

PATRIOT COOLANT/OIL RECOVERY SYSTEMS

High Speed Disc Centrifuge System with a Pasteurizer and Automatic Solids Discharge for Batch Cleaning

Removes Tramp Oil and Solids and Provides Biological Control

The Patriot Recovery System removes tramp oil, fine solids and controls bacteria in machine tool coolants. It is a stationary system for batch processing of fluids. The system employs the Integrated Fluid Recovery (IFR) approach of high speed liquid/liquid/solid centrifugation working in concert with other components, such as a proprietary premixing system and a pasteurizer. The IFR system removes solids, tramp oil, and odors and controls biological activity. The Patriot provides total fluid recovery with minimal maintenance.

The heart of the Patriot System is a Mitsubishi self-discharging, high speed disc centrifuge. This centrifuge automatically discharges the entrained solids that have been removed from the fluid. The processing capacity ranges from 120-300 gallons/hour depending upon the size of the Centrifuge.

The Patriot is backed by SanbornTechnologies' Process Guarantee.



PATRIOT SYSTEM

FEATURES

- Removes metallic and non-metallic fines down to 1 micron via a self-discharging centrifuge
- Separates tramp oil down to one quarter of one percent (.0025)
- Reduces coolant waste by removing the entrained coolant in the tramp oil and rag layer
- Storage tanks with automatic coolant make-up controls coolant concentration in a single location
- Pressurized coolant distribution system can feed recovered coolant directly to the machine tools

Versatile Plant-wide Application

- System can serve multiple sumps
- Can process a wide array of coolants and oils
- Wide array of tank capacities are available

Simple and Efficient Operation

- Efficient, single-pass processing yields completely purified fluid
- Self-discharging centrifuge eliminates laborious manual solids removal from the centrifuge

BENEFITS

- Reduces fluid waste disposal costs by up to 99%
- Reduces new fluid purchases
- Reduces use of hazardous chemical biocides

Improved Quality and Productivity

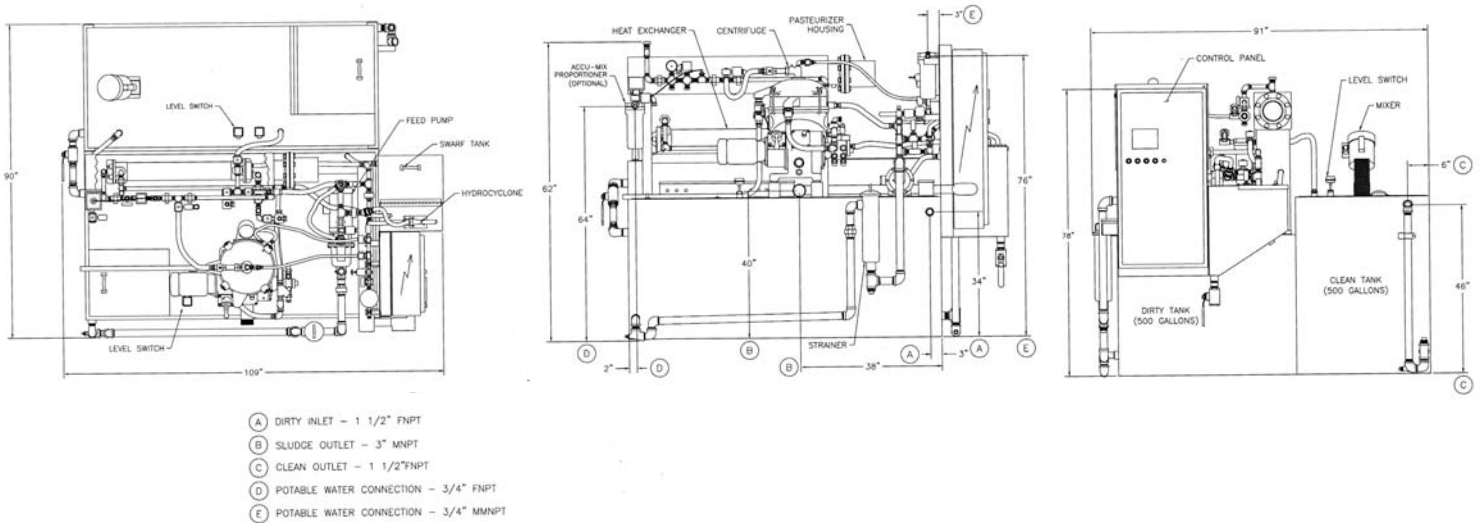
- Cuts machine downtime for sump cleanouts
- Improves tool efficiency and product quality
- Reduces worker dermatitis and exposure to toxic biocides

Important Environmental Benefits

- Reduces liability for manifesting and storing dirty fluid
- Meets tightening discharge standards for oily wastes



PATRIOT SYSTEMS



GENERAL SPECIFICATIONS

DIMENSIONS (L x W x H) 8.5' x 8.4' x 8.0'

MACHINE WEIGHT 2500 lbs. (1134 kg)

FLUID INPUT: (SJ700 SERIES)

COOLANT 3000 GPD

OIL 4000 GPD

UTILITY REQUIREMENTS ELECTRICAL - 460 VAC

3 PH, 60 HZ, 30 AMP

WATER: CITY WATER FOR

PURGING - 1-2 LITERS PER HOUR

PURIFIED WATER FOR MAKE-UP,

2-10 GPM (IF REQUIRED)

CONTROL AND

INDICATING PANEL NEMA 12 ENCLOSURE. SOLID STATE PROGRAMMABLE CONTROL INCLUDING:

AUDIBLE/VISIBLE ALARMS,

AUTOMATIC/MANUAL MODE SELECTOR

THE PATRIOT'S IFR PROCESS

1. Dirty coolant is transported to the dirty holding tank where hydraulic agitation keeps the tramp oil and solids in suspension.
2. The first stage of separation is a stainless steel basket strainer that provides pre-separation of coarse solids.
3. A progressive cavity pump provides homogeneous and constant feed to the system to achieve maximum centrifuge efficiency.
4. The next stage of separation is a hydrocyclone that provides intermediate solids removal down to 30 micron.
5. The fluid then makes its first pass through a heat exchanger to preheat the fluid for the pasteurization process.
6. The pasteurization process begins with the fluid passing into a chamber containing a low-watt density heater. Flash pasteurization of coolant is a safe, economical, non-chemical method of controlling bacteria, mold, yeast and fungi that cause coolant rancidity. The heater also provides:
 - Improved separation of solids and tramp oil
 - Improved cleanliness inside the centrifuge for reduced maintenance
 - Removal of dissolved gases such as H₂S
 - Reduced disposal of recoverable coolant entrained in the rag layer (coolant/tramp oils interface)
7. The fluid then enters the centrifuge where a highly efficient liquid/liquid/solid separation takes place. Tramp oil is separated from the coolant without degrading the coolant emulsion, and solids are removed and automatically ejected. The cleaned coolant then flows from the centrifuge to the next stage.
8. The fluid reenters the heat exchanger where its temperature is lowered to reduce biological regrowth and maintain sump temperature.
9. The cleaned fluid enters the clean holding tank where automatic fluid make-up strengthens the coolant.
10. The recovered fluid is then available to be returned to the machine tools via a transport or pumped directly through a pressurized distribution system.



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