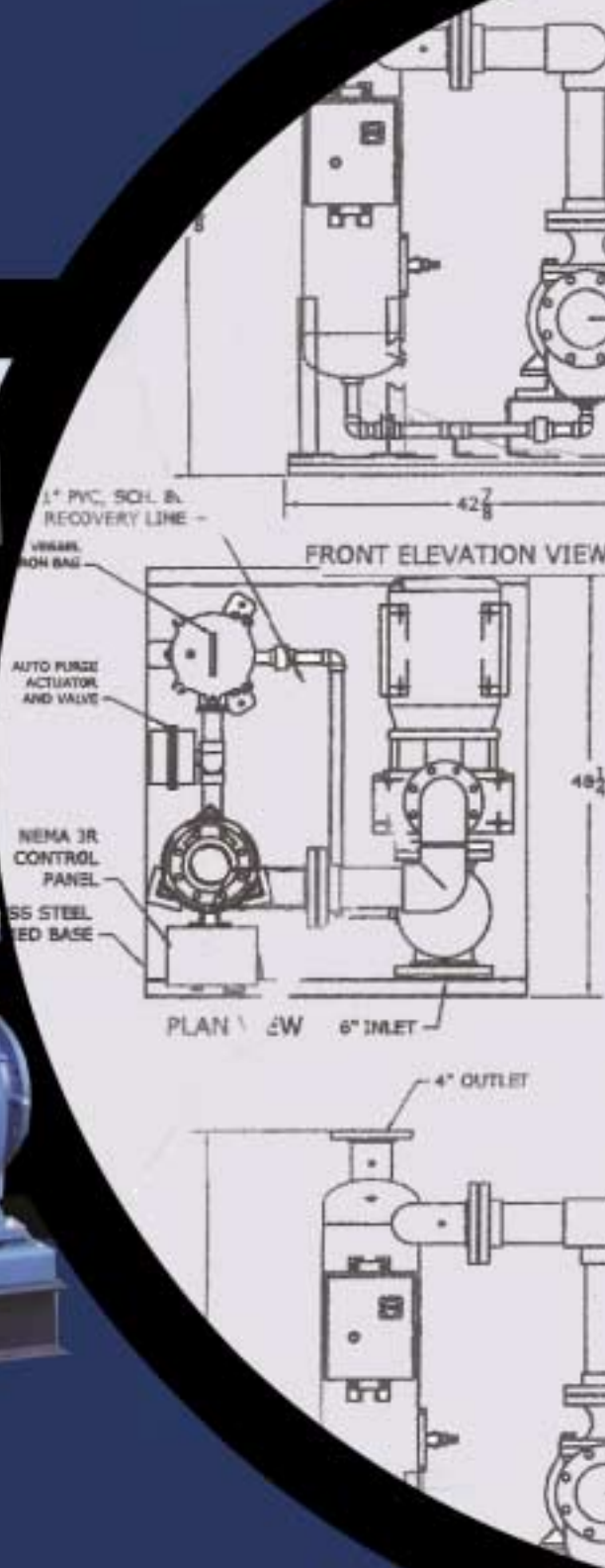


**pep**  
FILTERS



**ICS2**  
**INTERSEPTOR**  
**CENTRIFUGAL**  
**SEPARATION SYSTEMS**

## INTERSEPTOR® SERIES CENTRIFUGAL SEPARATORS

PEP Filters continues to lead the industry in the design and manufacture of the most rugged, reliable and efficient automatic equipment for filtration and separation. The InterSeptor Centrifugal Separator style ICS2 continues in this tradition. Our ICS2 Separators are available as stand alone units or skid mounted systems (ICS2-TCP). The ICS2 is effective in removing suspended particles 40 micron and larger from a flow stream. Depending on the specific gravity of the particle and the viscosity of the carrier fluid retention as small as 5 microns is possible.

In keeping with our innovative leadership position and firm commitment to providing efficient and cost effective filter solutions, the InterSeptor® Series Centrifugal Separator ("ICS2") is the newest addition to our diverse product line. Available in many sizes, please feel free to contact your PEP sales engineer for application assistance. Our goal is to provide system matched liquid/solids separation and filtration products that meet or exceed your system requirements.

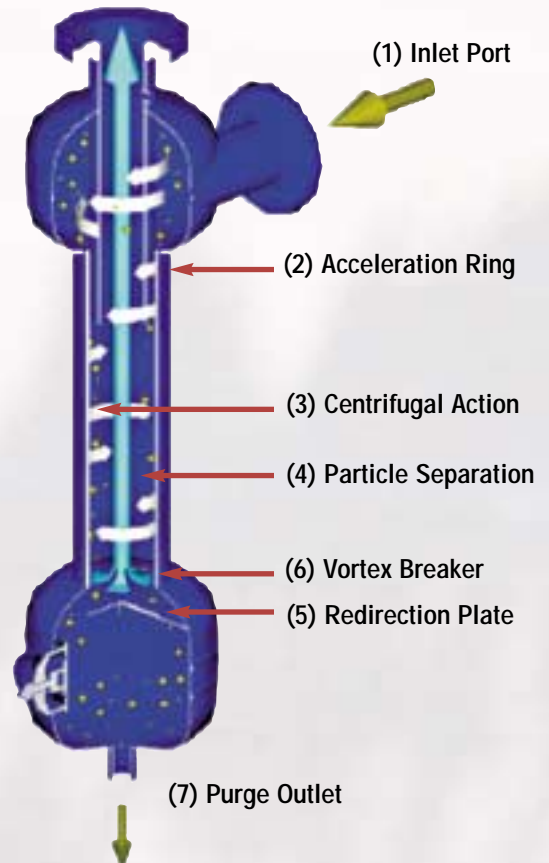


### HOW IT WORKS

The ICS2 is a simple mechanical device that uses the principle of centrifugal force and friction to cause the separation of suspended solids from liquids. It is a device with no moving parts, has no media and operates effectively for years without any required maintenance.

The liquid enters on a tangential inlet port (1) where the velocity is increased by an internal acceleration ring. (2) As the fluid spins through the separation chamber (3) the centrifugal force caused by the acceleration ring forces the suspended particles to the outer wall of the separation chamber. (4) The separated particles then slide down the outer wall to the collection chamber while the carrier fluid undergoes a 270 degree change of direction (5) by the direction plate causing further and more efficient separation while the vortex breaker (6) allows the suspended particles to settle in the collection chamber. (7) To remove the solids, a continuous purge can be utilized. An automatic timed purge can be used as well based on two parameters intervals between purges and purge length.

In addition there are several options for further cleaning and reusing the purge fluid.





## ICS2 MODEL SELECTION

Efficient liquid/solid separation depends on centrifugal force. Since the centrifugal force in the separator is dependent on vortex velocity, and vortex velocity is directly proportional to flow rate, it is important to match your flow rate requirements to the appropriate ICS2 model. The following table shows recommended ICS2 models for the indicated flow ranges.

InterSeptor Centrifugal Separators			
PART NUMBER	Inlet/Outlet	Purge Outlet	Flow Rate (GPM)
ICS2-0050	1/2"	1"	4-12
ICS2-0075	3/4"	1"	9-20
ICS2-0100	1"	1"	15-35
ICS2-0125	1-1/4"	1"	20-47
ICS2-0150	1-1/2"	1"	35-78
ICS2-0200	2"	1"	60-130
ICS2-0300	3"	1"	130-280
ICS2-0400	4"	1"	220-485
ICS2-0500	6"	1-1/2"	340-775
ICS2-0600	6"	1-1/2"	500-1100
ICS2-0800	8"	1-1/2"	850-1900
ICS2-1000	10"	2"	1350-3100
ICS2-1200	12"	2"	2000-4500

*For longer sizes, contact a PEP filtration solutions representative at 800.24.FILTERS.*

### WHAT PARTICLE SIZE WILL ICS2 REMOVE?

The ICS2 is effective at removing suspended particles larger than 40 microns from a variety of fluids. Removal of particles as small as 5 microns is possible for denser materials (See table). Particle removal performance is improved when used in multiple-pass arrangement.

### FACTORS TO CONSIDER WHEN CHOOSING A CENTRIFUGAL SEPARATOR

Many factors contribute to the efficiency of a centrifugal separator. These include:

1. Fluid density
2. Particle size
3. Particle specific gravity
4. System flow
5. System pressure
6. Purge cycle

### PARTICLE AND FLUID DENSITY

It is important to note that the density (specific gravity) of the particles to be removed must be greater than the density of the fluid. The greater the difference in density, the higher the removal efficiency. The table lists densities (specific gravity) of several common particles removed from water (specific gravity of water is 1).

Typical Particle Materials	Specific Gravity
Aluminum	2.7
Alumina (Al <sub>2</sub> O <sub>3</sub> )	4.0
Asbestos	2.1 - 2.8
Bauxite	2.6
Brass	9.0
Bronze, Copper	8.9
Carbon, Concrete	1.8 - 2.5
Carborundum	3.2
Coal (anthracite)	1.3 - 1.9
Coal Ash	2.0
Dolomite (limestone, marble)	2.9
Soil	1.2 - 2.0
Glass	3.0
Gravel (Granite)	2.5 - 3.0
Iron (Steel)	7.8
Lead	11.3
Lead Oxide	9.5
Manganese	7.4
Nickel	8.9
Sand	2.6 - 2.8
Silt	1.2 - 2.8
Sulphur	2.1



# INTERSEPTOR CENTRIFUGAL SEPARATION SYSTEMS

## CUSTOMERS PREFER PEP INTERSEPTOR® CENTRIFUGAL SEPARATORS

### ICS2-TCP

The ICS2-TCP is a skid mounted pre-engineered separation package that is completely self contained and requires only utility (Fluid Inlet/ Outlet, Purge and Electrical) connections for installation. The Tower Clean Package includes a Separator, manual purge valve, PEP BGFS-100 reclaim filter, PVC face piping, manual service valve, cast iron pre-strainer on system matched bronze fitted close coupled centrifugal pump, all skid mounted on an epoxy coated carbon steel base and controlled by a NEMA 4X control panel.

### PURGE OPTIONS

The ICS2 is designed to remove suspended solids from a flow stream and collect them in a collection chamber. Periodic purging of the collection chamber will be required for removal of the collected contaminant. This can be accomplished several ways:

### Continuous Bleed

This is where a manual valve is opened to allow less than 1% of the design flow rate to continuously bleed from the system to drain. This bleed will result in the solid contaminant being removed from the system.

### Manual Purge

Similar to the continuous purge where a manual valve is opened to purge the contaminant from the collection chamber.

### Automatic Purge

This is an automated system where a control panel is utilized to operate an electrically actuated ball valve to accomplish a purge. The control has two operating parameters, interval between purges and the duration of the purge itself. Typically a system will work very well purging once every 4 hours for 10-15 seconds.

### APPLICATIONS

- Nozzle protection
- Mechanical seal protection
- Increased efficiency on heat exchanger surfaces
- Cooling tower water filtration, chemical reduction in treatment, increased efficiency
- Plant influent process water filtration
- Pre-filtration for bag, cartridge, screen, sand filters and centrifuges
- Source water liquids/solids separation (river water, lakes and wells)
- Recycling of solvents used in painting, machining etc.
- Machine tool coolant filtration. Extends coolant and tool life
- Cleaning, quench and wash water



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