Instamod Air Pipe Private Limited

AIRpipe®

How to improve efficiency on compressed air installation?

Santosh Kumar
MANAGING DIRECTOR
Instamod Air pipe Pvt. Ltd.

AIRpipe

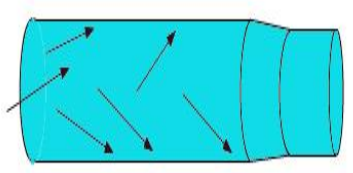
16 June 2016

What is compressed air network?

The link to make compressors, dryers, filters, tools, machine and in the end the whole factory work efficiently together

AIRpipe

Function of a network

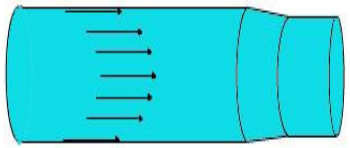


Turbulent flow

Transport the compressed air

from generation to the point of use keeping :

- The same quantity (minimum leakage)
- The same pressure (minimum pressure loss)
- The same quality



Laminar flow

Orifice Size,mm	Energy Loss(kw)	Cost. of air leakage(Rs/year)
0.8	0.2	10,500
1.6	0.8	42,100
3.1	3	1,57,850
6.4	12	6,31,550

Material Description	Internal roughness Values
Aluminum	0.015 mm
New steel	0.07mm
Corroded steel	0.1mm to 0.15mm

AIRpipe

Content

1 – A little story

2 – Endorsements to Moral of Story

3 – Improve your existing system

4 – How Airpipe can help you

5 – Saving more than energy with Airpipe

1 – A little story

a) Two managers start a new factory
b) They plan their investment
c) They check their total budget
d) After few years…
e) In the end

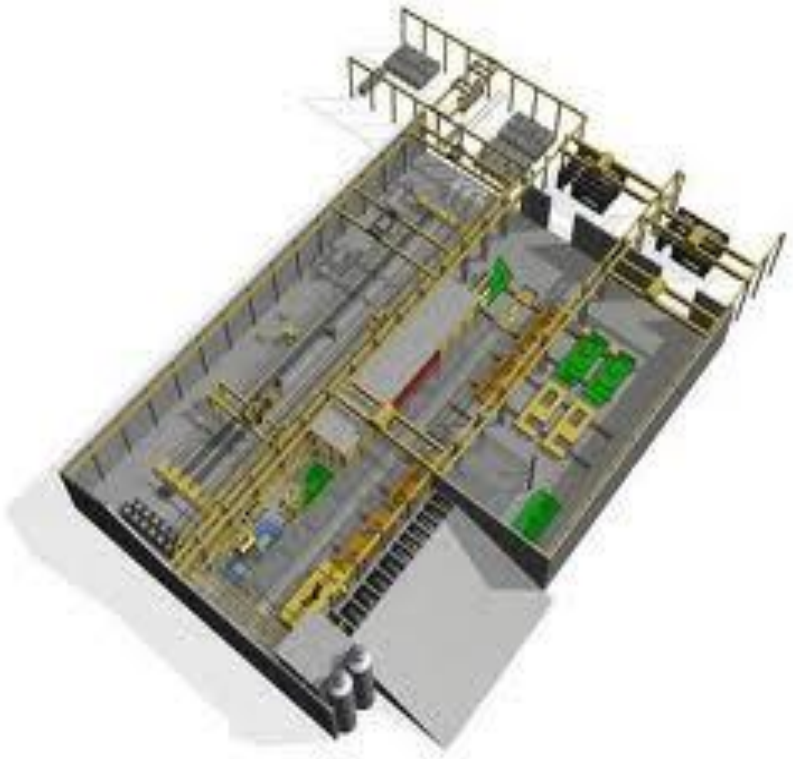
1 – A quick story

a) Two managers start a new factory

They both need :

- 800 cubic meter per hour
- 6.5 bar to the points of use
- Air quality class 2.4.2

- The piping is 400m long
- 25 outlets of diameter 25 mm



AIRpipe

1 – A quick story

b) They plan their investment

A Water separator : 45000 INR

Three different filters : 3x16000 INR = 48000 INR

A refrigeration dryer : 250000 INR

Water/Oil separator : 55000 INR

2 compressors : 800000 INR

AIRpipe

1 – A quick story

b) They plan their investment

A traditional piping system (installed)

= 7 Lacs

(without painting)

Airpipe piping system 63mm

= 15 Lacs

(With Highest Degree of Powder Coating)

AIRpipe

1 – A quick story

c) They check their total budget

Component	Qty	Unit Price	System With Traditional Piping Value	System with Airpipe Piping Value
Water Seperator	1	45,000	45,000	45,000
Three Differenr Filters	3	16,000	48,000	48,000
Refrigrant Dryer	1	250,000	250,000	250,000
Water/Oil Seperator	1	55,000	55,000	55,000
Compressors	2	400,000	800,000	800,000
Piping	1	700,000	700,000	1,500,000
TOTAL BUDGET INR			**1,898,000**	**2,698,000**

1 – A quick story

d) After few years.

Water + Traditional pipe = rust

No water = No rust

Everything is ok,

and his piping network is even still under **guarantee…**

10 Years…

<u>Conclusion :</u>

"I need a better dryer!"

"I'm buying an absorption dryer!"

AIRpipe

1 – A quick story

d) After few more years…

"-There is more rust to my tools and they break more often then before…

- It is obvious, your piping is incrusted with rust, the dry air that now pass in take off all the rust and bring it to the machine.

- Plus I have even less air than before!..."

- The absorption dryer uses 15% of the air to regenerate, no wonder your compressors are not enough…"

AIRpipe

1 – A quick story

Meanwhile……

d) After few years…

"OK! Let me have a compressor to compensate the leakage and the regeneration of the dryer,

I will also had a Filter on every outlet to protect my tooling against rust"

Zero Leakages

AIRpipe

1 – A quick story

e) In the end…

Goofy Goof realized….

HA… HA.. HA..

1. I had to invest into a new dryer:
2. A new compressor:
3. 25 Filters:

   (40% of the initial investment)

… and we didn't even mention his electricity bill!

AIRpipe

2 – Endorsement to the Moral of story

US Department of Energy

CII

BCAS

Sustainability Victoria

2 – Endorsements to Moral of Story

b) U.S Department of Energy

AIRpipe

2 – Endorsements to Moral of Story

c) BCAS

Compressed Air Energy Efficiency Saving Tips

Here are some basic tips that will save you real money.

- Walk through your factory and identify all compressed air uses and, if possible, the flow and pressure requirements of each.
- Program to eliminate any inappropriate uses of compressed air.
- Determine the cost of compressed air for your factory by periodically monitoring the compressor operating hours and load cycle.
- All equipment in the compressed air system should be maintained in accordance with manufacturers specifications.
- Set a reasonable target for cost-effective leak reduction - up to 10% of total system flow is typical for industrial applications.
- Once leaks are repaired re-asses your compressed air system supply.
- A rule of thumb is that every 2psi increase in operating pressure requires an additional 1% in operating costs of energy.
- Air flow to unused equipment should be shut-off as far back in the system as possible.
- Reduce the distance the air travels through the distribution system.
- Check with the compressor supplier for performance specifications at different discharge pressures.

AIRpipe

2 – Endorsements to Moral of Story

d) Victoria Sustainability

AIRpipe

3 – Improve the existing system

a) Review air demands

b) Reduce leakage

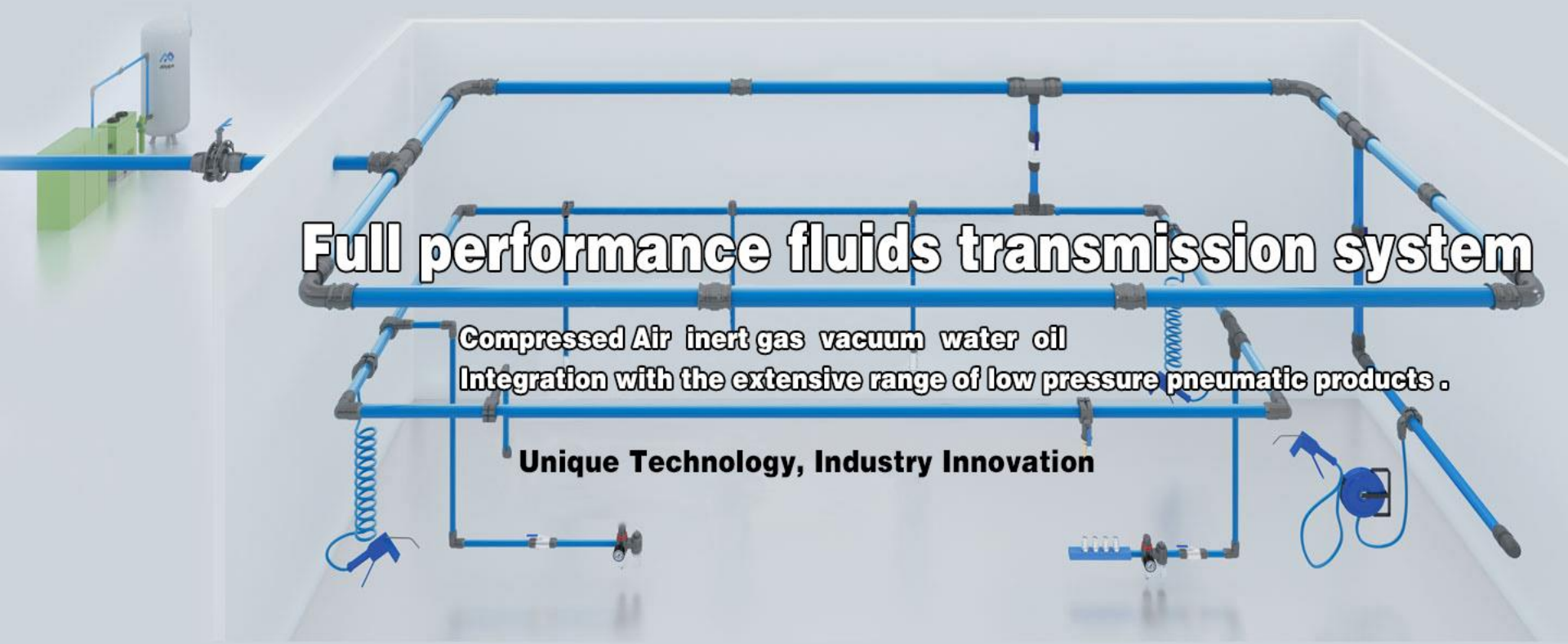
c) Fix pressure drop

d) Review air receiver

e) Maintain separators, filters, dryers & valves

f) Select a compressor

4 – How Airpipe can help you



4 – How Aipipe can help you

a) Pressure drop reduction

b) Air quality consistency / No corrosion

c) Elimination of leakage

4 – How Airpipe can help you

a) Reduce pressure drop

With a lower friction factor and full flow fittings Airpipe will keep the pressure drop as low as possible.

=> The compressor can run at lower pressure

=> It will use less power to generate compressed air

=> The cubic meter of compressed air is cheaper with Airpipe

4 – How Airpipe can help you

b) Optimised air treatment

As Airpipe is using non-corrodible material, there is no risk of contamination to the point of use

=> You can use less filter ; just to obtain the quality needed for your applications

=> Using less filter you'll have less pressure drop

=> The cubic meter of compressed air is cheaper with Airpipe

4 – How Airpipe can help you

c) Reduce leakage

Thanks to Patented Connection technology ..

Airpipe will guarantee an optimal sealing without limitation of time :

=> Your compressed air production just have to cover your real needs

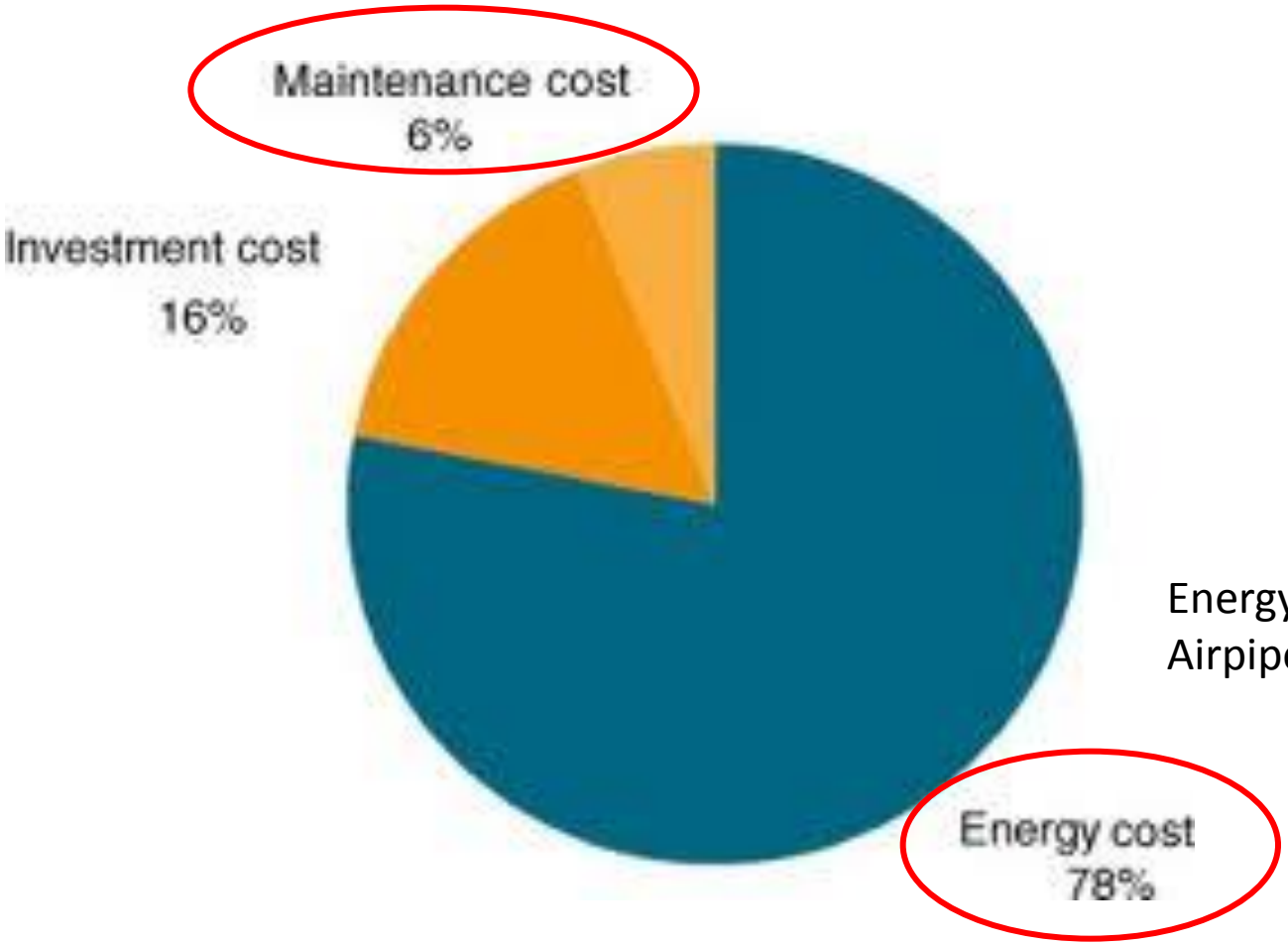
=> You pay only the compressed air you're using for production

AIRpipe

5 – How Airpipe can help you

d) Life time costs

Reduce/No maintenance for Airpipe



Energy savings with Airpipe

AIRpipe = **Energy savings**

+

- **Flexibility**
- **Aesthetic**
- **10 years warranty**
- **Easy installation**

AIRpipe

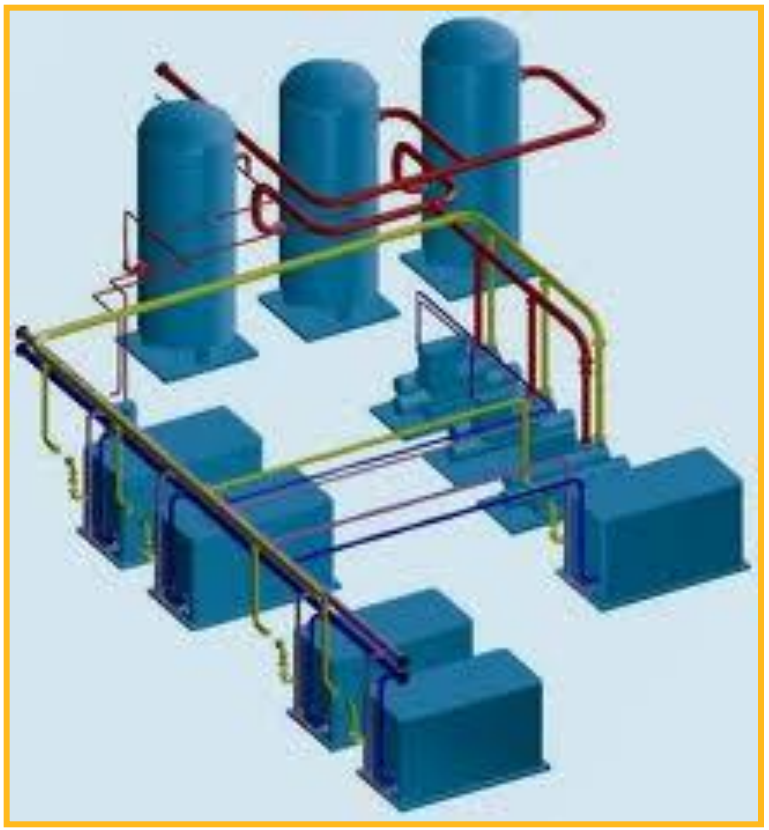
5 – Saving more than energy

How to plan your investment

From the point of use and accessories to the compressor :

1) The tooling & accessories
2) The piping
3) The air treatment
4) The compressors

If you make clever investment on one step, the next step will be more affordable.



AIRpipe

Remember

"A chain is only as strong as its weakest link"

Our Trusted Customers

ARIHANT
HAPPY CLOTHING

HURCO

HECCO TOOLS
PIONEERING TECHNOLOGY WITH VALUE

Mothers Pride

HONDA
The Power of Dreams

TAFE
THE HEARTBEAT OF RURAL INDIA

urex
LABORATORIES

KERRY

Cadbury

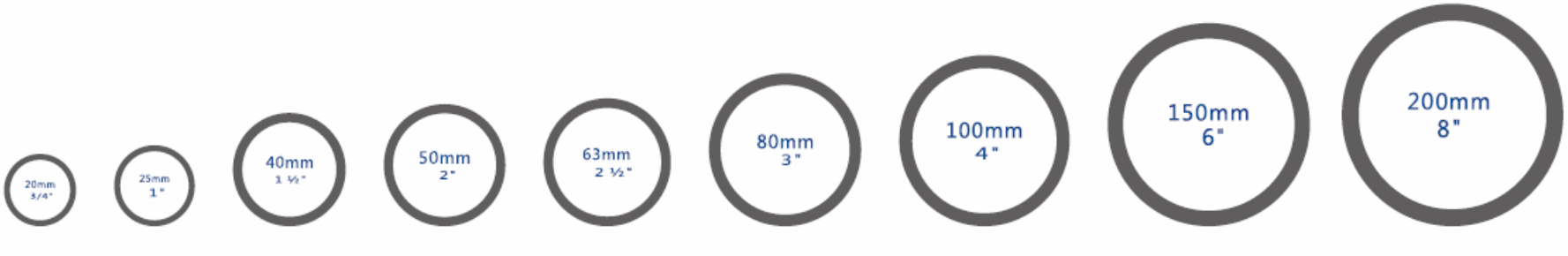
Kumud Food & Beverage Pvt. Ltd.

hindware

Our Trusted Customers contd….

AIRpipe

Why Airpipe



☞ In order to make your investment the best return, we provide a large range of diameters designed to perfectly fit your system so that the piping system can keep at lowest pressure drop.

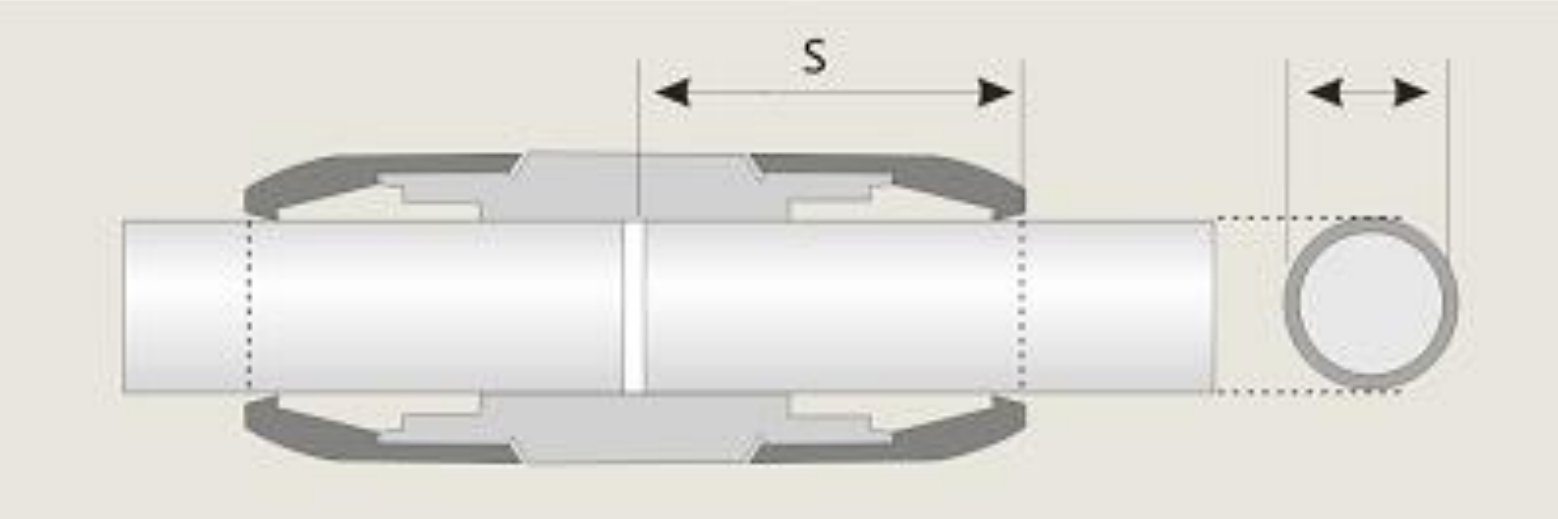
AIRPIPE's wider and better scaled range of pipe sizes always enables to find the right size for the customer's needs = higher flexibility in the layout of the plant to obtain the optimum solution for the customer for today and for the future, both technically and in terms of efficiency in the investment costs.

- AIRPIPE is the only compressed air pipe system that uses aluminium not plastic for all pipe and pressure critical fittings such as tees, elbows and sockets making it one of the safest and most reliable systems on the market today.

- With over 370 parts in the AIRPIPE range and pipe sizes of 20mm, 25mm, 40mm, 50mm, 63mm, 80mm, 100mm, 150mm 200mm, AIRPIPE is up to the job of any compressed air reticulation system you have planned.

AIRPIPE system can be installed by one person without any special training or complicated tools.

Thanks to its light weight and ease of use AIRPIPE can be up to 70% faster to install than traditional galvanized pipe.



☞ A deep pipe insertion in the fitting enables accurate, aligned pipe positioning for more safety, better quality of the piping system and higher and reliable performances over the time. Accurate design of internal shapes of fittings avoid bottlenecks or obstacles to the flee, unhindered flow of compressed air

→ more efficiency in compressed air transport with less energy consumption !

The smooth, low friction surface, larger internal diameter and flush internal joins of the AIRPIPE system reduces resistance and pressure drop, thus increasing the efficiency of your air system

☞ The double O-ring design of the **Airpipe** system is more resistant to leaks than other systems.

- Set of plain grub screws holds the body permanently.
- Prevents nut loosen because of vibration.

Further advantages of AIRPIPE:

- The total system is completely OIL FREE & SILICONE FREE
  - OK for plants with oil-free compressors
  - OK for silicone-free plants

- All fittings come already complete for installation, no further assembly of fittings parts is required: an homogeneous technology for all sizes = easier assembly of the installation →shorter installation time!

- High technical reliability of the fittings: standard quality and performance test on each production lot before its final release include:
  - Pressure test at the nominal pressure 13 bar
  - Pressure test at 54 bar more then an hour

EASY – QUICK – RELIABLE

- A COMPLETE, MODULAR AND HIGHLY FLEXIBLE SYSTEM TO ADAPT TO THE CHANGING AND GROWING DEMAND OF THE USER OVER THE YEARS.
- NO SPECIAL TOOLS REQUIRED FOR INSTALLATION.
- EASY, QUICK INSTALLATION WITH REDUCED LABOUR COSTS.
- RELIABLE, UNCHANGED QUALITY OF AIR OVER THE YEARS.
- AN ADVANCED, HIGH-PERFORMANCE, TOP QUALITY SYSTEM THAT WILL FOLLOW THE GROWTH OF THE PLANT OVER THE YEARS AND WILL EASILY ADAPT TO THE CHANGING NEEDS OF THE CUSTOMER DUE TO ITS EASY SCALABILITY.

WHY AIRpipe ?

Over GI Pipes

AIRpipe	GI Pipe
Smooth InternalSurface	Rough Internal Surface
Constant, low friction factor, resulting in an unrestricted air flow.	Friction factor is almost double of an aluminium pipe, restricting the air flow. Due to corrosion, the friction factor increases over time.
Low initial pressure drop. (E.g. In a system with an air demand of 110 l/s, designed as a 400 m long ring of Ø50 mm (2”) pipes with P = 7 bar, the pressure drop (rP) equals 0.2 bar.)	High initial pressure drop. (E.g. In a system with an air demand of 110 l/s, designed as a 400 m long ring of Ø50 mm (2”) pipes with P = 7 bar, the pressure drop (rP) equals 0.37 bar.)
Requires lower loading pressure at the compressor and lower power consumption.	Requires higher loading pressure at the compressor and higher power consumption.
Standard painted blue (compressed air) or grey(inert gases) for easy network identification.	Pipes need to be painted in the appropriate color, adding to the total cost.
AIRpipe’saluminium pipes and fittings do not corrode. Their smooth inner surface keeps air clean, now and in the years to come.	Corrosion protection depends on the quality of the galvanization.
No risk of corrosion when cutting the aluminium.	When the pipe is cut, the galvanization is removed, resulting in a high risk of corrosion.

www.airpipe.in