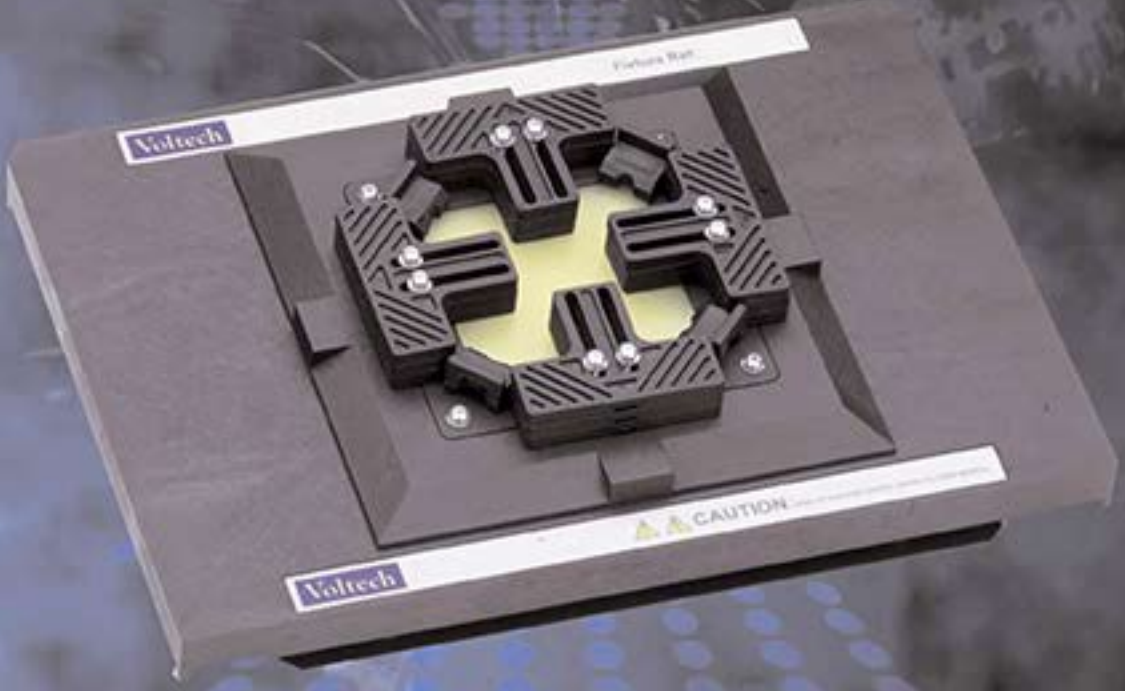
Fixture
SOLUTIONS



Voltech Instruments Ltd.

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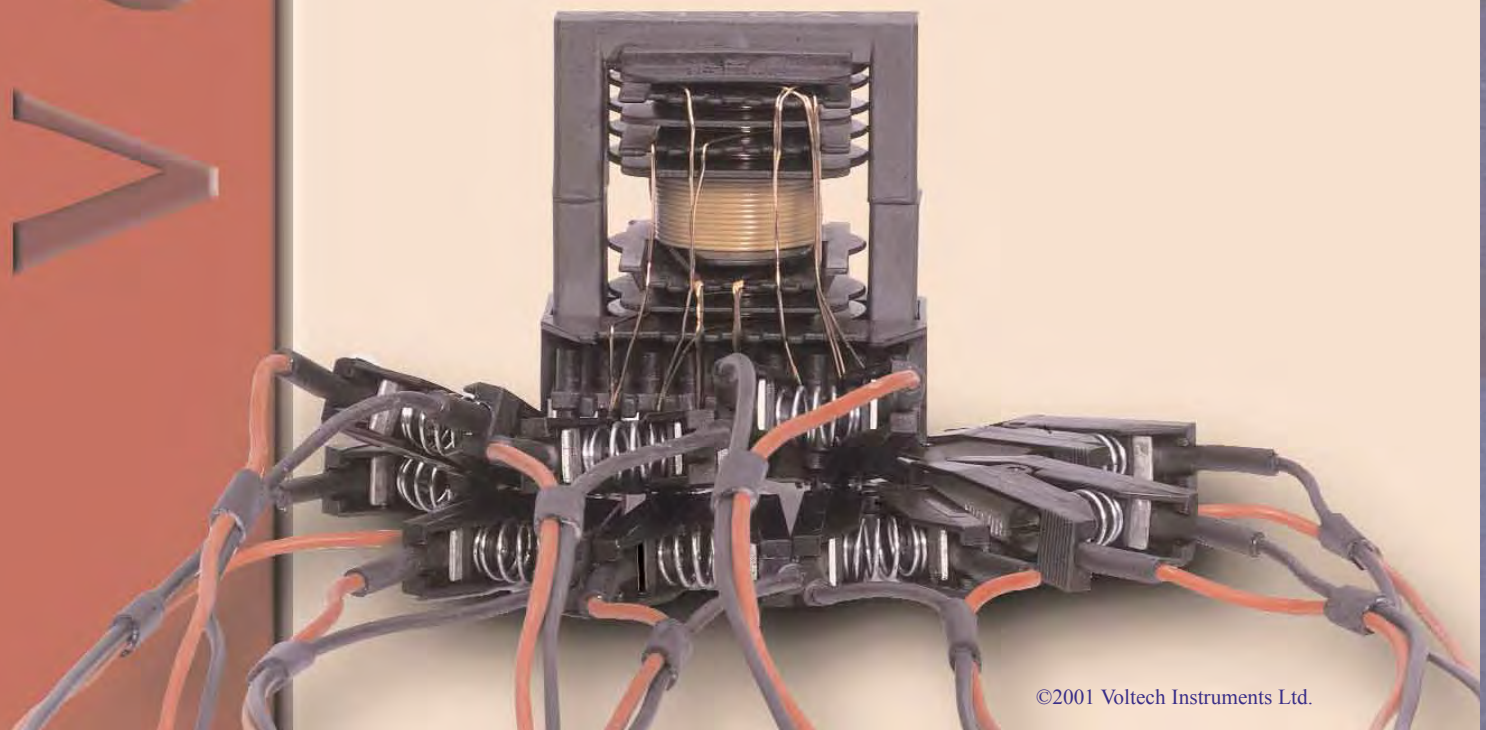
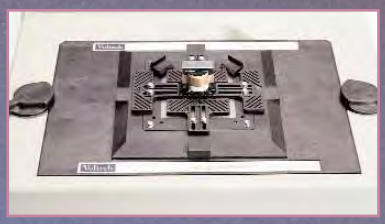
Contents



Why Is fixturing Important?

The Voltech AT series automatic transformer testers are able to perform a comprehensive series of tests on a wide variety of transformers, however...

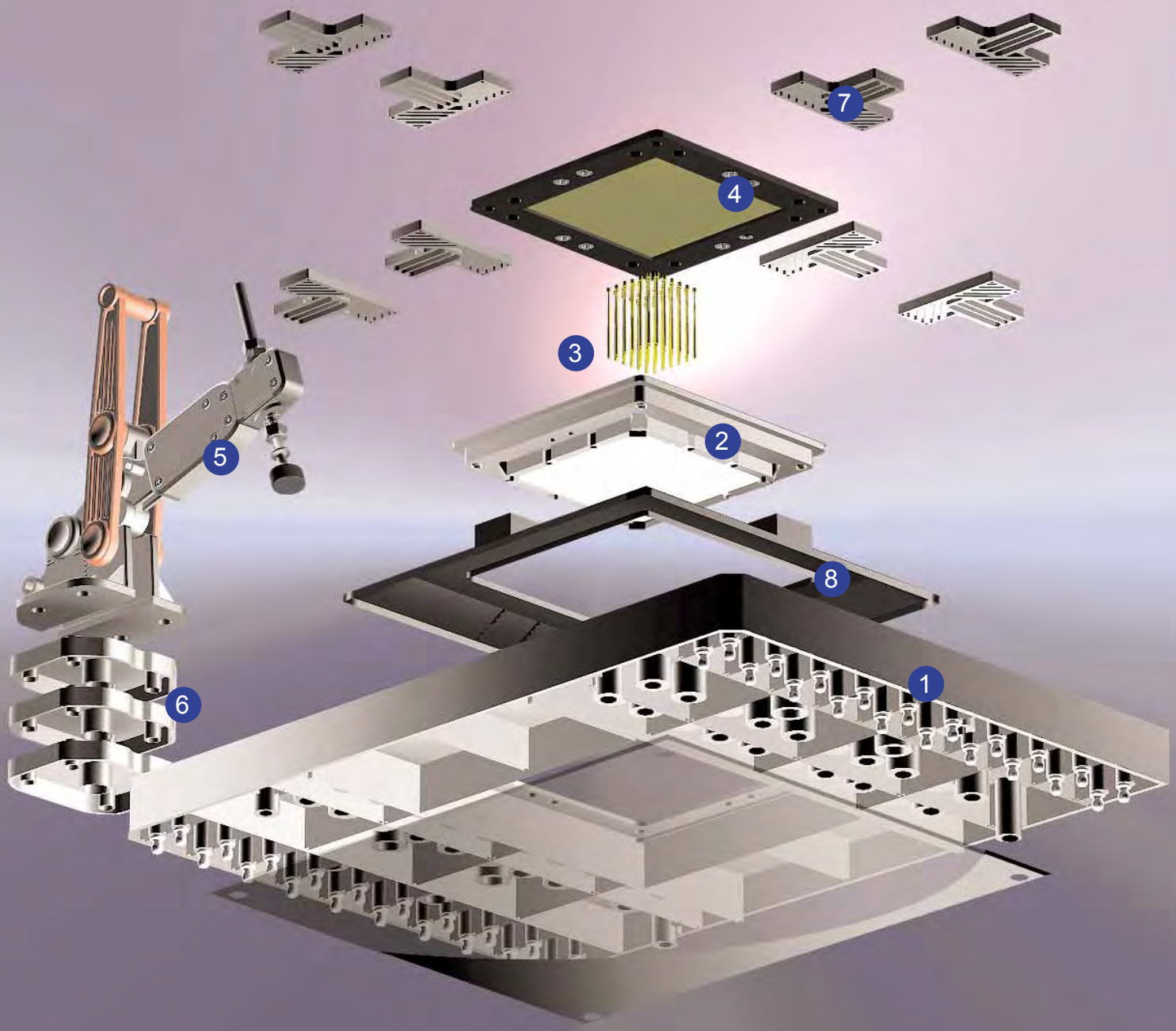
Successful testing of any electronic component requires both a good test instrument and an effective electrical connection to the device under test. The Voltech AT series transformer testers are therefore designed to be used in conjunction with a fixture system that provides reliable, easy-to-use and high quality connections to the test component. This brochure provides guidance on the selection of test fixtures for a number of different transformer types and



package styles. Test fixtures are not difficult to construct, and good test fixtures will minimise operator fatigue, ensure optimum repeatability, prevent unnecessary rejects and increase throughput of the transformer tester.

THE **AT3600** AND **ATi** TRANSFORMER TESTERS

The Voltech fixture system



1. Base plate:

This fits into the top of the transformer tester and has the following features:

- 40 node contacts which connect to the 40 test node pins on the top of the tester.
- Moulded indents on the bottom surface to act as drill guide marks for ease of drilling to fit 4mm safety sockets.
- Provision for drilling through and fitting inserts for the attachment of a clamp in either the left or right hand position.
- Slots moulded into the base to support wiring to the connection points from the nodes.
- Four mounting pillars to hold the cover plate (supplied). The cover plate is attached to the underside of the fixture by four screws and protects the wiring from accidental damage.

The fixture parts are made using a high pressure injection moulding process in a material that is resistant to soldering temperatures and can withstand the high voltages present during use.

2. Probe housing box:

The housing box fits into the bezel and base plate. This box has a base thickness of 9mm so that it can be drilled to accommodate a range of ATE probes and Kelvin blades. The housing box is fastened into position by 4 x M3 screws which also lock the bezel into place.

3. Spring probes:

The spring probe receptacle (or Kelvin blade) is pushed through the probe housing box from the top, bonded if necessary and connected with wire to the fixture node pins.

4. Interface plate:

The interface plate is a glass fibre board with an injected plastic trim and fits into the bezel in close alignment with the probe housing box. The interface plate supports the body of the test piece during testing. The bezel has 4 groups of 2xM3 inserts for the attachment of the guides. The plate can accommodate a test piece of up to 63.5mm square and can be drilled for probes over an area of 60mm square when using the drilling templates (VPN 50-307 [page 13]).

5. Clamp:

An optional clamping mechanism can be used to hold the test piece in place when using spring probe connectors. The clamp head has a sliding guide to allow the vertical clamping rod to move horizontally relative to the clamp head. This minimises the possibility of side movement to the test piece during the clamping action. The clamp head also incorporates adjustment for 10mm of height and spring pressure.

6. Height blocks:

Height adjustment blocks (supplied with the clamp) are capable of being stacked in order to clamp a test piece of up to 63.5mm in height in 10mm steps.

7. Guides:

These aid in locating and retaining the transformer whilst under test. The guides are adjustable in position and may be stacked to create a good mechanical fit with each component.

8. Bezel:

This provides an accurate location for the probe housing box and the test piece interface plate. The design also includes support areas for the rear of the guides.

Transformer & bobbin types

When designing a fixture, the first consideration should be the type of bobbin or physical transformer package. Below there are examples of some common transformer types and it can be seen that each type requires different connection techniques. While the Voltech fixture plate provides the base for many different fixture solutions, the tables and accessories shown on the following pages are focused on 'through-hole pin' transformers and some SMD designs.

The Voltech drilled probe box kits have been designed to accommodate a broad range of bobbin and pin types. The tables on page 15 identify some manufacturers' parts that are compatible with the referenced drilled probe box kits. This list is by no means exhaustive and many more manufacturers' bobbins and packages are suitable for use with these kits.

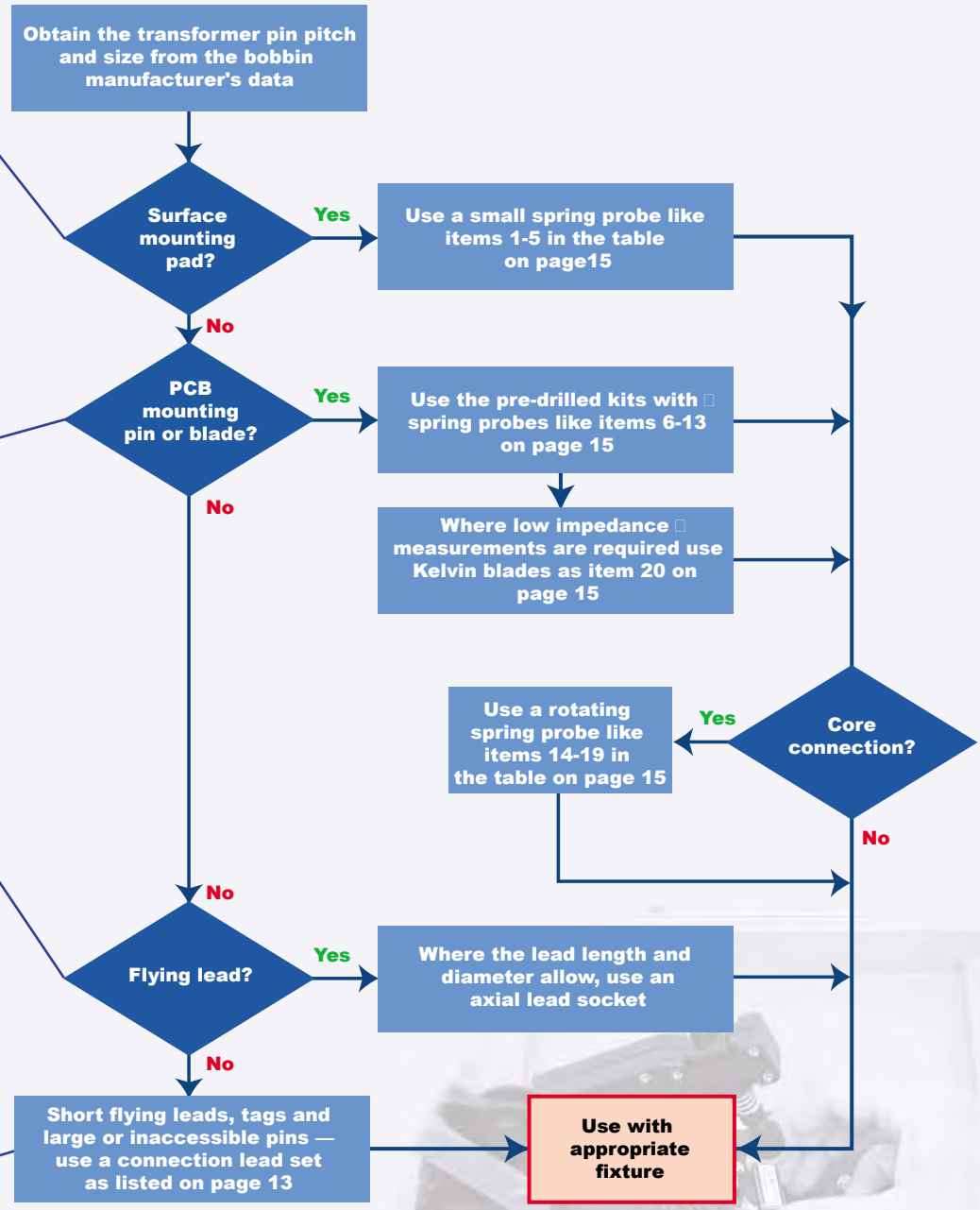
Pin, probe and clip selection guide

Various surface mount devices (SMDs)

Through-hole pin transformers

Flying lead transformers

Large transformers (non-standard connections)



Connector pin selection

Kelvin vs non-kelvin

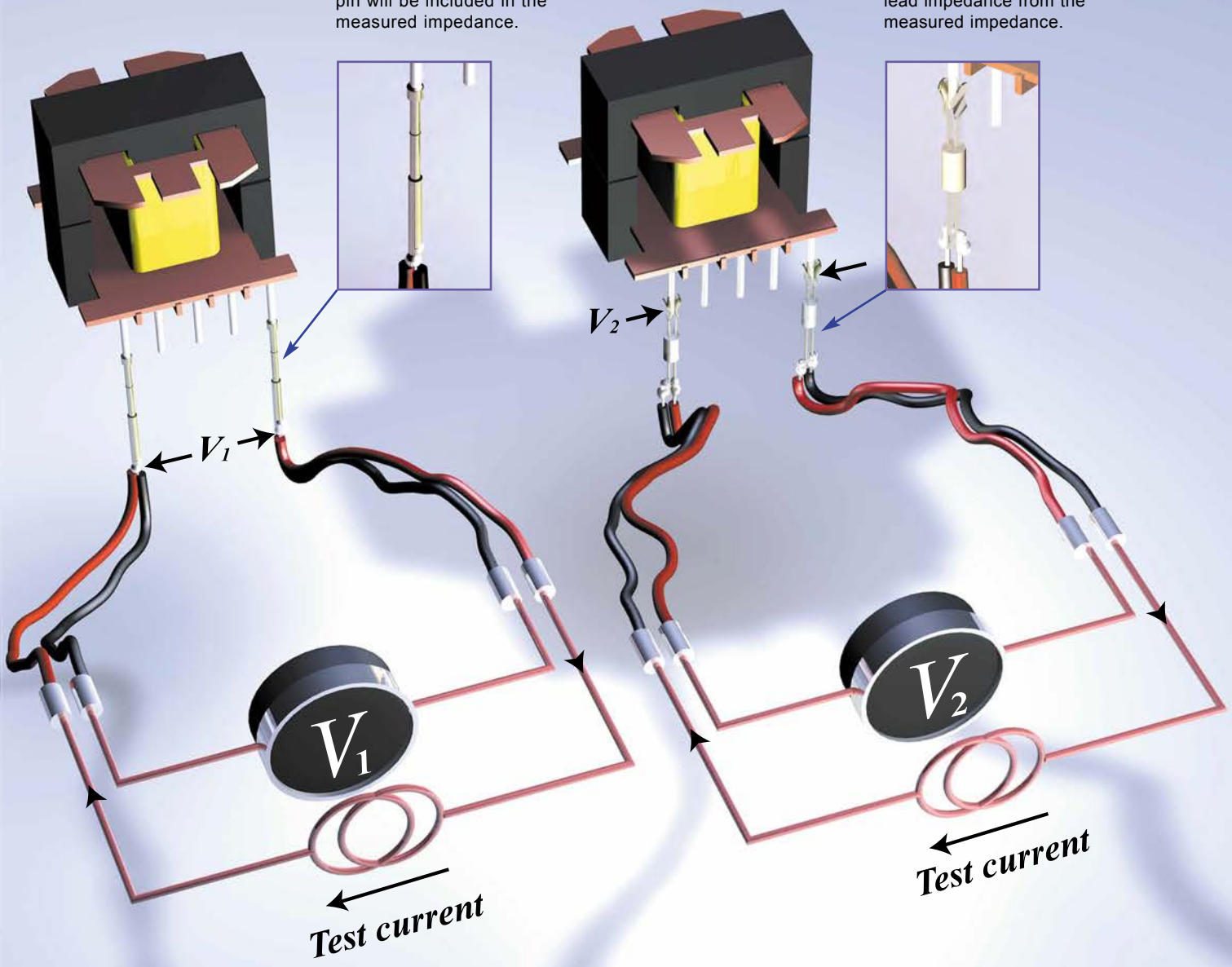
Selection of the most appropriate pins for use on a component test fixture requires consideration of both mechanical and electrical issues. In production environments, the mechanical issues are often considered first and in this respect, spring pins are usually the most popular choice. This is because spring pin fixture solutions are simpler to make, usually have a longer lifespan and are easier to maintain. However, when a test fixture must be capable of precision low impedance measurements, true four wire termination is required.

Semi-Kelvin

Spring pin (dual stage type)
Measured voltage (V1) is at the solder connection to the base of the spring pins. The connection is therefore not true Kelvin, as variabiity in resistance of the spring pin will be included in the measured impedance.

True-Kelvin

Kelvin blades
Each wire is taken directly to the component pin via Kelvin blades. This is a true Kelvin connection and the measured connection (V2) is the voltage at the component, excluding all connection lead impedance from the measured impedance.



Pin type & selection

Designing the fixture around the transformer pin pitch/diameter and selection of the type of spring probe is simplified by the Voltech pre-drilled kits and spring probe starter kits. If the transformer is of such a pitch or pin size/shape that it is not listed or cannot be handled by the pre-drilled kits, then the next option is to obtain the Voltech custom fixture kit and drill the probe housing box and interface plate. Selecting the pins or Kelvin blades for the fixture can be difficult as there are so many types and styles available. The following tables highlight key considerations.

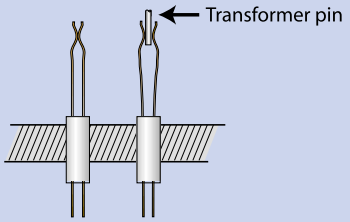
Kelvin blades

Advantages:

- Ideal when low resistance measurements (under 500mΩ) are required
- Fixture clamp is not required as blades grip transformer pin/terminal
- Usually achieves more reliable contact

Drawbacks:

- Accelerated wear rate on the contact surfaces
- More difficult to replace (requires resoldering of wire to the blade)
- Clean testing environment required to ensure long life and reliability



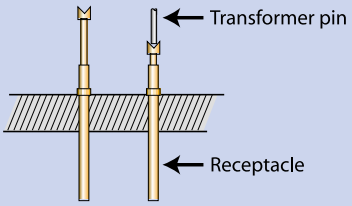
Spring pin connections (dual-stage type)

Advantages:

- Smaller diameter pins can accommodate smaller transformer pitches
- Pins are easily replaced (no resoldering required)
- Higher lifespan than Kelvin blades
- Wide variety of tip styles and receptacles available

Drawbacks:

- Variability of resistance makes spring pin connections inappropriate when measurements of low value resistance is required (1Ω or less)



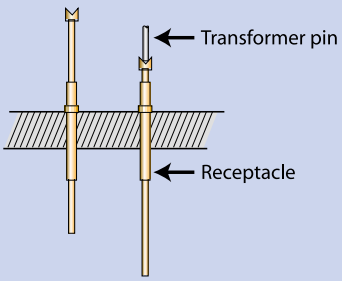
Spring pin connections (continuous plunger type)

Advantages:

- Smaller diameter pins can accommodate smaller transformer pitches
- Better resistance repeatability than dual stage spring pin
- Higher lifespan than Kelvins
- Wide variety of tip styles and receptacles available

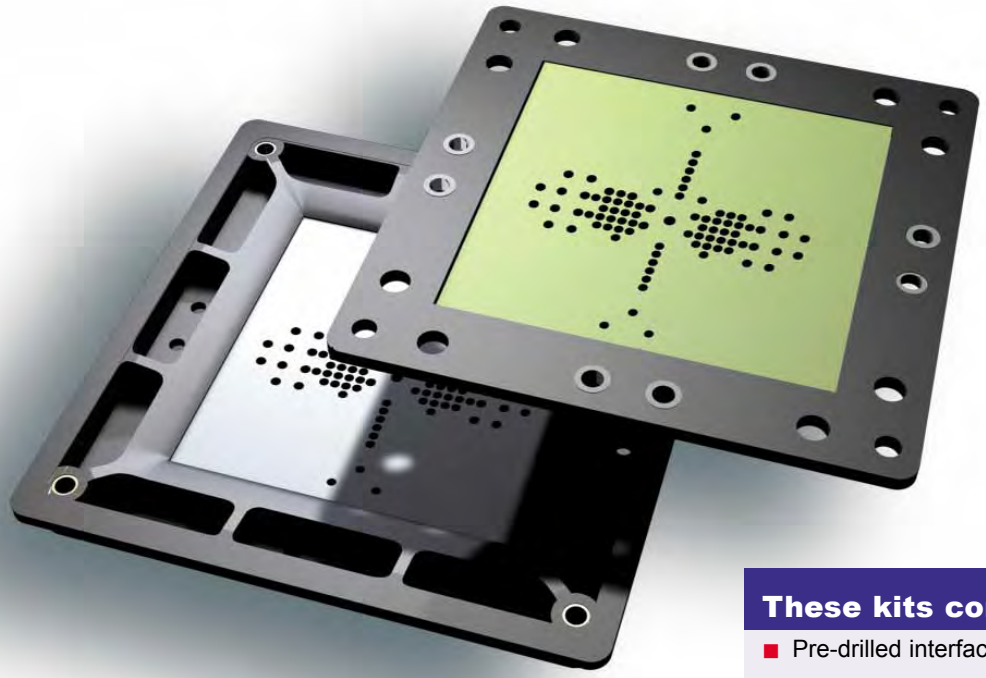
Drawbacks:

- Not suitable for low resistance measurements (500mΩ or less)
- More difficult to replace than dual stage type
- Movement of connecting wire may cause mechanical fatigue



Voltech pre-drilled kits

For various through-hole pin transformers



These kits contain:

- Pre-drilled interface plate
- Pre-drilled probe housing box
- 4mm spacer to accommodate longer probes
- Fasteners for above

What else you will need:

- Custom fixture plate (**VPN 91-185**)
- Voltech probe starter kit (**VPN 100-061/2/3**) or any suitable spring probes
- Triple-insulated interconnecting wire (included in **VPN 100-061/2/3**)
- Clamp kit to hold the transformer against the spring probes (**VPN 91-187**)
- For greater flexibility and additional component testing, add 4mm sockets for use with connection lead sets (**VPN 78-030**) for flying leads or tags.

Pre-drilled kits available

RM probe box kit. probe box part number VPN 91-201

Voltech starter kit C part number VPN 100-063 contains a mixture of spring probes and receptacles suitable for this kit

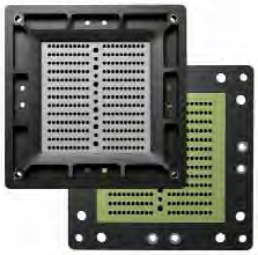
For through hole mounting: round, rectangular or square pins	
No. of pins˜	Up to 84
Pin pitch˜	Various arrangements
Pin length˜ ˜ ˜	2.0mm to 5.0mm below the level where the transformer will rest on the PCB using probe kit C
Pin diameter˜	Up to 1.52mm

Pre-drilled kits (continued)

5.08mm (0.2”) probe box kit VPN 91-198

Voltech starter kit A part number VPN 100-061 contains a mixture of spring probes and receptacles suitable for this kit

For through hole mounting: round, rectangular or square pins	
No. of pins˜	Up to 26 (13 each side)
Pin pitch˜	5.08mm
Pitch between rows˜	10.16mm to 55.08mm in 2.54mm steps
Pin length˜ ˜ ˜	4.0mm to 9.0mm below the level where the transformer will rest on the PCB using probe kit A
Pin diameter˜ ˜ ˜	Up to 2.0mm (larger blades can be accommodated if ˜ slots are cut in the interface plate)



5.0mm probe box kit VPN 91-200

Voltech starter kit A part number VPN 100-061 contains a mixture of spring probes and receptacles suitable for this kit

For through hole mounting: round, rectangular or square pins	
No. of pins˜	Up to 16 (8 each side)
Pin pitch˜	5.0mm
Pitch between rows˜	10.0mm to 55.0mm in 2.5mm steps
Pin length˜ ˜ ˜	4.0mm to 9.0mm below the level where the transformer will rest on the PCB using probe kit A
Pin diameter˜ ˜ ˜	Up to 2.0mm (larger blades can be accommodated if ˜ slots are cut in the interface plate)

3.81mm (0.15”) probe box kit VPN 91-199

Voltech starter kit A part number VPN 100-061 contains a mixture of spring probes and receptacles suitable for this kit

For through hole mounting: round, rectangular or square pins	
No. of pins˜	Up to 16 (8 each side)
Pin pitch˜	3.81mm
Pitch between rows˜	7.62mm to 45.72mm in 3.81mm steps
Pin length˜ ˜ ˜	4.0mm to 9.0mm below the level where the transformer will rest on the PCB using probe kit A
Pin diameter˜ ˜ ˜	Up to 2.0mm (larger blades can be accommodated if ˜ slots are cut in the interface plate)

2.54mm (0.1”) probe box kit VPN 91-187

Voltech starter kit B part number VPN 100-062 contains a mixture of spring probes and receptacles suitable for this kit

For surface mounting pads and through hole mounting of round, rectangular, or square pin	
No. of pins˜	up to 16 (8 each side)
Pin pitch˜	2.54mm
Pitch between rows˜	2.54mm to 17.78mm in 1.27mm steps
Pin length˜ ˜ ˜	0 to 3.2mm below the level where the transformer will rest on the PCB using probe kit B
Pin diameter˜	Up to 0.35mm

The preferred solution

The Voltech custom fixture kit

Kit contains:

- Base plate with contacts and cover
- Interface plate
- Probe housing box
- Guides to locate transformer
- Fasteners for above

What you will need:

- Voltech probe starter kit (or any suitable spring probes)
- Triple insulated interconnecting wire (included in **VPN 100-061/2/3**)

Options:

- A clamp kit (**VPN 91-187**) to hold the transformer against the spring probes if high voltage safety testing is required.
- For greater flexibility and additional component testing, add optional 4mm sockets and/or lead sets (**VPN78-030**) for flying leads or tags.

These fixtures provide the most flexible and reliable solution for testing wound components. The probe housing box and interface plate are drilled to any pitch or pattern desired to accept the component under test. Alternatively, a variety of pre-drilled interface plates, probe housing boxes and spring probes are available from Voltech to make this process easier.

Custom fixture system, user manual and case

Custom fixture fitted with optional clamp

Probe starter & replacement kits

Probe starter kits:

Each probe starter kit contains a selection of spring probes, receptacles and interconnecting wire suitable for the referenced drilled probe box kits. There are sufficient quantities for most transformers plus a few spares. Up to two alternative core probe types are provided, but usually only one type is used.

Probe starter kit A (VPN100-061)

Intended for constructing fixtures based on the pre-drilled probe box kits: 0.15" (VPN 91-199), 0.2" (VPN 91-198) and 5.0mm (VPN 91-200).

Contents	Qty	Ref.
Receptacle KS112	20	9
Spring probe GKS912	20	9
Receptacle KS925	3	16,19
Receptacle KS113	3	18
Core spring probe GKS713-207	2	18
Core spring probe GKS725-207	2	19
Core spring probe GKS725-257	2	16
Distance sleeve DS11302 - 2mm	2	
Distance sleeve DS11303 - 3mm	2	
Distance sleeve DS11305 - 5mm	2	
Tex-E triple insulated wire	10m	

Probe starter kit B (VPN100-062)

Intended for constructing fixtures based on the pre-drilled probe box kit 0.10" (VPN 91-197)

Contents	Qty	Ref.
Receptacle KS080	20	2
Spring probe GKS080	20	2
Tex-E triple insulated wire	10m	

Probe starter kits (continued):

Probe starter kit C (VPN 100-063)

Intended for constructing fixtures based on the RM pre-drilled probe box kit (VPN 91-201).

Contents	Qty	Ref.
Receptacle RA2W	20	6
Spring probe PA2HS	20	6
Receptacle KS925	5	16,19
Core spring probe GKS725-207	2	19
Core spring probe GKS725-257	2	16
Tex-E triple insulated wire	10m	

Probe replacment kits

Intended for maintenance of the fixtures manufactured using the Voltech kits described above, the probe replacement kits contain a selection of spring probes only. If you are constructing new fixtures, then please see the Voltech probe starter kits above.

Probe replacement kit A (VPN 54-210)

Intended for maintenance of the fixtures constructed using probe starter kit A.

Contents	Qty	Ref.
Spring probe GKS912	20	9
Core spring probe GKS725-207	2	19
Core spring probe GKS725-257	2	16
Distance sleeve DS11302	2	
Distance sleeve DS11303	2	
Distance sleeve DS11305	2	

Custom fixture with pre-drilled kit & 4mm sockets

Other Voltech fixture products

Probe replacement kits (continued):

Probe replacement kit B (VPN 54-212)

Intended for maintenance of fixtures constructed using probe starter kit B.

Contents	Qty	Ref.
Spring probe GKS080	20	2

Probe replacement kit C (VPN 54-214)

Intended for maintenance of the fixtures constructed using probe starter kit C.

Contents	Qty	Ref.
Spring probe PA 2HS	20	6
Core spring probe GKS725-207	2	19
Core spring probe GKS725-257	2	16

Kelvin blades

VPN MEDI UM KELVI N KI T

This kit contains 10 blades suitable for use with the Voltech AT series fixture system.

Specification:

Gold plated copper alloy blades mounted in a plastic sleeve.

Minimum pitch: 0.15” (3.81mm)

Minimum pin dia. 0.025” (0.635mm)

Maximum pin dia. 0.04” (1.016mm)

Drill for probe housing box: 0.136”(3.4mm) dia.#29.

Set height: 7mm

Connection lead set VPN 78-030

Available fixture parts:

Fixture clamp (VPN 91-187)

The hand clamp is supplied with 7 height blocks and fasteners (described in detail on page 5).

Interface plate (VPN 91-182)

Probe housing box (VPN 91-181)

Bezel (VPN 53-046); Guides (VPN 53-044)

Fixture drill plate clip (VPN 53-048)

Height blocks (VPN 53-047)

Drill templates:

To enable the probe housing box and the test piece interface plate be drilled to the accuracy required, stainless steel drilling templates are available in the following grid pitches:

1.27mm (VPN 50-308)

2.00mm (VPN 50-309)

2.50mm (VPN 50-310)

2.54mm (VPN 50-311)

3.81mm (VPN 50-312)

Set of 1-each of above templates (VPN 50-307)

Tooling is not required if it is intended to use a pre-drilled kit.

Drill template set VPN 50-307

Connection lead set (VPN 78-030):

Intended for use with the Voltech 40 socket fixture, the connection lead set provides a versatile method of connecting to sample parts for prototyping and evaluation. Custom fixtures are always recommended for production use. The connection lead set comprises:

10 x Spring loaded connection posts.

10 x Kelvin crocodile clips to 4mm plug leads.

10 x Non-Kelvin crocodile clips to 4mm plug leads.

10 x Fine non-Kelvin clips to 4mm leads.

Transformer & bobbin types

0.2” probe box kit (VPN 91-198) and probe kit A (VPN 100-161) recommended.

Manufacturer	Type	Description	Pins	Rows	Pitch
NORWE	ETD	90635 – 87	10	2 x 5	15.24
		90636 – 87	12	2 x 6	17.78
		90641 – 87	12	2 x 6	20.32
		90642 – 87	14	2 x 7	17.78
		90644 – 87	16	2 x 8	22.86
		90755 – 87	10	2 x 5	25.40
		90755 – 87	10	2 x 5	12.70
		90755 – 87	10	2 x 5	15.24
		90756 – 87	12	2 x 6	17.78
		90756 – 87	12	2 x 6	15.24
		90756 – 87	12	2 x 6	17.78
		90761 – 87	12	2 x 6	20.32
		90761 – 87	12	2 x 6	22.86
		90761 – 87	12	2 x 6	20.32
		90762 – 87	14	2 x 7	22.86
		90762 – 87	14	2 x 7	25.40
		90762 – 87	14	2 x 7	22.86
		90764 – 87	16	2 x 8	25.40
		90764 – 87	16	2 x 8	27.94
		90764 – 87	16	2 x 8	20.32
		90770 – 87	10	2 x 5	22.86
		90771 – 87	12	2 x 6	20.32
		90772 – 87	10	2 x 5	22.86
		90774 – 87	12	2 x 6	25.40
		90777 – 87	14	2 x 7	25.40
		90778 – 87	12	2 x 6	25.40
		90779 – 87	14	2 x 7	25.40
		90780 – 87	14	2 x 7	25.40
		90782 – 87	16	2 x 8	30.48
		90787 – 87	12	2 x 6	25.40
		90788 – 87	14	2 x 7	25.40
		90790 – 87	16	2 x 8	30.48

0.2” probe box kit (VPN 91-198) and probe kit A (VPN 100-161) recommended.

Manufacturer	Type	Description	Pins	Rows	Pitch
Miles-Platt	EC – Range	EC70 (MP53)	12	2 x 6	50.80
	ETD – Range	ETD 29/16/10–12 Pin	12	2 x 6	25.40
		ETD 29/16/10–14 Pin	14	2 x 7	25.40
		ETD 29/16/10–13 Pin	13	2 x 6	25.40
		ETD 34/17/11	14	2 x 7	25.40
		ETD 39/20/13	16	2 x 8	30.48
	E/EF – Range	EF 20/10/6	8	2 x 4	15.24
		EF 25/13/7	10	2 x 5	12.70
		EF 25/19/6			
		E 25 x 19 x 6– (F1238)	10	2 x 5	15.24
		E 30/15/7	10	2 x 5	25.40
		EF 32/16/9	10	2 x 5	25.40
		E 34 x 26 x 8	8	2 x 4	20.32
	U – Range	U & I 12.7 x 8.9 x 4.95	6	2 x 3	10.16
		U 15/11/6	4	2 x 2	15.24
		U 20/16/7	4	2 x 2	20.32
		U 21/15/7.5	4	2 x 2	20.32
	Misc.	EI 48 x 10	16	2 x 8	27.94

0.15” probe box kit (VPN 91-199) and probe kit A (VPN 100-161) recommended.

Manufacturer	Type	Description	Pins	Rows	Pitch
Miles-Platt	EP – Range	EP 13 (low profile)	10	2 x 5	10.16
	EC – Range	EC 35 (MP23)	8	2 x 4	30.48
		EC 41 (MP33)	8	2 x 4	33.02
		EC 52 (MP43)	12	2 x 6	38.10
NORWE		09785	6	2 x 3	7.62
		09786	6	2 x 3	7.62
		09786	8	2 x 4	15.24
		09786	8	2 x 4	15.24
		09786	10	2 x 5	15.24
		09786	10	2 x 5	15.24
Philips		E20/10/6	8	2 x 4	15.24
		E25/10/6	10	2 x 5	15.24

5.00mm probe box kit (VPN 91-200) and probe kit A (VPN 100-161) recommended.

Manufacturer	Type	Description	Pins	Rows	Pitch
Miles-Platt	M–Range	EI 30 x 5.0	10	2 x 5	20.0
		EI 30 x 10.5	10	2 x 5	20.0
		EI 30 x 12.5	10	2 x 5	20.0
		EI 30 x 15.5	10	2 x 5	20.0
		EI 30 x 18.0	10	2 x 5	20.0
		EI 30 x 13.5	10	2 x 5	25.0
		EI 30 x 20.0	10	2 x 5	25.0
		EI 42 x 14.8	12	2 x 6	25.0
		EI 48 x 16.8	12	2 x 6	27.5
		EI 48 x 20.5	12	2 x 6	27.5
		EI 48 x 20.8	12	2 x 6	27.5
		EI 54 x 18.8	14	2 x 7	30.0
		EI 54 x 18.8	14	2 x 7	30.0
		EI 60 x 21.0	14	2 x 7	32.5
		EI 60 x 25.5	16	2 x 8	32.5
		EI 60 x 33.0	14	2 x 7	32.5
		EI 60 x 23.0	16	2 x 8	35.0
		EI 60 x 34.5	16	2 x 8	35.0
	U –Range	UI 30 x 5.5	8	2 x 4	35.0
		UI 30 x 7.5	8	2 x 4	35.0
		UI 30 x 10.5	8	2 x 4	35.0
		UI 30 x 16.5	8	2 x 4	35.0
		UI 39 x 8	10	2 x 5	45.0
		UI 39 x 10.2	10	2 x 5	45.0
		UI 39 x 13.5	10	2 x 5	45.0
		UI 39 x 17.0	10	2 x 5	45.0
		UI 39 x 21.0	10	2 x 5	45.0
	EP–Range	EP 13			
	E/EF–Range	EF 12.6/7/4	6	2 x 3	10.0
		EF 20/10/6	6	2 x 3	10.0
		EF 25/13/7	8	2 x 4	20.0
		E 30/15/7	6	2 x 3	12.5
		E 3042/21/15	12	2 x 6	30.0
		E42/21/20	12	2 x 6	35.0
		E 55/28/21	14	2 x 7	40.0
		E 55/28/25	14	2 x 7	40.0
	U–Range	U 13.5	6	2 x 3	12.5
		U25/20/13	12	2 x 6	27.5
	Misc.	E1 42 x 15	10	2 x 5	25.0

RM probe box kit (VPN 91-201) and probe kit C (VPN 100-063) recommended.

Manufacturer	Type	Description	Pins	Rows	Pitch
Miles-Platt, Matsushita, Siemens, & Norwe	RM	RM4	5		
		RM4	6		
		RM5	4		
		RM5	5		
		RM5	6		
		RM6	4		
		RM6	5		
		RM6	6		
		RM6	8		
		RM7	4		
		RM7	5		
		RM7	8		
		RM8	5		
		RM8	8		
		RM8	12		
		RM10	8		
		RM10	10		
		RM10	11		
		RM10	12		
		RM12	11		
		RM12	12		
		RM14	10		
		RM14	12		

Connector pin reference guide

The table below shows technical details for a range of commercially available connector pins that are compatible with the Voltech custom fixture system. These are only a few of many more types, styles and sizes available.

	Probe type											
Reference Number	Head	Rotary or fixed	Component connection	Connection pitch (in.)	Maximum pad size	Maximum pin diameter	Pin length		Blade size		Blade length	
					(L) x (W)		Min	Max	(W)	(T)	Min	Max
1	point	Fixed	SMD	(0.10)2.54	5.0 x 2.0							
2	point	Fixed	SMD	(0.10)2.54	5.0 x 2.0							
3	point	Fixed	SMD	(0.10)2.54	5.0 x 2.0							
4	point	Fixed	SMD	(0.10)2.54	5.0 x 2.0							
5	crown	Fixed	SMD	(0.10)2.54	5.0 x 2.0							
6	cast.	fixed	pin	(0.10)2.54		1.2	2.0	3.5				
7	cast.	fixed	pin	(0.10)2.54		1.2	2.0	3.5				
8	cup	fixed	pin	(0.10)2.54		1.0	2.0	3.5				
9	cast.	fixed	pin/blade	(0.10)2.54		2.0	0.0	1.0	2.0	2.0	2.0	2.0
10	crown	fixed	pin/blade	(0.15)3.81		1.6	2.0	4.5	2.0	1.0	2.0	4.0
11	crown	fixed	pin/blade	(0.30)7.62		3.0	2.5	5.0	3.5	1.5	2.5	5.0
12	cast.	fixed	pin/blade	(0.30)7.62		3.0	2.5	5.0	3.5	1.5	2.5	5.0
13	cast.	fixed	pin/blade	(0.30)7.62		3.0	2.0	3.0	3.0	1.0	2.5	4.0
14	point	rotary	core	(0.10)2.54								
15	point	rotary	core	(0.10)2.54								
16	point	rotary	core	(0.10)2.54								
17	point	rotary	core	(0.10)2.54								
18	point	rotary	core	(0.20)5.00								
19	point	rotary	core	(0.10)2.54								
20	Kelvin contact		pin/blade	(0.20)5.00		1.5	3.5	10.0	3.5	1.0	3.0	10.0

Reference number	Manufacturer	Probe Number	Receptacle number	Maximum UUT hole size (pin)	Maximum UUT hole size (blade)	Probe head size blade	Receptacle hole size	Receptacle set height	Probe height above interface plate surface
1	CODA/PYLON	P3158G-3C(X)S	S2664 – 2ETD	1.4		1.1	1.7	7.0	6.5
2	INGUN	GKS – 080 – 301 – 035 R – 08 – 05	KS – 080	1.4		0.8	1.0	0.0	3.7
3	CODA	PA3B(X)	RA – 380	1.3		1.04	1.7	5.84	4.0
4	TEKNIS	P100PL PO56(X)	RA3W	2.1		1.92	1.7	7.0	1.5
5	CODA	PA3Q(X)	RA3W	2.0		1.52	1.7	5.84	4.0
6	CODA	PA2HS	RA2W	1.4		1.52	1.4	3.0	
7	CODA	PA2H(X)	RA2W	1.4		1.52	1.4	3.0	
8	PROBUS	S–1–A–(XX)-G	RA2W	1.5		1.52	1.45	3.0	
9	INGUN	GKS –912 – 306 – 200 – R – 08 – 02	KS – 112 – 23	2.5	2.5	2.0	2.0	0.2	3.0
10	INGUN	GKS – 913 – 306 – 230 – R -(XX)– 02 – 1	KS – 113 – 23	2.0	2.0	2.3	3.0	0.2	
11	INGUN	GKS – 364 – 204 – 400 – N -(XX)– 01	RKS – 365 – 23	3.5	4.0	4.0	5.6	1.0	
12	INGUN	GKS – 365 – 206 – 400 – A -(XX)– 01	RKS – 365 – 23	3.5	4.0	4.0	5.6	1.0	
13	CODA	PC8HS – 138	RC8S	3.0	3.2	3.5	3.0	0.2	
14	IDI	SX25T(XX)– DGDRT	R – 25 – SC	2.0		1.52	1.7	7.5	7.5
15	IDI	SXL – 1 – LM(XX)– DRT	RL – 1 – SC	1.5		1.22	1.4	7.3	7.6
16	INGUN	GKS – 725 – 257 – 100 – R – 1507 – S	KS – 925 – 30G	4.0		2.26	3.0	1.0	5.0
17	INGUN	GKS – 713 – 257 – 225 – R – 5007	KS – 113 – 23	4.0		2.26	3.0	1.0	5.0
18	INGUN	GKS – 713 – 207 – 225 – R – 5007	KS – 113 – 23	4.0		2.26	3.0	1.0	10.0
19	INGUN	GKS – 725 – 207 – 100R – 1507 – S	KS – 925 – 30G	4.0		2.26	3.0	1.0	10.0
20	WILCO or VOLTECH			2.0	3.5		3.2	7.0	

Where (X) or (XX) denotes the manufacturers' code for probe force rating

Pin = round pin
Blade = square or rectangular pin width and thickness
Cast = castellated or serrated probe tip

Adapting existing fixtures

The Voltech starter fixture kit

Kit contains:

- Base plate with contacts and cover
- Interface plate (for mounting test piece)
- Fasteners for above.

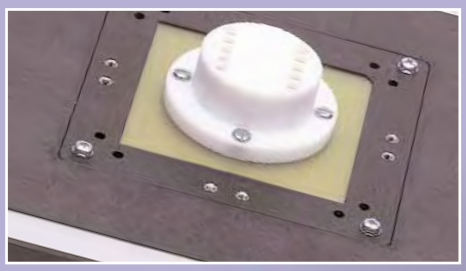
You will also need:

- An existing fixture socket plus fixings (and cable if it is to be remote)
- Triple insulated interconnecting wire (included in **VPN 100-061/2/3**)

Optional:

- For greater flexibility and additional component testing, add 4mm sockets and/or optional lead set (**VPN 78-030**) for flying leads or tags

The blank fixture kit consists of a base plate on top of which sockets, adapters and existing fixture assemblies of almost any type can be directly mounted. Therefore if a test fixture is already constructed, then it may be adapted to an AT tester through this kit. I f you need to create a fixture from the ground up however, the Voltech custom kit is a better solution.



Showing customer's socket fixture fitted

Blank fixture system, manual and case

The Voltech universal fixture kit

Kit contains:

- Base plate with 40 fitted and pre-wired sockets

What you will need:

- Connection lead set (**VPN 78-030**) for connection to the component under test

Used for prototyping and when testing small quantities of transformers, the Voltech universal fixture comes ready to use with 40 x 4mm sockets pre-wired to the corresponding 40 test nodes on the underside of the fixture.

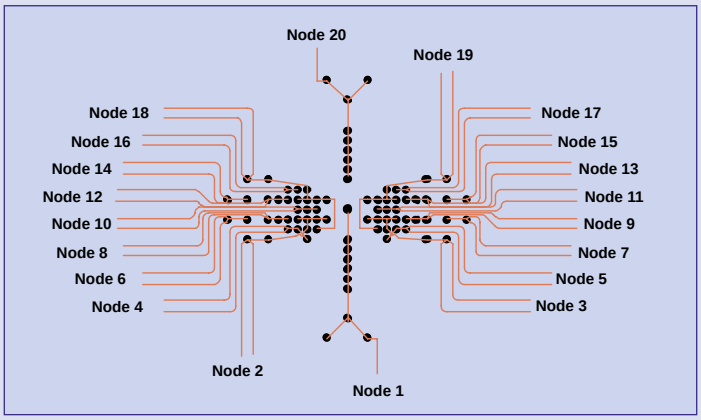
Univeral fixture system with 40 sockets (20 power and 20 sense), manual and case

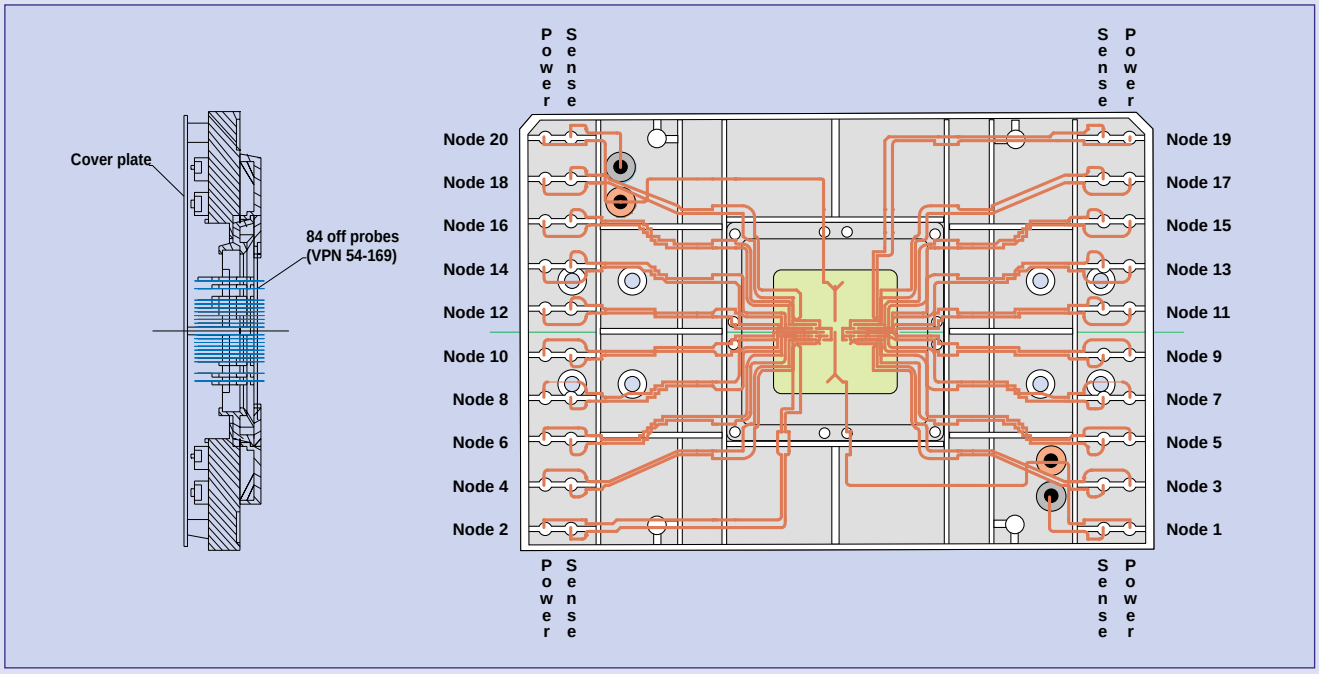
Universal fixture & optional Kelvin leads

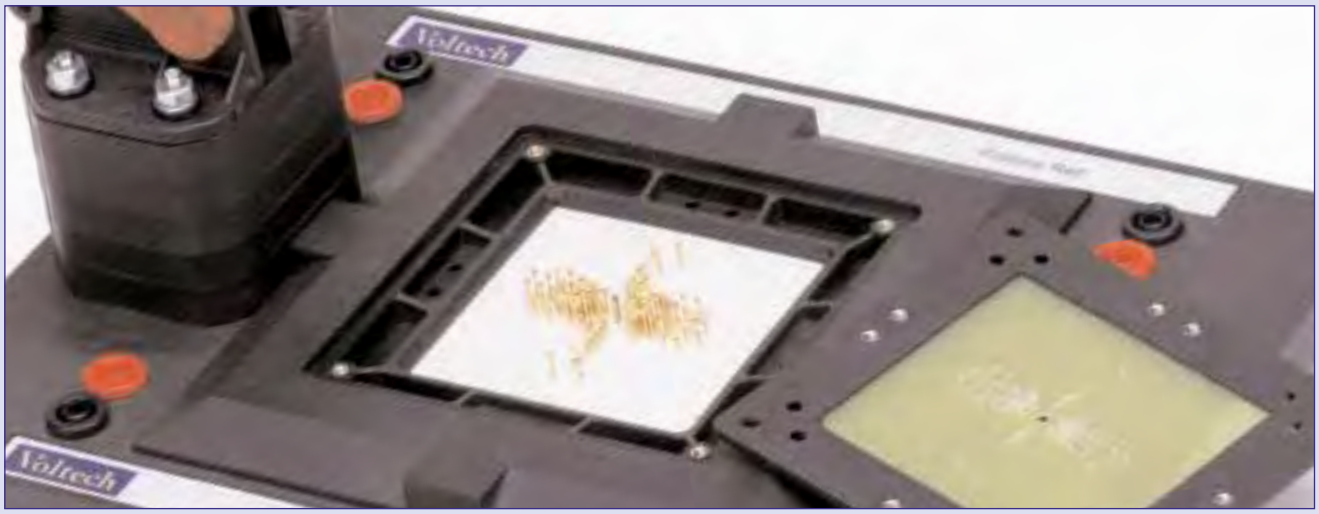
Fixture wiring

Wiring fixtures for optimum flexibility

When wiring between fixture nodes and pin connectors, all transformers that are mechanically compatible with the fixture should be considered. Care should be taken to ensure that the wiring configuration provides compatibility with the maximum number of transformer winding configurations. The most demanding example of this relates to RM designs. The following diagrams illustrate the wiring required to achieve the optimum flexibility for various RM transformer types. The bottom image shows an example of an assembled fixture with the interface plate removed to show the spring probes and drilled probe housing box.





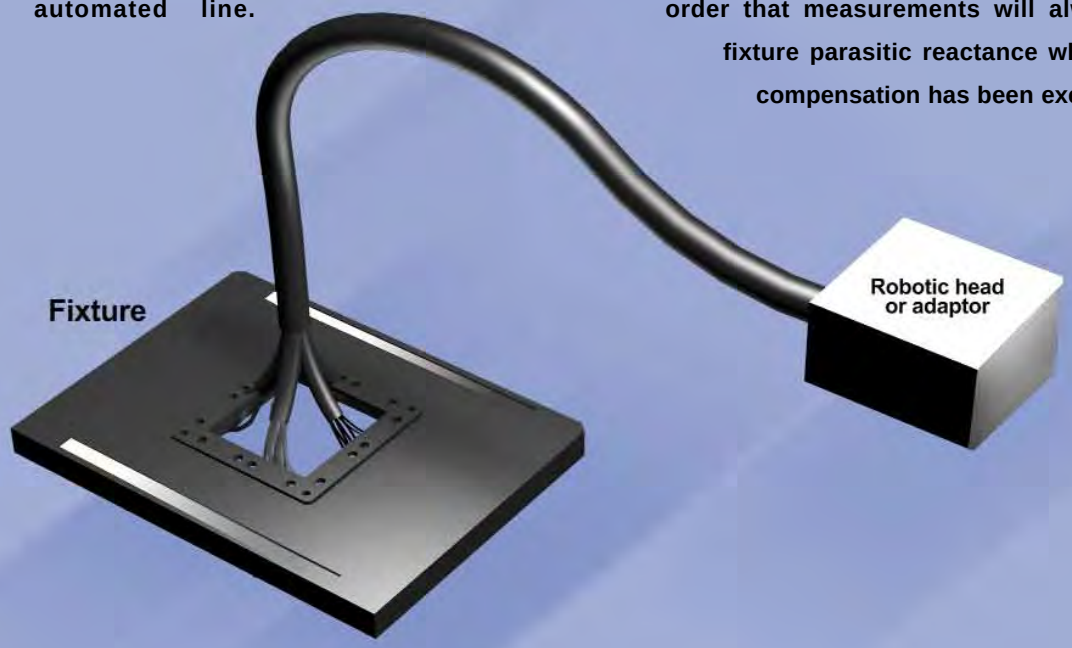


Different fixture applications

Handling other transformer designs

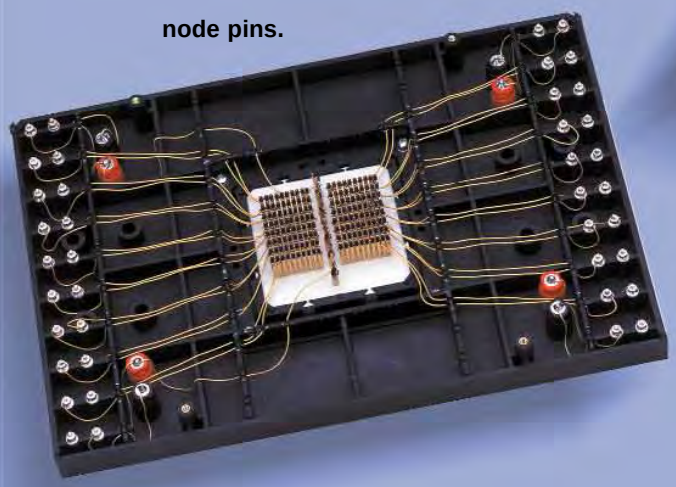
Many customers have developed fixture techniques that are proven to meet the specific needs of their transformers and production environment. This is particularly true of production systems where the point of connection to the transformer is within an automated line.

To cater for these situations, the starter fixture kit is designed with a removable interface plate. By removing this plate, connection leads can be routed directly from the node connections to the customers' adaptor head. Care should be taken to minimise mechanical movement of these leads in order that measurements will always exclude fixture parasitic reactance when automatic compensation has been executed.



Standard wiring and custom fixtures

Drilled and assembled custom fixture showing wiring from spring pin receptacles to fixture node pins.



Drilled starter fixture showing flying lead connections and two inline Kelvin blocks wired through to node pins on the underside. Sockets of almost any variety can be fitted.

Voltech

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