JENKINS PRACTICAL PIPING LAYOUTS

66

How to plan

PIPING CONNECTIONS FOR AN AIR-WASHER AIR CONDITIONING SYSTEM

The air-washer is one of the oldest methods of conditioning air for both industrial and non-industrial purposes. This device can be used to cool and dehumidify, *or heat and humidify as well as clean air.*

The system illustrated is a two-stage air washer designed to cool and dehumidify air for non-industrial (comfort) purposes. Although there are many possible piping arrangements and systems, the one shown is most generally used.

The piping is arranged to produce a counter-flow heat transfer between the spray water and the air. Basically, the system consists of a sheet metal housing in which nozzles spray water into an air stream, with water and air moving in the same direction. The effect of the spray water on the air stream is dependent on the temperature of the water and the wet and dry bulb conditions of the entering air stream.

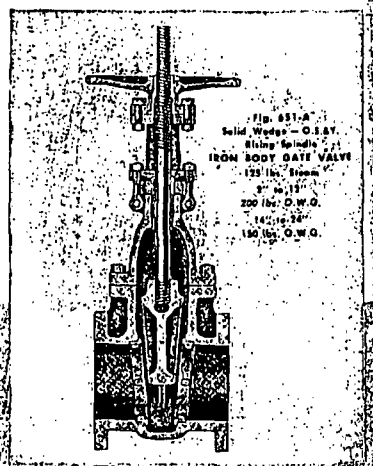
Water from a chiller is sprayed through second stage nozzles for final cooling and dehumidifying of the air to the condition desired for use. This process raises the temperature of the spray water, which is collected at the bottom of the tank. Still at a temperature below the dew point of the entering air stream, this water is then pumped through the nozzles of the first stage. Here, too, the spray water cools and dehumidifies the air stream. This further raises the temperature of the spray water, which is then pumped back through the chiller where heat picked up in the two stages of the air washer is removed. The entire cycle is then repeated.

Excess moisture removal is effected between stages by a series of baffles which drastically changes the direction of the air stream many times before it enters the final stage. These violent directional changes cause any droplets of water suspended in the air stream to drop out. The baffles are kept constantly wet by separate water spray, and collect dust and dirt from the air stream. Thus, air is cleaned sufficiently for most normal purposes. Final air conditions are automatically controlled by proportionate mixing of chilled and return water by means of a three way valve.

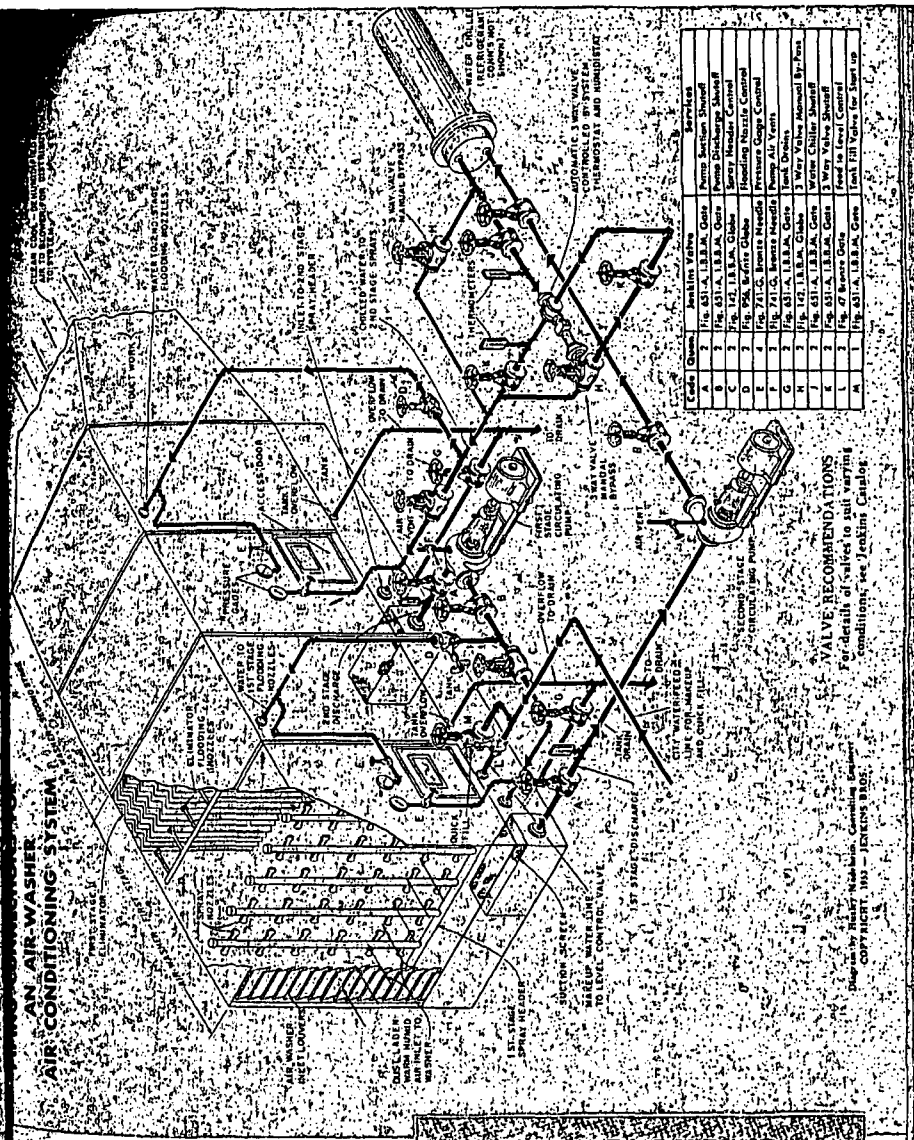
Jenkins Fig. 651-A Iron Body Bronze Mounted *Gate Valves are recommended for various shut-off* and other points in this system. The solid wedge and semi-steel body and bonnet provide maximum resistance to pressure strains. The through-port design of the body permits free flow without constriction. Operating threads are on the outside, allowing easy cleaning and lubrication. The rising spindle serves to indicate the position of the wedge, which is solid bronze in the smaller sizes, and cast iron with rolled-in bronze rings in the larger. The valve is equipped with renewable bronze seat rings.

Consultation with accredited piping engineers and contractors is recommended when planning any major piping installation.

To save time, to simplify planning, to get all the advantages of Jenkins specialized valve engineering experience, select all the valves you need from the complete Jenkins line. It's your best assurance of *lowest cost in the long run.* Jenkins Bros., 100 Park Ave., New York 17. Sold through leading Industrial Distributors everywhere.



The extra measure of efficiency and endurance built into all Jenkins Valves is a distinguishing feature of Jenkins Iron Valves, which are made in a broad range of patterns and sizes. Yet you pay no more for this extra value. Compare the quality, and see why it pays to specify Jenkins Iron Valves.



Code	Quan.	Jenkins Valve	Services
A	2	Fig. 651-A, I.B.B.M. Gate	Pump Suction Shutoff
B	2	Fig. 651-A, I.B.B.M. Gate	Pump Discharge Shutoff
C	2	Fig. 142, I.B.B.M. Globe	Spray Header Control
D	2	Fig. 956, Bronze Globe	Flooding Nozzle Control
E	4	Fig. 741-G, Bronze Needle	Pressure Gage Control
F	2	Fig. 741-G, Bronze Needle	Pump Air Vents
G	2	Fig. 651-A, I.B.B.M. Gate	Tank Drains
H	2	Fig. 142, I.B.B.M. Globe	3 Way Valve Manual By-Pass
J	2	Fig. 651-A, I.B.B.M. Gate	Water Chiller Shutoff
K	2	Fig. 651-A, I.B.B.M. Gate	3 Way Valve Shutoff
L	2	Fig. 47 Bronze Gate	Feed to Level Control
M	1	Fig. 651-A, I.B.B.M. Gate	Tank Fill Valve for Start up

VALVE RECOMMENDATIONS
For details of valves to suit varying conditions, see Jenkins Catalog.

Diagram by Huntley Nadelstein, Controlling Engineer
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A Use the right type valve for the service

B Place valves correctly in the line

C Choose Jenkins for lifetime economy

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