

LÜTZE-REPORT

The international magazine of the LÜTZE Group

**VERY CLEAR BENEFITS
WITH LSC AIRSTREAM
ALLEN BRADLEY®
SERVO ASSEMBLIES
20 YEARS OF LÜTZE LIMITED
SHORT DEADLINE FOR
CONVEYOR BELTS!
LOTS OF GRAVEL
EFFICIENT CONTROL CABINETS
DISTRIBUTED INTELLIGENCE
ON BOARD**

Very clear benefits of LSC AirSTREAM

Word of the benefits of the new LSC AirSTREAM wiring system gets around. It has come into its own in initial industrial applications. For example in machines in the beverage industry: A machine construction company in Thuringia has profited from the compact size and installation ease as well as the special thermodynamic benefits.

If polished crates are loaded with impeccably clean bottles into a drinks cash-and-carry, GM Getränkechnik Gera probably has something to do with it. At the world's leading beverage exhibition,

gia opted for the state-of-the-art control cabinet assembly and wiring system LSC AirSTREAM: "The company has been using our cables and solutions for some time, therefore, we had an existing relationship, giving our sales engineer the opportunity to present the new LSC AirSTREAM system. A prototype quickly proved that it was more than able to cope with the special challenges presented. The LÜTZE solution promised three important benefits: more space, better thermodynamics, shorter installation time." Hand in hand, work has now started on the technical implementation. The previous site of the control cabinets was inspected jointly. Concepts and drawings were drafted, until the optimum solution was found.

The benefits of the LSC AirSTREAM, compared to the previous assembly backplates, were immediately apparent. For example, the space savings; GM Gera requires two control cabinets per system.

Whilst the previous mounting boards needed two cabinets with a width of 1200 mm and 800 mm, the LSC AirStream has reduced this to just two x 800 mm – and there is still an additional 25 percent of spare space left!

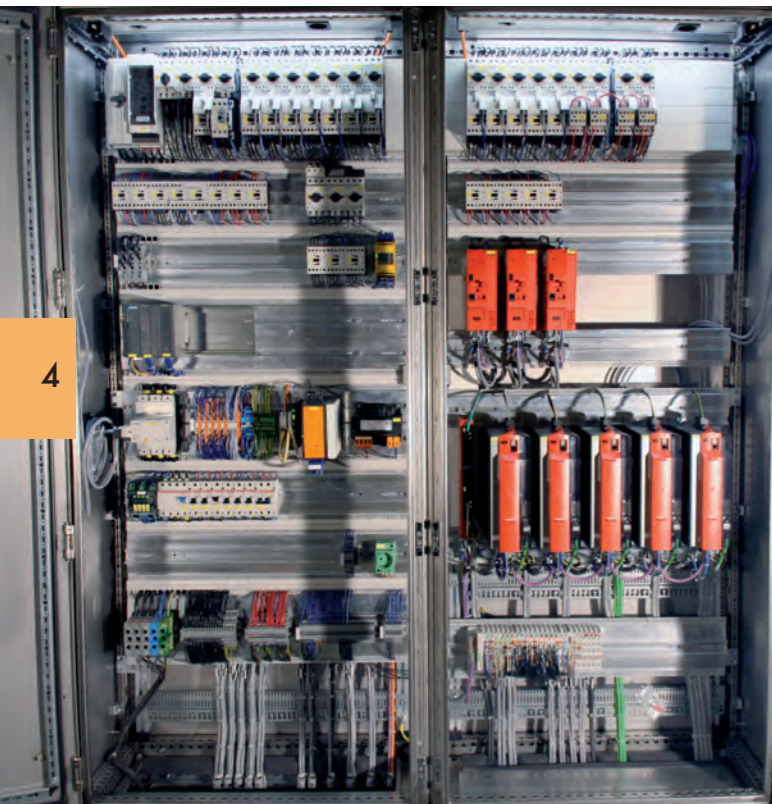
How does the LSC AirSTREAM manage to be so compact? By the fact that LÜTZE has integrated the wire guide into the assembly bracket, which means there is more wiring space, even though the bracket is lower and there are a variety of wiring combs available to different cable diameters and no cable trunking is required.

This allows more components to be installed in a smaller space and additional edge protection makes wiring easier. Despite the compact size, the aluminium frame guarantees absolute stability.

As the name AirSTREAM suggests, the air is able to flow more freely along the components thanks to the lack of cable ducts that would slow the air flow or even block it creating thermal nests. Hotspots like these not only stress the components, they are a source of fire risk. Service technicians experienced this when servicing earlier control cabinets - where they found partially deformed plastic cable ducts as a result of the high thermal losses in the active components. The cool AirSTREAM solution reduces the energy requirements of air conditioning units significantly (by more than 20 percent); in some cases, cooling systems are not required at all. This saves on a significant amount of CO₂ – the goal of the LÜTZE sustainability initiative SkyBLUE.

How do the machine specialists from Gera win time with the new LSC system? A statement by the product market manager at LÜTZE: "It is no longer necessary to cut and attach cable trunking and din rails. Likewise, no boreholes for converters need to be drilled that do not snap fit onto the dinrail profiles. Due to GM Getränkechnik producing the control cabinets at its own premises, the time-consuming task of positioning components is now a thing of the past, bringing with it enormous savings potential."

The great interest shown by the beverage industry at Drinktec reflected the lower operating costs and longer life cycle of the electro components, thanks to thermodynamic benefits, giving a clear competitive advantage.



Drinktec, the company presented its new bottle cleaning machine ARCADE GEL 3 with a rated output of 13500 bottles an hour.

There is a LÜTZE element in the control cabinets of this solution. The Product Market Manager for cabinets at LÜTZE explains why this company from Thuringia



GM Getränkechnik & Maschinenbau GmbH Gera

Equipment manufacturer, in particular for the beverage industry
Core products: Bottle cleaning and crate washing machines, ejectors for PET-Cycle systems. The machines and equipment are used in many countries in four continents.

New product:

Bottle cleaning machine type ARCADE GEL3RV1-VL-164/80-16
The entire type series ARCADE GEL 3 (medium performance range) is designed for 12000 to 42000 bottles per hour. Requirements: low water and low consumption, energy-efficient electro components.

Presented at the Drinktec 2013 in Munich (Worlds' leading beverage and liquid food technology exhibition, 67000 visitors from 183 countries)

Higher performance for motor cables

LÜTZE has expanded its portfolio of modern motor supply cables to include much improved low-capacity properties.

The new LÜTZE motor supply cables are optimised in terms of energy efficiency. The low capacitance insulation within the cable ensures there is less power loss as the cables have lower "charging currents". This is a considerable

advantage over conventional PVC cables. As a result, more current arrives at the motor. Secondly, much longer cable runs can be implemented. LÜTZE offers special low-capacity cables for fixed and mobile installation, for use with frequency drive motors and for use in power cable chains.

Innovative cable materials and material combinations properties, as well as a high dielectric strength. This property naturally prevents undesirable transfer losses, such as corona discharging. This makes XLPE the ideal premium insulation for LÜTZE, in particular for applications with high voltage peaks and longer cable paths. In the case of permanently installed cables, LÜTZE also uses insulation made of polypropylene (PP) that has a low dielectric constant.

LÜTZE Low-capacity motor supply cables in practice.

LÜTZE has an extensive program of low-capacity motor supply cables to cover all industrial applications.

- Variable Frequency Drive cables serve as power cables between the speed-controlled drive system and the speed-controlled motor. They are usually permanently installed in cable racks and ducts. We re-

commend e.g. LÜTZE SILFLEX B XLPE (C) PVC 0.6/1kV.

- The LÜTZE cable portfolio has a number of control cables for fixed installation, e.g. the LÜTZE SILFLEX N PUR that is equipped with TPE. Alternatively, LÜTZE supply cables with polypropylene insulation which are low-capacity, e.g. the LÜTZE SILFLEX M (C) PVC SERVO.
- LÜTZE supplies motor cables, such as the SUPERFLEX PLUS M (C) PUR SERVO, for mobile applications and for use in power cable chains.

Background information Capacity and power loss

Every cable has a certain amount of 'power loss' or capacity. Depending on the structure and material quality, the capacity may be higher or lower. The cable capacity is primarily influenced by the dielectric constant of the material, and also by the structure and thickness of the insulation on the cable. The lower the dielectric constant, the lower the cable capacity. The capacity should be as low as possible for power supply cables to motors with high loads. Low capacity therefore means that the cable acts less like a capacitor, generates less heat and transfers the energy with less loss, i.e. more efficiently.



Allen-Bradley® prefabricated servo elements

LÜTZE, Weinstadt now offers new prefabricated cables for Rockwell® Allen-Bradley® systems.

The LÜTZE prefabricated cables for Rockwell® Automation systems are compatible to the Allen-Bradley® standard 2090. The prefabricated LÜTZE servomotor and feedback cables are ideally suited for industrial environments for use in drives, motors and encoders from Rockwell® Allen-Bradley®. The LÜTZE cables are specially designed for use in C-tracks and meet the highest of standards. As part of our service, LÜTZE supplies customised lengths in 0.5 m steps for orders of just 1 assembly.

LÜTZE prefabricated cables for Rockwell® Allen-Bradley® systems

The LÜTZE prefabricated cables are also suitable for Allen-Bradley® drive systems from the Kinetix and Ultra series, matching e.g. the Mp and VP motor series and the corresponding encoders.

High quality of LÜTZE prefabrications for Rockwell Allen-Bradley® systems

The high protection class IP 66/67 is satisfied by the LÜTZE SAFECON circular connector system. The connectors are resistant to outside influences, such as humidity and dust. They are specifically designed for use in harsh industrial environments and thus resistant to acids, alkaline solutions, alcohols, mineral oils, fuels and greases.

Every LÜTZE SAFECON circular connector is also equipped with an integrated kink-protection system so that the cables are easier to move in mobile applications. A metal casing on the inside ensures 360° EMC shielding. A further benefit: accidental or even manipulative opening of the connector housing is ruled out. Safe connection is therefore ensured.

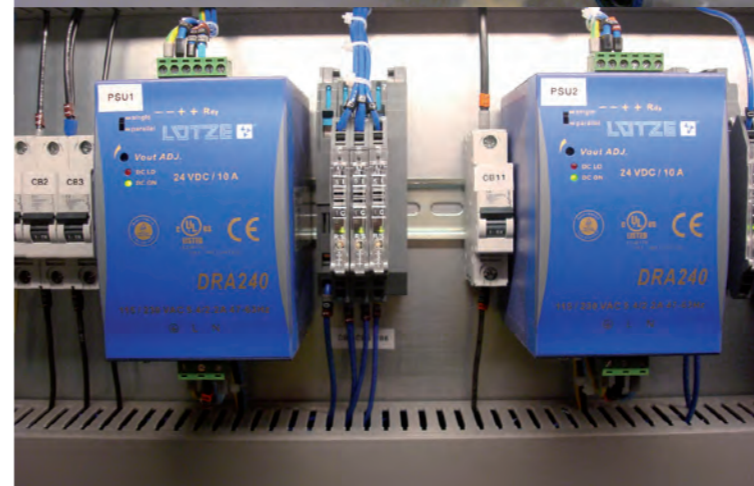
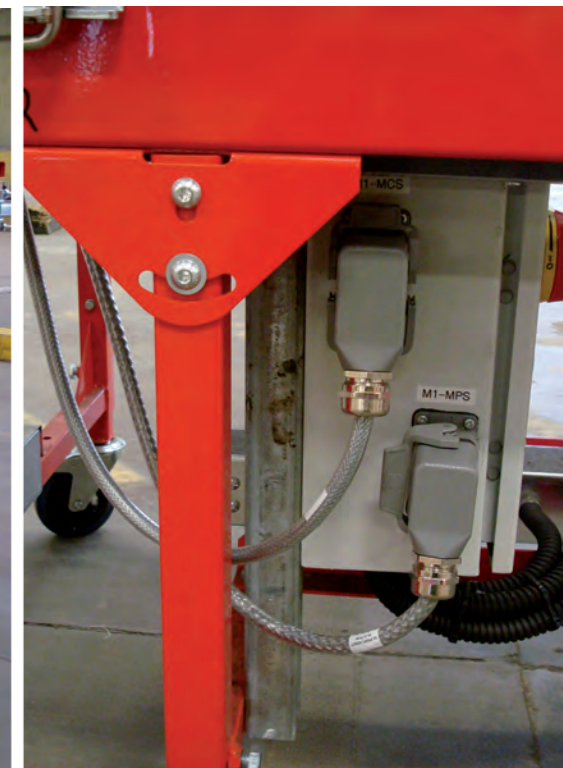


Fig: LÜTZE prefabricated cables for Rockwell® Allen-Bradley® systems

Conveyor line deadline!

Punctual production with the help of Lütze UK

Phil Murby - LÜTZE UK



The WCS System Development team of engineers, with over 100 years of industrial experience behind them, is based in the UK providing integrated software systems and tailored packages to meet individual operational and business requirements.

control signals on the same mobile conveyor.

WCS and LÜTZE UK developed a "plug and play" solution using industrial grade connectors and LÜTZE SILFLEX Cable to deal with the high voltage and currents.

To meet the start date of the initial installation, LÜTZE needed to come up with a connectivity solution for all conveyor belts within 5 weeks. This meant that all conveyor lines could be manufactured in one batch and stored until they were ready to install onsite.

When the conveyor belts were received, they were simply joined together. This meant a significant reduction in the installation time as planned. Aim achieved: WCS was able to meet the tight production deadline for the entire United Kingdom.

WCS Solutions is a leading supplier of warehouse control software and supply chain systems, offering a range of solutions and services designed to improve warehouse productivity.

The project brief was to upgrade 10 sites with new mobile conveyor lines in a 17 week period throughout the UK.

The conveyor belts are modular in design comprising 5 m sections for which a connectivity solution was necessary. The goal was to reduce the installation time required on site to meet the deadline. The solution had to deal with both AC power and DC

Using hands-on experience with high-performance businesses, WCS deliver insights and competitive solutions for the order fulfilment markets.

20 years, just feels like yesterday!

Lütze Limited, the UK sales organisation of the Lütze International Group celebrates its 20th successful business year.



LÜTZE UK's purpose built premises in Tamworth.

UK Director, Nigel Broad, initially established the British subsidiary in a small office in Coventry in 1993.

With a handful of employees and a small number of loyal customers, the company has developed rapidly since it moved to new buildings in Tamworth in 1994.

In 2004, Lütze Ltd. moved into modern purpose-built premises that offered the

space required to expand the existing range of cable products. This new building also offered enough space for in-house training and additional activities to support the broad product range.

Today, the company is a major player in the field of industrial automation and has focused particularly on the connectivity required in today's automation and control systems.

“Our success is a combination of loyal, motivated staff with a high work ethic who are able to offer a complete solution to our clients with excellent, reliable products. We work hard on understanding our customers' requirements, getting the job done, on time and to the highest standards” commented Nigel Broad, UK Director, Lütze Limited.



Nigel and the company assets on move-in day 1994.



Nigel, 20 years on...and a little more stock.

Fantastic acceleration, speed and travel values!



LÜTZE optimises its premium motor cable thereby offering improved reliability for automation applications.

Modern machine tools have a growing number of moving parts that are accelerated and driven at very high speeds. In consequence, the need for higher reliability in C-track chains has increased. To satisfy these industrial requirements, LÜTZE has improved and expanded its range of SUPERFLEX® PLUS M (C) PUR UL SERVO 0.6/1kV motor cables for cable chain applications.

One innovative feature is the optimised weaving angle of the copper to allow longer travel ranges and much faster acceleration

values. This in turn raises reliability and the service life under normal conditions. For example, the previous travel range of 40 m has been increased to 50 m, the speed from 210 m/min to up to 300 m/min and the possible acceleration from 5 m/s² to an extremely high value of up to 50 m/s²!

The LÜTZE SUPERFLEX® PLUS M (C) PUR UL SERVO 0.6/1kV cables are now fully compatible with the specifications of the SIEMENS® 800PLUS series and the Bosch-Rexroth® (Indramat® INK) series. As a result of these optimisations, the cable diameters have been altered slightly.

LÜTZE SUPERFLEX® PLUS M (C) PUR

UL SERVO 0.6/1kV cables are halogen-free and have a cUL approval in accordance with UL 758 AWM 21223.

Thanks to the innovative conductor insulation made of special polypropylene, they have good electrical properties, such as low capacity values and a higher dielectric strength. The mechanical benefits lie in the very low friction of the cores during permanent use. The high-quality polyurethane jacket is resistant to many cutting oils and coolants making it ideal for use on machines.

Exhibitions 2014



Exhibition	Place	Country	Date
SINDEX	Bern	CH	02.-04.09.2014
InnoTrans	Berlin	D	23.-26.09.2014
APTA's EXPO	Houston, TX	USA	13.-15.10.2014
ATX MIDWEST	Schaumburg, IL	USA	15.-16.10.2014
SPS	Nürnberg	D	25.-27.11.2014

Lots of gravel

Raphaël Rossi – LÜTZE Frankreich

Avenir-Group International is an engineering office for automation, robot technology, control systems and industrial IT. The company has a workforce of around 130 and is located in northern France. It is responsible for optimising automatic, new or overhauled systems in all industrial sectors. In 2013 LÜTZE France was approached with an enquiry for a special project to improve a machine used to replace railway tracks. This machine is several hundred metres long and simultaneously extracts the ballast, replaces the

sleepers, installs new tracks and replaces the ballast again. The machine is fully automatic and has storage spaces for the sleepers, tracks and all other accessories. The train never stops and processes up to 1500 metres every day, in contrast to conventional machines that only manage up to 250 m a day.

As LÜTZE France was involved in the project right from day one, it was able to provide its partner, the Avenir Group, with in-depth help for numerous problems. The

first challenge was the reduction in vehicle downtimes, and a reduction in the repair and subsequent waiting times. Also to keep the inspection time, which is carried out each time the vehicle is used, as short as possible. A standard module casing, equipped with M12 openings in the separator walls, was quickly adopted as the preferred solution.

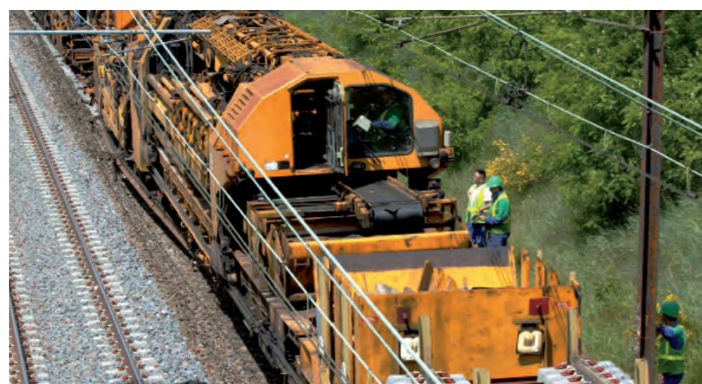
Space was a further issue that needed to be addressed. As a result, small control cabinets with decentral input / output stations

were installed to control the solenoid valves and detectors. A final goal was to ensure resilience to vibrations. LÜTZE recommended spring-loaded terminals for all connections. Finally, all special environmental conditions prevailing in and around the tracks had also to be taken into consideration. For instance, the temperatures in winter in some regions drops below -15 °C, and the products also need to be oil-resistant. This is why the LÜTZE SILFLEX PUR cables were an obvious choice. Thanks to LÜTZE's very broad

product range, and the high availability of cables, all the customer's demands were met very quickly. Initially, there was a test phase to validate the products, which satisfied all defined conditions. In total, over 1000 x M12 openings in the separator walls, 500 x M12 cable harnesses and valve sockets, and over 4000 metres of cable were required to retrofit the vehicle.

Thanks to the latest LÜTZE product developments in terms of plug connectors, cable technology and the many new solutions

for the LÜTZE switching power supplies DC 24 V and the electronic LOCC-Box load monitoring, other different projects in the food sector are now in the pipeline.

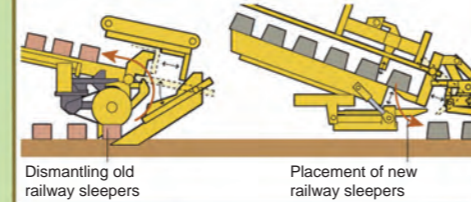


Modernisation of the route

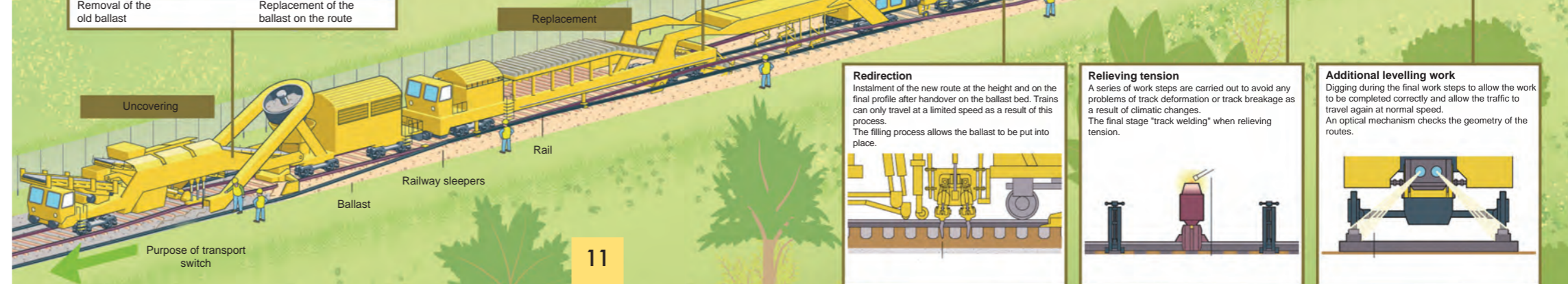
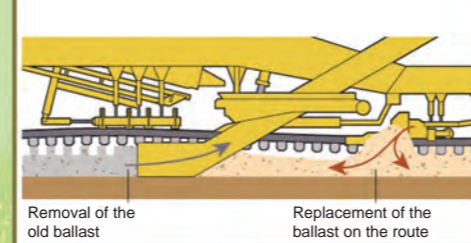
To replace the main elements of the old route, a fully mechanised moving construction site is used called a "stiff sequence".

Decription

Replacement. The replacement machine places the old track to one side. It pulls away the old railway sleepers and replaces them with new sleepers. The previously unloaded new track is placed precisely onto these new railway sleepers.



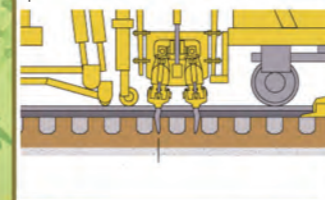
Uncovering. Removal of the old ballast up to 25 cm or more below the sleeper. This ballast is sorted (filtered) and then partially distributed on the road using the ballast clearing machines.



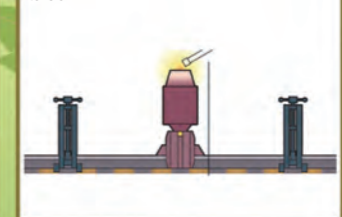
The materials required for installing 1 km of the route

- 120 t tracks
- 1666 concrete sleepers
- 6664 attachment straps
- 2500 t ballast

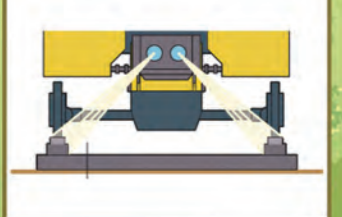
Redirection
Instalment of the new route at the height and on the final profile after handover on the ballast bed. Trains can only travel at a limited speed as a result of this process. The filling process allows the ballast to be put into place.



Relieving tension
A series of work steps are carried out to avoid any problems of track deformation or track breakage as a result of climatic changes. The final stage "track welding" when relieving tension.



Additional levelling work
Digging during the final work steps to allow the work to be completed correctly and allow the traffic to travel again at normal speed. An optical mechanism checks the geometry of the routes.



Elmar Rothe Senior Consultant at LÜTZE

A wealth of automotive know-how and 23 years of experience with LSC control cabinet wiring in one person.

The current LÜTZE Key Account Manager Automotive was appointed Senior Consultant for the general management at Friedrich Lütze GmbH effective 1.1.2014.

Like no other, Elmar Rothe has in-depth expertise in LSC wiring systems and decades of experience in automation technology and the automotive sector. Elmar

Rothe took up his new position as Senior Consultant for the LÜTZE General Management at the start of the year and will be applying his considerable knowledge of the LUTZE system in various projects.

"We at LÜTZE are not only grateful for Mr Rothe's years of dedication to the LÜTZE LSC system, we are also extremely pleased that we were able to convince him to take on this new position!", says Norbert Gemmeke, Managing Director at Friedrich Lütze GmbH in Weinstadt.



Elmar Rothe, new Senior Consultant at Friedrich Lütze GmbH in Weinstadt

5 online steps to the LSC frame

Configure the LSC AirSTREAM wiring system online.

The web-based and modular online configurator for the LSC AirSTREAM wiring system is a milestone in terms of handling and software ergonomics.

With the free online configurator, users can easily switch to the LSC AirSTREAM wiring system or configure their own LSC AirSTREAM wiring frame as a registered customer. The intuitive operation, numerous help features and predefined standard settings make the configurator child's play. A LÜTZE LSC AirSTREAM wiring frame can be configured in 5 steps. The LÜTZE LSC AirSTREAM online configurator can be found at the following web address:

<http://www.luetze.com/lsc-configurator/>

LÜTZE LSC AirSTREAM Configurator:
<http://bit.ly/1ogxE3A>



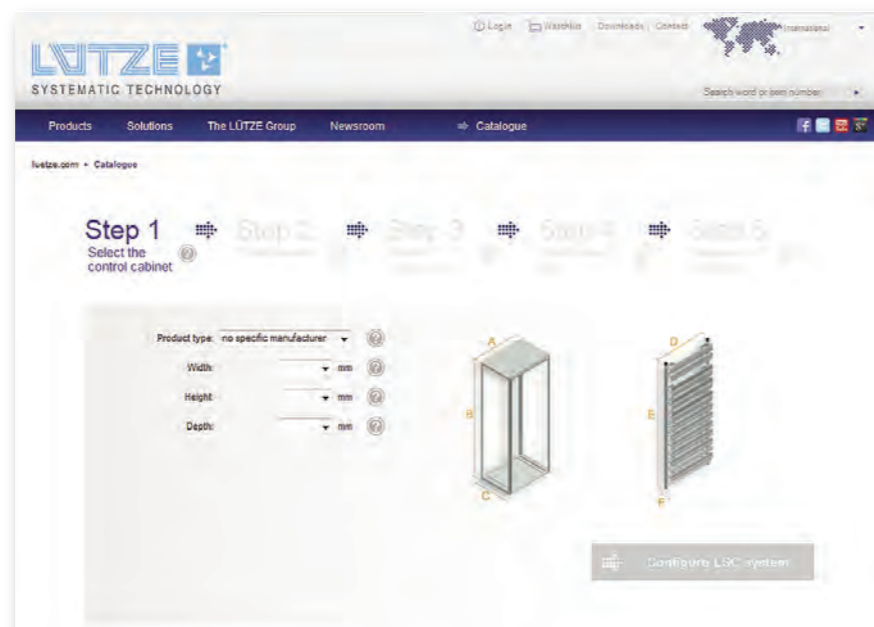
Step one:
Definition of control cabinet type and size

Step two:
Configuring the wiring frame

Step three:
Selecting the accessories

Step four:
Checking all data

Step five:
Requesting a quotation and downloading the design data



Efficient control cabinets

Patrick Büsser – LÜTZE Switzerland

With its workforce of over 250 employees, the Hilger and Kern / Dopag Group is one of the world's largest manufacturers of dosing and mixing systems. These are used for processing multi-component polymers and 1K media such as grease, oils and adhesives.

The Group, which has subsidiaries and distributors in more than 30 countries, has been developing and building customised systems and individual components for more than 35 years.

The company DOPAG Dosiertechnik und Pneumatik AG has a workforce of around 70 at its headquarters in Cham / Switzerland. Standard components and systems, and also customised dosing and mixing systems, are developed and produced at this site for a range of international customers.

The Hilger u. Kern / Dopag Group has de-

veloped two new product lines, metadis and metamix, for processing low to highly viscous or even abrasive materials.

The modular structure of metadis and metamix allows a wide range of applications. Application options for these modern dosing systems are found wherever media needs to be discharged extremely precisely and repetitively, e.g. the automotive industry, the electric and electronic industry, renewable energies, aerospace, manufacturing of white goods and lots more.

The company DOPAG uses the proven, duct-free LSC-wiring system to design efficient and space-saving control cabinets. It also profits from the high level of flexibility and short response times.

The dosing piston is driven via a servomotor, in which a spindle converts the rotation into a linear movement thereby mo-

ving the steel piston. The dosing head is equipped with a back-suction effect that prevents soiling of the discharge point. The dosing and mixing takes place directly at the application point ensuring a high level of dosing and repetition precision.

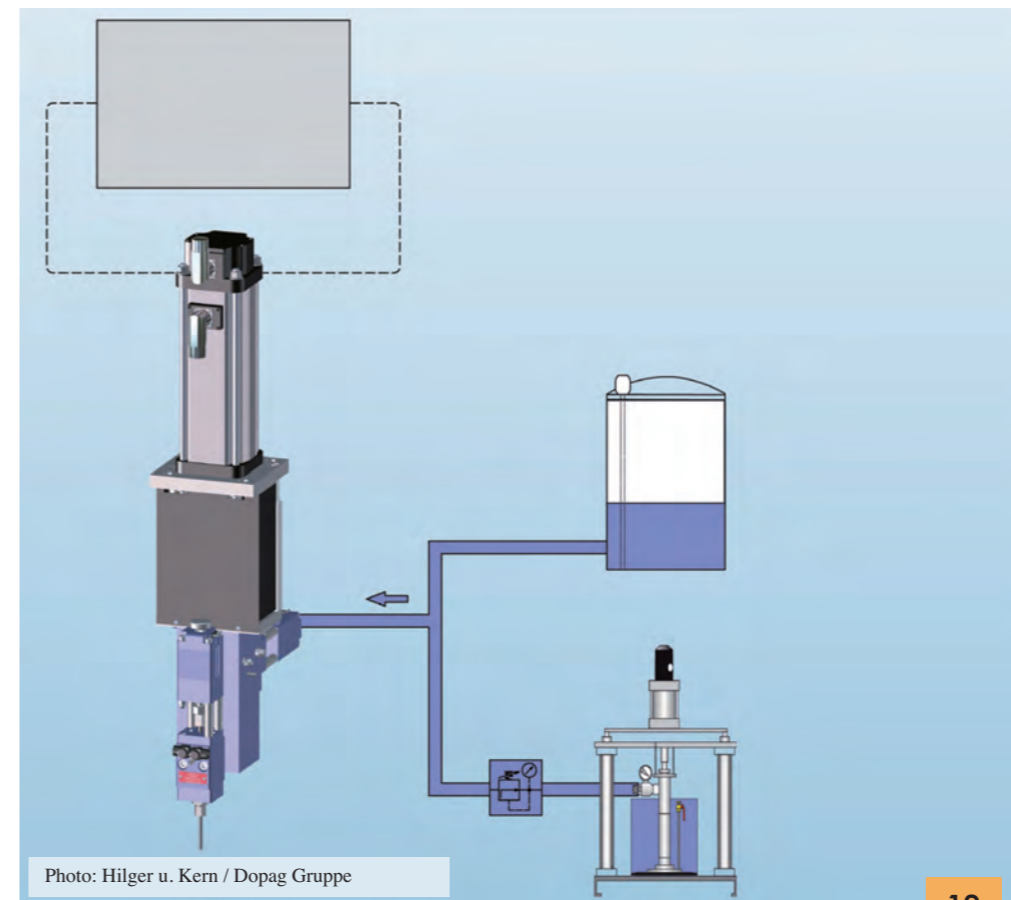
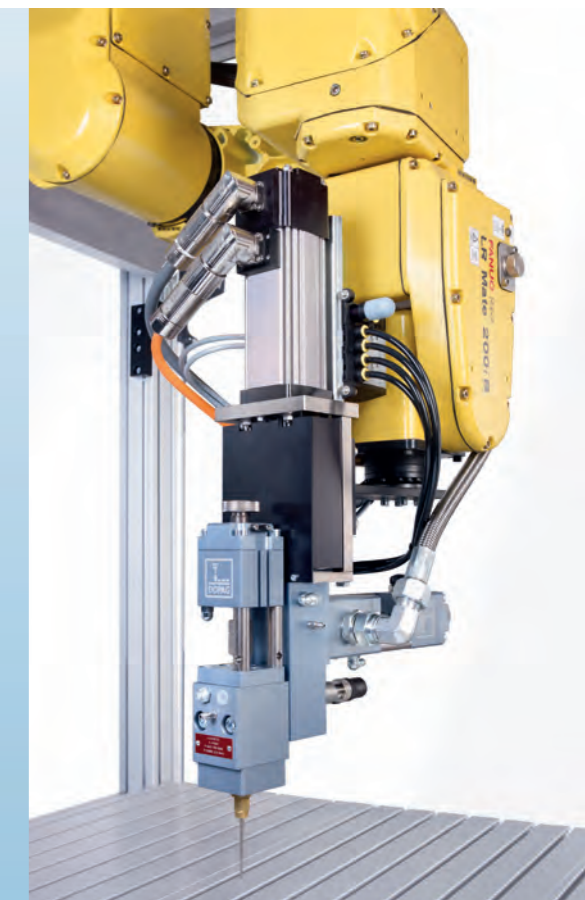
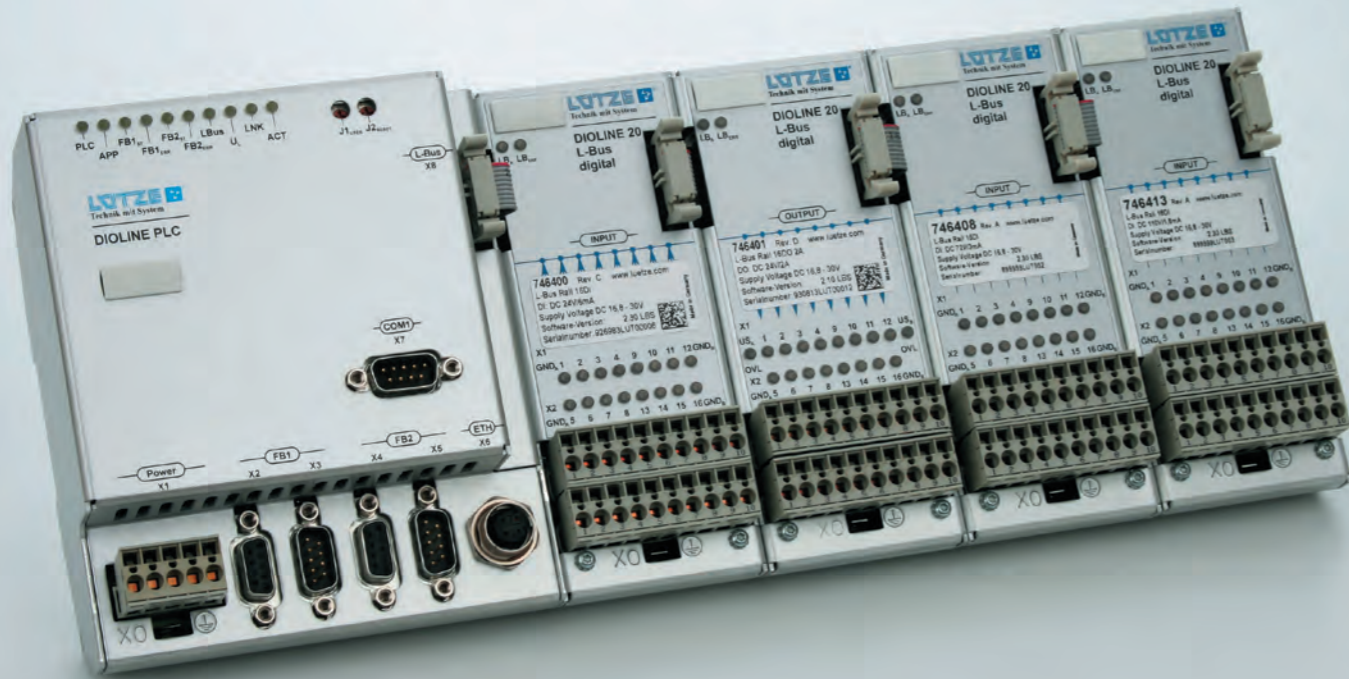


Photo: Hilger u. Kern / Dopag Gruppe





Distributed intelligence on board

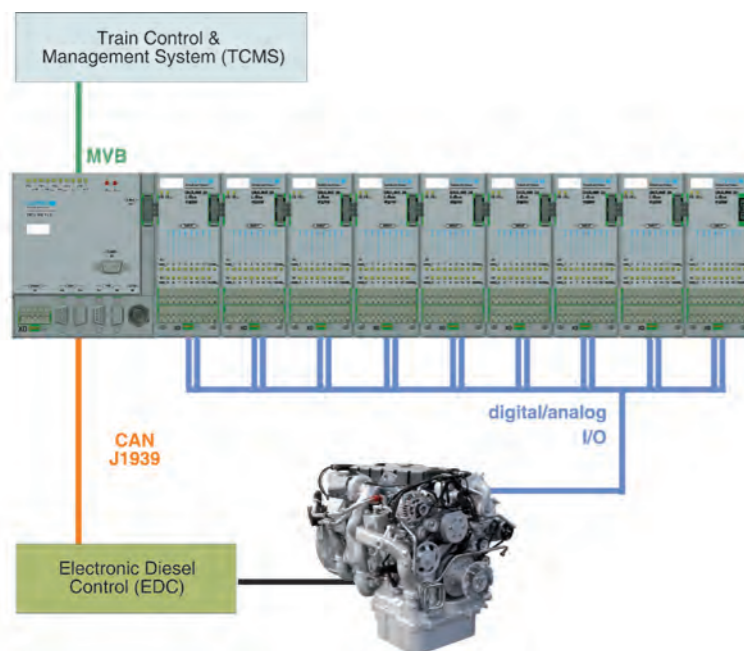
Dimitrios Koutrouvis - LÜTZE Transportation, Product Manager Train Control Systems

When used on rail vehicles, the LÜTZE DIOLINE PLC compact controller enables decentralised and autonomous preprocessing of functions below the main control level – the latter is thus relieved and becomes more reliable.

An ideal application for the LÜTZE DIOLINE PLC compact control system can be found in the new ALSTOM® vehicles "Coradia Polyvalent". These vehicles are used for local transportation in eleven French regions. A special feature of this new vehicle type is the use of several hybrid drives.

They are driven by diesel aggregates or catenaries. The proven LÜTZE DIOLINE PLC control nodes are used on these trains as "decentral intelligence" and control the motor management functions.

The control effort on modern rail vehicles is



The LÜTZE DIOLINE PLC control nodes assume the motor management control via the MVB-CAN gateway



continually developing. In addition to the control technology for motor management functions, stricter safety and comfort standards demand greater control requirements.

Processing of this high signal density just at the main control level would be disadvantageous, as the main control would be overloaded with many "non-critical signals". Also, a tailoring to only one main control does not provide any redundancies and thus could affect reliability.

Decentral data preprocessing with the DIOLINE PLC

Here, a modularised preprocessing of all signals with the LÜTZE DIOLINE PLC controller at subsystem level seems the ideal solution. The DIOLINE PLC allows "distributed intelligence" with partial control functions below the main control level. The benefits are obvious:

- Relieves the central control system and the bus system
- Reduces response times to critical signals
- Maintenance friendly: Simplified troubleshooting
- Higher availability: Creation of redundancies via modularisation and therefore high fail-safety

Up to six LÜTZE DIOLINE PLC compact controllers provide the congenial hardware

platform in the form of remote bus units on the new "Coradia Polyvalent" as used by SNCF. This platform allows flexible field bus configuration: Firstly, via MVB for the communication with the main control system in the vehicle (TCMS) and secondly via CAN-J1939 for the communication with the motor unit (Powerpack).

All functions of the DIOLINE PLC can be freely programmed (acc. to IEC 61131-3). The LÜTZE DIOLINE modules which have been proven for many years and are available as I/O interfaces with analogue and digital I/Os. These assemblies are integrated via the LÜTZE L-Bus Interface.

Motor management for the new electro-diesel hybrid drive

ALSTOM® has up to six so-called "power packs" for the new regional trains "Coradia Polyvalent". The ALSTOM® "Powerpack" is a combined diesel-electro drive system that integrates all individual components: A diesel motor (340 kW) that, in combination with the generator, forms a power aggregate and supplies DC power to the drive chain.

Each DIOLINE PLC acts as a SLAVE of the main control

(TCMS). The management of the Diesel motor control (electronic Diesel controller) as well as the cooling unit (cooling field unit) is controlled via the CAN-J1939 bus interface. For this, the CAN-J1939 interface library of the DIOLINE PLC was further developed by LÜTZE for communication with the motor control device from MAN as well as the cooling system from Bosch Rexroth®.

The LÜTZE DIOLINE PLC records and processes the signals for the RPM target value, stator, supply and particle filter temperature, for the filling level of the motor oil and the water level in the cooling system. All data is recorded and processed separately for each Powerpack.

Individualised DIOLINE PLC designed for the ALSTOM needs

LÜTZE Transportation GmbH has modified the DIOLINE PLC accordingly to meet the special needs of the "Coradia Polyvalent":

- Development of a CAN-J1939 Interface library for communication between DIOLINE PLC and the motor control unit from MAN (BOSCH)
- Development of an expansion board with digital inputs for the control system DIOLINE PLC so that the position in the vehicle can be coded via these configuration inputs
- Expansion of the internal diagnosis memory of the DIOLINE PLC to 1 MB
 - Use of internal and external plug connectors with gold-plated contacts.



Regiolis train in dynamic tests on the grounds of the railway test centre in Bar-le-Duc, October 2012 © ALSTOM Transport / A. Février

The new "Coradia Polyvalent" from ALSTOM® as used by SNCF have up to six hybrid motor units, so-called "power packs", each controlled by one LÜTZE DIOLINE PLC.

Efficiency in Automation

Cable • Connectivity • Cabinet • Control



Germany

Friedrich Lütze GmbH
Tel.: +49 71 51 60 53-0
info@luetze.de

Switzerland

LÜTZE AG
Tel.: +41 55 450 23 23
info@luetze.ch

Austria

LÜTZE ETE Ges.m.b.H.
Tel.: +43 1 257 52 52-0
office@luetze.at

Great Britain

LUTZE Ltd.
Tel.: +44 18 27 31333-0
sales.gb@luetze.co.uk

USA

LUTZE INC.
Tel.: +1 704 504-0222
info@luetze.com

France

LÜTZE SAS
Tél.: +33 1 34 18 77 00
lutze@luetze.fr

Spain

LUTZE, S.L.
Tel. +34 93 285 7480
info@luetze.es

China

Luetze Trading (Shanghai) Co.Ltd.
Tel. : +86 21 32580670
info@luetze.cn