The Concrete Producer

Producer Warms to Solution for Dry Compressed Air

Freezing air lines along the outside of conveyors hamper the ability to convey material to production.

Ozinga installed a compact separator filter dryer to remove moisture from the plant's air lines and to prevent freezing.



The winter season and its frigid temperatures pose unique challenges to concrete producers. Ozinga Brothers, a ready-mixed concrete producer whose operations extend throughout Chicago, Northeast Illinois, Northwest Indiana, and Michigan, is not an exception.

A particular recent challenge for its plant in Mokena, Ill., especially in the cold winter months, involved air lines taking on moisture and then freezing. This repeatedly hampered the ability to convey material for manufacturing concrete from underground bins up into the plant 300 feet away. In addition to the air line along the outside conveyor, other pneumatic equipment was also adversely affected.

This resulted in unscheduled downtime; increased maintenance, time, and labor; and temporarily diminished productivity. There is nothing more frustrating than not getting material in a plant when nothing mechanical is broken. Only a frozen air line was to blame.

The solution involved installing a compact separator Air-Pak dryer system to remove moisture from the plant's air lines, which now perform continuously and reliably as intended, even in the coldest weather conditions. There is no more wet air.

Regardless of the industry, plant operations relying upon dry and clean compressed air as a source for pneumatic power historically have wrestled with the potential for the ingress of water, contaminants, and oil vapor into air lines and the problems this poses. Traditional water removal devices or air dryer units typically have been encumbered with components that add potentially troublesome and maintenance-intensive complexity to systems. For example, heat exchangers must be cleaned and maintained regularly and external filters, after coolers, and condensate drain lines usually will be necessary.

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Commonly used in conjunction with large air compressors and systems or offering the capability to mount directly on small compressors, is engineered to dry compressed air directly from a compressor's reservoir tank or at a point of use. This eliminates the need for after coolers and, in most cases, additional external filters and any other corollary equipment. A molecular sieve (desiccant) and filters are housed within spin on/off cartridges.

How It Works

The dual-cartridge design channels airflow through one desiccant cartridge, while regeneration occurs in the other, ultimately delivering an uninterrupted supply of clean, dry compressed air. Standard units operate between 100 PSI and 180 PSI and can accommodate flow rates ranging from 20 CFM to 800 CFM. The flow rate for the system currently at Ozinga's plant is 120 CFM.

The Dry Air Systems Air-Pak emerged as preferred technology when other alternatives either failed or consumed excessive amounts of air during the drying process, according to the producer. In fact, the defining downside of one alternative—a compressed air treatment system—was its tendency to draw up to 20% regeneration air. In contrast, the Air-Pak system typically requires less than 10% regeneration air.

A different type of dryer, using refrigerant and previously operating at another Ozinga location, was prone not only to failure, but raised environmental concerns because of the refrigerant. The dryer system requires no refrigerant. Ozinga has no more issues with frozen air lines.

Managing maintenance

From a maintenance perspective, workers in the past had been required to drain at least one gallon of water every two weeks from an extra air storage tank located at the upper level of the plant. Now, there is no water at all, and the staff's maintenance attention can be focused more appropriately elsewhere.

Ozinga reports that the Air-Pak system was very easy to install and possesses the flexibility to mount on a wall or directly on a compressor's top plate. The unit is plugged into a standard 120 VAC, and is very easy to maintain. Preventive maintenance is also straightforward. Units can be serviced without disassembling or removing them from the mounting position, and valves and desiccant cartridges are easily accessible.

This 3-in-1 modular system (referring to the capability to remove the triple threats of water, contaminants, and oil vapor) allows for expansion to accommodate changes in air system requirements or various types of flow rates. Users can select from among three models: Micro Logic Timer (MLT), Programmable Logic Control (PLC), and Pneumatically Controlled (PC), depending on application scope and need.

Each manages regeneration cycles by energizing and de-energizing air control valves at intervals ranging from every 45 seconds to every two minutes, depending on the version. All can serve in high or low ambient temperatures, expanding application potential over a wide range of environments and conditions.

At least five more Ozinga plants have been equipped with the dryer system and all lines run clear and dry.

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