

► Mott technology removes FCC catalyst fines?

Process Filtration News

September 2006

Refineries all over the world are using Mott's sintered metal filters to remove FCC catalyst fines from slurry oil. For 20 years Mott's HyPulse® LSI technology has provided highly efficient, continuous filtration utilizing a unique inside-out filter design. That design results in less heel, minimal loss of filtrate, and easier discharge of solids. The economics are just too great to ignore.

Catalyst Recovery

Increase Slurry Oil Efficiency and Savings with Mott porous metal

A key goal for removing the catalyst particulate is the upgrading of product fuel oils to provide feedstock for production of carbon black, needle coke or other products. The catalyst fines in slurry oil can damage downstream components due to their abrasive nature. Filtering these particles from the process will also prevent settling and sludge formation in slurry oil storage tanks, thus reducing concerns over hazardous waste in tank sediments.



Mott takes filter design seriously. The time spent in developing the proper high-performance filter system will ultimately save the customer both time and money. Mott has the capability of providing media grades that specifically provide optimal value for these types of slurry applications. The HyPulse LSI process filter provides a backwashable technology that requires less labor, fewer element change-outs, and fewer process interruptions than other types of filtration.

Reducing the solids in slurry oil requires a filter that withstands rigorous service conditions of high temperature and pressure. The benefits of an all-metal Mott filter are obvious. The filters are backwashable in place and are manufactured using a high-strength media. Sintered porous metal media is bonded at the molecular level,



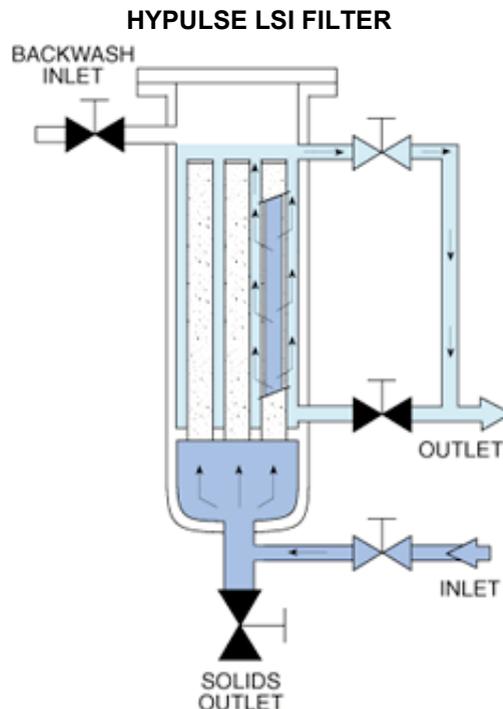
eliminating the tearing, fatigue and breakthrough problems typical of other media types. Media grade selection and proper filter sizing is determined after careful review of system's process conditions, filtration requirements, and design specifications by our Process Systems Team of experts.

How the LSI filter works

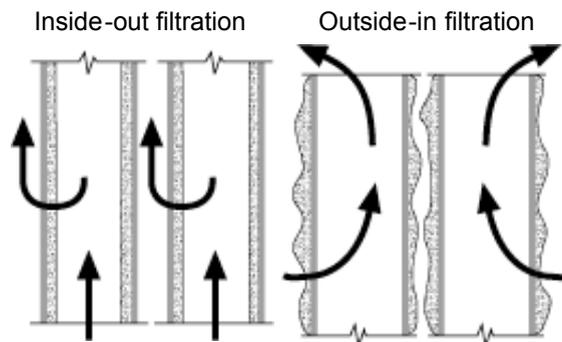
Mott's HyPulse LSI filters are backwashable metal filters that contain tubular porous metal elements installed in a tubesheet at the bottom of a vessel. During operation, the feed slurry containing suspended solids is introduced to the filter below the tubesheet and flows through the inside of the filter elements. Solids collect on inside surface of the elements as filtrate passes through the elements to the outside surface (**see Picture Below**).



Close-packed filter elements enable Mott to design compact LSI systems with more filtration area than much larger competitive systems.



The accumulation of solids on the inside surface of the filter elements is followed by backflushing to remove the solids as highly concentrated slurry. This process is as simple as flushing slurry through a pipe.



Inside-out filtration used in Mott HyPulse LSI filters results in more uniform deposition, and more secure retention of solids, while eliminating the problem of cake bridging between elements often associated with outside-in filtration.

The benefits of this configuration and operation are many:

- Elements can be packed closer together in a smaller housing.
- Solids are retained on the inside surface of the filter elements under hydraulic control.
- There is no bridging with adjacent elements on cake formation.
- Solids retained in the elements are immobile and fluids can be exchanged for maximum product recovery and backwash effectiveness.
- Higher pressure drops can be accommodated which result in longer filter cycles and higher filter throughput efficiency.
- Scale-up from pilot testing or smaller filters is readily determined.
- High flow rates and solids loadings can be accommodated without complex hydraulic calculations affecting solids deposition and fluid flow patterns.
- Simple outside-in backwash eliminates the strain and stress on adjacent elements during the backwash, resulting in a stronger, more reliable mechanical installation.

Have you examined your system design and efficiencies? We can help you optimize your process and give you an edge towards improved operations and greater profitability. As we said earlier, the economics are too great to ignore.

For more information

Click on the images below to download our [8-page catalyst recovery brochure](#) or our [10-page FCC Slurry info](#). You may also contact us at Process Systems Sales, Mott Corporation, 84 Spring Lane, Farmington, CT 06032, 1-860-747-6333 or Toll-Free 1-800-BUY-MOTT. E-mail: quest@mottcorp.com.

Safe, reliable,
fully automated
catalyst recovery.
The Mott solution.



**FCC SLURRY OIL FILTRATION
WITH MOTT HPULSE[®] LSI FILTERS**

Mott Corporation has installed the two largest HPULSE LSI filter systems in two major refineries for removing FCC catalyst fines from slurry oil. The first system has operated successfully for over three years in two 4 foot diameter units and the second system consists of two 36 inch diameter units. Each installation is a high-pressure system designed to provide continuous operation at pressures in excess of 7000PSIG. The systems are fully automatic, and continue to operate at high degree of filtration high efficiency particle separation.

