

A simple choice

Alan Burgess, one of the innovators behind Timberweld, discusses how today's homeowners want good looks and excellent performance from their flush sashes – and why they don't need to compromise



When double glazing first hit the mass market in the 80s, the choice was extremely limited in design and colour. Homeowners with rotting timber windows sacrificed sympathetically designed frames for white chunky PVC-U because it offered the durability and energy efficiency they wanted. Flush casements and sliding sashes were swapped for big, bulky, open-out casements. They just did not look right in period properties; anything built before 1914. Inappropriate replacement has been a blight on the look of towns across the UK.

Today the cheapest replacement windows have a limited choice of colours and still don't look right in period homes. But at the higher end of the market the range is impressive. The demand for colour and appropriate design is chiefly driven by homeowners over the age of 55 – the haves who own the majority of the housing wealth in the UK, largely mortgage-free. If they spend wisely on the right home improvements the rising value of their property will cover it. But the devil really is in the detail. They care about the appearance of their windows but they also want them to be secure, energy efficient and durable. They love the look of timber, but don't want the maintenance headaches.

Having started as a niche style, the timber-look flush sash is set to become mainstream, with a recent study by MRA Research suggesting that nearly 50% of fabricators predict it will become as important as standard casement windows over the next 10 years.

The way flush sashes are jointed is a crucial element of the timber-alternative look. Mechanically jointing the sashes to replicate the traditional look of timber windows achieves that look but at a cost. It needs skilled labour to fabricate which is time-consuming and also impractical and expensive to make at scale. If you plan to grow, welding is the answer.

The standard method for welding PVC-U windows means a 45° corner groove, which spoils the look. It also means that if you choose a coloured, woodgrain foiled window the groove must be 'coloured in' with a pen. That's not the attention to detail homeowners who buy flush sashes require.

System companies have sought to solve this problem using a variety of methods. At the top end of the market, flush sashes are made with mechanical butt-joints and glass-bonded to for strength and integrity. However, this is labour intensive and slow. Other companies use a method of welding that gives a butt-joint look on the

outside and a 45° groove on the internal face. Not ideal when homeowners usually see their windows from inside their home. Other options include the Graf Seamless 45° corner weld.

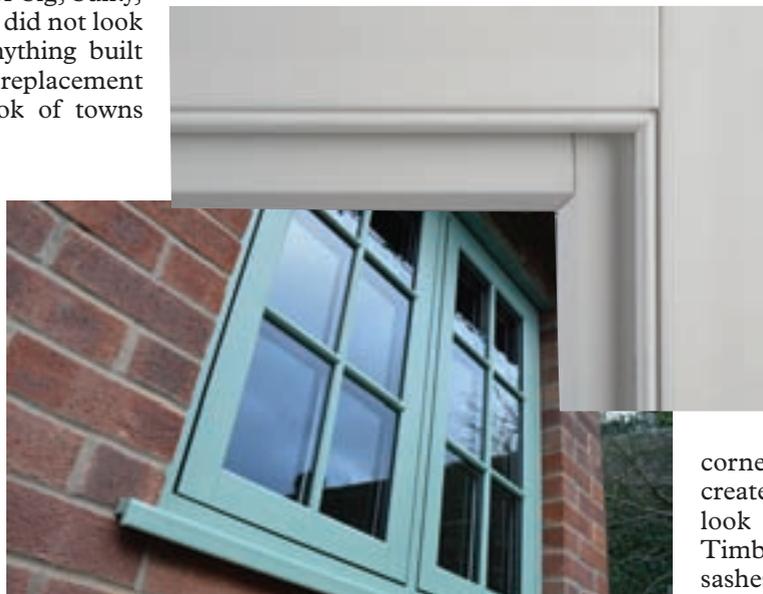
A further option is Timberweld, a patented method of welding

corners, inside and out, to create an authentic timber-look butt-joint effect. Timberweld allows flush sashes to be made with a butt-joint look at scale,

cost-effectively. Installation is easier too, as the units are not glass-bonded in the factory but installed on site in the usual way.

The Timberweld welding method makes very strong joints. This is particularly relevant at a time when the integrity of mechanical joints is under the spotlight, because rising temperatures and the growing popularity of colour frames could lead to problems with expansion and shrinkage – literally pulling the frame apart in the worst-case scenario. Colour absorbs more heat than white, and dark colours (eg anthracite grey) – absorb even more. As flush sashes are invariably foiled, it is part of the appeal, this is an issue to consider.

Today homeowners want it all: stunning looks, and they expect the performance to go with it. And fabricators want to supply timber-look windows that last, but in a way that is cost-effective for them in the long term. Neither need to choose or compromise. The technology is here now to give everyone what they want. □



For more information on Timberweld® call 01376 534126 or email perfectcorners@timberweld.co.uk

New technology

Aluminium has been the unquestioned material of choice for years for commercial windows and doors. Architects and developers chose aluminium for slim, strong profiles and wide range of colours. Aluminium's strength meant they could specify large frames and tall doors. But PVC-U won out for thermal performance and ease of installation writes Rob Mclellan managing director, Deceuninck UK



Although more cost effective, APVC-U was seen as bulky with limited colour choice – effectively white in practice. Many specifiers saw PVC-U as cheap and shiny-white.

Today, both materials have evolved. Aluminium windows offer improved energy performance, but at a cost of making an expensive material more expensive. Meanwhile, PVC-U has retained its lead in energy efficiency, and aesthetics and colour choice have improved no end. But don't expect tall windows and large doors, PVC-U isn't strong enough, even with maximum steel reinforcement. Steel reinforcement also acts as a cold bridge in the profile and reduces energy efficiency, and makes windows heavier so it becomes harder still to specify large PVC-U windows and doors.

A true alternative

Deceuninck's mission was to create a completely new, high performance composite material for windows and doors that's a true alternative to aluminium. We wanted to develop a system with strength, structural stability and excellent insulation; that didn't need steel reinforcement. We wanted a new generation composite material that was ideal for commercial projects.

Linktrusion technology is the first of its kind; the result of a €4m investment by Deceuninck and two and a half years' research, product development and testing. It is unique because it's the first to incorporate pultruded glass fibre in PVC-U. Used in Deceuninck's 5000 composite system, Linktrusion combines immensely strong, glass fibre pultruded technology in the profile, plus optional patented thermal reinforcement using embedded steel wires in a low-density insulating foam core encased in recycled PVC-U.

Windows and doors made with Linktrusion technology are the first to remove the need for thermal reinforcement so developers can specify very tall windows and very large doors. Fully recyclable, the windows and doors are very light and strong with outstanding thermal performance. The windows have slim sightlines and come in a choice of foiled or Decoroc colours so up close, they are very hard to distinguish from aluminium except they are warm to the touch.



Deceuninck's 5000 Tilt and Turn window with Linktrusion™ Technology was specified in the Oakgrove Village development

Best of both worlds

In performance and characteristics, Linktrusion technology combines the best of aluminium and PVC-U in one system. Linktrusion achieves up to a 30% improvement in thermal efficiency, 40% savings on materials and weight, and U-Values as low as 0.76W/m²K with argon-filled triple glazing.

The UK response to Linktrusion from specifiers, developers and commercial contractors has been outstanding. Hot off the press is our win at the G18 awards for product of the year, where judges praised Linktrusion as "a truly innovative product".

A number of big-name developers have used our 5000 window with Linktrusion

including Crest Nicholson, Countryside Properties, Berkeley Group and Catalyst Housing. More contracts have already been won for 2019. I can't name names but one large developer has been so impressed, they are switching completely from aluminium to our 5000 window system with Linktrusion.

Specifiers love Linktrusion because of its performance and its flush, contemporary appearance. A recent example of Linktrusion in action is at the Crest Nicholson 'Oakgrove Village' development near Milton Keynes, where Deceuninck's 5000 tilt & turn window with Linktrusion was chosen for its bold, modern design with excellent energy efficiency and all-round performance: 0.9 W/m²K U-Value, class 4 air permeability, class 8A water tightness and class A5 2000Pa exposure. The windows were finished in Anthracite Grey for a finish very similar in look and feel to aluminium.

Commercial potential

Linktrusion is high-end and not a replacement for PVC-U, but it has huge potential in the commercial market and the premium residential sector where it has an edge over aluminium. We have lots of exciting developments to come and in 2019 we will be launching a new product incorporating Linktrusion™ technology for the wider market. This is under wraps at the moment but we're looking forward to telling you more in the New Year. □

www.deceuninck.com

Beware the wear

After 18 years of supplying automatic sawing and machining centers Stuga still has the best answers for most fabricators and longevity is assured, writes Steve Haines

When Stuga launched the original Flowline automatic sawing and machining center in 1999 the European competition that had controlled the market exclusively until then said the machines wouldn't last. They couldn't because they were too lightweight and too cheap.

Well they weren't cheap, they just cost a lot less than the equivalent European ones. This was partly due to a simpler, lighter construction but also due to the fact that Stuga is a British manufacturer selling direct to the market with no dealer margins added to the price. We still are but more importantly so are the machines; every one of the ten machines built in 2000 are still working. In fact we can state that every one of the nearly two hundred automatic sawing and machining centers built since the launch in December 1999 is still fully operational with Stuga knowing the exact location of all of them. We also still service them all either through a service contract or on a pay-as-you-go basis.

One problem that we do suffer from is the longevity of our machines. It makes it quite hard to convince fabricators the time has come to replace them. When a sawing and machining center has been in operation for the better part of 20 years and appears to be running well why spend a large chunk of money replacing it? The simple fact is that these old machines cost more in spare parts each year but there is also a hidden cost. Often forgotten is the cost of lost production or catching up when they do go wrong. Moreover the latest versions are much quicker as well as technically more advanced simply due to the constant improvements in technology.

When the first Stuga automatic sawing and machining centers were sold 18 years ago the savings in production staff were huge as the processes automated so many operations and the savings in profile due to optimisation were equally impressive. The second time around these savings can only be continued but not remade. The justification is mainly created by a reduction in downtime and spare parts purchase along with improvements in reliability, accuracy and general performance. Software is also very much more advanced with management information being readily available. If more capacity is required the latest ZX5 machines are around forty

**Steve Haines,
sales and
marketing
director of Stuga**



percent faster than the original Flowlines but with almost exactly the same footprint. This creates the opportunity for our customers to replace their old machine without the need to create more space whilst benefitting from much higher output and a massive leap in technology.

When we sell a new machine the customer sometimes keeps the old machine for back-up and increased production. But we will normally make an offer if a fabricator wants to trade in the old machine. We generally take the old machine into stock and offer it for sale to the market. Before we do we take these machines apart and rebuild them to an excellent state with up-to-date software and electronics. Refurbished machines are sold with a full 12 months parts and labour warranty ready to serve another lifetime at a fabricator. These machines are popular with small fabricators that cannot afford a new sawing and machining center or any fabricator that needs one simply as back-up to their not-so-old Stuga. □



As easy as CNC

Modern computer numerical control (CNC) machines are often marketed as requiring much less maintenance than their predecessors. While there's less need to replace cutting tools in these machines, there is more complexity to their upkeep. John Mitchell, global sales and marketing director at supply, installation and repair specialist, CP Automation explains how poor power quality can cause recurrent issues for CNC machines

CNC machines have brought many advantages since their inception in 1989. Improved accuracy, productivity, efficiency and safety as newer models replaced the older, manual machines and changed fabrication forever. With further development from three axis to five axis models, the increased complexity of processes has not been without its pains.

Power struggles

To operate effectively, it is imperative that CNC machines are equipped with the right tools, settings and programming. The wrong choices can spell disaster for both the product and the CNC machine. One of the most important considerations relate to ensuring good power quality.

Poor power signal can cause issues with random lockups, loss of synchronization and other 'no trouble found' service calls. Partially, this is due to the computer processors of CNC machining centres becoming more complex. But, what can be done to resolve this issue?

A sine of the times

The sine wave, the ideal waveform for the transfer of AC power, has remained the same since the late 1800s. However, the equipment that is connected to the grid is now much more sensitive, including CNC processors. These computers are very sensitive to power quality, explaining why inexplicable issues can plague the machines if power quality isn't adequate.

Some of these power quality issues are caused by transient surges in power. Transient surges are a change in fundamental frequency that occurs thousands of times a day. Built in CNC surge protection is voltage triggered, and therefore does not account for these transient surges.

Transient surges can lead to false zero crossings of the sine wave – the instantaneous point at which there is no voltage present. In a sine wave, this normally occurs twice during each cycle. Devices can be falsely triggered

because of fast changing signals caused by transients, as they believe the zero point has been crossed, even when it hasn't. Typical surge protection devices are unable to prevent this confusion.

These events can lead to loss of synchronisation and unexplained reboots or resets in CNC machines – a huge headache for factory managers.

Surging up to speed

Built in surge protection devices are not doing enough to protect valuable CNC systems and prevent false zero crossings caused by transients. A solution is to install a SineTamer cascade system.

This is not a common surge protection device. Instead, it is an engineered transient disturbance filter that is designed to monitor all 360 degrees of the sine wave. Using 360 degree monitoring, the SineTamer is capable of preventing issues caused by false zero crossings of the sine wave.

While CNC machines are marketed as low maintenance, it would be unfair to provide such machines with poor power quality and expect the same output. Ultimately, you get out what you put in. □



SineTamer is currently being used globally by end users of Mazak, HAAS and ROMI machines.

www.cpaltd.net

To enquire about the SineTamer®, e-mail John Mitchell cpaltd.net.