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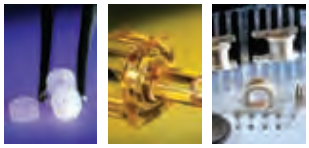

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Our mission is to connect medical technology professionals with their future partners and suppliers, quickly and efficiently.

Thank you for picking up a copy of the first issue of the MTME Supplier Finder – a printed supplier directory that serves medical technology developers and manufacturers of medical devices.

We draw company data from 680+ qualified medical technology suppliers and selected categories from over 1,200 product and service categories from our online MTME Supplier Directory.

Europe's only annual buyers guide is published at exactly the most important time of the year for industry professionals in Europe – in time for COMPAMED/MEDICA and premiering at COMPAMED 2019.

The MTME Supplier Finder goes wherever medical technology professionals meet. We distribute across Europe and can be found at all major trade shows throughout 2020 – until the next edition is released in time for COMPAMED 2020.

MTME MedTech Media Europe was launched in 2016 in response to a quickly shifting media landscape that left European medtech suppliers searching for a new media outlet focused on their markets. MTME is a German/English online publication with an extensive news archive – and issues weekly newsletters in German and bi-monthly newsletters in English for our pan-European readers.

The MTME website features the MTME Supplier Directory and the MTME Trade Show Zones, both of which were designed for medical technology professionals to efficiently locate future partners and suppliers. Our digital platform is screen optimized for use in or out of office and even designed to locate medtech suppliers at trade shows.

We hope to meet you in person in Nuremberg, Stuttgart, Galway, Birmingham, Düsseldorf or Paris.

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Best wishes!

Joseph Heeg
Publishing Manager
MTME – MedTech Media Europe

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MTME SupplierFinder 2019/20

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Contents

2020 Could Be a Pivotal Year for Europe's Medical Device Industry

There are challenges on the horizon, and there are reasons for optimism when it comes to Europe's medtech industry. But in the long run, European device makers must reevaluate how to compete on a global stage.

As we look to 2020, the European medical device industry finds itself in a strong position on many fronts. Patent filings expand each year and medical device sales are increasing and seem poised for continued growth.

But there are worrying signs. While global growth in the sector hovers around 5% annually, a series of megatrends across the world could have something of a wild card effect on the broader European economy and, by extension, could cool growth in the medtech niche to a certain extent.

The European economy is indeed poised for its seventh year of consecutive growth in 2019, and expansion is broadly occurring across Europe.

But storm clouds are gathering as well in terms of the global economy. Other concerns include Brexit, new regulations, potentially cooling European markets, and most troubling, growing global competition. European medical devices continue to be vaunted for their quality, while Chinese goods historically have not been. "China also has to deal with a [huge] delivery scale, which will make mass deployment of innovation more challenging," Daniel Newman, principal analyst at Futurum Research, said. "That said, I still expect China to fiercely compete to gain leadership in any industry where they see an opportunity to invest and innovate beyond the West."

In 2020, Europe's medical device industry at large will need to decide what role to play in terms of the global market, and where to look to fuel growth. One component of that will be embracing digital technologies to help reshape traditional care models. "Artificial intelligence (AI) could possibly, in some time, transform the diagnostic market as it allows for more technical and automated analysis than the 'golden eye' of a medical practitioner," Stewart Eisenhart, senior regulatory

Pierre-Alexandre Fournier, chief executive officer of Hexoskin

analyst at Emergo, a UL company, said. "This is what industry should be focusing on. And some manufacturers are upending their business models to align with this type of value-based care. That means, innovation isn't only at the technical level."

"Smaller markets like the Netherlands and Nordic countries are the fast movers in digital health in Europe, at least in the short term," said Pierre-Alexandre Fournier, chief executive officer of Hexoskin, a Montreal-based digital health company that does business in Europe.

	Projected Market Size in 2020 *	Projected Exports in 2020
France	€29 billion	€4 billion
Germany	€35 billion	€27 billion
Ireland	€1 billion	€15 billion
Italy	€9 billion	€4 billion
Spain	€8 billion	€5 billion
Switzerland	€4 billion	€11 billion
United Kingdom	€11 billion	€6 billion

* Rounded to the nearest billion Euro throughout.

Factors That Could Cool Growth

Despite a stable European medtech market, there are worrying signs. The effects of a possible recession on Europe's medtech sector are uncertain.

During a short or mild recession, Europe's medtech sector likely will be isolated from most of its effects. Health care spending generally tends to be durable.

However, many countries in Europe, and, indeed, across the world are looking to restrict healthcare spending, a fact that threatens to cut into medical device makers' bottom lines. If Europe falls into a recession, matters could grow more somber, with new austerity measures to reduce public health spending, similar to measures put in place during the 2008–2009 recession.

The Medical Device Regulation 2017/745/EU (MDR) that will go into effect next year is also a worry. "The new MDR compliance rules will move the EU into a more robust compliance program, which may allow some manufacturers to consider the region a part of their final global market access push instead of their initial one," said Eisenhart.

Ken Modeste, director of Connected Technologies at Underwriters Laboratories (UL), and Eisenhart believe it is too early to tell what MDR's impact will be. "The need and purchasing power of the EU will still be there; the compliance costs, however, will possibly increase," Eisenhart said. "Many companies have begun planning for these costs as part of their innovation cycles, and will be more prepared than others."

"At least for 2020, implementation of the MDR as well as questions about capacity of European Notified Bodies to take on new medical device manufacturing clients under the new regulation could have a significant effect on competitiveness of European markets in general," Eisenhart added. "Manufacturers may find it difficult to obtain or maintain CE Mark certifications, at least over the near term as MDR comes online."

Another concern is whether Europe's medical device sector will lose its competitive edge on the global stage. The two biggest medical device markets in the world – Western Europe and North America – are beginning to cool relative to the Asia Pacific region.

"There is no question that China will continue to pursue any and all opportunities to innovate beyond western countries," says Newman.

On a related note, the European Union Chamber of Commerce in China recently released a position paper calling for the nation to improve access to the country's market for European companies and to level the playing field. Another potential headache for Western firms is that Chinese manufacturers have become less reliant on western goods and components, and this trend is likely to continue. For example, as Newman observes, Huawei "continues to attempt to develop home-grown chips as well as systems and hardware to outperform what is being done in the US."

The prospects of several of Europe's most important medical device markets are discussed below.

Mixed Signals for Germany's Medtech Market

Germany's medtech industry finds itself at a crossroads. Germany with 10.2% of the global market continues to be a top-tier medical device force – trailing only the United States and China. Exports of medical products in Germany have continued growing and exceeded the €30-billion threshold in 2018. Next year, exports will likely be in the vicinity of €27 billion – considerably more than any other European nation.

To fuel long-term growth, the German medtech industry must find new strategies for selling to leading medical device markets. In recent years, the country has exported two-thirds of its medical device products. According to a KPMG projection of international medical device markets in 2030, the United States and China will jointly account for $500 billion (€455 billion). In 2020, China's medtech market is projected to be worth roughly €105 billion, which is three times larger than the anticipated level for Germany: €35 billion. Rounding out the top seven are France and Germany (each with a market worth $50 billion), followed by India, Japan and the United Kingdom.

In terms of serving the European market, in 2020, and beyond, it is likely that Germany will continue to lead Europe by a wide margin. EU member states receive roughly 41% of German medical device exports, according to GTAI, while other European nations receive an additional 10%. Those levels will likely remain roughly steady in coming years.

While the German medical device industry continues to expand and is outperforming the country's broader economy, uncertainty around MDR and the broader economy could be cooling growth.

"Germany remains Europe's largest single medical device market, but the threat of a recession related to international trade issues (especially between the US and China) would impact the country's robust medical device manufacturing industry along with other sectors of its economy," Eisenhart said.

Ireland Continues to See Growth

Home to one of the highest densities of medical device workers per capita in Europe with 38,000 workers, Ireland trails only Germany in terms of European medical device exports. The industry has quadrupled in the past quarter-century.

Given the strength of the country's cardiovascular and drug-delivery segments, the growth prospects for Ireland's medical device sector look healthy. The Irish government forecasts a CAGR 5.3% for the industry from 2017 to 2022. According to IDA Ireland, Ireland is the second-biggest exporter in Europe after Germany. The overall manufacturing sector is strong as well, employing roughly 250,000 people.

For Ireland's Medtech Industry, Exports Are Key

Ireland has a relatively small domestic medtech market, which means the vast majority of its €16 billion worth of medical device production is destined for export. Ireland, like other export-focused countries, will need to continue to innovate to meet the needs of the global market. For Ireland, this will likely include continuing to develop novel minimally invasive devices as well as digital-based technologies. As is the case with Germany though, Ireland's economy is sensitive to macroeconomic turbulence. Ireland's Central Bank has concluded the country could be more susceptible to "a negative global shock" than either the United Kingdom or the United States.

Irish device companies are optimistic about their prospects. A June 2019 survey from the Irish Medtech Association found that 96% of Irish businesses plan to debut new products and hire additional staff in the near future.

Switzerland Looks Strong Overall

Like Ireland, Switzerland has one of the highest per-capita-ratios of medical device workers in Europe. According to Medtech Europe, there are approximately 1,400 related medtech-related companies there. According to the most recent data from Swiss Medtech, the volume of Swiss medical device exports was €10.41 billion in 2018.

Despite its strong medtech industry, the nation is reliant on imports for its domestic market, which is valued at roughly €4 billion.

Medtech exports next year will likely be in the range of €11 billion, having reached €10.41 billion in 2018, according to data from Swiss Medtech. In broad terms, the country's medtech industry has much in common with Ireland, in that its strong export market is at once a source of strength and potential weakness in the event of a global recession that leads to healthcare-based austerity measures.

One regulatory wrinkle is the fact that Switzerland has struck a deal with the European Union known as a mutual recognition agreement, which allows Swiss and EU partners to trade products, provided they meet each other's respective regulatory requirements. While Switzerland and EU manufacturers have benefited from the mutual recognition agreement since 2002, the European Union could make renewing the agreement contingent on Switzerland's adoption of an institutional framework agreement, the negotiations for which have been slow. Whatever happens with those negotiations, the decision regarding the mutual recognition agreement could set a precedent for the EU's dealings with other non-member nations, including the United Kingdom in the wake of Brexit.

Brexit Chaos Shouldn't Overshadow UK's MedTech Prowess

The United Kingdom continues to have a strong medical device industry, employing some 100,000 people across 2,500 companies. Its medical equipment market was worth some $10.7 billion in 2018. The country's medtech industry is especially strong in terms of single-use devices, orthopedic equipment and hospital hardware. But UK medical device revenues have historically been less on a per-capita basis than they are in EU nations such as Germany, France and Italy.

The central question for the United Kingdom's medtech industry in 2020 is how its sector will fare in the aftermath of Brexit. "This is an interesting scenario facing Europe, and the challenge that it can extend to notified bodies," Modeste said. "If I put my cyber hat on, there could be a risk of separate cybersecurity governance requirements and that could cause more consternation in the industry overall. I think it is too early to see the impact of cyber and IoT requirements as that may be minor compared to other major discussion points."

Brexit complications could complicate market entry and competition in the United Kingdom. "A no-deal withdrawal from the EU could potentially lead to supply disruptions, for example," Eisenhart said.

NHS's Digital Focus Could Be an Opportunity

UK-based companies could play a pivotal role in building the nation's digital health infrastructure. UK's National Health Service (NHS), like many other such organizations across the globe, is spearheading efforts to drive digital innovation to enable more efficient healthcare. In the 2019 NHS Long Term Plan, the organization aims to become wholly digitized. UK medical device companies with a digital focus could

thus be at an advantage in serving the needs of NHS, which purchases some 85% of the country's medical goods.

But even the most innovative digitally-enabled medical devices are unlikely to help the NHS overcome what The Guardian terms a "£4 billion government squeeze on capital funding" that has left some hospitals executives unable to find funds to replace aging scanners, let alone repair leaking roofs and boilers. Still, UK firms that seek to meet the needs of the domestic healthcare system are bound to see some degree of success.

French Medical Device Market Continues Steady Growth

Employing some 85,000 workers, the French medical device sector has expanded steadily from 2016 to the present. The estimated turnover for the country's medical device sector in 2019, which spans some 1,300 medtech companies, is €31.2 billion.

France's domestic medical device market is one of the largest in Europe. Next year, we project it to clock in at roughly €29 billion, some €6 billion less than that of Germany.

Foreign entities with French operations are responsible for a significant amount of the countries medical device production. Roughly one-third of the country's medical device companies are foreign. According to export.gov, US firms alone drive more than one-fifth of the country's medical device turnover.

Still, France is home to medical giants like the diagnostics company bioMérieux, which has one of the most aggressive R&D budgets as a percentage of sales investment, and Essilor, which is the eleventh most prominent device firm in the world.

Future French Medtech Growth Will Require Connecting the Dots

For the French medical device sector to become more competitive on a global scale, it will require the industry to think about healthcare in terms of interrelated systems. That's easier said than done, but, historically, much of the French medtech market has been comprised of niche players. That's perhaps unsurprising, given that 92% of the country's medical device companies are small- and medium-sized enterprises.

French device firms have the benefit of a large domestic market, which can provide valuable feedback for product development. Local medical device companies with a holistic healthcare vision can help drive more efficient healthcare locally and, ultimately, internationally.

France is at a bit of a disadvantage compared to countries like the United Kingdom and the Netherlands, which have a more integrated health system. Such an arrangement makes "digital integration at scale easier than in more fragmented delivery markets like France," Fournier said.

Italy's Medtech Market Continues to Expand

While the Italian medical device market is considerably smaller than that of France or Germany, local medtech production is comparatively stable. While France's output in 2020 will likely be in the vicinity of €8 billion, Italy's is projected to be around €7 billion.

As in France, the Italian market continues to grow annually. Statistics gathered by the US government peg the Italian market as the fourth largest in Europe. In all, Italy has roughly 4,000 medical device companies, which employ more than 76,000 individuals across some 3,600 production facilities.

A Reputation for Quality

Italian device makers have developed a reputation for producing quality cardiology equipment and devices, diagnostic imaging devices, dialysis equipment and a range of other devices.

One advantage Italy has over France is its ratio of local production to imports. While France will likely import somewhere in the ballpark of €11 billion worth of goods next year, Italy will import around €6 billion, while, as mentioned before, producing €1 billion more than that.

In the domestic market, hospitals drive some three-quarters of medical device procurement, while the private sector rounds out the remaining quarter.

This fact puts Italy's medtech industry in a similar position to other nations in Europe and elsewhere. As budgetary constraints play a role in shifting Italy to a more value-based medical system, domestic firms must devise innovative strategies to support those broad goals.

Ultimately, Italy and the other countries mentioned in this report are a microcosm for Europe as a whole. To prosper in the years to come, they must navigate an evolving medtech marketplace, while continuing to be leaders in terms of medical device quality.

"The healthcare industry is one of the most important industries for the 21st century and medical device industry is seeing some great innovation around connectivity, AI, cyber, etc.," Modeste said. "Global uncertainty and possible market shrinkages in regions over time may have some impact, but at the end of the day, public safety, health and patient care are paramount." ■

(sh)

Interview:

3 Questions for Dr. Bassil Akra

Dr. Bassil Akra
Vice President, Global Strategic Business Development of Medical & Health Services (MHS) at TÜV SÜD Product Service GmbH

? How do you see the EU MDR changing the competitive international landscape?

The Medical Device Regulation MDR EU 2017/745 entered into force 20 days after its publication in the official journal of the European Union and became applicable on May 26, 2017. The intention of this regulation was to replace the current regulatory framework for medical devices, other than in vitro diagnostic medical devices since a fundamental revision of the current council directives 90/385/EEC and 93/42/EEC was deemed necessary. As written in the MDR, the revision of the current framework is needed to establish a robust, transparent, predictable and sustainable regulatory framework for medical devices which ensures a high level of safety and health whilst supporting innovation.

The implication of this fundamental change is huge because this regulation did not consider well-established technologies and legacy devices pushing manufacturers to clean up their portfolio and to strategically focus on specific devices instead of supporting the healthcare system with all relevant devices.

In addition, the EU MDR has higher clinical data requirements than other regions in the world pushing especially Class IIa, Class IIb and Class IIb implant manufacturers to go first to other markets such as the US before coming to Europe (e.g., via US FDA 510(k) clearance instead of CE Mark).

? What were the main insights TÜV SÜD obtained when issuing its first EU MDR certificate for Class III devices? Any advice based on that experience that could inform medical device companies or their suppliers?

After getting notified in May 2019, TÜV SÜD immediately started implementing the MDR with a dedicated number of staff, who were trained and prepared for the various tasks under the new legal framework. When applying the approved and compliant processes for the MDR, we could identify that special adoptions and a new discussion with the German designation authority were needed to address the missing infrastructure within the system (e.g. EUDAMED) allowing us to close our certification process as a notified body. We recommend that all manufacturers ensure consistency in their documentation and prepare searchable and readable documents enabling notified bodies to complete their work in a reasonable time. It is also important to consider published and unpublished guidance documents when submitting technical documentation to a notified body.

? What advice would you give EU-based medical device manufacturers on how to remain competitive in a global landscape that is gradually transitioning to value-based care and where growth in traditional markets is plateauing and where one of the largest and quickly-growing markets (China) remains hard to break into?

The only recommendation that can be given at this time is that manufacturers should prepare their systems and technical documentation accordingly to ensure compliance with the regulatory requirements and market access continuity. State- of- the- art evidence-based devices will always have market access. ■

Quotes edited for brevity. (sh)

Alexander Stein, Director MedtecLIVE at NürnbergMesse

MedtecLIVE:
A Success Story Continues in 2020

Product innovations, new regulations, quality and hygiene requirements and various strategies for market entry are currently creating a lot of momentum in the medical technology sector worldwide. As a result, there is a need for intensive expert dialogue between representatives of the industry, research and medical communities, ideally at an international level. Events like MedtecLIVE offer the perfect platform to facilitate these discussions. As one of the leading exhibitions for the manufacture of medical technology, the second-largest of its kind in Europe, it provides an ideal starting point to initiate and consolidate connections between the various industry segments. Presentations, expert panels and a matchmaking event, parallel to the exhibition, offer the perfect opportunity for in-depth knowledge transfer.

MedtecLIVE's cornerstone is its strong focus on the future. In 2019, for example, the start-up contest made its debut at MedtecLIVE and was viewed very positively by participants and trade visitors alike. Competitions of this kind offer a unique opportunity to next generation industry professionals to present themselves and their innovations to the public, connect with important representatives of the medical technology sector and facilitate their entry to the market. The fact that MedtecLIVE covers the entire medical technology supply chain from prototyping through to market readiness is yet another reason to mark this event in your calendar.

Future trends are coming thick and fast and many of them are being addressed by the international MedtecLIVE exhibition and the MedTech Summit, the highly regarded congress running parallel to the exhibition. Artificial intelligence, mobile health, software development and the new EU Medical Device Regulation (MDR) are just some of the key issues in medical technology that are leading the industry into the future. Anyone currently supplying the medical technology sector is affected by the new European MDR that comes into effect in 2020. The requirements of the regulations are a true challenge to mid-sized suppliers in particular. Quality management and the new requirements of the MDR make that it is absolutely imperative for suppliers to acquire knowledge in these areas. The comprehensive set of rules require a complete recertification of all medical products. MedtecLIVE and MedTech Summit address these issues and provide practical information as well.

MedtecLIVE 2020 will cover all these industry trends as well as the topic of medical software. Technological innovations are becoming increasingly important and there are hardly any medical devices that do not use software. According to many industry experts, including some major "game changers," it is the hardware, e. g. the biocompatibility of materials, that makes the difference in devices so far. With the use of apps, software has become increasingly more important, however. There is a growing need for precise diagnosis and treatment. Along with technological advancements comes cyber security, and manufacturers have to provide reliable security solutions, especially for hospitals, which come from all over the world.

From medical imaging applications to the development of medicines or the use of RoboDocs in mobile phone apps, many tasks are anticipated to be solved by artificial intelligence (AI). In the smart hospital of the future, AI will reduce workload substantially, e. g. admission procedures. In diagnostics and the operating theater in particular, AI has the potential to undertake specific tasks of physicians and allow for higher precision and save valuable time. The same applies to mobile health: if physicians could monitor patients remotely and make contact in case of irregularities only, traditional doctor's offices would soon become dispensable.

New manufacturing processes, sophisticated composite materials and above all digitalization have increasingly been driving developments in the intelligent implant segment in recent years. As a result, a variety of smart implants are on the market currently, or will be soon. According to numerous experts, these include cardiac pacemakers and cochlear implants. There is virtually no part of the body that could not be fitted with closed-loop therapeutic systems. Bladder, vagus nerve or deep brain stimulators are just some of the options, and the list grows longer the more scientists and doctors you ask.

Nano D printing is becoming more popular, e. g. in personalized implants, precision organ replacement or bioprinting. Today, additive manufacturing offers fascinating opportunities that seemed impossible just a few years ago. Another exciting future development, for example, are tiny nanobots with external controls. Researchers continue to develop these robots so they can ultimately be loaded with medicines to treat illnesses of all kinds in a minimally invasive way.

At its premiere in 2019, MedtecLIVE offered a huge range of topics, and 2020 will be no different. MedtecLIVE 2020 will give participants access to the best sources of information and the possibility to shape industry trends. Visit this important industry event and attend the international gathering of the medical technology community at Exhibition Centre Nuremberg from 31 March to 2 April 2020. ■

Images courtesy of NürnbergMesse

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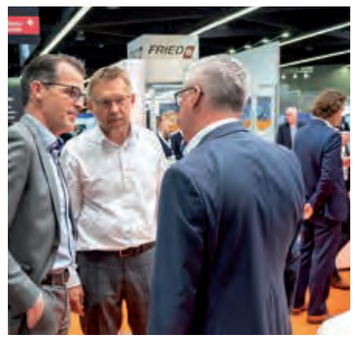

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1 Adhesives

A–Z

Company	Country	1 Acrylate	2 Acrylic	3 Adhesive Strips	4 Adhesive Tapes	5 Anaerobic	6 Aqueous	7 Conductive	8 Cyanoacrylates	9 Double-sided	10 Epoxies	11 Films	12 Heat-activated	13 Hot-Melt	14 Hydrocolloides	15 Hydrogel	16 Light Curing	17 Liners	18 Methacrylate	19 Moisture Curing	20 Polyester	21 Pressure-Sensitive	22 Silicone	23 Solvent-based	24 Solvent-free	25 Strips	26 Thermally Conductive	27 Transdermal Products	28 Urethane	29 UV Curing	Website
3M Medical Materials and Technologies, +44 845 8734075	GB	1	2	3	4					9		11			14	15		17				21	22								www.3m.co.uk/medtech
Adhesives Research Ireland Ltd, +353 61 300 300	IE		2		4			7														21	22		25	26	27				www.adhesivesresearch.com
Buehler - ITW Test & Measurement GmbH, +49 711 4904 690-0	DE	1									10								18					23							www.buehler.com
DYMAX Europe GmbH, +49 611 9627900	DE	1											12				16		18	19					24					28	29	www.dymax.com
Henkel AG & Co KGaA, +49 89 92680	DE	1	2			5			8		10		12				16						22							28	29	www.henkel.com
Lohmann GmbH & Co.KG, +49 2191 887-0	DE	1		3	4			7																		25					www.lohmann-tapes.com
Master Bond Inc, +1 201 343 8983	US		2			5		7	8		10		12	13			16				20		22			26		28	29		www.masterbond.com
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Techsil Ltd, +44 1789 773232	GB	1	2	3	4	5	6	7	8	9	10	11	12	13			16		18	19		21	22	23	24		26		28	29	www.techsil.co.uk

New Biocompatible Adhesive for Plastics Fluoresces Orange

A new orange fluorescent UV adhesive from Panacol is specially formulated for bonding plastics: Vitralit® 7311 FO is certified according to USP Class VI standards which makes it the perfect solution for bonding medical devices.

Vitralit® 7311 FO is a low viscosity, transparent acrylic adhesive that cures under UV or visible light. It offers very high bond strength to many plastics including PC, PVC, PMMA or ABS, and also to materials such as glass and stainless steel. Thanks to its very low viscosity and capillary flow characteristics, Vitralit® 7311 FO is suited for bonding large surfaces as well as applications with narrow gaps.

Under low intensity black light (365 nm wavelength), Vitralit® 7311 FO fluoresces orange. This allows in-line inspection for quality control. The bright fluorescence is highly contrasting with plastics possessing a natural blue fluorescence or color. Optimum curing results can be achieved with LED curing equipment with a wavelength of 405 nm, especially the UV-LED equipment Bluepoint LED eco from Hoenle. Bluepoint LED eco can be equipped with both wavelengths, serving both processes. Thanks to modern photo initiators Vitralit® 7311 FO can be cured – especially in high volume production – within seconds.

Once cured, Vitralit® 7311 FO is humidity and alcohol resistant. Vitralit® 7311 FO has been tested and certified according to USP Class VI standards. The product is compatible to common sterilization processes like autoclaving, gamma radiation, E-Beam or ETO and well suited for use in the assembly of disposable medical devices. ■

Images: Panacol-Elosol GmbH

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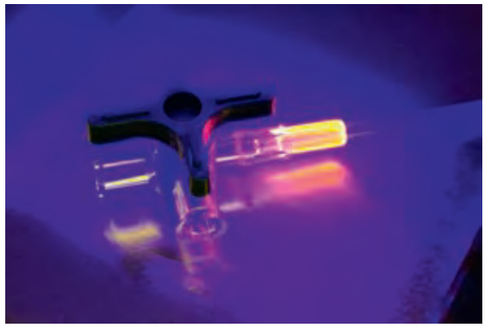

2 Clean Rooms

A–Z

Company	Country	1 Air Filters	2 Airborne Particle Counters	3 Clean Rooms	4 Cleaning and Disinfection Equipment	5 Design and Construction Services	6 Environment Monitors and Sensors	7 Facility Monitoring Systems	8 Furniture	9 Garment, Racks and Storage Bags	10 Maintenance Services	11 Meters for Airflow, Humidity + Temp.	12 Mobile Monitoring Systems	13 Particle-Control Equipment	14 Sterilizers	15 Swabs and Wipers	Website
bc-technology GmbH, +49 7022 279710	DE	1	2	3	4	5	6	7	8	9	10	11		13	14	15	www.bc-technology.de
Briem Steuerungstechnik GmbH, +49 7022 60 920	DE	1	2	3		5	6	7			10	11	12	13	14		www.briem.de
Clippard Europe, S.A., +32 1045 2134	BE	1															www.clippard.eu
GfPS mbH, +49 241 510 05 00	DE					5		7				11					www.gfps.de
Sensirion AG, +41 44 3064030	CH						6					11					www.sensirion.com
sfm medical devices GmbH, +49 6053 8050	DE			3													www.sfm.de
SimScale, +49 89 809132770	DE											11					www.simscale.com
Specialised Sterile Environments, +353 91 773 954	IE						6	7			10						www.ssecleaning.ie
Tandem Project Management, +353 0212 409 055	IE					5											www.tandempm.ie

3 Computer Products and Software

A–Z

Company	Country	1 ALM (Application Lifecycle Mgmt.)	2 Automatic ID/Bar Coding	3 Automation Systems	4 CAD/CAM	5 Computer Peripherals	6 Computers	7 Data Acquisition and Handling Systems	8 Data Storage and Accessories	9 Interconnection Systems	10 Keyboards and Keypads	11 Labelling	12 Laboratory Information Management	13 Logistics	14 Manufacturing	15 Monitors and Screens	16 PLM (Product Lifecycle Management)	17 Power Supply	18 Printers	19 Quality Assurance and Quality Control	20 Regulatory	21 Resource Planning and Management	22 Scanners	23 Software Testing	24 Technical Documentation	25 Translation	26 Validation	27 Verification	Website
Active Key GmbH & Co. KG, +49 9241 48337	DE					5					10																		www.activekey.de
ADLINK Technology GmbH, +49 991 290 9410	DE					5	6			9						15													www.adlinktech.com
Basler AG, +49 4102 4630	DE																		19										www.baslerweb.com
BMC Messsysteme GmbH, +49 8141 404 1800	DE							7																					www.bmcm.de
Buehler - ITW Test & Measurement GmbH, +49 711 4904 690-0	DE																		19					24					www.buehler.com
CAQ AG Factory Systems, +49 676 490 2000	DE																		19										www.caq.de
Climedo Health GmbH, +49 89 122 290 82	DE												12								21			24					www.climedo.de
cmcs GmbH, +49 9131 970 44 49	DE																		19		21		23						www.cmcs.de
Codico Distributors Ltd, +353 51 379 933	IE		2									11																	www.codico-distributors.com
COMP-MALL Computer-Vertriebs GmbH, +49 89 8563150	DE					5	6									15						22							www.comp-mall.de
congatec AG, +49 991 27000	DE					5																							www.congatec.com
Contour, +31 543 546 789	NL								8																				www.contour.eu
Cora Systems, +353 71 962 2078	IE																				21								www.corasystems.com
DCA Design International, +44 1926 499461	GB																						23			26	27		www.dcamedical.co.uk
DREIGEIST - Additive Intelligence, +49 911 891 191 10	DE				4												16												www.dreigeist.com
eg technology Ltd, +44 1223 813184	GB							7																					www.egtechnology.co.uk
ETQ Inc, +353 61 573 510	IE																16			19	20			24		26			www.etq.com
exceet electronics, +41 41 798 4884	CH									9																			www.exceet-electronics.de
FG-ELEKTRONIK GmbH, +49 911 57 545 0	DE																16												www.fg-elektronik.de
FOBA Laser Marking + Engraving (ALLTEC GmbH), +49 38823 55222	DE			3								11																	www.fobalaser.com
FRAISS - IT Consulting & Mediendesign e.U., +43 316 375 0370 100	AT					5	6		8							15					21								www.fraiss.at
GMC-I Messtechnik GmbH, +49 911 86 020	DE			3																			23						www.gmc-instruments.de
GXP Solutions, +353 21 4215 050	IE														14											26			www.gxpsystems.com
HBM Test and Measurement, +49 6151 803-0	DE							7																					www.hbm.com
HEITEC AG, +49 9131 8770	DE			3											14											26	27		www.heitec.de
HY-LINE Computer Components GmbH, +49 89 61450340	DE					5	6		8	9																			www.hy-line.de
ICOP Technology GmbH, +49 69 24756870	DE					5	6									15													www.icoptech.eu
infoteam Software AG, +49 9131 780 0780	DE			3									12				16		19					24		26	27		www.infoteam.de
IQMS, +1 805 8052271122	US	1			4							11			14		16			19	20			24					www.iqms.com
ITK Engineering GmbH, +49 7272 770 30	DE	1																								26	27		www.itk-engineering.de
Körber Medipak Systems AG, +41 522 600 922	CH			3											14				19										www.medipak-systems.com
Leister Technologies AG, +41 41 662 74 74	CH			3																									www.leister.com
LiteMax Electronics Inc., +49 421 565 6815	DE					5	6									15													www.litemax.de
LTI Motion GmbH, +49 6441 9660	DE					5				9						15													www.lti-motion.com
LZ Lifescience, +353 129 10955	IE							7	8	9		11	12	13	14		16		18	19	20	21	22	23	24	25	26		www.lzlifescience.com
M + K Maschinenbau- und Konstruktions GmbH, +49 6021 76568	DE														14														www.mukgmbh.de
Medical Production Technology - MPT Europe BV, +31 594 519 151	NL																									26			www.mpteurope.com
MicroGenisis TechSoft GmbH, +49 89 309 040 161	DE	1		3				7					12				16			19	20			23	24		26	27	www.mgtechsoft.com
Pilgrim Quality Solutions, Inc., +1 813 915 1663	US																			19	20								www.pilgrimquality.com
powerBridge Computer Vertriebs GmbH, +49 5139 9980 0	DE					5	6	7	8	9																			www.powerbridge.de
sepp.med gmbh, +49 9195 9130	DE																16							24					www.seppmed.de
SimScale, +49 89 809132770	DE				4																					26			www.simscale.com
sintermedical, +353 89 454 2248	IE														14														www.sintermedical.com
softgate gmbh, +49 9131 812700	DE																16							24					www.soft-gate.de
Solid Solutions Ireland, +353 1 297 4440	IE				4										14														www.solidsolutions.ie
Solnovis, +49 9191 733 850	DE																				20			23	24		26		www.solnovis.com
Stemmer Imaging GmbH, +49 89 809 020	DE					5		7		9																			www.stemmer-imaging.de
Tecnoideal s.r.l., +39 535 23653	IT			3											14														www.tecnoidealsrl.com
Thescon GmbH, +49 2541 801 0459	DE							7	8				12	13	14		16			19	20	21		23	24		26	27	www.thescon.de
TQS Integration, +353 58 48456	IE	1												13	14		16					21								www.tqsintegration.com
TQ-Systems, +49 8153 93080	DE						6																						www.tq-group.com
TRUMPF Laser- und Systemtechnik GmbH, +49 7156 3030	DE			3											14														www.trumpf-laser.com

4 Consulting Services

A–G

Company	Country	1 Audits and Inspection	2 Biotechnology	3 Business Development	4 Business Partners and Vendors	5 CE Certification	6 Clinical Research	7 Clinical Trial Management	8 Contract Assembly	9 Contract Manufacturing	10 Engineering Services	11 Extrusion	12 Failure Analysis	13 Global Marketplace Regulations	14 GMP and Compliance	15 ISO 13845	16 ISO 9000	17 Lean Processes + Sustainable Practices	18 Logistics	19 Manufacturing	20 Molding	21 Notified Bodies	22 Patents	23 Personnel Recruitment	24 Process Validation	25 Product Certification	26 Product Design	27 Product Development	28 Project Management	29 Quality Assurance	30 Quality Certification	31 Quality Management	32 Regulatory	33 Research & Development	34 Risk Management	35 Sales and Marketing Services	36 Strategic Planning	37 Supply Chain Management	38 Technology Transfers	Website
Accumold, +1 515 9645741	**US**																				**20**																			**www.accu-mold.com**
Carl Haas GmbH, +49 7422 567 0	**DE**								**8**	**9**																														**www.carl-haas.de**
Klingel medical metal GmbH, +49 723 1651 90	**DE**								**8**																															**www.klingel-med.de**
MER Medical Engineering Resources- Europe, +31 598 634420	**NL**								**8**	**9**	**10**	**11**								**19**	**20**					**26**	**27**					**33**							**www.mer-europe.com**
Qosina Corp., +1 631 242 3000	**US**								**8**	**9**		**11**								**19**							**27**													**www.qosina.com**
Teleflex Medical OEM, +1 508 964 6021	**US**									**9**		**11**								**19**																				**www.teleflexmedicaloem.com**
3P Innovation Ltd, +44 1926 408 933	GB																			19							27													www.3pinnovation.com
Accumold, +1 515 9645741	**US**																				**20**																			**www.accu-mold.com**
ACD Elektronik GmbH, +49 07392 7080	DE								8	9																	27													www.acd-gruppe.de
ACMIT GmbH, +43 2622 228 5920	AT	1						7												19												33								www.acmit.at
Activoris Medizintechnik GmbH, +49 6691 979900	DE	1		3	4			7						13				17		19				24	25		27	28			31	32			35	36			www.activoris.com
AEMtec, +49 30 6392 7300	DE	1		3						9									18	19								28			31				35	36			www.aemtec.com
André Gueissaz SA, +41 58 400 96 60	CH									9	10									19	20			24	25	26	27													www.gueissaz.ch
Arazy Group GmbH, +49 6034 905 9490	DE					5		7						13	14	15	16					21							29		31	32								www.arazygroup.com
Arrotek Medical Ltd, +353 71 9115111	IE											11								19				24		26	27	28	29			32								www.arrotek.com
Art of Technology AG, +41 43 311 77 00	CH				4	5										15				19					25	26	27													www.aotag.ch
BBF Sterilisationsservice GmbH, +49 7151 945700	DE		2												14																			34						www.sterixpert.de
bebro electronic GmbH, +49 7022 40030	DE	1							8	9	10					15	16	17	18	19	20			24			27	28													www.bebro.de
BGS Beta-Gamma-Service GmbH & Co. KG, +49 2261 7899-0	DE																		18																						www.bgs.eu
BillerudKorsnäs UK Limited, +46 8553 335 00	GB																	17																							www.billerudkorsnas.com
BMC Messsysteme GmbH, +49 8141 404 1800	DE								8	9			12							19							27													www.bmcm.de
BSI Group, +49 69 2222 8 9200	DE					5		7						13								21									31	32							38	www.bsigroup.com
BYTEC Medizintechnik GmbH, +49 2403 782 9900	DE	1				5			8							15				19				24	25	26	27	28	29		31		33							www.bytecmed.com
Carl Haas GmbH, +49 7422 567 0	**DE**								**8**	**9**																														**www.carl-haas.de**
CERES GmbH evaluation & research, +49 7621 167 3330	DE						6	7																																www.clinical-evaluation.com
Cikautxo Medical, +34 946 133 000	ES	1								9	10																27		29			33								www.cikautxomedical.es
Complete Laboratory Systems, +353 91 781 690	IE	1																																						www.cls.ie
Contour, +31 543 546 789	NL									9	10								18								27											37		www.contour.eu
Corscience GmbH & Co. KG, +49 9131 977 9860	DE																		18	19				24	25				29	30	31		33	34					www.corscience.de
CPL Recruitment, +353 1 614 6000	IE																						23																	www.cpl.ie
Creative Instruments GmbH, +49 88192 706 760	DE	1	2								10									19						26	27	28					34		36				www.creative-instruments.de
Creganna Medical, +353 91 757 801	IE		2				6	7		9	10							17		19				24		26	27	28	29		31	32							38	www.creganna.com
CSA Group Europe GmbH, +49 69 509 571 500	DE													13															29	30	31								www.csagroup.org
CUBE, +353 61 400 658	IE																																					37		www.cube.irish
David Schnur Associates, +1 650 941 0898	US				4																																		www.dschnur.com
DBK EMS GmbH & Co. KG, +49 7272 770 410	DE	1																	18							26					31				35		37		www.dbk-group.com
DCA Design International, +44 1926 499461	GB	1		3						10														24	25	26	27				32	33	34		36				www.dcamedical.co.uk
Deloitte, +49 211 877201	DE																						23									32		34		36				www2.deloitte.com
Demcon Advanced Mechatronics B.V., +31 88 115 20 00	NL									9																26	27												www.demcon.nl
Design Partners, +353 1 282 8913	IE																									26						33							www.designpartners.com
design!struktur, +49 8249 969 4033	DE																									26	27	28							36				www.design-struktur.de
DYMAX Europe GmbH, +49 611 9627900	DE			3																				24					29									38	www.dymax.com
eg technology Ltd, +44 1223 813184	GB										10		12													26	27												www.egtechnology.co.uk
ekontor GmbH, +49 7131 5929-0	DE																																					37		www.ekontor.de
em-tec gmbh, +49 8806 923 60	DE									9	10									19				24			27	28			31								38	www.em-tec.de
Endosmart GmbH, +49 7244 939860	DE					5			8	9	10		12							19			22		24	25	26	27				32	33							www.endosmart.de
enmodes GmbH, +49 241 412 510 71	DE	1									10																27													www.enmodes.de
EPflex Feinwerktechnik GmbH, +49 7123 978410	DE									9																														www.epflex.com
ETQ Inc, +353 61 573 510	IE																												29		31									www.etq.com
Eurofins BioPharma Product Testing Munich GmbH, +49 89 899 650 0	DE																					21							29	30		32								www.eurofins.com
Exco GmbH, +49 6233 737 780	DE					5			8						14									24	25			28	29			32	33	34						www.exco-solutions.com
Fort Wayne Metals, +1 260 7474154	US																															33								www.fwmetals.com
FRAISS - IT Consulting & Mediendesign e.U., +43 316 375 0370 100	AT																							24							31									www.fraiss.at
Frank plastics AG, +49 7486 1810	DE	1								9	10									19					25					30		32		34						www.frankplastic.de
G. Hipp & Sohn GmbH, +49 7467 1463	DE					5									14	15						21																		www.hippandson.com
GB Innomech Ltd, +44 1353 667394	GB	1																		19					25															www.innomech.co.uk
GenSearch , +49 2234 6986789	DE																						23																		www.gensearch-consulting.com
German Accelerator Life Sciences, +49 89 218 062 07	DE			3	4									13									22							30				34		36				www.germanaccelerator.com

4 Consulting Services

G – Z

Company	Country	1 Audits and Inspection	2 Biotechnology	3 Business Development	4 Business Partners and Vendors	5 CE Certification	6 Clinical Research	7 Clinical Trial Management	8 Contract Assembly	9 Contract Manufacturing	10 Engineering Services	11 Extrusion	12 Failure Analysis	13 Global Marketplace Regulations	14 GMP and Compliance	15 ISO 13845	16 ISO 9000	17 Lean Processes + Sustainable Practices	18 Logistics	19 Manufacturing	20 Molding	21 Notified Bodies	22 Patents	23 Personnel Recruitment	24 Process Validation	25 Product Certification	26 Product Design	27 Product Development	28 Project Management	29 Quality Assurance	30 Quality Certification	31 Quality Management	32 Regulatory	33 Research & Development	34 Risk Management	35 Sales and Marketing Services	36 Strategic Planning	37 Supply Chain Management	38 Technology Transfers	Website
GMC-I Messtechnik GmbH, +49 911 86 020	DE	1																																						www.gmc-instruments.de
GS design + technik e. K., +49 9187 979 22 00	DE																				20					26	27														www.gs-technik.eu
Harmac Medical Products Ireland, +353 9496 21515	IE								9	10										19				24		26	27													www.harmac.com
HeiMed, +49 2824 999 7582	DE					5	6																		25									34						www.heimed.de
Iftest AG, +41 56 4373737	CH	1							9	10		12							18																						www.iftest.ch
IMSTec GmbH, +49 6136 994 4110	DE	1																		19									29					34						www.imstec.de
Intertek, +44 1908 857 777	GB	1				5							13																											www.intertek.com
ITK Engineering GmbH, +49 7272 770 30	DE																										27						34						www.itk-engineering.de
ITS Ltd., +353 21 463 2000	IE																			19																				www.itsl.ie
Jueke Systemtechnik GmbH, +49 2505 870	DE								9											19					25	26															www.jueke.de
Kahle Automation S.r.l., +39 363 355511	IT									10														24																www.kahleautomation.com
Keltie Ltd, +353 91 730742	IE												13									21			25						32									www.keltie.com
Ken Block Consulting France SAS, +33 142 68 5170	FR	1				5	6						13	14	15	16								24	25	26		28	29	30	31	32	33	34						www.kenblockconsulting.com
Klingel medical metal GmbH, +49 723 1651 90	**DE**								**8**																															**www.klingel-med.de**
Körber Medipak Systems AG, +41 522 600 922	CH	1																						24															37		www.medipak-systems.com
Kratzer GmbH + Co. KG, +49 781 6240	DE																										27													www.kratzer.de
Leber Systemtechnik, +49 911 215 372 0	DE	1								10		12						17		19		21		24	25	26	27	28		30							37		www.leber-ingenieure.de
Leister Technologies AG, +41 41 662 74 74	CH																			19																				www.leister.com
LOEW Präzisionsteile GmbH, +49 911 400 8850	DE								9					14						19							27		29		31								www.loew-praezision.de
Lucideon Ltd , +44 1782 764428	GB	1	2									12																			32								www.lucideon.com
LZ Lifescience, +353 129 10955	IE		2			5						12		14						19									29		31								www.lzlifescience.com
M3i GmbH, +49 89 125 030 74	DE	1					6	7														22		24	25	26	27	28			31	32	33			36			www.m3i-muenchen.de
Mechatronic AG, +49 6151 50030	DE								8	9			13	14						19							27	28			31			34					www.mechatronic.de
Medidee Services (Deutschland) GmbH, +49 174 764 0791	DE							7					13											24	25					30	31	32							www.medidee.com
MedSurv GmbH, +49 6187 905 91 47	DE							7					13																	30									www.medsurv.de
MER Medical Engineering Resources- Europe, +31 598 634420	**NL**								**8**	**9**	**10**	**11**								**19**	**20**					**26**	**27**					**33**							**www.mer-europe.com**
Metecon GmbH, +49 621 123 4690 0	DE										10		13																	30	31	32		34						www.metecon.de
MicroGenisis TechSoft GmbH, +49 89 309 040 161	DE	1			4	5					10			13		15	16							24	25			28	29											www.mgtechsoft.com
Minnetronix, Inc., +1 651 917 4060	US				4				8	9	10				14				17				22				27		29		31	32							www.minnetronix.com
NAMSA, +1 419 6669455	US	1						7																								32		34						www.namsa.com
Nelson Laboratories, LLC, +1 801 2907500	US	1												14																										www.nelsonlabs.com
Nexus Ltd, +44 1353 653855	GB								8	9	10								18																					www.nexus-ie.com
Nordson MEDICAL, +1 888 404 5837	US								8	9	10									19							27		29			32							www.nordsonmedical.com
NSF Health Sciences Medical Device Consulting, +44 1143 600868	GB	1	2			5	6	7		9			12	13	14		16			19		21		24	25	26	27		29	30	31	32	33	34		36			www.nsf.org
Ottronic Regeltechnik GmbH, +43 3573 34008	AT	1								9									18						25	26													www.ottronic.com
Pilgrim Quality Solutions, Inc., +1 813 915 1663	US																														31								www.pilgrimquality.com
Primara Test- und Zertifizier-GmbH, +43 8341 997260	DE	1				5							12				16					21		24	25			28	29	30	31								www.primara.net
Procon Medizintechnik GmbH, +49 6188 445 990	DE									9	10									19						26	27													www.procon-med.de
Project Solutions GmbH, +49 621 570580	DE			3			6									15			17				23	24			27		29						36				www.projectsolutions.de
puracon GmbH, +49 8031 900 587 0	DE								8	9																														www.puracon.com
Qosina Corp., +1 631 242 3000	**US**								**8**	**9**		**11**								**19**							**27**													**www.qosina.com**
SASSE Elektronik GmbH, +49 9122 9780	DE	1								9	10							17	18								27			30										www.sasse-elektronik.de
Schivo Medical, +353 51 372 010	IE									9	10									19																				www.schivogroup.com
sepp.med gmbh, +49 9195 9130	DE	1																									27		29		31								www.seppmed.de
Si Us Instruments GmbH, +49 30 351 364 36	DE									9																														www.si-us-instruments.de
SimScale, +49 89 809132770	DE										10																														www.simscale.com
Solid Solutions Ireland, +353 1 297 4440	IE										10													24		26														www.solidsolutions.ie
Solnovis, +49 9191 733 850	DE									9	10					15				19							27		29		31	32				37			www.solnovis.com
Source Bioscience Ireland Ltd, +44 115 973 9012	GB						6																																	www.sourcebioscience.com
STI Laser Industries Ltd., +972 4 6101103	IL									9																														www.sti-laser.com
STRATEC Biomedical AG, +49 7082 791 60	DE																			19							27				31				36				www.stratec.com
System Industrie Electronic GmbH, +43 5577899000	AT																			19					25	26	27	28				33								www.sie.at
Tandem Project Management, +353 0212 409 055	IE		2								10									19			23	24				28					34						www.tandempm.ie
Teleflex Medical OEM, +1 508 964 6021	**US**									**9**		**11**								**19**																				**www.teleflexmedicaloem.com**
Thescon GmbH, +49 2541 801 0459	DE			3	4	5							12	13	14		16					21		24				28	29	30	31	32		34					www.thescon.de
Trend Technologies Ireland, +353 44 933 4300	IE	1				5															20					26	27	28												www.trendtechnologies.com
TÜV SÜD AG, +49 89 50084747	DE	1																				21			25						31	32								www.tuev-sued.de
unimed sa, +41 21 6242151	CH	1							8	9										19				24		26	27	28			31									www.unimed.ch
velixX GmbH, +49 621 437 08 001	DE			3	4															19			22	24			27	28				32		34		36	37		www.velixx.com
Weidmann Medical Technology AG, +41 55 221 4111	CH																		18					24		26														www.weidmann-medical.com
XL Precision Technologies, +44 1642 766960	GB								8	9										19				24	25															www.xlprecisiontechnologies.com

Four Reasons to Work with a European Sales Engineer

"When customers include you and allow you to be involved in their thought processes and challenges, you become a team in looking at options – and a winning team in finding the best solutions to move forward with!"

Tim Noppert,
Founder and Director of MER-Europe

3D printed metal components

Lasercut flexible structure

MER-Europe (Medical Engineering Resources) is a technically focused and service orientated partner to buyers, engineers – or anyone in the medical device industry who needs components, assembly services or engineering support.

MER-Europe represents innovative and quality driven suppliers from both the United States and Europe, always trying to facilitate and work with innovative companies that have the potential to make a difference in the marketplace by continuously expanding their product range and adding new capabilities.
For over 20 years, MER-Europe's main focus has been on products for neuro, cardio and radio vascular applications. Product types range from metal laser cut tubes supporting steerable catheters to multilumen silicone tubing for CRM applications.

Challenging projects are tackled with their suppliers' capabilities or by referring them to other manufacturers in their extended network, should that prove to be a more effective solution.
"Finding solutions in helping customers develop better healthcare products is the most rewarding part of the job," says Tim Noppert, founder and director of MER-Europe.

"Being confronted with all types of medical devices and their applications on a daily basis makes you very much aware of how important availability of good healthcare is for everyone."

MER-Europe aims to understand customer goals with specific component and design criteria. Tim Noppert has a mechanical engineering background and ten years of experience in designing and manufacturing vascular products.

Here are four cases that illustrate how MER-Europe has successfully helped clients.

① A multinational medical device company tasked MER-Europe to develop an **antimicrobial implantable silicone catheter** for a very specific market. Together with the existing supplier and an expert silicone consultant, MER-Europe conducted a market analysis and created a process with an effective but non-patent infringing product. Products existing on the market were sourced by MER-Europe and tested by the supplier to specify the benchmark. With the help of an industry expert and consultant, MER-Europe determined that a product with antimicrobial characteristics equivalent to current industry standards could be developed. In order to scale up the process for production, MER-Europe and another equipment supplier, represented by them, provided custom designed equipment resistant to antimicrobial agents. Eventually, the combination product was labelled and packaged by the same company.

② Another global player wanted to outsource the development of a **kink-resistant sheath** including CE-marking to support complex interventional procedures. MER-Europe was able to provide a suitable manufacturer for some of the unique components required, e.g. ultra-thin wall liners and sheath. Managing the project and expectations between customer and OEM suppliers alike was crucial to bringing the product to market. The kink-resistant sheath has been successfully sold since 2012.

③ In another instance, MER-Europe helped to reassess the original approach of the manufacturing process for a specific part of a **moving component for a complex new delivery system**. Due to their design and laser cutting expertise, MER-Europe recommended laser cutting the entire support structure of the delivery device rather than just a segment. As a result, greater freedom in design and a reduction in lead time were accomplished. Laser cutting technologies have become very efficient, and some parts can even be used for disposable products. The contract manufacturer further tested several configurations to select the most suitable design, combining required characteristics in a single piece laser cut design.

④ MER-Europe established a relationship between a company focused on high-end equipment for balloon catheter and stent manufacturers and a manufacturer of tight tolerance medical grade silicone products. They later needed a **non-contact solution to measure the thickness and surface smoothness of silicone sheeting**. By means of an optical system, the thickness of the silicone layer is measured. A special software stores the data for further analysis. The system shows graphics of the material profile, exposing dents, bulges, deviation in thickness and other irregularities. The silicone film is produced by manufacturer's knife coating process onto a PET carrier film. The measurement system is placed on the knife coater at the end of the production line, allowing for immediate inspection and better process control. With this new system, the silicone products manufacturer is able to measure the thinnest sheeting possible.

These projects are a great example of how partners complement each other. MER-Europe is not merely a sales representative, they provide solutions. If you have a challenging project – whether it is a manufacturing issue or a new part design – they might be the ideal partner for you! ■

Images courtesy of MER-Europe

MER-Europe
Netherlands
+ 31 598 634420
info@mer-europe.com
www.mer-europe.com

5 Electronics
Components

A–Z

Company	Country	1 Batteries	2 Cable Assemblies and Plugs	3 Cables + Connectors, Hospital Grade	4 Cables and Wires	5 Cables, Miniature	6 Circuit Protection Devices	7 Connectors	8 Controls	9 Crystals/Oscillators/Piezoelectrics	10 Displays	11 Electronic Development	12 Embedded Systems	13 EMI / RFI Shielding	14 ESD/EMC Products and Services	15 Fiber Optics	16 Flexible Circuits	17 Gaskets and Seals	18 Imaging	Website
Apple Rubber, +1 716 6846560	**US**													**13**				**17**		**www.applerubber.com**
First Sensor AG, +49 30 63992399	**DE**											**11**							**18**	**www.first-sensor.com**
Micro Systems Technologies, +41 44 8046300	**CH**	**1**															**16**			**www.mst.com**
ODU GmbH & Co. KG, +49 8631 61560	**DE**		**2**	**3**	**4**	**5**		**7**												**www.odu.de**
2E mechatronic GmbH & Co. KG, +49 7021 93010	DE		2					7												www.2e-mechatronic.de
ADLINK Technology GmbH, +49 991 290 9410	DE											11	12							www.adlinktech.com
All Sensors GmbH, +49 8142 421 9770	DE																			www.allsensors.com
ams Sensors Germany GmbH, +49 911 21 521 780	DE																			www.cmosis.com
Analog Devices, LTD, +44 1932 358530	GB																			www.analog.com
Apple Rubber, +1 716 6846560	**US**													**13**				**17**		**www.applerubber.com**
ASKION GmbH, +49 365 73530	DE											11								www.askion.com
Axon' Kabel GmbH, +49 7152 979 920	DE		2	3	4	5		7									16			www.axon-kabel.de
bebro electronic GmbH, +49 7022 40030	DE																			www.bebro.de
BECOM Electronics GmbH, +43 2616 2930 0	AT										10	11					16		18	www.becom.at
BIT Analytical Instruments GmbH, +49 6196 806 100	DE										10									www.bitgroup.de
BMC Messsysteme GmbH, +49 8141 404 1800	DE											11								www.bmcm.de
BYTEC Medizintechnik GmbH, +49 2403 782 9900	DE											11								www.bytecmed.com
Carl Zeiss Industrielle Messtechnik GmbH, +49 7364 20 0	DE																		18	www.zeiss.de
Crystal IS, +1 518 271 7375	US																			www.cisuvc.com
David Schnur Associates, +1 650 941 0898	US	1	2	3	4	5		7						13						www.dschnur.com
DYMAX Europe GmbH, +49 611 9627900	DE																	17		www.dymax.com
eg technology Ltd, +44 1223 813184	GB											11								www.egtechnology.co.uk
ekontor GmbH, +49 7131 5929 0	DE		2			5														www.ekontor.de
exceet electronics, +41 41 798 4884	CH								8			11	12							www.exceet-electronics.de
Fey Elektronik GmbH, +49 40 703 88 880	DE	1																		www.feyelektronik.de
FG-ELEKTRONIK GmbH, +49 911 57 545 0	DE											11	12							www.fg-elektronik.de
First Sensor AG, +49 30 63992399	**DE**											**11**							**18**	**www.first-sensor.com**
Fischer Connectors GmbH, +49 8106 377 220	DE		2	3	4	5		7												www.fischerconnectors.de
Franz Binder GmbH & Co. Elektrische Bauelemente KG, +49 7132 325 0	DE		2	3	4	5		7												www.binder-connector.de
FRIWO Gerätebau GmbH, +49 2532 810	DE	1										11								www.friwo.com
Fujikura Europe Ltd., +44 20 824 0200 0	GB							7								15				www.fujikura.co.uk
Globtek Inc., +49 251 134 963 71	DE	1	2				6	7						13						www.globtek.com
Haydon Kerk Motion Solutions, +33 240 92 87 51	FR							7												www.HaydonKerk.com
HY-LINE Computer Components GmbH, +49 89 61450340	DE								8		10	11	12							www.hy-line.de
Iftest AG, +41 56 4373737	CH											11								www.iftest.ch
Introtek Int'l LP, +1 631 2425425	**US**																			**www.introtek.com**
Karl Kruse GmbH & Co. KG, +49 2131 981410	DE	1	2	3	4		6	7			10	11			14					www.kruse.de
Kistler Instrumente GmbH, +49 7031 30900	DE																			www.kistler.com
LEMO connectors, +41 21 6951600	CH		2	3	4	5		7												www.lemo.com
LEONI Special Cables GmbH, +49 4491 2910	DE		2		4	5		7												www.leoni.com
Linemaster, +1 800 974 1000	US				4	5														www.linemaster.com
Micro Systems Technologies, +41 44 8046300	**CH**	**1**															**16**			**www.mst.com**
Molex Deutschland GmbH, +49 6227 3091 8100	DE		2	3	4	5		7						13						www.deutsch.molex.com
Murata Electronics Europe B.V., +31 23 5698410	NL									9		11		13	14	15	16			www.murata.com
ODU GmbH & Co. KG, +49 8631 61560	**DE**		**2**	**3**	**4**	**5**		**7**												**www.odu.de**
Peli Products Germany GmbH, +49 211 88242401	DE																			www.peli.com
SCHURTER AG, +41 41 3693111	CH		2	3			6	7			10		12							www.schurter.com
Sensirion AG, +41 44 3064030	CH																			www.sensirion.com
Smiths Connectors, +49 991 250120	DE		2	3				7						13		15				www.smithsconnectors.com
solectrix GmbH, +49 911 309 1610	DE												12							www.solectrix.de
SONOTEC GmbH, +49 345 133170	DE																			www.sonotec.eu
Stansomatic A/S, +45 75 338 300	DK							7							14					www.stansomatic.dk
Stemmer Imaging GmbH, +49 89 809 020	DE																		18	www.stemmer-imaging.de
steute Schaltgeräte GmbH & Co. KG, +49 5731 745-0	DE																			www.steute.com
TIGRIS Elektronik GmbH, +49 30 301 048 30	DE												12						18	www.tigris.eu
TQ-Systems, +49 8153 93080	DE												12							www.tq-group.com
Turck duotec GmbH, +49 9131 691-246	DE								8			11	12							www.turck-duotec.com
Z-LASER Optoelektronik GmbH, +49 761 2964444	DE															15			18	www.z-laser.com

▶ More product and service categories on page 24

A–Z

Company	Country	19 Lamps and Lights	20 Lasers	21 Microsensors	22 Optic	23 Power Protection Systems	24 Power Supplies and Converters	25 Pressure Sensors	26 Printed Circuit Boards	27 Semiconductors	28 Sensors	29 Sub-Assembly	30 Switches and Relays	31 Transducers	32 Wireless Technology	33 Wires	Website
Apple Rubber, +1 716 6846560	**US**																**www.applerubber.com**
First Sensor AG, +49 30 63992399	**DE**			**21**				**25**			**28**			**31**			**www.first-sensor.com**
Micro Systems Technologies, +41 44 8046300	**CH**								**26**			**29**					**www.mst.com**
ODU GmbH & Co. KG, +49 8631 61560	**DE**																**www.odu.de**
2E mechatronic GmbH & Co. KG, +49 7021 93010	DE										28						www.2e-mechatronic.de
ADLINK Technology GmbH, +49 991 290 9410	DE														32		www.adlinktech.com
All Sensors GmbH, +49 8142 421 9770	DE										28						www.allsensors.com
ams Sensors Germany GmbH, +49 911 21 521 780	DE			21	22						28						www.cmosis.com
Analog Devices, LTD, +44 1932 358530	GB				22	23	24				28		30				www.analog.com
Apple Rubber, +1 716 6846560	**US**																**www.applerubber.com**
ASKION GmbH, +49 365 73530	DE		20		22							29					www.askion.com
Axon' Kabel GmbH, +49 7152 979 920	DE																www.axon-kabel.de
bebro electronic GmbH, +49 7022 40030	DE								26								www.bebro.de
BECOM Electronics GmbH, +43 2616 2930 0	AT	19	20							27		29					www.becom.at
BIT Analytical Instruments GmbH, +49 6196 806 100	DE		20		22												www.bitgroup.de
BMC Messsysteme GmbH, +49 8141 404 1800	DE													31			www.bmcm.de
BYTEC Medizintechnik GmbH, +49 2403 782 9900	DE																www.bytecmed.com
Carl Zeiss Industrielle Messtechnik GmbH, +49 7364 20 0	DE		20							27							www.zeiss.de
Crystal IS, +1 518 271 7375	US	19								27							www.cisuvc.com
David Schnur Associates, +1 650 941 0898	US						24	25								33	www.dschnur.com
DYMAX Europe GmbH, +49 611 9627900	DE																www.dymax.com
eg technology Ltd, +44 1223 813184	GB																www.egtechnology.co.uk
ekontor GmbH, +49 7131 5929 0	DE	19				23							30				www.ekontor.de
exceet electronics, +41 41 798 4884	CH				22							29					www.exceet-electronics.de
Fey Elektronik GmbH, +49 40 703 88 880	DE																www.feyelektronik.de
FG-ELEKTRONIK GmbH, +49 911 57 545 0	DE						24										www.fg-elektronik.de
First Sensor AG, +49 30 63992399	**DE**			**21**				**25**			**28**			**31**			**www.first-sensor.com**
Fischer Connectors GmbH, +49 8106 377 220	DE															33	www.fischerconnectors.de
Franz Binder GmbH & Co. Elektrische Bauelemente KG, +49 7132 325 0	DE	19															www.binder-connector.de
FRIWO Gerätebau GmbH, +49 2532 810	DE						24										www.friwo.com
Fujikura Europe Ltd., +44 20 824 0200 0	GB										28	29				33	www.fujikura.co.uk
Globtek Inc., +49 251 134 963 71	DE					23	24										www.globtek.com
Haydon Kerk Motion Solutions, +33 240 92 87 51	FR												30				www.HaydonKerk.com
HY-LINE Computer Components GmbH, +49 89 61450340	DE					23	24		26	27	28		30		32		www.hy-line.de
Iftest AG, +41 56 4373737	CH						24										www.iftest.ch
Introtek Int'l LP, +1 631 2425425	**US**										**28**			**31**			**www.introtek.com**
Karl Kruse GmbH & Co. KG, +49 2131 981410	DE	19					24						30		32		www.kruse.de
Kistler Instrumente GmbH, +49 7031 30900	DE										28						www.kistler.com
LEMO connectors, +41 21 6951600	CH															33	www.lemo.com
LEONI Special Cables GmbH, +49 4491 2910	DE																www.leoni.com
Linemaster, +1 800 974 1000	US								26			29	30				www.linemaster.com
Micro Systems Technologies, +41 44 8046300	**CH**								**26**			**29**					**www.mst.com**
Molex Deutschland GmbH, +49 6227 3091 8100	DE								26				30		32	33	www.deutsch.molex.com
Murata Electronics Europe B.V., +31 23 5698410	NL			21							28			31	32		www.murata.com
ODU GmbH & Co. KG, +49 8631 61560	**DE**																**www.odu.de**
Peli Products Germany GmbH, +49 211 88242401	DE	19											30				www.peli.com
SCHURTER AG, +41 41 3693111	CH												30				www.schurter.com
Sensirion AG, +41 44 3064030	CH			21				25			28						www.sensirion.com
Smiths Connectors, +49 991 250120	DE																www.smithsconnectors.com
solectrix GmbH, +49 911 309 1610	DE																www.solectrix.de
SONOTEC GmbH, +49 345 133170	DE										28			31			www.sonotec.eu
Stansomatic A/S, +45 75 338 300	DK																www.stansomatic.dk
Stemmer Imaging GmbH, +49 89 809 020	DE				22												www.stemmer-imaging.de
steute Schaltgeräte GmbH & Co. KG, +49 5731 745-0	DE		20								28		30		32		www.steute.com
TIGRIS Elektronik GmbH, +49 30 301 048 30	DE																www.tigris.eu
TQ-Systems, +49 8153 93080	DE																www.tq-group.com
Turck duotec GmbH, +49 9131 691-246	DE							25		27	28	29					www.turck-duotec.com
Z-LASER Optoelektronik GmbH, +49 761 2964444	DE		20														www.z-laser.com

5 Electronics
R&D Services

A – Z

Company	Country	1 ASIC Design	2 Electronic Circuit Design	3 Fluid-Handling-System Design	4 Innovation-, Project- and Knwl. Mgmt.	5 Model Making and Prototyping	6 Optical System Design	7 PCB Layout	8 Product Design and Styling	9 Sensor Design	10 System Design	11 Transport-Mechanism Design	12 User-Interface Research	Website
First Sensor AG, +49 30 63992399	**DE**									**9**				**www.first-sensor.com**
Art of Technology AG, +41 43 311 77 00	CH								8		10			www.aotag.ch
ASKION GmbH, +49 365 73530	DE					5					10			www.askion.com
AT&S Deutschland GmbH, +49 242 4404 900	DE		2					7						www.ats.net
bebro electronic GmbH, +49 7022 40030	DE		2		4	5		7	8	9	10	11		www.bebro.de
BECOM Electronics GmbH, +43 2616 2930 0	AT	1	2					7		9				www.becom.at
BYTEC Medizintechnik GmbH, +49 2403 782 9900	DE		2			5		7	8		10			www.bytecmed.com
Cicor Group, +41 71 9137300	CH							7						www.cicor.com
Contour, +31 543 546 789	NL		2			5					10			www.contour.eu
DCA Design International, +44 1926 499461	GB		2		4	5	6	7	8	9	10	11		www.dcamedical.co.uk
eg technology Ltd, +44 1223 813184	GB		2	3				7	8	9				www.egtechnology.co.uk
exceet electronics, +41 41 798 4884	CH					5			8		10			www.exceet-electronics.de
Exco GmbH, +49 6233 737 780	DE		2		4		6				10			www.exco-solutions.com
First Sensor AG, +49 30 63992399	**DE**									**9**				**www.first-sensor.com**
Fraunhofer-Institut für Integrierte Schaltungen IIS, +49 9131 776 7301	DE									9				www.iis.fraunhofer.de
FRIWO Gerätebau GmbH, +49 2532 810	DE		2			5		7	8		10			www.friwo.com
HEITEC AG, +49 9131 8770	DE		2		4				8		10			www.heitec.de
Iftest AG, +41 56 4373737	CH	1	2		4	5		7			10			www.iftest.ch
Integrated Technologies Ltd (ITL), +44 1233 655323	GB	1	2	3	4	5	6	7	8	9	10	11		www.itl.co.uk
JENOPTIK Polymer Systems GmbH, +49 36482 450	DE		2			5	6	7			10			www.jenoptik.com
Kunststoff Christel GmbH & Co.KG, +49 772 692 020	DE					5								www.kunststoff-christel.de
Leber Systemtechnik, +49 911 215 372 0	DE		2						8	9	10			www.leber-ingenieure.de
LiteMax Electronics Inc., +49 421 565 6815	DE		2				6				10			www.litemax.de
Mikromess GmbH, +49 6129 502 9330	DE		2					7			10		12	www.mikromess.de
SASSE Elektronik GmbH, +49 9122 9780	DE				4	5			8		10			www.sasse-elektronik.de
solectrix GmbH, +49 911 309 1610	DE				4	5	6		8		10			www.solectrix.de
TIGRIS Elektronik GmbH, +49 30 301 048 30	DE		2		4	5			8		10			www.tigris.eu
Turck duotec GmbH, +49 9131 691-246	DE	1	2		4	5		7	8	9	10			www.turck-duotec.com

HTD Pressure Sensors Now up to 10 bar and with Side Pressure Connections

Image: First Sensor AG

First Sensor extends its platform of piezoresistive differential pressure sensors of the HTD series from 1 mbar with measuring ranges of up to 10 bar. In addition to the very small and flat manifold housing with a footprint of 8 x 13 mm, which is ideal for space-saving manifold mounting, the HTD series now offers a SMD housing with side pressure connections. The new housing features barbed pressure ports for secure tube connection, even for higher pressures.

A major application of the HTD sensors is differential pressure measurement across a flow-restrictive element (e.g. orifice or laminar flow element) to determine volumetric flow. The differential pressure sensor measures in a bypass to the main flow channel. Typical examples can be found in ventilators, anesthesia machines, CPAP, spirometers and oxygen concentrators.

The HTD differential pressure sensors feature a SPI interface with 15 bit resolution and an analog output signal. With their 3 V or 5 V supply and low power consumption, the HTD miniature pressure sensors are ideal for battery-powered applications in mobile and portable devices. For pick-and-place machines in high-volume production, the HTD sensors can optionally be supplied on tape and reel. The sensors are temperature compensated from 0 ... 70 °C and provide a temperature reading in addition to the pressure value.

Important features of the HTD differential pressure sensors:

- Pressure ranges from 1 mbar to 10 bar
- Housings with side pressure connections and for manifold mounting
- SPI interface with 15 bit resolution
- 3 V or 5 V supply ■

First Sensor AG
Germany
+49 30 6399 2399
contact@first-sensor.com
www.first-sensor.com

Non-invasive flow and bubble sensor SONOFLOW CO.56 Pro for combined flow-bubble measurement applied free-hanging onto cardiopulmonary bypass. *Image: SONOTEC, Adobe Stock*

SONOFLOW CO.56 Pro

The Evolution in Combined FlowBubble Measurement for Medical Products

With over twenty-five years of experience in the development and certification of sensors for medical devices SONOTEC celebrates the market launch of the new flagship sensor SONOFLOW CO.56 Pro at COMPAMED 2019.

"This launch takes our SONOFLOW CO.56 success to a new level," says International Sales Manager Lutz Schmidt, explaining the new sensor concept. The sensors are technologically leading in the global field of competition, Schmidt adds. The non-invasive flow and bubble sensor captivates through its compact design and integrated electronics, can be mounted freely suspended, and offers the option of multi-point measurement. In this way, up to twelve independent sensors, even with different channel sizes, can be operated with just one control unit. The built-in microcontroller guarantees to control all processes whose data is transferred via RS485-interface. The sensors themselves operate to measure flow rates on different tubes and shunts and simultaneously detect air bubbles accidentally caused. Finally, the non-invasive ultrasonic sensors give feedback on the real flow compared to the theoretical flow of the pump.

As a leading sensor technology specialist in medical technology SONOTEC easily meets the latest EMC product standard IEC 60601-1-2 (Edition 4) for the SONOFLOW CO.56 Pro FlowBubble Sensor. In addition to Edition 4, the sensors meet IEC 60601-1 (Edition 3) and IEC 61157, the standard means for the reporting of the acoustic output of medical diagnostic ultrasonic equipment, and RoH's 2011/65/EU to guarantee CE compliance. ■

SONOTEC GmbH
Germany
+ 49 345 133170
sonotec@sonotec.de
www.sonotec.eu

Non-invasive flow and bubble sensor SONOFLOW CO.56 Pro for combined flow-bubble measurement.
Image: SONOTEC GmbH

A–Z

Company	Country	1 CE Marking	2 Chip-on-Board and Multichip Module	3 Class II Device Manufacture	4 Class III Device Manufacture	5 Cleanroom Assembly	6 Final Assembly and Testing	7 Good Manufacturing Practice	8 Hybrid Electronics Manufacture	9 ISO 9000 Qualifications	10 Secured Parts Storage	11 Surface-Mount PCB Assembly	12 TAB Assembly	13 Through-Hole PCB Assembly	Website
First Sensor AG, +49 30 63992399	**DE**		**2**			**5**	**6**		**8**	**9**		**11**		**13**	**www.first-sensor.com**
Micro Systems Technologies, +41 44 8046300	**CH**		**2**						**8**			**11**		**13**	**www.mst.com**
ACD Elektronik GmbH, +49 07392 7080	DE			3	4	5				9					www.acd-gruppe.de
bebro electronic GmbH, +49 7022 40030	DE		2	3	4	5	6	7		9	10	11		13	www.bebro.de
BECOM Electronics GmbH, +43 2616 2930 0	AT	1	2	3	4		6		8	9	10	11	12	13	www.becom.at
Cicor Group, +41 71 9137300	CH			3		5	6	7	8			11			www.cicor.com
Contour, +31 543 546 789	NL					5									www.contour.eu
dm elektron, +39 432 968611	IT						6	7		9					www.dmelektron.com
First Sensor AG, +49 30 63992399	**DE**		**2**			**5**	**6**		**8**	**9**		**11**		**13**	**www.first-sensor.com**
FRIWO Gerätebau GmbH, +49 2532 810	DE						6	7				11		13	www.friwo.com
HEITEC AG, +49 9131 8770	DE							7							www.heitec.de
Iftest AG, +41 56 4373737	CH	1	2	3	4	5	6	7		9	10				www.iftest.ch
Integrated Technologies Ltd (ITL), +44 1233 655323	GB	1		3			6	7		9		11		13	www.itl.co.uk
Intertek, +44 1908 857 777	GB	1													www.intertek.com
Introtek Int'l LP, +1 631 2425425	**US**				**4**										**www.introtek.com**
JENOPTIK Polymer Systems GmbH, +49 36482 450	DE	1	2			5	6	7		9					www.jenoptik.com
Kunststoff Christel GmbH & Co.KG, +49 772 692 020	DE					5									www.kunststoff-christel.de
MeKo Laser Material Processing, +49 5066 70790	DE			3	4		6								www.meko.de
Micro Systems Technologies, +41 44 8046300	**CH**		**2**						**8**			**11**		**13**	**www.mst.com**
Ottronic Regeltechnik GmbH, +43 3573 34008	AT						6								www.ottronic.com
PRETTL electronics GmbH, +49 3528 456 233	DE						6								www.prettl-electronics.de
SASSE Elektronik GmbH, +49 9122 9780	DE	1					6								www.sasse-elektronik.de
Turck duotec GmbH, +49 9131 691-246	DE		2			5	6		8	9	10	11		13	www.turck-duotec.com

Fischer Freedom's Major Extensions Enable Versatile Innovations in Connectivity

NEW Fischer LP360TM products. *Size 14 (7 signal & power contacts): cabled receptacle (1) and panel plug (2); active devices: USB 2.0 adaptor (3), LED (4), Rugged Flash Drive (5). Size 08 (4 signal & power contacts) in plastic (high-end composite based on PEEK) with cabled plug (6) and panel receptacle (7); in metal with panel receptacle (8) and panel plug (9).* *Image: Fischer Connectors Holding SA*

Nine new products now add to the capability of the Fischer FreedomTM Series to serve as a technology platform in connectivity setting new standards in usability, integration capability and versatility. An innovation enabler in application design, particularly in terms of SWaP (Size, Weight and Power) requirements, cable management optimization, electronic network integration and wearable technology.

The new features, new configurations, new materials and new active devices, commercially available as of September 2019, use the versatile and modular connectivity technology of the Fischer LP360TM connector, the first product of the plug & use Fischer FreedomTM Series launched in 2018.

Fischer FreedomTM enables design engineers to integrate more technology and functionality into fixed or wearable ecosystems and cable-free devices in markets such as: defense & security, medical, instrumentation, industrial and civil engineering, robotics, wearables, the Internet of Things (IoT), etc.

The new USB 2.0 adaptor, LED and flash drive have the Fischer LP360TM panel plug directly integrated into their housing. This opens up new development pathways for innovative active solutions integrated into electronic networks where power source and communications are centralized within shared data & power buses and hubs. As for the new cabled receptacle in metal with 7 signal and power contacts, it is a ready-to-use solution that also maximizes the usability, operability and functionality of robotic systems or smart vests into which it can easily be integrated. These solutions are ideally used in applications for portable and body-worn "wearables," among others, for the so-called "connected human" – a huge trend in the connectivity sector –, as well as in IoT applications.

Fischer FreedomTM was launched in June 2018 by Fischer Connectors, the global provider of ultra-reliable and high-performance connectivity solutions, to offer breakthrough plug & use technology. Thanks to the patent-pending technological innovations in mating, locking andmaterials, of its first product, the Fischer LP360TM 7-pin connector, the connectivity solution has received four awards in one year, and has been recognized as being able "to change the way connectivity is done," as a LEAP award judge commented. ■

Fischer Connectors GmbH
Germany
+ 49 8106 377 220
mail@fischerconnectors.de
www.fischerconnectors.com

6 Filters and IV Components

IV Components

A–Z

Company	Country	1 Angioplasty Balloons	2 Bags	3 Cannulae/Needles	4 Caps/Covers	5 Catheters	6 Catheters Vents	7 Clamps	8 Composite Tubing/Catheter Subsystems	9 Connectors, Luers	10 Connectors, T	11 Connectors, Y	12 Couplings	13 Diagnostic Kit Components	14 Drip Chambers	15 Elastomeric Balloons	16 Guide Wires	17 Haemodialysis Sets	18 Infusion Sets	19 IV Sets	20 Manifolds	21 Silicone Components	22 Stents	23 Stopcocks	24 Syringes and Tips	25 Transfer Devices	26 Trocars	27 Valves	28 Valves, Check	29 Introducers	30 Seals	Website
Apple Rubber, +1 716 6846560	**US**																					**21**			**24**						**30**	**www.applerubber.com**
Carl Haas GmbH, +49 7422 567 0	**DE**			**3**													**16**															**www.carl-haas.de**
Halkey-Roberts Corporation, +1 727 471 4200	**US**							**7**																**23**				**27**	**28**			**www.halkeyroberts.com**
Porex Technologies GmbH, +49 241 910 5250	**DE**					**5**	**6**							**13**				**17**							**24**							**www.porex.com**
Qosina Corp., +1 631 242 3000	**US**		**2**	**3**				**7**		**9**	**10**	**11**					**16**							**23**	**24**			**27**	**28**			**www.qosina.com**
Teleflex Medical OEM, +1 508 964 6021	**US**					**5**			**8**					**13**																**29**		**www.teleflexmedicaloem.com**
Apple Rubber, +1 716 6846560	**US**																					**21**			**24**						**30**	**www.applerubber.com**
Bavaria Medizin Technologie GmbH, +49 8153 4010	DE					5																	22							29		www.bavaria-medizin.de
Carl Haas GmbH, +49 7422 567 0	**DE**			**3**													**16**															**www.carl-haas.de**
Cikautxo Medical, +34 946 133 000	ES					5			8													21										www.cikautxomedical.es
Colder Products Company GmbH, +49 6026 9973-0	DE									9			12																			www.cpcworldwide.com
Creganna Medical, +353 91 757 801	IE					5																										www.creganna.com
David Schnur Associates, +1 650 941 0898	US	1					6		8		10	11		13			16											27					www.dschnur.com
Elcam Medical, +972 4 6988120 1	IL		2		4					9	10	11	12		14				18	19	20		23					27	28	29			www.elcam-medical.com
EPflex Feinwerktechnik GmbH, +49 7123 978410	DE																16															www.epflex.com
EUROFLEX GmbH, +49 7231 208210	DE			3					8				12													26						www.euroflex.de
Filtrop AG, +423 388 11 50	LI			3		5																										www.filtrop.com
Halkey-Roberts Corporation, +1 727 471 4200	**US**							**7**																**23**				**27**	**28**			**www.halkeyroberts.com**
IDEX Health & Science, +49 1801 808800	DE									9	10	11																27	28			www.idex-hs.com
ITW Medical, +353 69 62666	IE						6												18	19						25			28			www.itwmedical.com
Kunststoff Christel GmbH & Co.KG, +49 772 692 020	DE			3	4																	21			24		26					www.kunststoff-christel.de
Martech Medical, +1 215 2568833	US					5				9							16					21	22				26	27				www.martechmedical.com
MEDELEC S.A., +41 21 946 04 80	CH			3																			22									www.medelec-tubes.com
MeKo Laser Material Processing, +49 5066 70790	DE																						22					27				www.MeKo.de
Minivalve International B.V., +31 541 570625	NL																											27	28			www.minivalve.com
Nordson MEDICAL, +1 888 404 5837	US									9			12															27	28			www.nordsonmedical.com
Novotema, +39 35 926530	IT																														30	www.novotema.com
OEM-Medical, +39 30 030716526	IT				4					9	10	11																27				www.oem-medical.com
Optima Medical Components, +46 18 183020	SE			3		5	6																									www.optima.se
Oscor Inc., +49 211 586 786 00	US	1				5											16											27		29		www.oscor.com
Porex Technologies GmbH, +49 241 910 5250	**DE**					**5**	**6**							**13**				**17**							**24**							**www.porex.com**
Qosina Corp., +1 631 242 3000	**US**		**2**	**3**				**7**		**9**	**10**	**11**					**16**							**23**	**24**			**27**	**28**			**www.qosina.com**
Teleflex Medical OEM, +1 508 964 6021	**US**					**5**			**8**					**13**																**29**		**www.teleflexmedicaloem.com**
unimed sa, +41 21 6242151	CH			3						9							16									26						www.unimed.ch
VELOX GmbH - an IMCD company, +49 40 3696880	DE					5										15																www.velox.com
Vernay Laboratories, Inc., +31 541 589 999	NL						6		8				12															27	28			www.vernay.com
VistaMed Limited, +353 71 9638833	IE	1				5											16		18				22					27				www.vistamed.net

DS Technology GmbH Partners with Porex to Develop A Compact, Drug Intake Device That Makes Swallowing Medication Easy

Taking medication can be problematic and stressful for children and seniors who have difficulty swallowing or face other medical restrictions. However, a new drinking straw device equipped with a filter component from Porex not only makes it easier to ingest but provides added convenience for the user.

Using a porous filter solution from Porex, the XStraw® from DS Technology GmbH is designed for safe, pre-portioned oral drug intake to ensure a precise dose upon each use. To operate, a person simply removes the cap, dips the XStraw into a beverage of his or her choice and ingests the proper drug dosage (pellets or granules) by sucking on the straw.

"We all know how challenging it can be for some people to take medication," said Ronald Geisler, Porex sales director for Europe. "That's why we are constantly striving to engineer innovative components that medical device manufacturers can use to improve product design and set new standards for consumer safety. Our filter technology allows for the drug to dissolve safely, without the need for the tablet to be crushed or the capsule to be opened, which essentially can alter the release time and predetermined dosage."

The POREX® filter is engineered to keep the pellet-based drug in place and to help push it through the transparent straw. When dipped into a drink, the filter's hydrophobic nature prevents the pellets from clumping.

Image: Porex Technologies GmbH

The filter doesn't start to absorb the liquid until there is pressure applied by sucking on the straw, and it travels to the upper position when finished to indicate the drug was completely consumed – a practical control function for the user or caregiver.

The XStraw is compact and flexible, making it easy to transport. It's suitable for a variety of applications including the pharmaceutical and medical fields, particularly for pediatrics, geriatrics and patients with dysphagia or internal blockages.

"With more than 50 percent of people young and old having problems taking pills, the XStraw becomes a game-changer for anyone seeking a simple and intuitive method for administering an exact dosing quantity," said Dr. Elke Sternberger-Rützel of DS Technology. "Through our partnership with Porex, we're able to offer patients of all ages an effective way to ingest their medication safely and properly." ■

Porex Technologies GmbH
Germany
+49 241 9105250
info.porex.emea@filtrationgroup.com
www.porex.com

▶ See page 39 for Porex company profile

6 Filters and IV Components

Filters and Materials

A–Z

Company	Country	1 Carbon	2 Cellulosic	3 Ceramic	4 Glass Fibre	5 Hydrophilic	6 Hydrophobic	7 Membrane	8 Metal	9 Micro	10 Nylon	11 Pipette-Tips	12 Plastic	13 Polyester	14 Polyethylene	15 PTFE	16 PVDF	17 Screen	Website
Porex Technologies GmbH, +49 241 910 5250	**DE**	**1**	**2**		**4**	**5**	**6**					**11**			**14**	**15**			**www.porex.com**
cendres+métaux sa, +41 58 3602000	CH								8										www.cmsa.ch
EUROFLEX GmbH, +49 7231 208210	DE								8										www.euroflex.de
IDEX Health & Science, +49 1801 808800	DE			3					8							15			www.idex-hs.com
Kunststoff Christel GmbH & Co.KG, +49 772 692 020	DE				4					9			12	13	14	15			www.kunststoff-christel.de
MeKo Laser Material Processing, +49 5066 70790	DE			3					8	9									www.MeKo.de
Porex Technologies GmbH, +49 241 910 5250	**DE**	**1**	**2**		**4**	**5**	**6**					**11**			**14**	**15**			**www.porex.com**
The West Group, +44 2392 266031	GB			3	4	5		7	8	9	10		12			15	16	17	www.westgroup.co.uk

Using Stock Components Can Reduce Your Time to Market

Getting your product to market is rarely an easy task. As engineers, you may feel that you spend much more time searching for and developing parts than actually creating products. Qosina can alleviate that stress by providing medical OEM components and innovative solutions to make your device concept a reality.

Here's how Qosina can help eliminate your go-to-market challenges:

Prototyping Is Easier – and Cheaper

If you're still in the prototyping phase of research and development, you don't want to order a bulk quantity of a part that might not work for you. Sampling is key early in the process, and Qosina's selection of 5,000+ in-stock SKUs is perfect for building out your prototypes without committing to large orders. Qosina offers complimentary samples on most of its products, so you can explore a wide range of materials, colors and configurations. This allows you to evaluate and test in advance of purchase, removing technical risk from the product development process.

Sourcing and Customizing Components

Using stock components can significantly lower the cost and time of creating a mold since one may already exist. However, if the item you require is not in Qosina's inventory, they will work to develop the part to your exact specifications. A slight alteration of an existing mold can be a cost-effective way to create a new part to meet your requirements. Qosina's knowledgeable product development team can easily adjust a stock design's size, color and material for your purposes.

Required Documentation Is in One Place

Qosina provides 3D CAD models and material specifications that allow you to easily implement components into your designs while staying up to date with government and safety regulations. Qosina offers downloadable CAD files in a variety of formats, which can be helpful for everything from adapting engineering drawings to sharing visuals with non-technical team members.

Qosina also provides comprehensive technical specifications such as material safety and data sheets, technical data sheets, material certification and compatibility information on all of its products. You can easily access these resources on qosina.com.

Streamline Your Vendors

Using one supplier for everything from running materials through tooling to quoting secondary operations for secure supply chains will streamline your vendor list and avoid complicated outsourcing. Consolidating purchases and suppliers with one order can also significantly reduce overhead.

Education on Relevant Industry Topics

Qosina keeps you in the loop regarding critical subject matter in the medical device industry. Download white papers and case studies, and read their latest blog posts for information, guidance and solutions on hot-button issues.

Qosina's number one priority is to offer the best solutions to fit their customers' needs and adapt as the development process continues. The company is constantly adding new products to their line and providing cost-effective solutions to help you get your project off the ground and into production.

Images courtesy of Qosina Corp.

Qosina Corp.
USA
+ 1 631 242 3000
marketing@qosina.com
www.qosina.com

7 Manufacturing
Components

A–Z

Company	Country	1 Adaptors	2 Adhesive Connections	3 Cable Assemblies and Plugs	4 Cases	5 Chassis	6 Clamps	7 Connectors, Terminals and Sockets	8 Controls	9 Couplings	10 Enclosures	11 Fasteners	12 Fittings	13 Gaskets and Seals	14 Handles and Knobs	15 Instrumentation	16 Interconnect Systems	17 Lamps	18 Magnets	19 Manifolds	20 Mechanical Components	21 Nuts and Bolts	22 Pneumatic Components	23 Racks	24 Screws	25 Shafts	26 Springs	27 Stoppers	28 Threaded Inserts	29 Transport Packaging	30 Wires, Cables and Cords	Website
Apple Rubber, +1 716 6846560	**US**												**13**																			**www.applerubber.com**
Carl Haas GmbH, +49 7422 567 0	**DE**																			**20**						**26**						**www.carl-haas.de**
ODU GmbH & Co. KG, +49 8631 61560	**DE**			**3**				**7**																							**30**	**www.odu.de**
Qosina Corp., +1 631 242 3000	**US**	**1**																														**www.qosina.com**
Teleflex Medical OEM, +1 508 964 6021	**US**																								**25**							**www.teleflexmedicaloem.com**
acad group GmbH, +49 9872 954608	DE					5				10																						www.acadgroup.de
Apple Rubber, +1 716 6846560	**US**												**13**																			**www.applerubber.com**
Asahi Intecc Co., Ltd., +31 20 7940643	NL			3								12													25	26					30	www.asahi-inteccusa.com
Asgard Engineering Ltd, +44 161 351 0400	GB										11													24				28			www.asgardengineering.co.uk
ASKION GmbH, +49 365 73530	DE																			20												www.askion.com
AVS-Ing. J. C. Römer GmbH, +49 855 240 760	DE							7		9			12																			www.avs-roemer.de
Beswick Engineering Co., Inc., +1 603 4331188	US	1								9			12									22										www.beswick.com
Beutter Präzisions-Komponenten GmbH & Co. KG, +49 7428 933-0	DE																			20				24	25				28			www.beutter.de
BOMATEC AG, +41 448721000	CH																		18													www.bomatec.ch
Carl Haas GmbH, +49 7422 567 0	**DE**																			**20**						**26**						**www.carl-haas.de**
Carniaflex srl, +39 00390433 775164	**IT**																			**20**												**www.carniaflex.com**
Carville Limited, +44 1306 881681	GB																		19			22										www.carvilleplastics.com
Central Bearings Supplies, +353 91 752 454	IE																			20												www.cbsbearings.com
Clamason Industries Ltd, +44 1384 400 000	GB											12								20												www.clamason.co.uk
Clippard Europe, S.A., +32 1045 2134	BE									9			12	13			16			19		21	22						28			www.clippard.eu
Creganna Medical, +353 91 757 801	IE																								25							www.creganna.com
Davair Ltd, +353 90 662 5001	IE									9							16			19			22									www.davair.net
DYMAX Europe GmbH, +49 611 9627900	DE		2											13				17														www.dymax.com
Edmund Optics GmbH, +49 721 627 3730	DE																	17														www.edmundoptics.de
ElringKlinger Kunststofftechnik GmbH, +49 7142 5830	DE													13											25							www.elringklinger-kunststoff.de
Endosmart GmbH, +49 7244 939860	DE																			20						26						www.endosmart.de
EPflex Feinwerktechnik GmbH, +49 7123 978410	DE															15																www.epflex.com
EUROFLEX GmbH, +49 7231 208210	DE									9		11	12												25	26					30	www.euroflex.de
European Springs & Pressings, +44 20 8663 1800	GB																									26					30	www.europeansprings.com
Fort Wayne Metals, +1 260 7474154	US																														30	www.fwmetals.com
Freudenberg Medical Europe GmbH, +49 631 53417500	DE													13														27				www.freudenbergmedical.de
HEITEC AG, +49 9131 8770	DE					5																										www.heitec.de
Integrated Technologies Ltd (ITL), +44 1233 655323	GB			3												15															30	www.itl.co.uk
LEMO connectors, +41 21 6951600	CH			3				7																							30	www.lemo.com
LMT Leuchten + Metall Technik GmbH, +49 9174 47970	DE				4	5				10								17				23										www.lmtgmbh.de
Moll Engineering GmbH, +49 451 39689280	DE															15																www.moll-engineering.de
NITTO KOHKI EUROPE GMBH, +49 7157 989 5550	DE									9																						www.nitto-kohki.eu
Novotema, +39 35 926530	IT													13																		www.novotema.com
ODU GmbH & Co. KG, +49 8631 61560	**DE**			**3**				**7**																							**30**	**www.odu.de**
OKW Odenwälder Kunststoffwerke Gehäusesysteme GmbH, +49 6281 404 00	DE				4										14																	www.okw.com
Peli Products Germany GmbH, +49 211 88242401	DE				4					10													23							29		www.peli.com
Precipart, +41 32 3666141	CH	1																		20				24	25							www.precipart.com
priomold GmbH, +49 7084 976 9690	DE				4															20												www.priomold.de
Qosina Corp., +1 631 242 3000	**US**	**1**																														**www.qosina.com**
R. Montavon, +41 79 4537982	CH													13						20												www.rmontavon.ch
ruetschi technology ag, +41 26 6708080	CH															15				20				24								www.ruetschi.com
Scherdel Medtec GmbH & Co. KG, +49 9231 6030	DE						6																									www.scherdel.de
SCHEUERMANN + HEILIG GmbH, +49 6281 9070	DE																									26						www.sh-gmbh.de
Smiths Connectors, +49 991 250120	DE			3				7									16															www.smithsconnectors.com
spt roth ltd., +41 32 387 8080	CH																			20												www.smallprecisiontools.com
Stansomatic A/S, +45 75 338 300	DK																			20												www.stansomatic.dk
Teleflex Medical OEM, +1 508 964 6021	**US**																								**25**							**www.teleflexmedicaloem.com**
Trelleborg Sealing Solutions Germany GmbH, +49 711 7864 536	DE													13												26						www.tss.trelleborg.com
Tri-Tech Medical, +1 440 8002538692	US								8										19													www.tri-techmedical.com
unimed sa, +41 21 6242151	CH	1																														www.unimed.ch
Ypsotec AG, +41 32 6549724	CH							7		9										20				24	25							www.ypsotec.com
Zapp Precision Metals GmbH, +49 2304 790540	DE																														30	www.zapp.com

TECHSPEC Ultrafast Harmonic Separators, also known as Ultrafast Harmonic Beamsplitters, are used to reflect the second or third harmonic of femtosecond lasers while transmitting the fundamental pulse.
Image: Edmund Optics Inc

New Optical Components

Edmund Optics® TECHSPEC® Ultrafast Harmonic Separators, also known as Ultrafast Harmonic Beamsplitters, reflect second or third harmonic wavelengths from femtosecond lasers and transmit the fundamental pulse. The reflective surface is designed to be highly reflective and to minimize dispersion with a GDD of ±20fs2, while the back surface is coated with an anti-reflection coating to maximize transmission. Manufactured from low wavefront distortion, 10-5 surface quality fused silica substrates, TECHPSEC® Ultrafast Harmonic Separators are available in two designs for separating harmonics of either 800nm or 1030nm lasers.

New TECHSPEC® λ/40 Aspheric Lenses feature a high numerical aperture design and an aspheric figure error of λ/40 or better, achieved via precision magnetorheological finishing (MRF). These aspheres are also available coated for specific Nd:YAG laser wavelengths as the TECHSPEC® λ/40 Laser Grade Aspheric Lenses. Each TECHSPEC® λ/40 Aspheric Lens is individually measured for 3D surface profile, and test data is provided for each lens. ■

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www.edmundoptics.com

8 Manufacturing
Equipment

A–Z

▶ More product and service categories on page 38

Company	Country	1 3D Printing Systems	2 Adhesive Curing Equipment	3 Assembly Systems	4 Automation Systems	5 Clean Room	6 Cleaning Systems, Non-Ultrasonic	7 Cleaning Systems, Ultrasonic	8 Component Assembly	9 Converting Equipment	10 Conveyors and Transport Systems	11 Cutting Tools	12 Die Cutting Machines	13 Dispensers/Fillers	14 Dosing Systems	15 Drilling Machines	16 Extrusion Machines	17 Feeders	18 Fluid Control Equipment	19 Grinding Machines	20 Heat Sealing Machines	21 Injection Molding Machines	22 Laser Marking Systems	23 Laser Welding Machines	24 Lasers	25 Machine Controls	26 Machine Visual Monitoring Systems	27 Machining Systems	28 Material Handling Equipment	29 Metal Fabricating Equipment	30 Micro Assembly Systems	31 Milling Machines	32 Modular Systems	33 Nozzles	34 Pick and Place Units	35 Process Control Equipment	36 Rapid Manufacturing Equipment	37 Rapid Prototyping Equipment	38 Robots and Handling Technology	Website
3P Innovation Ltd, +44 1926 408 933	GB		2	3	4				8		10	11	12	13				17	18		20				24														38	www.3pinnovation.com
ACSYS Lasertechnik GmbH, +49 7154 808 750	DE																							23	24															www.acsys.de
André Gueissaz SA, +41 58 400 96 60	CH			3		5	6	7	8			11									20	21		23	24	25				30				35					www.gueissaz.ch
Arburg GmbH + Co KG, +49 7446 330	DE			3	4																	21								30									www.arburg.com
Automation Technology Services, +353 71 911 8808	IE			3	4																					25	26	27					34					38	www.atsautomation.com
bc-technology GmbH, +49 7022 279710	DE					5																																	www.bc-technology.de
BOMATEC AG, +41 448721000	CH			3																																			www.bomatec.ch
Buehler - ITW Test & Measurement GmbH, +49 711 4904 690-0	DE													14						19							26			29									www.buehler.com
BW-TEC AG, +41 44 8637070	CH				4							11	12					17						23	24				28											www.bwtec.com
Ciposa S.A., +41 32 566 6600	CH			3	4																20						26	27											www.ciposa.com
Collin, +49 20960 209 60	DE				4					9			12				16																							www.drcollin.de
DREIGEIST - Additive Intelligence, +49 911 891 191 10	DE	1																																	36	37			www.dreigeist.com
Dunkermotoren GmbH, +49 77039300	DE				4																					25		27						34					www.dunkermotoren.com
DYMAX Europe GmbH, +49 611 9627900	DE		2								10			13																										www.dymax.com
EFSEN UV & EB Technology, +45 4565 0260	DK		2																																					www.efsen.dk
EUROFLEX GmbH, +49 7231 208210	DE																																							www.euroflex.de
Extrudex Kunststoffmaschinen GmbH, +49 7041 96250	DE											11					16																33							www.extrudex.de
FOBA Laser Marking + Engraving (ALLTEC GmbH), +49 38823 55222	DE																						22				26	27												www.fobalaser.com
FOBOHA (Germany), +49 7832 7980	DE				4																	21												35					www.foboha.com
Gimac Microextruders, +39 332 892206	IT				4												16																							www.gimac.com
HEITEC AG, +49 9131 8770	DE			3	4	5																						27						35	36		38		www.heitec.de
HEKUMA GmbH, +49 811 999 77-0	DE			3	4				8																							32		34					hekuma.com
IMSTec GmbH, +49 6136 994 4110	DE																16							24											36					www.imstec.de
ITS Ltd., +353 21 463 2000	IE				4																							27										38	www.itsl.ie
JENOPTIK | Healthcare & Industry, JENOPTIK Laser GmbH, +49 3641	DE																							24															www.jenoptik.com
Kahle Automation S.r.l., +39 363 355511	IT			3	4				8	9	10							17								26		28		30				34	35	36			www.kahleautomation.com
Komax Systems LCF SA, +41 41 455 0455	CH				4																																		www.komaxgroup.com
Körber Medipak Systems AG, +41 522 600 922	CH					6												17								26													www.medipak-systems.com
LPKF WeldingQuipment GmbH, +49 911 6698590	DE																							23															www.lpkf-laserwelding.com
LTI Motion GmbH, +49 6441 9660	DE				4																					25		27						35					www.lti-motion.com
Mikron SA Boudry, +41 32 8431111	CH			3	4				8		10							17										27			30		32		34			38	www.mikron.com
ontec automation GmbH, +49 9282 931 100	DE			3	4		6	7			10			13	14					19			22			25	26	27		29			32		34	35			38	www.ontec-automation.de
Riegler GmbH & Co.KG, +49 6151 9190	DE																					21																	www.riegler-medical.com
ROFIN-BAASEL Lasertech GmbH & Co.KG, +49 8105 39650	DE											11												23	24														www.rofin.de
Scherdel Medtec GmbH & Co. KG, +49 9231 6030	DE			3	4							11																		29									www.scherdel.de
Schobertechnologies GmbH, +49 7042 7900	DE									9		11	12							19	20								28					34					www.schobertechnologies.de
SCHUNK GmbH & Co. KG, +49 7133 1030	DE			3	4							11				15		17		19								27	28			31						38	www.schunk.com
Singulus Technologies AG, +49 6188 4400	DE						6	7														21										31							www.singulus.de
SONOTEC GmbH, +49 345 133170	DE																		18																				www.sonotec.eu
Steeger GmbH & Co. KG, +49 202 255 550	DE																																						www.steeger-online.de
Swanstone Ltd, +44 1952 400 050	GB									9		11	12																										www.swanstone-uk.com
teamtechnik Group, +49 7141 70030	DE			3	4													17																					www.teamtechnik.com
TECAN, +41 44 922 81 11	CH				4									13	14				18										28											www.tecan.com
Techsil Ltd, +44 1789 773232	GB		2											13	14				18																					www.techsil.co.uk
TECNO SYSTEM srl, +39 532 858883	IT																16																							www.tecnosystemfe.it
Tecnoideal s.r.l., +39 535 23653	IT			3								11		13	14								22																	www.tecnoidealsrl.com
Telesis Marking Systems, +44 1404 549 139	GB																																							www.telesis.com
The Automated Technology Group, +44 1604 439525	GB			3	4				8									17								25	26						32		34				38	www.the-atg.com
The West Group, +44 2392 266031	GB				4																																			www.westgroup.co.uk
TLM Laser Ltd, +44 1527 959 099	GB											11												23	24					29										www.tlm-laser.com
Top Clean Packaging Group, +33 4 73803252	FR																				20								28											www.topcleanpackaging.com
TRUMPF Laser- und Systemtechnik GmbH, +49 7156 3030	DE				4							11												23	24			27		29						36	37	38		www.trumpf-laser.com
Vante - A Machine Solutions Co, +1 520 881-6555	US																																							www.cathetertipping.com
ViscoTec Pumpen- u. Dosiertechnik GmbH, +49 8631 92740	DE													13	14				18							25														www.viscotec.de
Ward Automation Ltd, +353 7191 50039	IE		2	3	4						10			13										23			26			29				34		36		38	www.wardautomation.ie
Xenon Automatisierungstechnik Gmbh, +49 351 40209100	DE			3	4				8									17												30				34				38	www.xenon-automation.com

8 Manufacturing
Equipment

A–Z

Company	Country	39 Surface Treatment	40 Tip Forming	41 Tools (Manual and Power)	42 Tubing Processing Equipment	43 Turning Machines	44 Turnkey Systems	45 UV Curing Systems	46 Welders/Sealers	47 Work Stations and Accessories	Website
3P Innovation Ltd, +44 1926 408 933	GB								46		www.3pinnovation.com
ACSYS Lasertechnik GmbH, +49 7154 808 750	DE										www.acsys.de
André Gueissaz SA, +41 58 400 96 60	CH										www.gueissaz.ch
Arburg GmbH + Co KG, +49 7446 330	DE						44				www.arburg.com
Automation Technology Services, +353 71 911 8808	IR										www.atsautomation.com
bc-technology GmbH, +49 7022 279710	DE										www.bc-technology.de
BOMATEC AG, +41 448721000	CH										www.bomatec.ch
Buehler - ITW Test & Measurement GmbH, +49 711 4904 690-0	DE										www.buehler.com
BW-TEC AG, +41 44 8637070	CH		40		42				46		www.bwtec.com
Ciposa S.A., +41 32 566 6600	CH								46	47	www.ciposa.com
Collin, +49 20960 209 60	DE										www.drcollin.de
DREIGEIST - Additive Intelligence, +49 911 891 191 10	DE	39									www.dreigeist.com
Dunkermotoren GmbH, +49 77039300	DE										www.dunkermotoren.com
DYMAX Europe GmbH, +49 611 9627900	DE							45			www.dymax.com
EFSEN UV & EB Technology, +45 4565 0260	DK	39						45			www.efsen.dk
EUROFLEX GmbH, +49 7231 208210	DE	39	40								www.euroflex.de
Extrudex Kunststoffmaschinen GmbH, +49 7041 96250	DE				42		44				www.extrudex.de
FOBA Laser Marking + Engraving (ALLTEC GmbH), +49 38823 55222	DE										www.fobalaser.com
FOBOHA (Germany), +49 7832 7980	DE					43					www.foboha.com
Gimac Microextruders, +39 332 892206	IT			41							www.gimac.com
HEITEC AG, +49 9131 8770	DE						44				www.heitec.de
HEKUMA GmbH, +49 811 999 77-0	DE						44				www.hekuma.com
IMSTec GmbH, +49 6136 994 4110	DE	39									www.imstec.de
ITS Ltd., +353 21 463 2000	IR						44				www.itsl.ie
JENOPTIK I Healthcare & Industry, JENOPTIK Laser GmbH, +49 3641	DE										www.jenoptik.com
Kahle Automation S.r.l., +39 363 355511	IT		40		42		44	45			www.kahleautomation.com
Komax Systems LCF SA, +41 41 455 0455	CH										www.komaxgroup.com
Körber Medipak Systems AG, +41 522 600 922	CH										www.medipak-systems.com
LPKF WeldingQuipment GmbH, +49 911 6698590	DE								46		www.lpkf-laserwelding.com
LTI Motion GmbH, +49 6441 9660	DE										www.lti-motion.com
Mikron SA Boudry, +41 32 8431111	CH						44			47	www.mikron.com
ontec automation GmbH, +49 9282 931 100	DE						44			47	www.ontec-automation.de
Riegler GmbH & Co.KG, +49 6151 9190	DE			41							www.riegler-medical.com
ROFIN-BAASEL Lasertech GmbH & Co.KG, +49 8105 39650	DE	39									www.rofin.de
Scherdel Medtec GmbH & Co. KG, +49 9231 6030	DE	39		41							www.scherdel.de
Schobertechnologies GmbH, +49 7042 7900	DE										www.schobertechnologies.de
SCHUNK GmbH & Co. KG, +49 7133 1030	DE					43	44				www.schunk.com
Singulus Technologies AG, +49 6188 4400	DE	39									www.singulus.de
SONOTEC GmbH, +49 345 133170	DE										www.sonotec.eu
Steeger GmbH & Co. KG, +49 202 255 550	DE				42						www.steeger-online.de
Swanstone Ltd, +44 1952 400 050	GB										www.swanstone-uk.com
teamtechnik Group, +49 7141 70030	DE						44				www.teamtechnik.com
TECAN, +41 44 922 81 11	CH										www.tecan.com
Techsil Ltd, +44 1789 773232	GB							45			www.techsil.co.uk
TECNO SYSTEM srl, +39 532 858883	IT										www.tecnosystemfe.it
Tecnoideal s.r.l., +39 535 23653	IT				42						www.tecnoidealsrl.com
Telesis Marking Systems, +44 1404 549 139	GB						44				www.telesis.com
The Automated Technology Group, +44 1604 439525	GB						44				www.the-atg.com
The West Group, +44 2392 266031	GB										www.westgroup.co.uk
TLM Laser Ltd, +44 1527 959 099	GB	39									www.tlm-laser.com
Top Clean Packaging Group, +33 4 73803252	FR								46		www.topcleanpackaging.com
TRUMPF Laser- und Systemtechnik GmbH, +49 7156 3030	DE			41	42						www.trumpf-laser.com
Vante - A Machine Solutions Co, +1 520 881-6555	US		40				44		46		www.cathetertipping.com
ViscoTec Pumpen- u. Dosiertechnik GmbH, +49 8631 92740	DE										www.viscotec.de
Ward Automation Ltd, +353 7191 50039	IR		40		42			45	46		www.wardautomation.ie
Xenon Automatisierungstechnik Gmbh, +49 351 40209100	DE						44				www.xenon-automation.com

Flexible Design and Excellent Surface Properties
High-Quality Technologies for Medical Applications

Image: ODU GmbH & Co. KG

Applications in medical technology are often exposed to significant mechanical and chemical influences. In addition to various connector solutions, ODU developed new high-quality silicone-overmolded system solutions, which can be used in a range of applications in medical technology. Therefore, ODU offers a flexible complete system consisting of connectors, cables with matching assembly and optional labelling. The complete solution is precisely tailored to the application. The surface with unique haptics allows you to concentrate on your patients due to prevention of the stick-slip effect and an easy to clean cable system with bend protection. The new system solution is available for various ODU product series and customized solutions.

Both the connector and the associated cable assembly must be optimally suited for the corresponding environment. This requires a variety of resiliencies. The new silicone-overmolded system solutions meet these requirements and can withstand up to 500 autoclave cycles. In addition, wipe disinfection, chemical resistance and biocompatibility are ensured. The cable system including overmolding is easy to clean and hygienic due to reduced stickiness and smooth transition.

Applications in the field of medical technology meet particularly high requirements. ODU is testing this using a wide variety of methods. Hygiene, durability as well as patient and user protection are the major priorities. The resistant silicone-overmolded system solution is tested for medical technology use according to ISO 10993-5.

ODU relies on many years of cooperation with leading cable manufacturers in the medical sector. ODU also takes care of testing and documentation – allowing physicians to concentrate on their patients. ■

All advantages at a glance

- New surface with unique haptics – no stick-slip effect
- Surface properties last through up to 500 autoclave cycles
- Bend protection thanks to special shape of overmolding
- Maximum alternating bending strength
- Tested for medical technology use
- Approved LSR and HTV processes globally available
- Individual laser labelling possible
- Various standard inserts available
- Optimal mechanical properties
- Customized contact configuration
- Halogen- and latex-free

ODU GmbH & Co. KG
Germany
+ 49 8631 61560
sales@odu.de
www.odu-connectors.com

9 Manufacturing
Services

A – E

▶ More product and service categories on page 46

Company	Country	1 Assembly	2 Biomedical Machined Parts	3 Bonding	4 Cleanroom Manufacturing	5 Coating	6 Coil Winding	7 Compounding	8 Contract Manufacturing, Full Service	9 Converting	10 Design	11 Die Cutting and Stamping	12 Dipping	13 Drilling	14 Electronic R&D	15 Electronics, Subassemblies	16 Etching	17 Forming	18 Grinding	19 Heat Sealing RF	20 Heat Treating	21 Hole Punching/Cutting	22 Kit Assembly	23 Laser Making	24 Machining	25 Machining, Electrical Discharge	26 Machining, Laser	27 Machining, Metal	28 Machining, Micro	29 Metal Fabrication	30 Molded Parts, Other	31 Molded Parts, Silicone	32 Molded Parts, TPE	33 Needles	34 Plastic Parts Fabrication	35 Polishing	36 Prototyping and Rapid Prototyping	37 Research & Development	38 Sealing	Website
Accumold, +1 515 9645741	**US**																													**30**	**31**	**32**		**34**					**www.accu-mold.com**
Apple Rubber, +1 716 6846560	**US**				**4**						**10**													**23**						**30**	**31**	**32**						**38**	**www.applerubber.com**
Carl Haas GmbH, +49 7422 567 0	**DE**	**1**		**3**	**4**	**5**			**8**		**10**			**13**				**17**	**18**		**20**			**24**		**26**	**27**	**28**	**29**				**33**		**35**	**36**	**37**		**www.carl-haas.de**
Carniaflex srl Meditech Group, +39 433 775164	**IT**								**8**																			**28**											**carniaflex.com**
Klingel medical metal GmbH, +49 723165190	**DE**	**1**							**8**	**9**									**18**		**20**			**23**	**24**	**25**		**27**	**28**	**29**						**35**				**www.klingel-med.de**
MER Medical Engineering Resources- Europe, +31 598 634420	**NL**	**1**		**3**	**4**				**8**				**12**																		**31**					**36**	**37**		**www.mer-europe.com**
Micro Systems Technologies, +41 44 8046300	**CH**															**15**																							**www.mst.com**
Qosina Corp., +1 631 2423000	**US**	**1**		**3**					**8**																					**30**	**31**			**34**		**36**	**37**		**www.qosina.com**
Teleflex Medical OEM, +1 508 964 6021	**US**	**1**		**3**	**4**	**5**	**6**	**7**	**8**		**10**		**12**	**13**			**16**		**18**			**21**														**35**	**36**	**37**		**www.teleflexmedicaloem.com**
Accumold, +1 515 9645741	**US**																													**30**	**31**	**32**		**34**					**www.accu-mold.com**
Advanced Chemical Etching Ltd, +44 1952 416666	GB		2						8								16												29							37		www.ace-uk.net
Advant Medical, +353 91 770777	IE	1							8																					30						36			www.advantmedical.com
André Gueissaz SA, +41 58 400 96 60	CH	1							8		10												22	23				28		30		32		34	35	36	37	38	www.gueissaz.ch
Apple Rubber, +1 716 6846560	**US**				**4**						**10**													**23**						**30**	**31**	**32**						**38**	**www.applerubber.com**
Arrotek Medical Ltd, +353 71 9115111	IE	1			4						10							17																					www.arrotek.com
Asahi Intecc Co., Ltd., +31 20 7940643	NL	1		3		5	6	7	8				12				16	17	18						25	26	27												www.asahi-inteccusa.com
Asgard Engineering Ltd, +44 161 351 0400	GB		2																					24					29										www.asgardengineering.co.uk
ASKION GmbH, +49 365 73530	DE	1							8						14	15																				36	37		www.askion.com
B. Braun Melsungen AG, +49 5661 710	DE								8														22														37		www.bbraun.com
Bavaria Medizin Technologie GmbH, +49 8153 4010	DE				4						10																								36			www.bavaria-medizin.de
BBF Sterilisationsservice GmbH, +49 7151 945700	DE	1			4																																		www.sterixpert.de
bebro electronic GmbH, +49 7022 40030	DE	1			4				8	9	10				14	15														30				34		36	37	38	www.bebro.de
Beutter Präzisions-Komponenten GmbH & Co. KG, +49 7428 933-0	DE		2						8																			28	29						36				www.beutter.de
BioCer, +49 921 787 770-0	DE					5																																	www.biocer-gmbh.de
BIT Analytical Instruments GmbH, +49 6196 806 100	DE	1			4				8																				29	30		32							www.bitgroup.de
BKB Precision Van den Berg Kunststof Bewerking BV, +31 40 267 0101	NL	1																						24										34						www.bkbprecision.com
Blueacre Technology Ltd, +353 42 9386922	IE													13									23			26			29	30			33		36				www.blueacretechnology.com
BMC Messsysteme GmbH, +49 8141 404 1800	DE								8						14																									www.bmcm.de
BOMATEC AG, +41 448721000	CH	1																																							www.bomatec.ch
Braunform GmbH, +49 7663 93200	DE				4																																			www.braunform.com
BYTEC Medizintechnik GmbH, +49 2403 782 9900	DE								8		10				14																							37		www.bytecmed.com
C. Hafner, +49 7044 903 33 0	DE																								24			27		29										www.c-hafner.de
Cambus Medical, +353 91 504633	IE	1				5																				25	26	27												www.cambusmedical.com
Carl Haas GmbH, +49 7422 567 0	**DE**	**1**		**3**	**4**	**5**			**8**		**10**			**13**				**17**	**18**		**20**				**24**		**26**	**27**	**28**	**29**				**33**		**35**	**36**	**37**		**www.carl-haas.de**
Carniaflex srl Meditech Group, +39 433 775164	**IT**								**8**																			**28**											**www.carniaflex.com**
Carville Limited, +44 1306 881681	GB			3					8												20				24										34					www.carvilleplastics.com
Catheter & Medical Design (CMD) Inc, +1 651 6366505	US	1		3	4		6		8									17																			37		www.cathetermd.com
cendres+métaux sa, +41 58 3602000	CH								8					13			16								24			27	28		30				35				www.cmsa.ch
Cicor Group, +41 71 9137300	CH	1				5																																	www.cicor.com
Cikautxo Medical, +34 946 133 000	ES				4				8		10																				31			34		36			www.cikautxomedical.es
Clamason Industries Ltd, +44 1384 400 000	GB	1							8			11																				32								www.clamason.co.uk
Connecticut Spring & Stamping, +1 860 703 1654	US		2				6																						29											www.ctspring.com
CONSUNIQUE GmbH, +49 89 35847800	DE								8																24					29			32		34		36			www.consunique.com
Creative Instruments GmbH, +49 88192 706 760	DE																		18						24	25														www.creative-instruments.de
Creganna Medical, +353 91 757 801	IE								8																								33			36			www.creganna.com
CTDI – Regenersis GmbH, +49 5207 9290102	DE	1																																						www.ctdi.com
David Schnur Associates, +1 650 941 0898	US	1	2		4		6		8		10	11							18			21	22	23	24		26	27	28	29	30		32	33	34		36	37		www.dschnur.com
DCA Design International, +44 1926 499461	GB										10				14																									www.dcamedical.co.uk
Demcon Advanced Mechatronics B.V., +31 88 115 20 00	NL								8																															www.demcon.nl
Deringer-Ney Inc., +1 860 286 6101	US																												28						36				www.deringerney.com
design!struktur, +49 8249 969 4033	DE	1			4				8																											36				www.design-struktur.de
Disposable Instrument Company Inc., +913 913 4926492	US		2														16	17	18			21		23	24			27		29			33			36			www.disposableinstrument.com
Donatelle Plastics Inc., +1 651 6334200	US	1		3	4				8		10												22	23	24	25		27	28			31				36	37		www.donatellemedical.com
DREIGEIST - Additive Intelligence, +49 911 891 191 10	DE				4																															36			www.dreigeist.com
Dukane, +353 85 2 521 061	IE			3																		21												34					www.dukane.eu
em-tec gmbh, +49 8806 923 60	DE								8																															www.em-tec.de
Endosmart GmbH, +49 7244 939860	DE	1	2	3	4				8		10			13			16	17	18		20				24	25		27	28	29				33		35	36	37		www.endosmart.de
EPflex Feinwerktechnik GmbH, +49 7123 978410	DE	1				5			8		10								18																	36	37		www.epflex.com
EUROFLEX GmbH, +49 7231 208210	DE						6	7				11					16	17	18								26		28	29				33		35	36	37		www.euroflex.de
European Springs & Pressings, +44 20 8663 1800	GB																																							www.europeansprings.com
Everite, +1 856 3306700	US	1																	18						24	25		27		29						35					www.everite.com

9 Manufacturing
Services

F – P

Company	Country	1 Assembly	2 Biomedical Machined Parts	3 Bonding	4 Cleanroom Manufacturing	5 Coating	6 Coil Winding	7 Compounding	8 Contract Manufacturing, Full Service	9 Converting	10 Design	11 Die Cutting and Stamping	12 Dipping	13 Drilling	14 Electronic R&D	15 Electronics, Subassemblies	16 Etching	17 Forming	18 Grinding	19 Heat Sealing RF	20 Heat Treating	21 Hole Punching/Cutting	22 Kit Assembly	23 Laser Making	24 Machining	25 Machining, Electrical Discharge	26 Machining, Laser	27 Machining, Metal	28 Machining, Micro	29 Metal Fabrication	30 Molded Parts, Other	31 Molded Parts, Silicone	32 Molded Parts, TPE	33 Needles	34 Plastic Parts Fabrication	35 Polishing	36 Prototyping and Rapid Prototyping	37 Research & Development	38 Sealing	Website
F&W Frey&Winkler GmbH, +49 7232 30540	DE				4																										31	32		34			36	37		www.freywinkler.de
Farlow's Scientific Glassblowing Inc, +1 530 477 5513	US																	17												30										farlowsci.com
Fenland RP Ltd, +44 1945 411 700	GB																	17																		36				www.frpsolutions.co.uk
Filtrop AG, +423 388 11 50	LI																																							www.filtrop.com
Frank plastics AG, +49 7486 1810	DE	1			4				8																											36	37		www.frankplastic.de
Freudenberg Medical Europe GmbH, +49 631 53417500	DE	1			4	5			8		10												22	23							31	32				36	37	38	www.freudenbergmedical.de
FRIWO Gerätebau GmbH, +49 2532 810	DE					5			8						14	15																								www.friwo.com
G. Hipp & Sohn GmbH, +49 7467 1463	DE	1		3	4	5			8	9	10	11		13				17	18	19	20	21	22	23	24	25	26	27	28	29	30		32	33	34	35	36			www.hippandson.com
GEMÜ, +41 41 799 05 00	CH	1			4																				24		26				30		32		34		36			www.gemue.ch
GfPS mbH, +49 241 510 05 00	DE				4																																			www.gfps.de
Gramm UG, +49 941 462 975 00	DE																																			36				www.gramm.online
Harland Medical Systems, +1 952 9410475	US					5							12																											harlandmedical.com
Harmac Medical Products IR, +353 9496 21515	IE				4				8																											36	37		www.harmac.com
Iftest AG, +41 56 4373737	CH	1							8		10				14	15																		34		36				www.iftest.ch
Ilzhöfer GmbH, +49 9524 30370	DE																										26			29										www.ilzo.com
Inpac Medizintechnik GmbH, +49 7082 94570	DE	1			4				8			11											22																		inpac-medizintechnik.de
Integrated Technologies Ltd (ITL), +44 1233 655323	GB	1			4				8		10				14	15																				36	37			www.itl.co.uk
Irish Micro Mouldings Ltd, +353 91 593 814	IE	1			4																									30				34						www.micromouldings.com
Iskra Mehanizmi, d.o.o., +386 4 5355 100	SI				4				8																															www.iskra-mehanizmi.si
JENOPTIK Polymer Systems GmbH, +49 36482 450	DE	1	2	3	4	5					10	11			14	15								23								32		34		36	37	38		www.jenoptik.com
KKS Ultraschall AG, +44 41 833 87 87	CH																16							23											35					www.kks-ultraschall.ch
Klingel medical metal GmbH, +49 723165190	**DE**	**1**							**8**	**9**									**18**		**20**			**23**	**24**	**25**		**27**	**28**	**29**						**35**				**www.klingel-med.de**
KonMed GmbH, +41 41 790 43 33	CH	1	2	3	4																								28					34						www.konmed.ch
Kratzer GmbH + Co. KG, +49 781 6240	DE	1															16		18					23	24			27		29										www.kratzer.de
Kuemmerle GmbH, +49 7623 5526	DE					5													18						24			27		29										www.kuemmerle.com
Kunststoff Christel GmbH & Co.KG, +49 772 692 020	DE	1	2		4					9		11												23			26						33	34						www.kunststoff-christel.de
KVH Hartung GmbH, +49 89 899 6610	DE	1																							24		26			29	30		32							www.kvh-hartung.de
LCP LASER-CUT-PROCESSING GmbH, +49 36601 93270	DE											11					16							23			26		28											www.lcpgmbh.de
LEMO connectors, +41 21 6951600	CH	1																																							www.lemo.com
LiKAMED GmbH, +49 7262 91890	DE	1				5																																			www.likamed.de
LiteMax Electronics Inc., +49 421 565 6815	DE	1		3											14	15																									www.litemax.de
LMT Leuchten + Metall Technik GmbH, +49 9174 47970	DE	1									10	11		13				17	18			21			24		26	27		29					35					www.lmtgmbh.de
LOEW Präzisionsteile GmbH, +49 911 400 8850	DE																													29											www.loew-praezision.de
Martech Medical, +1 215 2568833	US											11							18			21									30	31					36			www.martechmedical.com
Matthias Wetzel Industriebeschriftungen, +49 3641 57930	DE					5			8					13				17	18					23			26	27							35					www.mwib.de
MechanikZentrum Schmidbauer, +49 8072 371100	DE	1				5			8												20				24	25		27		29										www.mechanikzentrum.de
Medanco, +31 40 230 6820	NL	1																																							www.medanco.nl
MeKo Laser Material Processing, +49 5066 70790	DE				4				8					13							20			23			26	27	28	29					35	36	37		www.meko.de
MER Medical Engineering Resources- Europe, +31 598 634420	**NL**	**1**		**3**	**4**				**8**				**12**																			**31**					**36**	**37**		**www.mer-europe.com**
Micro Systems Technologies, +41 44 8046300	**CH**															**15**																								**www.mst.com**
MicroGenisis TechSoft GmbH, +49 89 309 040 161	DE										10																										37		www.mgtechsoft.com
MicroGroup, +1 508 533 4925	US	1				5			8			11						17	18						24			27	28							36			www.microgroup.com
Modern Catheter Technology (MCT), Inc, +1 651 3420850	US	1		3	4		6		8		10							17																34		36	37		www.moderncath.com
Moseys Production Machinist, +1 714 693 4840	US	1				5																			24			27											www.moseys.com
Murrplastik Medizintechnik GmbH, +49 3745 789 7916	DE				4																				24									34					www.murrplastik-medizintechnik.eu
Nanogate Medical Systems GmbH, +49 2359 5080960	DE	1			4					9																				30	31	32		34		36			www.nanogate-medical.de
Nordson MEDICAL, +1 888 404 5837	US								8					13			16		18																	36			www.nordsonmedical.com
Novotema, +39 35 926530	IT				4						10																				30	31						38	www.novotema.com
Oceanz, +31 318 769077	NL				4																															36				www.oceanz.eu
Optima Medical Components, +46 18 183020	SE		2				6					11															26	27		29										www.optima.se
OSCOMED GMBH, +49 3675 439700	DE	1			4				8														22	23						30	31	32	33	34			37			www.oscomed.de
Oscor Inc., +49 211 586 786 00	US	1	2		4	5												17	18			21		23				27			30	31				35	36			www.oscor.com
Osypka AG, +49 7623 74050	DE	1	2	3	4				8															23			26	27	28			31			34		36	37		www.osypka.de
Ottronic Regeltechnik GmbH, +43 3573 34008	AT								8				12			15																				36				www.ottronic.com
Phillips-Medisize, +31 252 576888	NL	1		3	4				8		10												22								30	31					36			www.phillipsmedisize.com
PRETTL electronics GmbH, +49 3528 456 233	DE	1			4											15																								www.prettl-electronics.de
priomold GmbH, +49 7084 976 9690	DE																	17													30		32		34		36				www.priomold.de
Procon Medizintechnik GmbH, +49 6188 445 990	DE		2		4				8															23																	www.procon-med.de
PROMEPLA SAM, +377 979 84 232	MC	1			4	5			8				12										22															37			www.promepla.com
Proto Labs Limited, +49 6261 6436947	DE																								24						30	31	32		34		36				www.protolabs.de
puracon GmbH, +49 8031 900 587 0	DE	1			4																																				www.puracon.com

▶ More product and service categories on page 48

9 Manufacturing
Services

Q – Z

Company	Country	Assembly 1	Biomedical Machined Parts 2	Bonding 3	Cleanroom Manufacturing 4	Coating 5	Coil Winding 6	Compounding 7	Contract Manufacturing, Full Service 8	Converting 9	Design 10	Die Cutting and Stamping 11	Dipping 12	Drilling 13	Electronic R&D 14	Electronics, Subassemblies 15	Etching 16	Forming 17	Grinding 18	Heat Sealing RF 19	Heat Treating 20	Hole Punching/Cutting 21	Kit Assembly 22	Laser Making 23	Machining 24	Machining, Electrical Discharge 25	Machining, Laser 26	Machining, Metal 27	Machining, Micro 28	Metal Fabrication 29	Molded Parts, Other 30	Molded Parts, Silicone 31	Molded Parts, TPE 32	Needles 33	Plastic Parts Fabrication 34	Polishing 35	Prototyping and Rapid Prototyping 36	Research & Development 37	Sealing 38	Website
Qosina Corp., +1 631 2423000	**US**	**1**		**3**					**8**																					**30**	**31**			**34**		**36**	**37**		**www.qosina.com**
R. Montavon, +41 79 4537982	CH				4																									30		32		34				38	www.rmontavon.ch
RAUMEDIC AG, +49 9252 3590	DE	1							8																														www.raumedic.com
Riegler GmbH & Co.KG, +49 6151 9190	DE	1	2		4													17												30		32		34					www.riegler-medical.com
RILE Lightweight Design GmbH, +49 991 2507280	DE																												29	30									www.rile-lightweight.com
Rilit Lackfabrik GmbH, +49 7642 92600	DE					5																																	www.rilit.de
ruetschi technology ag, +41 26 6708080	CH																		18			22	23	24					28		30									www.ruetschi.com
Safrima AG, +41 32 387 05 91	CH	1																				22	23	24			27													www.safrima.com
SASSE Elektronik GmbH, +49 9122 9780	DE								8		10				14	15																								www.sasse-elektronik.de
Scherdel Medtec GmbH & Co. KG, +49 9231 6030	DE	1			4	5	6												18										29						36				www.scherdel.de
SCHEUERMANN + HEILIG GmbH, +49 6281 9070	DE	1			4	5			8			11									20			23			27		29				34		36				www.sh-gmbh.de
Schieferle Technology GmbH, +49 08225-308030	DE	1							8																24	25	27						34	35					www.schieferle-pego.de
Schivo Medical, +353 51 372 010	IE	1			4	5								13					18							26	27		29						35	36			www.schivogroup.com
Si Us Instruments GmbH, +49 30 351 364 36	DE								8																														www.si-us-instruments.de
SiMEDEx Inc., +1 805 610 6444	US	1		3	4																																		www.simedex.com
Specialty Coating Systems SCS, +1 317 451 8549	**US**					**5**																							29										**www.scscoatings.com**
Stansomatic A/S, +45 75 338 300	DK										10	11																											www.stansomatic.dk
STARLIM Spritzguss GmbH, +43 7243 585960	AT				4						10																				31					36			www.starlim-sterner.com
Statice SAS, +33 381 484 343	FR	1			4		6		8		10		12		14									24				28			31			34		36	37		www.statice.com
steripac GmbH, +49 7051 58880	DE	1			4				8																														www.steripac.com
STERNE SAS, +33 432 501 697	FR																													30	31								www.sterne-silicone-rubber.com
STI Laser Industries Ltd., +972 4 6101103	IL	1	2		4				8												20						26							35	36				www.sti-laser.com
tecnotron elektronik gmbh, +49 8389 920 00	DE	1							8						14	15																				36	37		www.tecnotron.de
Teleflex Medical OEM, +1 508 964 6021	**US**	**1**		**3**	**4**	**5**	**6**	**7**	**8**		**10**			**13**			**16**		**18**		**21**														**35**	**36**	**37**		**www.teleflexmedicaloem.com**
The West Group, +44 2392 266031	GB	1																																					www.westgroup.co.uk
TIGRIS Elektronik GmbH, +49 30 301 048 30	DE								8						14	15																							www.tigris.eu
Top Clean Packaging Group, +33 4 73803252	FR	1			4				8		10							17		19										30	31			34				38	www.topcleanpackaging.com
Trelleborg Sealing Solutions DE GmbH, +49 711 7864 536	DE				4				8																					31	32							38	www.tss.trelleborg.com
Trend Technologies IE, +353 44 933 4300	IE	1			4																									30				34					www.trendtechnologies.com
Turck duotec GmbH, +49 9131 691-246	DE	1		3	4	5					10				14									23												36	37		www.turck-duotec.com
unimed sa, +41 21 6242151	CH	1	2	3		5			8		10		12	13					18		20	21	22	23	24	25	26	27	28				33		35	36				www.unimed.ch
VELOX GmbH - an IMCD company, +49 40 3696880	DE							7	8																														www.velox.com
Vesta, +1 414 4230550	US	1		3				7	8			11	12	13								21																	www.vestainc.com
Vision Engineering Ltd, +49 8141 401 670	DE								8																														www.visioneng.de
VistaMed Limited, +353 71 9638833	IE	1		3	4		6		8		10			13				17			20	21		23			26	27	28									www.vistamed.net
Weidmann Medical Technology AG, +41 55 221 4111	CH	1							8																					30		32		34					www.weidmann-medical.com
XL Precision Technologies, +44 1642 766960	GB	1			4												16								25	26	27	28	29							36			www.xlprecisiontechnologies.com
Zenith Adhesives Components, +353 90 648 6296	IE	1							8			11																											www.zac.ie

▶ More product and service categories on page 50

9 Manufacturing
Services

A–E

Company	Country	39 Slitting	40 Surface Treatment	41 Thermoforming	42 Tipping	43 Tube Forming and Processing	44 Turning	45 Welding, Laser	46 Welding, Ultrasonic	47 Wireforming	Website
Accumold, +1 515 9645741	**US**										**www.accu-mold.com**
Apple Rubber, +1 716 6846560	**US**										**www.applerubber.com**
Carl Haas GmbH, +49 7422 567 0	**DE**		**40**				**44**	**45**		**47**	**www.carl-haas.de**
Carniaflex srl Meditech Group, +39 433 775164	**IT**						**44**				**carniaflex.com**
Klingel medical metal GmbH, +49 723165190	**DE**		**40**				**44**	**45**			**www.klingel-med.de**
MER Medical Engineering Resources- Europe, +31 598 634420	**NL**					**43**					**www.mer-europe.com**
Micro Systems Technologies, +41 44 8046300	**CH**										**www.mst.com**
Qosina Corp., +1 631 2423000	**US**										**www.qosina.com**
Teleflex Medical OEM, +1 508 964 6021	**US**		**40**		**42**	**43**					**www.teleflexmedicaloem.com**
Accumold, +1 515 9645741	**US**										**www.accu-mold.com**
Advanced Chemical Etching Ltd, +44 1952 416666	GB										www.ace-uk.net
Advant Medical, +353 91 770777	IE										www.advantmedical.com
André Gueissaz SA, +41 58 400 96 60	CH							45	46		www.gueissaz.ch
Apple Rubber, +1 716 6846560	**US**										**www.applerubber.com**
Arrotek Medical Ltd, +353 71 9115111	IE							45			www.arrotek.com
Asahi Intecc Co., Ltd., +31 20 7940643	NL	39				43		45		47	www.asahi-inteccusa.com
Asgard Engineering Ltd, +44 161 351 0400	GB						44				www.asgardengineering.co.uk
ASKION GmbH, +49 365 73530	DE										www.askion.com
B. Braun Melsungen AG, +49 5661 710	DE										www.bbraun.com
Bavaria Medizin Technologie GmbH, +49 8153 4010	DE										www.bavaria-medizin.de
BBF Sterilisationsservice GmbH, +49 7151 945700	DE										www.sterixpert.de
bebro electronic GmbH, +49 7022 40030	DE										www.bebro.de
Beutter Präzisions-Komponenten GmbH & Co. KG, +49 7428 933-0	DE		40								www.beutter.de
BioCer, +49 921 787 770-0	DE		40								www.biocer-gmbh.de
BIT Analytical Instruments GmbH, +49 6196 806 100	DE						44				www.bitgroup.de
BKB Precision Van den Berg Kunststof Bewerking BV, +31 40 267 0101	NL										www.bkbprecision.com
Blueacre Technology Ltd, +353 42 9386922	IE										www.blueacretechnology.com
BMC Messsysteme GmbH, +49 8141 404 1800	DE										www.bmcm.de
BOMATEC AG, +41 448721000	CH										www.bomatec.ch
Braunform GmbH, +49 7663 93200	DE										www.braunform.com
BYTEC Medizintechnik GmbH, +49 2403 782 9900	DE										www.bytecmed.com
C. Hafner, +49 7044 903 33 0	DE						44				www.c-hafner.de
Cambus Medical, +353 91 504633	IE		40					45			www.cambusmedical.com
Carl Haas GmbH, +49 7422 567 0	**DE**		**40**				**44**	**45**		**47**	**www.carl-haas.de**
Carniaflex srl Meditech Group, +39 433 775164	**IT**						**44**				**www.carniaflex.com**
Carville Limited, +44 1306 881681	GB										www.carvilleplastics.com
Catheter & Medical Design (CMD) Inc, +1 651 6366505	US				42						www.cathetermd.com
cendres+métaux sa, +41 58 3602000	CH		40				44			47	www.cmsa.ch
Cicor Group, +41 71 9137300	CH										www.cicor.com
Cikautxo Medical, +34 946 133 000	ES					43					www.cikautxomedical.es
Clamason Industries Ltd, +44 1384 400 000	GB										www.clamason.co.uk
Connecticut Spring & Stamping, +1 860 703 1654	US				42						www.ctspring.com
CONSUNIQUE GmbH, +49 89 35847800	DE						44				www.consunique.com
Creative Instruments GmbH, +49 88192 706 760	DE					43				47	www.creative-instruments.de
Creganna Medical, +353 91 757 801	IE										www.creganna.com
CTDI - Regenersis GmbH, +49 5207 9290102	DE										www.ctdi.com
David Schnur Associates, +1 650 941 0898	US		40		42	43		45		47	www.dschnur.com
DCA Design International, +44 1926 499461	GB										www.dcamedical.co.uk
Demcon Advanced Mechatronics B.V., +31 88 115 20 00	NL										www.demcon.nl
Deringer-Ney Inc., +1 860 286 6101	US										www.deringerney.com
design!struktur, +49 8249 969 4033	DE										www.design-struktur.de
Disposable Instrument Company Inc., +913 913 4926492	US						44			47	www.disposableinstrument.com
Donatelle Plastics Inc., +1 651 6334200	US							45	46		www.donatellemedical.com
DREIGEIST - Additive Intelligence, +49 911 891 191 10	DE										www.dreigeist.com
Dukane, +353 85 2 521 061	IE								46		www.dukane.eu
em-tec gmbh, +49 8806 923 60	DE										www.em-tec.de
Endosmart GmbH, +49 7244 939860	DE		40	41			44	45		47	www.endosmart.de
EPflex Feinwerktechnik GmbH, +49 7123 978410	DE							45		47	www.epflex.com
EUROFLEX GmbH, +49 7231 208210	DE		40	41		43		45		47	www.euroflex.de
European Springs & Pressings, +44 20 8663 1800	GB								46	47	www.europeansprings.com
Everite, +1 856 3306700	US										www.everite.com

9 Manufacturing
Services

F–P

Company	Country	Slitting 39	Surface Treatment 40	Thermoforming 41	Tipping 42	Tube Forming and Processing 43	Turning 44	Welding, Laser 45	Welding, Ultrasonic 46	Wireforming 47	Website
F&W Frey&Winkler GmbH, +49 7232 30540	DE										www.freywinkler.de
Farlow's Scientific Glassblowing Inc, +1 530 477 5513	US				42	43					www.farlowsci.com
Fenland RP Ltd, +44 1945 411 700	GB										www.frpsolutions.co.uk
Filtrop AG, +423 388 11 50	LI		40								www.filtrop.com
Frank plastics AG, +49 7486 1810	DE			41							www.frankplastic.de
Freudenberg Medical Europe GmbH, +49 631 53417500	DE		40		42	43					www.freudenbergmedical.de
FRIWO Gerätebau GmbH, +49 2532 810	DE								46		www.friwo.com
G. Hipp & Sohn GmbH, +49 7467 1463	DE	39	40				44	45		47	www.hippandson.com
GEMÜ, +41 41 799 05 00	CH						44				www.gemue.ch
GfPS mbH, +49 241 510 05 00	DE										www.gfps.de
Gramm UG, +49 941 462 975 00	DE										www.gramm.online
Harland Medical Systems, +1 952 9410475	US		40								www.harlandmedical.com
Harmac Medical Products IR, +353 9496 21515	IE										www.harmac.com
Iftest AG, +41 56 4373737	CH										www.iftest.ch
Ilzhöfer GmbH, +49 9524 30370	DE										www.ilzo.com
Inpac Medizintechnik GmbH, +49 7082 94570	DE			41					46		www.inpac-medizintechnik.de
Integrated Technologies Ltd (ITL), +44 1233 655323	GB										www.itl.co.uk
Irish Micro Mouldings Ltd, +353 91 593 814	IE								46		www.micromouldings.com
Iskra Mehanizmi, d.o.o., +386 4 5355 100	SI										www.iskra-mehanizmi.si
JENOPTIK Polymer Systems GmbH, +49 36482 450	DE							45	46		www.jenoptik.com
KKS Ultraschall AG, +44 41 833 87 87	CH		40								www.kks-ultraschall.ch
Klingel medical metal GmbH, +49 723165190	**DE**		**40**				**44**	**45**			**www.klingel-med.de**
KonMed GmbH, +41 41 790 43 33	CH			41							www.konmed.ch
Kratzer GmbH + Co. KG, +49 781 6240	DE		40								www.kratzer.de
Kuemmerle GmbH, +49 7623 5526	DE		40				44				www.kuemmerle.com
Kunststoff Christel GmbH & Co.KG, +49 772 692 020	DE		40		42			45	46		www.kunststoff-christel.de
KVH Hartung GmbH, +49 89 899 6610	DE							45	46		www.kvh-hartung.de
LCP LASER-CUT-PROCESSING GmbH, +49 36601 93270	DE							45			www.lcpgmbh.de
LEMO connectors, +41 21 6951600	CH										www.lemo.com
LiKAMED GmbH, +49 7262 91890	DE										www.likamed.de
LiteMax Electronics Inc., +49 421 565 6815	DE										www.litemax.de
LMT Leuchten + Metall Technik GmbH, +49 9174 47970	DE	39	40				44	45			www.lmtgmbh.de
LOEW Präzisionsteile GmbH, +49 911 400 8850	DE		40				44				www.loew-praezision.de
Martech Medical, +1 215 2568833	US			41		43					www.martechmedical.com
Matthias Wetzel Industriebeschriftungen, +49 3641 57930	DE	39	40								www.mwib.de
MechanikZentrum Schmidbauer, +49 8072 371100	DE		40				44				www.mechanikzentrum.de
Medanco, +31 40 230 6820	NL										www.medanco.nl
MeKo Laser Material Processing, +49 5066 70790	DE		40			43		45			www.meko.de
MER Medical Engineering Resources- Europe, +31 598 634420	**NL**					**43**					**www.mer-europe.com**
Micro Systems Technologies, +41 44 8046300	**CH**										**www.mst.com**
MicroGenisis TechSoft GmbH, +49 89 309 040 161	DE										www.mgtechsoft.com
MicroGroup, +1 508 533 4925	US		40	41			44	45			www.microgroup.com
Modern Catheter Technology (MCT), Inc, +1 651 3420850	US				42	43		45			www.moderncath.com
Moseys Production Machinist, +1 714 693 4840	US						44				www.moseys.com
Murrplastik Medizintechnik GmbH, +49 3745 789 7916	DE										www.murrplastik-medizintechnik.eu
Nanogate Medical Systems GmbH, +49 2359 5080960	DE		40								www.nanogate-medical.de
Nordson MEDICAL, +1 888 404 5837	US										www.nordsonmedical.com
Novotema, +39 35 926530	IT		40								www.novotema.com
Oceanz, +31 318 769077	NL										www.oceanz.eu
Optima Medical Components, +46 18 183020	SE			41				45		47	www.optima.se
OSCOMED GMBH, +49 3675 439700	DE					43			46		www.oscomed.de
Oscor Inc., +49 211 586 786 00	US		40			43					www.oscor.com
Osypka AG, +49 7623 74050	DE							45		47	www.osypka.de
Ottronic Regeltechnik GmbH, +43 3573 34008	AT		40								www.ottronic.com
Phillips-Medisize, +31 252 576888	NL								46		www.phillipsmedisize.com
PRETTL electronics GmbH, +49 3528 456 233	DE										www.prettl-electronics.de
priomold GmbH, +49 7084 976 9690	DE										www.priomold.de
Procon Medizintechnik GmbH, +49 6188 445 990	DE		40								www.procon-med.de
PROMEPLA SAM, +377 979 84 232	MC				42						www.promepla.com
Proto Labs Limited, +49 6261 6436947	DE						44				www.protolabs.de
puracon GmbH, +49 8031 900 587 0	DE										www.puracon.com

Q–Z

Company	Country	39 Slitting	40 Surface Treatment	41 Thermoforming	42 Tipping	43 Tube Forming and Processing	44 Turning	45 Welding, Laser	46 Welding, Ultrasonic	47 Wireforming	Website
Qosina Corp., +1 631 2423000	**US**										**www.qosina.com**
R. Montavon, +41 79 4537982	CH		40						46		www.rmontavon.ch
RAUMEDIC AG, +49 9252 3590	DE										www.raumedic.com
Riegler GmbH & Co.KG, +49 6151 9190	DE										www.riegler-medical.com
RILE Lightweight Design GmbH, +49 991 2507280	DE										www.rile-lightweight.com
Rilit Lackfabrik GmbH, +49 7642 92600	DE		40								www.rilit.de
ruetschi technology ag, +41 26 6708080	CH						44	45			www.ruetschi.com
Safrima AG, +41 32 387 05 91	CH		40				44				www.safrima.com
SASSE Elektronik GmbH, +49 9122 9780	DE										www.sasse-elektronik.de
Scherdel Medtec GmbH & Co. KG, +49 9231 6030	DE		40					45		47	www.scherdel.de
SCHEUERMANN + HEILIG GmbH, +49 6281 9070	DE		40							47	www.sh-gmbh.de
Schieferle Technology GmbH, +49 08225-308030	DE			41			44				www.schieferle-pego.de
Schivo Medical, +353 51 372 010	IE		40				44				www.schivogroup.com
Si Us Instruments GmbH, +49 30 351 364 36	DE										www.si-us-instruments.de
SiMEDEx Inc., +1 805 610 6444	US					43					www.simedex.com
Specialty Coating Systems SCS, +1 317 451 8549	**US**		**40**								**www.scscoatings.com**
Stansomatic A/S, +45 75 338 300	DK										www.stansomatic.dk
STARLIM Spritzguss GmbH, +43 7243 585960	AT										www.starlim-sterner.com
Statice SAS, +33 381 484 343	FR										www.statice.com
steripac GmbH, +49 7051 58880	DE										www.steripac.com
STERNE SAS, +33 432 501 697	FR										www.sterne-silicone-rubber.com
STI Laser Industries Ltd., +972 4 6101103	IL		40					45			www.sti-laser.com
tecnotron elektronik gmbh, +49 8389 920 00	DE										www.tecnotron.de
Teleflex Medical OEM, +1 508 964 6021	**US**		**40**		**42**	**43**					**www.teleflexmedicaloem.com**
The West Group, +44 2392 266031	GB										www.westgroup.co.uk
TIGRIS Elektronik GmbH, +49 30 301 048 30	DE										www.tigris.eu
Top Clean Packaging Group, +33 4 73803252	FR			41					46		www.topcleanpackaging.com
Trelleborg Sealing Solutions DE GmbH, +49 711 7864 536	DE					43					www.tss.trelleborg.com
Trend Technologies IE, +353 44 933 4300	IE		40					45	46		www.trendtechnologies.com
Turck duotec GmbH, +49 9131 691-246	DE				42						www.turck-duotec.com
unimed sa, +41 21 6242151	CH					43	44	45			www.unimed.ch
VELOX GmbH - an IMCD company, +49 40 3696880	DE					43					www.velox.com
Vesta, +1 414 4230550	US				42	43					www.vestainc.com
Vision Engineering Ltd, +49 8141 401 670	DE										www.visioneng.de
VistaMed Limited, +353 71 9638833	IE										www.vistamed.net
Weidmann Medical Technology AG, +41 55 221 4111	CH										www.weidmann-medical.com
XL Precision Technologies, +44 1642 766960	GB					43		45			www.xlprecisiontechnologies.com
Zenith Adhesives Components, +353 90 648 6296	IE	39									www.zac.ie

Made to Measure – The Next Level in Liquid Flow Sensing is Now Available Worldwide

Liquid Flow Sensor SLF3x.
Image: Sensirion AG

The SLF3x, Sensirion's latest innovation in liquid flow sensing, is now available worldwide from Sensirion's distribution network. Based on Sensirion's excellent 20-year track record in low and lowest flow rate sensing, the radically optimized mechanical design of the SLF3x takes an already well-established functionality to the next level in terms of price-performance ratio.

In line with Sensirion's proven track record in liquid flow sensing, the SLF3x liquid flow sensor is the result of a continuous and tireless strive for innovation. This sensor is based on Sensirion's CMOSens® Technology and optimizes costs by simplifying the design without sacrificing performance or having to forgo any user-friendly fluidic, electrical and mechanical connections. The sensor allows for the bidirectional measurement of flow rates up to 40 ml/min for both water and hydrocarbon-based fluids. In combination with its excellent signal-to-noise ratio and unprecedented turndown ratio of 200:1, it allows real-time monitoring of any fluidic system, which improves process control and enables advanced failure detection. The straight, unobstructed flow channel has no moving parts and is made from inert wetted materials providing outstanding chemical resistance and excellent media compatibility.

The SLF3x provides an unparalleled level of fluid control, system reliability, performance and end-user satisfaction for a range of applications in the fields of diagnostics, analytical instruments and life sciences. The ultra-compact form factor and cost-effective design pave the way for system designs featuring one or more sensors that were previously unfeasible. ■

Sensirion AG
Switzerland
Tel. +41 44 306 40 00
info@sensirion.com
www.sensirion.com

10 Materials
Forms Supplied

A–Z

Company	Country	1 Granules/ Pellets	2 Bars / Rods	3 Resins	4 Sheets / Films	5 Sponges	6 Stock Shapes	Website
Teleflex Medical OEM, +1 508 964 6021	**US**		**2**	**3**				**www.teleflexmedicaloem.com**
Avocet Precision Metals, +44 1625 590 745	GB		2		4			www.avocetsteel.co.uk
Biogeneral, +1 858 453 4451	US				4	5		www.biogeneral.com
cendres+métaux sa, +41 58 3602000	CH		2		4			www.cmsa.ch
Ensinger Precision Engineering Ltd, +44 1443 678 500	GB		2		4			www.ensingerplastics.com
EUROFLEX GmbH, +49 7231 208210	DE		2		4			www.euroflex.de
Fort Wayne Metals, +1 260 7474154	US		2					www.fwmetals.com
Impact Ireland Metals & Plastics, +353 1 451 2144	IE		2				6	www.impactirl.ie
Kettenbach GmbH & Co. KG, +49 2774 7050	DE					5		www.sugisponge.com
Modenplast GmbH, +49 911 956 91810	DE	1						www.modenplast-medical.de
Teleflex Medical OEM, +1 508 964 6021	**US**		**2**	**3**				**www.teleflexmedicaloem.com**
Ulbrich Speciality Wire Products, +1 203 239 4481	US		2		4			www.ulbrich.com
Zapp Precision Metals GmbH, +49 2304 790540	DE		2					www.zapp.com

New Regulated Bormed™ Healthcare Solution for Medical and Diagnostic Devices

Borealis Bormed BJ868MO as a base for a new electrically conductive compound used in high precision pipettes.
Image: Premix Group

Borealis and Borouge, leading providers of innovative, value-creating plastics solutions, have introduced Borealis Bormed™ BJ868MO, a high flow, heterophasic polypropylene copolymer used for the production of medical and diagnostic devices.

This new and regulated solution is an important extension of the dedicated Borealis Bormed™ portfolio of polyethylene and polypropylene products. As part of the Bormed™ Concept service package encompassing Service, Commitment, and Conformance, Bormed BJ868MO reinforces the Borealis and Borouge commitment to healthcare industry customers. Validation of this newly-developed material solution was carried out in cooperation with Premix Oy, a leading manufacturer of electrically conductive and high frequency plastics.

Because we care: extending the Bormed portfolio with a regulated solution

A range of societal and technological developments is driving market demand for medical and diagnostic devices. Longer life expectancies and ageing populations have increased the importance of early diagnostics for disease prevention. Technological innovation is driving development of novel devices that are portable, smaller, and in some cases operated by patients themselves.

At the same time, regulation of medical and diagnostic devices is becoming more stringent, particularly in Europe. Two pertinent EU regulations include the Medical Device Regulation (MDR) and the In-Vitro Diagnostics Regulation (IVDR), both of which aim to improve patient safety by introducing stricter procedures for conformity assessment of such devices.

Borealis Bormed BJ868MO was developed for the express purpose of enabling Borealis and Borouge healthcare customers to achieve full regulatory compliance in the production of medical and diagnostic devices such as pipettes. Moreover, because Bormed BJ868MO is also part of the Bormed Concept, Borealis and Borouge customers can rely on a secure, long-term supply of materials in compliance with European, US Pharmacopeia, and ISO standards. The Bormed Concept also ensures long-term security of supply thanks to a two-year pre-notification period informing customers of any changes to the product. It also guarantees superior product quality and consistency, as well as long-term product traceability thanks to retention of Quality Control data and samples.

Collaboration produces new benchmark in in vitro diagnostics materials

The validation of the newly-developed Bormed BJ868MO is the result of intensive collaboration among Borealis, Premix Oy, and a leading medical diagnostics company.

10 Materials
Metals

A–Z

Company	Country	1 Alloys	2 Copper and Iron	3 Nitinol	4 Precious Metals	5 Stainless Steel	6 Titanium	7 Tungsten	Website
Klingel medical metal GmbH, +49 723165190	**DE**	**1**		**3**		**5**	**6**		**www.klingel-med.de**
MER Medical Engineering Resources- Europe, +31 598 634420	**NL**					**5**			**www.mer-europe.com**
André Gueissaz SA, +41 58 400 96 60	CH					5	6		www.gueissaz.ch
Asahi Intecc Co., Ltd., +31 20 7940643	NL			3		5		7	www.asahi-inteccusa.com
Avocet Precision Metals, +44 1625 590 745	GB	1	2	3	4	5	6	7	www.avocetsteel.co.uk
C. Hafner, +49 7044 903 33 0	DE	1			4				www.c-hafner.de
Carniaflex srl Meditech Group, +39 433 775164	**IT**					**5**	**6**		**www.carniaflex.com**
cendres+métaux sa, +41 58 3602000	CH	1			4		6		www.cmsa.ch
David Schnur Associates, +1 650 941 0898	US	1		3		5	6		www.dschnur.com
Deringer-Ney Inc., +1 860 286 6101	US				4				www.deringerney.com
Endosmart GmbH, +49 7244 939860	DE			3					www.endosmart.de
EUROFLEX GmbH, +49 7231 208210	DE	1	2	3	4	5	6	7	www.euroflex.de
EZM Edelstahl Zieherei Mark GmbH, +49 2335 9770	DE	1				5	6		www.ezm-mark.de
Fort Wayne Metals, +1 260 7474154	US			3	4	5	6		www.fwmetals.com
Henkel AG & Co KGaA, +49 89 92680	DE	1	2			5	6		www.henkel.com
Hermith GmbH, +49 89 21113137	DE	1					6		www.hermith.com
Impact Ireland Metals & Plastics, +353 1 451 2144	IE	1			4	5			www.impactirl.ie
Klingel medical metal GmbH, +49 723165190	**DE**	**1**		**3**		**5**	**6**		**www.klingel-med.de**
MeKo Laser Material Processing, +49 5066 70790	DE			3		5	6	7	www.meko.de
MER Medical Engineering Resources- Europe, +31 598 634420	**NL**					**5**			**www.mer-europe.com**
Platinum Composites, +353 61 704863	IE				4				www.platinumcomposites.com
sfm medical devices GmbH, +49 6053 8050	DE					5			www.sfm.de
Ulbrich Speciality Wire Products, +1 203 239 4481	US	1			4	5	6		www.ulbrich.com
unimed sa, +41 21 6242151	CH					5			www.unimed.ch
VistaMed Limited, +353 71 9638833	IE							7	www.vistamed.net
Zapp Precision Metals GmbH, +49 2304 790540	DE	1				5	6		www.zapp.com

Based in Finland, Premix Oy is a European market leader and global pioneer in the area of electrically conductive and high frequency plastics used in the healthcare and other industries. Since the early 1990s, proprietary PRE-ELEC© Premix compounds have been used in automated liquid handling applications. Because these electrically conductive plastic compounds enable extremely accurate liquid level detection, they are now widely used in in vitro diagnostics to ensure precise measurement. Premix compounds have set new material quality standards in the industry.

Borealis Bormed BJ868MO was utilized as a base for a new electrically conductive compound used in the production of high precision pipettes. In addition to being covered by the Bormed Concept, this new material solution offers several compelling benefits.

- High impact resistance minimizes risk of breakage for the end user
- High impact resistance also ensures good drop performance of final device in varying conditions (at refrigerator, deep freezer and sub-zero temperatures)
- Superior high flow enables fast and easy mould filling; flow length-wall thickness ratios of up to 300 provide for very good dimensional stability
- Lower holding pressures, lower processing temperatures and faster cycle times enhance sustainability thanks to reduced energy consumption and CO_2 emissions.

"At Premix, our constant aim is to improve the safety of materials used in the healthcare industry, among others, in order to make society as a whole safer, too," says Noora Kuusisto, Premix Oy Global Business Development Manager. "We are pleased that this constructive collaboration with Borealis has enabled us to establish together a new benchmark for quality standards in in vitro diagnostics materials."

"It is our goal to Keep Discovering new solutions that help our customers and partners meet the challenges of today's rapidly evolving healthcare market," states Paulo Cavacas, Borealis Business Development Manager Healthcare. "We are pleased to have launched two important new additions to our Bormed portfolio – Bormed BJ868MO and in October last year, the plastomer Bormed PL8830-PH – which facilitate easier compliance with existing regulatory frameworks covering medical devices and pharmaceutical packaging." ■

Borealis AG
Austria
+43 122 400 300
www.borealisgroup.com

10 Materials
Other Materials

A–Z

Company	Country	1 Bioabsorbable	2 Biodegradable	3 Ceramic	4 Chemicals and Solvents	5 Cobalt-based Materials	6 Engineered Materials	7 Fibers	8 Hydrogels	9 Nonwovens	10 Sponges	11 Sutures	12 Textiles	Website
Porex Technologies GmbH, +49 241 910 5250	**DE**						**6**	**7**						**www.porex.com**
Teleflex Medical OEM, +1 508 964 6021	**US**							**7**				**11**		**www.teleflexmedicaloem.com**
3M Medical Materials and Technologies, +44 845 8734075	GB								8	9		11		www.3m.co.uk/medtech
ARKEMA, +49 211 45 520	DE						6							www.arkema.com
Biogeneral, +1 858 453 4451	US										10			www.biogeneral.com
Borer Chemie AG, +41 32 686 5600	CH				4									www.borer.ch
David Schnur Associates, +1 650 941 0898	US											11	12	www.dschnur.com
EUROFLEX GmbH, +49 7231 208210	DE	1	2			5								www.euroflex.de
Harland Medical Systems, +1 952 9410475	US								8					www.harlandmedical.com
Kettenbach GmbH & Co. KG, +49 2774 7050	DE										10			www.sugisponge.com
maxon motor ag, +41 41 6661500	CH			3										www.maxonmotor.com
MeKo Laser Material Processing, +49 5066 70790	DE	1	2	3		5								www.meko.de
PI Ceramic GmbH, +49 36604 882-0	DE			3										www.piceramic.de
Porex Technologies GmbH, +49 241 910 5250	**DE**						**6**	**7**						**www.porex.com**
R. Montavon, +41 79 4537982	CH			3										www.rmontavon.ch
STERIMED, +33 157 759280	FR							7		9				www.sterimed.fr
Teleflex Medical OEM, +1 508 964 6021	**US**							**7**				**11**		**www.teleflexmedicaloem.com**
Zapp Precision Metals GmbH, +49 2304 790540	DE					5								www.zapp.com
Zenith Adhesives Components, +353 90 648 6296	IE	1					6							www.zac.ie

10 Materials
Plastics

Company	Country	1 AB	2 Acetal	3 Acrylic	4 Additives	5 Compound	6 Copolymer	7 Copolymers, Styrenic	8 Cyclo-Olefin Polymer	9 Elastomers, Thermoplastic	10 Ethyl-Vinyl-Acetat EVA	11 Fluoropolymer	12 Liquid Crystal Polymer	13 Nylon	14 PEEK/PAEK	15 Polyamide	16 Polycarbonate	17 Polyester	18 Polyethylene	19 Polypropylene	20 Polystrene	21 Polysulfone	22 Polyurethane	23 PVC	24 Rubber	25 Silicone	26 Thermoplastic	27 Urethane	Website
Apple Rubber , +1 716 6846560	**US**																							**24**	**25**			**www.applerubber.com**
MER Medical Engineering Resources- Europe , +31 598 634420	**NL**																								**25**			**www.mer-europe.com**
Teleflex Medical OEM , +1 508 964 6021	**US**					**5**				**9**	**10**	**11**		**13**	**14**	**15**	**16**	**17**	**18**	**19**			**22**				**26**		**www.teleflexmedicaloem.com**
ALBIS PLASTIC GmbH , +49 40 78105-0	DE					5	6	7		9				13	14	15	16	17	18	19	20	21					26		www.albis.com
André Gueissaz SA , +41 58 400 96 60	CH		2	3	4	5	6	7	8	9			12	13	14	15	16	17	18	19	20	21	22				26		www.gueissaz.ch
Apple Rubber , +1 716 6846560	**US**																							**24**	**25**			**www.applerubber.com**
Asahi Intecc Co., Ltd. , +31 20 7940643	NL					5					11			13	14	15		17	18				22	23				27	www.asahi-inteccusa.com
Biesterfeld Group , +49 40 320 080	DE		2	3	4	5	6			9				13												26		www.biesterfeld.com
Biogeneral , +1 858 453 4451	US						6																					www.biogeneral.com
cendres+métaux sa , +41 58 3602000	CH														14													www.cmsa.ch
Ensinger Precision Engineering Ltd , +44 1443 678 500	GB				4		6								14	15				19						26		www.ensingerplastics.com
Freudenberg Medical Europe GmbH , +49 631 53417500	DE																								25	26		www.freudenbergmedical.de
Gsell Medical Plastics AG , +41 56 6754040	CH														14		16		18	19						26		www.gsell.ch
Henkel AG & Co KGaA , +49 89 92680	DE	1		3	4					9							16	17							25	26		www.henkel.com
HEXPOL TPE AB , +46 532 60 75 00	SE									9																		www.hexpoltpe.com
Innovative Polymer Compounds IPC , +353 57 933 3690	IE					5									14													www.ipcpolymers.ie
Lubrizol LifeSciences , +1 216 447 5000	US					5	6						12															www.lubrizol.com/lifesciences
Melitek A/S , +45 70 250255	DK						6			9										19									www.melitek.com
MER Medical Engineering Resources- Europe , +31 598 634420	**NL**																								**25**			**www.mer-europe.com**
Microtek Medical BV , +31 575 599299	NL																		18				22		24				www.ecolab.com
Modenplast GmbH , +49 911 956 91810	DE																							23					www.modenplast-medical.de
NuSil Technology , +1 805 684 8780	US									9															24	25			www.nusil.com
Primasil Silicones Ltd , +44 1544 312600	GB																									25			www.primasil.com
SiMEDEx Inc. , +1 805 610 6444	US																									25			www.simedex.com
Teleflex Medical OEM , +1 508 964 6021	**US**					**5**				**9**	**10**	**11**		**13**	**14**	**15**	**16**	**17**	**18**	**19**			**22**				**26**		**www.teleflexmedicaloem.com**
Trelleborg Sealing Solutions Germany GmbH , +49 711 7864 536	DE									9																25			www.tss.trelleborg.com
Ultra Polymers , +49 821 272 330	DE	1	2	3	4	5	6	7	8	9	10		12	13	14			17	18					23			26		www.ultrapolymers.com
VELOX GmbH - an IMCD company , +49 40 3696880	DE					5			8	9				13		15	16						22				26	27	www.velox.com
VistaMed Limited , +353 71 9638833	IE											11		13	14				18	19			22				26		www.vistamed.net
Wittenburg B.V. , +31 36 200 0300	NL				4	5																					26		www.wittenburggroup.com

11 Measuring, Testing and Quality Control
Equipment
A–Z

Company	Country	1 Acoustic Testing	2 Adhesion Testing	3 Calibration Equipment	4 Current Leakage Testers	5 Data Loggers	6 Diverse Testing, Metrology + Inspection	7 Electrical Safety Testing Equipment	8 EMC Testing Services	9 Environmental Testing	10 Force Gauges	11 Friction Test Equipment	12 Inspection Systems, Vision	13 Leak Testers	14 Machine Vision Systems	15 Materials Testing	16 Measuring Equipment and Devices	17 Measuring Software	18 Microscopes	19 Needle Quality Testing Equipment	20 Optical Inspection Equipment	21 Product Performance + Saftey Testing	22 Seal-Strength-Testing	23 Surface Measurement Systems	24 Test Probes	25 Torque Gauges	26 Vision Machine Systems	Website
Admesy, +31 475 600232	NL																16				20							www.admesy.com
Anecto Ltd, +353 91750247	IE							7		9							16					21	22					www.anecto.com
Ash Technologies Ltd, +353 45 882 212	IE												12					17	18								26	www.ash-vision.com
Automation Technology Services, +353 71 911 8808	IE														14						20							www.atsautomation.com
Avantes, +31 313 670170	NL																				20			23				www.avantes.com
Basler AG, +49 4102 4630	DE																										26	www.baslerweb.com
bebro electronic GmbH, +49 7022 40030	DE					5		7												19	20				24	25	26	www.bebro.de
BECOM Electronics GmbH, +43 2616 2930 0	AT						6	7					12														26	www.becom.at
BMC Messsysteme GmbH, +49 8141 404 1800	DE					5				9	10					15	16	17				21		23		25		www.bmcm.de
Buehler - ITW Test & Measurement GmbH, +49 711 4904 690-0	DE						6									15	16	17	18		20						26	www.buehler.com
BW-TEC AG, +41 44 8637070	CH				4								12	13			16				20							www.bwtec.com
Ciposa S.A., +41 32 566 6600	CH		2		4								12	13							20						26	www.ciposa.com
DYMAX Europe GmbH, +49 611 9627900	DE																16											www.dymax.com
Edmund Optics GmbH, +49 721 627 3730	DE																16		18		20							www.edmundoptics.de
EVALITE GmbH, +43 6601324206	AT														14						20						26	www.evalite.eu
Exco GmbH, +49 6233 737 780	DE						6	7								15	16											www.exco-solutions.com
Fujikura Europe Ltd., +44 20 824 0200 0	GB						6						12								20							www.fujikura.co.uk
Gimac Microextruders, +39 332 892206	IT			3																								www.gimac.com
GMC-I Messtechnik GmbH, +49 911 86 020	DE			3			6	7									16											www.gmc-instruments.de
Harland Medical Systems, +1 952 9410475	US										11																	www.harlandmedical.com
HBM Test and Measurement, +49 6151 803-0	DE					5																						www.hbm.com
HEITEC AG, +49 9131 8770	DE												12		14													www.heitec.de
IDEX Health & Science, +49 1801 808800	DE																				20							www.idex-hs.com
IMSTec GmbH, +49 6136 994 4110	DE												12		14													www.imstec.de
IPT Ltd, +353 21 423 2233	IE												12	13									22					www.ipt.ie
JEOL (Germany) GmbH, +49 8161 9845-0	DE						6												18		20			23				www.jeol.de
Keyence UK, +44 1908 696 900	GB												12		14				18		20			23			26	www.keyence.co.uk
Kistler Instrumente GmbH, +49 7031 30900	DE	1		3							10		12		14											25	26	www.kistler.com
KML VISION, +43 680 441 1867	AT																				20							www.kmlvision.com
Körber Medipak Systems AG, +41 522 600 922	CH												12					17										www.medipak-systems.com
Medical Production Technology - MPT Europe BV, +31 594 519 151	NL										10		12															www.mpteurope.com
MicroGenisis TechSoft GmbH, +49 89 309 040 161	DE	1	2						8									17										www.mgtechsoft.com
NanoFocus AG, +49 208 620 000	DE												12				16	17			20			23			26	www.nanofocus.de
PIXARGUS GmbH, +49 2405 479 0826	DE						6																	23			26	www.pixargus.de
Primara Test- und Zertifizier-GmbH, +43 8341 997260	DE						6	7	8	9						15	16					21						www.primara.net
Qioptiq Photonics GmbH, +49 551 693 50	DE																16		18		20							www.qioptiq.de
Rigel Medical, +44 191 5878730	GB				4		6	7						13			16					21						www.rigelmedical.com
Sensofar Medical SL, +34 937 001 492	ES												12							19	20			23				www.sensofar.com
SONOTEC GmbH, +49 345 133170	DE															15	16											www.sonotec.eu
Tecnoideal s.r.l., +39 535 23653	IT													13														www.tecnoidealsrl.com
Tinius Olsen Ltd, +44 1737 765 001	GB						6									15	16	17										www.tiniusolsen.com
Vision Engineering Ltd, +49 8141 401 670	DE						6						12					17	18		20			23				www.visioneng.de
Ward Automation Ltd, +353 7191 50039	IE												12		14												26	www.wardautomation.ie
Zwick/Roell, +49 7305 100	DE	1		3		5	6									15	16	17								25		www.zwick.de

Less effort and expense, but greater reliability and efficiency: inline measurement with maXYmos makes standard-compliant production easier, so times-to-market are shorter. *Image: The Kistler Group*

100% Transparency in Medical Device Production and Testing

The Kistler Group combines high-caliber measurement technology with services specifically designed to meet international standards and guidelines for medical device production and testing. The systems and services from the measurement technology expert offer an advantage that is highly relevant for the medical technology industry: end-to-end documentation of all critical process and quality parameters. Piezoelectric sensors and process monitoring systems from Kistler ensure 100 % transparency – not only in the injection molding process, but also in process monitoring for general purposes.

Intelligent Injection Molding Production for Faultless Medical Technology Products

Cavity pressure is especially relevant as a direct criterion for assessing part quality – and this is exactly why Kistler's ComoNeo monitoring and control system focuses on this key variable. ComoNeo can monitor cavity pressure and machine parameters while the injection molding process is taking place. The measurement data ensures 100% transparency, thus guaranteeing the reliability of the injection molding process. Kistler's solution starts back in the test planning phase – well before the process monitoring operation as such. The integrated DoE interface in the ComoNeoPREDICT feature makes easy work of determining process limits, and the measurement data already ensures 100% certainty during the qualification phase. Another benefit: Kistler's process monitoring system boosts the efficiency of medical device production. Thanks to the prediction model generated with the Stasa QC test planning software, customers can evaluate part-specific attributes directly during the injection molding process.

Inline Measurement: The Key to Maintaining Competitive Edge

Inline measurement is an increasingly critical competitive advantage not only in the plastics industry, but also in numerous other sectors. The volume of documentation required for process monitoring is growing because of changes to standards. In response to this challenge, Kistler offers the maXYmos monitoring system for end-to-end process monitoring. The sensor data obtained from this system can be used again for release and documentation processes. This makes it considerably easier to prove process stability with maXYmos, and risks are minimized because 100% testing is already performed during the production process. Reduced outlay on qualification and validation opens the way to increased efficiency and shorter times-to-market – a key benefit in sectors such as medical device production where time is of the essence. ■

Kistler Instrumente GmbH
Germany
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info.de@kistler.com
www.kistler.com

11 Measuring, Testing and Quality Control
Services
A – Z

Company	Country	1 Accelerated Stability Studies	2 Analytical Laboratory + Validation Services	3 Bio, Compatibility and Testing	4 Bioburden	5 Calibration Services	6 Clinical Analysis and Trials	7 Components and Materials Testing	8 Diverse Testing, Metrology and Inspection	9 Electrical + Electromechanical Assembly Service	10 Electromagnetic Compatibility (EMC) Testing	11 Electromagnetic Interference (EMI) Testing	12 Electromechanical Assembly Services	13 Electromedical Testing	14 Environmental Testing	15 Equipment Maintenance Services	16 Equipment Repair Services	17 Filter Testing and Certification	18 Force Testing	19 Functional Testing	20 ISO/EN Certification Services	21 Materials Testing	22 Microbiological Control and Testing	23 Microscopes	24 Needle Testing	25 Package Testing	26 Particle Size Analysis	27 Pressure Testing	28 Process Validation Studies	29 Product Performance + Saftey Testing Services	30 Product Safety Testing + Certification	31 Seal Testing	22 Sterility Testing	33 Surface Analysis	34 Torque Testing	35 UV-VIS Spectrophotometer Analysis	36 Validation	Website
André Gueissaz SA, +41 58 400 96 60	CH																											28			31					36	www.gueissaz.ch
anecto ltd., +353 91 757404	IE	1		3	4			7															24	25				28			31					36	www.anecto.com
Ash Technologies Ltd, +353 45 882 212	IE																					23															www.ash-vision.com
BBF Sterilisationsservice GmbH, +49 7151 945700	DE	1																						25		27					31						www.sterixpert.de
bebro electronic GmbH, +49 7022 40030	DE							7		9		11	12	13						19			24					28					33	34		36	www.bebro.de
Buehler – ITW Test & Measurement GmbH, +49 711 4904 690-0	DE					5																															www.buehler.com
Complete Laboratory Systems, +353 91 781 690	IE						6	7																					29						35	36	www.cls.ie
CSA Group Europe GmbH, +49 69 509 571 500	DE										10		12	13							21			24						30	31						www.csagroup.org
CTDI - Regenersis GmbH, +49 5207 9290102	DE															15	16																				www.ctdi.com
DYMAX Europe GmbH, +49 611 9627900	DE																16																				www.dymax.com
Edmund Optics GmbH, +49 721 627 3730	DE																					23															www.edmundoptics.de
EFSEN UV & EB Technology, +45 4565 0260	DK					5																															www.efsen.dk
em-tec gmbh, +49 8806 923 60	DE					5										15																					www.em-tec.de
Endosmart GmbH, +49 7244 939860	DE																		18	19																36	www.endosmart.de
Eurofins BioPharma Product Testing Munich GmbH, +49 89 899 650 0	DE			3										13										25	26					31	22						www.eurofins.com
EUROFLEX GmbH, +49 7231 208210	DE							7																													www.euroflex.de
exceet electronics, +41 41 798 4884	CH					5								13																							www.exceet-electronics.de
Exco GmbH, +49 6233 737 780	DE			3	4				8					13							21																www.exco-solutions.com
FRÜH Verpackungstechnik AG, +41 44 806 21 11	CH																							25													www.fruh.ch
Fujikura Europe Ltd., +44 20 824 0200 0	GB								8																												www.fujikura.co.uk
GEMÜ, +41 41 799 05 00	CH	1																						25												36	www.gemue.ch
GfPS mbH, +49 241 510 05 00	DE			3	4								22																		22						www.gfps.de
GMC-I Messtechnik GmbH, +49 911 86 020	DE					5			8					13																							www.gmc-instruments.de
Iftest AG, +41 56 4373737	CH									9				13															29							36	www.iftest.ch
Inpac Medizintechnik GmbH, +49 7082 94570	DE	1	2										12									22		25				28			31						www.inpac-medizintechnik.de
Integrated Technologies Ltd (ITL), +44 1233 655323	GB									9	10		12																								www.itl.co.uk
Intertek Holding Deutschland GmbH, +49 711 27311 152	DE																				20								29								www.intertek.com
JEOL (Germany) GmbH, +49 8161 9845-0	DE							7	8														23			26						33					www.jeol.de
Kistler Instrumente GmbH, +49 7031 30900	DE																																34				www.kistler.com
Lucideon Ltd , +44 1782 764428	GB			3																									29		22	33				36	www.lucideon.com
MeKo Laser Material Processing, +49 5066 70790	DE							7																								33					www.meko.de
MicroGenisis TechSoft GmbH, +49 89 309 040 161	DE																																				www.mgtechsoft.com
NAMSA, +1 419 6669455	US	1		3	4		6						22		14							22		25	26					30		22				36	www.namsa.com
Nelson Laboratories, LLC, +1 801 2907500	US			3	4			7					22					17			21	22		25	26		28	29			22			35	36	www.nelsonlabs.com
OMPG mbH, +49 3672 3790	DE	1		3																																	www.ompg.de
ontec automation GmbH, +49 9282 931 100	DE								8															25													www.ontec-automation.de
PIXARGUS GmbH, +49 2405 479 0826	DE					5			8							15																					www.pixargus.de
prent denmark aps, +45 7022 4245	DK																									26											www.prent.com
PRETTL electronics GmbH, +49 3528 456 233	DE									9			12	13			16																					www.prettl-electronics.de
Primara Test- und Zertifizier-GmbH, +43 8341 997260	DE																																				www.primara.net
puracon GmbH, +49 8031 900 587 0	DE	1																																		36	www.puracon.com
Qioptiq Photonics GmbH, +49 551 693 50	DE																					23															www.qioptiq.de
Rigel Medical, +44 191 5878730	GB								8																												www.rigelmedical.com
Solnovis, +49 9191 733 850	DE										10			13														28	29	30						36	www.solnovis.com
SONOTEC GmbH, +49 345 133170	DE																				21																www.sonotec.eu
STERIS Applied Sterilization Technologies, +44 8456 889970	GB		2		4										14							22		25												36	www.steris-ast.com
Tandem Project Management, +353 0212 409 055	IE																											28								36	www.tandempm.ie
Tinius Olsen Ltd, +44 1737 765 001	GB								8												21																www.tiniusolsen.com
Ulbrich Speciality Wire Products, +1 203 239 4481	US																									26						22	33				www.ulbrich.com
unimed sa, +41 21 6242151	CH							7											18				24														www.unimed.ch
Vision Engineering Ltd, +49 8141 401 670	DE								8														23														www.visioneng.de
VistaMed Limited, +353 71 9638833	IE							7											18	19							27				31					36	www.vistamed.net
Wittenburg B.V., +31 36 200 0300	NL		2	3															18		20		22				27					33					www.wittenburggroup.com
Zwick/Roell, +49 7305 100	DE		2			5		7	8													21							29	30				34			www.zwick.de

12 Molding & Extrusion
Services

A–Z

Company	Country	1 Cleanroom Molding	2 Composite Molding	3 Compression Molds	4 Die Casting Dies	5 Dip Molding	6 Extrusion	7 Extrusion Dies	8 Heating Elements	9 Hot Runner Systems	10 Injection Molding	11 Insert Molding	12 Liquid Injection Molding	13 Metal Injection Molding	14 Micromolding	15 Mold Making: Design and Development	16 Multicavity Molding	17 Resin Molding	18 Rotomolding	19 Rubber Molding	20 Single Molding	21 Thermoplastic Forming	Website
Accumold, +1 515 9645741	**US**	**1**									**10**	**11**				**15**	**16**	**17**			**20**		**www.accu-mold.com**
Apple Rubber, +1 716 6846560	**US**	**1**	**2**								**10**	**11**	**12**				**16**			**19**	**20**		**www.applerubber.com**
MER Medical Engineering Resources- Europe, +31 598 634420	**NL**	**1**				**5**	**6**				**10**	**11**	**12**							**19**			**www.mer-europe.com**
Accumold, +1 515 9645741	**US**	**1**									**10**	**11**				**15**	**16**	**17**			**20**		**www.accu-mold.com**
Advant Medical, +353 91 770777	IE										10												www.advantmedical.com
Apple Rubber, +1 716 6846560	US	1	2								10	11	12				16			19	20		www.applerubber.com
Arrotek Medical Ltd, +353 71 9115111	IE	1					6							13									www.arrotek.com
Asahi Intecc Co., Ltd., +31 20 7940643	NL						6																www.asahi-inteccusa.com
bebro electronic GmbH, +49 7022 40030	DE										10				14								www.bebro.de
Braunform GmbH, +49 7663 93200	DE	1									10					15	16					21	www.braunform.com
Cambus Medical, +353 91 504633	IE										10												www.cambusmedical.com
Catheter & Medical Design (CMD) Inc, +1 651 6366505	US						6																www.cathetermd.com
Cicor Group, +41 71 9137300	CH	1														15							www.cicor.com
Creganna Medical, +353 91 757 801	IE															15							www.creganna.com
David Schnur Associates, +1 650 941 0898	US	1					6	7							14								www.dschnur.com
Donatelle Plastics Inc., +1 651 6334200	US	1									10	11		13		15	16			19			www.donatellemedical.com
Farlow's Scientific Glassblowing Inc, +1 530 477 5513	US															15							www.farlowsci.com
Fenland RP Ltd, +44 1945 411 700	GB										10												www.frpsolutions.co.uk
FOBOHA (Germany), +49 7832 7980	DE			3															18				www.foboha.com
Frank plastics AG, +49 7486 1810	DE						6				10		12			15							www.frankplastic.de
GEMÜ, +41 41 799 05 00	CH	1									10	11											www.gemue.ch
greiner bio-one gmbh, +49 7022 948-0	DE											11				15							www.greinerbioone.com
GS design + technik e. K., +49 9187 979 22 00	DE															15							www.gs-technik.eu
Integrated Technologies Ltd (ITL), +44 1233 655323	GB															15							www.itl.co.uk
Irish Micro Mouldings Ltd, +353 91 593 814	IE	1									10					15							www.micromouldings.com
JENOPTIK Polymer Systems GmbH, +49 36482 450	DE										10				14	15	16						www.jenoptik.com
Kunststoff Christel GmbH & Co.KG, +49 772 692 020	DE	1			4			8	9	10	11				14	15	16			19	20		www.kunststoff-christel.de
KVH Hartung GmbH, +49 89 899 6610	DE										10												www.kvh-hartung.de
Medanco, +31 40 230 6820	NL	1					6				10									19			www.medanco.nl
MER Medical Engineering Resources- Europe, +31 598 634420	**NL**	**1**				**5**	**6**				**10**	**11**	**12**							**19**			**www.mer-europe.com**
Microspec Corporation, +1 603 9244300	**US**						**6**																**www.microspeccorporation.com**
Nanogate Medical Systems GmbH, +49 2359 5080960	DE	1									10	11			14	15	16				20		www.nanogate-medical.de
Novotema, +39 35 926530	IT	1														15						21	www.novotema.com
OSCOMED GMBH, +49 3675 439700	DE	1					6				10	11			14	15	16				20		www.oscomed.de
Phillips-Medisize, +31 252 576888	NL	1					6				10			13									www.phillipsmedisize.com
Pöppelmann GmbH & Co. KG, +49 4442 9820	DE										10					15	16						www.poeppelmann.com
Primasil Silicones Ltd, +44 1544 312600	GB						6				10		12			15				19			www.primasil.com
priomold GmbH, +49 7084 976 9690	DE										10	11			14	15	16						www.priomold.de
Proto Labs Limited, +49 6261 6436947	DE										10	11	12				16			19			www.protolabs.de
RAUMEDIC AG, +49 9252 3590	DE	1									10	11	12								20		www.raumedic.com
Riegler GmbH & Co.KG, +49 6151 9190	DE	1									10												www.riegler-medical.com
Schieferle Technology GmbH, +49 08225-308030	DE		2													15				19			www.schieferle-pego.de
STARLIM Spritzguss GmbH, +43 7243 585960	AT										10					15	16						www.starlim-sterner.com
TK Mold Germany GmbH, +49 531 3547760	DE										10	11				15	16						www.tkmold.com
Top Clean Packaging Group, +33 4 73803252	FR	1									10		12			15				19		21	www.topcleanpackaging.com
Trend Technologies Ireland, +353 44 933 4300	IE	1									10	11				15	16						www.trendtechnologies.com
VistaMed Limited, +353 71 9638833	IE	1					6								14								www.vistamed.net
WEIDMANN MEDICAL TECHNOLOGY AG, +41 55 221 4111	CH										10	11											www.weidmann-medical.com

New Brushless Slotted Motors for Surgical Applications

Offering In Excess of 500+ Sterilization Cycles

Portescap has released a new line of standard prototype motors for surgical applications. These 15 motors represent Portescap's new SM series of surgical motors designed to meet the demanding requirements for surgical devices at a more cost-effective price point. These motors leverage Portescap's market leading sterilizable design approach and surgical application expertise to provide a more affordable and consistently reliable solution for surgical device makers. These motors have been optimized for Powered Staplers, Large and Small Bone Orthopedic Tools, Arthroscopic Shavers, ENT Microdebriders, and High Speed Neuro Drill applications. They are also well-suited for traditional surgical tools, as well as for robotically assisted surgical devices and can be paired with a Portescap sterilizable controller for battery powered applications.

Portescap is a world leader in sterilizable motor technology. Thanks to decades of development and millions of surgeries in the field, Portescap motors have the proven capability to deliver exceptional surgical results under the most demanding conditions. Portescap's cost-effective SM motors have been designed and tested to withstand 500+ sterilization cycles. These small motors range in diameter from 0.5-1.23 inches, speeds up to 97K RPM, and torques up to 17.5 oz-in. They are lightweight with low noise and vibration to maximize tactile response and surgeon control in the most delicate of surgeries. ■

Image: Portescap S.A.

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sales.europe@portescap.com
www.portescap.com

12 Molding & Extrusion
Equipment / Tools

A – Z

Company	Country	1 Compression Molding	2 Extrusion	3 Heating Elements	4 Hot Runner Systems	5 Injection Molding	6 Insert Molding	7 Micromolding	8 Precision Molding	9 Rotomolding	10 Stamping Presses	Website
André Gueissaz SA, +41 58 400 96 60	CH				4	5	6	7	8			www.gueissaz.ch
bebro electronic GmbH, +49 7022 40030	DE					5		7				www.bebro.de
Braunform GmbH, +49 7663 93200	DE					5	6					www.braunform.com
Cicor Group, +41 71 9137300	CH					5						www.cicor.com
Cobalt Polymers, +1 800 337 0901	US		2									www.cobaltpolymers.com
Creative Instruments GmbH, +49 88192 706 760	DE					5					10	www.creative-instruments.de
FOBOHA (DE), +49 7832 7980	DE	1				5				9		www.foboha.com
JENOPTIK Polymer Systems GmbH, +49 36482 450	DE					5		7	8			www.jenoptik.com
Kunststoff Christel GmbH & Co.KG, +49 772 692 020	DE			3	4	5	6	7	8			www.kunststoff-christel.de
Modern Catheter Technology (MCT), Inc, +1 651 3420850	US		2			5						www.moderncath.com
Nanogate Medical Systems GmbH, +49 2359 5080960	DE					5						www.nanogate-medical.de
OSCOMED GMBH, +49 3675 439700	DE		2			5		7	8			www.oscomed.de
priomold GmbH, +49 7084 976 9690	DE					5		7				www.priomold.de
Riegler GmbH & Co.KG, +49 6151 9190	DE					5						www.riegler-medical.com
Schieferle Technology GmbH, +49 8225-308030	DE					5			8			www.schieferle-pego.de
TK Mold DE GmbH, +49 531 3547760	DE					5	6					www.tkmold.com
Top Clean Packaging Group, +33 4 73803252	FR					5						www.topcleanpackaging.com
VistaMed Limited, +353 71 9638833	IE		2			5	6	7				www.vistamed.net

Micro-Molding
Finding What You Need Further From Home

One doesn't have to look hard to understand how small the world has become. In our quest for globalization, we have managed to shrink the globe. Micro technologies — like micro-molding — have enabled countless design innovations that help us connect, heal, move, and see. And, with the world literally at our fingertips, we should be able to utilize the best of what's out there without excuses.

Here are three keys to keep in mind as you look to take advantage of the world's resources:

1. Communication

While English is the international language of business, it doesn't mean that there aren't translation challenges — and it's not always the words. A recent project was stalling because the manufacturing agreement had hit a snag. The technical part of the project was off to a great start; we found the specific thermoplastic resin that they required, the engineers all came together and kicked off the prototypes with little issue. But, as the project was moving to the production phase, we discovered there were some cultural differences in how the agreement was being understood that caused some heartburn. Once this was realized and addressed, it wasn't long before the agreement was signed, and the project moved forward.

2. Experience

Fear of the unknown often keeps us looking to the same associates. It can sometimes be easier to follow the path you already know. However, your current solutions or supply chain may not solve all your challenges. This can be especially true for a niche service like micro-molding because there are often additional unknowns with a technology you're not as familiar with as well as thousands of material options. Don't settle for what can be done instead of what could be done. Push through the apprehensions, reach out past what you know, and seek out the best in the world to help find solutions. No matter where they may be located.

3. It Can Be Done

You don't need to be a global organization with offices all over the world to take advantage of the best technological solutions the world has to offer. Many American OEMs spend much of their time in Europe and elsewhere, working to support customers. One of our core practices is to continuously test and study the properties of the thermoplastic resins we use, and share this information. A company in the American Mid-West is just as concerned with customer experience and support as one closer to home.

Designing and developing that next generation device can be challenging enough. Give yourself the best opportunities to succeed and search for the best solutions, even if they're across the pond. ■

Images courtesy of Accumold

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micromolding@accu-mold.com
www.accu-mold.com

A–Z

Company	Country	1 Actuators	2 Automation Systems	3 Ball Screws	4 Bearings and Bushings	5 Belts, Chains and Pulleys	6 Controls Systems and Drives	7 Encoders	8 Leadscrews/Roller Screws	9 Linear Motion Guides	10 Microactuators	11 Magnetic	12 Positioning System	13 Roller Bearings	14 Robotics	15 Slides and Bearings	16 AC Induction	17 AC Servomotors	18 AC Synchronous	19 AC Variable Speed	20 Compressed Air Motors	21 DC Brushed	22 DC Brushless	23 DC Servo	24 Linear	25 Micro	26 Stepper	27 Torque	Website
		Motion Control															Motors												
Bühler Motor GmbH, +49 911 45040	DE																					21	22	23		25	26		www.buehlermotor.com
Central Bearings Supplies, +353 91 752 454	IE				4	5				9				13		15													www.cbsbearings.com
Davair Ltd, +353 90 662 5001	IE	1								9	10																		www.davair.net
Dunkermotoren GmbH, +49 7703 9300	DE		2				6			9			12									21	22	23	24				www.dunkermotoren.com
ELECTROMAG SA, +41 21 6941600	CH																						22			25				www.electromag.ch
EUROFLEX GmbH, +49 7231 208210	DE	1																												www.euroflex.de
FAULHABER Drive Systems, +49 7031 6380	DE	1					6																22	23	24	25	26			www.faulhaber.com
Haydon Kerk Motion Solutions, +33 240 92 87 51	FR	1					6	7	8	9												21	22		24		26			www.haydonkerk.com
ICOP Technology GmbH, +49 69 24756870	DE						6								14															www.icoptech.eu
Iskra Mehanizmi, d.o.o., +386 4 5355 100	SI																					21	22				26	27		www.iskra-mehanizmi.si
Linemaster, +1 800 974 1000	US	1					6			9										19					24					www.linemaster.com
LTI Motion GmbH, +49 6441 9660	DE		2				6	7					12					17	18					23						www.lti-motion.com
maxon motor ag, +41 41 6661500	CH	1	2	3			6		8				12			15						21	22	23		25				www.maxonmotor.com
Ottronic Regeltechnik GmbH, +43 3573 34008	AT																						22							www.ottronic.com
Physik Instrumente (PI) GmbH & Co. KG, +49 721 48460	DE	1					6				10												22		24	25		27		www.physikinstrumente.de
PI Ceramic GmbH, +49 36604 882-0	DE	1					6																							www.piceramic.de
piezosystem jena GmbH, +49 3641 66 88 0	DE	1					6			9	10		12																	www.piezosystem.com
Portescap S.A., +41 32 9256111	CH																					21	22		24	25	26	27		www.portescap.com
Shinano Kenshi Europe GmbH, +49 6196 969 8010	DE																	17			20		22							www.antriebsloesungen-medizintechnik.de
Sonceboz SA, +41 32 4881111	CH	1					6				10	11	12		14								22	23	24	25	26	27		www.sonceboz.com

Ironless BLDC Motor

Image: Dunkermotoren GmbH

Dunkermotor's BGA 22 dGo is particularly interesting for applications in the medical sector. This is an ironless BLDC motor in 22 mm size with integrated commutation electronics. It convinces with its extremely quiet running even in the high-speed range, extraordinary acceleration and remarkably high efficiency. Dunkermotoren sees areas of application in laboratory technology, hand-held devices and robotics. The BGA is a multi-talent and therefore versatile. ■

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www.dunkermotoren.com

New Flat Brushless Motors from DELTA LINE Meet Ongoing Drive for Miniaturization

DELTA LINE, which offers Europe's most unique distribution platform for motion control solutions from world-leading brands, is making available the Fulling BLW range of compact, flat brushless motors, which extend from 20 to 90mm in diameter. The BLW series has been developed to meet the need for motion control solutions in ever-smaller packages.

Full range or DELTA LINE flat brushless motors, from 20 to 90 mm.

Miniaturization without any compromise in performance; this is the challenge that DELTA LINE and Fulling are dedicated to solving with the introduction of the BLW series. Robotics, healthcare, laboratory equipment, agriculture, textiles – almost all markets and applications are driven by requirements to increase power in a smaller working envelope. In such an environment, a full range of outer-rotor flat brushless motors has been developed, offering continuous power output from 3 to 130W.

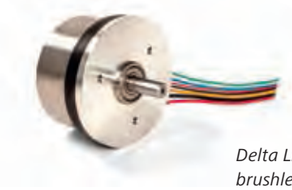
A multipolar outer-rotor design enables BLW-series motors to reach up to 0.46Nm of continuous torque (90mm diameter variant), making them perfectly adapted to applications where power density is the most important selection criteria. The full range of BLW flat brushless motors from DELTA LINE (which is a shareholder in Fulling) currently comprises eight models in 20, 32, 45, 60 and 90mm diameter, although this is expected to expand in the coming months.

As well as their unparalleled power density, BLW flat brushless motors add significant value to robotics application with a lower torque ripple than conventional motors thanks to their high number of poles and outer rotor design.

DELTA LINE is offering the full range of eight BLW-series motors. The smallest motor in the range is the 20BLW14, a 20mm diameter unit featuring a length of 14mm, a rated torque of 7.5mNm and 3W rated power. At the other extent of the series is the 90BLW27, a 90mm diameter motor with a length of 27mm, a rated torque of 460mNm and a rated power of 130W.

Standard configurations available from DELTA LINE include several coils to match speed and voltage requirements, while hall sensors also feature. In addition, certain customized specifications can be requested, such as coil variations and mechanical interface modifications, along with a customer-specific cover to increase protection (up to IP54) or integrated electronics.

Although BLW series motors are an excellent choice for direct-drive applications, all Fulling BLW motors can be coupled to the wide range of class-leading gearboxes listed in DELTA LINE's comprehensive portfolio. ■



Delta Line 60BLW40 flat brushless motor, up to 120 W in 60 mm diameter.

Delta Line 45BLW motors, available in 4 variants from 17 W to 70 W.

Images courtesy of Delta Line SA

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www.delta-line.com

14 Packaging
Services

A–Z

Company	Country	1 Aseptic Packaging	2 Bagging/Pouching	3 Blister Packing	4 Cartoning	5 Consulting and Design	6 Flow Wrapping	7 Form-Fill-Seal Packaging	8 Labelling	9 Multipackaging	10 Packaging	11 Premade Packs	12 Shrink Wrapping	13 Sterile Packaging	14 Thermoforming	15 Vacuum Forming		Website
Klingel medical metal GmbH, +49 723 1651 90	**DE**		**2**	**3**	**4**				**8**		**10**	**11**		**13**				**www.klingel-med.de**
B. Braun Melsungen AG, +49 5661 710	DE								8		10							www.bbraun.com
BBF Sterilisationsservice GmbH, +49 7151 945700	DE									9	10			13		15		www.sterixpert.de
BillerudKorsnäs UK Limited, +46 8553 335 00	GB		2		4	5					10			13				www.billerudkorsnas.com
Cambus Medical, +353 91 504633	IE										10							www.cambusmedical.com
cendres+métaux sa, +41 58 3602000	CH		2	3	4	5			8					13				www.cmsa.ch
CUBE, +353 61 400 658	IE					5			8		10							www.cube.irish
DCA Design International, +44 1926 499461	GB					5												www.dcamedical.co.uk
FRÜH Verpackungstechnik AG, +41 44 806 21 11	CH		2	3		5			8	9	10			13				www.fruh.ch
GEA Food Solutions Germany GmbH, +49 6461 8010	DE	1																www.gea.com
IMSTec GmbH, +49 6136 994 4110	DE	1																www.imstec.de
Inpac Medizintechnik GmbH, +49 7082 94570	DE		2	3	4	5			8	9	10	11	12	13	14			www.inpac-medizintechnik.de
Kahle Automation S.r.l., +39 363 355511	IT	1																www.kahleautomation.com
Klingel medical metal GmbH, +49 723 1651 90	**DE**		**2**	**3**	**4**				**8**		**10**	**11**		**13**				**www.klingel-med.de**
MEDIPACK AG, +41 52 6303636	DE					5					10							www.medipack.ch
MULTIVAC Sepp Haggenmüller SE & Co. KG, +49 8334 6010	DE							7										www.multivac.com
Nelipak Healthcare Packaging, +1 401 946.2699	US		2	3	4	5					10			13	14			www.nelipak.com
Nelson Laboratories, LLC, +1 801 2907500	US										10							www.nelsonlabs.com
Nordson MEDICAL, +1 888 404 5837	US		2								10							www.nordsonmedical.com
OSCOMED GMBH, +49 3675 439700	DE		2	3			6	7	8				12					www.oscomed.de
Ottronic Regeltechnik GmbH, +43 3573 34008	AT								8		10							www.ottronic.com
Peli Products Germany GmbH, +49 211 88242401	DE					5					10							www.peli.com
Plastique Ltd, +44 1892 543 211	GB										10	11		13	14			www.plastique.eu
prent denmark aps, +45 7022 4245	DK					5			8	9	10			13	14			www.prent.com
Procon Medizintechnik GmbH, +49 6188 445 990	DE													13				www.procon-med.de
puracon GmbH, +49 8031 900 587 0	DE	1	2	3	4	5	6		8	9	10	11	12	13				www.puracon.com
Scherdel Medtec GmbH & Co. KG, +49 9231 6030	DE			3	4				8	9	10							www.scherdel.de
Shell-Case, +972 72 2220104	IL		2			5									14	15		www.shell-case.com
steripac GmbH, +49 7051 58880	DE		2	3	4	5	6		8		10			13	14	15		www.steripac.com
TEQ, +1 800 874 7113	US													13	14			www.teqnow.com
Top Clean Packaging Group, +33 4 73803252	FR		2	3		5					10			13	14	15		www.topcleanpackaging.com
unimed sa, +41 21 6242151	CH		2	3	4				8									www.unimed.ch
Valuepack B.V., +31 65 1446116	NL								8	9	10			13				www.valuepack.nl

Gerresheimer Expands Gx RTF ClearJect Product Line

Gerresheimer is expanding its range of pre-fillable polymer syringes to include a new product: the Gx RTF® ClearJect® polymer needle syringe, 2.25 ml. Like the 1.0 ml syringe, this syringe will be produced in Pfreimd, Germany.

The material used for the syringe is a high performance polymer called COP (cyclic olefin polymer). It is suitable for use as primary packaging for sophisticated medications, especially for sensitive, biologicals, biosimilars, and biobetters.
The product was developed in close cooperation between two Gerresheimer locations in order to create synergy between the syringe experts in Bünde and the plastic experts in Wackersdorf, Germany.

The Gx RTF ClearJect COP SIN of Gerresheimer Bünde GmbH is now available in the sizes 1.0 ml long and 2.25 ml. The design is inspired by ISO 11040-6 and registered. The syringe is equipped with a 27-gauge, 1/2-inch (12.7 mm), thin-walled stainless- steel needle with three bevels.

Low Interaction Potential of The Syringe With The Medication

COP does not release tungsten metal ions into the medication solution as glass syringes can, which is a major concern for some. Since the entire syringe, including the insert-molded needle, is produced in a single step, the product, hence becomes free of tungsten and adhesives. The material has a high pH tolerance and the pH value does not change while in storage. The oxygen permeation rate is low in comparison to other plastics, and the values for extractables and leachables are low.

Safety and Reliable Functionality For The End User

Another important argument in favor of the Gx RTF ClearJect needle syringe is its end-user safety. COP is particularly break-resistant, making it suitable for packaging aggressive or toxic materials. The syringes are siliconized with a precisely controlled quantity of the highly viscous Dow Corning 360 MD (12,500 cST) silicone oil, in order to ensure reliable syringe functionality with low breakaway and sliding forces with the lowest possible particle load.

Precision and Flexible Design

Production in the injection molding process ensures precise dimensions. The dead volume in the syringe is also minimized, reducing overall waste of the costly drugs. The material enables a broad range of design options, which make it ideal for customer specific-requirements. The syringes are also engineered for use in autoinjectors thanks to their robustness and precision.

Economic Efficiency Through Standard Components

This syringe system, like the 1.0 ml syringe, is economical thanks to the fact that the innovative COP syringe body is designed to use commercially available standard components throughout. This starts with the use of standard cannulas and continues with the piston rods, piston plungers, backstops and closure systems used. ■

Image: Gerresheimer AG

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14 Packaging
Materials and Products

A–Z

Company	Country	1 Bags/Pouches	2 Barrier Packaging	3 Blister Packaging	4 Bottles, Jars and Vials	5 Caps and Closures	6 Cases and Cartons	7 Coated Spunbond Polyethylene	8 Films and Foils	9 Flexible Packaging	10 Laminates	11 Lidding	12 Moisture Barrier Packaging	13 Paper Packaging	14 Plastics, High Barrier	15 Rollstock	16 Seals	17 Sheets	18 Shipping Containers	19 Sterilizable Packaging + Components	20 Tapes	21 Trays	22 Tubes	23 Tubes, Plastic	24 Wraps and Overwraps	Website
Porex Technologies GmbH, +49 241 910 5250	**DE**		**2**					**7**					**12**							**19**						**www.porex.com**
Bemis Healthcare Packaging, +1 877 8287501	US	1							8			11				15						21			24	www.bemis.com/healthcare-packaging
Bischof + Klein GmbH & Co KG, +49 5481 920 0	DE	1							8	9						15				19						www.bk-international.com
Blispac, +33 344 262528	FR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17		19	20	21	22	23	24	www.blispac.fr
CAROLEX Packaging, +33 2 41 52 61 82	FR			3					8						14			17		19						www.vitasheetgroup.com
Endosmart GmbH, +49 7244 939860	DE								8																	www.endosmart.de
FRÜH Verpackungstechnik AG, +41 44 806 21 11	CH	1		3					8																	www.fruh.ch
Inpac Medizintechnik GmbH, +49 7082 94570	DE	1		3								11								19		21				www.inpac-medizintechnik.de
Minivalve International B.V., +31 541 570625	NL					5																				www.minivalve.com
Nelipak Healthcare Packaging , +31 478 529 000	IE	1	2	3								11				15						21				www.nelipak.com
Oliver Healthcare Packaging, +31 478 517560	NL	1	2						8	9		11	12	13	14	15		17		19						www.oliver-tolas.com
Peli Products Germany GmbH, +49 211 88242401	DE						6								14				18							www.peli.com
Phillips-Medisize, +31 252 576888	NL	1			4	5				9																www.phillipsmedisize.com
Pöppelmann GmbH & Co. KG, +49 4442 9820	DE					5																				www.poeppelmann.com
Porex Technologies GmbH, +49 241 910 5250	**DE**		**2**					**7**					**12**							**19**						**www.porex.com**
R. Montavon, +41 79 4537982	CH						6								14		16			19		21				www.rmontavon.ch
Rose Plastic Medical Packaging GmbH, +49 8388 9234	DE						6												18				22	23		www.rose-medipack.com
Schobertechnologies GmbH, +49 7042 7900	DE			3																						www.schobertechnologies.de
sfm medical devices GmbH, +49 6053 8050	DE																			19						www.sfm.de
Shell-Case, +972 72 2220104	IL	1					6																			www.shell-case.com
STERIMED, +33 157 759280	FR		2							9				13				17				21			24	www.sterimed.fr
TEQ, +1 800 874 7113	US		2									11										21				www.teqnow.com
Tommy Nielsen ApS, +45 7515 3200	DK								8																	www.tommy-nielsen.dk
Top Clean Packaging Group, +33 4 73803252	FR		2	3	4							11					16			19		21			24	www.topcleanpackaging.com
VELOX GmbH - an IMCD company, +49 40 3696880	DE																						22			www.velox.com
VP MEDICAL PACKAGING, +49 9852 9010	DE	1	2						8			11		13		15										www.vp-group.de
Wipak Walsrode GmbH & Co. KG, +49 5161 488 00	DE	1							8	9				13		15	16									www.wipak.com

14 Packaging
Equipment

A–Z

Company	Country	1 Aseptic Packaging Equipment	2 Bagging Equipment	3 Blister Packing Equipment	4 Cartoning Equipment	5 Controlled Atmosphere Packaging	6 Conveyers	7 Cutting Machines	8 Filling Equipment	9 Form-Fill-Seal Equipment	10 Handling Equipment	11 Heat Sealing	12 Lidding Equipment	13 Robotic Systems	14 Sealing Equipment, Non-ultrasonic	15 Thermoforming Equipment	16 Vacuum Forming/Vacuum Packaging	Website
GEA Food Solutions Germany GmbH	DE	1																www.gea.com
IMSTec GmbH, +49 6136 994 4110	DE	1									10			13				www.imstec.de
IPT Ltd, +353 21 423 2233	IE		2						8			11	12	13	14	15		www.ipt.ie
Kahle Automation S.r.l., +39 363 355511	IT	1							8		10			13				www.kahleautomation.com
KOCH Pac-Systeme GmbH, +49 7445 5909	DE			3														www.koch-pac-systeme.com
MEDIPACK AG, +41 52 6303636	DE			3		5							12					www.medipack.ch
MULTIVAC Sepp Haggenmüller SE & Co. KG, +49 8334 6010	DE			3		5	6			9	10					15	16	www.multivac.com
Nelipak Healthcare Packaging , +31 478 529 000	IE														14			www.nelipak.com
ontec automation GmbH, +49 9282 931 100	DE		2		4						10			13				www.ontec-automation.de
Schobertechnologies GmbH, +49 7042 7900	DE			3				7				11		13				www.schobertechnologies.de
Swanstone Ltd, +44 1952 400 050	GB			3				7					12				16	www.swanstone-uk.com
The Automated Technology Group, +44 1604 439525	GB													13				www.the-atg.com
Tommy Nielsen ApS, +45 7515 3200	DK			3														www.tommy-nielsen.dk
ViscoTec Pumpen- u. Dosiertechnik GmbH, +49 8631 92740	DE		2						8		10							www.viscotec.de

A CONMET cranial implant Medical device manufacturer CONMET uses a TRUMPF 3D printer to produce craniomaxillofacial implants for the CIS market.
Image: CONMET/TRUMPF GmbH + Co. KG

Personalized Implants for Half the World

Russian medical device manufacturer CONMET has been using the TRUMPF 3D printer TruPrint 1000 to produce craniomaxillofacial implants since early 2018. Creating implants for use in surgery has been a stressful business until now. The surgeon has to cut the craniomaxillofacial implant out of a perforated titanium plate during the procedure and then shape it to size. This is a taxing task where the time pressure can have a negative impact on the quality of fit. Such procedures are much easier with a 3D-printed implant. First, the hospital determines the patient's data and sends it to CONMET. Its engineers draw on this data to create a CAD model and design the implant in consultation with the surgeon. Then the 3D printer can go to work. The implant is ready for insertion, precisely fitted and cleaned, before the procedure begins. This enhances patient safety while cutting costs and speeding up surgery. The system makes light work of the kind of complex topologies that implants often require. What it more, it can print parts that are sturdy and durable while still cushioning against blows. The implant's porous structures facilitate the ingrowth of healthy tissue. Prices also come down as additive manufacturing only uses as much material as the implant actually needs. CONMET has managed to reduce the cost of manufacturing craniomaxillofacial implants by around 40 percent. The company is planning to step up mass manufacturing of implants with TRUMPF 3D printers and add more machines to its inventory. ■

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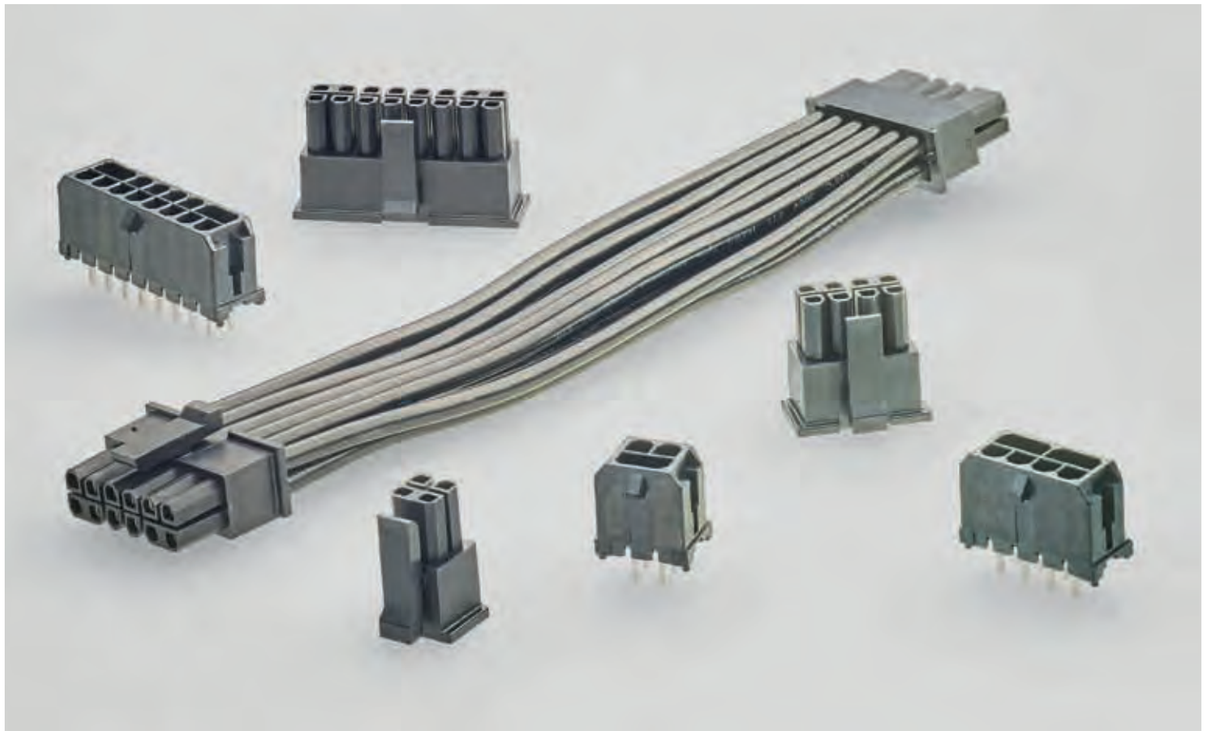
www.trumpf.com

15 Printing, Bar Coding and Labelling Services

A–Z

Company	Country	1 Printers, Flexographic	2 Printers, Hot Stamping	3 Printers, Ink Jet	4 Printers, Multiple Jet, High-Definition	5 Printers, Pad	6 Flexographic	7 Hot Stamping	8 Laser Marking	9 Pad	10 Screen	11 Encoders	12 Labels	13 Printers	14 Scanners	15 Services	16 Labelling Systems	17 Labels	18 Printing Systeme	19 Services	Website
		Printing Equipment and Supplies					Printing Services					Bar Coding Equipment and Supplies					Labelling Equipment and Materials				
3P Innovation Ltd, +44 1926 408 933	GB								8				12	13				17			www.3pinnovation.com
André Gueissaz SA, +41 58 400 96 60	CH					5															www.gueissaz.ch
Automatic Identification Systems Ltd, +353 1 620 5742	IE	1		3		5						11	12	13	14	15	16	17	18	19	www.aisltd.ie
Ciposa S.A., +41 32 566 6600	CH								8												www.ciposa.com
Codico Distributors Ltd, +353 51 379 933	IE			3	4							11	12	13	14	15	16	17	18	19	www.codico-distributors.com
David Schnur Associates, +1 650 941 0898	US								8	9											www.dschnur.com
Irish Micro Mouldings Ltd, +353 91 593 814	IE									9	10										www.micromouldings.com
Keyence UK, +44 1908 696 900	GB								8												www.keyence.co.uk
LZ Lifescience, +353 129 10955	IE																16				www.lzlifescience.com
Matthias Wetzel Industriebeschriftungen, +49 3641 57930	DE								8	9	10		12			15		17		19	www.mwib.de
Nordson MEDICAL, +1 888 404 5837	US									9											www.nordsonmedical.com
Oliver Healthcare Packaging, +31 478 517560	NL						6				10										www.oliver-tolas.com
prent denmark aps, +45 7022 4245	DK							7		9											www.prent.com
Scherdel Medtec GmbH & Co. KG, +49 9231 6030	DE								8												www.scherdel.de
Trend Technologies Ireland, +353 44 933 4300	IE							7	8	9											www.trendtechnologies.com
unimed sa, +41 21 6242151	CH								8				12					17			www.unimed.ch
Ward Automation Ltd, +353 7191 50039	IE		2	3													16		18		www.wardautomation.ie



TE Connectivity's ELCON Micro wire-to-board products provide a high current up to 12.5A per pin in the common industry footprint of 3.0mm. Image: TE Connectivity

ELCON Micro Wire-to-Board Power Cable Plugs and Cable Assemblies

Designed to prevent mating the plug in the wrong direction, making assembly virtually fool-proof

TE Connectivity has launched an expanded portfolio of ELCON Micro wire-to-board products, which provides a high current up to 12.5A per pin in the common industry footprint of 3.0mm, and now includes custom cable assemblies and a cable plug solution for design flexibility. These new products complement TE's ELCON Micro connectors, which were released last year. The 12.5A per pin current density in a compact design is useful in data communications, consumer devices, white goods, industrial and instrumentation, medical devices and 5G applications. The use of a common industry footprint allows customers to easily upgrade existing designs.

Unlike comparable products in the market, the ELCON Micro connector housing is designed to prevent mating the plug in the wrong direction, making assembly virtually fool-proof. In addition, ELCON Micro connectors perform reliably in harsh environments thanks to their maximum operating temperature of 105°C and their halogen-free material. The 3.0mm PCB footprint is compatible with Molex's Micro-Fit products, and intermateable and interchangeable with BellWether's Micro-Hi products. TE also now provides custom cable assemblies and a cable plug solution for design flexibility.

"TE's ELCON Micro portfolio delivers high power with extremely reliable connectivity in an easy-to-use, industry standard form factor," said Pat DiPaola, product manager at TE Connectivity. "We now offer our customers an expanded range of ELCON Micro connectors, cable plugs and custom cable solutions for use within a broad range of applications requiring high current in compact space." ■

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www.te.com

A–Z

Company	Country	Pumps: 1 Centrifugal	2 Chemically Inert	3 Compressor	4 Diaphragm	5 Gear	6 Magnetic Drive	7 Metering	8 Micropumps	9 Peristaltic	10 Positive Displacement	11 Pump Systems	12 Syringe	13 Vacuum	Motors: 14 Check	15 Chemically Inert	Motors: 16 Diaphragm	17 Flow Control	18 Isolation	19 Micro	20 Miniature	21 Needle	22 Pinch	23 Pressure/Vacuum	24 Proportional	25 Relief	26 Servo	27 Solenoid	28 Switching	Website
Halkey-Roberts Corporation, +1 727 471 4200	**US**														**14**			**17**			**20**			**23**		**25**				**www.halkeyroberts.com**
Qosina Corp., +1 631 242 3000	**US**												**12**									**21**									**www.qosina.com**
2E mechatronic GmbH & Co. KG, +49 7021 93010	DE								8	9										19	20							27		www.2e-mechatronic.de
ASCO Numatics GmbH, +49 7237 9960	DE														14				18		20		22	23	24			27	28	www.asco.com
AVS-Ing. J. C. Römer GmbH, +49 855 240 760	DE																	17										27		www.avs-roemer.de
Beswick Engineering Co., Inc., +1 603 4331188	US														14			17			20	21		23	24	25			28	www.beswick.com
Bürkert Fluid Control Systems, +49 7940 100	DE							7	8						14			17	18	19			22				26	27	28	www.burkert.com
Charles Austen Pumps Ltd, +44 1932 355 277	GB	1			4							11		13			16													www.charlesausten.com
Clippard Europe, S.A., +32 1045 2134	BE																	17	18						24					www.clippard.eu
Davair Ltd, +353 90 662 5001	IE																	17			20							27	28	www.davair.net
Diener Precision Pumps, +41 44 8667272	CH		2			5	6	7	8		10					15				19										www.dienerprecisionpumps.com
Fluid Metering Inc, +1 516 9226050	US		2					7	8		10	11				15				19										www.fmipump.com
Halkey-Roberts Corporation, +1 727 471 4200	**US**														**14**			**17**			**20**			**23**		**25**				**www.halkeyroberts.com**
Haydon Kerk Motion Solutions, +33 240 92 87 51	FR			3					8			11								19										www.haydonkerk.com
IDEX Health & Science, +49 1801 808800	DE		2								10			13	14	15		17						23				27	28	www.idex-hs.com
ITW Medical, +353 69 62666	IE														14			17												www.itwmedical.com
Kahle Automation S.r.l., +39 363 355511	IT							7	8		10		12							19										www.kahleautomation.com
LEE Hydraulische Miniaturkomponenten GmbH, +49 6196 773690	DE		2		4			7	8			11			14	15	16	17		19	20			23				27		www.lee.de
Liske Ireland Ltd, +353 91 631 711	IE																		18									27		www.gwlisk.ie
Minivalve International B.V., +31 541 570625	NL														14			17			20			23		25				www.minivalve.com
NITTO KOHKI EUROPE GMBH, +49 7157 989 5550	DE		2	3	4				8					13		15	16			19										www.nitto-kohki.eu
Qosina Corp., +1 631 242 3000	**US**												**12**									**21**									**www.qosina.com**
Shinano Kenshi Europe GmbH, +49 6196 969 8010	DE			3										13																www.antriebsloesungen-medizintechnik.de
Sonceboz SA, +41 32 4881111	CH								8	9	10	11	12					17		19					24		26				www.sonceboz.com
Staiger GmbH & Co. KG, +49 7143 27070	DE														14				18		20		22	23			26	27	28	www.staiger.de
STARLIM Spritzguss GmbH, +43 7243 585960	AT														14															www.starlim-sterner.com
STI Laser Industries Ltd., +972 4 6101103	IL																				20									www.sti-laser.com
The West Group, +44 2392 266031	GB								8					13	14			17		19	20	21	22	23	24	25	26			28	www.westgroup.co.uk
ViscoTec Pumpen- u. Dosiertechnik GmbH, +49 8631 92740	DE		2					7	8		10	11	12			15		17		19	20										www.viscotec.de
Ward Automation Ltd, +353 7191 50039	IE						6			9		11	12					17										27			www.wardautomation.ie

KNF Pumps Help Patients Survive the Wait for a Donor Heart

Ikus Driving Unit by Berlin Heart.
Image: Berlin Heart GmbH

Almost 1,000 people are currently waiting for a donor heart in Germany alone. In extreme cases, patients rely on an external device for circulatory support to keep their heart working. Berlin Heart is the only supplier in the world to have developed a system which is approved even for newborns. It uses diaphragm gas pumps which are produced by KNF to stringent specifications.

Patients suffering from heart failure can temporarily rely on a ventricular assist device (VAD). The EXCOR® Pediatric system from Berlin Heart is the only one of its kind in the world. The mechanical blood pump is located outside the patient's body and is connected to their heart and blood vessels via cannulae. It is the only VAD approved for children, toddlers and infants and has already saved more than 2,000 lives. EXCOR® consists of the blood pump, which takes over the work of the heart, and the stationary driving unit Ikus. Three KNF pumps work tirelessly inside the Ikus to keep the system running.

The medical equipment manufacturer provided clear specifications for the development phase — the pumps had to be powerful, robust and low-maintenance. KNF's diaphragm vacuum pumps check all of these boxes and also impressed the developers at Berlin Heart with their quiet, low-vibration operation. KNF's development team worked with Berlin Heart to optimize the parameters of the series model N 023.1.2 using the pump manufacturer's modular system, ultimately satisfying all of the customer's requirements. Specially adapted ribbed plates and a particular silicone connection had to be utilized, among other considerations. And the pumps needed to meet stringent standards set not just by the manufacturer but also by the German TÜV and other, international certification authorities. Berlin Heart meticulously harmonized all of the components for its product EXCOR® Pediatric to obtain full market access in the US via FDA premarket approval (PMA).

The results in practice are just as impressive as the design. The KNF pumps work quietly and reliably around the clock, providing the pressure and vacuum which drive Berlin Heart's blood pumps and allow them to simulate the heartbeat. The two active KNF pumps are supplemented by a third as a safety back-up. In extreme cases, this third pump could even take on the function of the other two for a limited period of time. The KNF pumps are housed in the Ikus stationary driving unit, which normally stands next to the patient's bed.

EXCOR® and all of its components are designed for long-time operation due to the long waiting lists for donor organs. In a small number of cases, children supported with the external ventricular assist device recover so well that they no longer require a transplant at all. ■

The developers drew on KNF's modular system to adapt the series model N 023.1.2 in line with the specific requirements of external ventricular assist devices.
Image: KNF Neuberger GmbH

KNF Neuberger GmbH
Germany
+49 7664 5909 0
info.de@knf.com
www.knf.de

17 R&D and Design Services

A–Z

Company	Country	1 Analytical Investigations	2 Analytical Methods Development	3 Biocompatibility Testing and Studies	4 Clinical Services	5 Design Engineering Services	6 Electrical Systems and Subassemblies	7 Immunology Studies	8 Laboratory Research	9 Machine Design and Construction	10 Microbiological Studies	11 Microtechnology	12 Optical Engineering	13 Process Design and Development	14 Product Design	15 Product R&D	16 Prototyping	17 Rapid Prototyping	18 Toxicology	Website
Apple Rubber, +1 716 6846560	**US**																**16**			**www.applerubber.com**
MER Medical Engineering Resources- Europe, +31 598 634420	**NL**					**5**											**16**	**17**		**www.mer-europe.com**
Micro Systems Technologies, +41 44 8046300	**CH**					**5**						**11**					**16**			**www.mst.com**
Qosina Corp., +1 631 242 3000	**US**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**www.qosina.com**
Teleflex Medical OEM, +1 508 964 6021	**US**					**5**								**13**		**15**	**16**	**17**		**www.teleflexmedicaloem.com**
Absolem, +32 15 29 42 42	BE													13	14		16			www.absolem.be
André Gueissaz SA, +41 58 400 96 60	CH					5								13	14			17		www.gueissaz.ch
Apple Rubber, +1 716 6846560	**US**																**16**			**www.applerubber.com**
Arrotek Medical Ltd, +353 71 9115111	IE					5									14		16	17		www.arrotek.com
ASKION GmbH, +49 365 73530	DE					5	6		8	9			12			15	16			www.askion.com
bebro electronic GmbH, +49 7022 40030	DE					5	6			9		11			14	15	16	17		www.bebro.de
BECOM Electronics GmbH, +43 2616 2930 0	AT					5	6									15	16			www.becom.at
BYTEC Medizintechnik GmbH, +49 2403 782 9900	DE					5														www.bytecmed.com
Crystal IS, +1 518 271 7375	US					5							12							www.cisuvc.com
David Schnur Associates, +1 650 941 0898	US					5								13	14	15	16	17		www.dschnur.com
DCA Design International, +44 1926 499461	GB					5	6							13	14	15	16	17		www.dcamedical.co.uk
Donatelle Plastics Inc., +1 651 6334200	US					5								13			16	17		www.donatellemedical.com
Dukane, +353 85 2 521 061	IE														14	15				www.dukane.eu
eg technology Ltd, +44 1223 813184	GB					5	6								14	15	16			www.egtechnology.co.uk
Endosmart GmbH, +49 7244 939860	DE		2	3		5				9		11		13	14	15	16	17		www.endosmart.de
EPflex Feinwerktechnik GmbH, +49 7123 978410	DE															15	16			www.epflex.com
EUROFLEX GmbH, +49 7231 208210	DE	1		3					8								16	17		www.euroflex.de
Freudenberg Medical Europe GmbH, +49 631 53417500	DE	1																		www.freudenbergmedical.de
Integrated Technologies Ltd (ITL), +44 1233 655323	GB	1	2			5	6						12	13	14	15	16	17		www.itl.co.uk
Iskra Mehanizmi, d.o.o., +386 4 5355 100	SI						6							13		15	16			www.iskra-mehanizmi.si
ITW Medical, +353 69 62666	IE													13	14	15	16			www.itwmedical.com
JENOPTIK Polymer Systems GmbH, +49 36482 450	DE					5							12	13			16	17		www.jenoptik.com
JEOL (Germany) GmbH, +49 8161 9845-0	DE	1	2						8			11				15				www.jeol.de
MER Medical Engineering Resources- Europe, +31 598 634420	**NL**					**5**											**16**	**17**		**www.mer-europe.com**
Micro Systems Technologies, +41 44 8046300	**CH**					**5**						**11**					**16**			**www.mst.com**
MicroGenisis TechSoft GmbH, +49 89 309 040 161	DE															15				www.mgtechsoft.com
Microspec Corporation, +1 603 9244300	**US**															**15**	**16**	**17**		**www.microspeccorporation.com**
Microtek Medical BV, +31 575 599299	NL															15		17		www.ecolab.com
OSCOMED GMBH, +49 3675 439700	DE					5										15	16			www.oscomed.de
Peli Products Germany GmbH, +49 211 88242401	DE					5									14		16			www.peli.com
Phillips-Medisize, +31 252 576888	NL														14	15				www.phillipsmedisize.com
Qosina Corp., +1 631 242 3000	**US**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**www.qosina.com**
Scherdel Medtec GmbH & Co. KG, +49 9231 6030	DE					5			8	9					14	15	16	17		www.scherdel.de
Schieferle Technology GmbH, +49 8225-308030	DE					5														www.schieferle-pego.de
sintermedical, +353 89 454 2248	IE					5									14	15	16	17		www.sintermedical.com
Sonceboz SA, +41 32 4881111	CH											11				15				www.sonceboz.com
SONOTEC GmbH, +49 345 133170	DE															15	16			www.sonotec.eu
Statice SAS, +33 381 484 343	FR					5														www.statice.com
STERIS Applied Sterilization Technologies, +44 8456 889970	GB										10									www.steris-ast.com
System Industrie Electronic GmbH, +43 5577899000	AT					5									14		16	17		www.sie.at
Tandem Project Management, +353 0212 409 055	IE													13						www.tandempm.ie
Teleflex Medical OEM, +1 508 964 6021	**US**					**5**								**13**		**15**	**16**	**17**		**www.teleflexmedicaloem.com**
unimed sa, +41 21 6242151	CH														14		16	17		www.unimed.ch
VistaMed Limited, +353 71 9638833	IE					5								13	14		16	17		www.vistamed.net

18 Sterilization
Services

A – Z

Company	Country	1 Electron-Beam	2 Ethylene Oxide	3 Gamma	4 Logistics	5 Process Development	6 Sterilization Validation	7 Warehousing	8 X-Ray Beam	Website
BBF Sterilisationsservice GmbH, +49 7151 945700	DE			3	4		6			www.sterixpert.de
BGS Beta-Gamma-Service GmbH & Co. KG, +49 2261 7899-0	DE	1		3	4			7		www.bgs.eu
GEMÜ, +41 41 799 05 00	CH				4	5	6			www.gemue.ch
Inpac Medizintechnik GmbH, +49 7082 94570	DE		2	3	4	5	6	7		www.inpac-medizintechnik.de
OSCOMED GMBH, +49 3675 439700	DE		2				6			www.oscomed.de
steripac GmbH, +49 7051 58880	DE		2	3			6			www.steripac.com
STERIS Applied Sterilization Technologies, +44 8456 889970	GB	1	2	3	4	5	6		8	www.steris-ast.com
Tandem Project Management, +353 0212 409 055	IE						6	7		www.tandempm.ie
Valuepack B.V., +31 65 1446116	NL				4			7		www.valuepack.nl

It's Time for Real Time

It can sometimes take a long time from diagnosis to therapy. But there are many medical fields where this will change in the future. With closed-loop systems, diagnosis and therapy take place in immediate succession and almost automatically – without us noticing much of it.

The mills of medicine grind slowly? Not for much longer! Nowadays, the situation is usually like this: You go to the doctor, who takes blood, sends it to the laboratory and refers you to other doctors for further examination. A few weeks later, you go back to the doctor and find out the results and what needs to be done. And then, eventually, you do it. This concept – understanding the problem (diagnosis) and then solving it (therapy) – is basically good and has proven effective. In many cases, however, it simply takes a very long time in practice. What if the two were directly coupled? And without it really interfering with our lives?

"Medicine is well on its way to reaching that point, and in some cases it already has," says Sebastian Koller, Head of Innovation and Product Development at Röchling Medical Waldachtal. The ultimate goal is to create closed loops to make life easier for doctors and patients alike. In a closed loop, diagnostics and therapy are digitally linked with each other.

Plastics Offer Many Advantages in The Development Of Biosensors

However, a number of challenges have yet to be mastered: "We're trying to find ways to protect the patient from the electronics and at the same time the electronics from the human bodily fluids," says Koller.

Experts at Röchling are therefore conducting research into implantable biosensors and next-generation plastic products that hardly cause any rejection reaction or immune response in the body. Plastics, the core business of the Röchling Group, offer an especially wide range of possibilities here: "You can basically shape plastic any way you want. That's a huge advantage," says Koller.

Basically One Step: Measuring Blood Sugar and Injecting Insulin

An example from the field of diabetes: Currently, patches are being developed whose tiny needles penetrate the skin and are capable of measuring blood sugar as well as releasing insulin. In a closed loop, both processes would run automatically in response to each other: The patch measures the blood sugar level, evaluates it and injects the appropriate amount of insulin.

To ensure that a closed loop functions reliably and smoothly, a number of modern components are needed. "It all starts with good sensor technology: temperature sensors, position receptors, light and color sensors. The choice is virtually endless and can be adapted to the application," says Koller.

But sensors alone do not provide treatment. That is why communication between the various components is crucial, with everything from cables to wireless data transmission currently being tested. The right material plays a decisive role: "We're doing research on sensors and plastics that the body doesn't recognize as foreign," Koller relates.

Bed Pads Measure Pressure Load – Diapers Indicate When They Are Full

But a closed loop does not always have to take place directly in the body. There are also bed pads with electronic sensors that measure the pressure exerted by the patient on a particular part of the bed. If the patient remains in the same position for a long time or if the pressure is badly distributed, changing the bed pad – e. g. by means of air padding – ensures that the patient does not suffer bruises or even open wounds such as pressure sores while lying in bed.

Countless possible applications are being tested at present. "In the field of minimally invasive surgery, for example, research is being carried out to create profiles of patients that evaluate how they move, what their vital parameters are and what specific characteristics they have so that the subsequent therapy can be adapted to the patient," says Koller. And for the areas of paediatrics and geriatrics, diapers are being developed that set off an alarm when they are full.

Of course, it is also conceivable that the data collected by a sensor is transmitted directly to the clinic or doctor via the Internet. "Basically, that's a great idea, which may well become established at some point. At the moment, however, the danger of misuse still outweighs the direct benefit for the patient," says Koller. Consequently, there is still little willingness on the part of those concerned to consent to the transfer of personal data. In most cases, this is not necessary anyway if the entire loop is self-contained and there is no need for a control authority such as a clinic or a doctor.

Patients Who Have Too Little Oxygen Automatically Get More

One example is the monitoring of oxygen saturation. In intensive care units at hospitals, the oxygen saturation can be measured continuously via a sensor on the finger. The results are then evaluated directly and converted into corresponding instructions for the oxygen device, for example to give the patient more oxygen when needed. Oxygen requirements and oxygen supply are thus self-regulating, without patients, nursing staff or doctors having to constantly monitor them.

Closed loops make things a lot easier for patients – not only because they're treated faster, but also because the process often runs automatically without requiring much action on their part. And their quality of life is improved because they have to make fewer visits to the medical office. As a result, closed loops also relieve the strain on doctors, who thus have more time to deal with their patients – and not just with their illnesses. There are also signs that closed loops are beneficial with respect to therapy success and quality of life. This is no wonder, really, since diagnosis and therapy are two things that clearly belong together. ■

Image courtesy of Röchling SE & Co. KG

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www.roechling.com

19 Surface Treatment
Coatings, Equipment & Services

A–Z

▶ See page 75 for SCS details

Company	Country	Coatings: 1 Antimicrobial	2 Chemical Resistant	3 Conductive	4 EMI/RFI Shielding	5 Fluoropolymer	6 Hydrophilic	7 Hydrophobic	8 Lubricious	9 Nonconductive	10 Parylene	11 PTFE	12 Thermal Resistant	Equipment: 13 Coating	14 Deburring	15 Deposition	16 Deposition, Thin-film	17 Electropolishing	18 Etching	19 Plasma Treatment	20 Polishing	21 Ultrasonic Cleaning	Services: 22 Coating	23 Deburring	24 Deposition	25 Deposition, Thin-film	26 Electropolishing	27 Etching	28 Plasma Treatment	29 Polishing	30 Ultrasonic Cleaning	Website
Apple Rubber, +1 716 6846560	**US**	**1**	**2**						**8**		**10**	**11**																				**www.applerubber.com**
Klingel medical metal GmbH, +49 723 1651 90	**DE**													**14**				**17**			**20**	**21**		**23**			**26**			**29**	**30**	**www.klingel-med.de**
Specialty Coating Systems SCS, +1 317 451 8549	**US**	**1**							**8**		**10**					**15**	**16**								**24**	**25**							**www.scscoatings.com**
Teleflex Medical OEM, +1 508 964 6021	**US**						**6**		**8**																			**27**				**www.teleflexmedicaloem.com**
Absolem, +32 15 29 42 42	BE													13	14				18				22	23				27				www.absolem.be
Apple Rubber, +1 716 6846560	**US**	**1**	**2**						**8**		**10**	**11**																				**www.applerubber.com**
Applied Membrane Technology Inc., +1 952 933 5121	US	1	2	3		5	6	7	8	9	10	11								19									28			www.appliedmembranetech.com
Asahi Intecc Co., Ltd., +31 20 7940643	NL					5	6					11																				www.asahi-inteccusa.com
Buehler - ITW Test & Measurement GmbH, +49 711 4904 690-0	DE													14				17	18		20	21		23			26	27		29	30	www.buehler.com
cendres+métaux sa, +41 58 3602000	CH																		18		20	21						27		29	30	www.cmsa.ch
Comelec SA, +41 32 9240004	CH	1	2			5	6	7	8		10			13			16						22			25						www.comelec.ch
David Schnur Associates, +1 650 941 0898	US		2	3		5	6	7		9	10	11	12	13				17					22				26					www.dschnur.com
Disposable Instrument Company Inc., +913 913 4926492	US																					21									30	www.disposableinstrument.com
DYMAX Europe GmbH, +49 611 9627900	DE		2							9																						www.dymax.com
Endosmart GmbH, +49 7244 939860	DE													14				17	18		20	21		23			26	27		29	30	www.endosmart.de
EUROFLEX GmbH, +49 7231 208210	DE																		18		20	21						27		29	30	www.euroflex.de
Fort Wayne Metals, +1 260 7474154	US								8			11																				www.fwmetals.com
Freudenberg Medical Europe GmbH, +49 631 53417500	DE	1	2				6	7	8											19									28			www.freudenbergmedical.de
G. Hipp & Sohn GmbH, +49 7467 1463	DE													13	14			17			20	21	22	23			26			29	30	www.hippandson.com
Harland Medical Systems, +1 952 9410475	US	1					6		8					13						19		21	22						28		30	www.harlandmedical.com
Irish Micro Mouldings Ltd, +353 91 593 814	IE			3	4																											www.micromouldings.com
JENOPTIK Polymer Systems GmbH, +49 36482 450	DE						6	7																								www.jenoptik.com
KKS Ultraschall AG, +44 41 833 87 87	CH																		18		20	21						27		29	30	www.kks-ultraschall.ch
Klingel medical metal GmbH, +49 723 1651 90	**DE**														**14**			**17**			**20**	**21**		**23**			**26**			**29**	**30**	**www.klingel-med.de**
LMT Leuchten + Metall Technik GmbH, +49 9174 47970	DE																				20									29		www.lmtgmbh.de
Matthias Wetzel Industriebeschriftungen, +49 3641 57930	DE	1	2	3	4							11									20	21								29	30	www.mwib.de
Nanogate Medical Systems GmbH, +49 2359 5080960	DE													13									22									www.nanogate-medical.de
Osborn International GmbH, +49 6451 5880	DE														14									23								www.osborn.de
R. Montavon, +41 79 4537982	CH		2	3	4			7																								www.rmontavon.ch
Rilit Lackfabrik GmbH, +49 7642 92600	DE	1																														www.rilit.de
Scherdel Medtec GmbH & Co. KG, +49 9231 6030	DE																					21									30	www.scherdel.de
Sonic Solutions Ltd, +44 1924 495 975	GB																					21									30	www.sonicsolutionsltd.com
Specialty Coating Systems SCS, +1 317 451 8549	**US**	**1**							**8**		**10**					**15**	**16**								**24**	**25**							**www.scscoatings.com**
STI Laser Industries Ltd., +972 4 6101103	IL																					21									30	www.sti-laser.com
Teleflex Medical OEM, +1 508 964 6021	**US**						**6**		**8**																			**27**				**www.teleflexmedicaloem.com**
Turck duotec GmbH, +49 9131 691-246	DE		2			5					10																					www.turck-duotec.com
unimed sa, +41 21 6242151	CH											11									20	21								29	30	www.unimed.ch
VELOX GmbH - an IMCD company, +49 40 3696880	DE							7																								www.velox.com

Ultra-thin Conformal Coating Protection Increases Device Reliability

As materials and applications continue to advance, Parylene conformal coatings are increasingly being used to enhance the reliability of innovative medical technologies. Ultra-thin and pinhole-free, SCS Parylenes provide beneficial properties to the medical device industry. These properties, including biocompatibility, biostability, excellent moisture, chemical and dielectric barrier properties, thermal and UV stability and dry-film lubricity, have benefited countless medical devices, including stents, cardiac assist devices, electrosurgical tools, cochlear and ocular implants, mandrels and molds, catheters, elastomeric seals, needles and epidural probes, and medical electronics, to name a few.

What differentiates the Parylenes from many other types of conformal coatings is that they are applied by vapor deposition – not via spraying, dipping, brushing or other mechanical forms of liquid application. They are deposited as a gas in a process that does not rely on line-of-sight physics, but the polymer literally "grows" on device surfaces at a molecular level, which means they provide uniform, conformal coverage of all component surfaces, even penetrating into the smallest crevices to provide a complete, biocompatible barrier that is only microns in thickness.

There are three common variants of Parylene conformal coatings that are commercially-available for the medical device industry: Parylenes N, C and Parylene HT®. Each Parylene has unique properties that make it advantageous for medical device and sensor applications, but all three formulations are biocompatible and biostable per ISO-10993 and USP Class VI biological evaluations, and all are compatible with common sterilization methods (e. g. e-beam, gamma, EtO, peroxide plasma, steam autoclave, etc.). ■

Images courtesy of Specialty Coating Systems Inc.

Specialty Coating Systems Inc.
USA
+1 317 244 1200
info@scscoatings.com
www.scscoatings.com

20 Tubing and Extrusion
Tubing Types

A – F

Company	Country	1 Anesthesia	2 Blood Transfusion	3 Braided	4 Bubble	5 Catheter	6 Class IV	7 Coextruded	8 Composite	9 Connectors	10 Corrugated-nonkinking	11 Couplings	12 Elastomers and Thermoplastics	13 Etched	14 ETFE	15 FEP	16 Filament Braided	17 Fluoroplastic	18 Glass	19 Heat-Shrink	20 Irradiation-resistant	21 IV	22 Latex	23 Liquid Crystal Polymer	24 Metal	25 Micro	26 Miniature	27 Multilayer	28 Multilumen	29 Needle	30 Nitinol	31 Nonkinking	32 Nylon	33 PEEK	34 Peristaltic	35 Polyamide	36 Polycarbonate	37 Polyethylene	38 Polyimide	Website
MER Medical Engineering Resources- Europe, +31 598 634420	**NL**		**2**			**5**	**6**	**7**					**12**				**16**								**24**	**25**	**26**		**28**	**29**		**31**								**www.mer-europe.com**
Microlumen, Inc., +1 813 886 1200	**US**			**3**					**8**																		**27**	**28**							**35**					**www.microlumen.com**
Qosina Corp., +1 631 242 3000	**US**		**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**www.qosina.com**
Teleflex Medical OEM, +1 508 964 6021	**US**			**3**		**5**		**7**	**8**	**9**			**12**	**13**	**14**	**15**	**16**	**17**		**19**		**21**				**25**	**26**	**27**	**28**			**31**		**33**		**35**	**36**	**37**	**38**	**www.teleflexmedicaloem.com**
APT Advanced Polymer Tubing GmbH, +49 2137 109 7370	DE														14	15																								www.aptubing.de
Arrotek Medical Ltd, +353 71 9115111	IE					5																																	www.arrotek.com
Asahi Intecc Co., Ltd., +31 20 7940643	NL			3		5		7					12	13	14	15	16			19					24	25		27			30		32	33		35		37		www.asahi-inteccusa.com
Avocet Precision Metals, +44 1625 590 745	GB																								24						30									www.avocetsteel.co.uk
Axon' Kabel GmbH, +49 7152 979 920	DE																																							www.axon-kabel.de
Beswick Engineering Co., Inc., +1 603 4331188	US																										26													www.beswick.com
Biogeneral, +1 858 453 4451	US												12					17															33							www.biogeneral.com
Cambus Medical, +353 91 504633	IE																								24					29										www.cambusmedical.com
Catheter & Medical Design (CMD) Inc, +1 651 6366505	US			3		5											16									25		27	28				32	33		35		37		www.cathetermd.com
Cikautxo Medical, +34 946 133 000	ES																																							www.cikautxomedical.es
Clippard Europe, S.A., +32 1045 2134	BE											11																												www.clippard.eu
Cobalt Polymers, +1 800 337 0901	US																			19													32					37		www.cobaltpolymers.com
Creganna Medical, +353 91 757 801	IE			3		5			8																	25		27				31			35	36			www.creganna.com
Davair Ltd, +353 90 662 5001	IE																											28												www.davair.net
David Schnur Associates, +1 650 941 0898	US			3		5	6	7	8	9	10		12		14	15	16	17		19	20				24	25	26	27	28	29	30		32	33	34	35	36	37	38	www.dschnur.com
Dunn INDUSTRIES INC., +1 603 666 4800	US							7																				27	28				32				36			www.dunnindustries.com
ElringKlinger Kunststofftechnik GmbH, +49 7142 5830	DE		2		4	5			8	9	10		12	13	14	15	16	17		19	20	21				25	26		28			31		33						www.elringklinger-kunststoff.de/english
EUROFLEX GmbH, +49 7231 208210	DE			3		5			8	9		11	12	13											24	25	26	27	28		30									www.euroflex.de
Everite, +1 856 3306700	US																								24					29	30									www.everite.com
Farlow's Scientific Glassblowing Inc, +1 530 477 5513	US																		18																					www.farlowsci.com
FLUORTEK, INC., +1 610 559 9000	US			3		5	6		8						14	15	16			19								27	28				32	33		35	36	37		www.fluortek.com
Freudenberg Medical Europe GmbH, +49 631 53417500	DE			3		5		7					12													25	26	27	28					34						www.freudenbergmedical.de

▶ More product and service categories on page 84

Tubing Types

H – Z

Company	Country	1 Anesthesia	2 Blood Transfusion	3 Braided	4 Bubble	5 Catheter	6 Class IV	7 Coextruded	8 Composite	9 Connectors	10 Corrugated-nonkinking	11 Couplings	12 Elastomers and Thermoplastics	13 Etched	14 ETFE	15 FEP	16 Filament Braided	17 Fluoroplastic	18 Glass	19 Heat-Shrink	20 Irradiation-resistant	21 IV	22 Latex	23 Liquid Crystal Polymer	24 Metal	25 Micro	26 Miniature	27 Multilayer	28 Multilumen	29 Needle	30 Nitinol	31 Nonkinking	32 Nylon	33 PEEK	34 Peristaltic	35 Polyamide	36 Polycarbonate	37 Polyethylene	38 Polyimide	Website
HEXPOL TPE AB, +46 532 60 75 00	SE																																							www.hexpoltpe.com
IDEX Health & Science, +49 1801 808800	DE								9						14	15						21					27						33								www.idex-hs.com
Impact Ireland Metals & Plastics, +353 1 451 2144	IE										11													24																www.impactirl.ie
ITW Medical, +353 69 62666	IE		2																			21																		www.itwmedical.com
Kahle Automation S.r.l., +39 363 355511	IT					5																																	www.kahleautomation.com
KonMed GmbH, +41 41 790 43 33	CH	1	2	3		5		7		9					14	15	16	17		19	20						27	28			31		33		35	36	37	38	www.konmed.ch
K-Tube Technologies Corp., +31 598 634 420	US																16							24						30									www.k-tube.com
LEE Hydraulische Miniaturkomponenten GmbH, +49 6196 773690	DE								9		11																												www.lee.de
MEDELEC S.A., +41 21 946 04 80	CH																							24					29										www.medelec-tubes.com
MER Medical Engineering Resources- Europe, +31 598 634420	**NL**		**2**			**5**	**6**	**7**					**12**				**16**							**24**	**25**	**26**		**28**	**29**		**31**								**www.mer-europe.com**
Microlumen, Inc., +1 813 886 1200	**US**			**3**					**8**																		**27**	**28**							**35**				**www.microlumen.com**
Microspec Corporation, +1 603 9244300	**US**	**1**			**4**	**5**		**7**					**12**		**14**	**15**		**17**			**20**	**21**		**23**		**25**	**26**	**27**	**28**			**31**	**32**	**33**		**35**	**36**	**37**		**www.microspeccorporation.com**
Modenplast GmbH, +49 911 956 91810	DE																											28												www.modenplast-medical.de
Nordson MEDICAL, +1 888 404 5837	US			3						9		11					16											28		30									www.nordsonmedical.com
Optima Medical Components, +46 18 183020	SE					5									14	15						21										32	33						38	www.optima.se
Optinova Group, +358 18 32900	FI					5		7					12	13	14	15		17		19	20	21				26	27	28							35	36	37			www.optinova.com
OSCOMED GMBH, +49 3675 439700	DE		2			5		7					12								20						27	28				32			35	36	37			www.oscomed.de
Primasil Silicones Ltd, +44 1544 312600	GB																																							www.primasil.com
Qosina Corp., +1 631 242 3000	**US**		**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**www.qosina.com**
RAUMEDIC AG, +49 9252 3590	DE		2	3		5	6	7	8	9		11	12	13		15	16	17			20	21		23		25	26	27	28	29		31	32	33	34	35	36	37		www.raumedic.com
SiMEDEx Inc., +1 805 610 6444	US			3	4	5	6	7			10		12														27	28			31			34					www.simedex.com
Tef Cap Industries, +1 610 6922576	US					5					10			13	14	15		17		19													33							www.tefcap.com
Teleflex Medical OEM, +1 508 964 6021	**US**			**3**		**5**		**7**	**8**	**9**			**12**	**13**	**14**	**15**	**16**	**17**		**19**		**21**				**25**	**26**	**27**	**28**			**31**		**33**		**35**	**36**	**37**	**38**	**www.teleflexmedicaloem.com**
The West Group, +44 2392 266031	GB			3						9		11																27					32			35	36	37	38	www.westgroup.co.uk
Trelleborg Sealing Solutions Germany GmbH, +49 711 7864 536	DE																											28						34						www.tss.trelleborg.com
unimed sa, +41 21 6242151	CH																																							www.unimed.ch
Vesta, +1 414 4230550	US			3		5		7														21						28												www.vestainc.com
VistaMed Limited, +353 71 9638833	IE			3		5				9			12	13						19		21				25	26	27	28	29	30	31	32	33		35		37		www.vistamed.net
Zeus Industrial Products, +353 74 9109700	IE					5	6	7						13	14	15		17		19				23				28					32	33		35				www.zeusinc.com

▶ More product and service categories on page 84

New Catheter Handle Platforms and Hemostasis Valve

Innovative Product Solutions for Accelerating Time to Market

Freudenberg Medical announced several new options for medical device companies looking to accelerate time to market. The Composer® EPIC Catheter Handle Platform provides next generation design options with a through lumen, modular distal end and a variety of shaft options for electrophysiology guide, diagnostic and therapeutic catheters. The Composer® Toccata Catheter Handle Platform is optimized for controlling smaller catheter applications up to 9.5Fr OD and provides extensive design flexibility with a variety of shaft options, a proximal luer connection and an adjustable tensioning system. The HyperSeal® Mini, the sixth and latest member of the Freudenberg Medical hemostasis valve family, brings the automatically adjusting HyperSeal® valve technology into 12Fr and smaller applications including integration into the new Composer® EPIC and Toccata handles.

"We continue to be inspired by the strong market response to our Composer® Handle Platform and Hemostasis Valve Family. Freudenberg Medical's latest Product Solutions address our customer's growing need for rapid, meaningful and clinically relevant innovation in improving catheter delivery, control and outcomes. Our Composer® EPIC and Toccata handles are built on entirely new control platforms that provide expanded design options and capabilities for emerging electrophysiology, vascular and imaging applications," said Bernie Kaeferlein, Director of Portfolio Management at Freudenberg Medical. "What's been equally impressive is the robust, clinical versatility of the HyperSeal® hemostasis valve technology. The release of HyperSeal® Mini expands hemostasis options for smaller French size applications to the HyperSeal® and HyperSeal® XL that support large bore applications from 12Fr to well over 30Fr. As a partner for innovation, we are committed to proactively addressing unmet clinical needs and offering our medical device customers a growing portfolio of finished device, design, and process solutions to help improve efficiency and accelerate their time to market."

Image: Freudenberg Medical Europe GmbH

Freudenberg Medical's Product Solutions include the versatile Composer® Steerable Introducer, FlexSeal and HyperSeal Large Bore Introducer Sheath with Hydrophilic Coating. ■

Freudenberg Medical Europe GmbH
Germany
+49 631 5341 7600
info@freudenbergmedical.de

Tubing Types

A–Z

Company	Country	Polyolefin	Polypropylene	Polyurethane	Pressure	PTFE	PVC	PVDF	Radiopaque	Reinforced	Rubber	Silicone	Single-lumen	Stainless Steel	Thermoplastic Elastomers	Thin-walled	Transparent	Triple-layered	Vacuum	Wire	Wire Coated	Wire Reinforced	Website
		39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	
MER Medical Engineering Resources- Europe, +31 598 634420	**NL**									**47**		**49**	**50**	**51**		**53**	**54**					**59**	**www.mer-europe.com**
Microlumen, Inc., +1 813 886 1200	**US**					**43**				**47**												**59**	**www.microlumen.com**
Qosina Corp., +1 631 242 3000	**US**	**39**	**40**	**41**	**42**	**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50**	**51**	**52**	**53**	**54**	**55**	**56**	**57**	**58**	**59**	**www.qosina.com**
Teleflex Medical OEM, +1 508 964 6021	**US**	**39**	**40**	**41**		**43**			**46**	**47**			**50**			**53**	**54**	**55**				**59**	**www.teleflexmedicaloem.com**
APT Advanced Polymer Tubing GmbH, +49 2137 109 7370	DE					43		45															www.aptubing.de
Arrotek Medical Ltd, +353 71 9115111	IE																						www.arrotek.com
Asahi Intecc Co., Ltd., +31 20 7940643	NL	39		41		43	44						50	51	52	53				57	58		www.asahi-inteccusa.com
Avocet Precision Metals, +44 1625 590 745	GB													51									www.avocetsteel.co.uk
Axon' Kabel GmbH, +49 7152 979 920	DE					43																	www.axon-kabel.de
Beswick Engineering Co., Inc., +1 603 4331188	US			41	42																		www.beswick.com
Biogeneral, +1 858 453 4451	US							45							52								www.biogeneral.com
Cambus Medical, +353 91 504633	IE													51									www.cambusmedical.com
Catheter & Medical Design (CMD) Inc, +1 651 6366505	US		40	41						47			50			53	54						www.cathetermd.com
Cikautxo Medical, +34 946 133 000	ES											49											www.cikautxomedical.es
Clippard Europe, S.A., +32 1045 2134	BE																						www.clippard.eu
Cobalt Polymers, +1 800 337 0901	US	39																					www.cobaltpolymers.com
Creganna Medical, +353 91 757 801	IE	39	40	41				45							52	53					58		www.creganna.com
Davair Ltd, +353 90 662 5001	IE			41						47			50										www.davair.net
David Schnur Associates, +1 650 941 0898	US	39	40	41	42	43	44	45	46			49	50	51	52	53	54	55	56	57		59	www.dschnur.com
Dunn INDUSTRIES INC., +1 603 666 4800	US		40										50									59	www.dunnindustries.com
ElringKlinger Kunststofftechnik GmbH, +49 7142 5830	DE					43		45	46				50			53	54			57	58		www.elringklinger-kunststoff.de
EUROFLEX GmbH, +49 7231 208210	DE													51		53				57	58	59	www.euroflex.de
Everite, +1 856 3306700	US																						www.everite.com
Farlow's Scientific Glassblowing Inc, +1 530 477 5513	US																						www.farlowsci.com
FLUORTEK, INC., +1 610 559 9000	US	39	40	41		43		45	46	47			50		52	53	54				58	59	www.fluortek.com
Freudenberg Medical Europe GmbH, +49 631 53417500	DE				42					47		49				53	54					59	www.freudenbergmedical.de
HEXPOL TPE AB, +46 532 60 75 00	SE														52								www.hexpoltpe.com
IDEX Health & Science, +49 1801 808800	DE					43																	www.idex-hs.com
Impact Ireland Metals & Plastics, +353 1 451 2144	IE													51									www.impactirl.ie
ITW Medical, +353 69 62666	IE				42		44																www.itwmedical.com
Kahle Automation S.r.l., +39 363 355511	IT																						www.kahleautomation.com
KonMed GmbH, +41 41 790 43 33	CH		40	41		43		45	46	47			50		52		54			57	58	59	www.konmed.ch
K-Tube Technologies Corp., +31 598 634 420	US									47				51									www.k-tube.com
LEE Hydraulische Miniaturkomponenten GmbH, +49 6196 773690	DE					43	44																www.lee.de
MEDELEC S.A., +41 21 946 04 80	CH																						www.medelec-tubes.com
MER Medical Engineering Resources- Europe, +31 598 634420	**NL**									**47**		**49**	**50**	**51**		**53**	**54**					**59**	**www.mer-europe.com**
Microlumen, Inc., +1 813 886 1200	**US**					**43**				**47**												**59**	**www.microlumen.com**
Microspec Corporation, +1 603 9244300	**US**	**39**	**40**	**41**	**42**		**44**	**45**	**46**	**47**			**50**		**52**	**53**	**54**	**55**			**58**	**59**	**www.microspeccorporation.com**
Modenplast GmbH, +49 911 956 91810	DE						44						50										www.modenplast-medical.de
Nordson MEDICAL, +1 888 404 5837	US			41								49	50	51	52							59	www.nordsonmedical.com
Optima Medical Components, +46 18 183020	SE					43	44			47		49											www.optima.se
Optinova Group, +358 18 32900	FI		40	41		43		45	46				50		52	53	54					59	www.optinova.com
OSCOMED GMBH, +49 3675 439700	DE	39	40	41			44	45	46				50		52	53							www.oscomed.de
Primasil Silicones Ltd, +44 1544 312600	GB											49											www.primasil.com
Qosina Corp., +1 631 242 3000	**US**	**39**	**40**	**41**	**42**	**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50**	**51**	**52**	**53**	**54**	**55**	**56**	**57**	**58**	**59**	**www.qosina.com**
RAUMEDIC AG, +49 9252 3590	DE	39	40	41	42	43	44		46	47		49	50		52	53	54	55	56		58	59	www.raumedic.com
SiMEDEx Inc., +1 805 610 6444	US								46			49	50			53		55			58	59	www.simedex.com
Tef Cap Industries, +1 610 6922576	US	39				43										53							www.tefcap.com
Teleflex Medical OEM, +1 508 964 6021	**US**	**39**	**40**	**41**		**43**			**46**	**47**			**50**			**53**	**54**	**55**				**59**	**www.teleflexmedicaloem.com**
The West Group, +44 2392 266031	GB		40	41			44	45			48												www.westgroup.co.uk
Trelleborg Sealing Solutions Germany GmbH, +49 711 7864 536	DE									47		49											www.tss.trelleborg.com
unimed sa, +41 21 6242151	CH													51									www.unimed.ch
Vesta, +1 414 4230550	US			41								49											www.vestainc.com
VistaMed Limited, +353 71 9638833	IE		40	41	42	43				47			50		52	53	54	55		57	58	59	www.vistamed.net
Zeus Industrial Products, +353 74 9109700	IE					43		45					50			53	54				58		www.zeusinc.com

Image: igus GmbH

Wear-resistant Sliding Movement in an Extremely Small Space

For lubrication-free sliding in a very small space, igus has now developed three new materials made of maintenance-free tribo-polymers as coating material for metal components such as metalsheets, valves or even shafts. This means that, for users who do not have enough space to install a plain bearing, a wear-resistant, compact and cost-effective solution is now available.

More and more compact, lighter and smaller: this is not only the slogan of electronics manufacturers; in industry as well, the demand for space-saving machines is growing unceasingly. As a consequence, technical design engineers are creating small machines and equipment for use where installation space is at a premium. As regards components, more solutions are called for in the area of plain bearing technology as every single millimetre counts. In order to meet the new requirements in the area of mechanical engineering, igus has made use of its decades-long experience in the development of tribologically optimised plastics and has now developed three new maintenance-free and lubrication-free tribo-polymers as coating materials specially for very small installation spaces.

As a result, not only the lubrication-free iglidur plain bearings but also the iglidur coating service for metal surfaces with the material iglidur IC-01 and the new IC-02, IC-03 and IC-06 materials are now available to the user.

Less Installation Space Due To Coating

The installation space needed for a plain bearing can be reduced through the use of a coating: ideal for small and compact machines and equipment. Thanks to the polymer coating, the surface of moving components is extremely durable and wear-resistant. The surface is also corrosion-free and resistant to chemicals thanks to the tribo-polymers. The coatings are used in valves, pumps, for guide plates and for guide systems. ■

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Germany
+49 2203 9649 655
info@igus.de
www.igus.de

20 Tubing and Extrusion
Tube Manufacturing

A–Z

Company	Country	1 Banding Equipment	2 Coiling Equipment	3 Crimpers	4 Cutters	5 Expanders	6 Extruders	7 Extrusion Services	8 Tipping Equipment	9 Tube Manufacturing Services	Website
MER Medical Engineering Resources- Europe, +31 598 634420	**NL**							**7**			**www.mer-europe.com**
Qosina Corp., +1 631 242 3000	**US**						**6**	**7**		**9**	**www.qosina.com**
Teleflex Medical OEM, +1 508 964 6021	**US**							**7**		**9**	**www.teleflexmedicaloem.com**
Asahi Intecc Co., Ltd., +31 20 7940643	NL		2	3	4		6	7		9	www.asahi-inteccusa.com
Cambus Medical, +353 91 504633	IE									9	www.cambusmedical.com
Catheter & Medical Design (CMD) Inc, +1 651 6366505	US							7			www.cathetermd.com
Cobalt Polymers, +1 800 337 0901	US							7			www.cobaltpolymers.com
EUROFLEX GmbH, +49 7231 208210	DE		2							9	www.euroflex.de
Gsell Medical Plastics AG, +41 56 6754040	CH							7		9	www.gsell.ch
IDEX Health & Science, +49 1801 808800	DE									9	www.idex-hs.com
Kahle Automation S.r.l., +39 363 355511	IT	1	2						8		www.kahleautomation.com
KonMed GmbH, +41 41 790 43 33	CH							7		9	www.konmed.ch
MEDELEC S.A., +41 21 946 04 80	CH									9	www.medelec-tubes.com
MER Medical Engineering Resources- Europe, +31 598 634420	**NL**							**7**			**www.mer-europe.com**
Microspec Corporation, +1 603 9244300	**US**							**7**			**www.microspeccorporation.com**
ontec automation GmbH, +49 9282 931 100	DE		2								www.ontec-automation.de
Qosina Corp., +1 631 242 3000	**US**						**6**	**7**		**9**	**www.qosina.com**
RAUMEDIC AG, +49 9252 3590	DE							7		9	www.raumedic.com
SiMEDEx Inc., +1 805 610 6444	US							7			www.simedex.com
Teleflex Medical OEM, +1 508 964 6021	**US**							**7**		**9**	**www.teleflexmedicaloem.com**
Trelleborg Sealing Solutions Germany GmbH, +49 711 7864 536	DE							7		9	www.tss.trelleborg.com
VELOX GmbH - an IMCD company, +49 40 3696880	DE							7		9	www.velox.com
VistaMed Limited, +353 71 9638833	IE	1	2	3	4	5	6		8	9	www.vistamed.net
Zeus Industrial Products, +353 74 9109700	IE							7			www.zeusinc.com

ACT-ONE Flexible Hollow Cable Tube with 1:1 Torque Transmission

ACT ONE (Asahi Cable Tube ONE) is a hollow wire rope that incorporates all four ASAHI INTECC's core technologies – wire drawing, wire forming, torque improvement and optionally polymer coating. ACT ONE cable tubes can possess a high maximum torque and high torque transmission compared to polymer braided tubes and stainless-steel coils. They can also feature higher kink resistance and flexibility compared to hypo tubes. ACT ONE cable tubes are applied to a wide variety of minimally invasive and interventional devices within cardiology, peripheral, neurology, oncology, orthopaedics and flexible endoscopy.

ACT ONE can meet a wide range of customer requirements through its easily customizable design. The following types are available:

- Standard: built from round wires, this ACT ONE provides balanced mechanical properties, including the best 1:1 torque transmission.
- Swaged: By swaging the ACT-ONE, bending stiffness, elongation resistance and maximum torque can be increased.
- Flat: Through a centreless grind process, the wall thickness of ACT ONE can be decreased ranging from a small length segment only to its entire length.
- Ultra-thin (UT): The ACT ONE type with the thinnest wall possible by using a flat wire instead of a round wire.
- Possible dimensions OD 0.21 mm – 4.40 mm, ID 0.13 mm – 3.25 mm, max length 3000 mm.
- Mechanical properties such as bending stiffness and elongation / compression resistance can be further adjusted by changing the total wire count they are built from (min. 6 – max. 18).
- Most commonly made in SUS304, SUS316 and Nitinol.

ACT ONE can be further customized through different cutting and joining treatments, such as grind and EDM cuts, solder / laser welds, and laser weld assemblies to other metal tubes and parts. We also offer in-house polymer coating applications, such as PEBAX/PA/PFA extrusions, PTFE heat shrinks, PTFE spray / dipping, and inner tube PFA/FEP/ETFE assemblies. ■

Image courtesy of Asahii Intecc Co., Ltd.

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emea-oem@asahi-intecc.com
www.asahi-inteccusa.com

In its work on the new material combinations, the team led by Dr. Katharina Neumann conducted a wide range of chemical and mechanical tests as well as a series of processing trials.

Raumedic Improves Sliding Properties of Thermoplastic Products

With a new biocompatible additive, Raumedic is working to further enhance the sliding properties of medical plastic components. The mechanical and chemical characteristics of the base material should be maintained in the process. The medical technology company, which is also a producer of medical-grade plastic compounds, has tested a new additive in combination with a base polymer for over six months.

The new material can be added to thermoplastic elastomers, polyamides, polystyrenes and polyolefins. This mix of materials significantly lowers the coefficient of friction, a step that improves sliding properties. Comparison studies of extrudates with and without a sliding additive found that the additive had no significant effect on such parameters as dimension stability, flow rate and tensile strength.

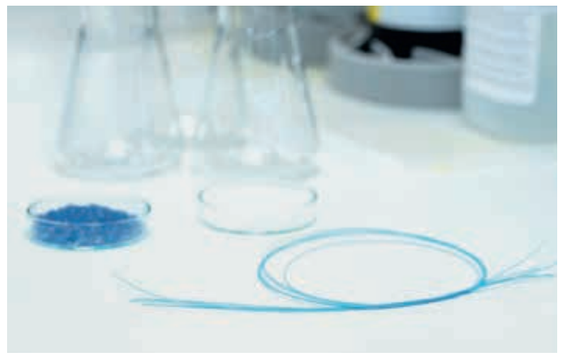
Radiopaque settings and customized color finishes should also be possible with the material. "We see tremendous improvement potential for our catheter products because they are easier to introduce into the body thanks to their reduced gliding force," said Dr. Katharina Neumann, the Head of the Materials Chemistry department at Raumedic. "Existing guidewires can be removed more easily as well."

With the help of the new material combination, syringe systems could be optimized, among other things. "The additive can be used for all applications in which plastic has to glide well on plastic," Dr. Katharina Neumann said in explaining the usage areas. Potential application areas include regional anesthesia, drug delivery and minimally invasive surgery.

The new material combination also has the potential to significantly lower costs, Dr. Katharina Neumann said. "Thermoplastic PTFE is relatively expensive," she said. "Our new compound could be a lower-cost alternative." For this reason, companies should take a close look at the material before they begin their actual product-development work, Dr. Katharina Neumann added. ■

Images courtesy of Raumedic AG

Raumedic AG
Germany
+ 49 9252 3590
info@raumedic.com
www.raumedic.com



The new glide-optimized components like this catheter tubing have tremendous potential for medical technology.

Supplier Overview

(Editorial / **Advertisement**)

31.3 – 2.4.2020

THE EVENT

Nürnberg, Germany 2020

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THE MEDICAL TECHNOLOGY EVENT

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- Network with international medtech professionals
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1cm

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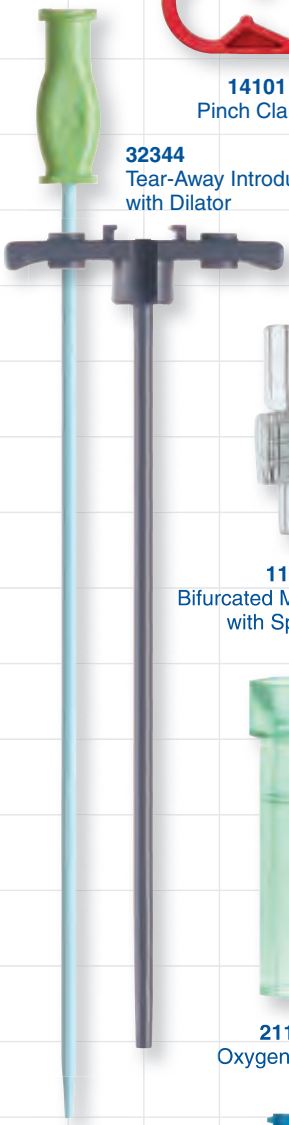
14101
Pinch Clamp

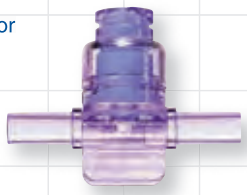


32344
Tear-Away Introducer Sheath
with Dilator

80107
Check Valve, FLL Inlet
MLL Outlet

80198
Check Valve, FLL Inlet
MLL Outlet; Coated Stem

11659
Bifurcated ML Connector
with Spin Lock



80174
Needleless Injection Site
Swabbable, T-Port

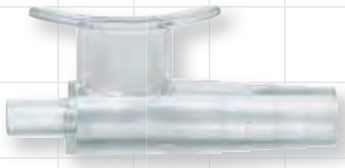
211782
Oxygen Bushing

16005
Flat Forceps
with Round Tips

11563
MLL to Barb Connector

99781
4-Way Stopcock
2 FLLs, Swivel MLL

61212
Straight Reducer Connector
Barbed



57210
Suction Control Connector
Internal Splash Guard

80303
Hemostasis Valve
Y Connector
Rotating MLL
FLL Sideport

12068
Open Jaw
Slide Clamp

11044
Slide Clamp

80411
Tuohy Borst Adapter
with FLL Cap

X2015
Spike/Small Chamber Assembly
with Non-Vented Cap

10226
Mini Point Tip Swab

34000
Sheet Clip

12552
2-Channel
Multi-Cavity Clip

52210
Adapter

21070
Stepped Adapter

16611
Locking Forceps
with Round Tips

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