

Metso

Larox® Filtration Services

PF Filter Services Offering

Separating the best
from the rest for more
than four decades

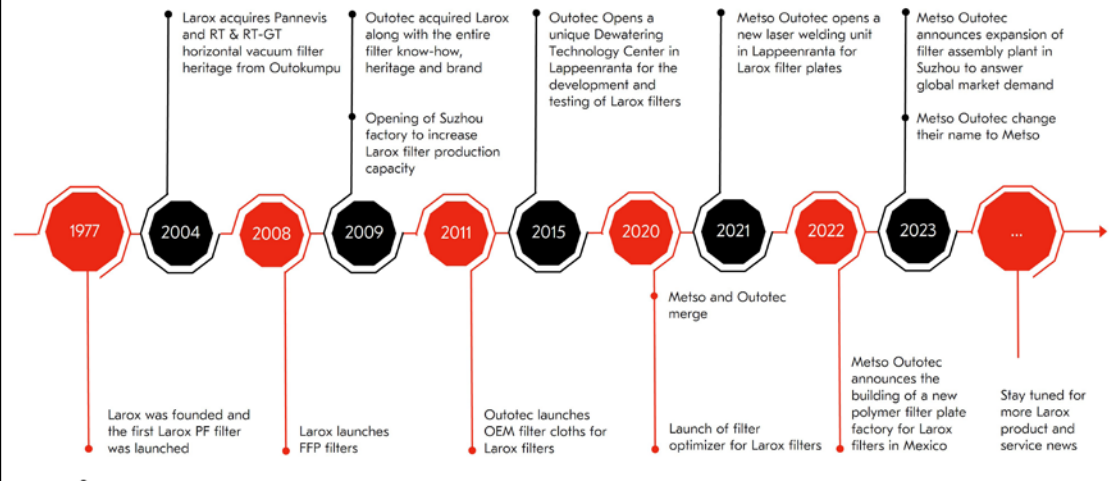


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Larox history

Our rich inherited Larox portfolio, knowledge and OEM history since 1977



LAROX®

The Metso Filtration Services team strives to deliver the best possible availability, performance and quality whilst optimizing costs. Our filtration solutions aim to eliminate environmental and societal risks at our customer operations. Our filtration experts ensure safety and quality is built into everything we do from R&D and engineering to parts and services.

Your filtration services provider



Global service capabilities

Over 1500 field technicians over 50+ countries, providing the filtration service support you need and quality OEM components



Certified professionals

Our filtration professionals have in-depth process understanding and share their knowledge to develop your organization's skills and increase efficiency



Innovation & continuous improvement

We constantly challenge the status quo, driving continuous improvement to boost your filter performance across our 39 local service centers and 30 testing facilities



Life cycle journey

We are dedicated to the long-term journey throughout the filtration equipment life cycle, creating win-win relationships for all stakeholders



Planet Positive

Sustainability is one of Metso's key strategic priorities, we are committed to limiting global warming to 1.5 °C. The filtration solutions are a part of the recently launched Planet Positive offering, since they are designed to improve water-efficiency, lower emissions and amount of energy consumed.

Planet Positive is our all-encompassing approach to sustainability, which covers the environmental, social and financial aspects. Our Planet Positive offering has a central role in our sustainability agenda and 1.5 °C journey as it represents the key means of improving the resource efficiency of our customer's operations.

Our long-term goal is to provide customers with products and services that are even more sustainable. We will continuously develop our filter offering, with a focus on energy efficiency, reducing emissions, water efficiency, circular solutions and safety.

Life cycle support journey

Continuous filtration performance improvement

Metso is committed to helping you get the most out of your entire operation. Our comprehensive service portfolio is supported by deep technical knowledge, experienced people, and specialized tools to maximize your profitability. Our Life Cycle Services conveniently bundles our services into customizable packages with financial and payment options.

4. Modernize and extend life cycle

- Progressive monitoring based on targets
- Achieve success metrics and KPI's
- Set new targets
- Progressive growth for profitability

Offering

- Filter modernizations
- Filter refurbishments
- Filter automation

3. Filtration optimization

- Identify available tools and resources
- Consider internal and external factors
- Implement improvements
- Track performance

Offering

- Filter upgrades and modernizations
- Process enhancements
- ACT filter & thickener optimizers
- Lab & on site test work

2. Filtration operations

- Obtain operational stability
- Identify areas for improvement with impact on business

Offering

- Filter inspections
- Field services and support
- Spare parts
- Maintenance and RCM support
- Connected services

1. Filtration journey begins

- Understanding the filtration targets
- How to gather and measure performance
- Long-term vision

Offering

- Installation, commissioning, ramp-up
- Spare part planning
- Maintenance strategy
- Connected services

We are committed to the journey

Installation and commissioning services

Our Metso Larox PF experts guarantee the best start for your filtration experience

Larox PF installation and commissioning services

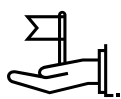
- Erection & installation
- Cold and hot commissioning
- Ramp up and stabilization

Offering

- Advisory
- Execution, labour & supervision
- Erection & installation
- Commissioning
- Ramp up & stabilization
- Recipe & parameters adjustment
- Process support
- Performance validation
- Hold point warranty validation



Single point of contact



Integrated service from detailed design through equipment startup



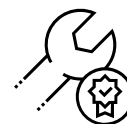
Access and adherence to current OEM assembly and erection guidelines



Seamless hold point warranty validation



Accurate schedule and status updates



Immediate problem and issue resolution through on site expertise with direct in-house OEM engineering access

Metso Larox® PF spare parts

We commit to provide and maintain the complete portfolio of spare and wear parts available globally for uninterrupted production from the start and throughout decades of operational life, until the final stage of the PF Filter life cycle. We strive to serve our customers with the latest innovations through our in-house R&D and manage the life cycle changes of OEM and third-party parts and systems, guaranteeing a hassle-free experience with peace of mind.

Process piping

Stainless steel piping, feed/filtrate & pressing water hoses, process valves

Hydraulic cylinders

Quick action cylinders, sealing cylinders, locking cylinders, cloth tracking cylinders

Filter plates & plate pack parts

Complete steel or plastic filter plates, filter base plates & frames, diaphragms, vats, grids, plate sealing, collectors, plate suspension, scrapers

Pinch valves

Valves & sleeves

Cloth drive and tensioning system

Drive motors, couplings, tensioning chains

Rollers

Drive rollers, cloth tracking rollers, tensioning rollers, auxiliary rollers, roller repair kits

Filter cloths

Comprehensive cloth portfolio, filter cloth & clipper seam accessories

Heavy parts

Foundation & pressing plates, columns, structural parts

Pressing water stations

Pressing water rig, pumps, valves

Control system

PLC, electric & pneumatic control systems, components & instrumentation

Hydraulic system

HPU, pumps, motors, control blocks, hydraulic valves, cooling, accumulators, oil filters, condition monitoring

Auxiliary systems & parts

Weighing system & parts, slurry pumps, cake breaker systems, conveying solutions, pressing air compressors, cake popping systems

Metso

Proven performance and support



We provide materials, solutions and quality backed by decades of experience for peace of mind and safety



Support and execution resources available arms reach to succeed and improve overall equipment effectiveness (OEE) with quality parts, latest technologies and operational practices



Global availability & stocking - making sure we are always close to our customers



Visual online spare parts catalogue with unique spare parts BOMs for each filter for effortless ordering of parts

All materials used in our products do not contain RoHS 3 (2015/863/EU) controlled substances and are in full compliance with the EU REACH directive.



Metso

Larox® Filtration Services

PF Filter Cloths

Based on decades of experience, we offer our customers unsurpassed filter cloth quality, improved availability and optimized process results for Metso Larox PF filters.

Benefits

- Tailor-made to suite equipment, process and production
- Optimized throughput and filtrate clarity
- Excellent cake release & resistance to blinding
- Stretch, shrink & higher abrasion resistance
- Extended life & higher availability of filter

Filter media is an essential part of the filtration process. Our filter cloths are tailored to perform with Metso Larox PF filters. By selecting our filter cloths as filter media, customers can ensure optimized performance and process results for each application.

We offer a comprehensive service network with committed customer support. Choosing our filter cloths will secure access to our product expertise, process support and tailored cloth options to suite your process and conditions.

Guaranteed Quality

All Metso parts and components are designed, tested and manufactured to match the original specifications to ensure maximum quality and fit.

Optimal Performance

Over time, filter cloths blind and limit performance. By replacing your cloth with Metso OEM filter cloths designed for the specific application, you can expect the performance of the filter to continue at optimal levels.

The only way to have peace of mind about the performance of your equipment is to replace parts and components with an OEM part which fit your filter perfectly and deliver optimal performance.

Features

- Portfolio covers entire permeability range
- Cloth, filter and process knowledge
- Rigorous testing and continuous improvement
- Global distribution and technical network

Metso

Larox® Filtration Services

PF Filter Plates & Frames



Filtration

Larox PF Filter plates & frames - manufacturing processes perfected with passion

Original Larox PF Filter Plates and Frames forms the foundation of successful plate pack assembly with first class manufacturing quality.

The cyclic loads in PF Filtration aren't the only challenge to polymer and elastomer parts, so are fatigue and continuous stress, which need to be controlled as with the Filter Plates and Plate Frames to maintain the exact original geometry.

If these challenges are not controlled, the plate pack or individual plate pack components would likely fail to perform pressure filtration.

As the OEM of Larox PF Filter Plates we combine the legacy of the steel parts design for pressure filtration coupled with

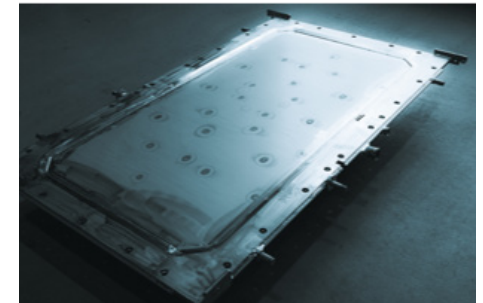
manufacturing, welding, in-house expertise, stainless steel, special steel materials science, metallurgy and fine-tuned quality assurance.

Our customers can always trust that the specified welding processes and procedures are being followed and that the materials used are guaranteed to match with the specification flawlessly, always documented, traced and certified in the required manner.

It is our passion to not just fulfil the expectations but to continue developing with the latest technologies available, bringing benefits to all of our Larox PF Filter customers.

Features

- Design and manufacturing methods optimized for maximum efficient Filter plate & frame service life
- Standard & special grade stainless steel filter baseplates, frames & plate assemblies
- World-class manufacturing
- Uncompromised quality assurance & control



Benefits

- Best filter availability & reliability
- Maximized cycles of reusing plates & frames reducing cost and environmental impact

Metso

Larox® Filtration Services

PF Plastic Filter Plates



Filtration

Utilizing Plastic Plate expertise across the Larox filtration product portfolio

Plastic PF filter plates are the best solution for extremely corrosive applications in industrial filtration.

Plastic PF filter plates are the best solution for extremely corrosive applications in small to mid-size PF filters and in industrial PF filtration applications with highly corrosive chemical composition of slurries being dewatered.

All plate pack parts exposed to corrosive slurries are made of polymers with a stainless-steel support frame, minimizing the risk of corrosion.

Our plastic plate expertise is not limited to PF filter plastic plate packs but also includes the Larox FFP, OS filters and thousands of Hoesch filters with proven results over decades of plastic plate design and supply.

Our cumulated plastic plate material and manufacturing expertise across our product range provides plate solutions for the most extreme conditions with confidence.

Features

- Plastic plate construction, supported with stainless steel frame
- One piece plate body
- Pressure release over diaphragm bulge in case of closing force failure
- Available for 1.6m² or 2.5m² plates

Benefits

- Best solution for corrosion resistant plate pack in PF Filters
- High durability
- Excellent chemical resistance
- Fully recyclable

Metso

Larox® Filtration Services

PF Filter Diaphragms



Filtration

Over 30 years expertise in materials science, manufacturing and support for Larox PF Diaphragms

The PF Filter pressing diaphragm is a true multitasker within the plate pack - with each detail deliberately designed and manufactured with application specific materials.

Benefits

- Maximized filter availability with superb diaphragm service life
- Minimized unexpected diaphragm replacements for improved reliability

Features

- Rubber compounds tailored specifically for pressure filter diaphragm use
- Specific design details – reinforcements, release pips, shape and geometry to fulfil diaphragm tasks
- Extended and continuously developed portfolio for mining & industrial applications

Compressing the cake with diaphragm pressing is the prerequisite to forming the cake in pressure filtration. Pressing is also a very energy-efficient form of dewatering. Simply put, the PF Diaphragm is not only a sheet of engineered rubber, but due to its core duty, it is a showcase of holistic expertise in materials science.

The main task for diaphragms is to transform the force of pressing air or pressing water into mechanical pressing. It also keeps the pressing media (air/water) and the filter cake separated. The diaphragm protects the filter plate as a lining against corrosion, forms the sealing between filter baseplate and frame, and in PF filter with plastic plate pack it also acts as a sealing frame.

As is customary in most of the PF Filter parts, the cyclic, continuous use and extreme demand of equipment availability set the bar high.

The drive for excellence is not limited only to our product range of great variety of materials and design. We are ready to support our customers with our application expertise to test and select the best option of the diaphragm, or even engineer a tailored solution for special applications, not overlooking operational and maintenance advisory to increase diaphragm life.

Diaphragms are not everlasting, and fault finding and replacing diaphragms can be time-consuming. We have taken every effort to make them better and better to bring the diaphragm service life and reliability to the maximum level.

Metso

Larox® Filtration Services

PF Filter Vats



Filtration

Original Larox PF Filter Vats – the proven match of material specifications

Original Larox PF Filter vats have been constantly developed in response to the increasing demand for wear and creeping resistance in mining applications.

The Filter Vats in PF Filters face two major phenomena, creeping and abrasive wear. Neither of these can be eliminated, but material composition, design and operational elements can make a difference in performance and longevity.

The plastic material selection in terms of molecular weight plays a significant role when minimizing creeping. But it has its limitations, and the ratio between molecular weight and creep resistance is not linear.

Our vats achieve the best balance of these properties, resulting in a prolonged lifetime even in the toughest mining applications. Our portfolio consists of a wide range of materials suited to your application, and in extreme applications, the filtrate outlets can be equipped with steel reinforcements.

We do not limit our expertise to material selection but have also extensively researched and tested the best material combinations for vats and plate sealing. All our components are engineered to operate optimally with each other. Similarly, the dimensional tolerances and material properties ensure the optimum fit of Larox filter grids.



Features

- Wide range of Vat materials
- Temperature range up to 90° Celsius
- Steel reinforcements for demanding applications
- FDA & Chemi range for industrial filtration
- ATEX/Antistatic materials
- Operational support

Benefits

- Maximized Vat life and guaranteed quality ensure the lowest operational costs
- Material paired with plate sealing and fit of Larox PF grids
- Operational parameter support to optimize Vat life

Metso

Larox® Filtration Services

PF Filter Plate Seal



Filtration

The best-known filter chamber sealing solutions for all applications

Larox PF sealing flats and sealing frames for tireless sealing of the filter chamber with the correct material compounds and superior quality.

Benefits

- Uncompromised filter availability
- Effortless maintenance
- Ensures chamber sealing for production, safety and clean operations

The PF Filter plate seal ensures the sealing of the filter chamber, between the cloth and vat. Perfect sealing of the chamber is a prerequisite for the proper functioning of a PF filter, and an important component to avoid leakage of slurry/filtrate which may cause health and safety as well as housekeeping issues.

Best sealing solutions for PF Filters

Elastomer components such as a sealing flat is intended to last for up to two years under cyclic loads and exposure to slurry, various temperatures and chemicals. Naturally, this is often when the deterioration of rubber materials become visible which can impair the functionality of critical rubber parts and could lead to machine failure. The sealing flat/frame material need to be fatigue, abrasion and cut resistant to function correctly.

Shape, dimension, volume and quality in fabrication are also critical. Based on our long-term experience in conjunction with the materials expertise and research we have designed a portfolio to prevent rubber deterioration in the long-term and provide significant cost-savings.

Our broad portfolio of sealing materials and base/reinforcement materials will provide the filter availability and optimization required by de-bottlenecking the sealing related downtime.

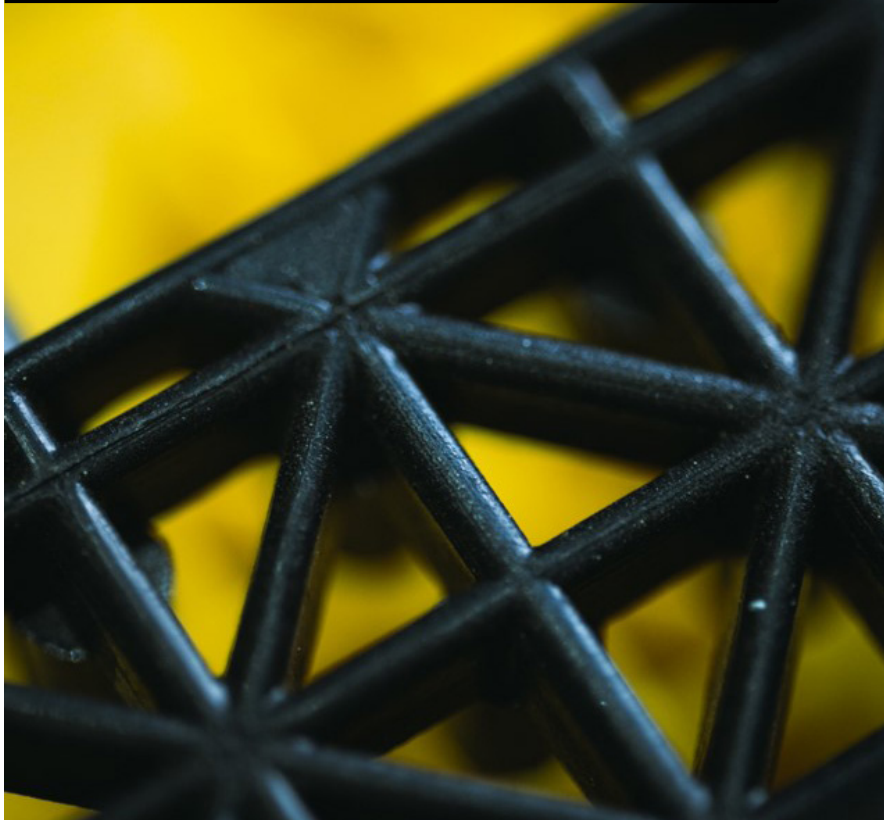
Features

- Sealing flats and one-piece sealing frames
- Various rubber material compound options
- Special compounds for industrial applications including food grade options
- Base material options for standard and specialized applications in steel grades as well as composites

Metso

Larox® Filtration Services

PF Filter Grids



Filtration

Two apertures, highest known reinforcement content available and tailored materials makes the Larox grid portfolio incomparable

The Larox PF grid portfolio is suitable for all duties and applications to ensure the best possible filter availability and reliability.

Features

- Full grid sets in stock
- Plate geometries available for new/legacy PF filters
- Grid aperture options optimizing flow and cake support properties
- Base material options with zero to highest reinforcement content in the market
- FDA, antistatic and special materials on request
- Fabricated for the precise fit with Larox filter vats

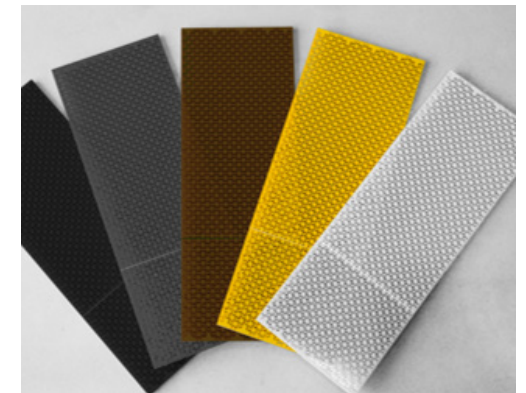
Benefits

- Manufactured to complement the Larox vats for maximum plate pack availability and efficiency
- Improved filter cloth life and reliability
- Reduced operational costs through decreased grid consumption

Filter grids fulfil very important duties in the PF filter plate pack, which is to provide a smooth passage for the filtrate and support to the filter cloth and cake both in pressure filtering and the cake discharge/conveying sequence. Good housekeeping practices which include removing cumulated material on grid plates and regular grid condition inspections make a difference in filter availability. This is especially important if other parts, cloths and grids are not performing the way they should.

The strain and elongation of materials cannot be completely eliminated, and neither can abrasive wear. But the correct support coupled with our expertise, grid material and aperture selection, we can offer the best suitable solution for your process and cake.

The elongation properties and tolerances are specifically coupled to complement the Larox filter vats, to ensure the smallest possible gaps between the grids and vats for the best filter cloth edge support.



Metso

Larox® Filtration Services

PF Filter Plate Suspension



Filtration

The best-known filter chamber sealing solutions for all applications

Lift and suspend the PF filter plate pack safely and securely with Larox filter plate suspension parts.

Features

- Experience in plate suspension design to meet the intended design life safely
- Standard and special materials, with guaranteed material grades
- FEM analyzed geometry for even stress distribution and smooth plate pack lifting with Larox filter vats

Benefits

- Safe filter operation and maintenance with original plate lifting parts
- Risk of collateral damage to the filter plate pack mitigated with a reliable suspension system
- Parts designed to interact with each other flawlessly which increase the component life and decreases parts consumption

Suspension parts in the PF filter are critical safety elements and influence the filter plate life. Failing to survive over the defined maintenance cycle will not only put the suspension parts themselves at risk but may cause severe damage to the filter plate pack and cause frames to require a lengthy and expensive refurbishment.

The geometry of the suspension plates is critical. We provide the most favorable design through our experience in over 1000 PF Filters installed, but also through holistic FEA analyses to ensure the forces are distributed and released for the longest possible component lifetime in mind.

We provide steel materials that are suitable for standard solutions as well as special grade steels for ultimately demanding applications, guaranteeing the correct material specifications for each application.

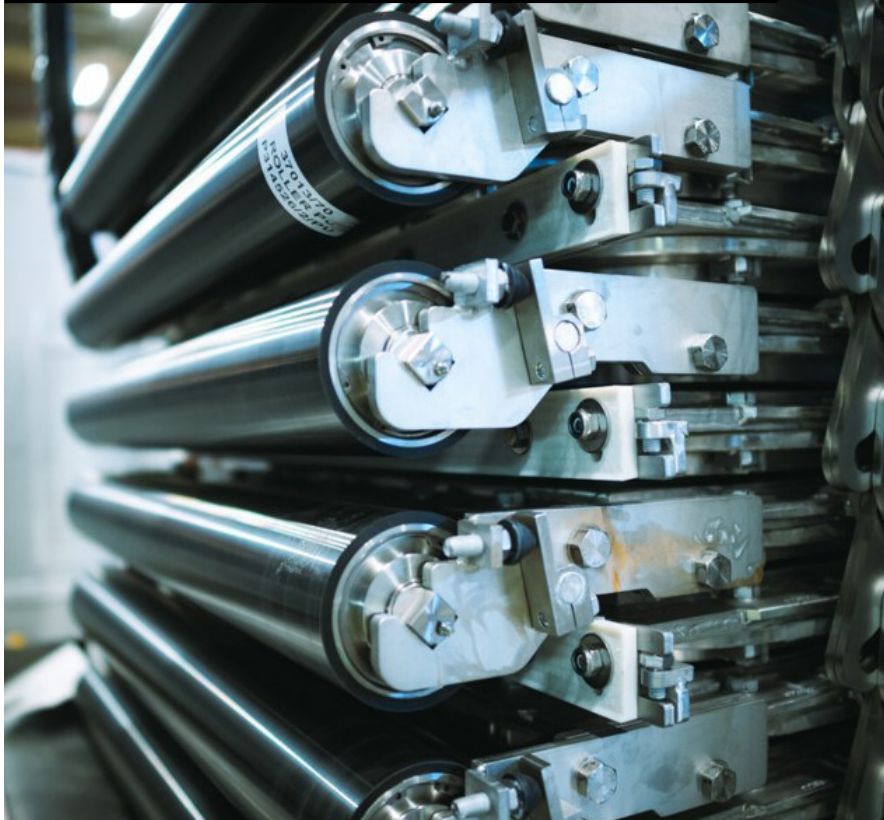
Our guarantee also includes that the required surface finish and welding quality is met, to reach the intended design life.



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Larox® Filtration Services

PF Filter Rollers



Filtration

Reliable filter rollers built to last

Undisturbed filter cloth driving with Larox filter rollers.



Filter rollers are responsible for driving, steering, tracking and tensioning the cloth.

Our cumulated expertise in mechanical design and component engineering has resulted in the design of rollers which perform each duty to perfection, reliably and for optimized service life. We have also created a comprehensive portfolio of roller linings to fit the roller purpose and customer application and environment based on our vast materials expertise in polymer materials.

Our rollers are also designed for easy maintenance of the wearing parts and supported with roller reparation kits for guaranteed availability and fit of roller spare parts.

Features

- Cloth drive, cloth tracking, cloth steering, cloth tensioning cylinders built for purpose
- Lining & steel materials selected for best fit for each purpose and process
- Simple and flawless roller maintenance with roller repair kits

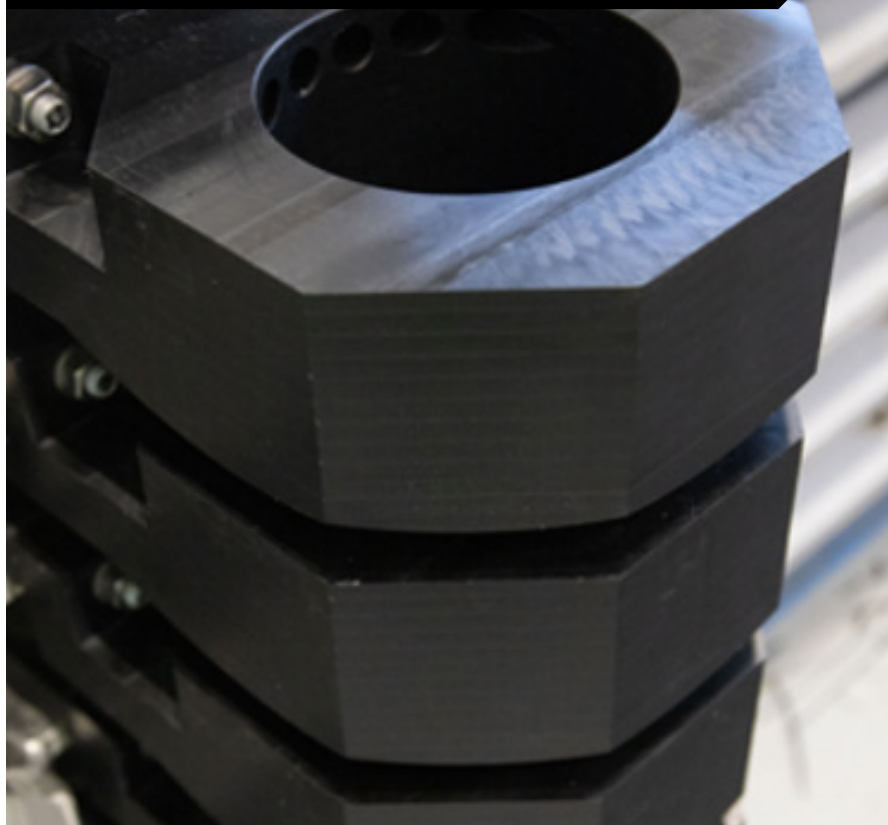
Benefits

- Ensured filter reliability and cloth conveying
- Quick and efficient roller maintenance
- Optimized roller wear life

Metso

Larox® Filtration Services

PF Filter Filtrate Collectors



Filtration

The best way to collect your filtrate

PF Filtrate collectors are specially designed and manufactured using specific materials to ensure a spill-free filtrate passage economically with long wear life.

Benefits

- Maximized wear life for minimum collector consumption
- Clean end-product
- Safe and clean filter operation

Larox PF Filtrate collectors design in combination with the complimentary sealing solution ensures that the filtrate does not spill or leak while dewatering the cake.

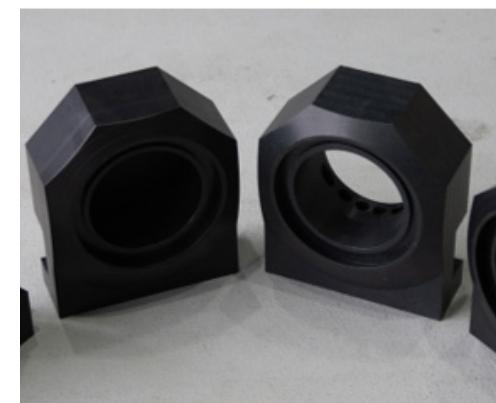
Our available material portfolio maximizes the collectors wear life and ensure the most suitable material specification for the toughest wear conditions in concentrate filtration.

The materials are chemical resistant and guarantee purity in industrial filtration where filtrate is the end product flowing through the collectors.

Like all other Larox PF Filter spare and wear parts, our collectors are easy to install and readily available through our global supply network close to you, including the related sealing and mounting solutions required.

Features

- Polymer material collectors with spill-free design and collector seal
- Fits all generations of filters and filter vats
- A comprehensive range of materials for various filtration applications – including food and pharma and industrial filtration with filtrate as an end-product



Metso

Larox® Filtration Services

PF Filter Heavy Parts & Structures



Filtration

Tons of original quality with Larox® heavy parts and structures

Our aftersales portfolio is not limited to only small components. We deliver tons of original quality, heavy parts to refurbish the Larox PF filter frames and structures.

Heavy steel structures such as foundations, pressing plates and columns are designed to last for the entire intended life of the Filter.

Sometimes due to exceptionally harsh process conditions and environment, lack of filter maintenance, or unexpected events may cause premature corrosion, deformation, or other failures of the structural parts.

Operating conditions or process chemical variations may also cause a need to change the steel materials or surface protection specifications.

Equipment and operational safety should never be compromised with unreliable structural parts. We deliver original or upgraded heavy parts, manufactured with precision to ensure safety and performance.

Changes to structural parts can be costly and require correct procedures related to other parts which would also need to be modified. We collaborate with our customers to plan an efficient, cost-efficient scope for replacing parts or refurbishment projects and offer support with installation instructions or installation services.

Features

- Original design & quality heavy parts with decades of in-house and contract manufacturing expertise
- Upgraded materials and/or surface protection
- Installation and assembly support or service

Benefits

- Guaranteed fit and quality
- Correct and economically efficient scope
- Support for shortest possible shutdown
- Restoration to a safe and reliable filter

Metso

Larox® Filtration Services

PF Filter Hydraulics



Filtration

Ensured functionality of the complete hydraulic system today and tomorrow

Achieve consistent availability of components and get support to maintain and keep your hydraulic system functional.

Benefits

- Reliable hydraulic system
- Global supply of critical parts with stocking plans
- Quick maintenance and shorter downtime

Features

- Expert support and troubleshooting
- Special design hydraulic cylinders
- Obsolescence management and retrofit kits with guaranteed fit
- Plug-and-play hydraulic valve blocks and pre-calibrated components
- Refabricated hydraulic pipes and pipe kits
- Hydraulic hoses and fittings

The hydraulic system in PF filtration does not have a direct role in the filtration process itself but is responsible for virtually all mechanical movements for each cycle of filtration.

Hydraulics is often the source of availability and reliability issues. Particles entering the oil, oil contamination, moisture in the oil, and parts wear are common challenges when operating a hydraulic system.

The Larox PF hydraulic system consists of a hydraulic power unit with a host of subsystems and parts and forms a sophisticated, complex system in conjunction with the filter control system.

We know the operating philosophy and interaction between the components, so do rely on our support arms reach when facing trouble on diagnosis of faulty parts, evaluating failure modes or just requiring best maintenance practices.



Metso

Larox® Filtration Services

PF Filter Process Piping



Filtration

A comprehensive and proven process piping solution for maximum safety and availability

Larox PF Filter process piping solutions are built for safe and reliable materials flow.

All process equipment such as the Larox PF Filter has a significant flow of material within the filter. We originally built our filters with selected pipeline materials as well as hoses and fittings from our original hose solution with the required valves and instrumentation.

Our decades of high-pressure systems and coarse materials handling ensure the filtrate is delivered correctly, safely and with minimum maintenance.

We provide complete kits or plug-and-play parts and pipelines for filter maintenance and refurbishment throughout the filter life cycle.

Our slurry, pressing water and air hoses and fittings solutions are continuously developed and follow the latest safety requirements and manufacturing technologies for the easiest, safest possible operation and maintenance.

We manage the availability, obsolescence and replacements for the third-party valves and instrumentation and ensure parts of available for years of operation.



Benefits

- Quick and easy maintenance
- Guaranteed safety
- Process piping related filter stops and downtime eliminated

Features

- Complete process pipelines and pipeline parts available in required materials specification
- Dedicated original hose systems with fittings, connectors and safety elements are offered in a broad range of materials

Metso

Larox® Filtration Services

PF Filter Control System



Filtration

Hassle-free filter control and safety through the entire lifecycle

Don't let the intelligence of your filter fail. Ensure your control system is up to date and functioning efficiently and effectively.

Features

- Original parts and complete systems with original configuration
- Obsolescence & replacement management
- Global parts stocking & availability
- Expert support
- Upgrades, expansions for Connected Analytics



The PF filter control system is responsible for managing all functions, inputs and outputs of the filtration process and all necessary safety functions. Thousands of components need to interact with each other, each with vulnerabilities making regular maintenance a necessity to ensure availability and the reliability of the filter.

Benefits

- Hassle-free control system life cycle to maintain functionality and safety of your filter
- Correct parts with original configurations & programming available close to you for quick recoveries
- Support network for troubleshooting, system updates & upgrades

We do not just distribute components, we ensure that you receive the correct parts and take care of the parts obsolescence and replacement management to make the life cycle of the filter control system as hassle-free as possible.

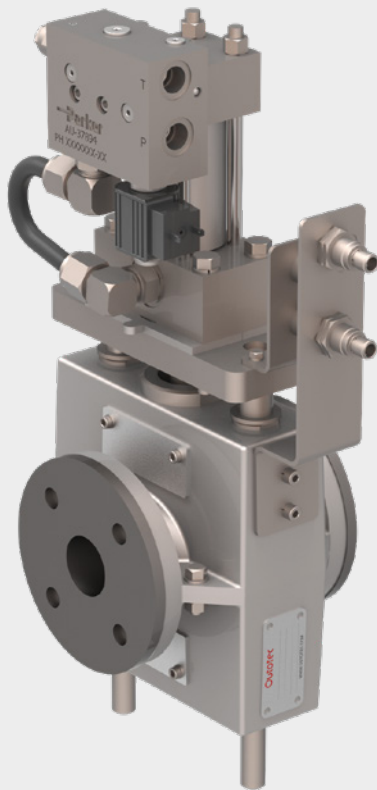
Should a vital configured part fail, we will deliver a pre-configured and programmed replacement unit for your filter for a quick, seamless ramp-up. We have an extensive support network to assist in control system troubleshooting and updating or changing programming or configurations.

We are committed to constantly develop and improve user experience with our Connected Analytics and connectivity of the control system.

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Pinch Valve II for Filtration



Metso Larox pinch valves are known as the industry standard. The Pinch Valve II is built with exceptional focus on managing cyclic, continuous use under high pressures.

Pinch valves are the preferred solution to control liquid and gas flow in pressure filtration. A key element of the valve is the sleeve which is the only part exposed to the abrasive and corrosive flow process liquids, slurries and gases.

The elastomer sleeves perform well against the wear and harsh process chemicals and prevents any scale build-up and guarantees valve closure even with solids present. The cyclic use of the valves, however, often limits the sleeve life especially in batch-operated filters like the Metso Larox PF, Larox FFP & VPA.

Pinch valve sleeve failures are often the cause of unplanned shutdowns and in most cases, the valve maintenance interval is not in sync with the rest of the maintenance planning.

A renewed perspective and dedication to filtration applications

The new pinch valve II mechanical structure is based on the same legacy with enhanced features. The simpler sleeve replacement structure is faster, and pinch adjustment is always precise. This ensures your valve performs as it originally performed, eliminating the most frequent root cause of sleeve failures: adjustment mistakes. Sleeve replacement is safer as actuator power is not required.

The sleeves have proven to outperform earlier generations, as filtration specific rubber compositions work optimally against cyclic fatigue forces without compromising abrasion resistance.

Benefits

- Valve as “good-as-new” after sleeve replacement
- Sleeve life does not dictate your maintenance schedule
- Noticeable filter availability improvement

Features

- Robust valve design for heavy duty use
- Design philosophy ensuring longest possible sleeve life.
- Simplified & safer design for maintenance and sleeve change
- Sleeve materials optimized for highly cyclic applications

Metso Larox® PF modernizations & upgrades

The Larox® PF design philosophy for filter modernizations and upgrades is based on the OEE framework with safety and sustainability added to the core of our model. This means all our products provide a clearly quantifiable and measurable benefit to one or more of the foundational OEE elements of: Quality, Availability, Performance, and Safety & Sustainability.

External CIP Washing
Accurate wash result
with decreased water
consumption

**Bellow Design for
Filtrate Collectors**
Improved user safety
and decreased
maintenance costs

Complete Plate Pack & Expansion
The most efficient way to increase
your filter performance

Pressing Air Valve Upgrade
Availability meets safety

Endless cloth Modernization
Superior overall performance
increase

**Hydraulic Cloth Tracking
Upgrade**
Longer filter cloth
lifetime

**Plate Guide Roller
Upgrade**
Faster & safer roller
changes and maintenance

**High Pressure Cloth Wash
Unit**
Maximized filter cloth
performance

Offline Oil Filter
Reliable hydraulic system
achieved with continuous oil
filtration

Service Platform
Ready-made solution for the
plate pack maintenance

Hydraulic System Upgrades
Ensuring spare parts
availability, fast problem
solving and minimized
energy consumption

2nd Generation Automation
Built-in data collection and secured
spare part availability

Metso

Latest technology and
innovations for your filter



Quality



Availability



Performance



EHS

*All materials used in our products do not contain
RoHS 3 (2015/863/EU) controlled substances and
are in full compliance with the EU REACH directive.*



Metso

Larox® Filtration Services

Filtration Inspections



Filtration

Regular, systematic inspections provide you with a clear understanding of the current condition and maintenance needs of your equipment to keep your operations running.

3 Inspection packages for your Metso filters designed to reduce unplanned downtime, equipment failure, and risks associated with operating faulty equipment.



Undetected issues can lead to breakdowns and unplanned service work, significantly increasing repair costs and production losses.

Get fast, accurate information about the condition of your equipment, recommendations for maintenance and improved operation with our filtration inspections.

The information provided will assist in minimizing unscheduled downtime and reduce long-term operating expenses. Our specialists can also recommend service agreements and spare parts.

Features

- Faster, easier inspections mean you get recommendations you can quickly act on
- Reports are clear, thorough and easy to share with colleagues
- Benchmark your filters and identify trends based on current and historical data
- Comprehensive data gathering improves your decision-making

1. Filter visuals and vitals

Gain a quick understanding of the filter condition.

2. Filter mechanical verification

Standard inspection package with specific adjustments and fixes.

3. Filter comprehensive/customized

Complete, in-depth package with additional check of hydraulic unit and field circuit.

Benefits

- Reduced downtime
- Extended filter lifetime
- Increased reliability
- Improved safety
- Minimized plant downtime
- Better visibility for maintenance requirements

Life Cycle Services for filters

Achieving optimal filtration results require filters to be in excellent mechanical condition and balanced with optimized maintenance and operations. Life Cycle Services (LCS) can help improve overall filter reliability, performance and safety.

Main challenges

When operating filters, you may encounter familiar challenges. These can range from experiencing shorter wear component lifetimes, having unexpected equipment failures, to experiencing high variation in the slurry feed content. Finding technical expertise at the right moment can also be challenging. These problems can lead to:

- Excessive maintenance and spare part costs
- Failing to reach production targets
- Suboptimal product quality

Choosing LCS for filters


Metso LCS for filters programs can help you overcome these challenges. Based on many years of experience in designing, building, delivering and maintaining filters, we know how to get the most from your filtration assets throughout their entire life cycle.

By choosing Metso LCS for filters, you can simplify your maintenance, improve your filter reliability, minimize downtime, and maximize filter life while achieving the highest productivity for your equipment.

With our LCS programs, we drive value adding service solutions depending on your needs. Our programs integrate service elements into simple, comprehensive, long-term agreements targeting the high overall equipment efficiency of the filter. Core service elements in our LCS packages are spare parts and repairs, maintenance and reliability, connected equipment and process optimization. All the programs cover options to optimize your costs and cash-flows.

Four LCS programs

We offer four different levels of service programs. Each package adds additional features, and no matter how basic or how complex your needs are, our programs can be customized to help you meet your objectives.

A photograph of a worker in an orange safety suit and white hard hat working on a large industrial filter machine. The worker is focused on a component of the machine, which has a red motor or actuator. The machine is complex, with many pipes, valves, and structural elements. The background shows more of the industrial facility.

LCS programs drive long term performance optimization and continuous improvement.

Four Life Cycle Services programs



1. Inspections and technical support

High filter availability with fewer unexpected surprises

Our certified OEM experts take care of planning the overhaul, providing the filter inspections and technical support as well as supervising the maintenance. Predefined spare parts kits are supplied and changed out during the service.

Technical resources for wear and spare parts replacement labour are also provided when required. Metso recommends connecting the filter to its global remote monitoring platform (Connected Analytics) to further improve its performance and provide performance guarantees as part of the agreement.



2. Maintenance and reliability

Maximized equipment reliability

Metso's Maintenance and reliability LCS program covers all the functional systems of the filter. This program spreads the complete maintenance activities across shorter, more manageable events on critical systems, ensuring that all important components and materials are covered.

These shorter and efficient service events help reduce the need for longer planned shutdowns throughout the year, allowing for maximum use of the filters.



3. Rotable filter plate

Filter place exchange with minimal downtime & lowest maintenance life cycle costs

We offer cost effective program options to manage the OEM filter plates exchange and refurbishment for different filter models under our LCS rotatable filter plate management program.

Depending on the filter model, Metso will provide new stand-by plates, supply the repair labour, spare parts kits, installation as well as wear rate monitoring of the components to define improvement opportunities. Specifically, for PF-filters, a rotatable plate pack refurbishment program is available and includes a complete stand-by plate pack as part of the agreement.



4. Process optimization

Maximized filtration rates and lowest end-product moisture

The Process Optimization package will help you maximize productivity and the energy efficiency of your filters by addressing your specific plant challenges.

Using our process and technology expertise gained from thousands of process tests and filter installations, we can identify the optimal operating parameters for your filters as well as help with the selection of the most suitable filter cloth.

Core outcomes

- Maximized filter reliability and production
- Highest end-product quality
- Lowest sustainable costs and quick return on investment

Other benefits

- Minimum spare parts inventories for the customer
- Steady cash-flow and volume price incentives

Financial and payment options

Upgrades and CAPEX deferred payments

Deferral plans let you make payments for investments such as upgrades or new capital equipment over a longer time period, rather than the date of purchase. This gives you financial flexibility to quickly acquire the solution you need.

Metso Inventory Solutions

Having Metso inventory on site allows you to reduce your working capital while maintaining high parts availability to keep your equipment running.

Fixed monthly billing

We mutually predetermine your payment schedules to allow better predictability. Once we've defined the scope of your LCS for filters program (in terms of services, spares, filter cloths, etc.), we'll set up an amortization schedule, laying out invoice amounts on a monthly basis.

Performance/KPI based billing

KPI targets can be linked to fixed fee payments, with Metso receiving additional payment for exceeding targets and vice versa if targets are not attained. Multiple KPI's can be considered, typically being equipment availability, component life-times, end-product quality and safety indicators.

Cost per ton billing

Cost per ton payment plans take cost spikes out of the picture and charge you based on what you produce in a given month. This allows you to better predict costs and cash flows and ensures that interests are perfectly aligned to maximize production.



