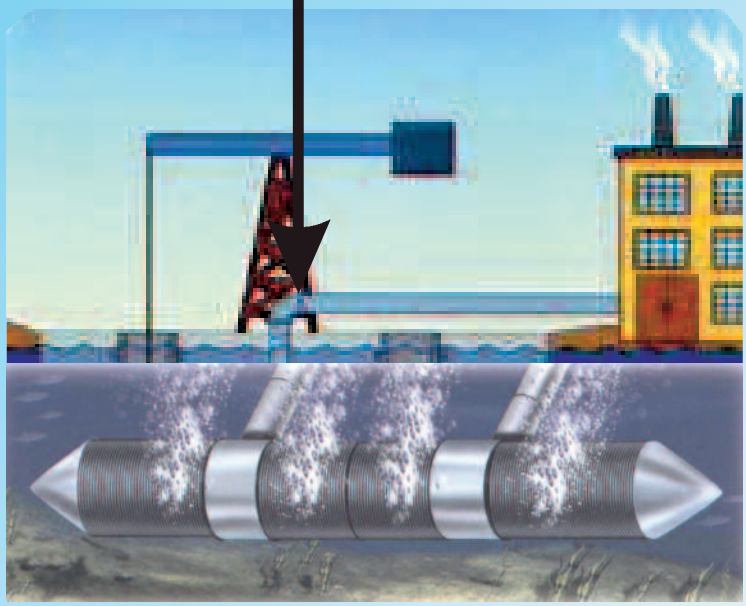
CUSTOM DESIGNED AIR BURST SYSTEMS

APPL Air Burst packages are custom designed and sized to meet the requirements of your water intake screen system. Systems are designed to store the air volume required to clear your screens with each burst, with compressors which are sized to re-charge the system quickly in preparation for the next cleaning. APPL can satisfy any voltage requirement, and customize the system to suit your needs. Systems can include single stage or 2-stage air compressors in simplex or duplex arrangements.

COMPRESSOR INCLUDES:

- Single or 2-stage Air Compressor Pump
- Single or 3 Phase Motor with Vee Belt Drive
- National Board Registered Air Receiver
- ASME Safety Valve
- Manual Receiver Drain Valve
- Receiver Auto Drain
- Air Pressure Switch for Auto Start/Stop Control
- Compressor Discharge Line Check Valve
- Air Pressure Gauge
- Service Shut-off valve



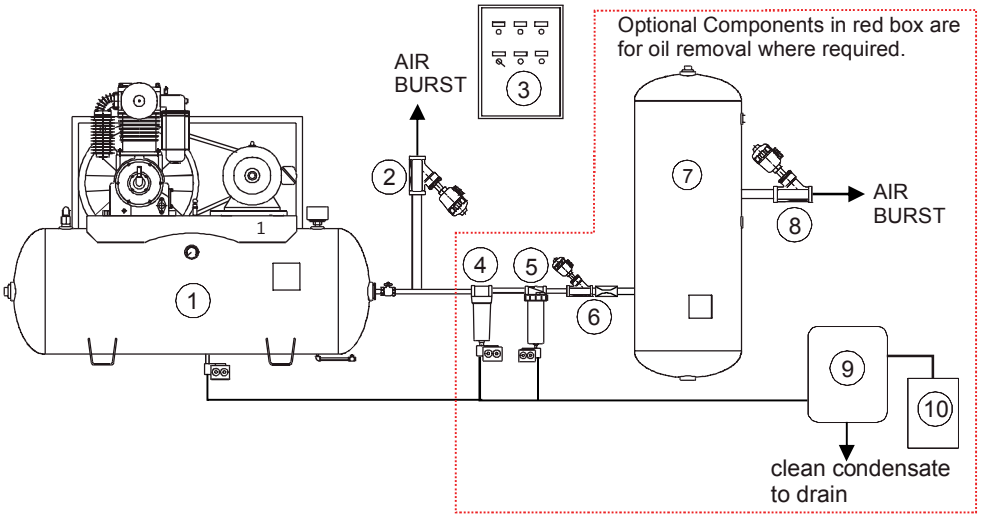
SYSTEM COMPONENTS:

- Pneumatically Controlled Air Burst Valve
- SS Control Solenoid
- Control Air Storage Vessel
- Magnetic Motor Starter
- Motor Overload Protection
- Door Disconnect Swtich
- Indicators for Compressor “Run”, “Motor Overload” and “Air Burst”
- Off/On Selector Switch
- ”Manual Air Burst” Operator
- Compressor Excessive Run Alarm
- Micro Processor

THE FUNCTION OF AN AIR BURST SYSTEM

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 restricts 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. As it is illegal in some municipalities to discharge untreated condensate from lubricated air compressor systems directly into the municipal waste system, a proper oil separation system may be required in some applications. The following depiction shows the basic system components and optional oil/condensate separation system.

BASIC COMPONENTS OF AN AIR BURST SYSTEM



1) Lubricated reciprocating air compressor
2) Air Burst Valve for basic system (no oil separation/removal)
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) Isolation valve with flow restrictor required for receiver-mounted air compressor (see comments)
7) Air burst storage receiver
8) Air burst valve when oil removal components are used.
9) Condensate/oil separator
10) Oil collection container

NOTES

A) Reciprocating air compressor pumps by nature have a pulsating discharge. Oil coalescing filters should not be placed directly in the pulsating discharge line of the compressor pump as this may result in damage to the element and premature failure. An air receiver should always be used for pulsation dampening before oil coalescing 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 air is discharged into the air oil separator. Water in the oil in these compressors may result in premature bearing failure. Most 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 environments, air burst service may result in increased maintenance and repair costs due to the short operating cycle.

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, an isolation valve (item #6) is used to prevent air stored in the reciprocating air compressor receiver from surging through the filters when an air burst takes place. This isolation valve must also be provided with a flow restrictor to prevent excessive flow through the filters from the pressurized compressor receiver during re-charging of the air burst storage receiver. The valve must be controlled through the air burst control panel, and must be closed during an air burst operation to prevent surging.

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 which must be drained from the compressor pump during routine oil changes, should be disposed of using a local waste disposal firm, or by delivering it to a regional disposal site or re-cycling centre.

For information on our ***ECO-Friendly*** oil-less air compressors for air burst systems, see bulletin QAF-0157. Oil-less compressors eliminate potential for oil contamination of source water, reduce maintenance by eliminating pump oil changes, eliminating coalescing filter element change out, and eliminating oil/condensate separation and disposal requirements.

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