JPX Series Sample Specifications

Separator Type & Performance

The removal of specific unwanted solids from a pumped/pressurized fluid flow system shall be accomplished with a centrifugal-action vortex separator. Solids removal efficiency is principally predicated on the difference in specific gravity between the liquid and the solids. Fluid viscosity must be 100 SSU or less.

In a single pass through the separator, given solids with a specific gravity of 2.6 and water at 1.0, performance is predictably 98% of 74 microns and larger. Additionally, particles finer in size, heavier by specific gravity and some lighter by specific gravity will also be removed, resulting in an appreciable aggregate removal of particles (up to 75%) as fine as 5 microns.

In a recirculating system, 98% performance is predictable to as fine as 40 microns (given solids with a specific gravity of 2.6), with correspondingly higher aggregate performance percentages (up to 90%) of solids as fine as 5 microns.

Performance Requirement

Separator performance must be supported by published independent test results from a recognized and identified test agency. Standard test protocol of upstream injection, downstream capture and separator purge recovery is allowed with 50-200 mesh particles to enable effective, repeatable results. Single-pass test performance must not be less than 95% removal. Model tested must be of the same flow-design series as specified unit.

Separator Design & Function

A tangential inlet and mutually tangential internal accelerating slots shall be employed to promote the proper velocity necessary for the removal of the separable solids. The internal accelerating slots shall be spiral-cut (Swirlex) for optimum flow transfer, laminar action and particle influence into the separation barrel. The separator's internal vortex shall allow this process to occur without wear to the accelerating slots.

Separated particle matter shall spiral downward along the perimeter of the inner separation barrel, in a manner that does not promote wear of the separation barrel, and into the solids collection chamber, located below the vortex deflector stool.

To insure maximum particle removal characteristics, the separator shall incorporate a vortex-induced pressure relief line (Vortube), drawing specific pressure and fluid from the separator's solids collection chamber via the outlet flow's vortex/venturi effect, thereby efficiently encouraging solids into the collection chamber without requiring a continuous underflow or excessive system fluid loss.

System fluid shall exit the separator by following the center vortex in the separation barrel and spiral upward to the separator outlet.

Purging (as a specified option)

Evacuation of separated solids shall be accomplished automatically, employing a dedicated solid-state controller in a NEMA 4 housing. Available for worldwide single-phase voltages of 24VAC to 250VAC. Programming options to include a purge frequency range of every 60 seconds to every 23 hours, 59 minutes. Purge duration options range from 2 seconds to 59 minutes, 59 seconds. Non-volatile memory. Meets CSA requirements. This controller shall automatically operate one of the following techniques:

Motorized Ball Valve - A full-port, electrically-actuated valve shall be programmed at appropriate intervals and duration in order to efficiently and regularly purge solids from the separator's collection chamber. Valve body shall be bronze (optional stainless steel also available). Valve ball shall be stainless steel with teflon seat.

Valve size: _____

Pneumatic Pinch Valve - Compressed air shall be provided to actuate this full-port valve at appropriate intervals and duration in order to efficiently and regularly purge solids from the separator's collection chamber. System shall include a pressure regulator for proper modulation of air pressure. Valve liner is natural gum rubber (other liner materials available). Valve size: _____

Pneumatic Ball Valve - A fail-safe valve shall be programmed at appropriate intervals and duration in order to efficiently and regularly purge solids from the separator's collection chamber. A spring-control shall provide that this full-port valve closes in the event that compressed air or electricity is interrupted. Valve body shall be bronze (optional stainless steel also available). Valve ball shall be stainless steel with teflon seat. Valve size: _____

Purge Liquid Concentrator – A dual pneumatic pinch valve package shall be employed in order to effectively minimize the fluid loss when purging. The controller shall provide proper sequential valve actuation at appropriate intervals and duration in order to efficiently and regularly evacuate solids from the separator's collection chamber. Liners for the pinch valves shall be natural gum rubber (optional, at extra cost: neoprene, butyl, buna N and hypalon also may be specified). System shall also include a pressure regulator to modulate air pressure to the valves, a full-size sightglass for inspection of solids accumulation during operation and a manual isolation valve for servicing requirements. Valve size: _____

Solids Handling (as a specified option)

An appropriate solids collection device shall be provided with the separator, suitable for capturing solids and returning all excess purged liquid to system use. Size and type of collection device shall be determined according to the application requirements, selected from the following options (or custom, as specified):

Solids Collection Drum – In conjunction with the appropriate automatic purge valve, this package shall be employed to capture and concentrate separated solids (up to 90% solids by volume) from the separator directly into a standard 55-gallon drum, returning excess purged liquid to system use via an integral decant line on the drum shroud. Solids collection capacity: 12,700 cubic inches (200 liters). Package includes two shrouds, two shroud clamps, two drum carts for transporting the drums and a manual liquid evacuation pump. Recommended option: A Purge Diffuser shall be installed on the discharge of the automatic purge valve in order to reduce the velocity of the purge flow and enhance the settling of solids within the drum.

Solids Collection Hopper – In conjunction with the appropriate automatic purge valve, a one cubic yard (764 liter) hopper shall be employed to capture and concentrate separated solids (up to 90% by volume) from the separator, returning excess purged liquid to system use via an integral decant line installed directly on the hopper. The hopper shall feature a manually-actuated tilting mechanism for dumping accumulated solids as necessary. Recommended option: A Purge Diffuser shall be installed on the discharge of the automatic purge valve in order to reduce the velocity of the purge flow and enhance the settling of solids within the hopper.

Systemization (as a specified option)

The separator and its accessories shall be packaged as a complete system, with all componentry from a single source. In addition to the equipment already specified, the system shall also include an appropriate support frame for positioning the separator accurately and effectively for solids purging/handling. If the specified purging technique is a pneumatic pinch valve: A spare pinch valve liner shall also be included.

Separator Details

A. Inlet & outlet shall be grooved couplings, size: _____

B. Purge outlet shall be threaded with screw-on flange,

size: _____

C. The separator shall operate within a flow

range of:_____

D. Pressure loss shall be between 3-12 psi (.2 - .8 bar),

remaining constant, varying only when the flow

rate changes.

E. Included shall be pressure gauges with petcock valves

for both the inlet and outlet of the separator and an isolation

valve at the purge outlet for servicing of the automatic valve

as necessary without interrupting system flow.

Separator Construction

The separator shall feature the following access capabilities for either inspection or the removal of unusual solids/debris:

ð An upper-chamber full-size grooved coupling, allowing complete access to the

inlet chamber, acceleration slots and internal separation barrel

ð A hand-hole port at the collection chamber, with Neoprene gasket

(low flow rate models to feature full-size coupling at collection chamber)

ð An inspection port, located at the lowest point of the upper chamber

The separator shall be of unishell construction with A-36, A-53B or equivalent quality carbon steel, minimum thickness of .25 inches 6mm). Maximum operating pressure shall be 150 psi (10.3 bar), unless

specified otherwise.

Paint coating shall be oil-based enamel, spray-on, royal blue.

As a specified option only: The separator shall be constructed in accordance with the standards of the American Society of Mechanical Engineers (ASME), Section VIII, Division 1 for pressure vessels. Certification shall be confirmed with the registered "U-stamp" on the body of the separator. Weld-on flanges also available.

Separator Source & Identification

The separator shall be manufactured by LAKOS Filtration Systems,

a division of Claude Laval Corporation in Fresno, California USA.

Specific model designation is: _____