

LÜTZE-REPORT

The international magazine of the Lütze Group

**DAEWOO PUTS ITS TRUST IN
LÜTZE**

SPEED FROM BATTENFELD

**MARKING AND LABELING MADE
EASY**

**CONTACTLESS SWITCHING
OF ALTERNATING CURRENTS**

**ACTUATOR-SENSOR DISTRIBUTOR:
FAST AND ECONOMICAL**

**NEW PRODUCT IN THE DIONET
FAMILY**

**FREQUENCY CONVERTER ON
LSC RACK**

PARTNERS: RIBA AND LÜTZE

**14 INSTEAD OF 5 -
THANKS TO LSC WIRING SYSTEM**

OTECH: JUST ADD WATER

e d i t o r i a l
EDITORIAL



Friedrich Lütze
Founder
of the Lütze Group

Our specialist skills in a nutshell

Once again, our branches in Switzerland, England, Austria, the USA and Germany have made interesting contributions to this edition of Lütze Report. They give you an insight into what is happening in your market at the moment. This edition features products and applications from three specialist divisions of the Lütze Group:

1. Machine installation

with special cables; cable trailing chains, also ready fitted with highly flexible cords suitable for trailing; screw connectors for every purpose; M12/M8 actuator-sensor circular connector distribution systems; cable identification systems

2. LSC wiring systems

We produce the design and supply a ready-built rack, which can then be used for assembly purposes – and you save space!

3. Interface technology

Relay modules, suppression technology, conversion modules, solutions for customer-specific automation concepts with bus technology

I sincerely hope that this copy of Lütze Report proves to be a source of information for your projects as well, with lots of important tips, ideas and novel approaches to problem solving.

Our committed and innovative team of technicians and specialist advisors at Lütze are at your disposal and look forward to answering any queries you may have.

Yours sincerely,
F. Lütze

INDEX

Trade fairs	Page 3
Daewoo puts its trust in Lütze	3
Speed from Battenfeld	4
Identification made easy	5
Contactless switching of alternating currents	6
Actuator-sensor distributor: fast and economical	6
New product in the DIONet family	7
Frequency converters on LSC rack	7
Partners: Riba and Lütze	8/9
14 instead of 5 – thanks to LSC wiring system	10
Otech: just add water	11

IMPRINT

Published by:
LÜTZE INTERNATIONAL GmbH
Bruckwiesenstrasse 17–19
D-71384 Weinstadt/Germany
Tel. 0049 7151 60 53-0 • Fax 0049 7151 60 53-277
E-mail: info@luetze.de
Internet: www.luetze.com

Editorial/Coordination:
LÜTZE AG
Oststrasse 2 • CH-8854 Siebnen/Switzerland
Tel. 0041 55 450 23 23 • Fax 0041 55 450 23 13
E-mail: info@luetze.ch
Internet: www.luetze.ch

Copywriting/Layout:
RITTER KREATIV...
Unternehmensberatung + Kommunikation AG
Gerberngasse 44 • 3000 Bern 13
Tel. 0041 31 313 30 30 • Fax 0041 31 313 30 39
E-mail: info@ritterkreativ.ch
Internet: www.ritterkreativ.ch

Photography by:
zVg + FOTarena Bern • Tel. 0041 31 313 30 36
E-mail: fotarena@complot.ch

Printed by:
Glauser Druck AG, Fraubrunnen

TRADE FAIRS

Lütze goes around the world:

Exhibition	Place	Dates	
go.automation days 02	Basel (CH)	03.09. – 06.09.	Lütze CH
Maschinenbaumesse	Brno (CZ)	16.09. – 20.09.	Lütze D
InnoTrans	Berlin (D)	24.09. – 27.09.	Lütze D
efa	Leipzig (D)	25.09. – 27.09.	Lütze D
Smart Automation	Linz (A)	09.10. – 11.10.	Lütze A
E + E	Budapest (H)	18.10. – 18.10.	Lütze A
SPS/IPC/DRIVES	Nuremberg (D)	26.11. – 28.11.	Lütze D
ELEC 2002	Paris (F)	09.12. – 13.12.	Lütze F

DAEWOO PUTS ITS TRUST IN THE LSC WIRING SYSTEM

Udo Lütze

Daewoo, a leading machining center builder in Detroit, has standardized on LSC for better space utilization in its main power and control cabinet. Daewoo, which builds quality machining centers for the automobile industry, had been experiencing a space shortage in their main control cabinet, particularly when customers wanted to integrate optional extras into the machining center.

Before it started using the Lütze LSC system, Daewoo was forced to use all the available space in the switch cabinet, and therefore had to keep adding new cabinets to accommodate control modules that were extra to the existing systems. From an aesthetic point of view, this solution proved to be most unsatisfactory.

HH Barnum, the Lütze LSC Center in Michigan, and Lütze presented the LSC control and wiring concept to the Daewoo engineers and were able to make it clear that with LSC it is possible to create additional space in power and control cabinets. **In this particular case, LSC achieved 40% extra space.** The additional space gained meant that extra cabinets were redundant, and sufficient space for future applications was created simultaneously.

Over and above this, **by using the Lütze LSC system, Daewoo also saved 50% of the time** needed for laying out and wiring components in comparison with using a conventional system with cable ducting. The switch cabinet itself is now ready for use in half the time. Another

positive point commented on by Daewoo was a reduction in the internal temperature of the cabinet by about 12°C (54 F), even when additional machine control components were built in.

Therefore, the LSC system from Lütze offered Daewoo **space saving, a reduction in wiring time, simple planning and a high level of operating functionality, a temperature reduction** and a new, **neat appearance** inside the cabinet. Daewoo is currently using the LSC system from Lütze in a machining line in the Delphi Saginaw Gear factory in Saginaw, Michigan.

Handling robots – electromechanical assembly assistants SPEED FROM BATTENFELD

Gottfried Kainradl

As far as robots go, the handling robot is the one that is least known to the general public. Swivel device welding robots mirror the image that most people have in their minds of industrial robots and are used most on TV and in magazines as impressive examples.

Handling robots represent the form of electromechanical assembly assistance that is most widespread. They play one of the key roles in automation. The fastest speeds and rapid acceleration in up to 6 axes represent a challenge to the individual components, to which not every manufacturer can rise.

For over 50 years, Battenfeld injection molding technology has been a term used in the plastics industry, and with over 100,000 injection molding machines delivered worldwide, it has become part of the injection molding tradition.

In its production facilities in the Austrian town of Kottlingbrunn, up to 1500 injection molding machines are manufactured for customers in Europe, Asia and the USA by a workforce of over 400 people. The broadly diversified range includes articulated lever machines, hydraulic and fully electric machines in the mold pressure range from 50 to 2000 kN, as well as handling devices for automation solutions.

However, not only injection molding machines are produced in Kottlingbrunn, but also the associated linear robots. Thanks to this combination of machine and robot, a unit arises which guarantees optimum interplay. A continuous control concept and components that are perfectly matched to one another ensure maximum benefit for the customer. The service for robots, machines and peripheral equipment comes from a single source and also includes the process engineering for the optimization of the manufacturing process.



Right from the very start, Superflex leads from Lütze have been used in these robots. Developed together, they have turned into a dependable component part of Battenfeld robots. Deliveries to the far corners of the earth demand cables that will withstand the most extreme conditions and guarantee reliability for many years.

Lütze concentrated on the development and production of these cables from an early stage. **The brand name Superflex now stands for a product without which you could not imagine automation in the machinery and systems engineering sector.** Superflex cables are used both in energy supply chains and as self-supporting units. The Superflex Robot version is also capable of torsion loading. Combined cross sections make it possible to supply power and transfer data in the same cable.

Thanks to the extremely resistant materials that are used in Superflex cables, they can also be employed as infeeds to hand terminals, even with the field bus next to the power supply. The alternative versions range from single 120-mm² wires to reliable Ethernet CAT5 computer wiring. **Superflex cables in their many and varied alternative forms have become a tried and trusted product in Battenfeld handling robots and an important factor in the worldwide growth of the Lütze Group.**

Individual marking and labeling IDENTIFICATION MADE EASY

Michael Kasparu

Individual marking and labeling in the industrial sector has been growing in importance because of the steady increase in demands placed on retrofitting, maintenance and traceability. Thanks to the latest software and extremely durable materials, the identification of individual components, wires and cables, in switch cabinets for example, can now be guaranteed to last for many years to come. The requirements placed on the materials used here are becoming greater all the time: UV-stable, halogen-free, non-yellowing, on the one hand; incapable of being lost, but easy to exchange, removable without leaving a residue or with a permanent bond, on the other hand.

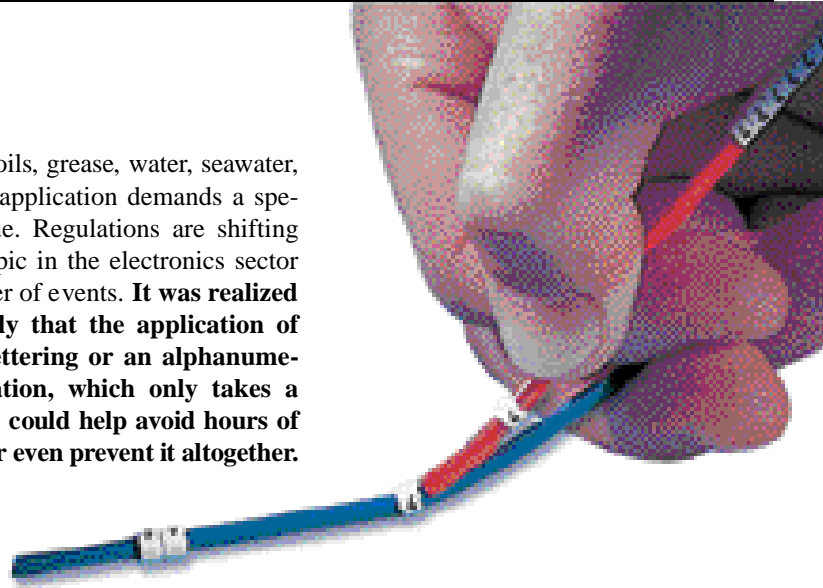
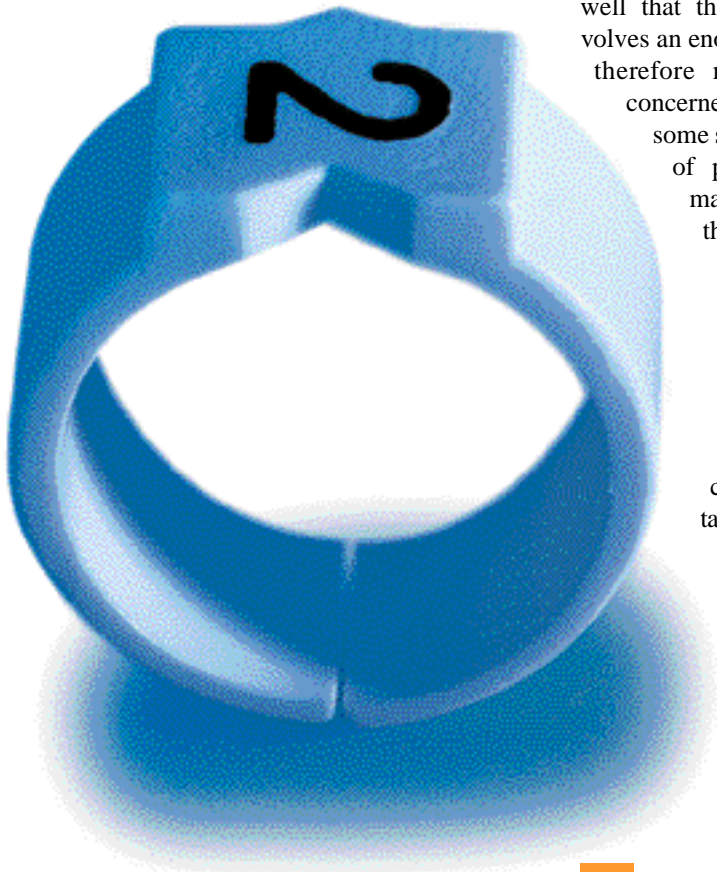
Resistant to oils, grease, water, seawater, etc. – every application demands a special technique. Regulations are shifting a sideline topic in the electronics sector into the center of events. **It was realized all too slowly that the application of some tiny lettering or an alphanumeric combination, which only takes a few seconds, could help avoid hours of work later or even prevent it altogether.**

Therefore, identification should take place in all cases when the system is actually being built, because every technician and engineer faced with the subsequent marking of a system knows full well that this type of undertaking involves an enormous amount of time (and therefore money) for the company concerned. However, Lütze also has some solutions for the special kind of problems that arise when marking wires and cables after they have been installed.

Recommended here is the KR marking ring, which can either be snapped straight onto the wire or cable or clipped to its own KZT holder and fixed with a cable tie. A further advantage of this method is the option of changing it quickly and easily at a later stage. CS identification plates have proved to be most practical, above all in the automobile delivery industry, if more text has to be included as part of the information.

Every tool kit should include the TKM hand labeling kit, which comes in a handy pocket and is ideal for labeling cables on site.

With EB adhesive labels, the combination of backing material, adhesive and label material plays an important role. The high incidence of the use of computer-supported procedures in systems engineering demands an appropriate solution as regards industrial marking. Software and LEB labels must be perfectly matched to be able to achieve the necessary high levels of effectivity and efficiency.

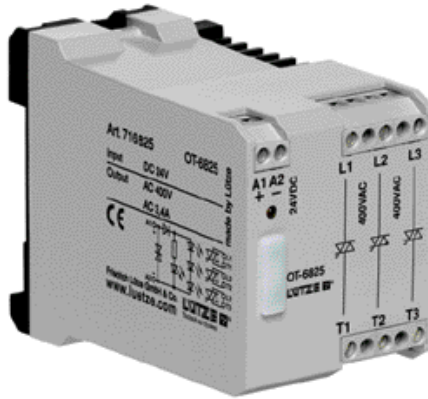


Non-wearing and long-lasting solid-state contactors

CONTACTLESS SWITCHING OF ALTERNATING CURRENTS

Jürgen Wendel

The already extensive range of Lütze semi-conductor switches has been increased by the addition of two more solid-state contactors (article nos. 716,825 and 715,826). **Solid-state contactor 716,825 is used purely for switching ON and OFF, whereas 716,826 also includes a reversing circuit.** With a width of 54 mm, motors up to 2 kW, with a nominal current of 3.4 A, can be controlled in reverse operating mode. The design for 3 x 400 V AC means that Lütze semi-conductor switches can be used in virtually all European mains networks. The necessary heat sinks are incorporated into the housing and designed in such a way that the solid-state contactors can



be arranged cheek by jowl on the top-hat track. With the connectors on top and being clearly marked, safe and easy wiring is not a problem. **In particular, the reversing circuit integrated into**

the solid-state contactor prevents wiring faults.

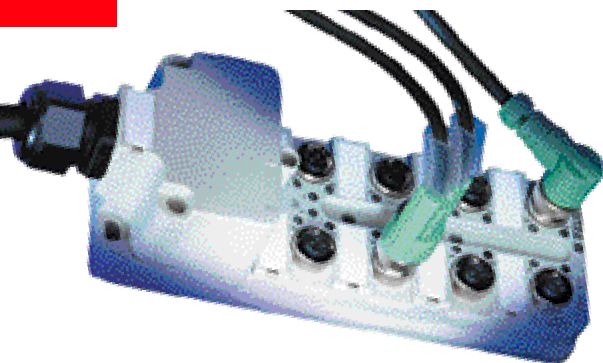
Solid-state contactors from Lütze are suitable for the most varied of applications. They should preferably be used in situations where safe and frequent switching is required. Typical examples are conveyor belts with sequential switching off and on again, and sliding doors or automatic gates. These solid-state contactors are also ideal in clean room applications. Thanks to the contactless switching type, there are no emissions that could affect the environment, such as switching sparks or contact burning.

Fast installation at a favorable price

ACTUATOR-SENSOR DISTRIBUTOR IN M8 AND M12 VERSIONS

6

Reinhard Braun



Terminal boxes with expensive wiring are now a thing of the past: modern distribution systems from Lütze with M8 and M12 circular plug connectors enable fast and favorably priced installation.

The modules are tested individually and can be supplied with fixed PUR leads suitable for trailing chains or with a covered plug connector for you to wire yourself. Built-in LED displays indicate the current status of the actuators or sensors, and the operating voltage is also shown. The individual plug connectors can process up to two signals simultaneously.

As there is no expenditure on wiring, the distributors with a fixed lead represent the best value. The distributors with terminals for self-wiring are ideal for use in applications where exact cable route planning is difficult. Thanks to the covered plug connector, modularity is also increased; this facilitates rapid separation for transport or replacing the system. In addition, here, jumpers can be used to

isolate the power supply, e.g. for an emergency OFF function.

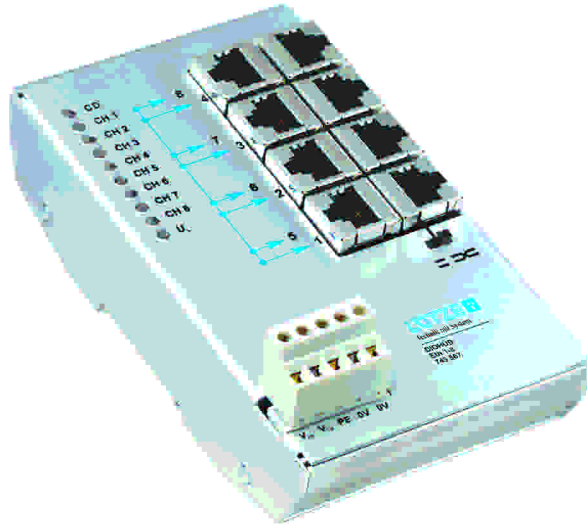
The product range is completed by a wide selection of accessories for M8 and M12 connecting leads, such as plugs for self-wiring.



New product in the DIONet family THE DIOHUB 8 FOR 10-MHZ NETWORKS

Andreas Chr. Braun

Lütze has just introduced an 8-way DIOHUB as the latest product in the DIONet family. The special feature offered by this hub is that channel 1 can be switched. Therefore, 1:1 and cross cables can be used – something frequently requested by customers. The 8-way hub can be clicked onto the top-hat track and is built into a robust aluminum housing measuring 83 x 138 x 35 mm (W x H x D). Its operating temperature range is 0–60°C.



at the design stage are a hub extended temperature range, as 10/100-MHz version.

✓ 8-way DIOHUB can be ordered from Lütze under article number 745,567.

We can no longer imagine automation without them BUILDING FREQUENCY CONVERTERS ONTO LSC RACK

Fritz Voegele

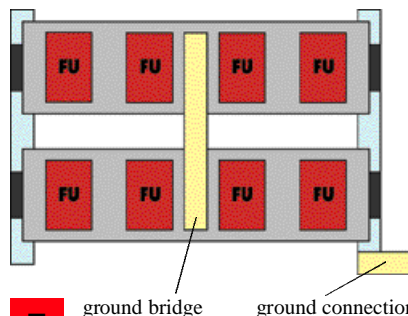


We can no longer imagine the world of automation without frequency converters. They specify the speed at which machinery and systems work. Stepless regulation is expensive, even in the high-performance sector. High clock frequencies with steep slopes can, however, interfere with adjacent equipment and systems.

The following principles must be observed for the perfect operation of devices within an electromagnetic environment:

- Supports with a large surface area at fixing points
- Large-area contact with central ground and the shortest possible routes
- Ageing-resistant contacts
- All fixing surfaces of frequency converters must have a low impedance connection with one another

(see illustration below)



7

ground bridge

ground connection

The LSC rack should therefore not only be grounded (SL), but also equipped with large-area connections to the central ground because of the EMC factor (flat-ribbon ground connectors). EMC track and accessories complete the range.

Building FCs onto smooth LSC ribs does not get in the way of the above-mentioned considerations.

However, if a galvanized steel plate is required, we have various standard sizes available for attaching the most varied sizes of FC.

A high-frequency interference pulse will always follow the path with the lowest impedance. Therefore, in all instances you must make sure that the support surfaces of the FCs demonstrate the lowest attenuation to the ground potential!

Riba Elektro AG and Lütze – strong business partners

RIBA “CONTROLS” IN STYLE!

Karl Heberle

The Riba Elektro AG company, founded in 1989 in the town of Unterentfelden, has made itself a name in the field of electrical and pneumatic control system design and construction, and established itself as a **competent business partner in the energy distribution, machine industry and industrial and pro-**

duction equipment construction sectors. In its neat production facilities with a surface area approaching 1000 m² in Unterentfelden, the company currently employs 25 permanent members of staff, plus 5 to 8 temporary staff. Technical skills, responsibility, quality and punctual deliveries are all of prime importance to company founders Beatrice and Richard Banz and their staff.

The large client base of this flexible and dynamic organization includes such famous companies as H.A. Schlatter AG, Sulzer-Metco AG, Alstom AG and Chocolat Frey AG.

For many years now, Riba Elektro AG and Lütze AG have enjoyed an excellent working relationship. Apart from control components such as power supply units, relay and diode modules, the LSC wiring system is also used at Riba Elektro AG.

Mr. Ruedi Lüscher, Production Manager, who has worked for the company for over 10 years, really values the advantages offered by the efficient LSC wiring systems. **Along with his team, for years**

he has been planning and processing LSC-B systems, as complete assembled units that are ready for installation and wiring, for customer-specific and individual orders. In the case of special applications, prototypes and individual manufacturing orders, the LSC wiring racks are built in-house with equipment delivered loose.

Various arguments influenced his decision to use the modern LSC wiring system from Lütze:

- Space saving, i.e. extremely close packing of components and small cabinet dimensions (reduces the footprint)
- Realization of the highest possible level of effectivity in the cabinet
- Reduction of the many different types thanks to standardization
- Neat, clear design
- Problem-free adaptability of wiring rack to all commercially available and special switch cabinet makes
- Excellent thermal conditions inside the cabinet (no heat accumulation)
- Simple and effective logistics with completely assembled wiring rack
- Excellent price-to-performance ratio



8



Lütze support for LSC complete racks in four pictures



Our qualified technical specialists hold on-site discussions with the customer to clarify requirements.



Implementation of an appropriate solution by the persons responsible for the product, including drawings, parts lists, possibly making a prototype and submitting a detailed quotation. Final modifications or adaptations before production begins.

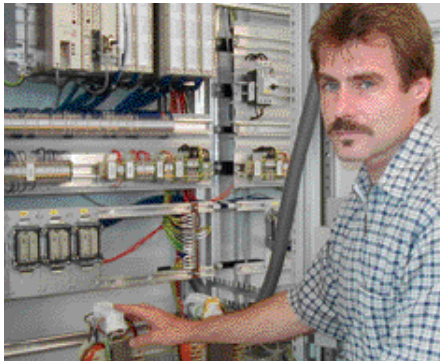


Production of the wiring rack using definitive documentation, exactly as per the drawing. All LSC wiring racks are subject to strict, 100% quality control before leaving the factory.



LÜTZE INTERNATIONAL

**Think global, act local.
Get in direct contact with your local Lütze partner.**



Ruedi Lüscher is completely satisfied that Lütze AG is the ideal business partner: "The modern LSC wiring system has been a source of fascination to me in all areas. As a planner, designer and practitioner in control equipment construction, I am pleased that all the people in my production team, as well as our customers and their service personnel, really rate the LSC wiring system and are delighted to work with it. The deliveries and advice from Lütze are in a class of their own, not to mention the company's flexibility. Lütze is a business partner I can recommend to other people, with a clear conscience."



Friedrich Lütze GmbH & Co.
Postfach 1224 (PLZ 71366)
Bruckwiesenstrasse 17-19
D-71384 Weinstadt
Tel. 0049/7151/60 53-0
Fax 0049/7151/60 53-277
E-mail: info@luetze.de
www.luetze.de



LÜTZE S.A.
52, avenue des Châtaigniers
BP 76
F-95157 Taverny CEDEX
Tel. 0033/1/34 18 77 00
Fax 0033/1/34 18 18 44
E-mail: lutze@lutze.fr
www.lutze.com



LÜTZE
Elektrotechnische Erzeugnisse GmbH
Niedermoserstrasse 18
A-1220 Wien
Tel. 0043/(0)1/257 5252-0
Fax 0043/(0)1/257 5252-20
E-mail: office@luetze.at
www.luetze.at



LÜTZE AG
Oststrasse 2
CH-8854 Siebnen
Tel. 0041/55 450 23 23
Fax 0041/55 450 23 13
E-mail: info@luetze.ch
www.luetze.ch



LÜTZE Inc.
13330 South Ridge Drive
USA-Charlotte, NC 28273
Tel. 001/704/504-0222
Fax 001/704/504-0223
E-mail: info@lutze.com
www.lutze.com



LÜTZE Ltd.
Unit 4, Brabazon Court
Borman
Lichfield Road Industrial Estate
GB-Tamworth, Staffordshire B79 7T A
Tel. 0044/(0)1827/31 3330
Fax 0044/(0)1827/31 3332
E-mail: sales.gb@lutze.com
www.lutze.com



Friedrich Lütze GmbH & Co.
Via G. Verdi, 6/a
I-23870 Cernusco Lombardone (LC)
Tel. 0039/039 928 49 36
Fax 0039/039 599 573
E-mail: info@luetze.it
www.luetze.it

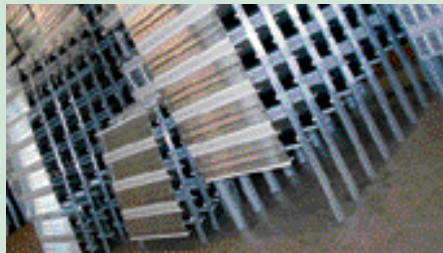
Please send us more information about articles in this magazine.

Subject _____ Page _____
_____ Page _____
_____ Page _____

Please send us information about your entire product range.

We would like some advice. Please call us.

From: Firm _____
Surname/Forename _____
Address _____
Tel./Fax _____
E-mail _____



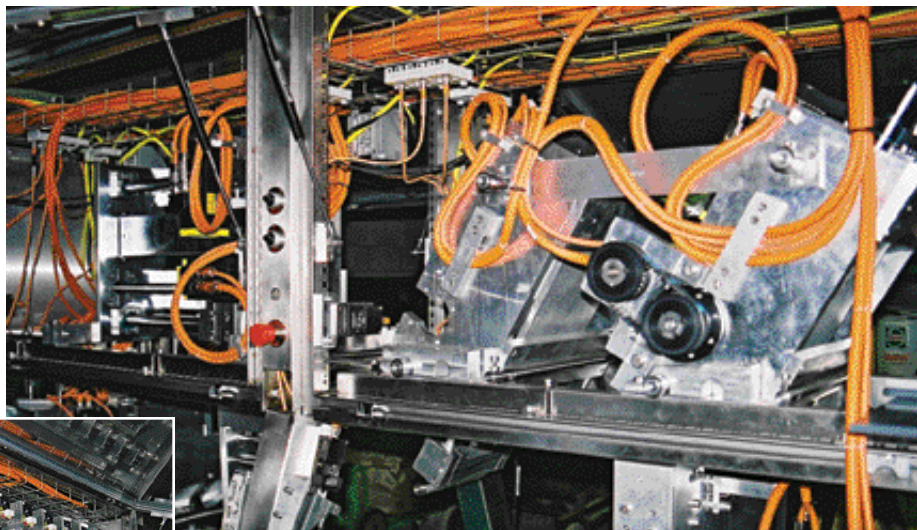
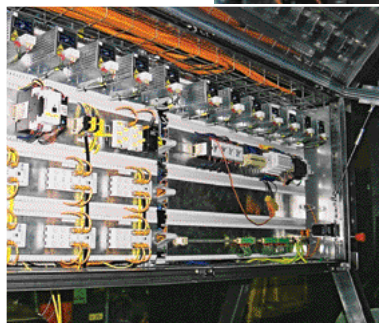
Logistical advantage: you can order a complete LSC wiring rack from Lütze that is fully wired and ready for installation using just a single article number!

Sweet and tasty - doughnuts

14 INSTEAD OF 5 – THANKS TO LSC WIRING SYSTEM!

Nigel Broad

Everybody has to eat and we all enjoy something special from time to time. It follows, therefore, that there will always be a big demand for “luxury snacks”. Even in the food industry, the requirements placed on the capacity to supply are high and constantly increasing. With an increasing demand, the relevant product must be delivered quickly without fail, because products containing fresh cream, for instance, have a very limited shelf life. The traditional manufacturing methods for certain products, for example doughnuts, are very labor-intensive and necessitate various manual procedures until the finished product with cream, jam and sugar is ready. Previously, in the case of “hand-made” bakery items, it was assumed that the product actually had to be made by hand.



Because of the space problem, however, there was no room for a separate control console on the machine. The complete system had to be self-contained and fit into the space available in the conveyor system responsible for transporting the doughnuts through the factory.

Wymbs asked Lütze for support in solving this problem, and the two companies came up with a creative solution. Lütze had already supplied Wymbs with various prewired control consoles using LSC technology for up to five servo-controlled axes. Each of these previous systems fitted perfectly into a Rittal housing made of stainless steel and measuring 2000 x 800 x 600 mm. For the doughnut machine it was suggested that the control system be mounted horizontally and “back to back” over the conveyor, so that access and wiring could take place from both sides. Because of the size of the doughnut machine, the control cabinet could not be any larger than previously. **Therefore, it was now necessary to accommodate the servo-control system for 14 axes in the same space as for 5 – no easy task!**

In order to achieve this, Lütze became involved in the project right from the design phase, and was able to provide a large number of ideas that contributed to a more compact layout for the control console. The LSC rack arranged the other way around made it possible to develop a very compact system with sufficient space for the integration of the control PCs with a touch-sensitive screen. The LSC rack was put together by Lütze as a complete subassembly and included a variety of products, including compact microrelays, power supplies and M12 circular plug connector and distribution systems. The LSC wiring rack was delivered as a “subassembly ready for operation” and could be built straight into the housing and connected up to the doughnut machine.

The “plug-in” idea in the wiring of the machine was extended inwards inasmuch as the leads for the motors and the signal cables also consisted of standard Lütze Superflex cables. Again, here, actuator-sensor boxes with M12 connectors enabled on-site wiring with remote-control stations.

The machine is currently being commissioned. The end customer is highly satis-

It was against this background that Wymbs Engineering from Macclesfield in Great Britain set itself the challenge of developing and manufacturing an innovative machine for making doughnuts. The system had to make flexible speed adjustment possible and be capable of reacting to different requirements. The system had to enable the programming of different product variations with different fillings, as well as having to fit into the relatively small space available in the end customer’s foodstuffs factory.

The first two requirements were basically fulfilled by an interpolated, PC-controlled servosystem with 14 axes and a few creative mechanical developments for the individual processing stations.

Agricultural irrigation systems

OTECH: JUST ADD WATER

Jimmy Oebel

fied with the entire system, as he is now able to replace a number of labor-intensive procedures with a single reliable machine. The “handmade” products can be successfully replicated by an efficient servocontrol system, as it is able to create carefully controlled variations in the amounts of filling and icing thanks to a random generator.

The actual goal of the project has also been achieved: as it was possible to fit the control system above the conveyor, the layout did not have to be changed. Also, no extra space was required in the control cabinet, as it proved possible to mount 14 control systems in the space previously occupied by 5, thanks to the LSC wiring system – problem solved! **As a result of this success story, Wymbs Engineering and Lütze will be continuing to cooperate closely in the future.**

The Otech company, which is part of the Irrimec Group, is the European market leader in the field of agricultural irrigation systems. **So over 50% of the overhead irrigation systems installed throughout the world come from its Puy Oô factory near Pau in France.**

The know-how of Otech also extends to pumping stations, where the company enjoys an outstanding reputation in all international markets as a result of its experience in large-scale projects. **Today, the company name is a guarantee of quality and skills in the field of professional irrigation systems.**

The irrigation systems are controlled by means of solenoid valves that are connected with plug connectors as per DIN 43,650. In the past, the plugs were made of polyamide and of course had to be wired via sealing glands. To guarantee the necessary sealing of the module, a seal was pressed between the plug connector and the solenoid valve by tightening a screw. The screw, seal and sealing gland of this plug were detach-

able, so there always existed the danger that individual parts could go missing. On the other hand, it always took at least 15 minutes to connect the plug to the gland, and the module was never completely watertight.

Otech took these disadvantages as a prompt to find a new solution and finally found a prewired valve plug made of black, compound-filled polyurethane from Lütze. This sealed VARIOCONTACT valve connector from Lütze in protection class IP 67 has an integrated seal and a screw that is secured and therefore cannot be lost.

Within just a few minutes of assembling a single part, the completely secure control of the solenoid valve is now guaranteed, even under the harshest conditions.



By choosing the Lütze VARIOCONTACT valve connector, Otech made the right decision without any doubt, as it was able to achieve both an improvement in the quality and efficiency of its products.