



**infinity**  
pipe systems

# **The Use of Infinity Pipe Systems Over Traditional Systems**

# INFINITY PIPE SYSTEMS

## Vs. Traditional Systems

**The compressed air industry is rapidly changing across Australia, and in doing so, moving away from traditional materials that have been used in the reticulation of airline systems.**

It has long been the case that materials borrowed from allied industries such as the building and plumbing sectors were to some extent considered acceptable.

The strengthening of workplace health and safety laws along with the changing culture in industry to litigate in the event of an industrial accident has led to the usage of products specifically designed for its intended purpose. *Infinity Aluminium Compressed Air Systems is one such product.*

Infinity segmented aluminium piping system - designed from the ground up for the reticulation of compressed air - boasts numerous design features that almost completely eliminate traditional issues such as pipe expansion and condensate carry-over.

One of these features comes in the form of the Infinity “Zero Condensate TEE”. This innovative product has an internal barrel, which allows the air to be taken from the top of the pipe where it is the cleanest. This barrel also has the ability to rotate 360°; this will allow for as many connection angles as possible, and still retain the take off point from the top. This feature reduces up to six additional fittings, which are required when using the more traditional “Swan Neck” style in steel or polyethylene.

The improved laminar flow from the Infinity “Zero Condensate TEE” also means that when demand is required from the connected dropper, the boundary layer is able to stay as close as possible to the inside of the fitting. Rather than forcing compressed air into a direction change, it is guided through a series of holes via an internal chamber, and vented to atmosphere through the connected tool. The result? Significant savings in pressure loss, which can be present in systems where standard tees and elbows are used.

The Infinity Aluminium Pipe System is also used for intrinsically safe sites. The fittings come standard with a 304 grade stainless steel “finger ring”; the primary method for retaining the tube within the fitting. The fingers of this ring, when set to the predetermined torque, physically pierce the outside of the tube. This method breaches the industrial powder coated finish and allows current transfer from one tube to the other. As a result, for the system to be grounded there is no need to run “earth loops” across each fitting to achieve the required OHMS reading.

Infinity Aluminium Pipe System and metal fittings are resistant to fire. The non-ferrous material used in both fittings and tube, results in the melting point of both items being a lot closer than alloy and plastic (or composite). The benefit of using similar materials within the Infinity Aluminium Pipe System means that in the event of a fire, the whole system will fail together when specified limits are reached. This allows other fire systems, such as intumescent fire collars, to activate accordingly. In doing so, protecting the integrity of the system. The use of a non-metalized alloy system (such as plastic fittings) may see the failure of fittings prior to the tube, feeding the fire with compressed air as a result.

The Infinity Aluminium Pipe System segmented design also has the advantage of quick installation. Installation is reduced by up to 50% when compared with traditional airline systems, leading to a high cost saving in labour. Being a mechanical system, Infinity also has the advantage that each and every joint is to the same quality of sealing as promised by the manufacturer, and is not reliant on the physical finesse that can deteriorate as a project nears completion.

Infinity Aluminium Pipe Systems complies with AS 4041-2006 – Pressure Piping (3.24.5 and 3.24.10), and when installed according to manufacturers recommendations will have a maximum pressure loss of no greater than 4% across the entire system. Infinity pipe systems also complies with AS 1345-1995 – Identification of the Contents of Pipes, Conduits and Ducts, eliminating the need for separate painting or marking stickers, should this standard not be met. In addition to this Infinity also adheres to AS/NZS 2554:1998 – Hose and Hose Assemblies for Air. Both the Infinity coupling and tube products comply with European standard ISO 9001:2000 and abridged test reports are available upon request.

When compared to opposition products, the almost seamless entry and exit flow of air through the Infinity fittings leads to very low Reynolds numbers (reference only) in comparison to copper, victaulic and steel. This is due in part to the smooth bore of the tube and the precision fit between the tube and fitting - leaving almost no lip to disrupt laminar flow.

Architectural grade aluminium (6060), a zinc zirconiated finish is applied to both inside and out each Infinity tube. This feature assists in enhancing corrosion resistance even further, and aid boundary layer contact (first layer of air to touch tube wall). The result is a system that promotes the least resistance of air flow from entry to exit point than any other system on the market today.

The use of the Infinity Pipe System ensures compliance with what is considered industry's best business practice with regards to flow, leakage and energy management. The design features exceed pending changes with regards to Air Audit and Energy Management Schemes that may be introduced into the Australian and New Zealand market in the future.

# Case Studies

## Cleanaway

### Recycling Plant, Australia

Infinity pipe was in the largest, most high-tech recycling facility in the southern hemisphere. Infinity Aluminium High Flow Pipe was installed throughout the plant to distribute consistent leak free compressed air to the new state of the art system.



## Coca Cola

### Soft drink manufacturer, Australia

As part of their factory renovation, Coca Cola required an airline system that could connect three 55kW variable speed compressors.

Infinity piping was utilised to ensure maximum capacity of these compressors and to optimise the flow of the airline system.



## Fonterra

### Dairy manufacturer, Australia

In a response to Fonterra's prevailing issue of pressure drop throughout their factory, a 70m long Infinity piping system was installed.

Connecting three compressors and two dryers with bypasses, the system was successful in optimising flow, reducing turbulence and maintaining pressure.



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