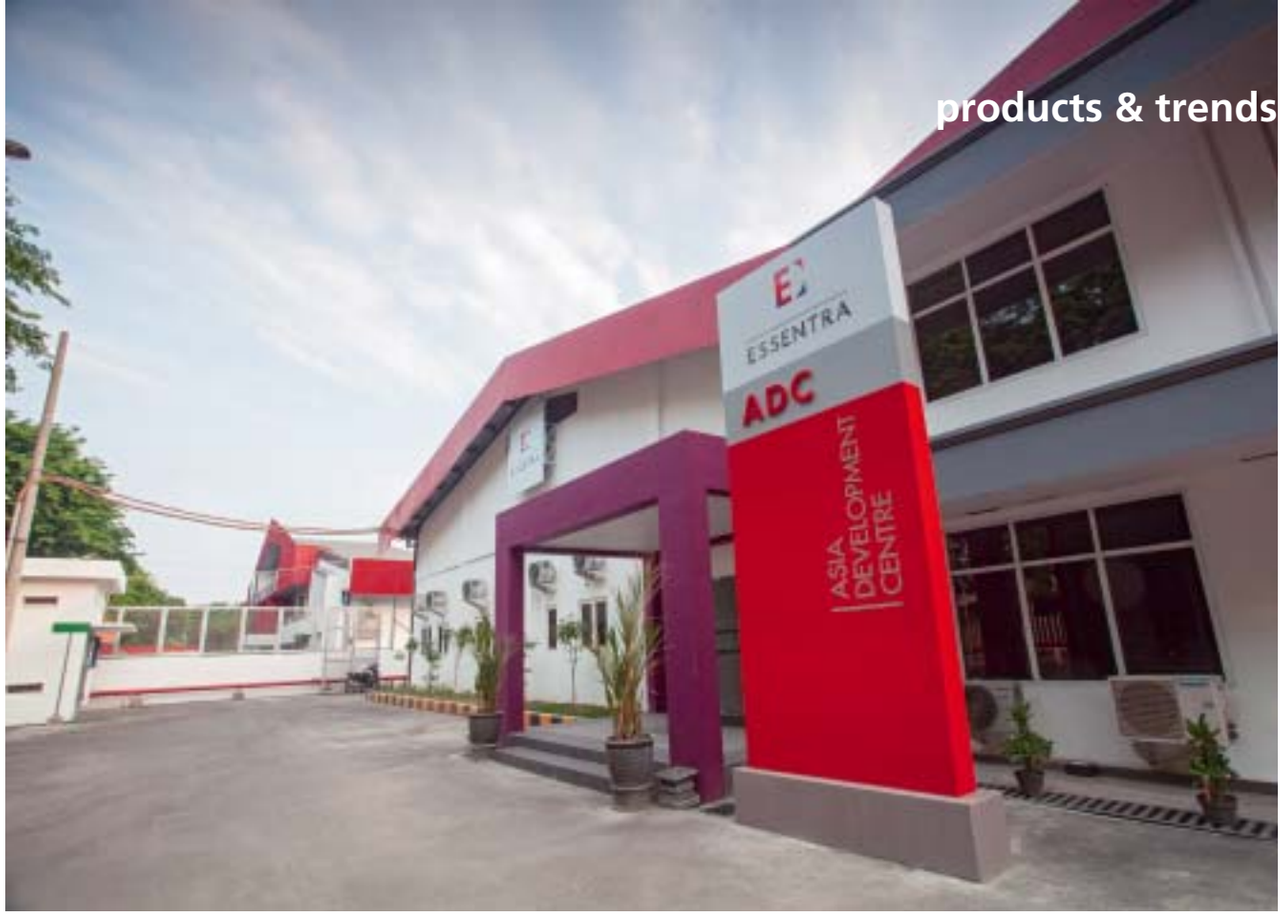

Photos: Essentra

Essentra's new Asia Development Centre in Surabaya, Indonesia

Development at the hub

PT Essentra, a subsidiary of Essentra plc., sits at the heart of Indonesia, the world's fifth largest cigarette market. The facility is well connected to the South East Asian and Chinese markets and has impressive manufacturing capabilities. It's also a hub for developing new filter products.

PT Essentra is located in Surabaya, East Java – the City of Heroes, as it's locally known. Surabaya is situated at the centre of the densely populated Indonesian archipelago and also serves as the centre of the country's cigarette industry. The regional offices of major leaf merchants and multinationals are situated close by. So are the biggest kretek makers. In the city's north sits the House of Sampoerna. The grandeur of this former cigarette factory, built in the Dutch colonial-style and nowadays housing a busy restaurant and kretek museum, speaks volumes to the cultural and economic significance of the tobacco industry in this part of Indonesia. As a filter maker, Essentra could not be better placed.

Established as a joint venture in 1976, Essentra Indonesia is the Indonesian arm of Essentra Filtration Products, one of the three strategic business units of UK-headquartered company, Essentra plc. Essentra Filtration Products provides more than 300 customers with filter products from 7 manufacturing facilities worldwide, a dedicated research facility based in the UK and three regional development centres. The company holds around 5.5 per cent share of the global filter market, with approximately 23 per cent share of the special filter market.

PT Essentra moved to its current location in Surabaya in 2006. The company comprises the business activities of cigarette filters, tear tape slitting, porous technologies and the Asia Development Centre (ADC). Annual production at PT Essentra is 15 billion filter rods. Bearing in mind that each filter rod is equivalent to about five sticks on the market, PT Essentra currently equips around 75 billion cigarettes with a filter, annually. That's more than one filter for every stick smoked than in, for example, Bangladesh - where legal consumtpion was 74 billion sticks in 2015.

PT Essentra serves approximately 100 customers, including more than 80 independents, as well as monopolies and the multi-nationals. Around 25 per cent of filter production is destined for the Indonesian domestic market and the rest is exported. Fifty per cent of production is exported to markets in the Asian region, including China, while the remaining 25 per cent is exported to Europe, America, and Australasia.

The site in Surabaya is 22,000 m², with 16,000 m² of building space. More than 60 machines run six days a week to pro- ▶

duce a wide variety of filter types, including mono, dual, triple, flavoured filters, COR, CPS, recess, cavitec, APF, super slims, ROA and smooth core.

Trending toward complexity

I'm greeted at the site in Surabaya by Robert Whiffen, technical manager Asia, and Hywel Thomas, global sales and marketing director. Patrick Meredith, innovations director, joins us via video link from company offices in Singapore to explain some of the most recent trends in filter products.

Essentra has seen a growing demand for new and innovative filter solutions and the company's customers, particularly in Asian markets, are looking for increasing complexity and market differentiation from their filter products. Meredith says that, over the last eight years or so, there have been strong trends toward capsule and multi-segment, as well as slimmer filter products. The capsule market has grown significantly since the introduction of a cigarette with a flavor capsule in 2008. Capsules occupy a niche in many markets globally.

More recently, visual differentiation has been on the minds of cigarette makers as legislation has eroded marketing channels and put the threat of standardised packaging on the table. The market for adaptation of the mono-acetate tube filter into multi-segment filters is also a growing trend, incorporating adsorbents such as carbon or shaped filters such as hollow acetate tubes. Visual differentiation has come through in recessed products and in those using coloured tow or inner wrap, as well as the trend towards slimmer cigarettes.

One significant trend seen over the last few years, is the combination of these individual technologies.

"The first capsule cigarette was launched with a single capsule in a single mono-acetate filter", Meredith explains. "But since then, customers have asked us, 'well can we put in a capsule in a filter that has a tube segment in it?' Or 'can we put a capsule in a cigarette which has a recess filter, or inside a super slim cigarette?'

So the complexity increases over time. What we will probably see over the next two or three years, we expect, is all of these trends coming together, combining all of these technologies into one product."

Robert Whiffen, Hywel Thomas and Patrick Meredith say that filters are becoming more complex – a trend they expect will continue

Hywel Thomas says that, as industry volumes take increasing pressure, the premiumisation of cigarette brands becomes an increasingly attractive proposition. Customers are looking for a premium product and they are willing to pay more for it, he says, but they also expect to get more out of it.

"The filter is another way of communicating extra values", Thomas points out. "It's an exciting time for us at Essentra at the moment because, as market volumes are being challenged, the interest in special filters is increasing." Thomas says the more complex the filter becomes, the more likely cigarette companies will ask Essentra for solutions

Asia Development Centre

To meet growing demand for new, innovative and increasingly complex filter products, Essentra opened the new Asian Development Centre (ADC) at the Surabaya facility in 2010. Having the ADC on site means a lot of Essentra's most recent and most advanced filter products and production capabilities are showcased in Surabaya.

We go inside to take a look around. At the reception area, finished products from some Essentra customers are showcased in a glass vitrine. Inside the facility, new products ideas are being realised. It's busy in the ADC and Whiffen introduces the facility over the sounds of machinery: The complex is a highly specialised factory floor manned by expert engineers and technicians, Whiffen says. The ADC has 1,500 m² floor space with three mono filter or base rod machines and three combiners – machines that Whiffen calls "heavily customised." ▸

Essentra's CPS recess filter combines two popular filter technologies

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This capsule inserter on the main factory floor makes light work of a delicate process

"The machines that we have here are far more customised that those you would find in any factory," he explains. "They have been modified to enable them to produce a wide range of products ranging from conventional CA monos to complex quadruple segment combined filters." Custom-made machine parts often have to be prepared to produce new technologies being prototyped, he says, and accordingly, it takes a lot of expertise to run them.

As well as prototyping tomorrow's filter products, the ADC is also a hands-on facility for developing the technologies and strategies to mass produce them. Its purpose is to prove a concept in filter technology and to understand what is critical to the quality and manufacture of that concept. Whether a concept is going to work for one of Essentra's customers, whether the concept is viable, is decided on the ADC floor and in subsequent product testing. Technology available inside the ADC forms the basis of the next step; namely, determining what is needed to turn a successful prototype into a marketable filter product for the industry.

"The development centre is more 'D' than 'R'," explains Thomas. "We develop serious new products here. There's a lot of joint development with key customers and it's about going down a path that customers have identified in their own research. What we offer is the ability for a company to bring something new to the market and to build on this success very quickly. If you take some of the filters we have shown you here, there are no machines that you can go and buy off the shelf. We work with customers and we work with the machine suppliers and we find a solution. Initially the machines and their modifications are done in-house, and then we will partner with machine companies as and when required. Then, as volumes start to reach new heights, that technology will find its way into the high speed machines."

Essentra's two other development centres are located in Europe and North America. The development centres work in collaboration to develop new products for customers in their respective regions. Whiffen explains: "There are market variations and there are subtle differences in what each development centre is doing. They're not competing, but working together. There are trends happening in different parts of the world, and being able to showcase these and demonstrate our involvement is a valuable service that we can offer our customers. There are very few things that this development centre here in Indonesia cannot make. But there are things that we have started here and shifted to other centres because of what is sought in different markets."

The footprint of innovation

Implementing production technologies for new products on the factory floor is part of the challenge. As we head out of the ADC and back into the main factory building, many of the products that have come through prototype stages in the ADC are being produced in the main factory. Machine parts and technologies developed through this process have been perfected and fitted into the production environment.

The CPF, CPA, and CPS range of filters have been developed with a fluted inner paper. These filters help manufacturers to reduce tar content without compromising on flavour. The CPF variant was first introduced in the 1980s, with the CPS launched in the new Millenium.

Recently this fluted filter technology has been combined with other variations, such as a coloured inner paper wrap. This product is an example of pairing of technical filtration technology with visual product differentiation. The filter tip lends a unique aesthetic to a cigarette and this combination has proven popular in China.

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A filter combiner making multi-segment filters

Following production in the Surabaya factory, this specialty filter range is destined for export.

The factory floor is equipped with filter combiners capable of manufacturing dual- and triple-segment filters. Most recently, combiners capable of making quad-segment filters have also been added. One machine we pass is making a triple-segment filter with an active acetate segment, hollow acetated tube and a flavored capsule embedded in the tip. The machine has been specially modified to build the different segments of the filter and to assemble them into a seamless filter rod.

"The combiner receives base rods of different filter types into different hoppers," Whiffen explains. "These filter types could be, for example, active acetate, capsule, flavoured cellulose acetate, shape cellulose acetate, etc. The base rods are then cut down in the combiner to the required segment length of the finished filter. A common dual filter tip would be 7mm tube shape segment, plus 20mm capsule CA segment, making a 27mm total length. The combiner positions the segments in the correct order and collates the filters to position them end to end. The filter is wrapped in paper in a continuous process that creates a long rod of sequenced segments. The rod is then cut using a rotating knife that determines the length of the filter and also the segment orientation in the finished filter."

It sounds complex, and it is. Whiffen admits that filter combiners do make life interesting for the skilled operators and engineers on site.

"There are several challenges that have to be overcome during the setting of the machine for production," he says. Namely, "the registration of the segments, control of the segment length, the position of the cut in the finished rod and adhesion of the segments to the outer plug wrap".

Another impact of complex and multi-segment filters on the factory floor, is that the particular materials incorporated in the design can be climate sensitive. Different parts of Essentra's factory are climate controlled to remain at certain temperatures and humidity levels, particularly for the production of filters that incorporate flavour capsule technology. The factory has a dedicated space for capsules. It measures 1,500 m² and the temperature and humidity are kept at a constant level – no small feat in the hot East Java conditions. Capsules are a high-cost product and the climate conditions in production and storage areas play a major role in delivering the quality and effect to end consumers.

Future trends

Future filter trends are a spirited topic with the Essentra team. Meredith says sensation is incredibly important and will certainly play a role. He singles out "things that look different, things that taste different, things that provide a different experience" as being trends that will continue to busy filter makers in the years to come.

"When we are talking about consumers," he says, "we are a demanding group of people. We like to have something we can engage with, we like to customise things ourselves. The tobacco market is no different."

"One of the biggest advantages that Essentra has," says Meredith, "is that the company has been making filters for 60 years. Conversations with customers often start by them asking, 'have you ever tried this?' And fortunately, we often have and we have a bank of about 10,000 boxes in the UK of all of the samples we have run over the years. Nearly all of our conversations start from here, from this great asset that we have, this knowledge base in terms of things we have tried and done before. What goes around often comes around and our sample bank takes out maybe the first three to six months of trying out concepts. It will be interesting to see what comes next," he says.

J.N. Booth