



IntelliFlow™

Air System Pressure Controller



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IntelliFlow™ Air System Pressure Controller

In properly designed compressed air systems Ingersoll Rand IntelliFlow pressure controllers can lower overall air consumption, enable more efficient compressor control and provide consistent pressure to production users.

Air Consumption

Raising the air pressure is a common reaction to insufficient production pressure at point of use applications. In some cases even a random or “one time” drop in pressure can effect the same reaction. Although this may solve the immediate issue, higher system pressure increases the compressed air consumption of all poorly regulated processes... and even worse, higher system pressure will increase the leak rate.

The use of the IntelliFlow Controller effectively uses system storage to compensate for high, random air usage (events) and avoids the need to increase system pressure. The value of effective pressure control is demonstrated in the following example:

Initial Demand Side Pressure	8.0 bar(g)
Installed Power Base	372 kW
Available Capacity	57m ³ /min
Average Compressed Air Loss to Leaks	20%
Energy Cost Associated to Leaks*	€ 52,139
Intelliflow New Demand Side Pressure	6.2 bar(g)
Intelliflow Lower Pressure Leak Savings	€ 11,731

Similarly, poorly regulated processes will consume less compressed air. Typically this is over double the leak savings:

Intelliflow Poorly Regulated Savings	€ 23,463
Total Annual Savings	€ 35,194

*Calculated at 8,760 hours per year and € 0.08 /kW-hr

Leaks - Much effort has been directed toward “fixing” leaks in the compressed air system. It should be noted that 1) fixing leaks is an ongoing program not a one time campaign and 2) without effective pressure management, just fixing leaks can cause system pressure to rise thus raising the leak rate of the remaining leaks.



Supply Side
Air stored at a higher pressure to react to changes in system demand.

Demand Side
Consistent supply of lower pressure air precisely matched to downstream requirement.

Compressor Control

Some of the same high, random air usage events that drive operators to increase system pressure also cause compressor controls to start, load and cycle air compressors. Typical compressor control works on a pressure band and when the pressure drops past the lower pressure set point limit, a compressor is started. In some cases these high air usage events are so short that by the time the compressor actually begins to supply compressed air, the event is past and the compressor is not needed. These compressors now operate at low or no load until they are stopped or another event occurs, all the time consuming valuable energy and producing low or zero output.

The IntelliFlow Pressure Controller separates the supply side (compressed air generation) and the demand side (compressed air usage – production). By doing this, the supply side is insulated from random demand side events that cause compressors to cycle and run inefficiently. The IntelliFlow reacts to the events by metering stored compressed air from the supply side to the demand side in a smooth controlled manner. This control is enabled by properly designed and installed storage in conjunction with the IntelliFlow control.

Consistent Pressure to Production

By the actions described previously in **Compressor Control**, the IntelliFlow control will provide consistent and precise air pressure to the production processes. This means that varying pressure and related quality control issues will no longer affect production. Equally important, with production not experiencing low-pressure events the requirement for raising the system is eliminated in the first place, thereby avoiding the increase in air consumption by poorly regulated processes and leaks.

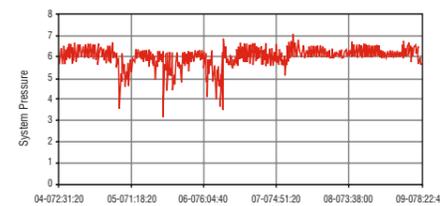
Technical Specification

Model	Connection Size (mm)	Flow (m ³ /min) min max	Max. operating pressure	Max. inlet air temp.	Power Supply	Ambient
IR-BP-BV 50	50	5 24	10.3 bar(g)	65°C	240/ 1 phase/ 50Hz	2 - 45°C
IR-BP-BV 80	80	9 44	10.3 bar(g)	65°C	240/ 1 phase/ 50Hz	2 - 45°C
IR-BP-BV 100	100	14 86	10.3 bar(g)	65°C	240/ 1 phase/ 50Hz	2 - 45°C
IR-BP-BV 150	150	29 222	10.3 bar(g)	65°C	240/ 1 phase/ 50Hz	2 - 45°C
IR-BP-BV 200	200	60 450	10.3 bar(g)	65°C	240/ 1 phase/ 50Hz	2 - 45°C

* Flow (m³/min @ 8.6 bar(g) 125 psi (g))

Before the installation

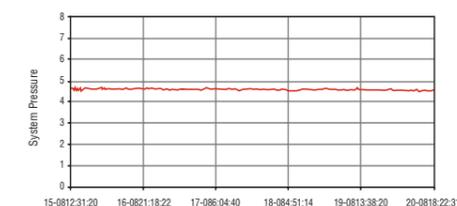
Ideally, there are no leaks, everything is regulated and set at the minimum required pressure. But we know this is not the case!



- High number of compressor cycles
- Leaks and other artificial demand
- Too many compressors running
- Down time and/or off quality

After installation of the IntelliFlow System

Increasing the amount of air in a system doesn't have to mean adding compressors.



- Reduced compressor cycles resulting in more reliability
- More air for production
- Stored energy to support demand events
- Improved system integrity, constant pressure improves lifetime of production equipment

