

## Aluminium, the material for tomorrow

**Second only to steel for industrial use, aluminium offers the advantages of light weight, strength and resistance to corrosion. Of increasing importance, ease of recycling makes Transair aluminium pipe systems a modern, high-performance choice.**

### THE BENEFITS OF ALUMINIUM

Aluminium is the most common element of the earth's crust, either in the form of aluminium 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 aluminium alloys which are obtained boast properties that are comparable with, and even superior to, different types of steel.

Aluminium is a very light metal. With a density of 2.7g per cc, it is about three times less heavy 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 aluminium oxide develops on its surface, protecting the metal underneath.

Aluminium alloys greatly increase mechanical strength, and the toughest types can be as strong as hardened steel. Aluminium also retains its strength at low temperatures and some alloys can withstand temperatures as high as 200°C.

### ALUMINIUM RECYCLING:

#### SAVING RAW MATERIALS AND ENERGY

One advantage of aluminium is that it can be recycled indefinitely without any loss of the uses to which it can be put. It can simply be recycled by melting, with the secondary aluminium obtained maintaining the same physical and chemical properties as primary aluminium.

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

Nowadays, aluminium is widely used in the production of tyres and has become an essential material, with a proven track record, in sectors such as the automotive and aeronautics industries.



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

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

#### Quality at the heart of the system

The Transair system, comprising 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 apparatus and equipment.

#### Guaranteed durability and respect for the environment

Guaranteed for 10 years, as with all other parts of the system, Transair pipe offers a long-term solution. Unlike other systems such as plastic, aluminium undergoes less mechanical stress due to its low expansion coefficient and its high rigidity. After a long life, Transair aluminium 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 two standard colours, with other specific colours 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 less heavy than steel. One person alone can install and cut the pipe with a few, simple hand tools. This assists easy fixing of brackets and the pipe can even be bent, after consulting the Transair technical instructions, available on request.

#### QUALICOAT certification

QUALICOAT is an international trademark for lacquer-coated aluminium 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 market gardening cooperative chooses Transair quality

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



Val Nantais is a market gardening cooperative which currently brings together close on 100 vegetable producers. The total surface area under cultivation comes to 1,300 hectares.

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 hectares 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.

With a turnover approaching ?50m, of which 30% is for export, Val Nantais is currently France's leading market gardening cooperative, able to meet the needs for fresh vegetables of 800 customers throughout the European Union and as far away as Eastern Europe.

It was at Val Nantais that one of the very first Transair installations was completed in 1996.

## 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. 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 feed columns were 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, is asked about the Transair system, one of the major advantages he cites is 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 making up the maintenance team. The pipe is easy to handle and to 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 which have been carefully located after detailed study in order to maximise 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 reorganised. Transair 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 realised that the original plastic installation did not have sufficient



shut-off valves, a situation which had created problems when servicing the network. Thanks to the upgradeable Transair system, there was no problem in adding extra shut-off valves, enabling each section of the network to be isolated easily.

A design software programme now available for creating drawing plans for further Transair installations 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 which 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 pressurised system outlet is ideal for making new pressurised 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 circuit
- High flow capability
- Quick installation without pipe cutting



3 possible outlets:  
pipe, with a coupler  
or with G1/2 / G3/4  
female threads

## RoHS DIRECTIVE:

# TRANSAIR, ACTING TO PROTECT THE ENVIRONMENT

**The Transair system allows significant energy savings to be made, contributing 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 a 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

All manufacturers and distributors of electrical and electronic equipment are concerned but the directive also applies to 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 which 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

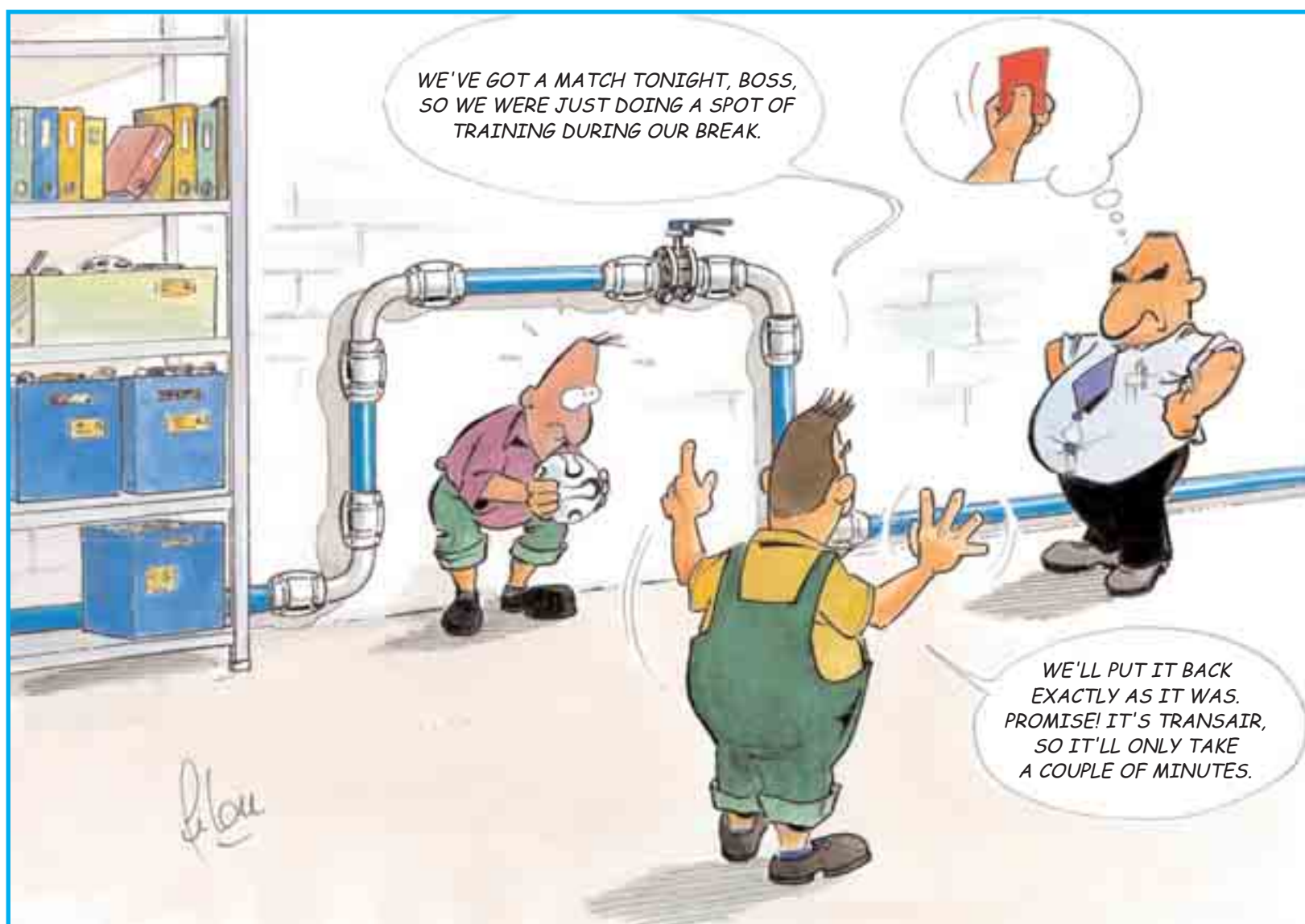
The directive covers all electrical and electronic equipment, including subassemblies and mechanical components

### 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 catalogue 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**