ASC

Anti-Surge Control Systems

ASC-1
Edition 07-08

Hauck, a product brand of the Elster Group

- Automatic vane operation
- Eliminates surge pulsations
- Vane re-swirl reduces blower HP at partial load
- Maintains constant blower discharge pressure
- Energy savings
- Compatible with all Hauck blowers

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Hauck's Anti-Surge Control Systems (ASC) are designed to reduce surging pulsations that may disturb a combustion process at reduced air flows. These pulsations are most likely to occur in applications where it is necessary to keep the blower operating during periods of very small demand - periods that may call for as little as 10 to 20% of rated volume output of the blower.

The system is comprised of a variable damper which is attached to the turbo blower inlet flange. Vane position is automatically determined by the system demand. Blower surge for a given blower is a function of the location of the main air control valve downstream of the blower discharge and the system operational requirements. Blower surge is automatically controlled by modulating the pressure drop across the inlet damper vanes, maintaining a constant discharge pressure. The operating point on each blower curve is kept to the right of the flow rate that would allow surging.

Energy savings are an additional benefit when using an ASC system. Vane re-swirl reduces blower horsepower at partial load and generates a different performance curve at each damper position. Energy costs are lowered by reduced motor amperage draw. With this in mind, the ASC can also function as a system flow regulator by connecting the control motor directly to the system demand process variable.

For possible application of a Hauck Anti-Surge control unit on other than Hauck blowers, consult factory.

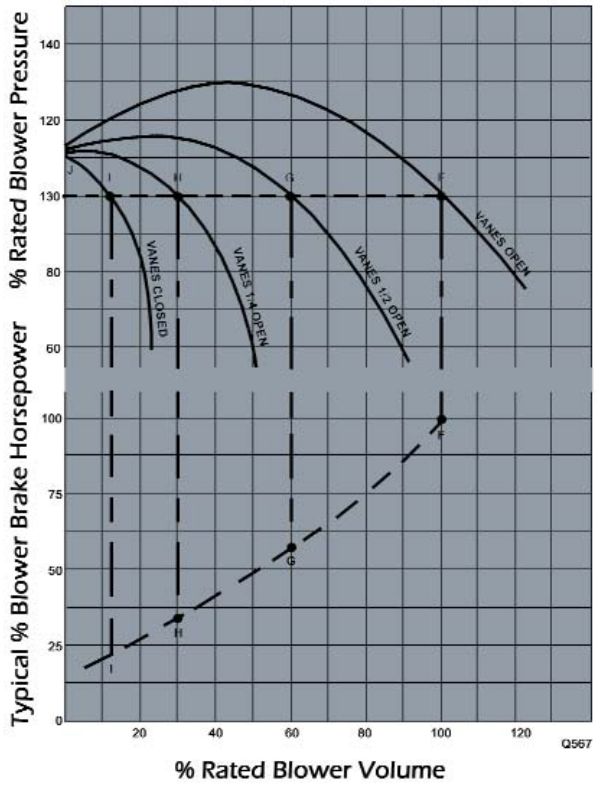

Figure 1. Relationship of Vane Opening, Blower SCFM, and Typical Blower Brake Horsepower

The control sequence is illustrated in the figure above. If the demand on the blower is decreased in volume from a normal operating point F, to another normal operating point G, the vanes close to a new position providing the new flow and maintaining the pressure equal to that at point F.

If the demand is further decreased in volume from point G to a minimal turndown point, I, the vanes close completely and the pressure is still maintained at a constant value.

Further volumetric flow decreases from point I cause the pressure to rise accordingly towards point J. Note that the blower operating point remains to the right of the maximum pressure point throughout the turndown sequence, reducing the possibility of surge. Reversing the demand on the blower causes the sequence to reverse. The operating point on each blower curve is kept to the right of the flow rate that would allow surging.

For additional information on this product, visit our website at:

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