

Quality Reed Relays



Pickering Electronics

Quick Facts

Headquarters

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Overview

Pickering Electronics started in January 1968, with the aim to design and manufacture high quality reed relays, intended principally for use in Instrumentation and Test equipment.

In the early 1970's the Automatic Test Equipment (ATE) market started to take off and Pickering Electronics became the principal supplier to most UK ATE companies. In 1974 Pickering Electronics moved to a new factory in Clacton-on-Sea.

In 1980 we moved again to a purpose-built factory of 11000 ft². The requirement for smaller and higher performance relays resulted in the launch of the SIL (Single-In-Line) relays in the early 1980's. In 1986, we doubled the factory size to 2200m² (22000 ft²).

In 2007 we opened a Czech manufacturing facility located on a site of 12500 ft² staffed by over 50 personnel.

Today, our SIL range by far the most developed in the relay industry with relays 25% the size of many of our competitors. The small SIL relays are sold in high volumes to large ATE companies throughout the world. Pickering is a privately owned company and currently employs about 150 people. The company owns the freehold of its main two acre site and factory, with no mortgages or borrowings, so we have a very strong financial base.

Business Summary

Pickering's products are used worldwide in applications such as automotive, telecoms, consumer, medical, aerospace and defence. Pickering's switch and instrumentation products are used in the testing of a wide variety of products, ranging from mobile handsets to the space shuttle, and weapons systems to television sets.

Management

Founder and Chairman - John Moore

Technical Director – Graham Dale

Quality Manager - Mike Holton

Sales Manager – Jenny Powell

Accounts and HR Manager – Jan Boggas

Technical Manager – Kevin Mallett

Production Manager – Steve Oldfield

Sales Consultant – Klaas Jansma

Purchasing Manager – Julie Benson

Core Products

Pickering manufactures Reed Relays for instrumentation applications using only the highest quality materials. We are certified to ISO 9001-2000 and audited by the British Standards Institution.

Pickering relays are subjected to continuous inspection during the manufacturing process and after a strenuous thermal cycling routine are 100 percent tested for all operating parameters on Automatic Test Equipment (ATE) and other specialized equipment.

All ATE test results are archived and used for Statistical Process Control.

Clacton, UK

NPI, Custom & Legacy Manufacturing Facility



Production



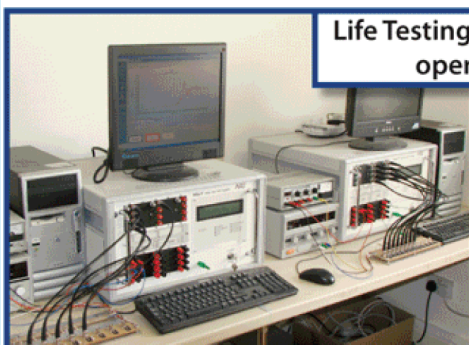
Formerless Coil Winding on fully automatic machinery



In-house designed and built Automation



In-house X-Ray facility



Life Testing to billions of operations

100% Test with full traceability



Třinec, CZ Volume Manufacturing Facility



In-house designed and built
Automation



Production



What is Pickering about?

Strong customer focus:

- Providing customer off the shelf and custom solutions

Being reactive:

- Supporting low volume and high volume solutions

Providing value:

- Cost effective solutions through a diverse variety of builds

Being approachable:

- Providing direct access to experts in developing solutions

Being innovative:

- Creating the highest performance and reliability in switching solutions

Providing a fast response:

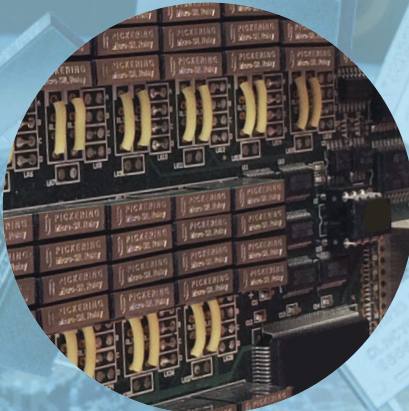
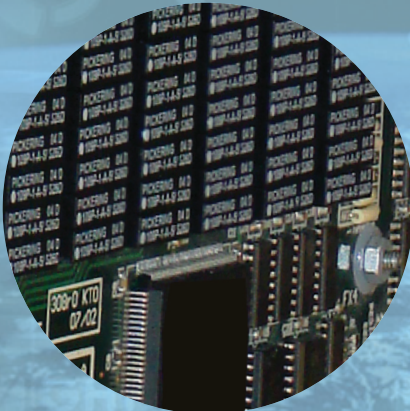
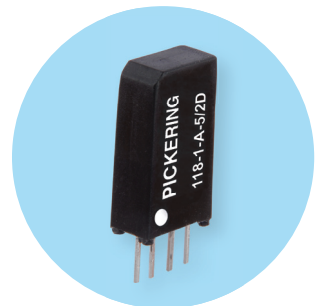
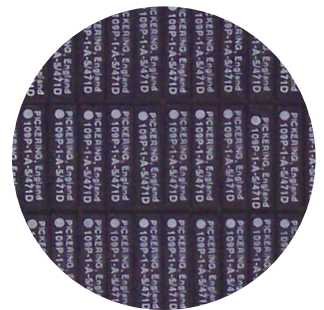
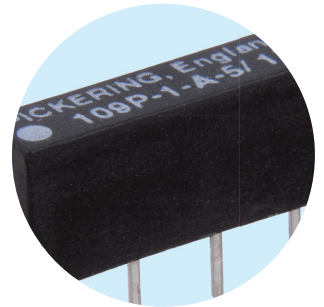
- Creating new solutions with rapid turn around times

Our Markets

Pickering commenced reed relay manufacturing in 1968 and now design, develop and manufacture commercial and custom products. Pickering has developed a solid customer base in a wide of range of industries requiring the use of reed relays.

Pickering Interfaces - Technology Partner

Pickering Interfaces is a sister company, also located in Clacton but with volume manufacturing in a separate facility in the Czech Republic, who design and manufacture modular PXI/PCI/LXI switching systems for the Functional ATE market - pickeringtest.com. Pickering Interfaces are a large reed relay customer who work very closely with Pickering Electronics on: leading edge reed relay designs, reliability testing, life testing, production engineering and QA issues. This close relationship greatly benefits both companies and gives Pickering Electronics a strong insight into demanding functional test reed relay applications.



Our Technology

Soft Centres (SoftCenter®)

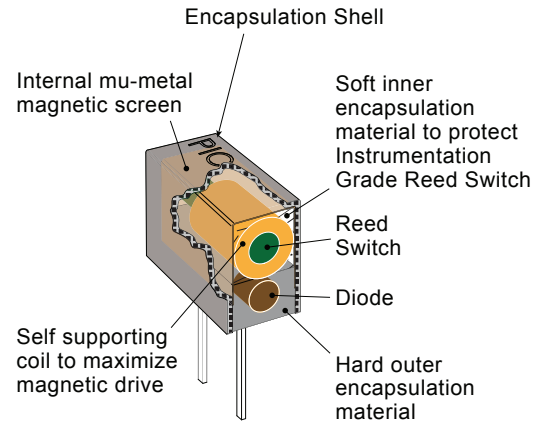
Our reed relays are encapsulated using a soft inner material to greatly reduce physical stresses on the glass/metal seal of the reed switch capsule. Different materials have different expansion characteristics and the very hard compounds used by most manufacturers can cause stresses that can damage seals or distort the reed switch thereby changing switch blade alignment. This will degrade contact resistance stability and life expectation.

Built-in, Mu-Metal Magnetic Screening

Reed switches are operated by the magnetic field from a coil which is wound around the reed switch capsule. Without a magnetic screen, this field will spread some way outside the confines of the relay package and will de-sensitize other reed relays mounted alongside. As an example, an unscreened relay mounted on 0.2 inches (5.08mm) pitch, will require a coil voltage about 25 percent higher to operate it, when other relays alongside are also in an operated state.

This falls to between 1 and 5 percent, according to type, if magnetically screened. Smaller Pickering relays on 0.15 inches (3.81mm) pitch, would have an interaction figure as high as 40 percent if unscreened. The effect of magnetic interaction is compounded when temperature is also considered.

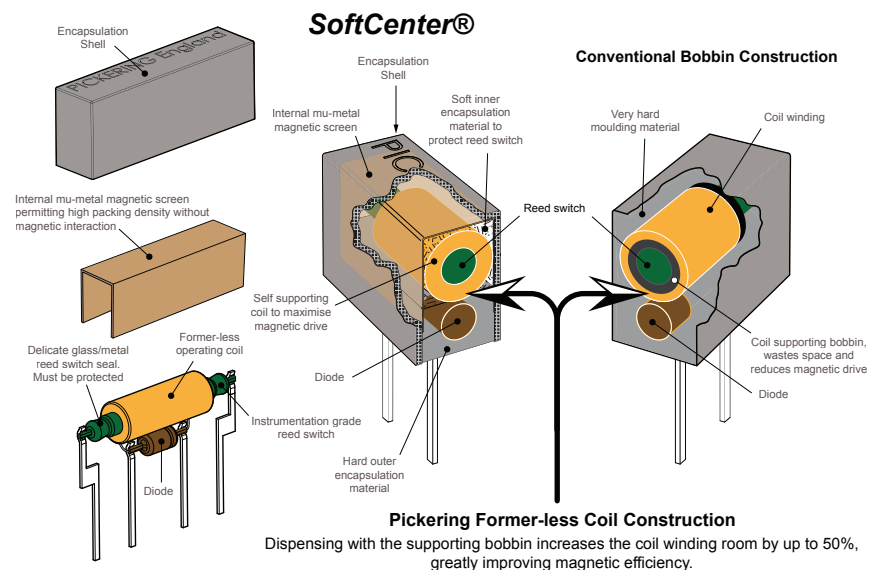
The operating coil is wound using copper wire which has a co-efficient of resistance of approximately 0.4 percent per degree Centigrade. This means that a temperature increase of 50 degrees Centigrade will increase the coil resistance by a further 20 percent. The coil current and therefore the level of magnetic field, will fall by this same amount. A corresponding increase in drive voltage will therefore be required to generate the necessary magnetic field to operate the reed switch.



Formerless Coils

Relay operating coils are commonly wound on bobbins. The great majority of Pickering relays are manufactured with self supporting coils, thus avoiding the space required for these bobbins. In the case of the smaller relays types, this gives around 50 percent more room for the coil winding, allowing the use of less sensitive reed switches with their inherent advantages of higher operating and restoring forces. In some ranges, this technique allows Pickering to achieve extremely high coil resistance figures.

Typical Pickering Construction using Former-less Coils and our SoftCenter® technology



Highest Grade Reed Switches

Pickering relays feature the very highest quality 'instrumentation grade' reed switches to meet the exacting demands and long life required of today's equipment manufacturers. Pickering relays are 100 percent tested for all operating parameters including, operate and release voltages, operate, release and contact bounce times, contact resistance, contact resistance stability and insulation resistance.

Custom Reed Relays

As well as the catalogue relays, Pickering manufacture many thousands of special types.

- Special pin configurations or pin lengths
- Special print with customers own number or logo
- Custom packaging
- Controlled capacitance
- Controlled thermal emf
- Operate voltage
- Coil resistance, especially low power options
- Specific contact resistance requirements, including stability
- Switch life under specific loads
- Pin forming
- Specific operate & release times
- Specific environmental requirements

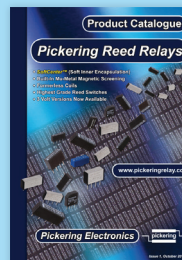
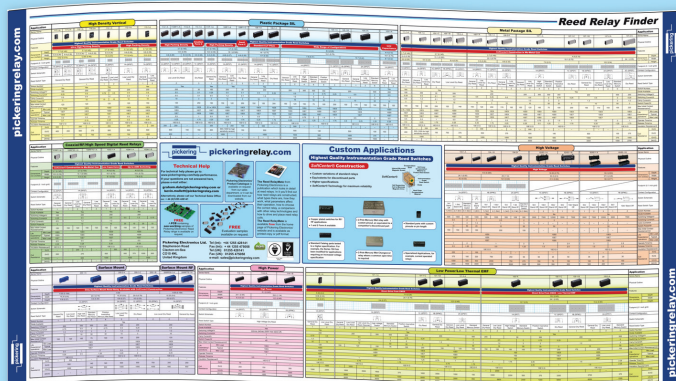
Support Literature

The **Reed RelayMate** from Pickering Electronics is a publication which looks in detail at reed relays. In it you'll find out how reed relays are constructed, what types there are, how they work, what parameters affect their operation, how to choose the correct relay, a comparison with other relay technologies and how to drive and place reed relay coils.



The **Reed RelayMate** is available **free** from the home page of Pickering Electronics' website and is available as printed copy or pdf format.

The **Reed Relay Finder** is a single sheet reference to all of our best selling Single-In-Line (SIL) Reed Relays. In addition to this we have our catalog which contains all of the data sheets for our standard range of reed relays.



- Copper plated switches for RF/HF applications
- 1 and 2 Form A available



- 2-Pole Mercury Wet relay with custom pinout, an equivalent to a competitor's discontinued part



- Standard parts with custom pinouts or pin length



- Specialized Applications, for example, current operated relays



- Standard Catalog parts tested to a higher specification. For example, the Series 104 has been modified for applications requiring an increased voltage specification



- 2-Pole Mercury Wet Changeover relay where a common open time is required

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