HeatWorks

HeatWorks 14 | May 2015 | www.ceramicx.com

CLAMSHELL OVENS

We examine the two ends of the clamshell spectrum

CERAMICX TURKEY

All systems are go...
for the new Ceramicx subsidiary in Istanbul

'THE HERSCHEL' SCORES SUCCESS

Both Home and Away

MAKING AN EXHIBITION OF OURSELVES

Looking forward to CHINAPLAS

NPE2015 and PLASTINDIA2015 Exhibition Reviews

Guangzhou | P.R. CHINA
CHINAPLAS 2015

Orlando | Florida | USA
NPE 2015

Gandhinagar | Gujrat | India
PLASTINDIA 2015

Around the world with Ceramicx

It is often the nature of business and publishing that no two quarters or magazine issues are ever the same.

Such is the case here: Our last issue of HeatWorks XIII contained two very in-depth pieces on a) our design expertise in thermocouple technology and b) our radical energy-saving work in the inline thermoforming area.

In this current issue we move out to report more on our outward bound activities. This year's globe trotting has seen already seen Ceramicx in Portugal, Belgium, India, the USA and France, and our tickets are now booked for Italy, China, UK, Turkey and Germany, in the coming weeks and months.

There is of course great value in travel and reaffirming a direct sales presence in all of these territories. However, the Ceramicx approach is also about gathering in and learning much from these very diverse audiences.

For many manufacturing players today it boils down to this. The coming pattern of our age will be the effective re-organisation of information through cyber physical systems or the internet of things, also becoming known as industry 4.0 or the 4th industrial revolution into profitable new systems, methods and products.

This is actually the essence of our valuable new machine tool/instrument, the Herschel. Each of the Herschel's individual components are not in themselves innovative; the robotics, the sensors, the computing power, the software, and so forth. It is the effective combination of these technologies that makes our machine tool radical – and allows Ceramicx to predictively map the IR energy spectrum in 3D space. It is this combination that allows Ceramicx to accurately map and predict IR energies and distances needed for heat work in plastics or metals or in print or paint curing or many other heating applications.

Dortmund, Gujurat, Orlando, Paris, Istanbul, these all provide Ceramicx with users of heat work, all have different needs and all of these must be met in different ways.

To be of service you have to get out there, listen and then organise and harvest your data – before deciding your plan and direction. Again, this combination of different needs and enquiries can serve to cross-fertilise your business and point you in some unexpected yet profitable directions.

'Think globally and act locally'. Never truer than today.

Frank Wilson
Managing Director, Ceramicx Ltd.

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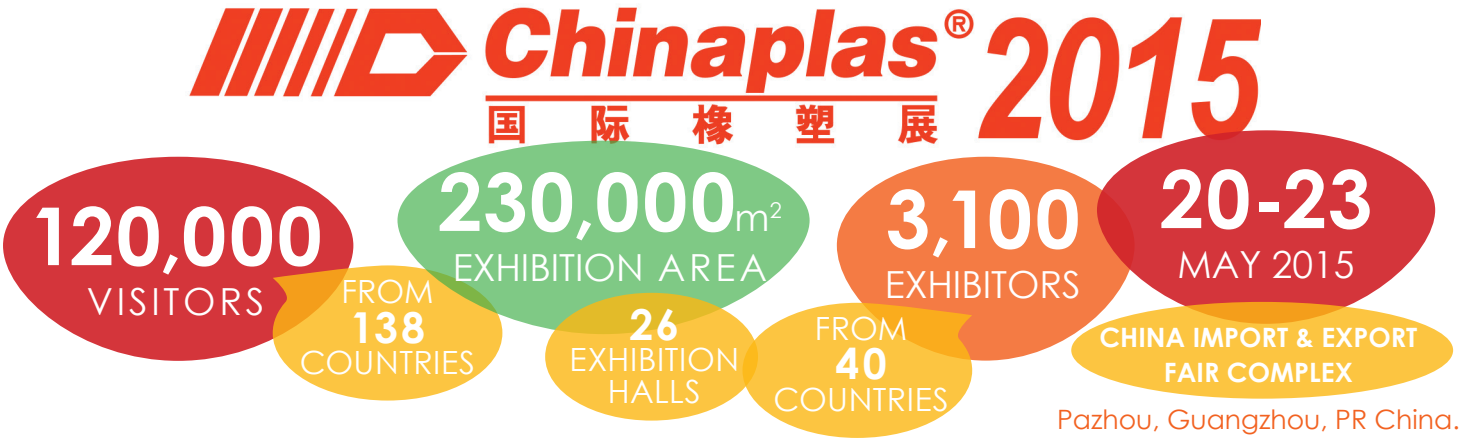
Ceramicx set for China success

Once again the Chinaplas exhibition is upon us, reverting back to Guangzhou in the south of the country. This 29th edition of the show is expected to cover over 230,000 sqm with over 120,000 visitors and 3,000 exhibitors. Once again a high level delegation from Ceramicx will attend, headed by founder director Frank Wilson.



Chinaplas 2015 will feature more than 3,100 exhibitors from 40 countries and regions, unveiling the latest plastics and rubber technologies and services across 15 product theme zones. These will occupy 26 exhibition halls at the China Import & Export Fair Complex, Pazhou, Guangzhou, PR China.

Frank Wilson says that 'Ceramicx travels to Chinaplas 2015 in very good heart. We will be joined at the show by the excellent services of Xu Shan and the GSAE team and we will also be supported back at base by the new talents of Ceramicx employee Dr Zhe Li (see page 17 for an in-depth interview). Ceramicx is truly becoming a Sinophile company – in theory and in practice!'

Mr Pingqiang Li, Mr Frank Wilson and Mr Xu Shan join forces on the Ceramicx stand at Chinaplas 2013 Guangzhou.

The Ceramicx operation on the ground in China has become very well established with trade agent Mr. Xu Shan and distributor Mr. Pingqiang Li of Guangzhou Salaimi Automation Equipment Co. Ltd. (GSAE) leading the way. GSAE was established some four years ago and represents Ceramicx for product sale and service works in China, including Taiwan, Hong Kong and Macao. GSAE has succeeded in further penetrating the geographical Chinese territories of Guangzhou, Beijing, Shanghai, Qingdao; Shantou and Taiwan

The company is extremely focused on introducing advanced IR technology and IR technical application level to these markets, deploying its own matrix of QSPT principles: Q-quality, S-Service, P-price, T-time.

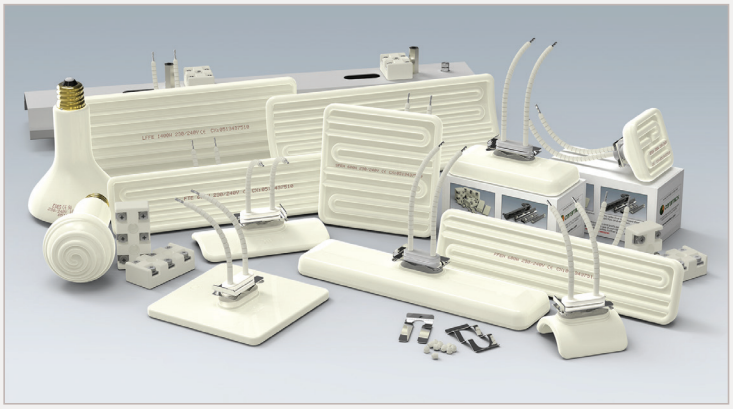
Wilson says that 'Ceramicx and our Chinese partners enjoyed a very fruitful exhibition in Shanghai in 2014 and we will be looking to pick up strongly where we left off.

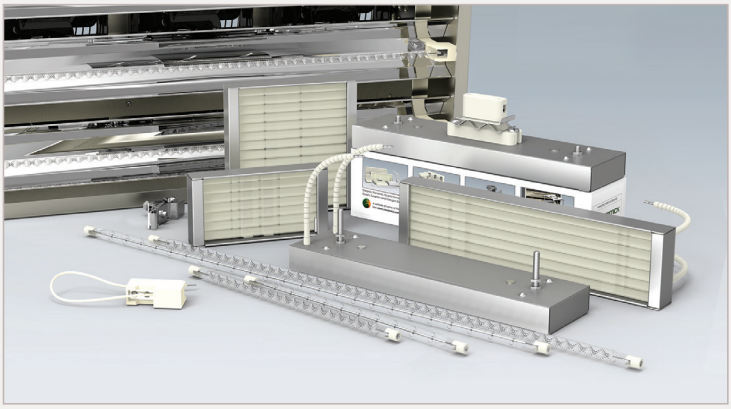
China's machine building sector will be key to us at this show, as will our many customers in plastics processing – thermoforming especially.

The breadth of our range - short-wave, medium-wave, long-wave and our process control systems - gives our Far Eastern customer the most efficient heat service and resolve the heat difficulties in application.'

> **Ceramicx and our Chinese partners enjoyed a very fruitful exhibition in Shanghai in 2014 and we will be looking to pick up strongly where we left off.**

At Chinaplas 2015 Ceramicx will once more have the opportunity to show the Chinese market the company's latest approaches to IR platen and oven building; also flagging up new developments in Ceramicx thermocouple designs (see last HeatWorks issue for full details) ceramic element designs (such as new 'hollows') and the vast potential in the new IR heat testing work via the Ceramicx Herschel machine tool/instrument.





Ceramicx stand at Chinaplas 2015

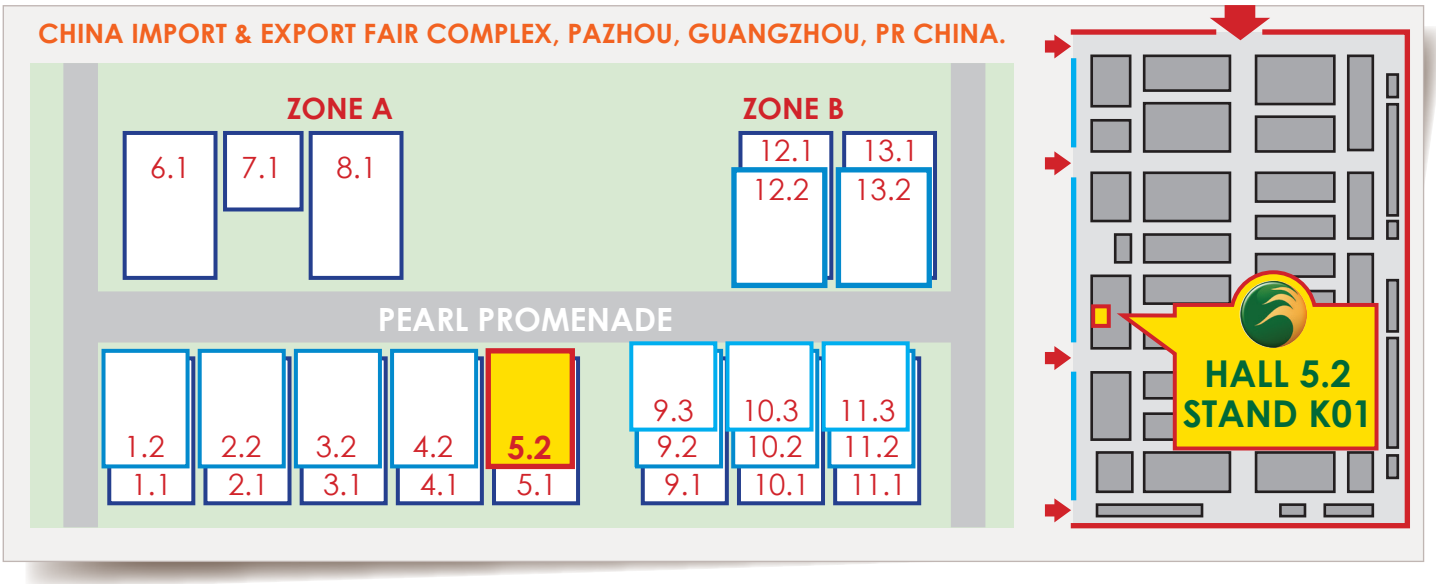
Once again China's market place will be fertile soil for the much needed use of Ceramicx Infrared heating elements. Chinaplas 2015 is expect to produce enquiries in the areas of thermoforming machines, BOF film production, composite material heating (pre-heating), surface heat treatments, glass screen print heating, ITO glass vacuum coating heating, rubber vulcanization, industrial PU belt heating, automotive interior product thermoforming, cloth drying, paint curing, organic coating heating, leatherwear heating, plastic welding, electronic industry, printing drying and curing, space heating, food temperature preservation, sauna and others.

Also on the Chinaplas 2015 agenda is further discussion of engineering materials for IR heat design; aluminium and steel and process control system know-how, all helping give Chinese customers and machine builders the very latest in good practice and exact precision in their Infrared heat work.

Ceramicx products are steadily moving towards best in class throughout the World, this is starting to be recognized in all markets, including China.

And as Chinese volume production slows down somewhat, opportunities for the country's innovation practices are opening up. After all, China brought the world, paper, gun

Ceramicx stand at Chinaplas 2015



powder and many other inventions. After many years of being the worlds powerhouse manufacturing economy it now has the potential, budget and will to innovate on a scale not seen in since World War 2.

Ceramicx world class IR products will therefore be available to leading Chinese manufacturers - feeding into this innovative mind-set and helping develop new cutting edge solutions.

Against this backdrop, Ceramicx will be on hand to provide IR heating solutions for front line industries such as industrial cable industry, automotive sectors, advanced packaging industry, composite material thermoforming; plastics processing industries and electronic industry.

Founder and Director Frank Wilson and Production Manager Patrick Wilson will be attending Chinaplas in Guangzhou.

China, for example, is one of the world's biggest markets for packaging manufacturers and consumers – something that keys in directly to Ceramicx abilities in plastics thermoforming.

Plastic packaging is one of the four major packaging materials in the industry and occupies a lion's share of 30% of the sector's GDP. The competitiveness and technology levels of many Chinese packaging companies have improved a lot in recent years as they strive to adapt new technologies from foreign countries as well as employing their own significant innovation capabilities.

Ceramicx is currently building market growth and share out of innovative capacity to provide cutting edge testing and product development in this and other sectors. Ceramicx international travel has confirmed to the company that no other providers worldwide are possessed of the equipment or abilities to do similar.

And while China continues to be a major market for Ceramicx parts and components this year's addition of Dr. Zhe Li in a technical role in Ceramicx provides the company with clear abilities to reach into the market and provide extremely relevant development testing and knowledge for Chinese customers.

The Ceramicx Centre for Infrared innovation is also becoming a 'go to' location for many businesses including firms in the automotive, aerospace, wind generator, materials supply and leisure industries. Ceramicx is increasingly in a position to partner with and carry out the testing, development and machine build for these blue chip clients worldwide.

Frank Wilson notes that 'Chinaplas 2015 will show further proof that demand for our new Chinese products is heavy. Already we are seeing further customer requests for further innovations and product modifications. We expect a good exhibition.'

Chinaplas 2015 is organized by Adsale Exhibition Services Ltd. and co-organized by the China National Light Industry Council The event is also supported by various plastics and rubber associations in China and abroad.

First introduced in 1983, Chinaplas is exclusively sponsored by the Europe's Association for Plastics and Rubber Machinery Manufacturers (EUROMAP) in China for the 26th time. Chinaplas is currently Asia's No. 1 and the world's No. 2 plastics and rubber trade fair in terms of exhibitors and visitors. ■

US plastics is back!

Now that the statistics are all counted in it can be confirmed that North America's triennial plastics exhibition NPE 2015 was the largest show in NPE history.

SPI: The Plastics Industry Trade Association, founder and producer of NPE: The International Plastics Showcase, has now released final data for NPE2015, which took place March 23-27 in Orlando, Florida. The data shows NPE2015 attracted 2,029 exhibitors over 1,128,200 net square feet (104,813m²) of exhibit space - exceeding the previous records of 2,009 exhibitors and 1,041,000 net square feet (96,712m²) set in 2000.

In addition, registered attendance for NPE2015 was 65,810, 19% greater than three years ago. These registrants came from 23,396 unique companies - 22% more than the 19,198 companies at NPE2012, representing a substantial increase in buying potential.

International participation also set new NPE records. Nearly 44% of exhibiting companies and 26% of registrants came from outside the United States. Nearly 5,000 registrants were from Latin America alone.

Brett Terbrack of Weco International, Ceramicx USA distributor, confirmed to HeatWorks magazine that 'we had a great show – many leads and hundreds of solid and sound opportunities.'

Terbrack adds that 'we sold the clamshell oven we had on display and we encountered so many various types of business. Probably the highest amount of enquires were received on the Ceramicx clamshell design for inline heating processes.

Ceramicx/Weco International stand

Ceramicx and Weco drew a highly technical and innovative crowd throughout the course of the show

In addition there were numerous fibre and composite company enquiries, multiple welding applications and a great deal of interest around the Ceramicx Herschel test machine.'

A great number of NPE visitors wanted to know about Ceramicx expertise in pre-heating processes for thermoforming in order to help improve line speed - this in opposition to technologies such as heat guns or no preheat at all.

During the show the Thermoclam 100, shown above was sold from the stand

Other enquiries fielded by Weco/Ceramicx included technical points from the optics and medical industry; discussions about vertical clamshell applications; numerous discussions about retro fits and improvements to existing thermoforming ovens; the production of systems to make; bullet proof fuel systems; electronic cigarettes and synthetic wine corks.

'And lots and lots of test applications,' adds Terbrack.

Brett Wehner, President Weco, Cáthál Wilson, Director Ceramicx, Doug Davis, President Douglas C. Davis LLC, Frank Wilson, Managing Director Ceramicx

'So many that we decided there and then at the show to develop an off-the-shelf test oven and family of test equipment. Weco International plans on having this family of test equipment on the shelf and ready to ship from June 1st, 2015.'

Terbrack adds that 'our flagship for the test family will be the pre-fabricated table top oven from Ceramicx with black hollow ceramic heaters. (More on this design in an upcoming issue of HeatWorks magazine)

Weco International is going to be making a push to get our customers into the benefits of the Ceramicx black hollow heaters. Our preliminary supporting data showing greatly improved efficiencies in this area and we plan to document that fully in the weeks to come.'

> **'we had a great show** – many leads and hundreds of solid and sound opportunities.'

SPI president and CEO William R. (Bill) Carteaux acclaimed NPE2015 as the most successful NPE by many measures. 'What made NPE2015 a milestone in the 69-year history of NPE was not only its size and international diversity, but also the richness of its offerings to attendees,' said Carteaux. 'The hundreds of machines operating on the show floor, the customer service centres provided by material suppliers, the pavilions and programs on current issues and emerging technologies, the extensive agenda of co-located conferences - this wealth of content surpassed our previous shows and now provides a guideline for making future NPEs even more attractive to participants. The US plastics industry should be truly proud of its exhibition.'

The next NPE 2018 will take place Monday through Friday, May 7-11, 2018, at the Orange County Convention Center in Orlando, Florida. ■

Ceramicx /Weco stand from the main walkway

A market for quality

Now that the dust has settled on the triennial NPE plastics exhibition in the USA (Orlando, Florida, March 23-27) Ceramicx and Weco International can reflect on a job well done and a mission well accomplished.

Frank Wilson, Managing Director Ceramicx, Brett Wehner, President Weco International.

Ceramicx sent a high level team of Frank Wilson, Dr Cáthál Wilson and Dr Gerard McGranaghan to Orlando, Florida for the show week at the end of March 2015. I am happy to report that this delegation was met, in turn, by a high quality turnout of visitors.

Although NPE show attendance was increased by some 19% since the last exhibition in 2012 there was no fall off in quality. In fact there was a noticeable increase in the number of focused and relevant enquiries. From Day One indeed the exhibition was noteworthy for its high quality visitors.

Commercial confidentiality prevents us naming any of the blue chip customers that paid us a visit, made enquiries and closed orders. Suffice to say there were many, and enough of these to have repaid our show investment many times over.

The new-look team for Ceramicx distributor, Weco International, also impressed. Brett Terbrack, Traci Hendriksen and Tony Tenore all took their rookie spots at the NPE show with distinction. Ceramicx and HeatWorks magazine look forward to hearing about their achievements for Weco in the US field in the months to come.

Indeed, Weco International has been making great strides re-inventing itself and making itself over, digital-wise. The new website http://www.wecointernational.com is just the beginning and Ceramicx for one looks forward to seeing it populated with new US case study material and fresh stories from the US market place as these arise.

Our overall impression of the US marketplace – via the NPE show – was one of a industry that feels revived, re-energised and optimistic.

Traditionally US business prefers to launch new things loud and proud; to prefer the expansive and bold gestures and colours over the quiet evolution. In that sense then NPE 2015 represented a return to tradition – showing US manufacturing much the better for it. ■

left to right.

Brett Terbrack,
Traci Hendriksen
Tony Tenore

HeatWorks Magazine asked former SPE to cast his eye over the NPE exhibition

Here is his review. The NPE exhibition was once again held in Orlando, Florida, and the main two halls used (South and West) had a vast number of exhibitors from all aspects of the plastics industry. The hope was around 60,000 visitors, the actual numbers are not available at present when this article has been written but the traffic through the two main halls was very high. (The achievement was over 65,000 visitors – see inset panel).

SPE ANTEC 2015

SPE Also held their ANTEC Conference in conjunction with the NPE and they had a registered attendance of 1,500 - which is up on their last year's conference.

My main aim during the exhibition was to visit companies that were involved in the thermoforming industry, from machinery manufacturers for thermoforming, extrusion and tooling.

Many companies had new equipment on show and listed below are some of the items I saw during my visit.

Brown Machine were showing their new Elite Series line of Servo Driven Horizontal Trim Presses equipped with a multitude of innovative cutting edge features for achieving greater speeds, superior precision trimming, longer tool life, ease of maintenance and faster changeover times.

To complement Brown Machine's technological leading Quad Series Thermoformers, this year's focus is to elevate the trim press capabilities. The Elite Series is capable of high speeds in excess of 175 stokes per minute and fast changeover times of less than 30 minutes.

Meantime Lyle Industries introduced their new SS454 thermoformer with dual servo drives on each platen. They were showing a 54 inch (1.371

US thermoforming - alive and well!

President and Managing Director, Plastics Machinery Group, Ken Braney, and report on thermoforming developments. As ever, Ken did us proud.

metre) forming station that is designed for high speed mould closure, all run by a Mitsubishi Electric Automation system.

There are, to be sure, a lot of things happening in the world of Brown at present. Brown's parent company Thermoforming Technology Group LLC (TTG) had purchased Lyle Industries. During the course of 2015 they will move Lyle Industries into the same complex of Brown Machine. Brown had built a new extension to its facility and this is where Lyle will be located. The combined companies will trade as separate entities but will have the benefit of the combined strength of the group.

> "....This years **NPE** showed that t**he US industry is vibrant** both in the orders being placed and also in the confidence being shown"

TTG also announced that the agreement between Gabler Thermoform GmbH & Co. KG of Lubeck Germany – exclusively with Lyle Industries in the past - is now an agreement between Brown, Lyle and Gabler. Jim Robbins Vice President of Sales and Marketing of Brown Machine could see many benefits for the new arrangements.

It was also announced the Jim Robbins after being employed at Brown Machine for 34 years was taking retirement at the end of April 2015. No replacement has yet been announced but this is expected to be known and announced within the next few weeks.

MAAC Machinery were promoting their expertise in heavy gauge thermoforming and their unique involvement in the manufacture and sale of rotary thermoforming machines, three and four station as well as twin sheet rotary thermoforming machines. One of the largest rotary thermoforming machines ever made for the very large formed parts for the agricultural machinery sector has just been delivered to a major thermoformer in Europe. This machine is in the process of being commissioned and will be operational in April 2015. The products to be made on this machine are parts in the region of 3 metres by 2.5 metres and will be for use in the agricultural machinery market.

One of the unique areas seen during my NPE show visit was to a company called Uway Extrusion, a manufacturer of customized extrusion systems. Uway exhibited the largest calendaring roll stack ever shown in NPE's 69-year history. The stack - standing 4 metres tall – is designed to produce HDPE at a rate of 2.2 tons per hour with a finished sheet width of 3.1 meters. Also on display were a 120mm HDPE extruder with an output rate of 1.1 tons per hour and a 40mm co-rotating twin screw. Specializing in engineering and building fully customized turnkey extrusion systems. Uway Extrusion is based out of Indiana USA at present but is in the process of relocating its operations to Ohio USA during the summer of 2015.

In summary, this year's NPE was a good exhibition and showed that the US industry is vibrant both in the orders being placed but also in the confidence being shown by all companies by their commitment to introduce new products and innovations at this time. ■

Ken Braney

Set a date for Europe's Thermoforming event

10 -11 March, 2016 in Stiges, Barcelona sees the **10th European Thermoforming Conference take place.**

This is likely to be a key event in the manufacturing calendar and a special 'milestone' event for the SPE and Europe's thermoforming industries.

Ken Braney of the SPE organizers notes that 'this conference allows you to keep a finger on the pulse of evolutions in the thermoforming world.

> "..... a special **'milestone'** event for the SPE and Europe's thermoforming industries"

In addition to the technical presentations, we also offer the opportunity for companies to present their products and services by means of tabletop displays. During past conferences, we've had the pleasure of welcoming colleagues from a mix of material, tooling and equipment suppliers, converters and end-user product manufacturers.'

The event is built for a wide variety of attendees - Thermoformers - OEM's - Machinery Producers - Tooling Suppliers - Film and Sheet Suppliers - Resin Producers – Recyclers – these are all welcome.

Braney adds that 'the main objective of the event is to create a platform that encourages industry participants to share and transfer technical knowledge and expertise. Technical speakers and presentations are carefully selected in order to provide the maximum value'.

The 10th edition of the conference will also feature the popular Parts Competition: The essential point of the Parts Competition is the design-orientated application of materials and the successful combination of technical innovation and design quality. The participating parts will be on display at the conference and the winners announced during lunch.

All further event details from:
Yetty Pauwels spe.etd@skynet.be
Tel. +32 3 541 77 55

Ceramicx enjoys India's Lively new melodies...

By Dr Gerard McGranaghan

The teams from Ceramicx and Elmec Heaters and Appliances hit it off straight away

On 5th February 2015 Dr Cáthál Wilson and I travelled to Gujarat Province, India to attend Plastindia 2015. This is one of the largest Plastics Exhibitions held in India and occurs normally every three years.

PLASTINDIA

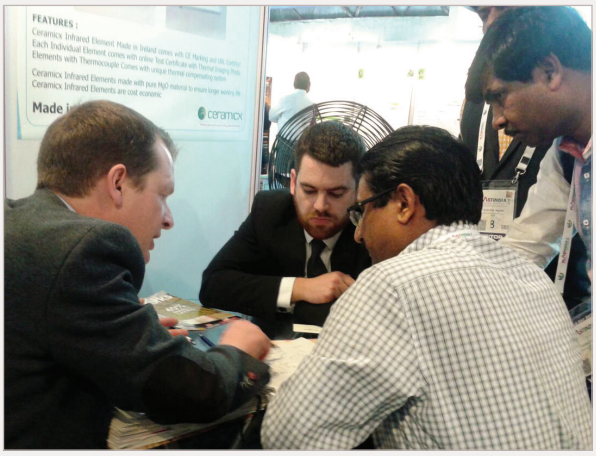
We were met at Ahmedabad Airport by our distributor in India, Mr Sundar Sundarraj. Who conveyed us directly to the newly constructed exhibition centre. This was located in Gandhinagar on the outskirts of Ahmedabad, a modern planned city named in honour of the father of independent India, Mahatma Gandhi. The exhibition centre was brand new and largely seems to have been built as a result of the efforts of India's new Prime Minister Mr Narendra Modi, himself a Gujarati native.

We were based at the Elmec Heaters and Appliances booth, in a busy aisle, in hall 4AD. The crowds were plenty and the stand attracted a constant stream of enquirers both for the Ceramicx products and for Elmec's own range of products. Indeed the stand was so busy that it was difficult to find an occasion to leave – so much so that we never quite managed to take in the entire exhibition properly.

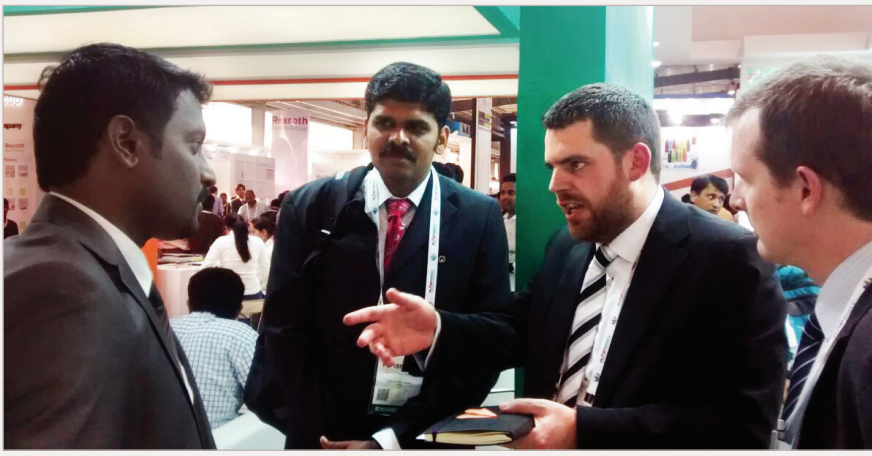
However we did notice on one of our tours that India specialises in many small operators and engineering businesses. Many of these were seen to offer some very unusual uses for our ceramic heaters.

One interesting application was in the transfer-printing of labels onto buckets and other containers. In this process a roll of transfer material bearing the label is brought into contact with the bucket or container, and a heated rubber roller then presses the contact film against the container thus transferring the decal or print. In these machines a ceramic element heated the rubber roller. We noticed these machines ran quite hot and a lot of energy was wasted in heating up the surround shrouding and framework. After striking up discussions with several of the keen engineers, they asked

Anup, Cathál and Sundar at the Newtech Machines Stand.



Speaking with research and development straff from Samsonite



Speaking with Mr. Madineni Swesh from Team Thermoforming

about improved efficiency and cost reduction. Cáthál was quick to point out an obvious improvement in the employment of a simple aluminised steel reflector so as to concentrate infrared energy towards the roller and minimise thermal losses. We also suggested trialing hollow elements instead of plain trough or flat elements, and perhaps using a black emitter. The recommendations were well received and Sundar is now following up with these users.

There were many large stands too. One of the most impressive was that of leading machinery builder Rajoo - who certainly created one of the largest spaces in the Exhibition and also exhibited several full size working machines.

Rajoo is fast becoming a dominant player on the world stage

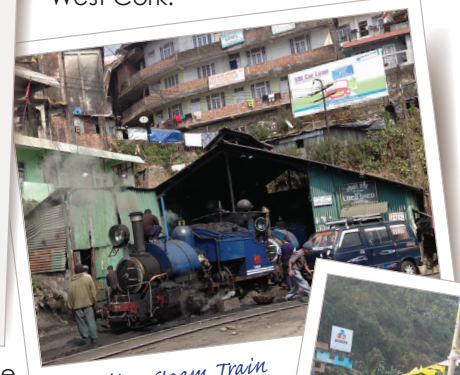
Rajoo are a major and valued customer of Ceramicx. Both Cáthál and I visited the stand and spoke to both management and the engineers about the latest developments at Ceramicx. One of the points of high interest to Rajoo was the free of charge Ceramicx Online Infrared Training Course. This is something we are now following up.

In terms of activities, enquiries and orders, Plastindia 2015 did not disappoint. We made many good contacts with India's thermoformers and also with India's machinery builders. The dynamism in India's economy was obvious within the Gujurat exhibition centre. India counts itself as heading towards the third largest plastics market in the world by the year 2020, the same year that India's per capita GDP is expected to double. Ceramicx fully intends to continue to play our part in that expansion.

Mr Jaideep from Elipe Engineering signs a purchase order on his stand

On a personal note I enjoyed this trip immensely as I had previously spent time as a volunteer in these parts some years back, so the sights sounds and smells were all familiar to me. I particularly enjoyed mealtimes at the exhibition and was pleased to ignore the sandwiches and burgers in favour of fresh bhatura chole, chapatis, samosas and many other Indian staple dishes. Unfortunately I didn't get to sample them all! Our hosts Sundar and his colleague Anurudh also took us to a traditional Gujarati hostelry for a delicious multi-course vegetarian meal served in the traditional style.

After our three very full days, Cáthál and I found ourselves back at Ahmedabad airport where Cáthál departed west, while I stayed in India for another few days and caught up with a good friend in the foothills of the Himalayas before heading back to West Cork.



Darjeeling Steam Train

Shyam on Teesta Bridge

Meeting of the Teesta and Ranguti Rivers

Herschel scores success - both home and away.

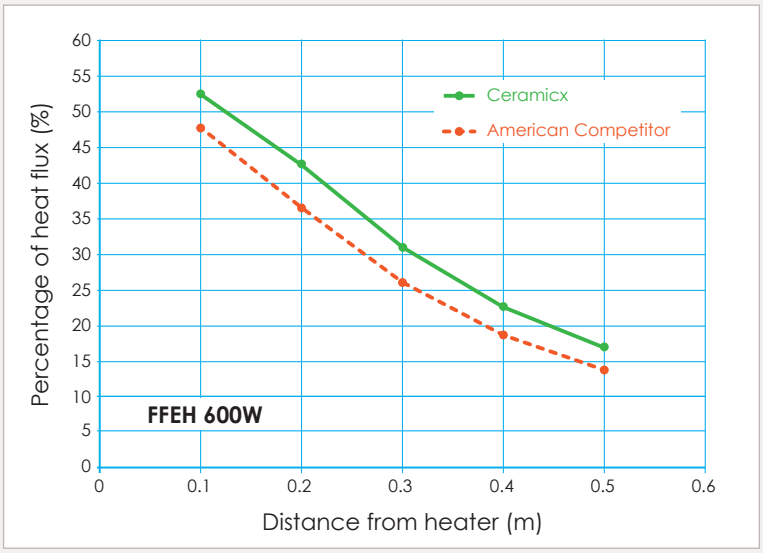
C²I²
Ceramicx Centre for Infrared Innovation

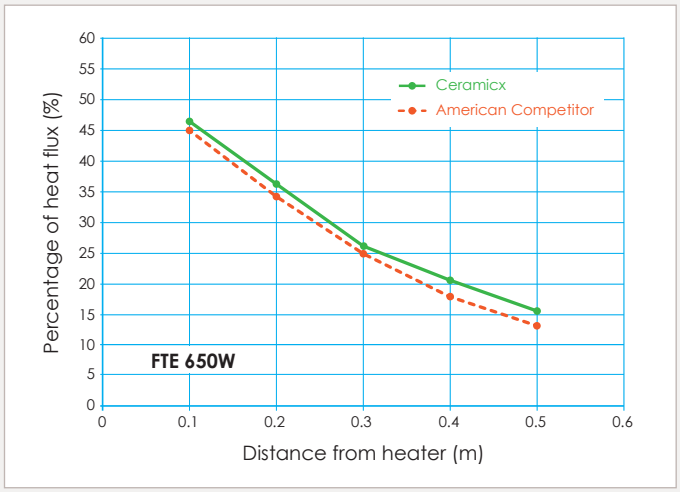
By Dr Gerard McGranaghan

The Herschel has been very busy as usual apart from a hiatus where it travelled to Orlando USA for the triennial NPE exhibition. A considerable number of jobs have now been added to its schedule.

However we are very fortunate in the C²I² (Ceramicx Centre for Infrared Innovation) as we have a new addition to the research team, Dr Zhe Li. Li and I are currently working through the backlog of jobs arising out of our normal test work, as well as enquiries from Plastindia 2015 and the NPE show in the USA. More news on that in the next issue.

Since the last issue of Heat Works, we have used the Herschel to benchmark a number of ceramic elements against those of a large US manufacturer – and also against one Asian and one European competitor.





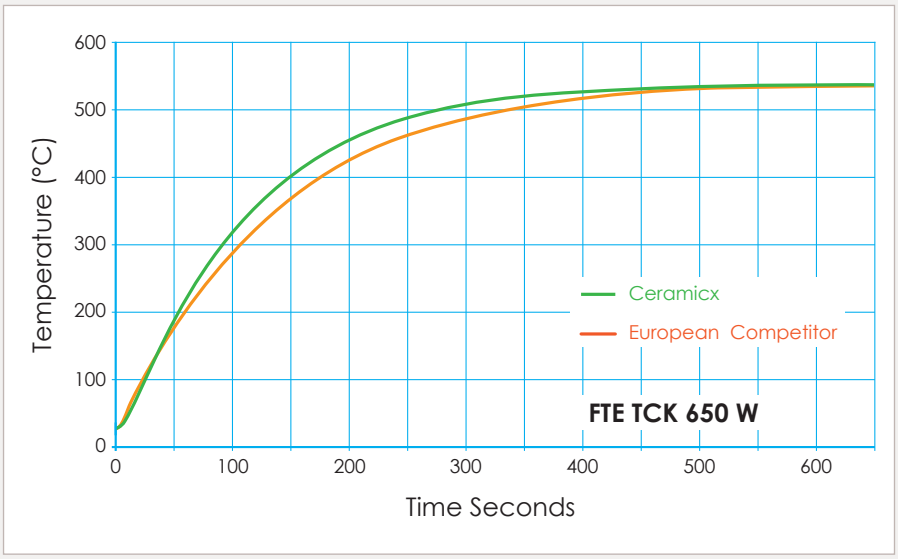
◀ *Figure 1.* ▲ *Figure 2.*

In the case of the US supplier we tested ceramic 'hollows', 'troughs' and also quartz cassettes. We were delighted to find that in all cases the Ceramicx element performed better, sometimes by over 5%. This certainly goes to show that not all ceramic elements are manufactured the same. The largest difference was found in the performance of the hollow element and is shown in Figure 1.

At a distance of 100mm, the FFEH returns almost 53% of input energy giving out 316W in IR energy, whereas the competitor element returns 47.5% of the input emitting 287W. Note that this percentage figure is the amount detected by the Herschel in its fixed measuring grid. Both elements will deliver more output in reality. However the Herschel test is a very exact "back to back" indicator.

Altogether, four types of elements, FFEH600W, FTE650W, FTE1000W and PFQE1000W from Ceramicx and their American competitor equivalents were tested and compared. The performance comparison was made based on the percentage of heat flux obtained at a distance between the element and the sensor, the maximum heat flux achieved and the 3D Heat flux profile. As can be seen from Figure 2, all of the Ceramicx elements performed better than the equivalent leading competitor elements. In particular, the Ceramicx FFEH600W hollow performed significantly better than the competitor's element.

The high thermal performance of Ceramicx elements is easily seen in these back to back comparisons.



Surface temperature measured by type K thermocouple bonded to central rib at the same location on both elements under test

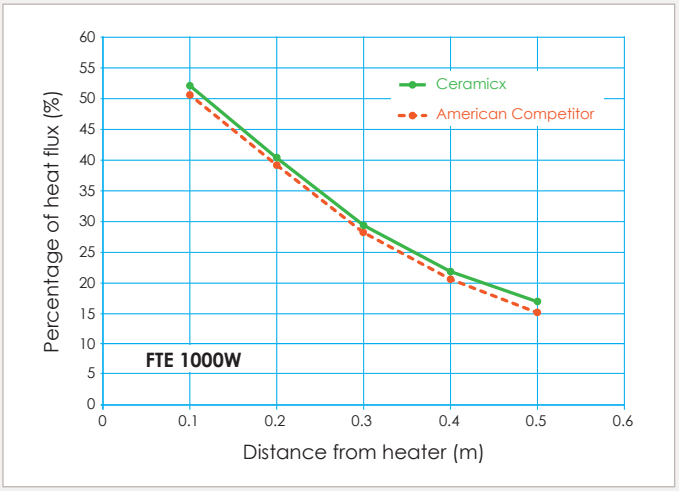
Little things mean a lot

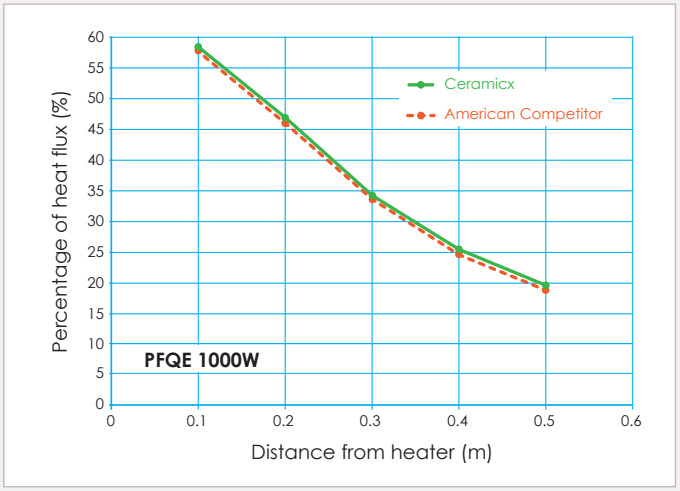
One of the beauties of our Herschel test instrument is that it brings all the varied parts of the global IR heating industry very close to home.

Certain vagaries and myths of heat appliances and IR emitters have been dispelled thanks to the Herschel. The actual IR performance of ceramic elements made in Europe, Asia, America or here at Ceramicx can be tested - one element against another.

Truth to tell, I have been somewhat surprised by the general clumping of results so far. Performance differences are generally small. The Ceramicx element will generally only lead its competitor by some 3-6%.

However, when one considers the multiplier effect of 200 such elements placed in a heater together.....it is then that little things will come to mean a lot. ■





From an IR perspective alone the Ceramicx element could provide a significant cost saving. At an energy rate of $0.10 per kW hour, and an expected lifetime of around 20,000 hours, switching to the Ceramicx FFEH could save up to $58 per element replaced. In a platen with 100 elements, this could mean a saving of $5800 over its operating lifetime.

In relation to other developments, the Herschel is proving very useful in IR "sandwich tests" comparing the behaviour of different materials under Infrared radiation, and also in testing new ceramic emitters formulated with various additives in their base ceramic mix. ■

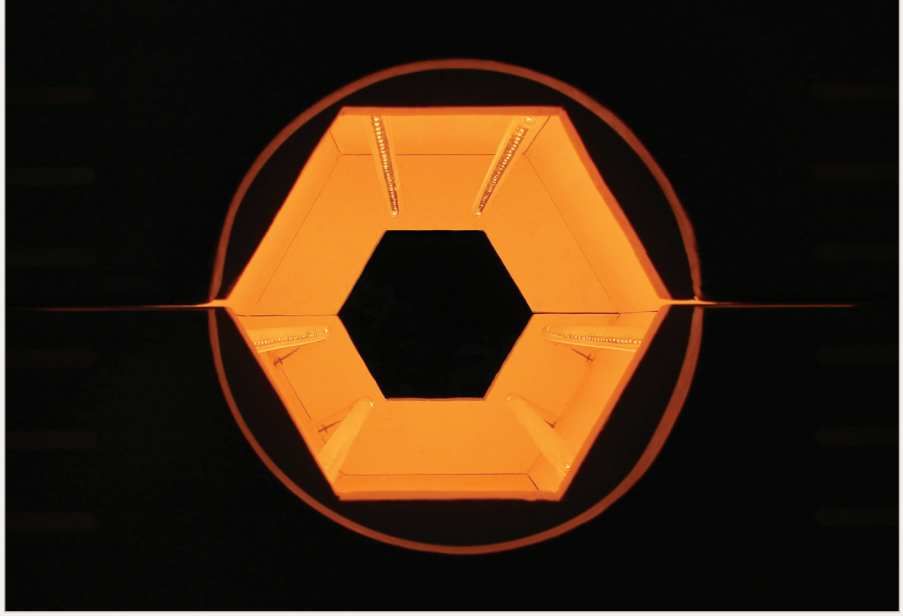
Lastly the C^2I^2 has also been involved in H2020 applications. To date Ceramicx is collaborating with other European SME's, research houses and Universities in several project proposals ranging from nano-materials, factories of the future and in sustainability issues. The scope of the H2020 programme is quite wide, however to date we have been amazed by the level of technology existing within Europe and we are extremely keen to avail of the technological know-how and advances that are possible through participation in these H2020 calls and recently gained success with CerAMfactoring, with more hopefully along in the future. Contact Cáthál Wilson if you are interested in collaborating with us in such a proposal. ■

Dr. Gerard McGranahan

gerard.mcgranahan@ceramicx.com

Happy as a clam

Ceramicx relishes the opportunity to build custom machines for effective IR heat work



The Thermoclam 100 in use, showing the Short Wave Quartz Halogen tubes.

This article examines two ends of the clam shell spectrum available from Ceramicx. The plug and play ThermoClam 100 machine for larger applications and the much smaller but no less effective CQHE element more suited to wires, sleeving or tubing.

The ThermoClam 100 a striking new Clamshell IR heat oven, went to the NPE plastics exhibition in Orlando, Florida in March 2015 and was sold off the stand to a customer in the USA. The oven has the capacity to deal with any application requiring heat to be applied to a circular form with diameter of 100mm or less.' The unit displayed at NPE 2015 was rated at 12.1 kW and was bought for effective heatwork producing synthetic wine corks.

The uses for clam shell ovens are myriad and Ceramicx are happy to service all industries that require machinery or equipment for Infrared heatwork. Ceramicx is not limited to one design, size or orientation however. Ceramicx can engineer the correct clam shell oven for your application or industrial offering.

The Curved Quartz Half Element from Ceramicx provides the backbone of this work. The CQHE range is available in various lengths 100, 250 and 500mm with an average operating life of 20,000 hours depending on conditions. The impetus and primary customer for this component work came out of the long established partnership of Ceramicx with Mecalbi, a leading supplier of wire harness equipment for the automotive industry.

These new heaters from Ceramicx were designed and built for that 'all around' heating performance. 'The target industries,' notes co-designer Tadhg Whooley, 'will typically be sectors involving wire, sleeving or tubing.

Dr Cáthál Wilson notes that 'Ceramicx is delighted to be at the interface of IR heat technology, machine build and machine development. Our beginnings with Mecalbi in their Shrinking Tube Control Systems lines inspired us to go further and cross-fertilise these ideas for other markets and other customers in the form of a full plug and play oven development.'

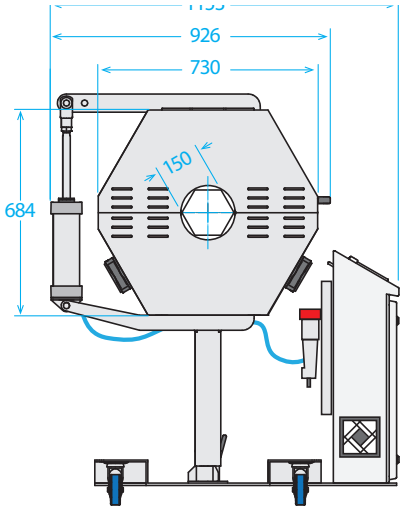
Cáthál Wilson notes that 'Ceramicx IR heat machine-build expertise continues to grow on the back of some very challenging and bespoke orders – from blue chip clients and from household names in sectors as diverse as footwear, electronics, automotive, white goods and telecoms.

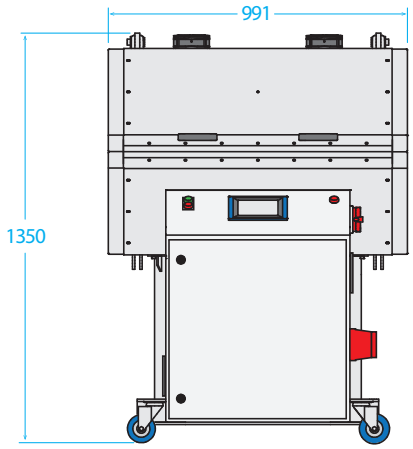
If your company has an idea in development – needing heat work for manufacturing, or needing to create heaters for applications, please don't hesitate to get in touch with us. Let us try and help you find, design and build a solution.'

The Thermoclam 100 and cannon automata touch screen HMI control panel.

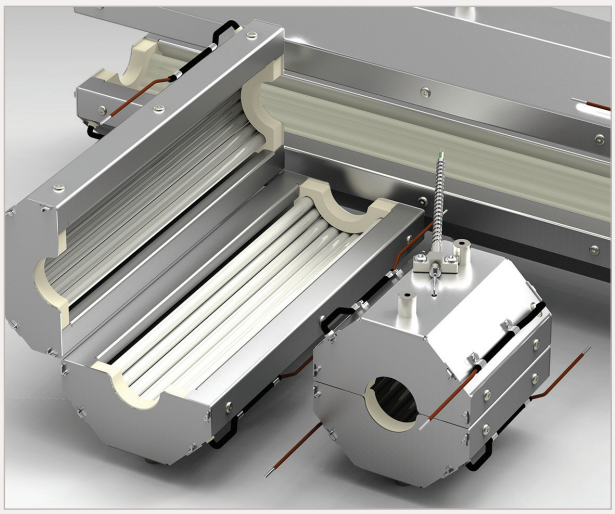
THERMOCLAM 100 12.1kW

Oven type	Combined radiant/convective
Total Power	12.1kW
Power supply	3 x 400V + N + PE
Maximum current/phase	18A
Maximum operating temp	650°C (*1292°F*)
Element type	Short wave quartz halogen.
Total heating power	12kW (*6 x 2kW*)
Total fan power	96W (*6 x 16W*)
Control zones	3
Control type	3 zone open loop (*with optional single zone closed loop*)
Controller	Cannon Automata F3
Control interface	Touchscreen HMI
Power control	Phase angle
Temperature measurement	Single type K thermocouple (*measuring air temperature*)
Opening mechanism	Pneumatically operated
Air supply pressure	6 Bar
Footprint (oven closed)	1153 x 991mm (*45.4" x 39"*)
Footprint (oven open)	1400 x 991mm (*55.1" x 39"*)
Overall height (from floor)	1350mm (*53.1"*)
Oven length (entry to exit)	991mm (*39"*)
Effective heated length	740mm (*29.1"*)
Entry/exit diameter	150mm (*5.9"*)
Maximum product diameter	100mm (*3.9"*)
Approvals	CE





All dimensions mm Tolerances apply



The CQHE range of heaters

CURVED QUARTZ HALF ELEMENTS

The CQHE range of curved quartz heaters have been specifically designed for non-contact heating of round or cylindrically shaped objects with outside diameters of up to 25mm.

The heater construction comprises a series of translucent quartz tubes housed inside a stainless steel outer casing with steatite end plates. Each heater contains 2 stand-offs for mounting. An FeCrAl resistance coil inside the quartz tubes provides the heat source with peak emissions in the medium to long wavelength range. Heaters achieve full operating temperature in 5-6 minutes.

All models are fitted with an internal type K thermocouple for temperature feedback to an appropriate controller/monitor. Standard lead length for power leads is 300mm and 200mm for the thermocouple lead.

See page 20 for product details.

Ceramicx Turkey is launched!

All systems are now go for the new Ceramicx subsidiary in Istanbul, Turkey. Ceramicx Turkey Manager, Hasan Duman, tells the story to HeatWorks in his own words…

Top. Hasan Duman, Manager of Ceramicx in Turkey at the entrance to Ceramicx production facility in Ballydehob.

Below. Frank Wilson, Managing Director, Ceramicx with Hasan Duman, Ceramicx Türkiye Yöneticisi, at the Ceramicx new office in Istanbul.

The story really begins about five years ago just after I was recruited by the Turkish heating company, SER Rezistans. They asked me about how the infrared heating gap could be best filled and in those days they were preparing to make their first visit to K-Show. I researched a number of players and I found Ceramicx. I then told Ser Rezistans 'please visit this company they are very good at infrared business'.

After a four year distribution partnership with SER Rezistans in Turkey, Ceramicx found that, faced with further growth, they had an strategic choice and decision to make – especially since a full focus on the Turkish marketplace was needed. If you look over the past five years at Turkey's economic development you will see that the number of manufacturing companies has grown there by more than 100%. This is exponential growth and I am very proud of the role we played in that and that Ceramicx then offered me the position of managing their new subsidiary in Turkey. I believe that the Turkish market has lots of opportunities for Ceramicx together with growth in the Middle East generally.

Consequently 25 March 2015 was the date of the incorporation of Ceramicx İnfrared Teknolojileri Sanayi ve Ticaret Limited Şirketi in Turkey. We have established an office and distribution centre right in the middle of the Ikitelli industrial zone. This location puts us very close indeed to all potential customers and we feel the heart beat of Turkish manufacturing industry right where we are. It is clear to me right now that Ceramicx will be the biggest infrared heating specialist for the Turkish industrial market.

All through this year and since March 25th we have been extremely busy. Our stocks are now ready with a wide

Ceramicx new location in Istanbul is conveniently located near the airport.

variety of infrared heaters. Our web page **www.ceramicx.com.tr** is active and we have invoiced our first goods to our first customer, Elcon Industrial. Getting orders even before the goods arrive in Turkey shows us great appetite from our Turkish market place and is a very good sign of the rapid market development that awaits Ceramicx.

Plastics thermoforming, of course, is a key market for the IR heat platens produced by Ceramicx. The world's packaging industries are also the number one market for thermoforming technology and thermoformed products.

Accordingly, we plan to exhibit our new company, Ceramicx Turkey, at the Eurasia Packaging Fair (www.packagingfair.com) held in Istanbul between 22-25 October. This is a key event for many buyers in Turkey's economy. At this show we plan to do much more that just exhibit our heaters. We also want to show our customers our abilities in test equipment, applications engineering and IR heating education capability. In this way we shall demonstrate knowledge and thought leadership, showing how our expertise can help customers prosper. The Turkish market is very hungry for such information. The expertise and rapid development is popular with young people who want to learn and achieve within a short time frame.

Another positive outcome from being here in our new location is the opportunity for forming very close relationships with our customers. Listening directly to your customer is very valuable I think. In such a dynamic country the capital Istanbul offers a very fast business metabolism for those who can be here on site and offer the direct approach. This, I believe is what we are establishing here.

One of the chief reasons Ceramicx Turkey is in business is because we want to improve the business of thermoforming and the understanding of the benefit of Infrared heating in the process. In this price-sensitive and competitive environment every manufacturer and thermoformer worldwide should be able to clearly see and understand the large operating costs to be saved through this source of energy.

Right at this moment, infrared heating education in Turkey is a little bit tricky because it is not visible and is sometimes barely understandable for most of users. We therefore want to educate our customers and Turkish manufacturing companies about how to use and control infrared heat. The potential gains for all of us will be massive.

On the marketing side we believe that Infrared Heat solutions must be reachable and understandable for every industrial customer. Lots of users still stick with costly and old conventional heaters because they are not aware of the infrared heating alternatives and are frankly afraid to make the leap in understanding and practice. In the meantime, however, they continue to leak energy and money. We will expand our distribution network and educate it in order to help our customers in IR heat know-how.

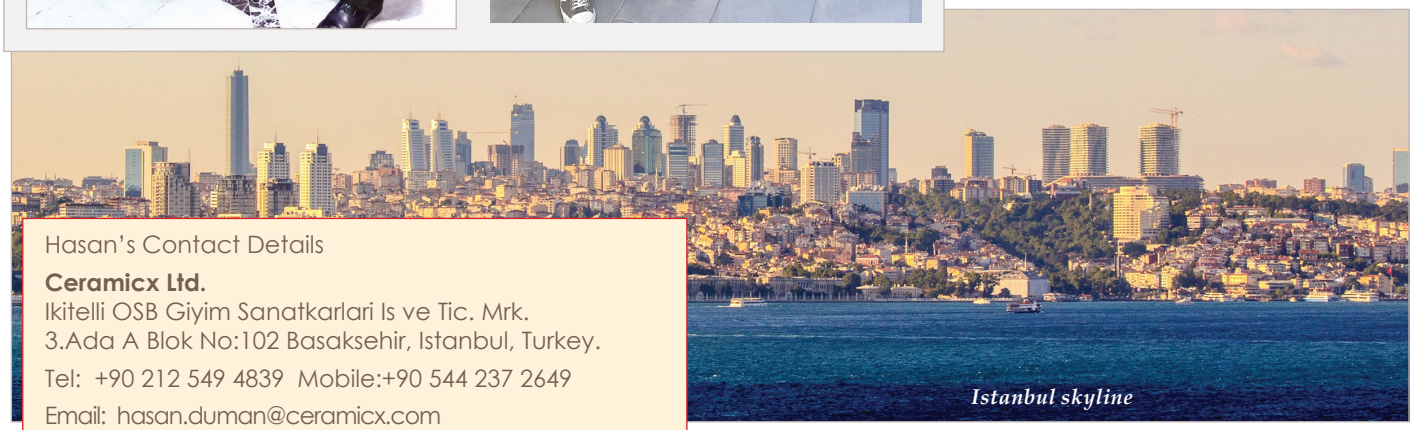
I am extremely optimistic for our future – not least because of our growing economy and also the gregarious and outgoing nature of most Turkish people. We are, in fact, the most intensive Facebook users on the earth today!

And that is why Ceramicx Turkey office already has a page on Facebook. www.facebook.com/ceramicxturkey

We are waiting for your likes and shares and looking forward to your business!

Left. Mr Atakan Yücel, Manager, Elcon Automation. Discussing infrared heating with Frank, and that he wants to develop closer relations with Ceramicx.

Right Mr. Ozan Turan, Sales Representative, Elcon Automation collecting our first order.



Istanbul skyline

Hasan's Contact Details

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JEC puts a Spring in the step…

Springtime in Paris is lovely of itself course, but in the Ceramicx annual calendar the City of Light now comes to mean just one thing – the JEC Europe Composites Show and Conference. And although competitor events are also available, this exhibition still leads the pack, and offers a unique window onto this vibrant and growing sector.

Left. The JEC Europe, Composite Show and Conferences, Pavilion 7, Porte de Versailles, Paris.

Right. Even though he was busy, Frank still found time to admire a part from his favourite Lamborghini.

"Our visit to JEC 2015 was therefore very instructive in creating an inventory of future composites opportunities for Ceramicx"

Close readers of our magazine and website will know that Ceramicx is increasingly developing opportunities and heat work solutions for composites, some of which we will hope to report on in the coming months. Indeed it seems to be about time that the processing and production side of the industry caught up with the sophisticated nature of the products; in transportation, construction and other high-value applications.

I guess that there are a host of reasons why methods and processes stay unchanged. Suffice to say that, as the global village gets even smaller, change is unavoidable. It is long known, for example, that the metals industries have always grasped their opportunities for advancement by using the heat process. It is now high time that other industries – including composites – realize that heatwork offers at least as many opportunities in order to improve products and processes.

I guess that 'the unknown' always represents a drag factor in industry trying new things. However, the prizes for breakthrough technologies are high in this area.

One driving force behind the modern composites industry is that the blend of resin matrix and its reinforcement (carbon or glass) can be adapted to suit any number of client needs – such as the introduction of UV stabilizers or flame retarded materials. And once you introduce IR heat and curing into the mix the manufacturing mix has even more options.

Worldwide, the composites is on a roll and rightly so. The world needs that special combination of strength, stiffness and light-weighting in order to save energy and cost. Some types of carbon reinforced materials, for example, can give five times the strength of steel – at only one fifth of the weight.

Our visit to JEC 2015 was therefore very instructive in creating an inventory of future composites opportunities for Ceramicx. We know we are increasingly in a position to provide the much-needed IR heat work that will bring innovation to the sector and therefore significantly enhance the productivity of the composites industry as a whole.

This will be needed. Make no mistake, we are set to see a further and radical phase of Industrial Revolution within the next five years and composites and resin technology will be key. The 4th wave, 3D printing, Industry 4.0 protocols, the Internet of Things – all of these phenomena will further collapse boundaries between materials and processes and will further shake up the means of production. And infrared heat technology will need to be in the mix as never before.


Aeronautics


Automotive

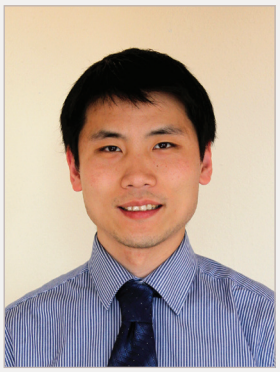

Sports & Leisure


Energy


Construction


Marine


Transport



Dr. Zhe Li

Ceramicx boosts the team for China !

Ceramicx travels to Chinaplas 2015 this year with the added benefit of full time in-house Chinese expertise at the factory in Ballydehob, Ireland. It speaks volumes that Ceramicx has opened up a significant part of its growing technical development to the talents of Dr Zhe Li. HeatWorks magazine is pleased to offer the first interview with this ambitious young man.

HW. Welcome aboard Li!

Li. Thank you!

Tell us a little bit about yourself - your background and training - and how you have come to be at Ceramicx?

I achieved a First-Class Honour Degree in Mechanical Engineering in Dublin Institute of Technology, Ireland. Heat transfer, Thermodynamics, Fluid dynamics, Control engineering, Electrical and electronic engineering were the main subjects I studied along with Mathematics, and Energy systems. I then received the IRCSET scholarship for a PhD in Optimised Integration of Renewable and Sustainable Energy Systems. Complicate computing simulations were performed using advanced software packages HOMER and TRNSYS. A comprehensive optimisation method was developed based on the life-cycle cost of the system, the cost of energy supply and realistic energy demands.

I also worked as an assistant lecturer in Fluid dynamics and Heat Transfer at DIT.

What then brought you to West Cork?

I was extremely interested to work with an energy-related company. Ceramicx offered me the opportunity to explore the infrared energy sources for heating purposes. After carrying out a substantial research, I felt that there is a huge potential in infrared energy application and development. We also know that, currently at least, infrared energy is also a relatively mysterious energy source.

In your opinion what are the main opportunities for progress for Ceramicx and Infrared heat work in China?

I understand that we are in a very strong position in providing our Ceramic and Quartz heater elements to the companies who are in the thermoforming industry in China. Our heaters are very reliable and perform in their prime condition consistently. At the same time, we continuously look for areas in which we can improve our elements and ensure our elements are the frontrunner in the infrared heating industry.

I do think we have a great opportunity to develop custom-made oven and heating systems to specific designs which can then fulfil the clients' special requirement. We have a very strong technical team that are very expert in finding engineering solutions for our clients.

Pollution is also a major issue in China nowadays, green buildings would be one of the most significant aspects to be considered and developed over the next few decades – the whole Chinese industrial world included. In this respect the infrared heaters for domestic use are environmentally-friendly and can be extremely applicable for domestic householders for heating purposes.

We guess that you are already playing a major role in boosting Ceramicx communications with China?

Yes. I have directly translated technical documents into Chinese. I would certainly hope these translated articles can help readers and potential Chinese clients get to know our company, our unique products, unique machinery equipment and the most advanced testing equipment.

I have also had the opportunity to test some of our products and give feedback directly to our Chinese distributors. This can introduce a new approach to our work in China. If any issues should appear, I can pass these on to our technical team. The issues will then be dealt professionally and promptly by our Ceramicx experts.

Being bilingual in Chinese and English gives us direct advantages in our communications with Chinese clients. Their information, requirements, and enquires can be directly and precisely translated into English, and passed on to our technical team. Our response can be also translated into Chinese and pass on to our potential clients. The communication process can be efficient and effective.

All of this work and interaction must present quite a few challenges!?

My colleagues here at Ceramicx are incredibly nice, from the Office, to the Engineering department, to Production department and so on. Everybody has no hesitation in helping me whenever I need it. I will specially mention my supervisor Dr Gerard McGranaghan, as I have learnt incredible amount of theoretical knowledge and practical experience from him even in the short period of time since I started here in Ceramicx.

This is absolutely a huge learning curve for me, practical experience in particular. The studies that I have done in the college were all computer-orientated. I am learning how to practically solve problems using hand-tools and machinery.

I have been occupied with testing the existing products and conducting feasibility studies for potential energy solutions and systems. For example, I helped create a complete thermal map of existing heaters in order to comprehensively understand the performance in service. This allowed us to determine the appropriate operational limits of the product. I have also performed a practical heating tests on composite structures for a client based in the aviation industry.

You seem to have a fairly broad brief that includes both R&D and engineering/ machining.

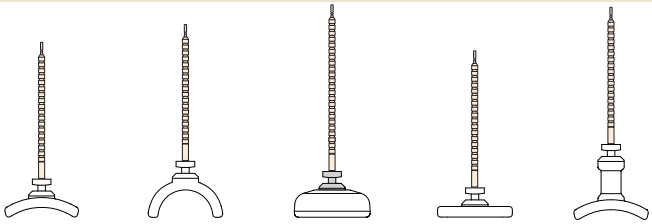
Yes. The variety of this work is very challenging but also very interesting and exciting. In the R&D department, I am envisaging different types of work; testing the existing engineering products, for example, to see where the improvements can be made. Also, working with potential advanced ceramic elements, and constantly thinking of where improvements can be made - based on the special know-how from our Herschel machine and its realistic test results.

There is a vast array of different machines and equipment available to me in the Ceramicx factory. It could take several months even years to thoroughly get to know it all. However, all the opportunities are there - CNC know-how; cutting, punching, pressing etc. This is absolutely precious knowledge which I would not expect to obtain in most other companies.

Li, we wish you well in all your tasks – and look forward to catching up again in a few months time.

Thank you!

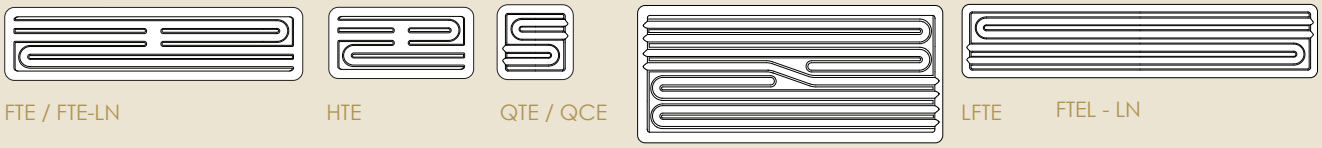
CERAMIC ELEMENTS



Trough Curved Hollow Flat Pillared Trough

CERAMIC TROUGH ELEMENTS

www.ceramicx.com/trough-elements/

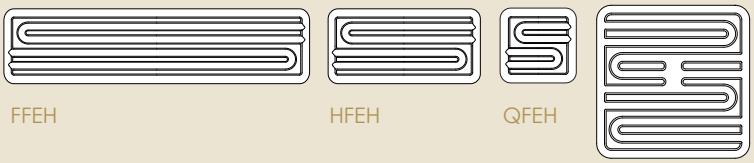


FTE / FTE-LN HTE QTE / QCE LFTE FTEL - LN

FTE Full Trough Element	245 x 60 mm	150W 250W 300W 400W 500W 650W 750W 800W 1000W
HTE Half Trough Element	122 x 60 mm	125W 150W 200W 250W 325W 400W 500W
QTE Quarter Trough Element	60 x 60 mm	125W 250W
QCE Quarter Curved Element	60 x 60 mm	150W 250W
LFTE Large Full Trough Element	245 x 110 mm	1000W 1500W
FTE-LN Full Trough Element -Long Neck	245 x 60 mm	250W 400W 500W 650W
FTEL-LN Full Trough Element Long - Long Neck	285 x 60 mm	1000W

CERAMIC HOLLOW ELEMENTS

www.ceramicx.com/hollow-elements/

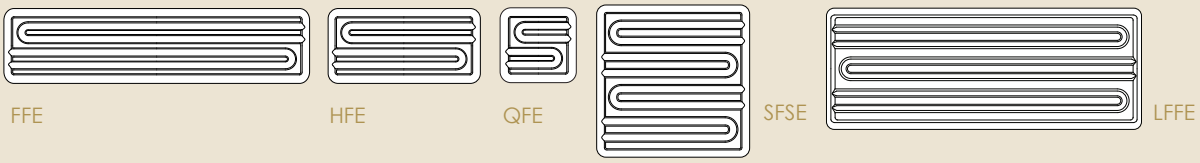


FFEH HFEH QFEH SFEH

FFEH Full Flat Element Hollow	245 x 60 mm	250W 400W 500W 600W 800W
HFEH Half Flat Element Hollow	122 x 60 mm	125W 200W 250W 300W 400W
QFEH Quarter Flat Element Hollow	60 x 60 mm	125W 200W
SFEH Square Flat Element Hollow	122 x 122 mm	250W 400W 500W 600W 800W

CERAMIC FLAT ELEMENTS

www.ceramicx.com/flat-elements/

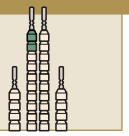


FFE HFE QFE SFSE LFFE

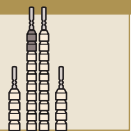
FFE Full Flat Element	245 x 60 mm	150W 250W 300W 400W 500W 650W 750W 1000W
HFE Half Flat Element	122 x 60 mm	125W 150W 200W 250W 325W 500W
QFE Quarter Flat Element	60 x 60 mm	125W 250W
SFSE Square Flat Solid Element	122 x 122 mm	150W 250W 300W 400W 500W 650W 750W
LFFE Large Full Flat Element	245 x 95 mm	150W 750W 1400W

THERMOCOUPLES

www.ceramicx.com/thermocouples/



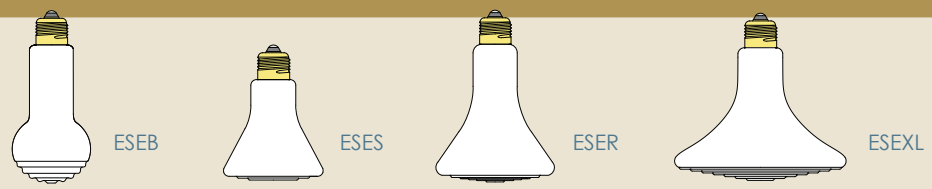
Thermocouple Type K
+ Nickel Chromium
- Nickel Aluminium



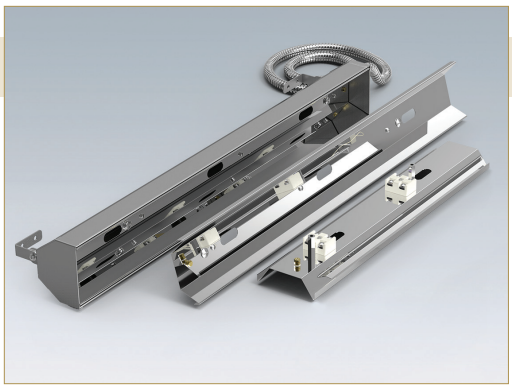
Thermocouple Type J
+ Iron
- Copper Nickel

EDISON SCREW ELEMENTS

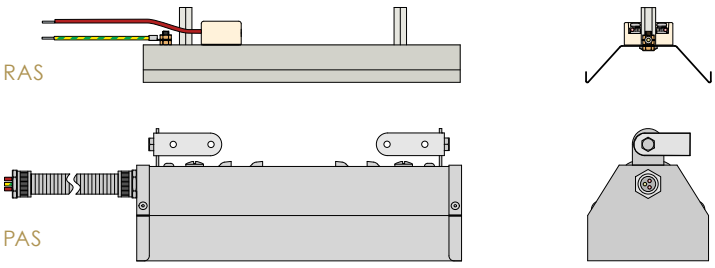
www.ceramicx.com/ceramic-bulbs/



ESEB	Edison Screw Element Ball	Ø65 x 140 mm	60W 100W
ESES	Edison Screw Element Small	Ø80 x 110 mm	100W
ESER	Edison Screw Element Regular	Ø95 x 140 mm	150W 250W
ESEXL	Edison Screw Element Extra Large	Ø140 x 137 mm	400W



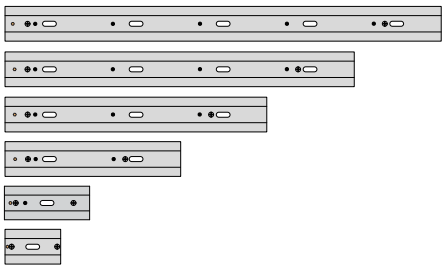
REFLECTORS / PROJECTORS



REFLECTORS

www.ceramicx.com/reflectors/

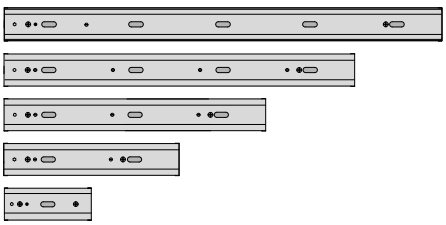
RAS 5	Reflector Aluminised Steel 5	1,254 x 100 mm
RAS 4	Reflector Aluminised Steel 4	1,004 x 100 mm
RAS 3	Reflector Aluminised Steel 3	754 x 100 mm
RAS 2	Reflector Aluminised Steel 2	504 x 100 mm
RAS 1	Reflector Aluminised Steel 1	254 x 100 mm
RAS 0.5	Reflector Aluminised Steel 0.5	160 x 100 mm



PROJECTORS

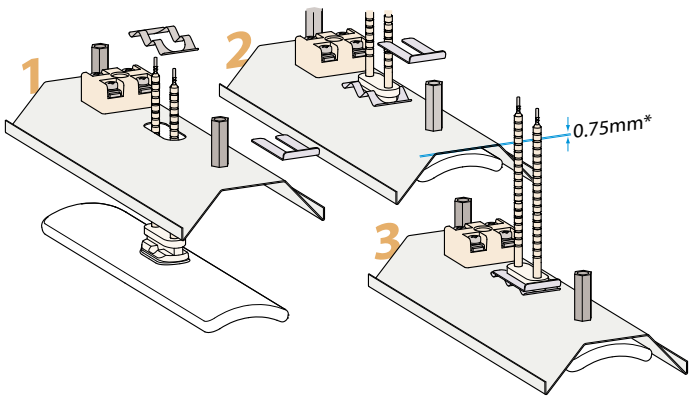
www.ceramicx.com/projectors/

PAS 5	Projector Aluminised Steel 5	1,258 x 94 mm
PAS 4	Projector Aluminised Steel 4	1,008 x 94 mm
PAS 3	Projector Aluminised Steel 3	758 x 94 mm
PAS 2	Projector Aluminised Steel 2	508 x 94 mm
PAS 1	Projector Aluminised Steel 1	258 x 94 mm



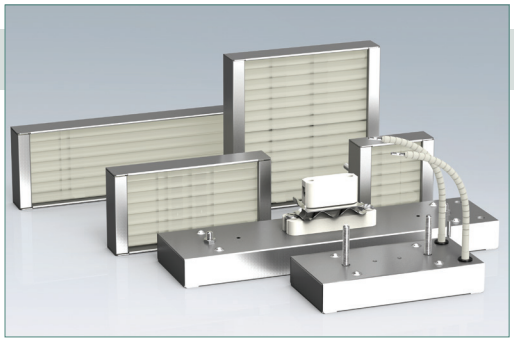
INSTALLATION OF PILLARED ELEMENTS

www.ceramicx.com/ceramic-bulbs/

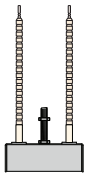


Recommended reflector thickness 0.75 - 0.9mm
(*minimum/maximum thickness 0.5 - 1.5 mm*)

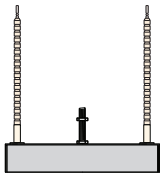
Slot hole size 42 x 15 mm



QUARTZ ELEMENTS



Standard

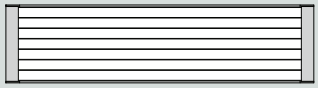


Square

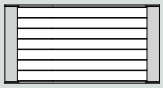
Pillar

STANDARD QUARTZ ELEMENTS

www.ceramicx.com/standard-quartz-element/

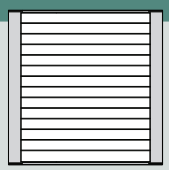


FQE



HQE

QQE

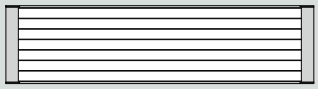


SQE

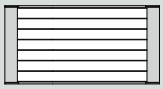
FQE Full Quartz Elements	247 x 62.5 mm	150W 250W 400W 500W 650W 750W 1,000W
HQE Half Quartz Element	124 x 62.5 mm	150W 250W 400W 500W
QQE Quarter Quartz Elements	62.5 x 62.5 mm	150W 250W
SQE Square Quartz Element	124 x 124 mm	150W 650W 1,000W

PILLARED QUARTZ ELEMENTS

www.ceramicx.com/pillared-quartz-elements/



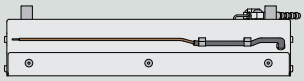
PFQE

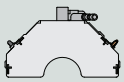


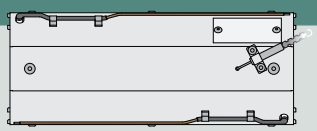
PHQE

PFQE Pillared Full Quartz Elements	247 x 62.5 mm	150W 250W 400W 500W 650W 750W 1,000W
PHQE Pillared Half Quartz Element	124 x 62.5 mm	150W 250W 400W 500W

CURVED QUARTZ HALF ELEMENTS





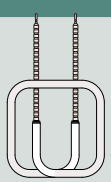


CQHE

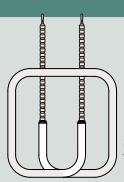
CQHE 500	Curved Quartz Half Element 500mm	500 x 100 x 62 mm (*inc stand off's*)	Wattage 1,250W
CQHE 250	Curved Quartz Half Element 250mm	250 x 100 x 62 mm (*inc stand off's*)	Wattage 625W
CQHE 100	Curved Quartz Half Element 100mm	100 x 100 x 62 mm (*inc stand off's*)	Wattage 250W

SQUARE QUARTZ TUBE ELEMENTS

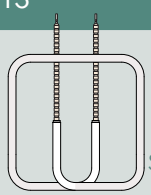
www.ceramicx.com/quartz-square-tube-elements/



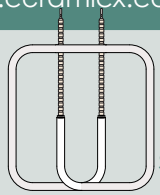
STQH 100



STQH 112

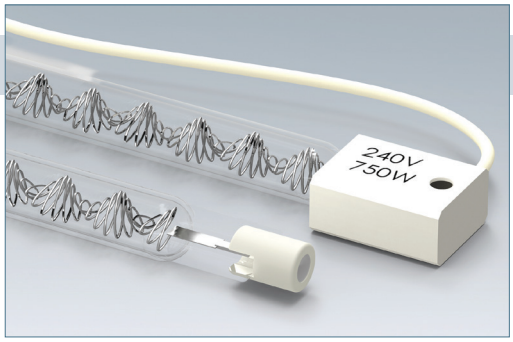


STQH 140

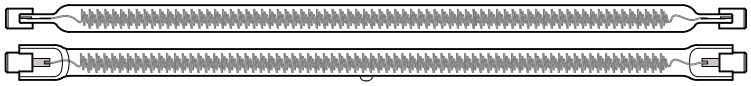


STQH 150

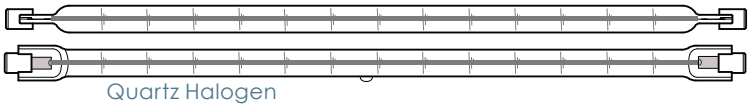
STQH100 Square Tube Quartz Heater	100 x 100 mm	150W - 400W
STQH112 Square Tube Quartz Heater	112 x 112 mm	150W - 400W
STQH140 Square Tube Quartz Heater	140 x 140 mm	150W - 650W
STQH150 Square Tube Quartz Heater	150 x 150 mm	150W - 650W



QUARTZ TUNGSTEN / HALOGEN



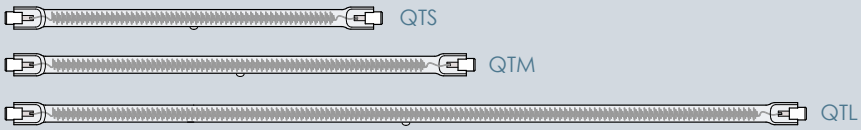
Quartz Tungsten



Quartz Halogen

QUARTZ TUNGSTEN TUBES

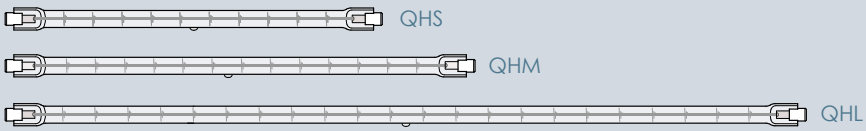
www.ceramicx.com/fast-medium-wave-emitters1/



QTS Quartz Tungsten Short	Ø10 x 244 mm	750W
QTM Quartz Tungsten Medium	Ø10 x 277 mm	1000W
QTL Quartz Tungsten Long	Ø10 x 473 mm	1500W 1750W 2000W

QUARTZ HALOGEN TUBES

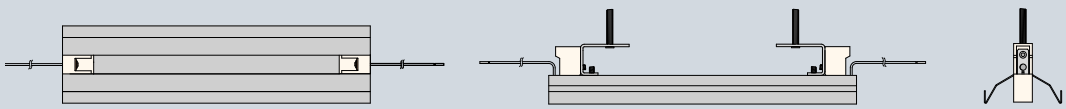
www.ceramicx.com/short-wave-emitters/



QHS Quartz Halogen Short	Ø10 x 244 mm	750W
QHM Quartz Halogen Medium	Ø10 x 277 mm	1000W
QHL Quartz Halogen Long	Ø10 x 473 mm	1500W 1750W 2000W

QUARTZ TUNGSTEN/HALOGEN REFLECTORS

www.ceramicx.com/reflectors/

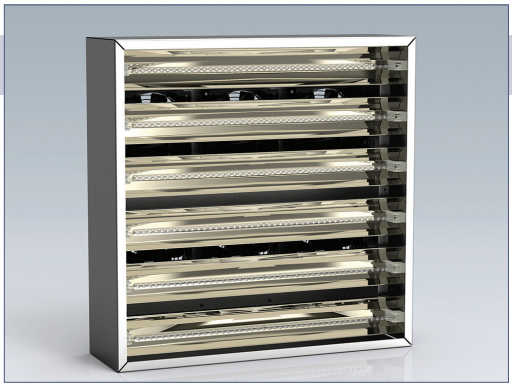


QTSR Quartz Tungsten/Halogen Short Reflector	250 x 62 mm	*(Suitable for QTS/QHS, Tubes supplied separately)*
QTMR Quartz Tungsten/Halogen Medium Reflector	300 x 62 mm	*(Suitable for QTM/QHM, Tubes supplied separately)*
QTLR Quartz Tungsten/Halogen Long Reflector	497 x 62 mm	*(Suitable for QTL/QHL, Tubes supplied separately)*

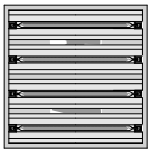
SPECIAL TUBE ORDERS

www.ceramicx.com/special-tube-orders/

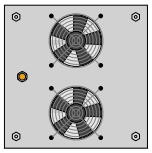
Ceramicx can supply other types of Halogen/ Tungsten elements, of varying design, dimensions, length, coatings, terminations and electrical rating.

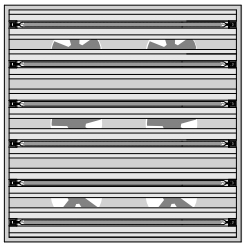


FAST IR

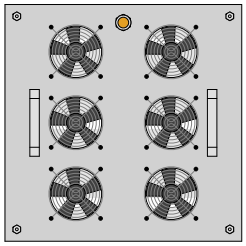


FastIR 305





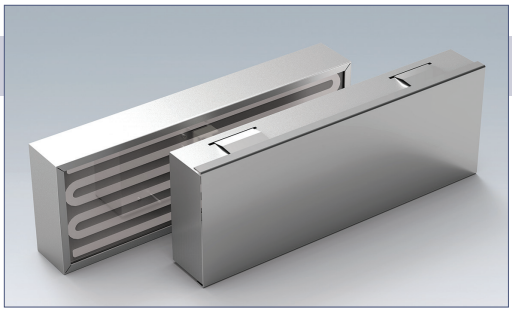
FastIR 500



FAST IR www.ceramicx.com/fastir-systems/

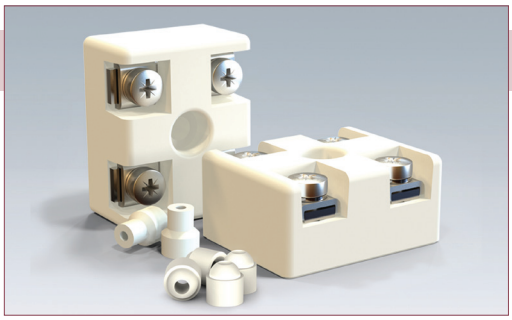
FastIR 305 Suitable for 1000W Quartz Tungsten/Halogen Heaters QTM/QTH (tubes sold separately)
305 x 305 x 150 mm **4 Tube** 4kW **5 Tube** 5kW

FastIR 500 Suitable for 2000W Quartz Tungsten/Halogen Heaters QTL/QTL (tubes sold separately)
500 x 500 x 150 mm **6 Tube** 12kW **7 Tube** 14kW



CUSTOM PANEL HEATERS

Custom Panel Heaters.
Available with anodised aluminium or ceramic glass face.
Range of Wattages and Voltages.
Multi-zone options with removable miniature thermocouple plug.



STEATITE

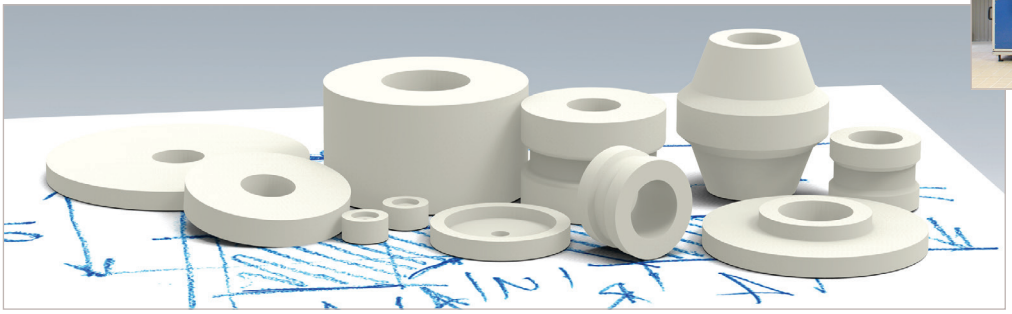
Steatite ceramic dust has proven itself to be the material-of-choice for the manufacture of electrical insulators. It has good mechanical strength with good dielectric properties and a high temperature resistivity of up to 1000°C.

Steatite is most commonly used in applications where a high temperature electrical insulator is required. It operates very well in cold switching applications and is also an excellent high voltage insulator.

SPECIALISED STEATITE COMPONENTS www.ceramicx.com/specialised-dust-press-components/

Ceramicx now offers the manufacture of specialist Steatite ceramic dust press components to companies that need quality insulators as part of their product manufacturing. For over twenty years Ceramicx has been shipping components and products to manufacturers in over 65 countries worldwide. Service, confidentiality and world class quality is offered, together with a unique know-how in developing and designing product solutions in Steatite Ceramic where needed.

Ceramicx manufactures dust press components on Dorst 20 and 15 tonne presses (*shown above*) and a Dorst 6 tonne press

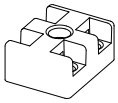


A selection of parts that can be purchased

STANDARD STEATITE COMPONENTS

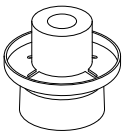
www.ceramicx.com/steatite-press-components/

2P Ceramic Terminal Block



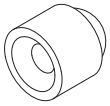
10 Pack
no Fittings
40 x 32 x 20 mm

Ceramic Grommet and Starlock Fastener Set



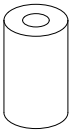
100 sets per pack - used as an Insulator in sheet metal with 6mm hole
21 x 18 x 15 mm

Ceramic Beads



per kg
Loose or Strung
Ø5 x 6 mm
4.5 mm to shoulder

Ceramic Tubes



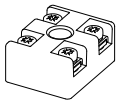
Ø5 x 11 mm

ACCESSORIES

HIGH TEMPERATURE CONNECTORS

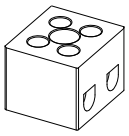
www.ceramicx.com/high-temperature-connectors/

2P Ceramic Terminal Block



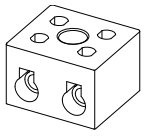
10 Pack
Stainless Steel Fittings
40 x 32 x 20 mm

2P Mini Ceramic Terminal Block



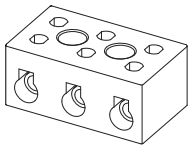
10 Pack
Nickel Galvanised Brass Inserts, Zinc-plated Steel Screws
21 x 18 x 15 mm

TB2 Ceramic Terminal Block



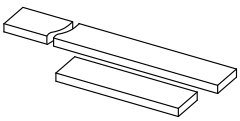
(closed) 10 Pack
Plated Brass Inserts, Nickel Galvanised Screws
34 x 30 x 22 mm

TB3 Ceramic Terminal Block



(closed) 10 Pack
Plated Brass Inserts, Nickel Galvanised Screws
51 x 30 x 22mm.

Stainless Steel Buzz Bar

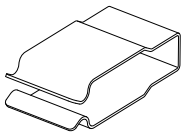


used with the ceramic terminal block to produce a flexible power distribution system
8 x 2 x 1000 mm

MOUNTING COMPONENTS

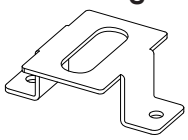
www.ceramicx.com/mounting-components/

Flat Ceramic Base Holder



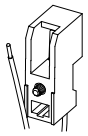
For Halogen/Tungsten heaters fitted with flat ceramic base

Mounting Bracket



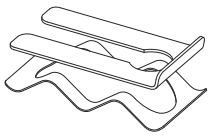
For ceramic elements
72 x 57 x 28 mm.
slot 42 x 15 mm

R7s Ceramic Holder



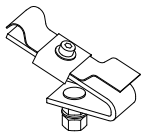
For Standard Quartz Tungsten/Halogen Tubes

Steel Wave and Spring set



Used in the mounting and installation of all Ceramic elements and the Pillared Quartz elements

STQH Holder

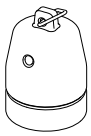


For all types of square tube Quartz Heaters (STQH)

E27 ACCESSORIES

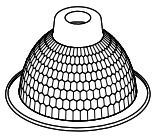
www.ceramicx.com/bulb-reflector-and-e27-holder/

E27 Edison Bulb Holder



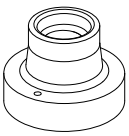
High temperature porcelain holder used with ceramic IR bulbs
Ø53 x 74 mm

Ceramic Bulb Reflector



Highly polished reflector for use with ceramic IR bulbs
Ø220 x 110 mm

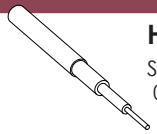
E27 Bulb Holder with Base



High temperature porcelain holder used with ceramic IR bulbs
Ø78 x 60 mm

HIGH TEMPERATURE NPC CABLE

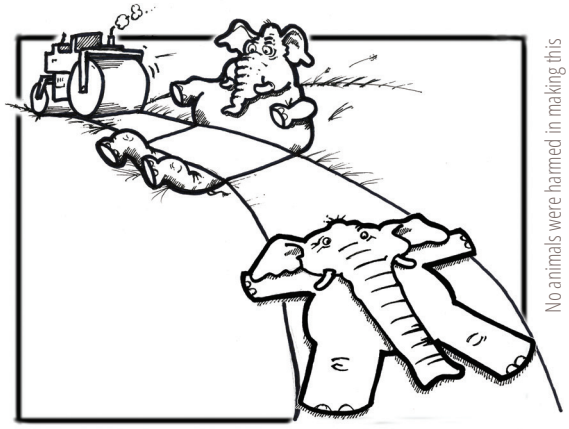
www.ceramicx.com/high-temperature-npc-cable/



High Temperature NPC Cable

Single Conductor Cable, Flexible Nickel Plated Copper Core, Glass Fibre Insulation, Silicone Coated Fibreglass Braid
0.75 mm, 1.5mm, 2.5mm, 4.0mm

Ceramicx/news.....



No animals were harmed in making this cartoon. Although, one had to be erased and redrawn

UNFORTUNATELY THE ORDER HAD BEEN STEAM-ROLLED THROUGH PRODUCTION BEFORE IT BECAME OBVIOUS TO AMANDA THAT RENATA HAD MISHEARD HER URGENT REQUEST FOR TWO CERAMIC ELEMENTS. CAN YOU WORK OUT FROM THE ABOVE DRAWING WHAT TWO TYPES OF CERAMIC ELEMENT SHE SHOULD OF PRODUCED?

Infrared International Valentines Day 1990

Cover

The cover shows the recent developments in our ceramic element range, the rectangular section running across the ribs brings the location of the thermocouple closer to the surface of the element, while maintaining its interaction with the resistance coil. For full details of the thermocouple see Heatworks 13

plast 2015

Plast 2015, Milan, The largest exhibition this year, in Europe, for the plastics and rubber industries, closed on Saturday 9th May. Frank Wilsomn Managing Director and Gráinne Wilson Director of Ceramicx were in attendence with positive results.

Talk to us today about your infrared heating needs.

ceramicx
INFRARED FOR INDUSTRY

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Exhibitions

- **Chinaplas 2015** *The 29th International Exhibition on Plastics and Rubber Industries.*
  China Import & Export Fair Complex, Pazhou, Guangzhou, PR China. 20-23 May, 2015.
- **JEC Americas 2015** *Composites Show and Conferences.*
  George R. Brown Conference Center, Houston, Texas, U.S.A. 2-4 June, 2015.
- **Fakuma 2015** *The 24th International Trade Fair for Plastics Processing.*
  Messe Friedrichshafen, Friedrichshafen, Germany. 13 -17 September, 2015.
- **Eurasia 2015** *The 21st International Packaging Fair.*
  Tüyap Fair, Convention and Congress Centre, Istanbul. 22-25 October, 2015.

- Exhibiting
- Distributor exhibiting
- Visiting

Prof. Mark Ferguson (SFI), Prof. Reimund Neugeburger (President, Fraunhofer) and Prof. Gerry Byrne (UCD)

Fraunhofer President Addresses Forum on Challenges and Impact of Industry 4.0 on Manufacturing in Europe Held at University College Dublin.

Dublin, Ireland, 11 May 2015 Professor Reimund Neugebauer, President of the Fraunhofer Institute, Europe's largest applied research organisation with a staff of 24,000, has addressed an industry forum held at University College Dublin (UCD).

The forum, held at NovaUCD, was entitled Challenges and Impact of Industry 4.0 on Next Generation Manufacturing in Europe, and to attend was by invitation to senior industry leaders, representatives from Science Foundation Ireland, Enterprise Ireland and UCD researchers.

The 4th Industrial Revolution will be based on Smart Factories in which the individual manufacturing operations are directly linked to each other through the web (the Internet of Things), as well as the use of data analytics and robotics to help produce more efficient processes.

Dr. Cáthál Wilson Director, Ceramicx attended to learn more of the revolution in which Ceramicx is actively participating.

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Operations Manager

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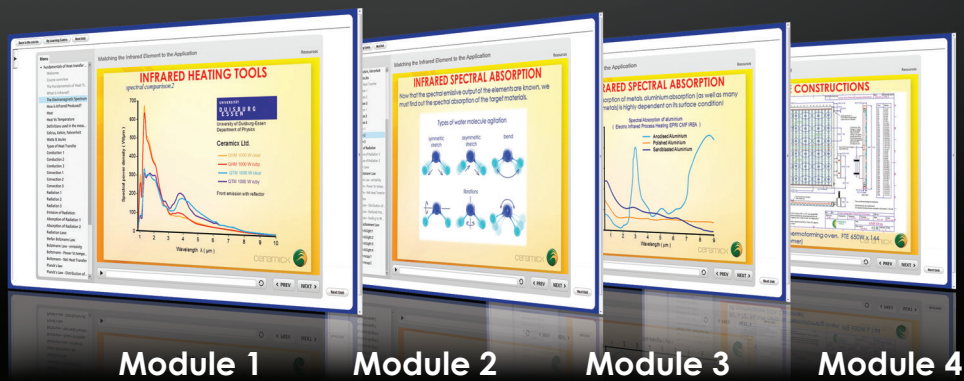
ONLINE INFRARED TR@INING COURSE

The course is divided into four modules that set out the basics of Infrared from an Industry perspective.

Each module will take 60-90 minutes to complete and finishes with a short online test. The modules can be taken online, or taught as part of a classroom course.

Further information can be found inside on pages 8 and 9.



Module 1 Fundamentals of Heat Transfer and Infrared

Module 2 Infrared Energy in Process Heat

Module 3 Matching the Infrared Element to the Application

Module 4 Control of Infrared

The course is now available online at

www.ceramicx.com/applications-training/