

517-525  
20  
517-690

**HARWIN**

**Farnell**  
COMPONENTS

**Hardware**

# HARDWARE

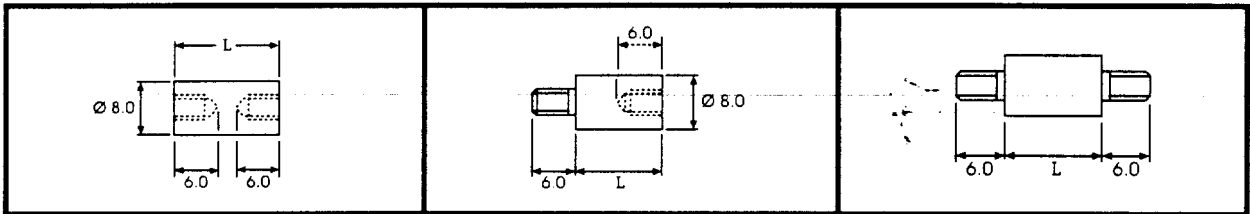
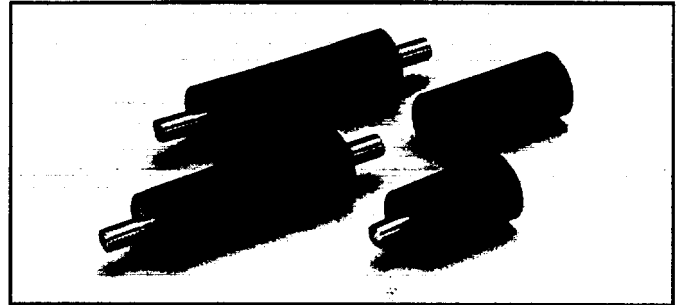
## NYLON SPACERS/BRASS INSERTS

- 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.



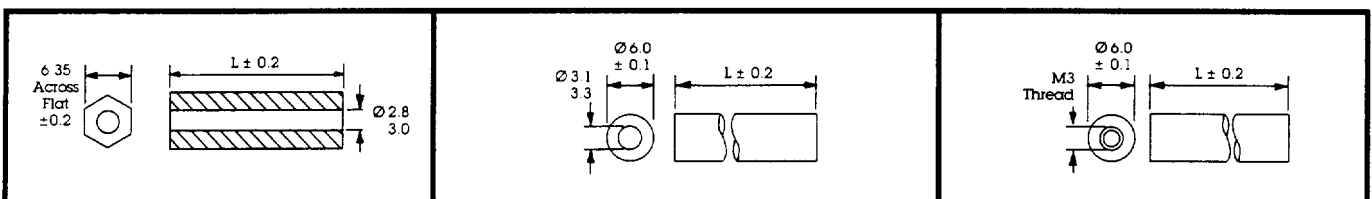
### ORDER CODE

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				

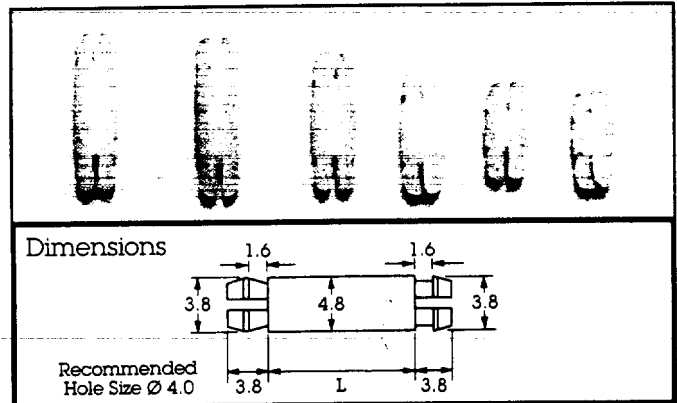
# HARDWARE

## 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.

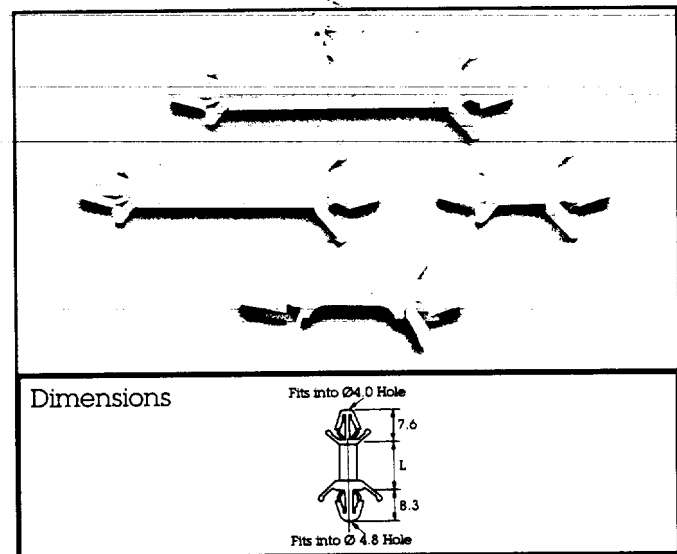
L	ORDER CODE
3.2	R6003-00
6.3	R6006-00
8.0	R6008-00
9.5	R6009-00
10.5	R6010-00
12.7	R6013-00



### 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.

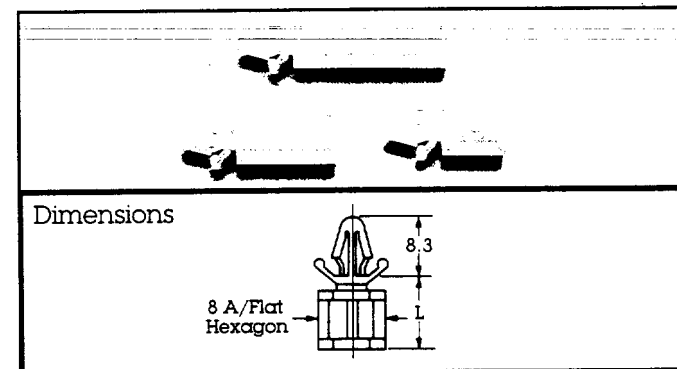
L	ORDER CODE
4.8	R6405-00
6.4	R6406-00
9.6	R6410-00
12.7	R6413-00
15.9	R6416-00
19.1	R6419-00
22.2	R6422-00
25.4	R6425-00
28.5	R6428-00
35.0	R6435-00



### THREADED SELF-LOCK SPACERS

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

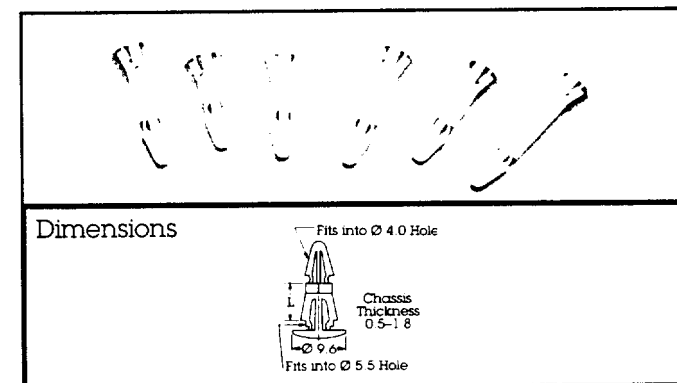
L	ORDER CODE
5.0	R6505-00
9.6	R6510-00
12.7	R6513-00
19.1	R6519-00
28.5	R6528-00
35.0	R6535-00



### 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

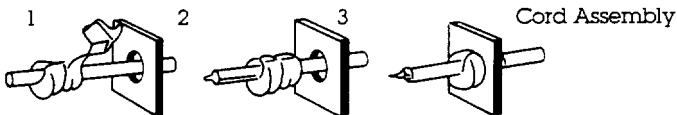


# HARDWARE

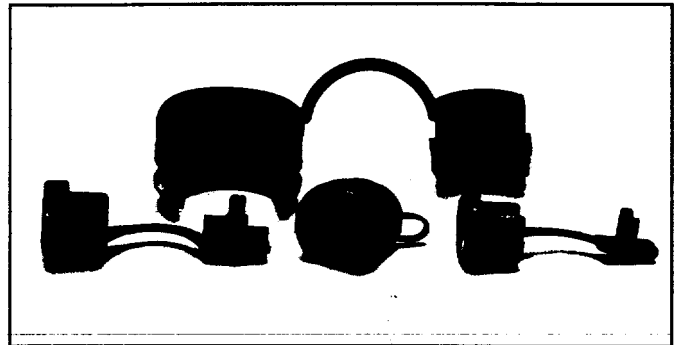
## CABLE BUSHES

### STRAIN-RELIEF BUSHES

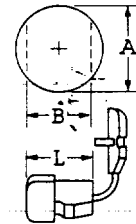
- Material: Nylon 6/6 UL94V-2 (black).
- Easy-to-use, protects cables passing through chassis.
- Provides cable strain relief.



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



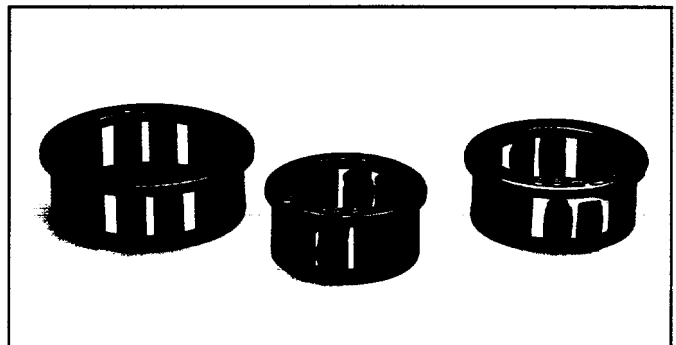
Dimensions



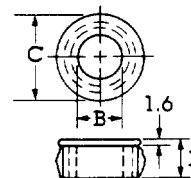
### SNAP-FIT BUSHES

- 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



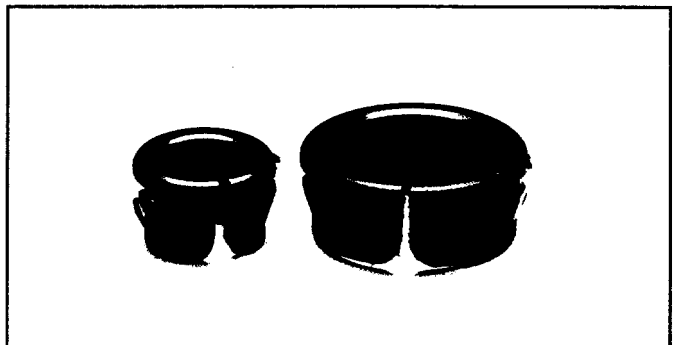
Dimensions



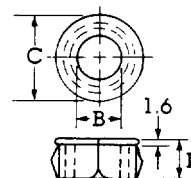
### FLEXIBLE SNAP-FIT BUSHES

- 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



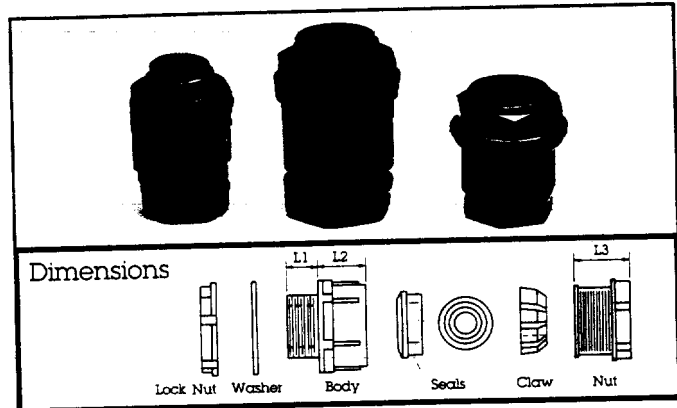
# HARDWARE

## CABLE GLANDS/CLAMPS

### NYLON CABLE GLANDS

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

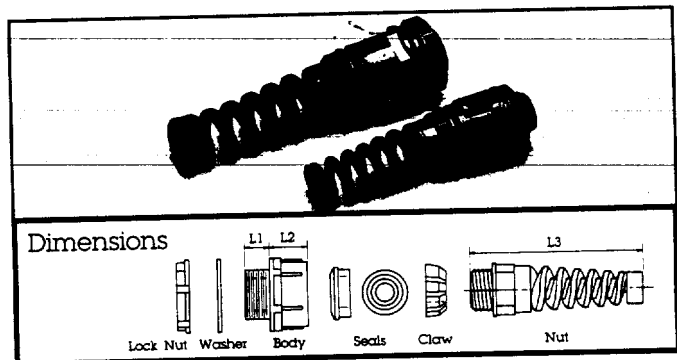
ORDER CODE	L1	L2	L3	CABLE RANGE
R6600-00	12	17	16.5	Ø5-10
R6601-00	13	19	19.5	Ø6-13
R6602-00	13	22	21	Ø10-18
R6603-00	15	24.5	24.5	Ø16-22



### STRAIN-RELIEF CABLE GLANDS

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

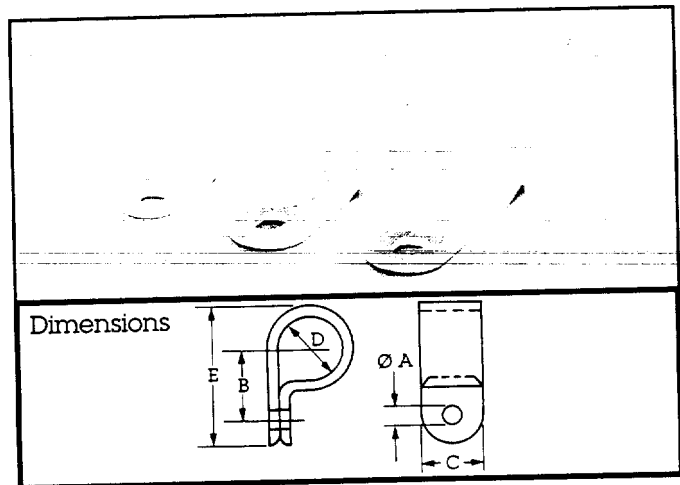
ORDER CODE	L1	L2	L3	CABLE RANGE
R6607-00	12	17	62	Ø5-10
R6608-00	13	19	78	Ø6-13



### CABLE CLAMPS

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

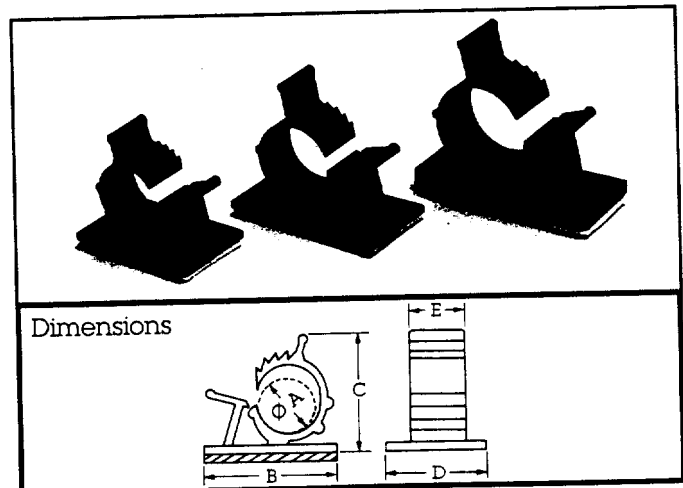
ORDER CODE	A	B	C	D	E
R6550-00	5.0	9.5	9.6	3.2	19.8
R6551-00	4.6	10.5	9.6	4.8	19.8
R6552-00	5.0	12.0	10.0	6.35	22.0
R6553-00	4.6	12.0	10.0	7.9	22.0
R6554-00	4.6	15.2	12.0	9.5	24.0
R6555-00	4.6	12.5	12.0	12.7	31.0
R6556-00	4.6	18.2	12.0	15.8	34.3



### 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

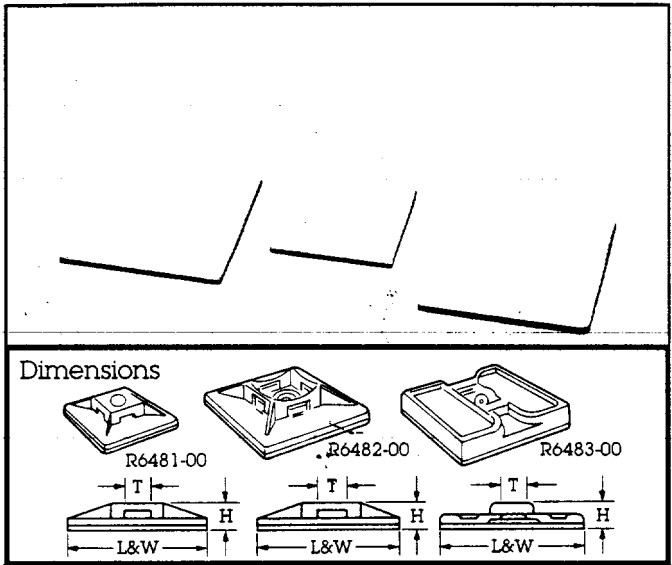


# HARDWARE

## 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.

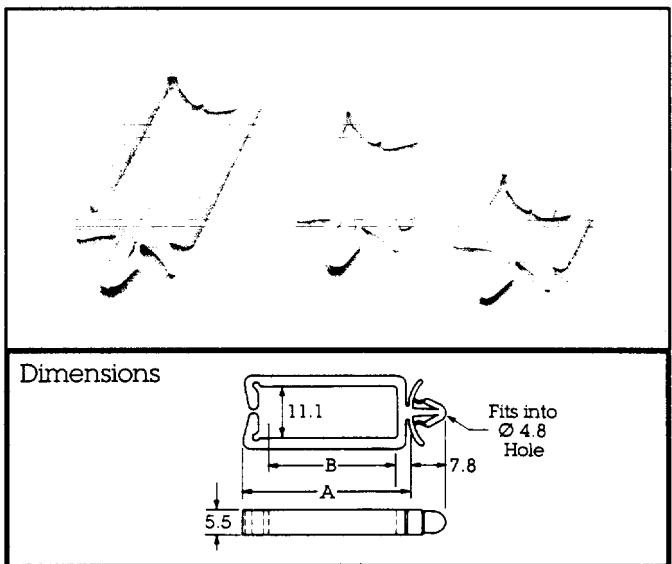
ORDER CODE	L	W	H	MOUNTING HOLE	T
R6481-00	21	21	3.5	-	4.7
R6482-00	28	28	4	5.0	5.0
R6483-00	28	28	4	5.0	5.0



## 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.

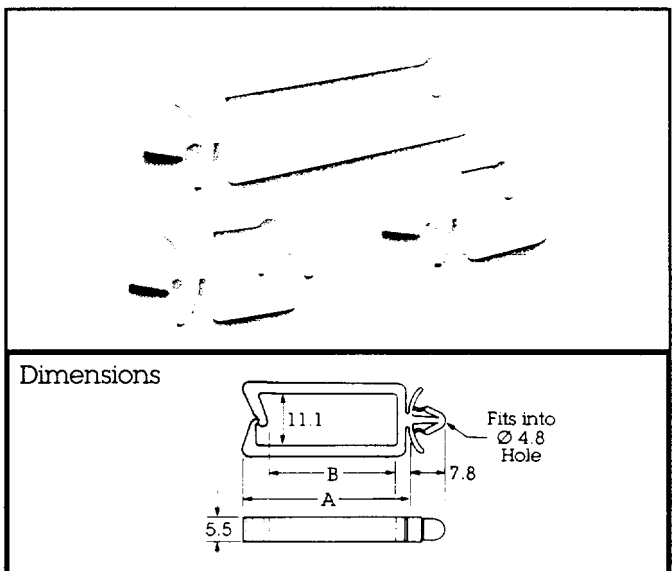
ORDER CODE	A	B
R6440-00	12.7	2.8
R6441-00	17.9	8.6
R6442-00	26.9	18.2
R6443-00	34.8	26.2



## 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

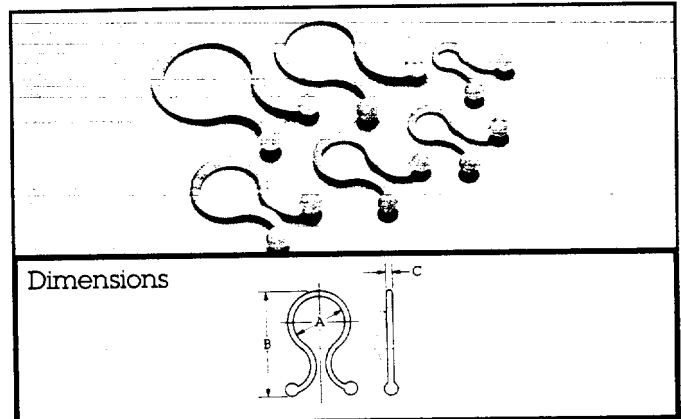


# HARDWARE

## TWIST TIES

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

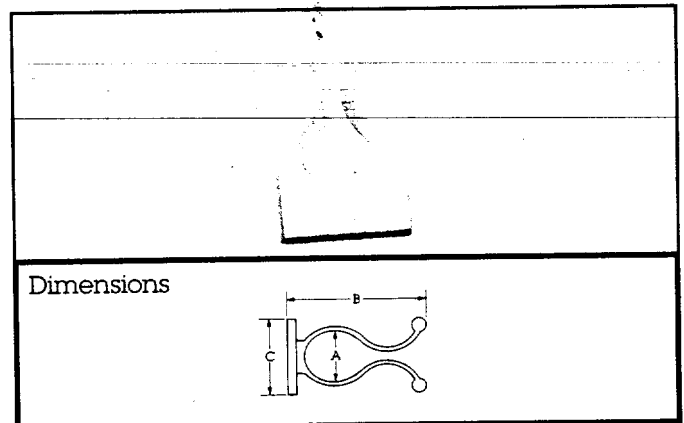
ORDER CODE	DIMENSION			BUNDLE DIAMETER
	Ø A	B	C	
R6460-00	5.1	20.6	1.8	4-7
R6461-00	8.0	25.4	1.8	7-10
R6462-00	11.3	29.3	1.8	10-13
R6463-00	15.0	34.0	2.0	13-16.5
R6464-00	18.6	40.0	2.0	16.5-20



## 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.

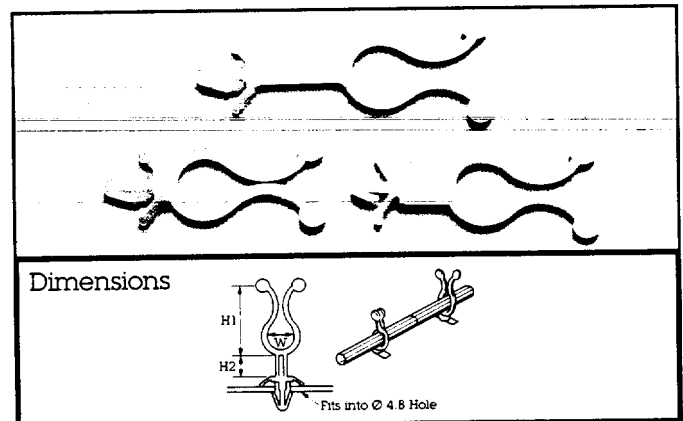
ORDER CODE	DIMENSION			BUNDLE DIAMETER
	A	B	C	
R6468-00	7.9	27.5	17.4	7-10



## 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.

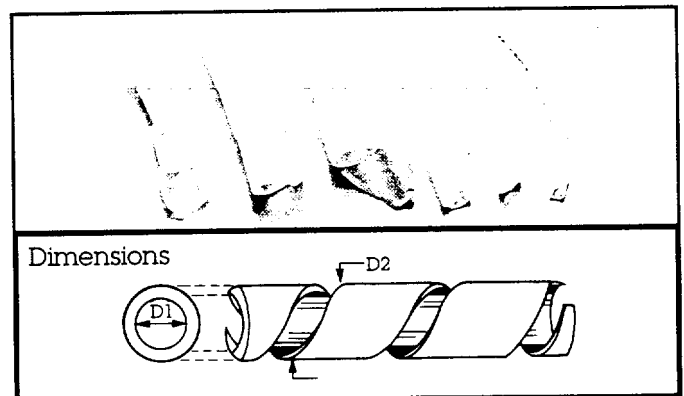
ORDER CODE	DIMENSION		
	H1	H2	W
R6471-00	30.0	18.0	11
R6472-00	30.0	4.0	11
R6476-00	30.0	12.7	11.0



## SPIRAL CABLE WRAPS

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

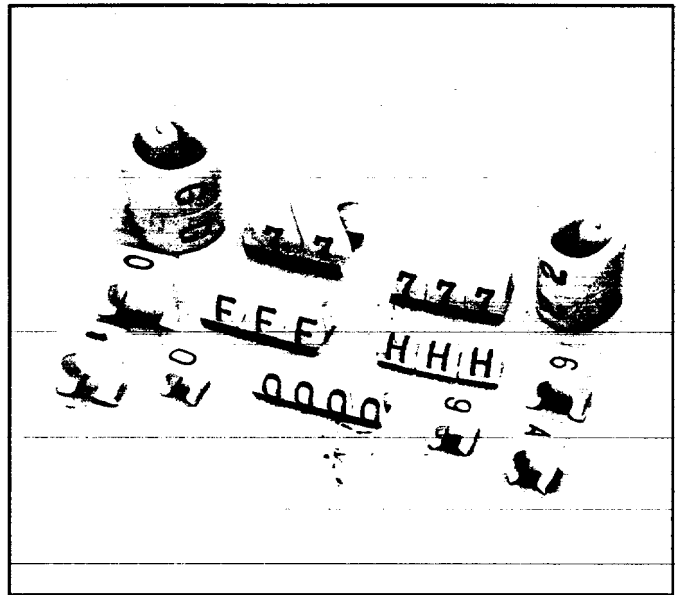
ORDER CODE	Ø D1	Ø D2	WRAPPING RANGE Ø
R6770-00	4	6	10-50
R6773-00	9	12	20-65
R6775-00	15	19	25-100



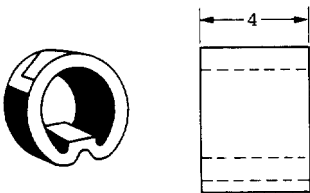
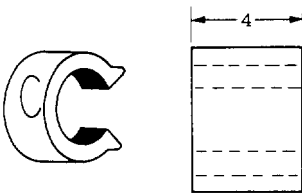
# HARDWARE

## 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

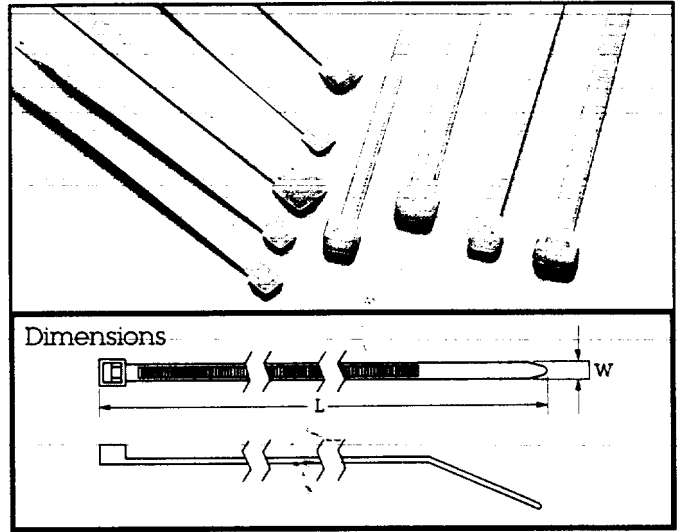


# HARDWARE

## NYLON CABLE TIES

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

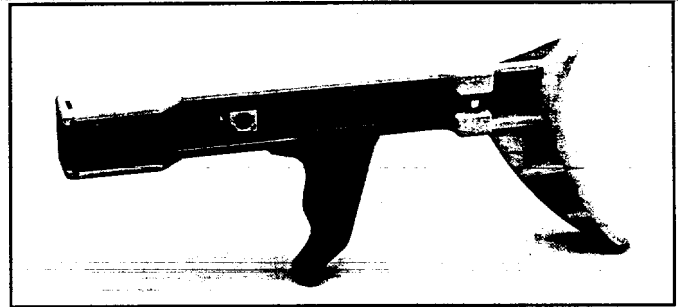
ORDER CODE	L	W	MAX BUNDLE DIAMETER
R6610-00	75	2.4	18
R6611-00	100	2.5	25
R6612-00	120	3.2	30
R6613-00	150	3.7	39
R6615-00	203	4.6	55
R6616-00	250	5.0	74
R6618-00	340	7.9	99
R6619-00	385	5.0	116



## CABLE TIE GUN

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

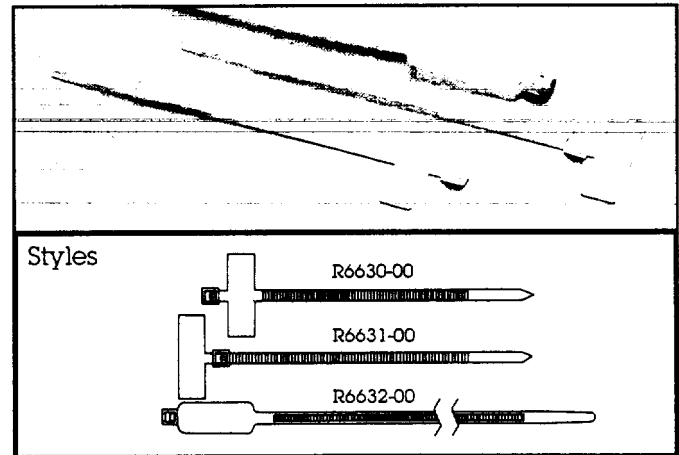
ORDER CODE	FOR TIE WIDTH
R6620-00	2.5-5.0



## CABLE MARKER TIES

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

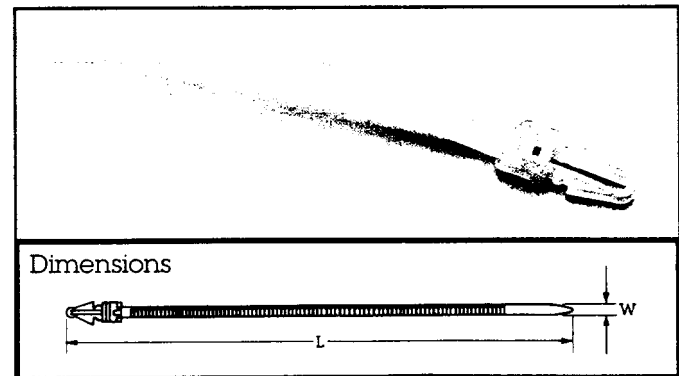
ORDER CODE	L	W	MAX BUNDLE DIA.	MARKING PAD SIZE
R6630-00	100	2.5	25	25 x 8
R6631-00	110	2.5	25	25 x 8
R6632-00	200	4.6	50	28 x 13



## 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



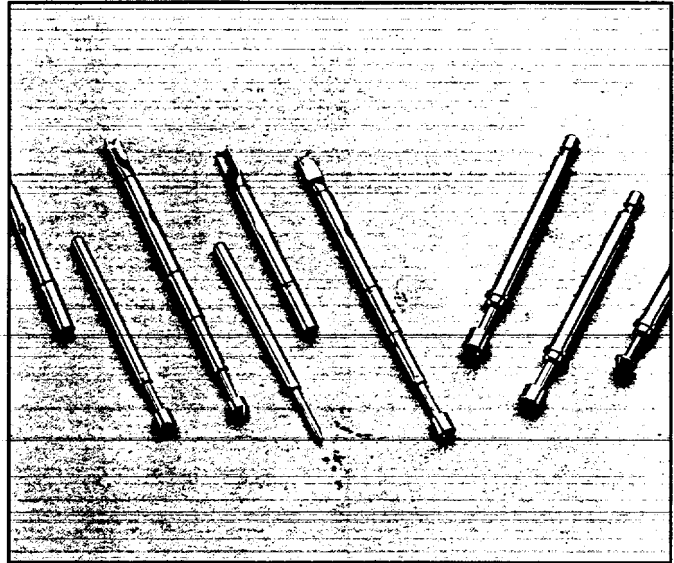
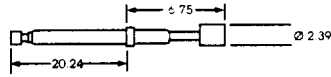
# HARDWARE

## 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 SPRING PRESSURE	
		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:

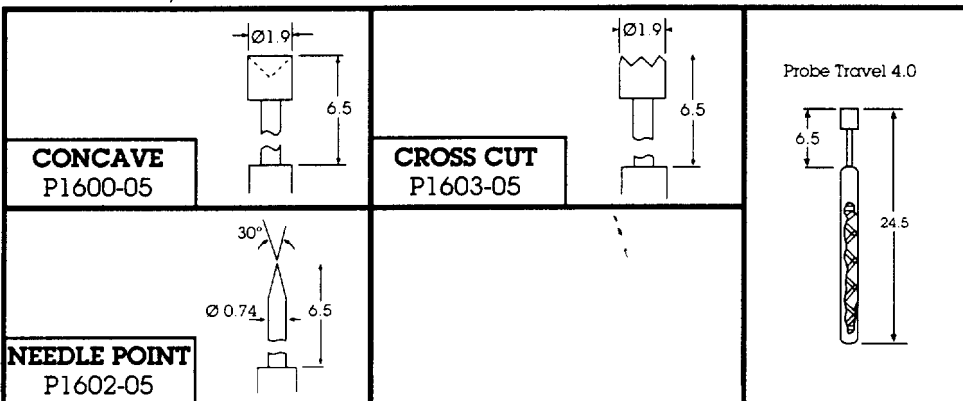
#### MATERIALS:

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

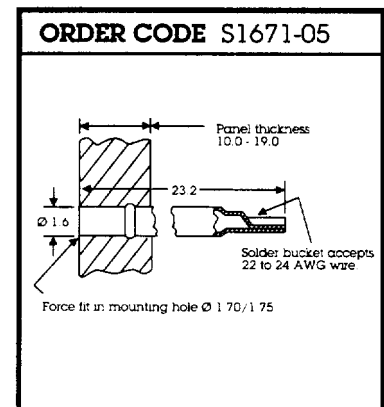
#### PERFORMANCE:

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



### RECEPTACLE



# HARDWARE

## TRACK PINS

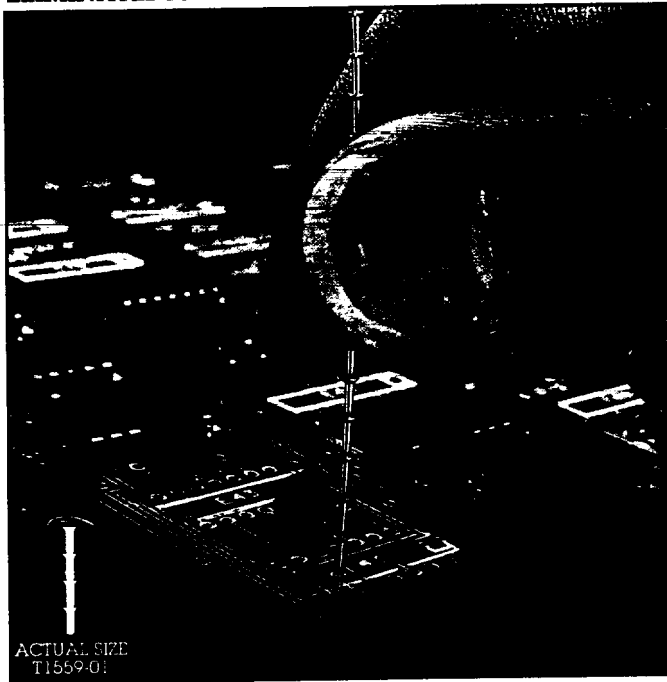
Track pins provide an economical connection between tracks on opposite sides of p.c.b.'s without through hole plating.

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.

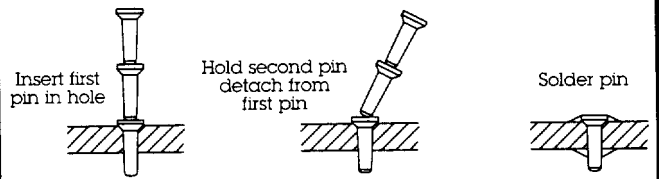
Pin material - brass, plated 90/10 tin/lead on nickel.

### 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)

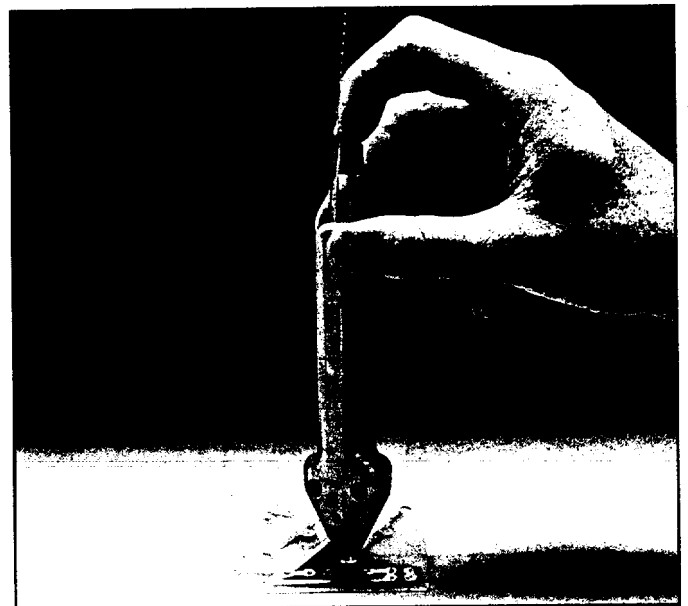
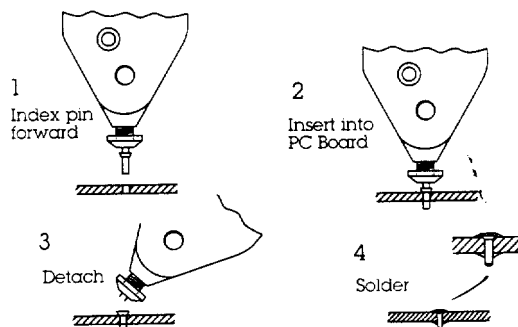


## TRACK PIN INSERTER

- 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**

**Fax: 0705 324010**

## Harwin Inc

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

**Tel: 812 285 0055**

**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**

**Fax: 779 3868**

## Harwin Connectors Ltd

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

**Tel: 2 521 0747/8**

**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.

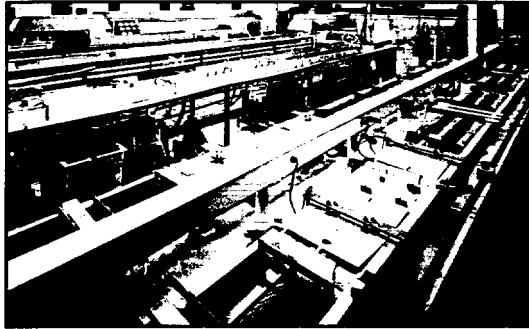
With over 40 years experience in the industry Harwin has grown and developed into a vast number of product fields, showing expertise in stamping, moulding, precision turning, cables assembly and automatic and semiautomatic assembly methods.

**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.

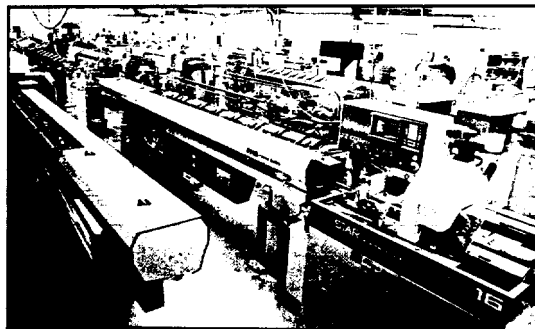


## High Speed Stamping

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

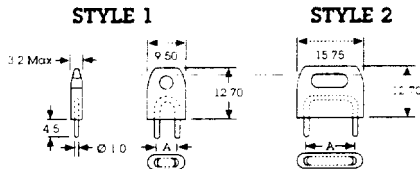
Utilising the latest CNC control systems Harwin manufactures, in volume, miniature turned parts from a variety of materials. A vast range of printed circuit board hardware is produced, together with custom designed parts.

# HARDWARE

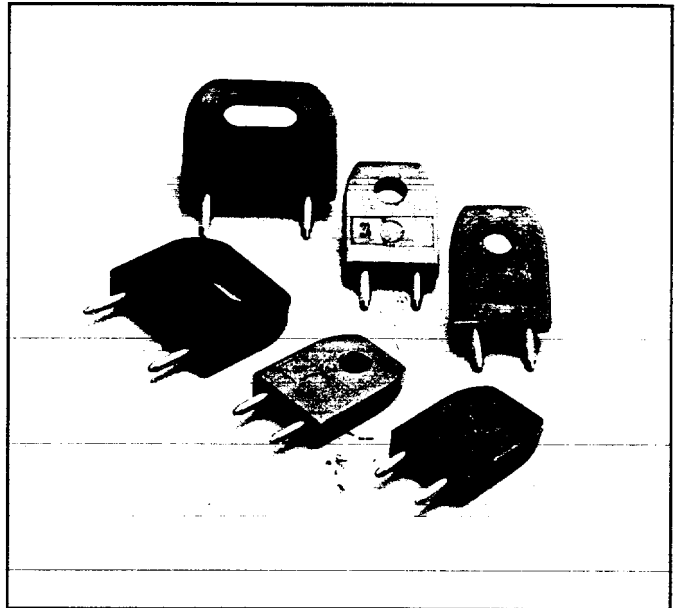
## 1mm INSULATED PLUGS

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

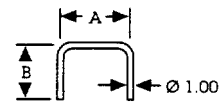


COLOUR	ORDER CODE			
RED	D3086-99	D3087-99	D3088-99	D3089-99
BLACK	D3086-98	D3087-98	D3088-98	D3089-98
BLUE	D3086-97	D3087-97	D3088-97	D3089-97
STYLE	1	1	2	2
DIM A	5.08	6.35	10.16	12.70



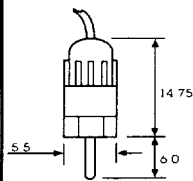
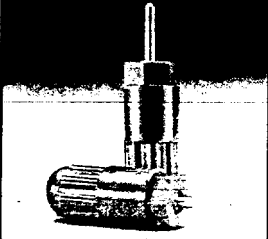
## 1mm UNINSULATED PLUGS

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

## 1mm PLUG



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:

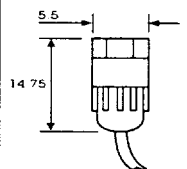
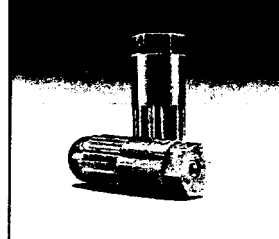
10 m Ω max.

Wire size

18AWG

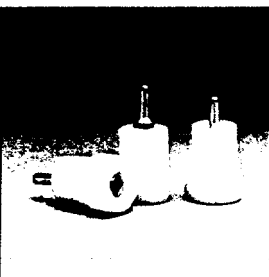
ORDER CODE	COLOUR
W3001-99	RED
W3001-98	BLACK

## 1mm SOCKET

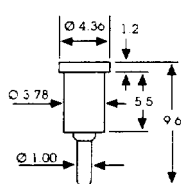


ORDER CODE	COLOUR
W3000-99	RED
W3000-98	BLACK

## 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

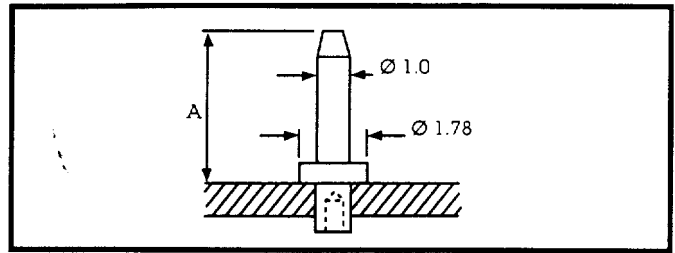
Mechanical endurance: 1000 cycles

ORDER CODE	COLOUR
W3002-98	Black

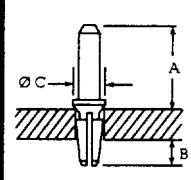
# HARDWARE

## 1mm TERMINALS

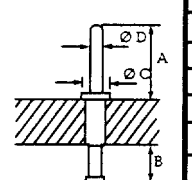
- Material: brass, finish 90/10 tin/lead, or gold.
- Finish: tin/lead -01, gold -05, example H2174-05 etc.
- For swaging tool change order code to prefix Z and suffix 00 (example Z2174-00).



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
Unit Qty.	500
A	4.25
B	1.35 for 1.59 board
C	1.59
D	1.00
Panel Thickness	0.80 to 3.18
Mounting Hole Ø	1.00/1.10



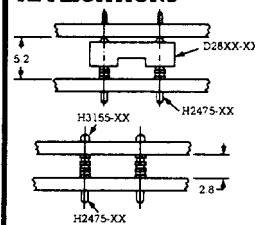
ORDER CODE	H9051-01
Unit Qty.	500
A	6.35
B	3.18
C	2.39
D	1.02
Panel Thickness	1.59
Mounting Hole Ø	1.83/1.88

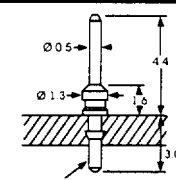
## STAND-OFF TERMINAL PIN

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**

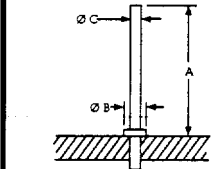




ORDER CODE	H2475-01	H2475-05
Unit Qty.	500	500

## 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.

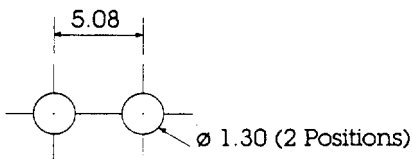
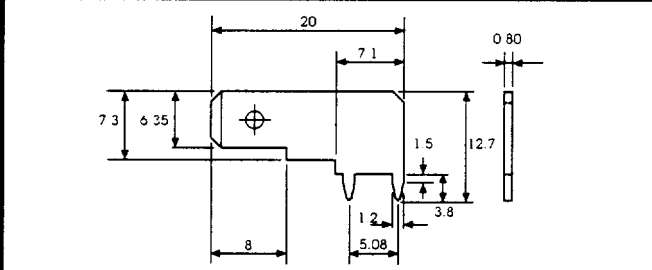


ORDER CODE	H3108-01
Unit Qty.	500
A	5.70
B	1.00
C	0.51
Panel Thickness	1.02
Mounting Hole	0.50/0.55

## 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

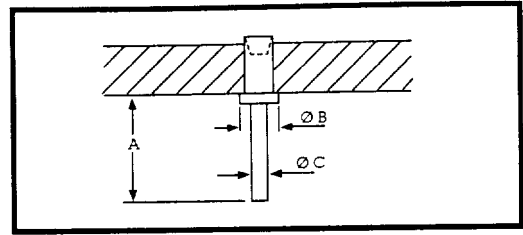
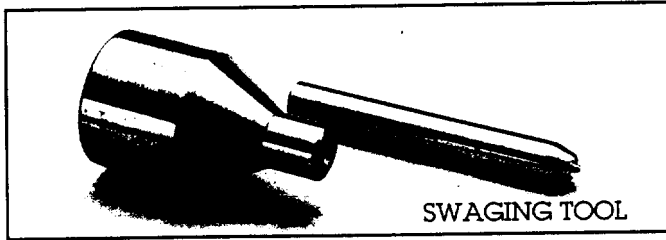
Singapore  
779 1304

**HARWIN**

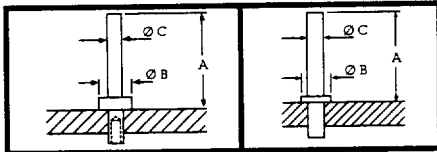
# HARDWARE

## TERMINAL PINS

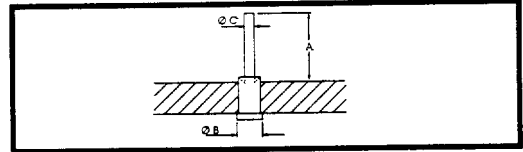
- Material: Brass.
- Finish: Standard finish suffix 01: 90/10 tin/lead.
- For swaging tools change order code to prefix Z and suffix 00, i.e. Z2152-00.



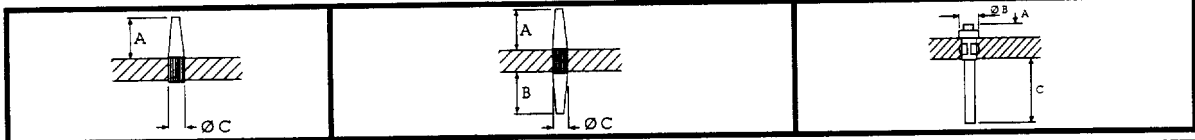
ORDER CODE	H2101A01	H2102A01	H2103A01	H2105A01	H2106A01
Unit Qty.	500	500	500	500	500
A	6.35	6.35	6.35	4.37	4.37
B	2.38	2.38	2.38	2.38	2.38
C	0.96	0.96	0.96	0.81	0.81
Panel Thickness	1.59	2.38	3.18	1.59	2.38
Mounting Hole	1.78/1.86			1.32/1.40	



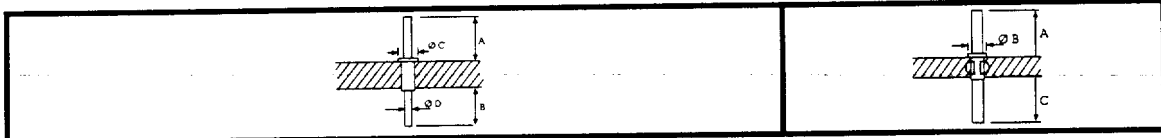
ORDER CODE	H2152-01	H2156-01
Unit Qty.	500	500
A	7.62	7.5
B	2.36	2.0
C	1.10	1.20
Panel Thickness	3.18	3.18
Mounting Hole	1.15/1.20	1.27/1.33



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



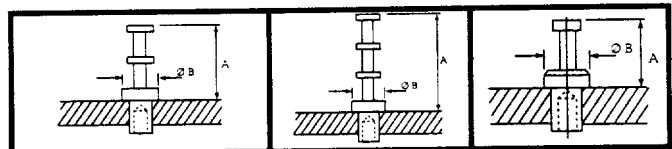
ORDER CODE	H2081-01	H2085-01	H2088-01	H2082-01	H2083-01	H2087-01	H2089-01	ORDER CODE	H3150-01	H2157-01
Unit Qty.	1000	1000	1000	500	500	500	500	Unit Qty.	1000	1000
A	6.35	4.76	4.76	6.35	6.35	4.76	4.76	A	-	0.50
B	-	-	-	3.18	6.35	4.76	4.76	B	1.59	2.00
C	1.65/1.70	1.40/1.45	1.10/1.15	1.37/1.47	1.67/1.70	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).

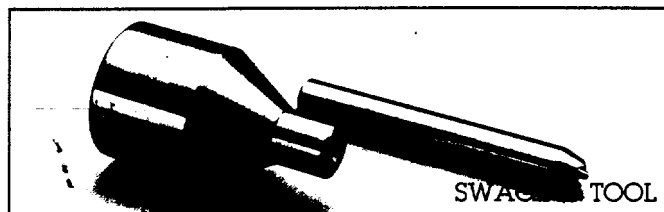


ORDER CODE	H2121-01	H9020-01	H9021-01	H9001-01	H9004-01
Unit Qty.	500	500	500	500	500
A	5.16	7.65	7.65	2.38	4.76
B	3.18	3.18	3.18	1.59	3.18
Panel Thickness	1.59	1.59	2.38	1.59	1.59
Mounting Hole	1.68/1.73	2.34/2.49	2.34/2.49	1.24/1.32	2.01/2.09

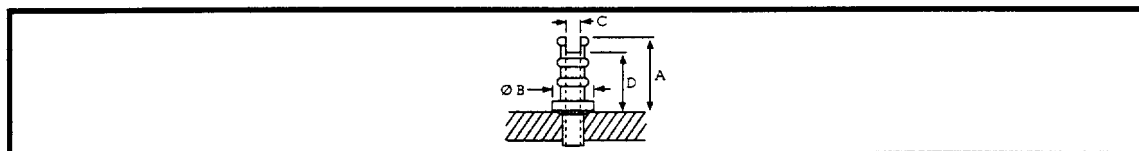
# HARDWARE

## TURRET LUGS

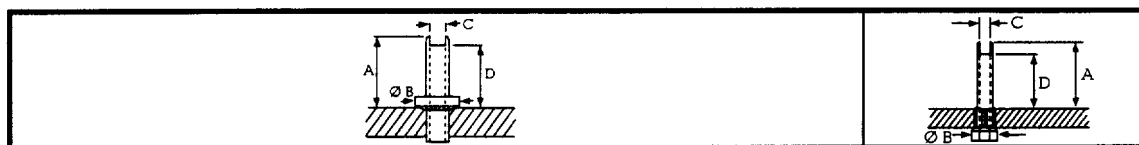
- Material: Brass.
- Finish: Standard finish suffix 01: 90/10 tin/lead.
- Rivet over on underside to retain in pcb.
- For swaging tools change order code to prefix Z and suffix 00, i.e. Z2032-00.



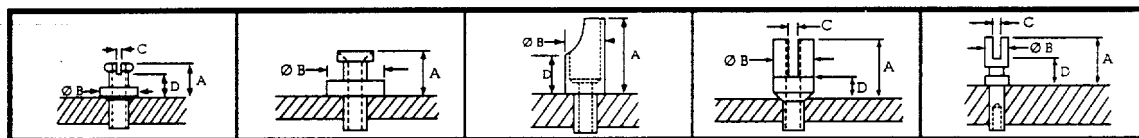
ORDER CODE	H2051-01	H2055-01	H9036-01	H2032-01	H2039-01
Unit Qty.	250	500	500	250	250
A	4.76	6.35	3.97	9.52	12.70
B	3.18	3.18	2.38	4.76	5.56
C (Slot)	0.80	1.20	0.80	1.20	1.60
D	2.39	3.18	1.60	6.35	7.96
Hole	1.02	1.70	1.07	1.70	2.18
Panel Thickness	1.59	2.38	1.59	1.59	3.18
Mounting Hole Ø	1.59/1.67	2.39/2.47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

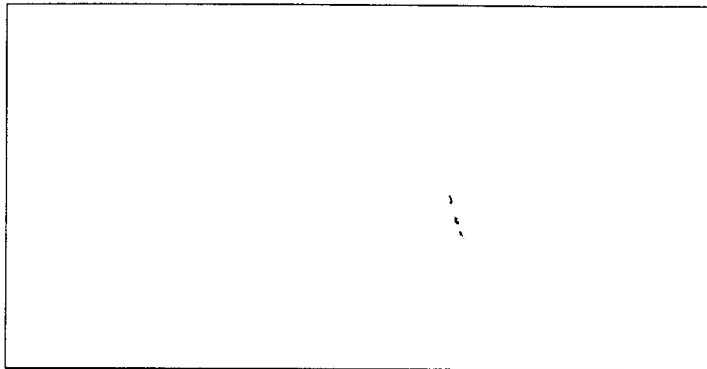
UK  
0705 370451

Korea  
2 521 0747

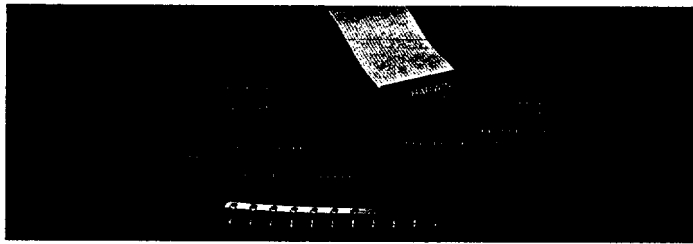
Singapore  
779 1304

**HARWIN**

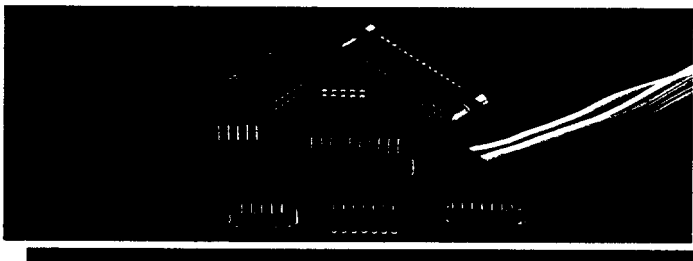




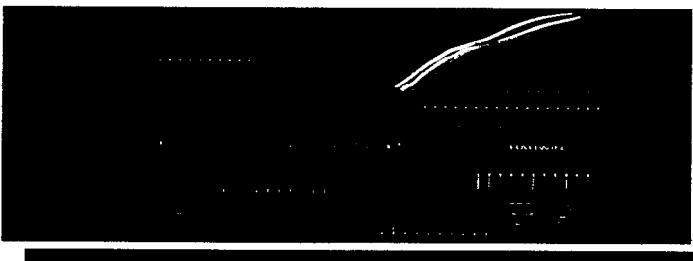
## Additional Harwin Product Lines



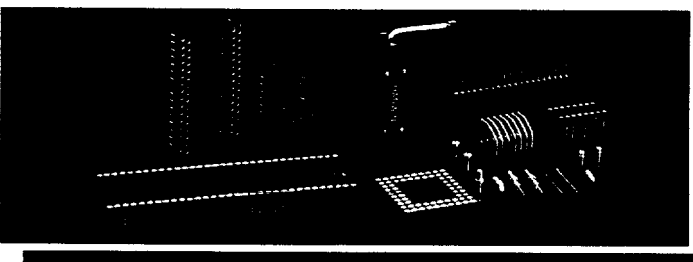
**2.00mm Pitch Connectors: Datalinx**  
1 and 2 row extended, vertical, horizontal pin headers, vertical, horizontal and bottom entry sockets, jumper sockets, IDC connectors and crimp connectors.



**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  
Farringdon, 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.

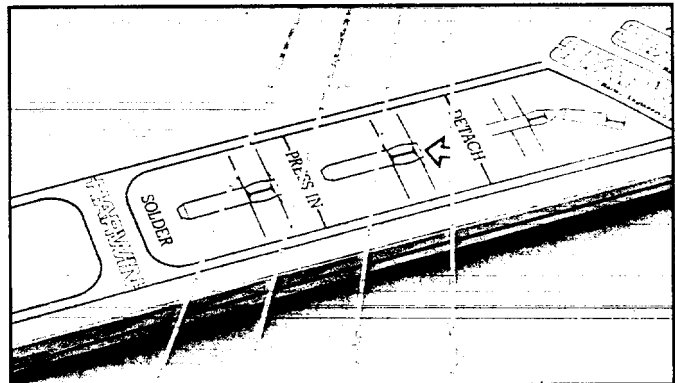
Harwin, with its wide range of manufacturing capabilities also specialise in Custom manufacturing. From specific Custom design through to mass production, with automatic assembly machines, within a matter of weeks.

### SQUARE TERMINAL PINS 0.635mm

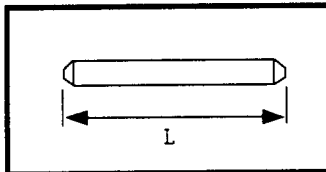
A series of 0.635 mm square posts for wrapping, connector, or test point applications. The diagonals of all posts are suitable for miniature wrap tooling. All posts are a press fit into the recommended hole sizes. Hand held insertion tool Z1016-XX may be used.

#### MATERIAL:

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

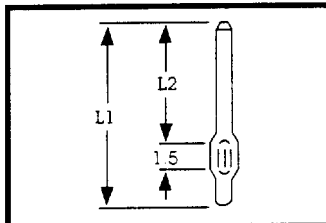


**Plain Pin**, suitable for  $\varnothing 0.74 \pm 0.05$  mm hole supplied loose in multiples of 100. Insert pin into top tool, locate and press home.



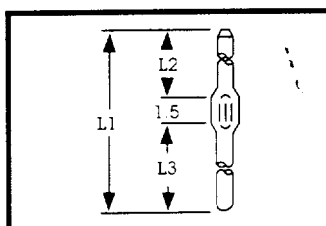
DIM L	ORDER CODE		
	GOLD	TIN	HAND TOOL
12.4	8L251G4900	8L251F4900	Z1016-38
16.3	8L251G6400	8L251F6400	Z1016-52

**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.

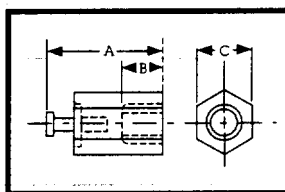
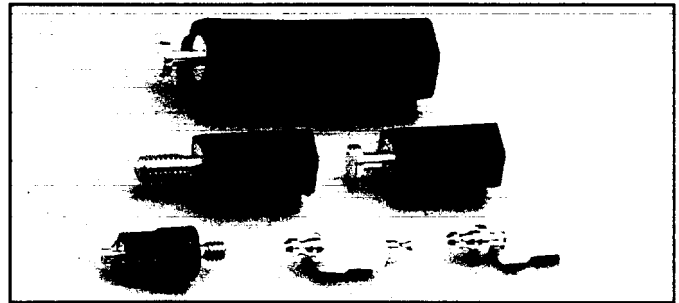


DIM L1	DIM L2	DIM L3	ORDER CODE		
			GOLD	TIN	HAND TOOL
16.3	9.7	5.1	8S252G6438	8S252F6438	Z1016-38
19.6	13.2	4.9	8S252G7752	8S252F7752	Z1016-52
24.4	13.2	9.7	8S252G9652	8S252F9652	Z1016-52

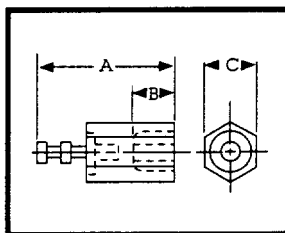
# HARDWARE

## INSULATORS

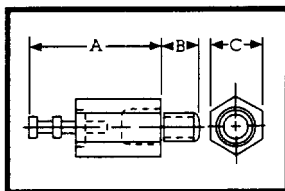
- Body: High temperature thermoplastic.
- Terminal: Brass (90/10 tin/lead plated).
- Threaded insert: Brass (nickel plated).
- Variants assembled using the standard moulding, terminals and inserts shown below can be manufactured to special order.
- For special sizes please contact Technical Sales for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



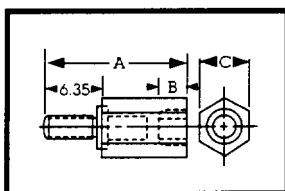
ORDER CODE	W2230-00	W2330-00	W2431-00	W2630-00
A	9.50	15.10	27.80	15.10
B	2.40	3.20	6.35	3.20
C	3.90	6.35	7.90	6.35
Thread	M2	M3	M4	6BA
Current Rating	5A at 2kv	10A at 5kv	10A at 8kv	10A at 5kv
Test voltage kv	5	10	15	10



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

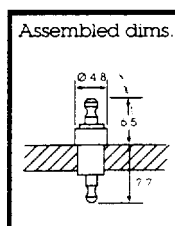


ORDER CODE	W2334-00
A	17.50
B	3.20
C	6.35
Thread	M3
Current Rating	10A at 5kv
Test voltage kv	10

### 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.

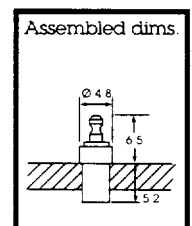
Current rating: 5A  
 Test voltage: 5kV  
 Max. temp. rating: 200°C  
 Mounting hole: 3.96  
 Panel thickness: 0.72 to 1.6



### 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.

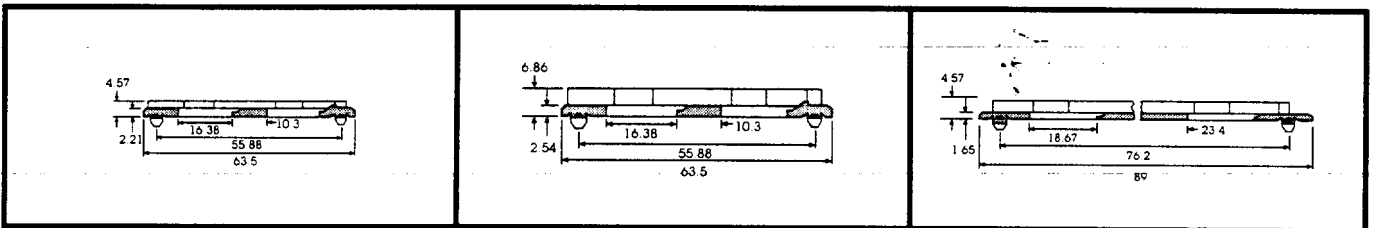
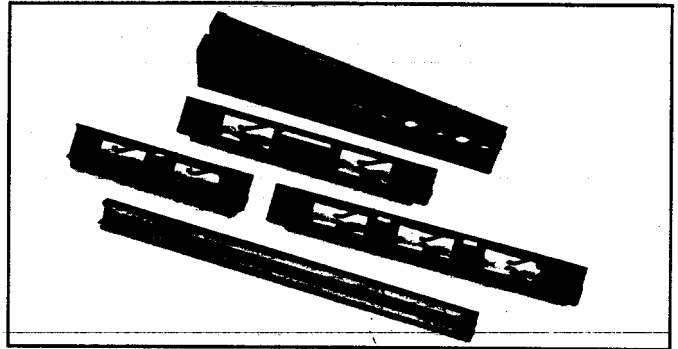
Current rating: 5A  
 Test voltage: 5kV  
 Max. temp. rating: 200°C  
 Mounting hole: 3.96  
 Panel thickness: 0.72 to 1.6



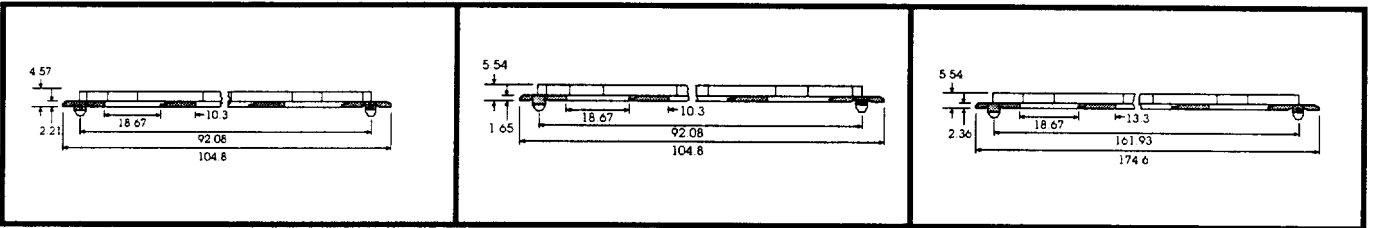
# HARDWARE

## 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**

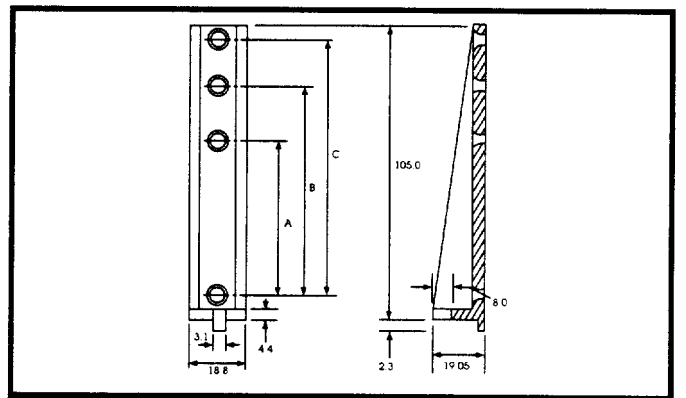


**ORDER CODE U1405-98**      **ORDER CODE U1407-98**      **ORDER CODE U1410-98**

## 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

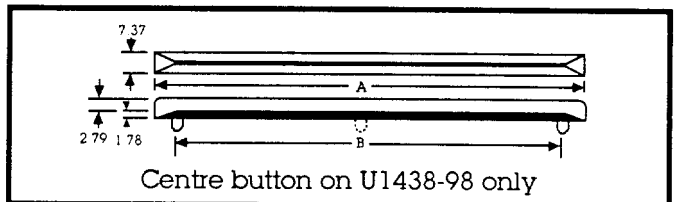


**ORDER CODE U1421-98**

## 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

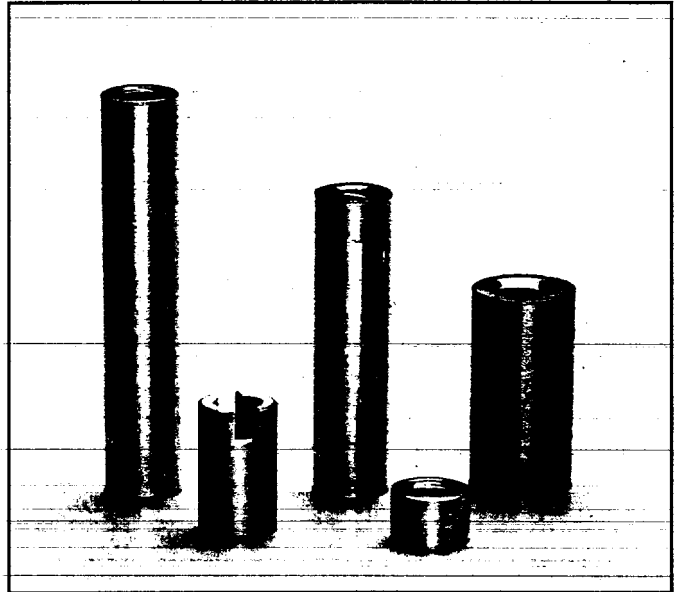
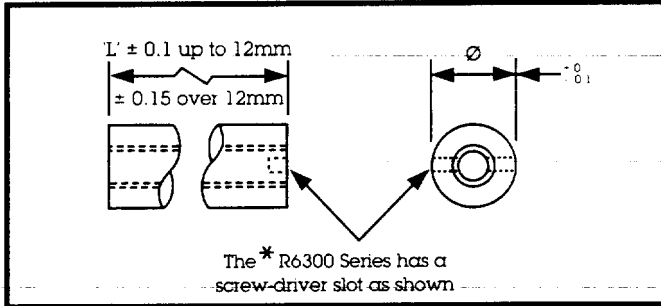


# HARDWARE

## 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.



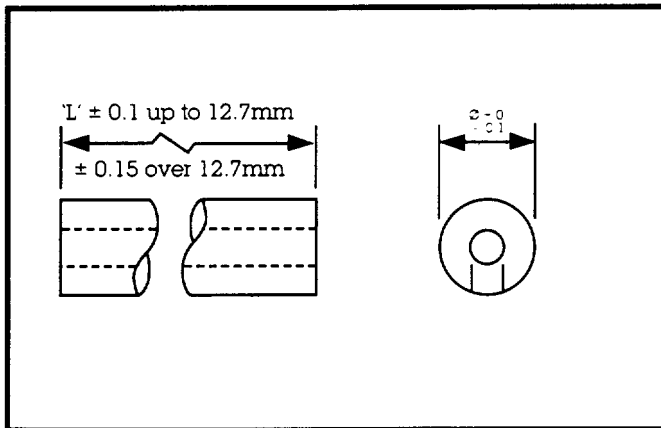
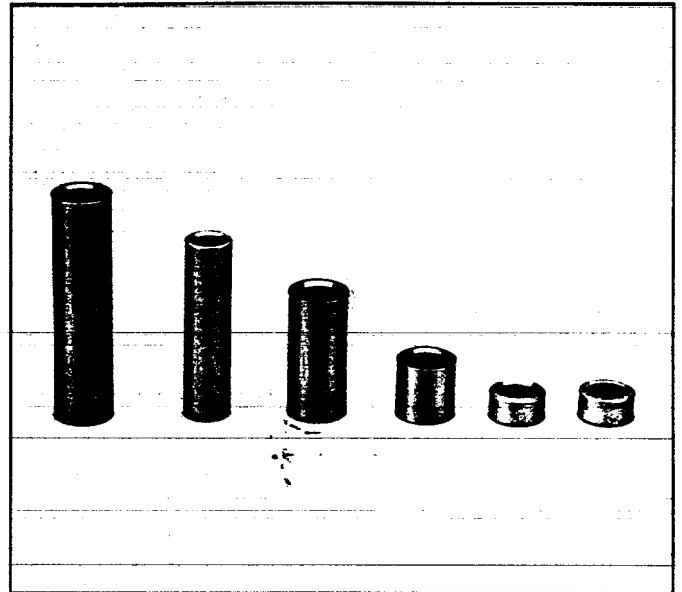
L	ORDER CODE			
	METRIC THREADS		BA THREADS	
	M3 THREAD Ø4.75	* M3 THREAD Ø4.75 (Slot)	4BA THREAD Ø6.35	6BA THREAD Ø4.75
3.18	R6350-02			
4.00	R6321-02			
6.00	R6322-02	R6302-02		
6.35	R6351-02		R4751-02	R6651-02
8.00	R6323-02	R6303-02		
9.53	R6352-02		R4752-02	R6652-02
10.00	R6324-02	R6304-02		
12.00	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

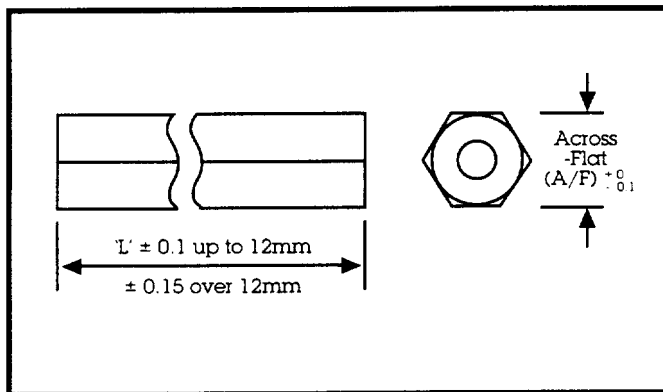
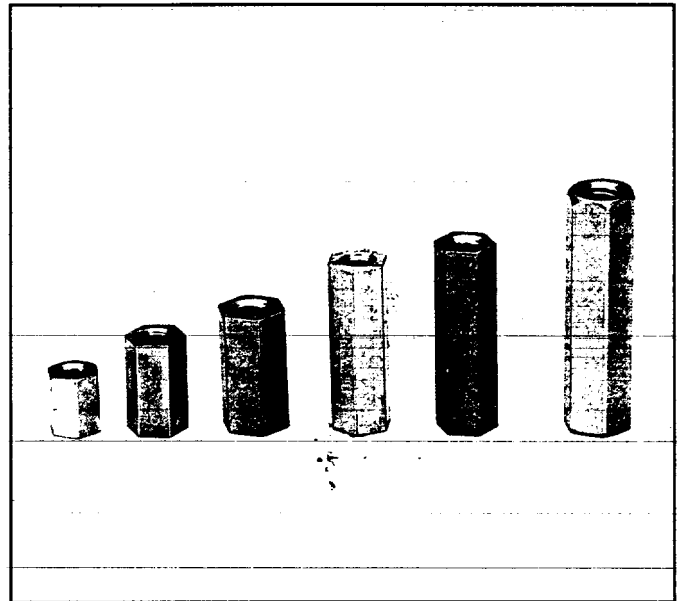
## BRASS

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

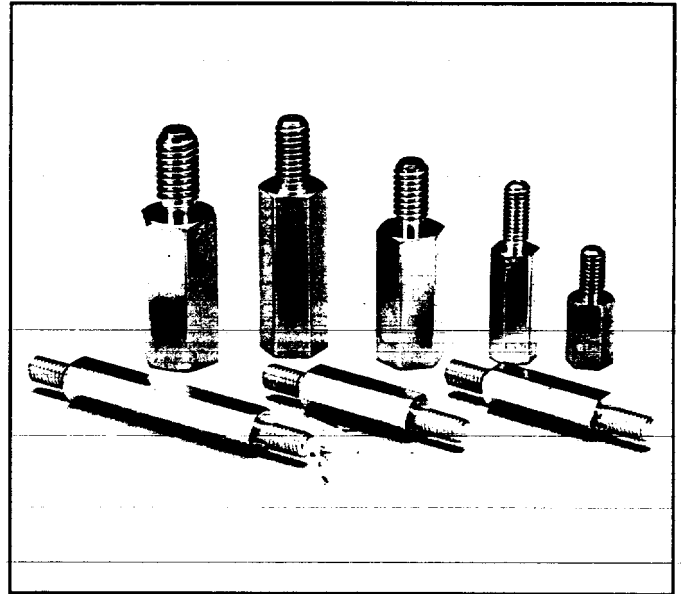
## METRIC THREADS

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	

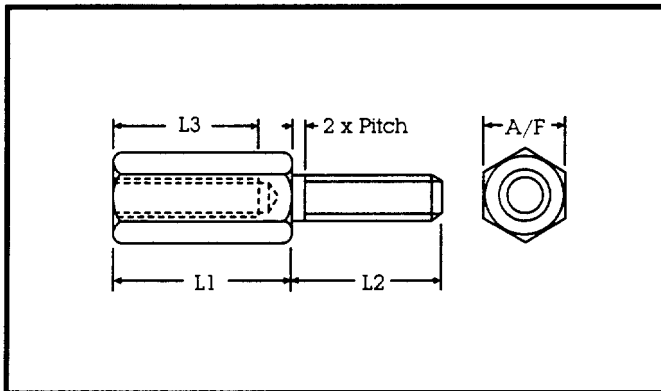
# HARDWARE

## HEXAGONAL METAL MALE/FEMALE SPACERS

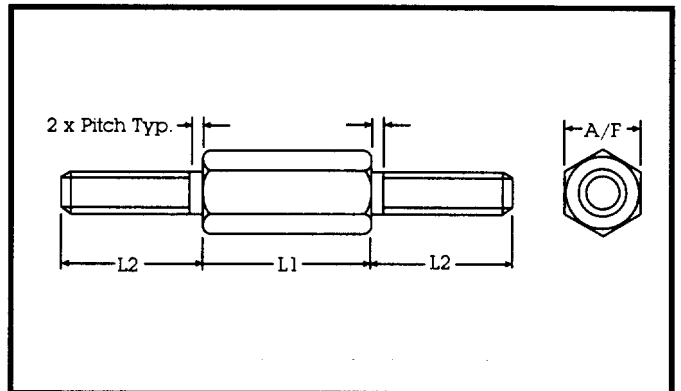
● Material: Brass, nickel plated.  
 Special body lengths can be manufactured by specifying the length (L1) in the order code:  
 Example R30-400XX02.  
 XX denotes body length (L1) in mm.  
 For special sizes please contact Technical sales for a quotation.



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