

## FAKE ELECTRICAL GOODS: THE BATTLE FOR REPUTATION

The rampant trade in counterfeit electrical products shows no sign of stopping but can industry slow the flow of fakes from East to West? By Rebecca Pool



IF YOU PRESUMED the trade in counterfeit goods was dominated by Rolex watches, Nike trainers and Louis Vuitton handbags, think again. The copying of electrical products, from circuit breakers to cables, is big business. It is estimated that some £30m worth of counterfeit equipment enters the UK market every year.

According to BEAMA (British Electrotechnical and Allied Manufacturers Association) at least 10 per cent of electrical goods traded worldwide are fake. This global market is currently valued at around €2.4bn, and 90 per cent of replica goods come from China.

"The problem is huge," says BEAMA Policy Committee chair Malcolm Mullins, from Honeywell MK Electric. "I've been on BEAMA raids to China, and on occasion we're finding 100,000 counterfeit products

at any one time. For some of my competitors we've found a quarter of a million products ready to go."

For the counterfeiter, just about any electrical product is ripe for exploitation, with widely-copied electrical products including adapters, plugs, chargers, sockets, circuit-protection devices, residual current devices and miniature circuit-breakers, as well as moulded-case circuit-breakers. Keith Smith, deputy director, BEAMA Installation Sector, highlights the fact that these products are prolifically copied, as the many end markets are spread far and wide.

"Many of these are global or IEC standard products," he says. "Very attractive markets include BS1363 plug and socket applications, but there's also a massive market for former British Standard sockets in the Middle East, Africa and certain parts of the Far East."

### Beyond the products

It is not just the products that are being counterfeited. Certification copying is rife, with counterfeiters more than willing to provide a potential buyer with documentation 'proving' the safety of a device.

"I can go to any trade fair in any country in the world, and ask for any brand of electrical product, and [a supplier] could ask me what sort of documentation I need," asserts Mullins. "It could be certification from [US safety organisations] Underwriters Laboratories or Aston Global, whatever. They'll counterfeit it and provide it with the products, which is pretty outrageous."

This is where the business of counterfeiting electrical goods clearly differs from counterfeiting watches and footwear. Counterfeiters aim to fool a buyer that his or her circuit breaker or socket-outlet is safe and manufactured



**Companies concerned over their reputation for quality goods face a constant battle to keep potentially dangerous counterfeits off the market**

by a reputable company, when the simple truth is, it is not. A typical copy does not comply with British, European or US safety legislation and can cause electrocution or explosion and fire when installed and used.

In 2007, a seven-year-old boy was fatally electrocuted by a fake Nintendo Game Boy charger his family had bought in Thailand. Later examination of the charger showed that the gap between the primary and secondary circuits was only 1mm instead of the 4.6mm demanded by EU standards, meaning the touchable charging pins of the device could become live.

The tragic accident prompted a UK Trading Standards Institute investigation that led to a Europe-wide recall of dangerous chargers and adapters, but six years on sub-standard and counterfeit chargers are still on sale. According to UK-based Plugsafe, a

## COUNTERFEIT KILLS



voluntary group of electrical engineers, a number of major retailers are currently selling chargers that are illegal in the UK.

Dr Michael Grant, senior electrical engineer at South Africa-based CBI-Electric, highlights the fact that counterfeit goods may look the same, but they don't perform in the same way.

"The reproduction [of our circuit-breakers] is visually similar, but there is no quality reproduction whatsoever," he says. "The counterfeit versions... offer no form of safety at all, and pose a direct risk to the installation."

Indeed, when tested against IEC 60947 standards for low voltage switchgear and control-gear, the counterfeit devices fail dismally. "The South African government, through its Department of Trade and Industry conducted raids, seized counterfeit goods, and tested them in a laboratory. Even under normal load-conditions the counterfeit products have ignited and started to burn," adds Grant.

Analysis has revealed counterfeit circuit-breakers are typically manufactured with cheaper substitute materials. For example, steel is used instead of copper while plastic components do not contain the necessary flame retardants and degassing additives to prevent fires.

US-based electrical components manufacturer Eaton has experienced similar problems. "I've seen [copies] that are absolutely stupid," says Dr Ulrich Spindler, Head of Coordination of Associations at Eaton. "We saw a breaker that was more or less empty, guaranteeing no safety at all."

Likewise, Mullins describes miniature circuit-breakers manufactured without arc splitters and switches sold as circuit-breakers. "People rely on weight to check the authenticity of a product so counterfeiters put a lump of metal inside," he adds. "That's not going to do anything to enhance its performance."

Clearly safety is the top priority, but copying components also does very little for the profits and reputation of

### Poster promoting Counterfeit Kills – an initiative of Voltimum and BEAMA

companies involved. According to Mullins, Honeywell can't make its own devices at counterfeit prices, while Grant asserts copied goods sell at less than his company's raw-material costs.

"We all rely on our brand names, but counterfeiting destroys this trust," adds Spindler.

### Small-scale operations

Without a doubt, counterfeit activities are already widespread, so how does it happen? Grant from CBI-Electric says his company only recently became aware of counterfeit goods, but suspects that local opportunists take products to the East and then find a factory willing to reproduce them.

Wenzhou City, China, is one such likely destination for the budding counterfeiter. Spanning an area the size of Wales, this industrial estate is described by both Mullins and Smith as 'electric city' and comprises hundreds of operations ranging from multi-storey factories to 'back-alley' operations employing only a few staff.

"Some are legitimate outsourcing operations for *bona fide*, well-known brands, but a lot are counterfeit operations, many of which are unlicensed," explains Smith.

Surely Chinese authorities keep a check on such activities? Well, apparently, local authorities and law enforcement bodies, worried about revenue loss from unlicensed operations, are very cooperative with worried companies. However, actions from senior government are not always effective.

"Senior Chinese government officials have told us about changes in law," says Smith. "I'm sure they implement these [regulations] in Beijing but by the time you get to Wenzhou, these directives are either not heard or ignored."

Like Smith, Mullins asserts that local authorities in China act quickly. His team works with China's Technology and Science Bureau (TSB), set up to police product quality, standards and IPR protection. The bureau is able to seize suspect goods, impose fines and pass equipment on to China's Municipal Government Special Department for destruction.

"If you go to the TSB and say there is a factory down the road making counterfeit products... they'll be raiding it within an hour and a half," he says.

But as he adds, government politicians are motivated to create jobs, which can be at odds with closing counterfeit operations. "At the bottom they say, you've got a problem we'll sort



**Chinese authorities are quick off the mark to stamp out suspected fakers – but companies are still wary**



It's not out but at the top, they won't necessarily care about counterfeiting."

Eaton's Spindler also harbours doubts over some actions taken by Chinese authorities. As he explains, his company's products are CCC marked with the China Compulsory Certification, as required for many electrical products domestically manufactured or imported into China. Certification involves product testing and a factory audit, carried out by Chinese authorities.

"By miracle, a short time later, we find copies of these products on the market, [manufactured] by Chinese companies," he says. "I don't know if they [the counterfeiters] pay for this or just have personal links, but it's obviously the kind of channel that is open to counterfeiting."

### Beyond China

Although China appears to lead the way on counterfeit trade, similar activities take place around the world. The United Arab Emirates has been described as a major trafficking route for products produced in China with Iraq and Nigeria seen as hot-spots for counterfeit activities.

"Iraq is rebuilding its entire country so a massive end-market exists for counterfeit products," says Smith. "And Nigeria is just such an open and corrupt market, it really doesn't matter what you do, but we still gather intelligence that could lead us back to another Chinese factory."

Ironically, Smith also believes the trade of counterfeit electrical goods has

### BRITISH STANDARDS THE CABLE PROBLEM

Set up in 2010, the Approved Cable Initiative (ACI) has discovered myriad counterfeit and defective electric and data cables, from armoured cables and house wiring to Arctic grade flex and fire-performance cables. But while the organisation has major concerns over counterfeiting, it believes a bigger issue in the cable supply chain is the manufacture of cable products that do not meet specified British Standards, don't carry independent third-party approval and are unmarked.

According to Peter Smeeth, ACI director, most problems encountered by ACI in defective electric cables relate to some manufacturers reducing copper content – sometimes by as much as 50 per cent – to counter rising copper costs.

The organisation is currently lobbying government to make minor amendments to planning and building regulations, to eliminate the threat of unsafe cable in Britain. "We believe that Britain is the main focus for distributors of substandard electric cables as the nation has few regulations to stop the importer," says Smeeth. "Our lack of effective safety regulation on cable installations makes this a profitable market for those cable distributors."

He adds that many of the problems the ACI has dealt with involve cables manufactured in Turkey, China and India.

gathered pace in recent years alongside the implementation of worldwide standards. Take IEC 60898: any circuit-breaker meeting, or claiming to meet, this global over-current protection standard for household and similar installations can now be sold anywhere.

But as Smith also points out, UK manufacturers may have also fuelled the fire by transferring production to low-cost manufacturing bases. "Well over 90 per cent of counterfeit products come out of China, and of course, this is the country we outsourced low-cost manufacturing to," he says.

Depressingly, as the worldwide network of counterfeit electrical products grows, so does the ingenuity of the counterfeiters. The latest evolution among China-based counterfeiters is to leave products unbranded until they reach the distributor.

The patents of many major equipment manufacturers expired some years ago, so as Smith explains, an identical product no longer infringes intellectual property if left unbranded. And so the counterfeit businesses will now ship unbranded products to the distributor while sending its labels, or printing equipment, via a different route.

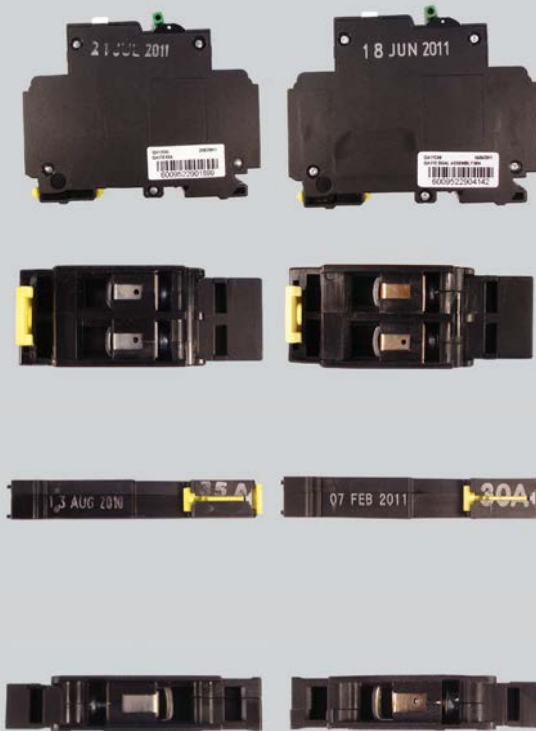
"This means if we're taking actions by raiding factories, we've now literally got to be at the distributors to catch the product as a counterfeit," he explains.

Smith has also seen electrical goods with lookalike labelling intended to fool the contractor into thinking he or she is purchasing a well-known brand. As one example, he cites how Chinese authorities have permitted the name



Middle Eastern countries place a high value on British standards, and fakes like these being crushed in Dubai are very damaging

## VISUAL CHECK CAN YOU SPOT THE FAKE?



The residual current device has been subject to 100 per cent quality inspection, with the date stamp applied by hand. The fake device has a machine-applied date stamp.

The residual current device has locating holes on both terminals. On the fake device only one terminal has a locating hole.

The authentic circuit-breaker has been subject to 100% quality inspection, with the date stamp applied by hand. The fake device has a machine-applied date stamp.

The authentic circuit-breaker doesn't have a hole in the terminal; the fake device does.

The fakes are all on the right-hand side.

IVIK to be registered, which resembles the branding of UK-based electrical wiring accessories business MK Electric.

"Look at this about a foot away from your face and you'll see that it comes across very neatly as MK," he says. "If you take an unmarked product and brand it, that product now has a totally different price."

And as he adds: "[Some counterfeiters] then go a step further and add 'Made in the UK'; Saudi Arabia and Qatar are very good export markets for British Standards products, and place a very high value on British products."

### Fighting back

So what exactly can be done to stem such widespread, and often coordinated, counterfeiting? As part of its Anti-Counterfeiting Working Group, BEAMA is already taking strong actions having established operations in China, Tanzania, Nigeria, Ghana, Kuwait, Jordan, United Arab Emirates, North-East Africa and the UK – operating under the apt title 'Electric Bulldog'.

The organisation employs myriad investigators, worldwide, that know where the end-markets for counterfeit goods are and gather intelligence on illegal operations. They pass information to border agencies and law enforcement bodies, which typically invite them on warehouse raids to seize the infringing intellectual property, be it the products, packaging or tooling. These copied goods are publicly destroyed with notices issued

to the owners of the counterfeit operations.

"In 12 years we've raided more than 500 factories, and seized and destroyed well over 15 million products," says Smith. "We have over 2,000 entries – be it a sighting or tip-off of counterfeiting activity – on our suspect-and-raided database, which we share with law authorities, Interpol and local trading standards."

Customer awareness is also crucial to preventing counterfeit product trading. Many companies are taking action to educate customers on counterfeit products, fraudulent certification marks as well as associated dangers and efforts underway to beat counterfeiters.

Eaton for one holds regular anti-counterfeiting 'webinars' that include, for example, information on its product packaging and labelling. The company has also been vigilant in embedding its intellectual property into its products. Typical techniques taken by any company may include moulding registered trade names or etching part numbers into a product. Codes or even dot-matrix barcodes can also be applied to products.

Meanwhile CBI-Electric recently issued a 'public announcement' poster with the headline "imitation isn't flattery, it's murder". Annotated photos in the poster educate consumers how to spot a counterfeit product and as Grant says: "It's been in the market for just over a month and we've had excellent feedback."

But as Mullins asserts, electrical contractors also have a key role to play

in preventing counterfeit trade. "One big problem is that some contractors – around 20 per cent – will not accept that these products are unsafe," he says. "They look at the price, which for say miniature circuit-breakers is a fraction of the cost, and that's what they go for."

With contractors liable for the consequential losses caused by the failure of installed counterfeit products, Grant cautions his customers to buy from authorised distribution networks, and to contact the manufacturer to verify the authenticity of a distributor if unsure.

"Some prices are too good to be true; there's clearly guilty knowledge on behalf of the contractor when [he or she] undertakes the purchase," he adds.

And results are emerging. According to Mullins, while once he went to trade fairs and saw counterfeit brands displayed everywhere, now he doesn't see them at all. "Although if you pretend you want to buy [a counterfeit], some will still reach under a cupboard and pull something out," he says.

Indeed, as Smith highlights, thanks to surveillance at European borders, the European Community is 'fairly well' protected against counterfeit products in this particular field. But given the sheer scale of worldwide operations, it's doubtful that counterfeiting will ever be completely stopped.

"We are always coming up with new technical procedures to protect ourselves, but counterfeiting technology also improves," concludes Spindler. "This is a permanent chase, but we will never give up." ❄️