



- *Cleaner water*
- *Reduced downtime and maintenance*
- *Better operating efficiency and longer production runs*
- *Improves product quality*



Common LAKOS Filtration Applications In Steel Mills

Spray nozzle protection • Continuous casting • Secondary finishing - plate
Strip mills - descaling • Sheet steel production cooling • Cooling towers
Heat exchanger protection • Blast furnace cooling water • Pits/sumps/basins
Wet scrubber/gas cleaning-BOF • River & plant intake water

LAKOS Filtration Separators: A Popular

A History Of Global Solutions

Since the mid-1940's Claude Laval Jr.'s inventions have been solving filtration problems in countless industrial applications. Our history includes 150+ U.S. and international patents of innovative and creative ways to remove solids from liquids. Few industries have benefited more from these efforts than the steel industry, in which LAKOS separators have become the industry standard.



ArcelorMittal Steel Plant
Burns Harbor, Indiana
35+ LAKOS Separators

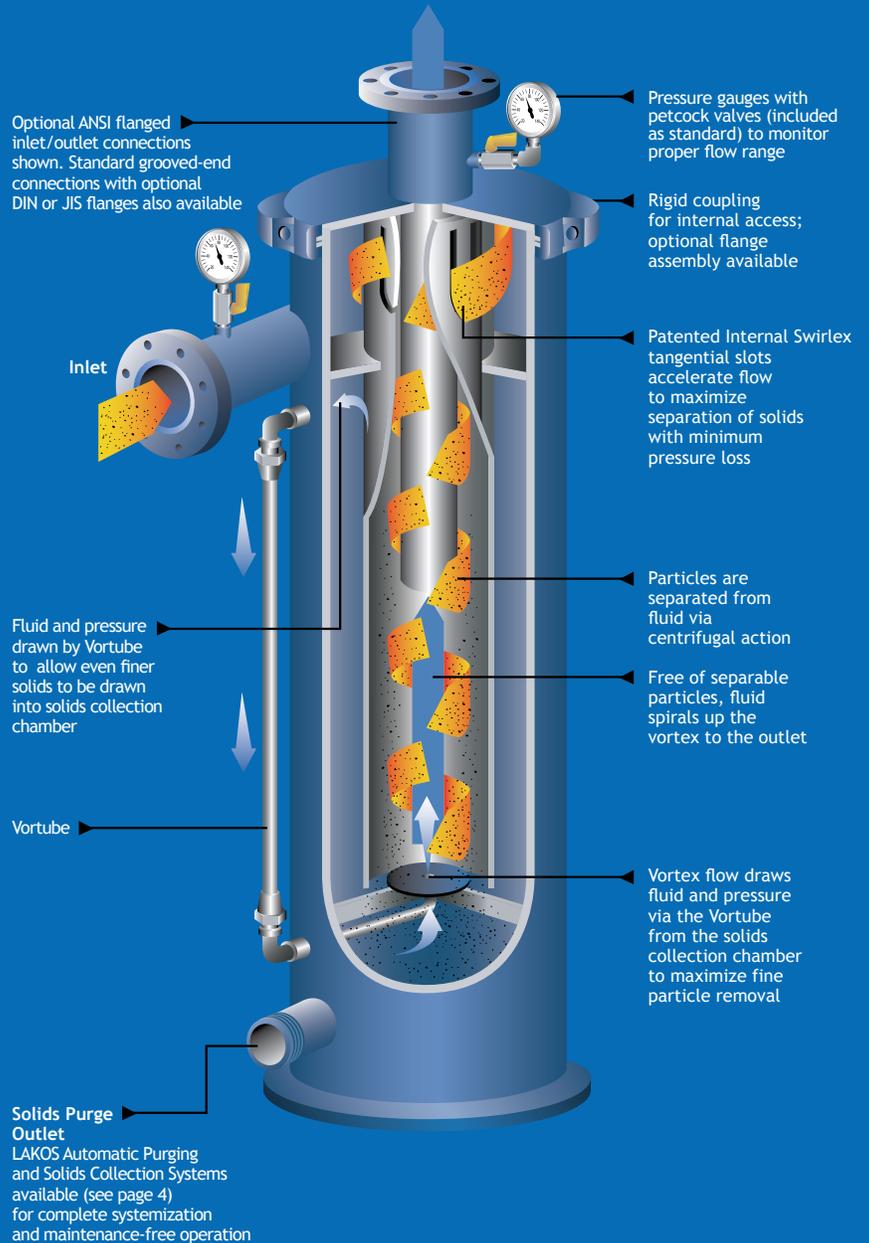


California Steel
Fontana, California



PROACER Steel
Chile

How Does A LAKOS Separator Work?



Unique LAKOS Features:

- No moving parts to wear out
- Reduced liquid loss
- No backwashing or other routine maintenance or downtime requirements
- Easily automated with several SOLIDS HANDLING options
- Protects descaling pumps for longer life and sustained efficiency
- Centrifugal-action performance, using no screens or filter elements

Choice Of The World's Best Steel Mills



What Does LAKOS Remove?

Mill scale, slag, dirt and other settleable fines

The flow rate and velocity of the liquid are the key factors in determining the effectiveness of solids removal. This combination creates the centrifugal-action necessary to remove particles as they pass through the Separator. The efficiency of this process is greatly dependent on the size and weight of particles (their specific gravity) as shown in the chart below.

The effectiveness of this process can be improved by multiple passes through a LAKOS Separator or by installing two Separators in tandem (a "Super Separator").

Some of Our Global Steel Installations Include:

- ArcelorMittal Steel**
Burns Harbor, IN
Coatesville, PA (See AB-194 for details)
Conshohocken, PA
Saldanha, South Africa
Lazaro Cardenas, Mexico
See AB-210 for details
- British Steel**
Birmingham, UK
- California Steel**
Fontana, CA (See AB-186 for details)
- Dong Kuk Steel Company, Ltd.**
Inchon, Korea
(See AB-138 for details)
- Gerdau, S.A. Steel**
Tampa, FL
Santiago, Chile
- Lone Star Steel**
Lone Star, TX
- Nippon Steel**
Yawata Works/Kimuzu Works, Japan
- North Star Steel**
Houston, TX
- POSCO Steel**
Korea (See AB-207 for details)
- Sidmar Steel**
Gent, Belgium (See AB-149 for details)
- Tata Steel**
Jharkhand, India
- Rautarukki Steel**
Raahel, Finland
- U.S. Steel**
Fairfield, AL; Pittsburgh, PA
- Vöest-Alpine**
Linz, Austria

Contact LAKOS for a more complete listing.

Open Water Pump Intake Protection

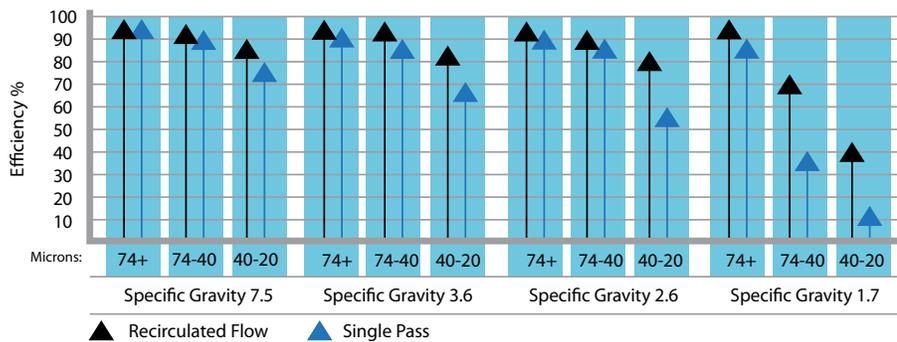
LAKOS Self-Cleaning Pump Intake Screen Filters (ISF) keep unwanted debris from damaging pumps and getting into your water systems. Environmentally friendly with flow rates up to 100 US GPM (22.7 m³/hr)



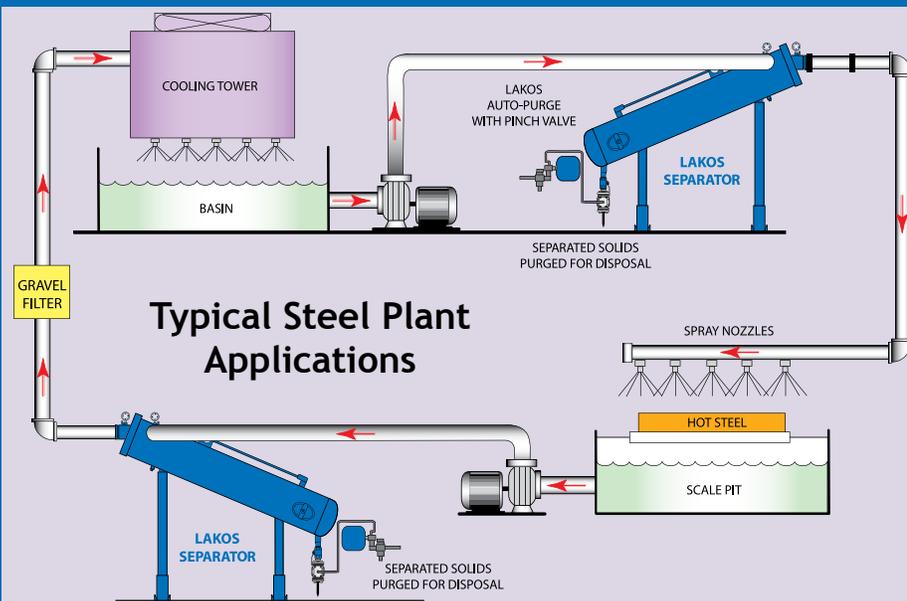
steel specific gravity 7.8	▶ 20-40 microns
cast iron specific gravity 7.1	▶ 30-50 microns
mill scale specific gravity 6.6	▶ 35-55 microns
aluminum specific gravity 2.7	▶ 40-60 microns
sand specific gravity 2.6	▶ 50-74 microns

Efficiency

Solids Removal Chart



Typical Steel Plant Applications



Solids Handling and Total Systemization: A Key LAKOS Advantage



After the solids are removed from the process flow, LAKOS offers several manual or automatic SOLIDS HANDLING purge options to capture and concentrate the solids for disposal at low cost and low maintenance. These include everything from simple barrels and collection hoppers to automated valve options as shown.



LAKOS Industrial-Strength Separators



Flow Range:
3 - 12,750 US GPM
0.7 - 2895 m³/hr

Maximum Pressure Rating:
150 psi
10.3 bar
Higher pressures also available

Pressure Loss Range:
3 - 12 psi
0.2 - 0.8 bar

Materials of Construction:
Carbon steel is standard, but also available in:

- stainless steel
- fiberglass-reinforced polyester (FRP)
- Monel™ clad steel
- abrasion resistant (AR) steel

Consult factory for special requirements.

Sizing and Selecting The Right LAKOS Separator

Step 1:

Determine the actual Flow Rate of Fluids

Step 2:

Verify the solids are settleable (see charts on page 3)

Step 3:

Determine what you want to do with the solids that are removed

Step 4:

For pit/sump/basin cleaning, determine the length and width and depth of the reservoir



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