

## Aluminum, the material for tomorrow

Aluminum offers advantages such as light weight, strength and resistance to corrosion. Of increasing importance, ease of recycling makes Transair® aluminum pipe systems a modern, high-performance choice.



### THE BENEFITS OF ALUMINUM

Aluminum is the most common element of the earth's crust, either in the form of aluminum silicates or mixed with other metals. In its pure state, its mechanical properties are not significantly important, but they are improved by various heat and mechanical treatments. By adding small amounts of silicon, zinc, and copper, the aluminum alloys that are obtained boast properties which are comparable with, and even superior to, different types of steel.

Aluminum is a very light weight metal. With a density of 2.7g per cc, it is about three times lighter than the common industrial metals of iron and steel, and so makes handling particularly easy. Furthermore, it offers excellent resistance to corrosion. Upon contact with oxygen, a thin layer of aluminum oxide develops on its surface, protecting the metal underneath.

Aluminum alloys greatly increase mechanical strength, and the

toughest types can be as strong as hardened steel. Aluminum also retains its strength at low temperatures and some alloys can withstand temperatures as high as 392°F.

### ALUMINUM RECYCLING: SAVING RAW MATERIALS AND ENERGY

One advantage of aluminum is that it can be recycled indefinitely. It can simply be recycled by melting, with the secondary aluminum obtained maintaining the same physical and chemical properties as primary aluminum.

Secondary aluminum production from recycled aluminum also uses significantly less energy than primary aluminum produced from ore. It is generally agreed that recycling aluminum uses 95% less energy and that a ton of recycled aluminum will save four tons of raw mineral ore.

In 1996, Legris Transair was the first manufacturer to launch a 'ready-to-use' lacquered aluminum pipe for compressed air applications.

### Transair pipe: THE ADVANTAGES OF ALUMINUM FOR QUALITY.

#### Quality at the heart of the system

The Transair system, comprising of pipe and brackets, is regularly tested to guarantee optimum performance. Also, very high tolerance control of the pipe dimensions contribute to the overall capability of the system.

The absence of corrosion on the interior of the pipe guarantees that a clean air supply is maintained throughout the pipe network until it reaches the apparatus and equipment.

#### Guaranteed durability and respect for the environment

Guaranteed for two years, as with all other parts of the system, Transair pipe offers a long-term solution. Unlike other systems such as plastic, aluminum undergoes less mechanical stress due to its low expansion coefficient and its high rigidity. After a long life, Transair aluminum pipe is completely recyclable.

#### Easily identifiable pipe networks

Each Transair pipe is printed with its main features for improved traceability. For easy identification of the various networks installed, Transair comes in three standard colors, with other specific colors available on request.

#### Energy savings

The high quality condition of the interior surface of Transair pipe ensures optimum flow. Pressure drop is reduced, enhancing compressor energy efficiency.

#### Easy installation and handling

Transair pipe is extremely light weight - around three times lighter than steel. One person alone can install and cut the pipe with a few, simple hand tools. This results in easy hanging and suspension of the pipe system.

#### QUALICOAT certification

QUALICOAT is an international trademark for lacquer-coated aluminum products. Transair's QUALICOAT certification guarantees the quality of the pipe lacquering process and its durability against the outside environment (scratches, resistance to dust, etc.) so that the installation remains aesthetically pleasing.



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# The Val Nantais Corporation chooses Transair quality

From the seed to the dinner table, quality is at the heart of Val Nantais' success. For its compressed air system, they naturally chose the Legris Transair system.



## THE LIMITATIONS OF PVC

At that time, the preparation and conditioning plant was equipped with a plastic compressed air network. Weakened by large temperature swings, the pipe would often break under the effect of pressure.

Val Nantais is a market gardening corporation that currently brings together nearly 100 vegetable producers. The total surface area under cultivation comes to 1,300 acres.

Freshly picked vegetables are taken to the washing and conditioning plant located close by. This houses two washing/degritting lines, four tray packing lines and two lines for the preparation of "ready-to-use" salad.

These are integrated into 2.5 acres of refrigerated premises with the ambient temperature and humidity adjusted for each type of vegetable.

On the logistical side, 12 loading platforms can deal with over 500 pallets on the ground at any one time and respond to orders in the most efficient manner possible.

This plastic system had the added disadvantage of long assembly drying times and very little flexibility when alterations were made to the network for the addition of new lines and equipment, such as filters.

To meet their exacting requirements, the attractive price of plastic could no longer be the only consideration and Val Nantais opted for the Transair system. The main compressed air header was installed using 40mm diameter and then 63mm diameter pipe. Most of the drops were of 14 or 16mm flexible hose, connected directly to a quick assembly bracket fitted with a shut off valve.



**The Transair system "does not require specific skills for installation or modification"**

When Mr. Ragaud, the site maintenance manager, was asked about the Transair system, one of the major advantages he cited was that the system "does not require specific skills for installation or modification".

In fact, since Val Nantais has been using the Transair system, extensions and modifications to the air network have been carried out by one of the eight staff members making up the maintenance team.

The pipe is easy to handle and cut compared to galvanised steel pipe, which takes much longer to cut-to-size and prepare because of the threading involved. With Transair, the pipe and brackets are ready to be assembled, leading to significant savings in installation times.



## With Transair, it is simple and quick to add to the network

As the surface area of the premises is large, there are several compressor rooms that have been carefully located after detailed study in order to maximize efficiency. The initial compressor outlets are in galvanised steel. To join the new Transair network to the existing pipework easily, Mr. Ragaud used the threaded metal Transair stud fittings.

The Transair system is also beneficial when it comes to isolating a component in the compressor room, such as the receiver, which must be checked once a year. The initial fitting of a by-pass valve ensures that this equipment can be isolated from the rest of the system without having to cut off the supply of compressed air. This method limits

production downtime, which is both costly and sensitive in the agri-food sector. The ability to add to the network, quickly and easily, is also a major asset of the Transair system.

Understandably, the level of hygiene required in this sector of industry is particularly high and a recurrent operation is the fitting of new filters onto the network, something which has been simplified with Transair.

New compressed air outlet points are often required as the needs of the production unit evolve either due to the installation of new machines or as the preparation and conditioning lines are reorganized. Transair's quick assembly brackets answer these needs almost instantaneously. Their small size means they can be housed virtually anywhere and their installation is simple. The bracket is just screwed onto a pre-drilled hole in the pipe, allowing a flexible hose to be connected.



Numerous shut off taps are evenly spaced out in the ring main network, located in the roof-space. Mr. Ragaud had realized that the original plastic installation did not have sufficient shut-off valves, a situation that had created problems when servicing the network. Thanks to the upgrade-able Transair system, there was no

problem in adding extra shut-off valves, enabling each section of the network to be isolated easily.

Transair's design software has also proved beneficial for Val Nantais, enabling the network to be measured and product lists to be drawn up simply and quickly.

## Close up on Transair Brackets: RAPID AND EASILY MODIFIED COMPRESSED AIR SYSTEMS

The bracket is the simplest way to link pneumatic machines and tools to compressed air on a new installation or to add a new drop to an existing network.

As the inventor of the "quick fit" bracket, Transair offers three types of brackets for Transair diameters Ø25, Ø40, Ø63, Ø76 and Ø100 :

- "Quick assembly" direct feed brackets are used for rigid drops with horizontal take off or for all types of air supply with rigid pipe or flexible hose on an installation that incorporates an efficient air dryer
- New generation "quick assembly" mini-brackets with pre-assembled 'swan's neck' coupler are for rigid or flexible drops with vertical or horizontal take off
- The pressurized system outlet is ideal for making new pressurized outlets without venting the compressed air network.

Because of the lateral dismantling capability of Transair and the use of "quick assembly" brackets, this operation can be completed very quickly (less than seven minutes for a new outlet) and guarantees the interior cleanliness of the circuit.



"Quick assembly" mini-brackets with coupler



- The 'swan's neck' design with pre-assembled coupler allows for water retention within the upstream network
- High flow capability
- Quick installation without pipe cutting





# FROM AROUND THE WORLD: TRANSAIR, PROTECTING THE ENVIRONMENT

The Transair system allows significant energy savings, which contribute to the protection of the environment. In addition, with its awareness of environmental issues, Legris Transair has ensured that its products comply with the European directive 2002/95/EC or RoHS.

## THE RoHS DIRECTIVE

The RoHS directive, Restriction of Hazardous Substances, is an European directive which aims to limit the use of six dangerous substances: lead, mercury, cadmium, hexavalent chromium, Polybrominated biphenyl (PBB) and polybrominated diphenyl ether (PBDE). The maximum concentration of these substances is 0.1% by weight of homogeneous material except for cadmium where the limit is 0.01%.

## WHO THIS AFFECTS

This directive affects all manufacturers and distributors of electrical and electronic equipment as well as producers of parts, sub-assemblies and components, producers of

alloys and raw materials, sub-contractors (who use alloys containing one of the banned substances) and intermediaries who assemble devices. All will have to use products that comply with the new regulations.

## IMPLEMENTATION DATE

From July 1st 2007 any new product coming onto the market within the European Union, imported or made within the European Union, must comply with the directive.

## PRODUCTS CONCERNED

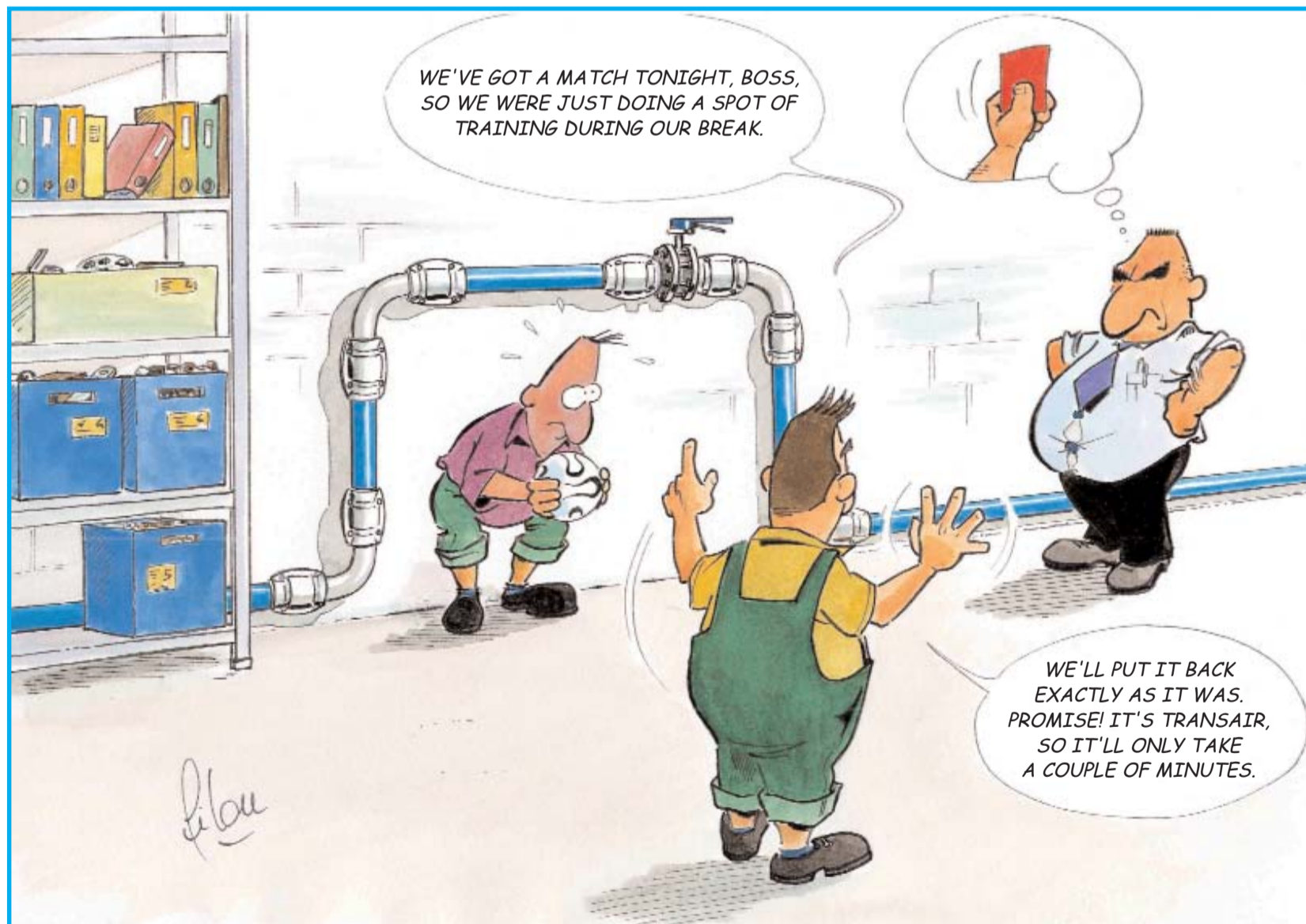
The directive covers all electrical and electronic equipment, including subassemblies and mechanical components

## TRANSAIR TRACEABILITY

Legris has always promoted the use of non-dangerous substances in the manufacture of its products for reasons of environmental protection and public safety. Legris Transair has decided on RoHS compliance for its products. Initiatives are underway to ensure that the majority of Transair products comply with the directive by the end of the first quarter of 2007.

Specific traceability enables product identification. Indeed, Legris has chosen transparency by systematically printing RoHS on all Transair products which comply with the directive.

Likewise, RoHS compliance status is stated for each catalog part within the Legris Transair electronic database, making this information readily available for its customers and suppliers.



# Transair wishes you all the best for 2007