

Energy Saving through Artificial Demand Management

Master air control



Powered by



**Forbes Marshall's
ER Series Intelligence**

- 
Compressor power savings
- 
Return on Investment
- 
Reduced Compressor Load cycles
- 
Consistent pressure delivery

Master Air Control

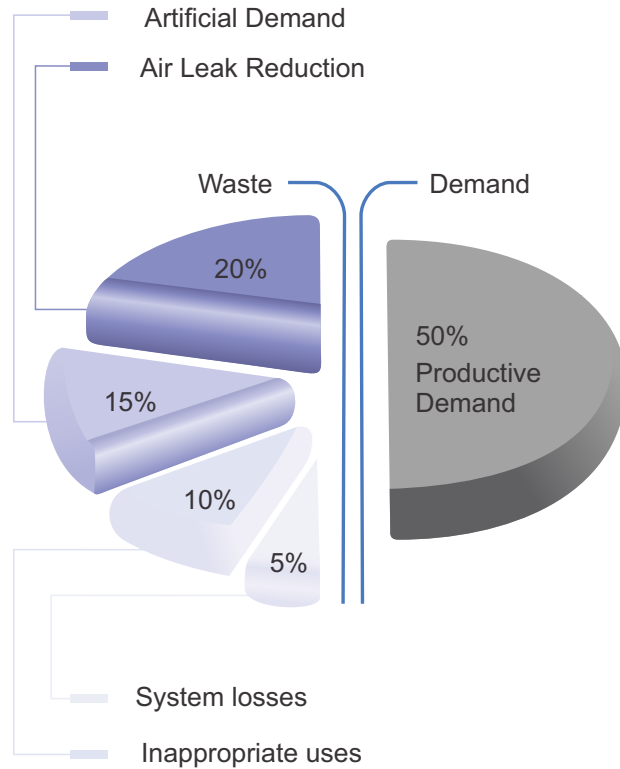
The compressed air demand in plants across industry fluctuates constantly due to intermittent use of pneumatic equipment. This results in low efficiencies and high energy bills. A proper balance between supply and demand of compressed air is essential to control these losses.

For over 75 years, Forbes Marshall has provided innovative products and services to help industries improve their process and energy efficiency. Through our solutions we enable plants to run safe operations and maintain an uptime of >95%.

The Forbes Marshall Master Air Control (MAC) actively helps control the balance across the demand and supply sides. It acts as a buffer between the compressors and the demand fluctuations due to artificial demand on the consumption. It helps reduce excess load on the compressors caused by artificial demand, thereby reducing energy consumption.

The MAC finds applications across a wide range of industries including automobiles, cement, power, textiles, iron and steel and paper.

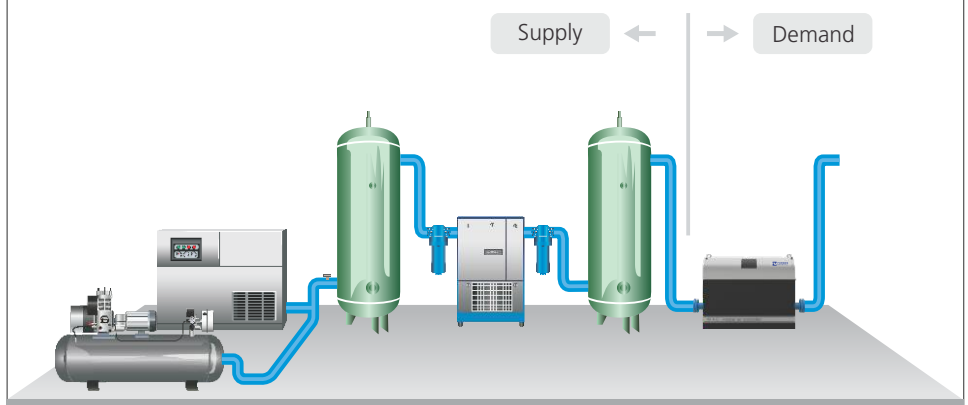
Typical split of Compressed Air Consumption



10% of the energy losses in a compressed air network of a plant are typically attributed to artificial demand. The MAC addresses this problem by ensuring a steady delivery of pressure to the consumption side irrespective of the fluctuations in demand. A differential pressure is introduced between the receiver and the MAC thus creating a useful high-pressure storage to handle peaks in demand, isolating the compressors from demand surges. Compressors have to cater to only base demand, which allows them to run longer on no-load. As a result, the mass of air decreases and compressor load cycles are reduced. This decrease in compressor load cycles is directly proportional to the decrease in energy consumed.

The MAC also enables a constant pressure to be delivered to all plants and pneumatic equipment, helping better quality and productivity in production processes.

Master Air Control in a compressed air system



Features

HMI with touch screen, clear and bright display, ideal for use in plants.

History and trending feature

Failsafe operation

Accurate pressure control

Highly responsive to fine changes in demand

User-friendly HMI interface

PID tuning assisted with parameter value trends

Provision to set limits for alarms, flow etc

Provision to add flow consumption input via a flow meter

Shift/time based set points can be added

Optional connectivity to PC available

Benefits

Saves energy consumed by air compressors by cutting artificial demand for air

Reduction in compressor loading and induces higher unloading period

Separates compressors from demand side peaks and lows, thus reduces compressor cycling to minimal

Consistent air pressure delivery to demand side

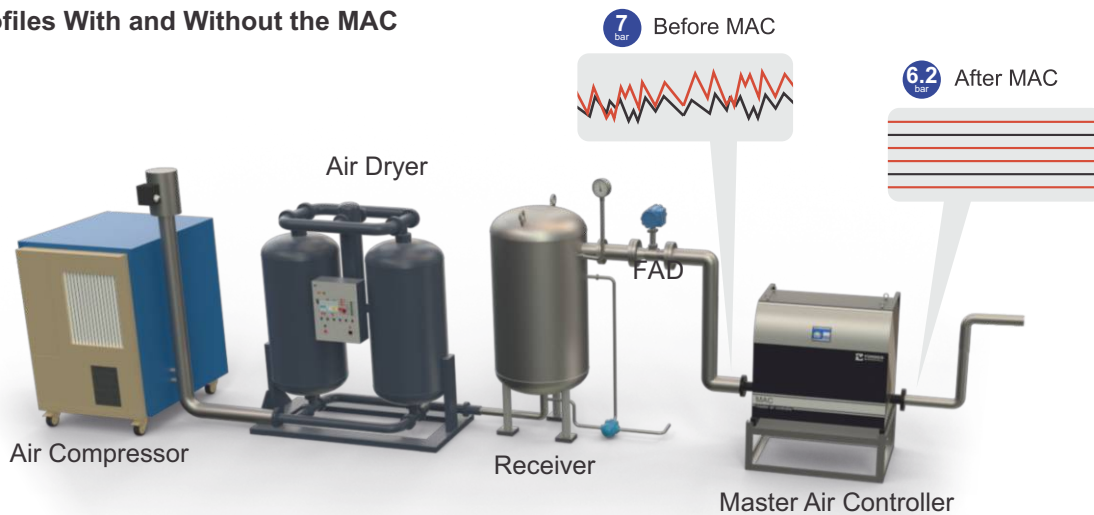
Enhanced useful air storage capacity

Accommodates any make of compressor

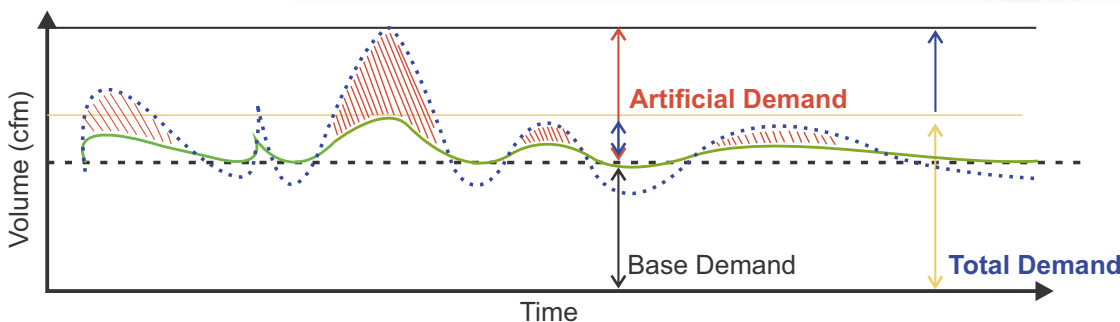
Demand reduction tends to reduce leakages in plant

Specifications	
Make	Forbes Marshall Master Air Control
Rated for	150lb ANSI
Power supply	230 V AC, single phase, 50 Hz
Pressure set point resolution	0.01 bar
Pressure control range	± 0.01 bar
Feedback control system	Micro-controller based PID control with closed loop feedback control system
Inlet air temperature to MAC	55°C
Ambient operating conditions	0°C – 55°C
Pressure difference across the MAC at rated flow should be	0.2 bar
Inlet and outlet connections	From left with ANSI flange

Pressure Profiles With and Without the MAC

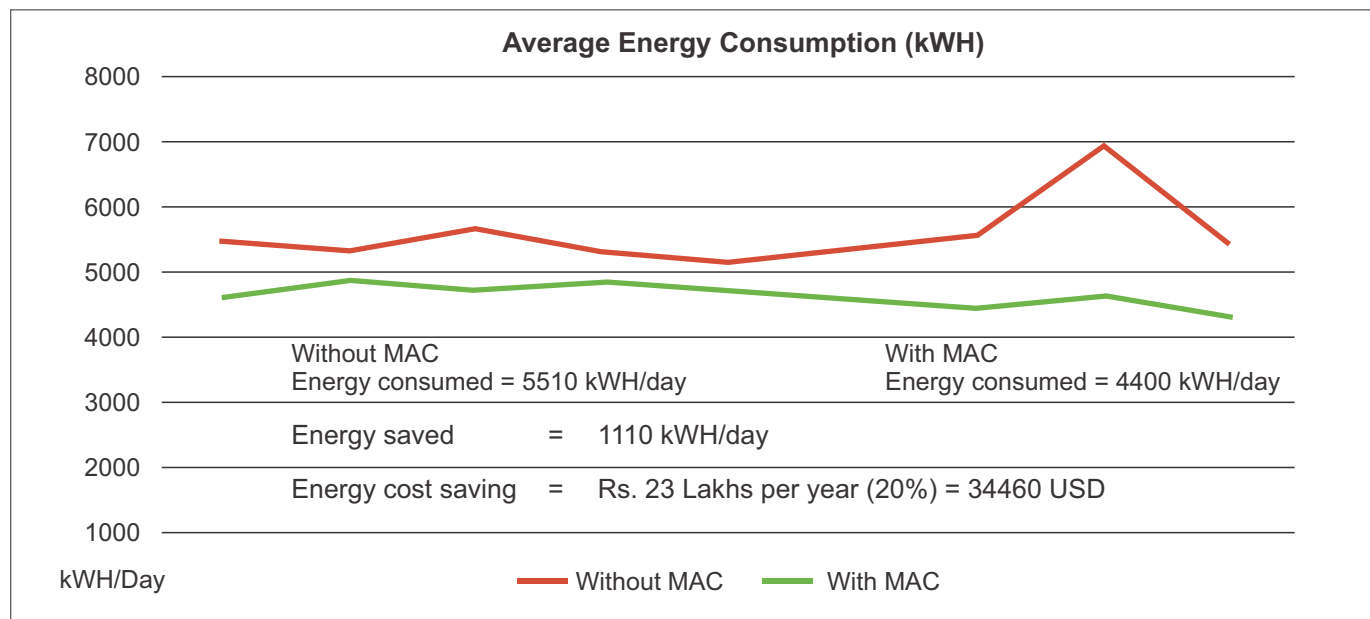


Reduced artificial demand to reduce the total plant demand with MAC control



Note : This reduction in artificial demand directly affect the supply system, resulting overall reduction in compressor working hours as a result of reduced demand side load and hence direct reduction in power consumption for the compressor.

Better Savings, Better Efficiency



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