

ECOLAB plant Biebesheim

A bird's-eye view:
ECOLAB plant Biebesheim am Rhein in Hesse.



Safety at the distribution station

Electronically coded dry couplings solve interface problems

Ensuring traffic safety is not just a primary civic responsibility on the roads. Maximum safety is also of paramount importance in the infrastructure of the hose line between the production and storage area as well as between the storage tanks and filling station at the ECOLAB plant in Biebesheim. Where so many different types of media are distributed via different product connections, modern dry coupling technologies made by RS Roman Seliger offer a safe and economical solution.



TR recommended – problem solved:
Rala product manager Arne Fröning (left) speaking with engineer Dipl.-Ing. Mario Bastian from RS.

Water treatment and process improvement

As a basis for life and in technical applications, water is an indispensable component. Water is life; but it also has its negative aspects: limescale, rust, slime. Water is required for the preparation of the fibre (pulp) in the paper industry and as a habitat for the bacteria in the treatment plant. Efficient separation of water and solids is required for the large-scale paper manufacturing and compact sludge is required as residual matter from wastewater treatment. Using the limescale and rust prevention solutions as well as biocides and coagulants made by ECOLAB, you can easily handle these jobs. At the Hesse-based plant in Biebesheim, ECOLAB produces a number of products in barrels ranging in size from a 25-litre canister to a fuel tanker. And don't forget the unique Porta-Feed system: returnable containers that the delivery service refills into basis tanks on site and subsequently removes. The customer therefore does not have to dispose of the sales containers, thereby reducing the overall environmental impact.



Safely managing the transport of media

Production area at ECOLAB Biebesheim

At ECOLAB in Biebesheim, we focus on safety and efficiency. At numerous levels, the closely packed pipe sections connect the production tank to over 30 storage tanks. From there, media are moved to four filling lines and four fuel tanker loading stations. Of course, pumping the media back into the production area must also be possible - including purging and washing processes.



One of five distribution stations: Six hose lines with TR female parts are allocated to ten pipe lines with TR male parts.

Coupling – human risk

This requires a flexible adjustment/piping of the media flows. And, as a result, frequent adjustments to the piping system. The transfer from the production tanks must be coupled several times a day. The coupling should be designed to be as leak-free as possible. The goal is to ensure occupational safety, long service life and minimum cleaning expenditure.

The right choice

There are five distribution stations in the shunting area between production and storage. A total of 50 pipe lines are equipped with TRVs DN 50 and 20 pipe lines with TRMs DN 50, whereby these pipe lines are kept in stock by Rala. In addition, Rala executes the following: packaging, approval tests as per the Pressure Equipment Directive, annually recurring hose tests as per the industrial safety regulations and the Ordinance on Industrial Safety and Health (TRBS) 1203, Part 1.

The technical manager sat down with Arne Fröning, Technical Wholesale Product Manager at Rala GmbH & Co. KG (Ludwigshafen). For several years now, Rala has been supplying the site with the technical equipment required for occupational protection products for employees as well as foil-wrapped hose lines for production. After conducting tests using various dry couplings, ECOLAB decided to convert to a quick coupling TR series system manufactured by the premium manufacturer RS Roman Seliger Armaturenfabrik GmbH (Norderstedt). In tests, the quick coupling system also presented a convincing argument to the employees who handle countless coupling processes.



Electronic coding included

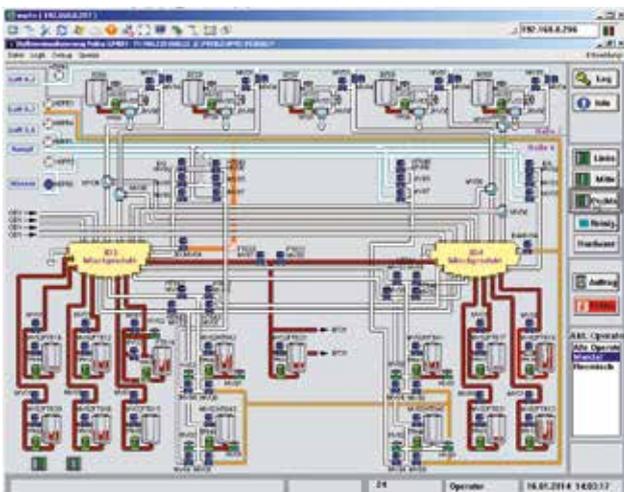
At ECOLAB, every coupling is electronically coded. Only if the coded female part fits to the coded male part is the conductor cross section approved for use. Engineer (Dipl.-Ing.) Mario Bastian, who is the outside sales rep for both ECOLAB and Rala, delivers the pertinent data to Norderstedt, where the existing sensor technology has been modified to the TR.

Technical assessment through the employees

Every coupling procedure necessarily interrupts the production process. This means that it is important to keep the number of manual steps during the regular process of coupling and decoupling the hose line to a minimum, and the hose must exhibit maximum leak-proof properties. The dry couplings from the TR and

Content with the installation: Arne Fröning (left) and Mario Bastian.

Coupling monitoring system based on the integration of electronic sensors. Only if the coded female part fits to the coded male part is the conductor cross section approved for use.



Overview at the control panel. Approval is only provided when the electronic coding has given the go-ahead.



RS series fulfil both of these requirements. They consist of two coupling halves (TRV=male and TRM=female).

Each coupling is equipped with a cut-off valve. In a decoupled state, these are closed through the spring-loaded cut-off valve. The connection of both coupling halves is secured via a bayonet catch. Only one 120° turn is required for the entire coupling process. First, the female and male sections are impermeably connected. Only then are the valves opened and the flow cross-section is released. The coupling halves reach their final position and form a pressure-tight connection to one another.



During the decoupling process, the spring-mounted cut-off valves automatically close the flow cross-sections before the coupling halves are separated. This prohibits a leaking of the media from the line drains of the tank vehicle, so that practically no leakage occurs. Only one simple manual action is required for the coupling and decoupling process: to couple, simply connect the two parts and turn clockwise by 120°; to decouple, do the exact opposite. The integrated swivel joint in the female part ensures that no torsional forces are transferred to the hose during the coupling process. The handwheel on the female part simplifies the work in two ways: No tools and no extra effort are required. It rests comfortably in the hand and does not require any difficult movements – the media is changed with the flick of a wrist. In addition, the handwheel provides outstanding impact protection for the coupling in case the hose line should fall. And since there are practically no residual media flows, there is also no need for disposal or cleaning in the immediate vicinity of the coupling. This not only makes work easier for employees, but also protects them from health risks.

With the necessity to process a high amount of coupling procedures on a daily basis, this leads to a significant amount of work saved.

Easy to handle; application errors are virtually eliminated: Coupling with the flick of the wrist.

Safety in the system



Dry coupling TR – works without a hitch

The **RS dry couplings TR** are modern disc valve couplings with optimum ergonomics – the universal coupling technology for a wide range of applications. They are characterised by:

- Good flow-through capacity
- Low pressure loss
- Low residue
- Protection against product loss
- Protection for people and the environment
- Excellent coupling geometry
- Rugged design
- Integrated swivel joint that protects against hose torsion
- Protection against connection mix-ups through integrated mechanical coding or connection monitoring using integrated sensors



Why we rely on RS



**Arne Fröning, Product manager
Rala GmbH & Co. KG (Ludwigs-
hafen):**

"When selecting our suppliers for valve technology applications, we value high-quality materials, premium processing and excellent technical performance. That's why we count on premium manufacturers like RS Seliger."

What RS does for safety



**Dipl.-Ing. Michael Adam,
RS Product Line
Management:**

"Where safety and efficiency are required, RS develops customised engineering solutions. Customer satisfaction is the benchmark."

**Dipl.-Ing. Mario Bastian,
RS consulting:**

"RS and its partners in technical retail would like to help make the production and logistics processes safer, more efficient and more sustainable for their end customers."



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**RS Roman Seliger
Armaturenfabrik GmbH**

RS – a strong brand in the system

RS is a technologically leading manufacturer in hose line and valve technology. For demanding applications ranging from plant engineering through to applications in the chemicals or pharmaceutical industries, and likewise at the interface between industry and logistics (ships, aircraft, tanker trucks, etc.), RS products guarantee the safe transportation and handling of even the most problematic media. Based in Norderstedt near Hamburg, this medium-sized company with a global presence is quality certified in accordance with DIN EN ISO 9001:2008 and has received certification from the Technical Control Board (TÜV) and Germanischer Lloyd. The managing director is Dr.-Ing. Jens Reppenhausen.
www.rs-seliger.de



**Nalco
Biebesheim site**

Numbers – Data – Facts

Nalco Deutschland Manufacturing GmbH & Co. KG is a manufacturing location of the ECO-LAB Group. A trusted partner at more than one million customer locations, ECOLAB is the global leader in water, hygiene and energy technologies and services that protect people and vital resources. With 2013 sales of \$13 billion and 45,000 associates, ECOLAB delivers comprehensive solutions and on-site services to promote safe food, maintain clean environments, optimize water and energy use and improve operational efficiencies for customers in the food, health care, energy, hospitality and industrial markets in more than 170 countries around the world.

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