

B	41
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MODEL	1

N₂O₂

Compressed Air Systems Specialists

RECOMMENDED CUST
EXHAUST
(CUST)

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MODELS
MANIFOLDS PROVIDED
MODELS 5000 THRU 12000
STATION OF

PERSONAL PRI
OR CHAMBER 1
(OPTIONAL)

ENGINEER
DATE

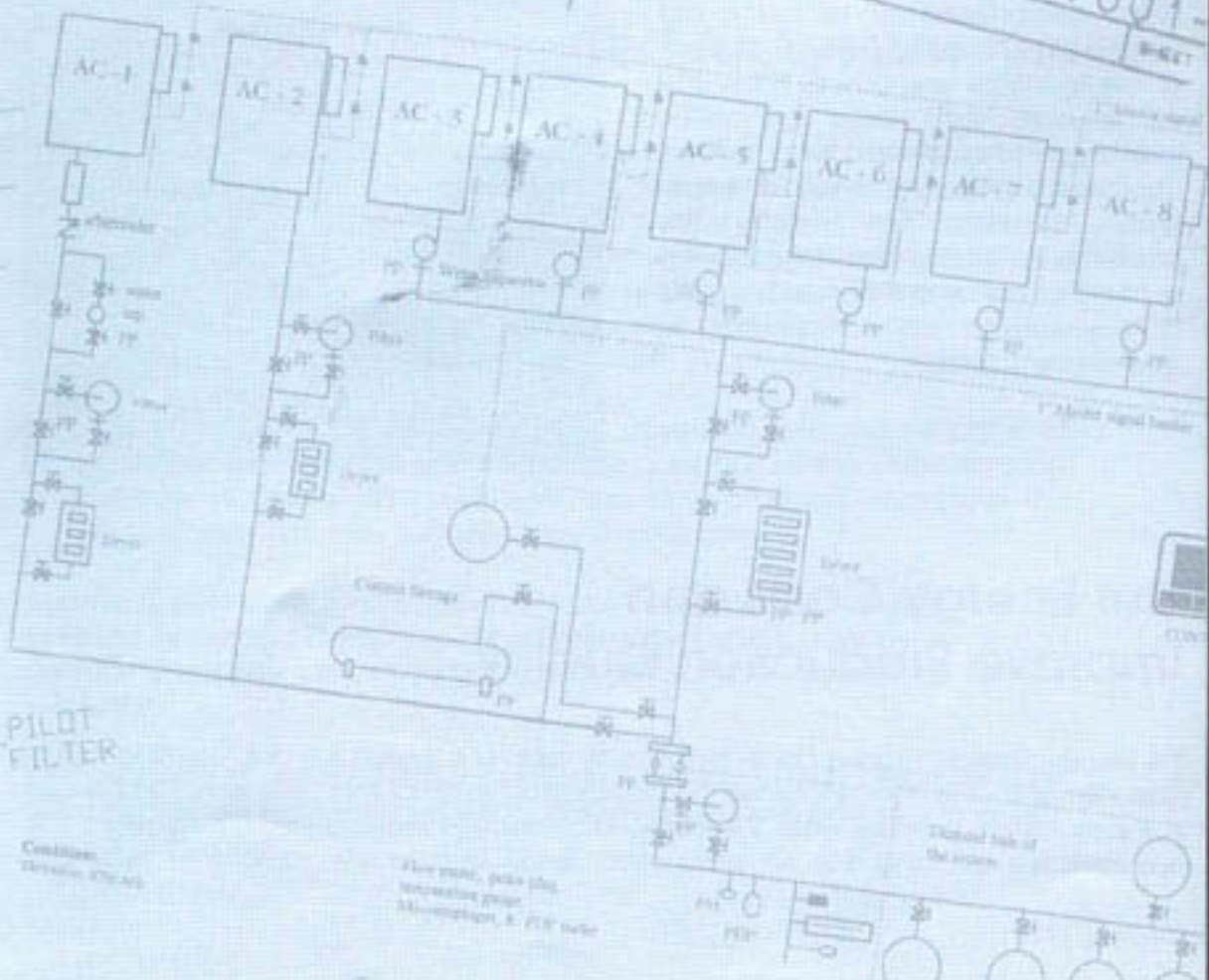
CAD / CAM DRAWING
MANUAL REVISIONS NOT AUTHORIZED
DRAWING PER ANSI Y14.3M

INSTALLATION ARR

SIZE
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SCALE 1

NO. 141
FF7001-
SHEET



$$\text{Storage} = \frac{(\text{SCF})(P_{\text{atm}})}{\Delta P_{\text{allowed}}}$$

Stop Runaway Compressed Air Costs

According to the Department of Energy, industry in the United States consumes over 30 billion kWh of electricity each year to generate compressed air, at a cost approximating \$1.5 billion dollars. At **N2O2**, experience has shown compressed air costs can frequently be reduced 25% or more with proper system design and management. Depending on the cost of power, these potential savings may exceed \$400 million per year, nationwide.

When analyzing the five-year life cycle cost of new compressed air systems (see figure 1), fully 80% of these costs are energy and only about 9% involve the purchase of capital equipment.

Compressed Air Systems
5 Year Life Cycle Costs

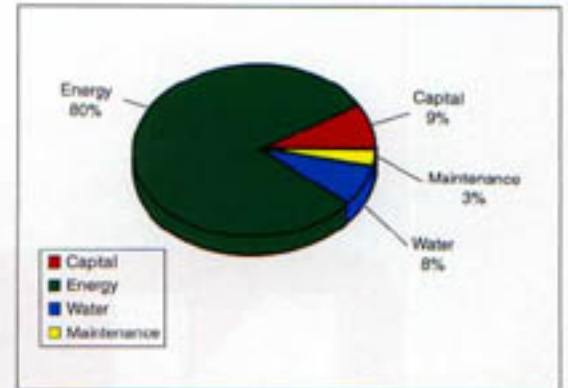


Figure 1

N2O2 understands compressed air systems. After all, *our name means air!* Our team has over 70 combined years of engineering and compressed air system experience. We know how to make compressed air work better at the lowest possible cost.

Optimize Your Compressed Air System

Many compressed air problems are caused by fluctuating pressure at point of use locations (see figure 2). These low air pressure fluctuations are often misinterpreted as a need for additional compressor capacity when a simple system redesign will remedy the problems. The capital cost of redesigning a compressed air system usually pales in comparison with continuing to operate inefficiently.

Pressure Readings

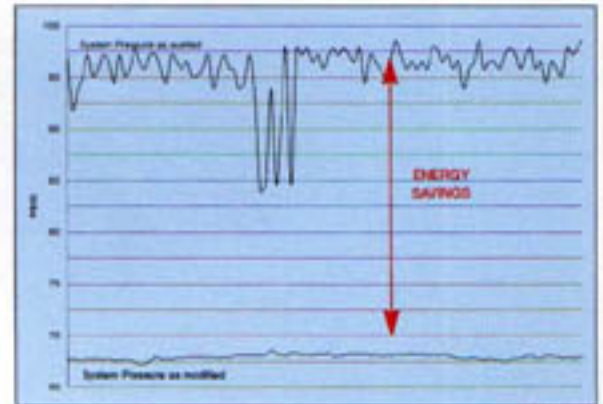


Figure 2

Cut Energy Costs and Improve Production Quality

It is usually possible to save additional energy using a concept we call "isolating supply from demand". This concept allows the compressors to react most efficiently to changes in supply system pressure while the demand distribution pressure remains constant. This optimizes the demand side for production usage and at the same time minimizes

$$Q = \dot{M} \times C_p \times \Delta T$$

$$\frac{P_1 V_1}{T_1} = \frac{P_2 V_2}{T_2}$$

Air leaks cost money

$$\text{SCFM} = \frac{(P_1 - (RH_1)(P_{\text{sat}}))V_1}{35.9P_1}$$

Compressor Control Logic

the cost of producing compressed air. The productive users of compressed air receive absolutely stable air pressure that will allow them to optimize their processes. Part of this control concept involves integrated compressor control systems as shown in (figure 3).

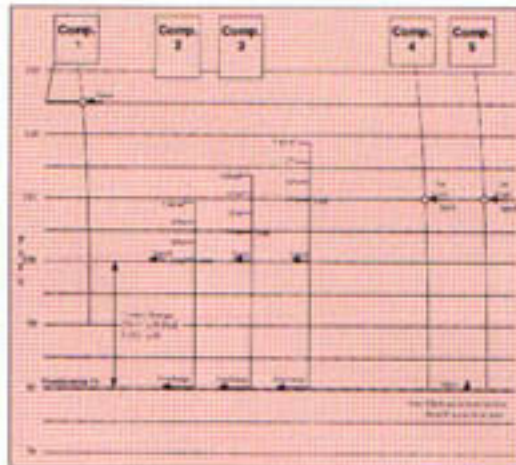
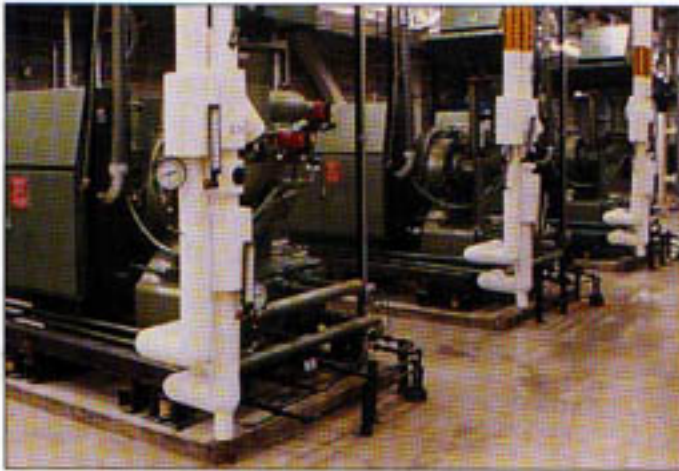


Figure 3



$$\text{Time} = \frac{(P_2 - P_1) V}{(P_{\text{atm}})(\text{CFM})}$$

$$\text{KW} = \frac{1.73(V)(I)(\text{P.F.})}{1000}$$

Improve production with stable air pressure

Customized Compressed Air System Audits

Each compressed air system is unique and requires a customized approach at each plant. There are no predetermined solutions. At **N2O2** we tailor solutions to achieve maximum customer benefit at minimum cost. Consequently, we do not sell, represent or have financial interest in any particular equipment or solution, as this would present a conflict of interest in our work. We work directly with vendors most appropriate for your solution or with your existing vendors. In short we form true operational partnerships with our clients.

N2O2 begins by evaluating the condition, operation and maintenance of existing equipment and how well it functions in support of the entire demand requirements. A Return On Investments analysis is provided comparing the existing operation versus the specific proposed operation.

Illustrations, plan views, process flow diagrams, control profiles, and isometrics are provided as needed. Consulting can continue throughout implementation and start-up. Complete project management is available, as well as turn-key installation.

Education and involvement of plant personnel, in addition to technical solutions, are critical to achieving desired results. This will insure both short and long term success of the audit.

$$N_2 + O_2 = \text{Air}$$

Pressure reduction = \$ savings