

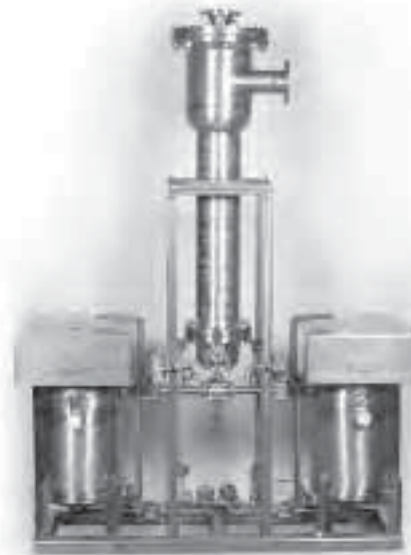
# Centrifugal Action Filtration Performance For Cooking Oil Systems

# CSX

Exclusive technology continuously removes crumbs and fines from cooking oil to increase oil life and sustain higher product quality. Instead of fines boxes, chip chains, drum filters and paper media, LAKOS CSX Series Separators employ centrifugal action to spin unwanted particle matter from pumped/recirculated cooking oil, concentrating the particulate for easy handling, disposal or recovery for secondary use. Purge collection/concentration vessels also available from LAKOS.

- Full flow filtration of the entire cooking oil reservoir (not recommended for side-stream applications).
- Continuous filtration and particulate disposal; no shutdown for servicing or maintenance routines
- Operates in a pressurized, non-oxygenated environment.
- Longer operating cycles between downtime/maintenance.
- Reduced heat exchanger fouling & sustained heat transfer capacity.
- Optimum/consistent cooking oil velocities and the elimination of dead spots within the fryer by the prevention of crumbs accumulation.
- Maximum cooking oil quality, including improved oil appearance and a lighter oil flavor.
- Removing carbonizing fines stops their oxygenating effect on the oil, thus lowering the free fatty acid content - helps extend product shelf life.
- Eliminates fire hazards and operating burdens related to fines boxes.

**See back panel for complete FrySafe Systems.**



FrySafe System  
(see back panel)

Flow range:  
5 - 15,900 US gpm (1 - 3600 m<sup>3</sup>/hr)  
Maximum standard pressure rating:  
100 psi (6.8 bar)

*Consult factory for special requirements.*



LAKOS also provides particle collection/concentration vessels, enabling maximum recovery/re-use of cooking oil. See back panel for LAKOS FrySafe Systems for complete packaging options.

How It Works Illustration

Model Specifications

Application Schematic

## How It Works

### Key Features

No moving parts to wear out.

No rotating screens or fines boxes to clean or replace.

Low and steady pressure loss, independent of separated crumb accumulation.

Complete, packaged systems available.

Compact, space saving profile.

Minimal oil loss.

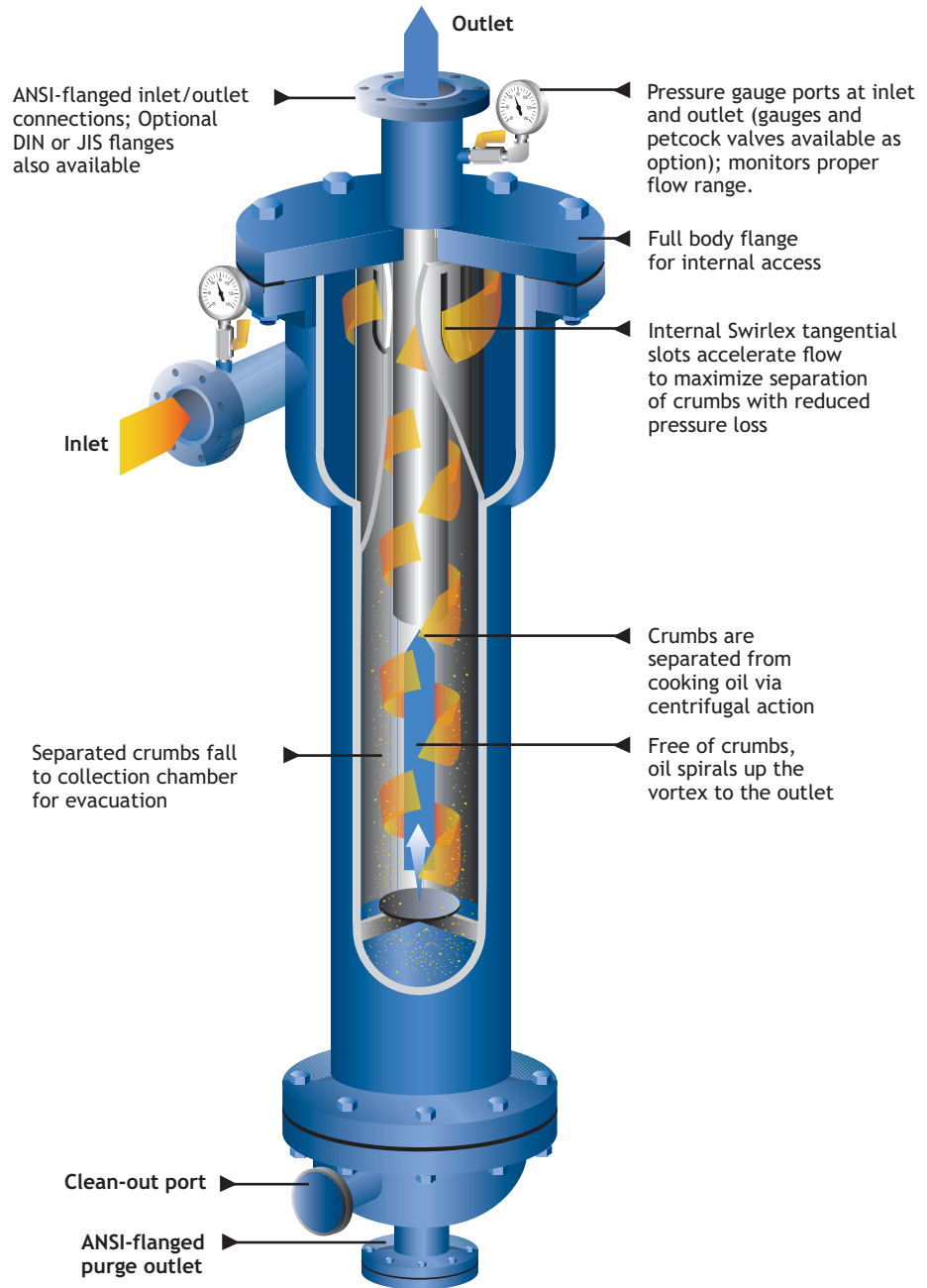
Effective solids concentration for easy disposal.

Stainless steel or carbon steel construction & high temperature componentry.

Pressure rated to 100 psi (6.8 bar); higher pressures also available.

Flanged, leak-free inlet, outlet and purge connections.

Full internal accessibility for cleaning/serviceability.



## Model Specifications

| Model    | Flow Range (Cooking Oil Only) |                    | Inlet/Outlet Size<br>ANSI Flange | Inside Oil Capacity |        |
|----------|-------------------------------|--------------------|----------------------------------|---------------------|--------|
|          | U.S. gpm                      | m <sup>3</sup> /hr |                                  | U.S. gal.           | liters |
| CSX-0005 | 5-12                          | 1-3                | 1/2-inch                         | 0.4                 | 1.5    |
| CSX-0010 | 10-25                         | 3-7                | 3/4-inch                         | 0.6                 | 2.3    |
| CSX-0020 | 20-40                         | 5-9                | 1-inch                           | 0.8                 | 3.0    |
| CSX-0035 | 35-60                         | 8-14               | 1-1/4-inch                       | 1.7                 | 6.5    |
| CSX-0050 | 50-80                         | 12-18              | 1-1/2-inch                       | 2.7                 | 10.2   |
| CSX-0075 | 75-125                        | 17-29              | 2-inch                           | 6.0                 | 22.7   |
| CSX-0110 | 110-180                       | 25-40              | 2-1/2-inch                       | 7.7                 | 29.2   |
| CSX-0165 | 165-280                       | 38-65              | 3-inch                           | 8.0                 | 30.3   |
| CSX-0250 | 250-400                       | 57-90              | 4-inch                           | 16.7                | 63.2   |
| CSX-0360 | 360-670                       | 82-152             | 4-inch                           | 21.5                | 81.4   |
| CSX-0565 | 565-1030                      | 130-235            | 6-inch                           | 34.0                | 128.7  |
| CSX-0815 | 815-1500                      | 185-340            | 6-inch                           | 54.0                | 204.4  |
| CSX-1450 | 1450-2700                     | 330-615            | 8-inch                           | 107.0               | 405.0  |
| CSX-2300 | 2300-4250                     | 525-965            | 10-inch                          | 146.0               | 552.6  |
| CSX-3300 | 3300-6125                     | 750-1390           | 12-inch                          | 217.0               | 820.0  |

Material construction: Standard is mild carbon steel. Available in 304L or 316L stainless steel. Electro-polishing of interior/exterior also available.

Connections: Inlet, outlet & purge are each standard ANSI flange. Sanitary connections also available. Purge may also be specified as NPT male.

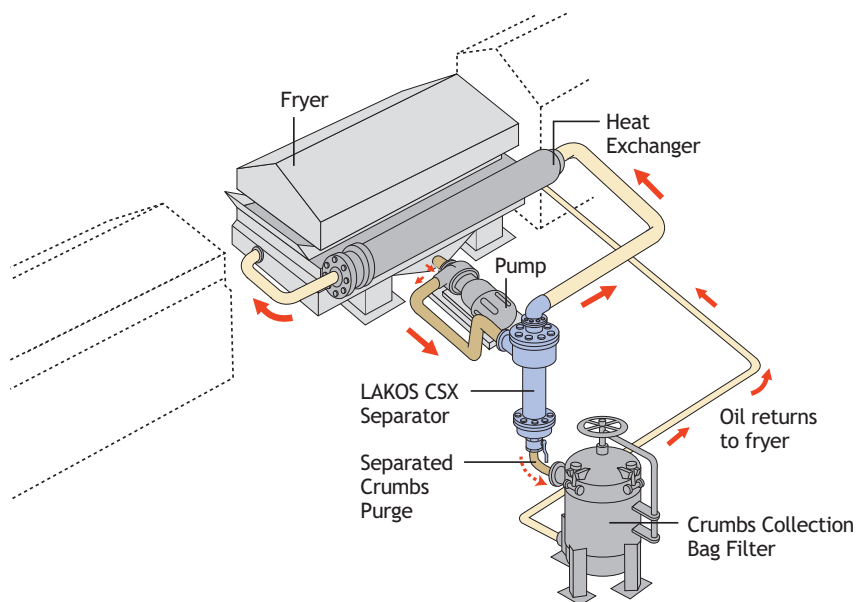
## Profile Options

LAKOS CSX Series separators can be built for vertical, low-profile, or hanging configurations. Consult factory for options to meet your requirements.

## Application Diagram

### Bag Collection Option

The continuous purging of crumbs into a specialized bag filter vessel concentrates the solids for easy handling, returning all cooking oil to the process.



## FrySafe Systems

Flow range: 5 - 15,900 US gpm (1 - 3600 m<sup>3</sup>/hr)  
Maximum standard pressure rating: 100 psi (6.8 bar)

### Limited Warranty

All products manufactured and marketed by this corporation are warranted to be free of defects in material or workmanship for a period of at least one year from date of delivery. Extended warranty coverage applies as follows:

All LAKOS Separators: Five year warranty

All other components: 12 months from date of installation; if installed 6 months or more after ship date, warranty shall be a maximum of 18 months from ship date.

If a fault develops, notify us, giving a complete description of the alleged malfunction. Include the model number(s), date of delivery and operating conditions of subject product(s). We will subsequently review this information and, at our option, supply you with either servicing data or shipping instruction and returned materials authorization. Upon prepaid receipt of subject product(s) at the instructed destination, we will then either repair or replace such product(s), at our option, and if determined to be a warranted defect, we will perform such necessary product repairs or replace such product(s) at our expense.

This limited warranty does not cover any products, damages or injuries resulting from misuse, neglect, normal expected wear, chemically-caused corrosion, improper installation or operation contrary to factory recommendation. Nor does it cover equipment that has been modified, tampered with or altered without authorization.

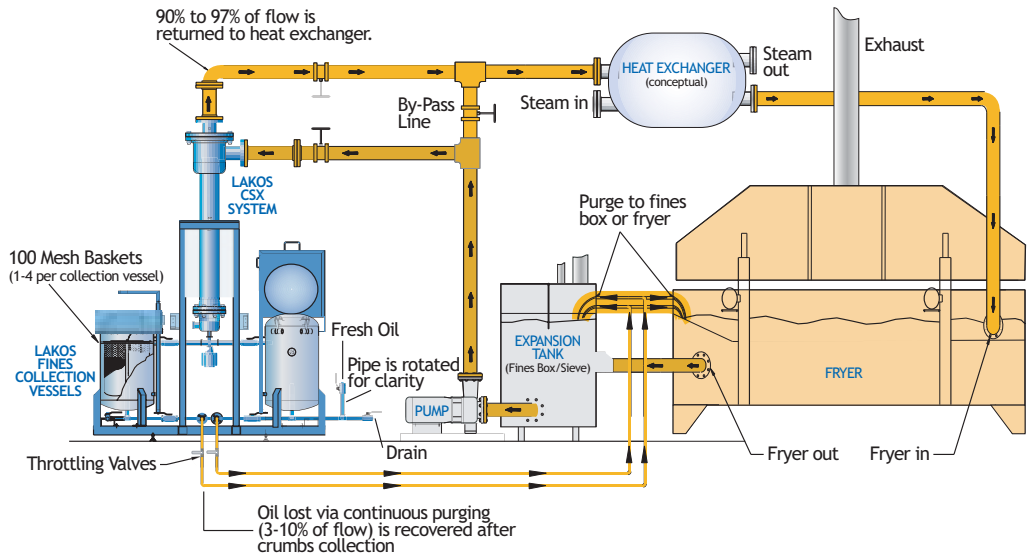
No other extended liabilities are stated or implied and this warranty in no event covers incidental or consequential damages, injuries or costs resulting from any such defective product(s).

Lakos Separators are manufactured and sold under one or more of the following U.S. Patents: 3,289,608; 3,512,651; 3,568,837; 3,701,425; 3,947,364; 3,963,073; 4,027,481; 4,120,795; 4,123,800; 4,140,638; 4,147,630; 4,148,735; 4,305,825; 4,555,333; 5,320,747; 5,338,341; 5,368,735; 5,425,876; 5,571,416; 5,578,203; 5,622,545; 5,653,874; 5,894,995; 6,090,276; 6,143,175; 6,167,960; 6,202,543; Des. 327,693; and corresponding foreign patents, including 600 12 329.4-08 (Germany) and EP 1 198 276 B1 (EU); other U.S. and foreign patents pending.

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### Cleans Oil and Removes Cool, Dry Fines in a Safe Cleaning Environment

The FrySafe system is a skid-mounted, twin canister system for removing fines from a fryer. The separator purge flows to a canister where the fines are collected in wire mesh baskets. The clean underflow is returned to the fryer. When Collection Vessel 1 is full, a manual 3-way valve can be switched to change the purge flow to Collection Vessel 2. When Collection Vessel 1 is cooled to room temperature, it can be cleaned and returned to service.



### Model Specifications

| Model        | Flow Range (Cooking Oil Only) |                    | Inlet/Outlet Size<br>ANSI Flange | Inside Oil Capacity |         |
|--------------|-------------------------------|--------------------|----------------------------------|---------------------|---------|
|              | U.S. gpm                      | m <sup>3</sup> /hr |                                  | U.S. gal.           | liters  |
| FrySafe-0005 | 5-12                          | 1-3                | 1/2-inch                         | 64.4                | 244.5   |
| FrySafe-0010 | 10-25                         | 3-7                | 3/4-inch                         | 64.6                | 245.3   |
| FrySafe-0020 | 20-40                         | 5-9                | 1-inch                           | 64.8                | 246.0   |
| FrySafe-0035 | 35-60                         | 8-14               | 1-1/4-inch                       | 65.7                | 249.5   |
| FrySafe-0050 | 50-80                         | 12-18              | 1-1/2-inch                       | 66.7                | 253.2   |
| FrySafe-0075 | 75-125                        | 17-29              | 2-inch                           | 70.0                | 265.7   |
| FrySafe-0110 | 110-180                       | 25-40              | 2-1/2-inch                       | 71.7                | 272.2   |
| FrySafe-0165 | 165-280                       | 38-65              | 3-inch                           | 72.0                | 273.3   |
| FrySafe-0250 | 250-400                       | 57-90              | 4-inch                           | 80.7                | 306.2   |
| FrySafe-0360 | 360-670                       | 82-152             | 4-inch                           | 85.5                | 324.4   |
| FrySafe-0565 | 565-1030                      | 130-235            | 6-inch                           | 98.0                | 371.7   |
| FrySafe-0815 | 815-1500                      | 185-340            | 6-inch                           | 118.0               | 447.4   |
| FrySafe-1450 | 1450-2700                     | 330-615            | 8-inch                           | 171.0               | 648.0   |
| FrySafe-2300 | 2300-4250                     | 525-965            | 10-inch                          | 210.0               | 795.6   |
| FrySafe-3300 | 3300-6125                     | 750-1390           | 12-inch                          | 281.0               | 1,063.0 |

Material construction: Standard is 304L stainless steel. Available in other materials options or requirements.  
Connections: Inlet, outlet & purge are each standard ANSI flange. Sanitary connections also available.

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