

FAQs

Frequently Asked Questions – Distribution Piping Network

Q: Why is a compressed air piping system so critical?

A: It is the lifeline and connection between the compressor system and the demand side of the plant. It contributes to the overall effectiveness and efficiency of the compressed air system. Properly sized, it delivers the desired quality of compressed air at the proper pressure to each point of use throughout the plant. Improperly sized, it will create pressure drop and starve users for air. And we should note . . . this part of the system is often neglected or overlooked.

Q: What are the popular materials used in compressed air piping systems? How do I know which is best for my operation?

A: Black iron (steel), galvanized steel, copper, plastic, aluminum, and stainless steel are the types available. Each has advantages and disadvantages, but they are not at all equal. There are tradeoffs between material costs and installation costs and between costs and performance. Some (copper, aluminum and plastics) are smooth and have less pressure drop. Some (copper, aluminum and plastics) are easier to modify as your system changes. Some can rust and add contaminants. Then there is safety. Some plastics (notably PVC) can be degraded by compressor fluids and sunlight. Rupture of PVC piping is possible. Regardless of piping materials, proper pressure ratings should be observed, and piping should be sized to minimize velocity and pressure drop, with future growth considerations. The CAGI Handbook has useful pipe sizing charts to guide you and it is always to consult a compressed air professional to assist in your piping decisions.

Q: How can the piping system contribute to over compressed air system performance?

A: Issues with the piping system design, age, and condition can negatively affect system performance. Leaks are a major cause of system pressure drops. Increased flows due to leaks could have air-operated machinery functioning less efficiently and could negatively impact production, production rates, and finished product quality. Corrosion could cause restrictions or rough internal surfaces, thus impacting the flow of air through the piping system.

Q: What are some other points to consider?

A: Is the piping going to be exposed to outside and potentially freezing temperatures? Is my piping layout the most efficient based on the production requirements in the plant? Is my piping system working in concert or conflict with the balance of the components of the compressed air system? Have isolation valves been strategically placed within the piping network to allow for easy repair or modification of individual piping sections without having to depressurize the entire system?

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