

# Guitar heroes

■ **Guaranteeing quality performance is the way to corner a niche market, as electronic components firm Cliff explained to Steve Bush**

Think of any electric guitar hero, and the chances are that they own something from a company based at the back of a light industrial estate in Surrey. They probably didn't buy it deliberately, but they rely on it every time they pick up their instrument.

Why? Because Cliff Electronic Components is the music world's go-to company for the quarter-inch jack sockets (pictured, right) used to connect guitars to their amplifiers, and a whole bunch of other audio, AV and data connectors.

"It started with guitar amplifiers in the '60s," Cliff's managing director John Hall told *Electronics Weekly*. "We came up with a quarter-inch jack, a solder tag type. It's still in the catalogue, in 250 variants. We've made millions of them for guitars and amplifiers."

Who buys them? "All the guitar makers you can name, but we can't name them," said Hall – to the point that *Electronics Weekly* was sworn to secrecy even over the name of the music pioneer for whom that first batch of jack sockets was made.

Reliability is what keeps customers coming back after 50 years.

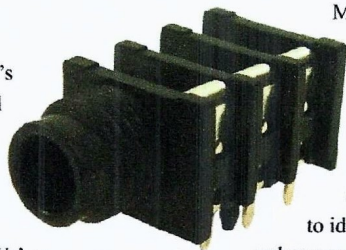
"You can get a cheap guitar socket copy, but will it work for 15,000-20,000 insertions like ours do? Others fail," said Hall. "We make sure metal has grain in the right direction,

we make sure it is the right thickness; there is a lot to it."

Such is demand for the Cliff jacks that counterfeits have been made, even counterfeits with the company name moulded in, said Hall.

## Not just jacks

Today its product range stretches beyond jacks, from custom knobs for high-end hi-fi brands to a catalogue with thousands of line-items: mostly connectors, knobs and test leads.



rather than millions.

The strategy is clearly working.

"We are doing extremely well," said Hall. "We grew 20%-plus last year and we are growing this year already." The company's financial year is from October to September. "October, November and December grew from the previous three months," Hall said.

After jack sockets and plugs came foot-pedal assemblies for that same famous anonymous customer, said Hall, and then loudspeaker terminals, which it also still makes today. As far as he knows – having only been at the company for 11 years of its

Many of these are aimed at market niches that the firm has identified – and continues to identify – where orders come in thousands

“The terminals made for guitar speakers have found a use as electric fence connectors on farms

half-century life – Cliff invented the castellated loudspeaker terminal “made to put a penny in” (pictured right), said Hall, to tighten it on stage. These are still in production, for loudspeakers, for test equipment, and also out in the countryside where they have found a niche among farmers as electric fence connectors.

Next came moulded terminal plates for loudspeakers, versions of which it still makes for high-end speakers, and then other audio connectors such as XLR types.

## Style with knobs on

Somewhere along the line came knobs for guitars and amplifiers – with modern taste for retro-styling bringing some back into production – its ‘chicken beak’ knobs, for example.

Other product lines include IEC mains power inlets and test leads.

“Test leads came along about 15 years ago – we could do the moulding,

we could do the metal work, so why not put a lead into it,” said Hall.

Initially it was for OEMs – once again he is not naming names – then a couple of years ago Cliff launched its own brand for the replacement market and OEMs. Third-party test organisations are brought in during the design of high-voltage and high-frequency products (USB Type-C connectors, for example) to make sure they hit the specs, said Hall.

As an example of a niche test lead that is doing particularly well at the moment, Hall picks out a reel of heavy gauge earth cable (pictured, below) and a connector set. “It’s for earth bonding testing. We sell thousands to construction and installers,” he said. “We buy wire in and do all the rest. It’s hand assembly, there’s not the volume to need anything else.”

The classic Quicktest is another product that keeps on giving. It allows the bare ends of mains leads to be connected quickly, without exposing the user to high voltage. There are now three-phase versions, and they come with colour-coding depending on the



market, differing for the EU, US or Canada, for example. These are used for test and burn in – by the makers



5.5x2.1 and 2.5mm connector socket

of white goods, for example – and traffic-light manufacturers, or for white goods. “We have been making Quicktest for 30 or 40 years,” said Hall. “We sell quite a lot of these, they just disappear out of the door.”

### Flexible interface options

Cliff’s latest product range is FeedThrough, a family of chassis-mount connectors that fit different sockets into the standard XLR socket cut-out, so the same chassis can have different interface options.

The list of variants is enormous and includes: RJ45, HDMI, BNC, USB2, USB3.0, USB-C, Firewire, Toslink and RCA Phono. In many cases there are single, dual and gender-change options, as well as A-A, A-B and B-A USBs.

Uniquely, they don’t have wires at the back. Instead, they have sockets at the back as well as the front.

“It all started when [US sales manager] Jim Hoffman came up with the idea, to save time when inserting a PCB into an enclosure” said Hall. “They don’t have to wire it up inside, just use a connector, it’s a quick connection.” These are used on 19-inch AV racks, and point-of-sale terminals.

“The volume is going up with dual USB 2s and USB 3s because it makes the panel smaller, and smaller is the trend, even on 19-inch racks,” said Hall.

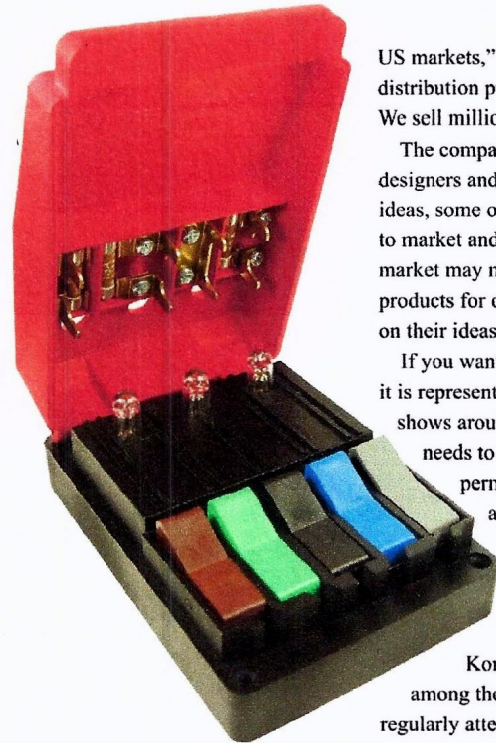
Is there other design Hall is particularly proud of?

Yes indeed, he said: a problem-solver for which Cliff has a patent.

The 5.5mm co-axial ‘barrel’ power connectors come in two versions, which can confuse consumers. They are almost identical to look at, but

“ Hand assembly by experienced staff creates flexibility and can deliver small or large batch volumes

one has a 2.1mm internal bore and the other is 2.5mm, for the EU and US respectively. The wrong connector either won’t fit, or fits but doesn’t connect. So the company uses a special lantern-style expandable cage contact for the centre pin to make a socket that reliably takes both sizes of plug (pictured, left). “Customers can buy in a single connector for both EU and



US markets,” said Hall. “It’s a good distribution product and OEMs buy it. We sell millions.”

The company has its own product designers and a reservoir of its own ideas, some of which will come to market and others for which a market may not arise. It also develops products for other companies, based on their ideas.

If you want to see Cliff’s products, it is represented at enough trade shows around the world that it needs to keep one show stand permanently in the US and another in Europe. BVE, ProLight+Sound, Electronika, Productronica, NAMM, Infocomm and the Hong Kong Electronics Fair are among those that the company regularly attends. □

## Cliff Electronics spotted niche demand and built quality products to fill it

Visiting Cliff’s headquarters and UK factory is a little like entering Aladdin’s cave.

Every square metre of space is either stacked with parts waiting to be assembled or products waiting to be dispatched, or there is someone sitting in it making something. If not that, then there is an injection moulding machine churning out plastic parts.

It could be chaos, given the age of the buildings and the small size of the site, but ‘quiet competence’ is the phrase that best summed up the atmosphere on the day I visited, despite there being both builders and roof repairers on site.

Assembly is largely by hand and the company has some semi-automatic press tools. Some pre-assembly is taken care of by local out-workers.

Hand assembly by experienced staff means flexibility, so while the firm has thousands of products, many of its product ranges consist of a few basic parts that are mixed and matched. The 250 quarter-inch jack socket variants, for example, are made from “several bodies, several contact types and several pin types,” according to Hall.

Batch volumes are in hundreds to thousands, although over time, “some add up to

millions,” he said.

Plastic injection moulding is done on-site, while metal pressing is now sub-contracted, although the tools are owned by Cliff. The UK factory works alongside a Chinese factory.

“They do the high-volume parts. We couldn’t compete on high-volume without it,” said Hall. “We bought the Chinese factory in the 1990s, we were one of the first, and we have still got it, in Shenzhen.”

Production can be split between China and the UK.

An example is the FeedThrough range, where plastic-bodied ones are made in the UK, while the housings for the metal-cased version comes from China. Over-moulding is also handled in China.

Cliff was first set up in Lewes, Sussex, before moving its sales and marketing to Redhill in 1977. A new product development followed, then everything else and the Lewes site was finally closed in 2008.

In Redhill, expansion has been vertical, through inserting mezzanine floors – and there remains room for more mezzanines, points out Hall.

With good growth, and buildings that have been on the Surrey site for decades, couldn’t the firm afford a swanky headquarters building?

“Yes, but it wouldn’t be fair on the customers,” is Hall’s answer.

