ECO- FRIENDLY AIRBURST SYSTEMS

USE SWAN OIL-LESS AIR COMPRESSORS

COMPLETE, PRE-DESIGNED AIR BURST PACKAGES OFFERING:
• LOWER MAINTENANCE
• FEWER COMPONENTS
• ASSURED AIR AND WATER QUALITY
• OIL-FREE COMPLIANCE
An air burst system should provide regular, uninterrupted cleaning of debris from your water intake screens. As water is drawn through your screens, debris and silt build up on the outside of the screens gradually restricting flow, and must be cleared from the outer surfaces of the screens. An air burst system accomplishes this by blasting a large volume of compressed air counter-flow through the screens. The air burst system should be designed as an integral part of your water intake system, properly sized, with suitable air valves and automated controls to ensure trouble-free operation. A properly designed and ECO-friendly system should not add undesirable contaminants such as oil to your water source. SWAN oil-less air compressors contain no oil, which assures you will not add oil to your source water. It also eliminates the requirement for separating and disposing of oil from the condensate which is created in lubricated compressor systems, as well as the changing and disposing of compressor oil, and replacement of oil coalescing air line filters elements. It is illegal in many municipalities to discharge untreated condensate from lubricated air compressor systems directly into the municipal waste system, so a proper oil separation system must be used.

THE FUNCTION OF AN AIR BURST SYSTEM

COMPONENTS IN AN ECO-FRIENDLY PROPERLY DESIGNED LUBRICATED AIR BURST SYSTEM

1) Lubricated reciprocating air compressor
2) Alternatively a lubricated rotary screw air compressor
3) Air Burst control panel controls compressor operation, valve operations, and provides alarms.
4) Condensate separator with automatic timed drain valve
5) Oil coalescing filter with automatic timed drain valve
6) Flow restricting orifice
7) Air burst storage receiver
8) Air burst valve
9) Condensate/oil separator
10) Oil collection container

NOTES

A) Lubricated reciprocating air compressors discharge oil with the compressed air. Normal oil carry-over is 10-30 PPM based on volume of compressed air. Reciprocating air compressor pumps by nature have a pulsating discharge. Oil coalescing filters should not be placed directly in the pulsating discharge line to prevent element damage, and an air receiver should always be used for pulsation dampening before filters.

B) Rotary screw compressors are designed to operate at approximately 180°F discharge temperature. This design criteria prevents water vapour in the discharge air from condensing and emulsifying with the oil when it is discharged into the air/oil separator. Water in the oil in these compressors may result in premature bearing failure. Air burst systems are designed to ensure that the air burst receiver is fully charged within 15 minutes by the air compressor. This operation may occur only once or twice a day, and a rotary screw compressor may not reach normal operating temperature in this short time frame. Although rotary screw compressors are well suited for continuous operation in heavy work load production environments, starting and stopping for short load periods in air burst service, may result in increased maintenance and repair costs.

C) The intent of an air burst system is to store a large volume of air that can be discharged rapidly to blast debris off of the water intake screens. This air storage capacity must be placed downstream of filters to prevent high surging through the filters, which would rupture or damage the filter elements. In the schematic above, a flow restricting orifice (item #6) is used to prevent air stored in the reciprocating air compressor receiver from surging through the filter when an air burst takes place. This flow restricting orifice must be sized to match compressor output at the system design pressure. The filter capacity must exceed the compressor capacity.

D) The condensate/oil separation unit (item #9) is required to separate the oil (which is stored in a container), while the clean condensate is discharged to a municipal drain. The oil collected in the container, as well as the oil drained from the compressor pump during routine oil changes, must be disposed of using a local waste disposal firm, or by delivering it to a regional disposal site or recycling centre. The cost for replacement coalescing filter elements, plus the labour to replace them, plus the cost for compressor pump oil changes, plus the labour for the removal and disposal of waste oil should be a considered when selecting a compressor. Any small saving realized in the purchase of a lubricated system as opposed to the purchase of an oil-less system will quickly be offset by these expenses. A Swan oil-less system ensures you have made the responsible, environmentally sound choice.
COMPONENTS IN AN ECO-FRIENDLY PROPERLY DESIGNED SWAN OIL-LESS AIR BURST SYSTEM

1) Swan oil-less reciprocating air compressor mounted on air burst storage receiver. Receiver shall be sized according to system requirements.

2) Control panel includes compressor motor starter, micro processor for timing of air burst interval and alarms for excessive compressor run time, motor overload and other customized requirements.

3) Pneumatically operated air burst valve. Valves may be piston operated with stainless steel bodies, or actuator-operated ball valve.

NOTES
A) As there are no oil coalescing air line filter required, the compressor air receiver will serve as the air burst storage receiver. There is no requirement for oil separation equipment or oil changes on the compressor pump. Only clean condensate is discharged from the receiver, and into your water source.

SWAN COMPRESSOR PUMPS ARE AVAILABLE IN BOTH SINGLE AND 2-STAGE MODELS

SD-203 (3 HP)  SD-205 (5 HP)  SD-310 (7.5-10 HP)  SD-415 (15 HP)  SD-425 (25 HP)

EXPLODED PARTS VIEW

MAINTENANCE SCHEDULE
Swan oil-less compressor pumps are rugged and reliable. The recommended maintenance schedule includes the following:
1) Check vee belt tensioning monthly.
2) Check for and tighten loose fittings/fasteners monthly.
3) Clean or replace intake air filter element annually or as required.
4) Replace piston rings, guide rings, wrist pins/bearings and main bearings at 6000-8000 hours.

Air burst systems are normally designed to operate once or twice a day requiring the air compressor to refill the air receiver in less than 15 minutes. This intermittent duty represents running time for the air compressor of approximately 100-200 hours per year. Based on these numbers, minimal maintenance will be required over the life of the compressor compared to lubricated compressors which require oil changes annually as a minimum requirement.
CONTROL PANELS
Air burst control systems can range from simplex air compressor and air burst valve systems, to systems which control multiple air compressors and valves. As a minimum, our standard systems normally include the following components:
1) Magnetic motor starter for start/stop control of the compressor.
2) Off/On selector switch for power.
3) Power feed disconnect switch (for 3 phase power)
4) Control transformer and required fusing.
5) Indicator lights for “Compressor Run”, “Compressor Overload”, “Air Burst”, and “Compressor Excessive Run Time”.
6) Push button or selector switch for “Manual Air Burst”.
7) Control solenoid valves for air burst valve operation.
8) Micro processor or PLC with adjustment capability for air burst time interval.

In addition to the standard features/functions, panels can be custom designed for multiple compressor systems, and may include valve position indicator/alarms, low air pressure alarm, differential pressure alarms, manual valve operators, and many other customer specified features.

AIR BURST VALVES
Air burst valves are available in various sizes and configurations. Up to 2-1/2”, piston operated poppet-style valves can be supplied with stainless steel or brass bodies with position indicators. For larger systems, valves may be air actuated ball valves or butterfly valves. Valves may be supplied with position indicators as well as position switches for alarm indication at the control panel.

AIR COMPRESSORS
Air compressors include as standard equipment:
- Oil-less air compressor pump either single stage (to 120 PSIG) or 2-stage pumps for operating pressures to 175 PSIG
- ULC and/or CSA certified high efficiency motor. Any voltage may be specified to suit the user’s electrical source, and ODP, TEFC or special features can be supplied.
- Stainless steel flexible connector connects the pump discharge to the receiver
- Vee belt drive and OSHA compliant guard
- Air pressure switch and pressure gauge are pre-mounted
- Air receivers are sized for suitable system capacity and included National Board and CRN registrations for use in the USA or Canada. The receivers include a manual drain valve, automatic timed drain solenoid, and an ASME coded safety relief valve. Systems may include a single pump or multiple pumps mounted on a receiver, or base-mounted units with a remote receiver. Multiple pump control panels may include automatic alternation or sequencing of pump operation to allow the accumulation of equal hours on all pumps, and the exercising of all pumps.