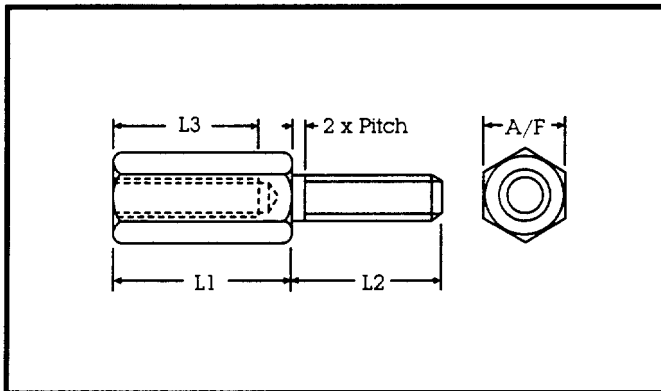
HARDWARE

HEXAGONAL METAL MALE/FEMALE SPACERS

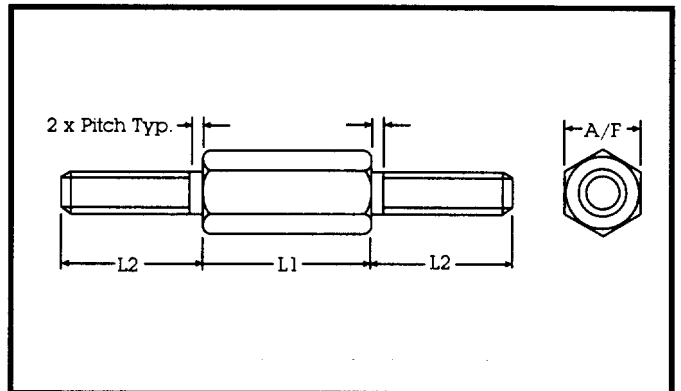
● Material: Brass, nickel plated.
 Special body lengths can be manufactured by specifying the length (L1) in the order code:
 Example R30-400XX02.
 XX denotes body length (L1) in mm.
 For special sizes please contact Technical sales for a quotation.



STYLE 1



STYLE 2



| | ORDER CODE | | | | | | | | | | |
|----|----------------------|-----|----------------------|-----|----------------------|------|-----------------------|------|----------------------|----------------------|-------------|
| | STYLE 1 | | | | | | STYLE 2 | | | | |
| | M3 THREAD 5.0 A/F | | M4 THREAD 7.0 A/F | | M5 THREAD 8.0 A/F | | M6 THREAD 10.0 A/F | | M3 THREAD 5.0 A/F | M4 THREAD 7.0 A/F | |
| L1 | L2=6.0 | L3 | L2=8.0 | L3 | L2=10.0 | L3 | L2=10.0 | L3 | L2=6.0 | L2=8.0 | |
| 5 | R30-3000502 | 2.5 | | | | | | | | R30-4000502 | R40-4000502 |
| 6 | R30-3000602 | 3.0 | R40-3000602 | 2.5 | | | | | | R30-4000602 | R40-4000602 |
| 8 | R30-3000802 | 5.5 | R40-3000802 | 4.5 | R50-3000802 | 4.0 | | | | R30-4000802 | R40-4000802 |
| 10 | R30-3001002 | 6.0 | R40-3001002 | 6.5 | R50-3001002 | 6.0 | R60-3001002 | 5.0 | | R30-4001002 | R40-4001002 |
| 12 | R30-3001202 | 6.0 | R40-3001202 | 8.0 | R50-3001202 | 8.0 | R60-3001202 | 7.0 | | R30-4001202 | R40-4001202 |
| 14 | R30-3001402 | 6.0 | R40-3001402 | 8.0 | R50-3001402 | 10.5 | R60-3001402 | 9.0 | | R30-4001402 | R40-4001402 |
| 16 | R30-3001602 | 6.0 | R40-3001602 | 8.0 | R50-3001602 | 10.5 | R60-3001602 | 11.5 | | R30-4001602 | R40-4001602 |
| 18 | R30-3001802 | 6.0 | R40-3001802 | 8.0 | R50-3001802 | 10.5 | R60-3001802 | 11.5 | | R30-4001802 | R40-4001802 |
| 20 | R30-3002002 | 6.0 | R40-3002002 | 8.0 | R50-3002002 | 10.5 | R60-3002002 | 11.5 | | R30-4002002 | R40-4002002 |
| 25 | R30-3002502 | 6.0 | R40-3002502 | 8.0 | R50-3002502 | 10.5 | R60-3002502 | 11.5 | | R30-4002502 | R40-4002502 |