

Metso:Outotec

Inspection services

Filtration inspection packages



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 Outotec 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 systematic 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

Benefits

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

1. Filter Visuals and Vitals

Gain a quick understanding of the condition of your filter

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

[Read more at mogroup.com](http://mogroup.com)

Metso Outotec filter inspection packages



| | 1. Visual and Vitals | 2. Mechanical Verification | 3. Comprehensive/Customized |
|-------------------------------------|---|--|--|
| Core benefit | A quick way to understand your filters overall condition for peace of mind | Maximized filter availability through a more detailed inspection with additional adjustments and services | Maximized filter performance and equipment longevity |
| Downtime required* | 1/2 shift, total inspection time 1 shift | 1 shift, total inspection time 2 shifts | 3-5 shifts |
| Inspection frequency recommendation | 1-2 times per year | Once a year | Once every 2-3 years |
| Inspection offering | <p>Inspection done during operation and quick shut-down</p> <ul style="list-style-type: none"> • OEM visual inspection of the filter, mainly during operation • Catch safety hazards, overall filtration results, maintenance intervals, leakages and hydraulic pressures • Performed over 1 shift with filter running and includes short stoppages • Historical data helps predict filter component performance over time • Detailed future inspections recommended if needed | <p>Full mechanical inspection with filter operating and shutdown. Approximate inspection time allocated to 1 shift with filter running and 1 shift with filter shutdown. Includes the Filter Visuals and Vitals inspection as well as:</p> <ul style="list-style-type: none"> • OEM inspection with guards and covers removed • Plate pack inspection • Additional tests, measurements and services • Mechanical adjustments as required | <p>Full visual, vitals and mechanical inspections including the adjustment of the hydraulics and system flushing. Performed over 3-5 shifts with filter stopped. Additional inspections, measurements and services performed such as:</p> <ul style="list-style-type: none"> • Hydraulic unit: condition inspection, pump calibration, functionality and leak check, valve adjustment, oil cooler and accumulator check • Hydraulic field circuit: cylinder functionality and leakage check, valve adjustment and functionality check • Reservoir cleaning and field circuit flushing • Reporting including measurements report and action recommendations • Modernization and upgrade recommendations • Spare part audit and availability check |

*Number of shifts filter needs to be stopped to complete each inspection with optimum number of technicians (in addition to inspection while filter is in operation)
 Components and tasks may vary depending on the type of filter

PF Filter - Inspection packages

| Category | Component | Task | Filter status | Operating or safety doors open | Locked. Including adjustments | Customized |
|--------------------------|--|--|---------------|--------------------------------------|---|---------------------------------------|
| | | | | Package 1 | Package 2 | Package 3 |
| | | | | Filter Visuals and Vitals (1 shift)* | Filter Mechanical Verification (2 shift)* | Filter Comprehensive (3 to 5 shifts)* |
| Safety | Safety doors, Chain guards, pipeline shut off valves | Visual check of the components | Operation | ● | ● | ● |
| | Jaw Guards, door limit switches, emergency stops | Visual checks plus functional check of switches and emergency stop buttons | Short stop | ● | ● | ● |
| Cloth Drive and Tracking | Cloth and cloth movement | Visual check and lifetime of the cloth | Operation | ● | ● | ● |
| | Rollers and bearings | Visual check for cake between roller and cloth, lubrication schedule | Short stop | ● | ● | ● |
| | Scrapers | Operational check | Operation | ● | ● | ● |
| Cloth tensioning device | Rollers and bearings | Visual check for position, tensioning pressure check, lubrication schedule | Operation | ● | ● | ● |
| Closing mechanism | Cylinder fixing, columns, bellows and leakages | Visual check | Short stop | ● | ● | ● |
| Plate Pack | Plate pack | Visual overall check | Short stop | ● | ● | ● |
| | Plate pack opening closing | Operational check and pressures check | Operation | ● | ● | ● |
| Pipelines | Pipelines | Visual check including auxiliaries, fastening leakages check. | Operation | ● | ● | ● |
| | Hoses | Visual check | Short stop | ● | ● | ● |
| | Cloth wash filter bag | Check when changed | Operation | ● | ● | ● |
| | Pressure gauges & ejectors | Visual check of both components plus a functional check of ejectors | Operation | ● | ● | ● |
| Valves and actuators | Valves | Visual check for floor level valves | Short stop | ● | ● | ● |
| Hydraulics | Hydraulic motors & filters | Visual check, pressures check for motor, filter check on changeout | Operation | ● | ● | ● |
| | Hoses | Visual check for leakages | Short stop | ● | ● | ● |
| Pneumatics | Pneumatic box | Visual check from outside | Short stop | ● | ● | ● |
| | Piping | Visual check and leakages check | Short stop | ● | ● | ● |
| Corrosion | Corrosion | Visual check overall | Short stop | ● | ● | ● |
| Process parameters | Process parameters | Collection and comparison to design criteria | Operation | ● | ● | ● |
| Cloth drive and tracking | Rollers and bearings | Check for wear and leakages | Shutdown | | ● | ● |
| | Cylinders, sensors and scrapers | Visual and functional check, adjustment of scrapers as required | Shutdown | | ● | ● |
| Cloth tensioning device | Rollers and bearings | Visual check for wear and leakages | Shutdown | | ● | ● |
| | Chains pulleys, chains and fastening links | Visual checks plus lubrication schedule for chains and links | Shutdown | | ● | ● |
| Closing mechanism | QA Cylinder fixing | Check correct tightness | Shutdown | | ● | ● |
| | Locking pins and sensors | Visual and functional test, lubrication schedule for locking pins, adjustment of sensors | Shutdown | | ● | ● |
| Plate Pack | Seals, diaphragms, grids and vats | Visual check for wear leakages, diaphragm leakage test? | Shutdown | | ● | ● |
| | Rollers | Visual check, lubrication schedule | Shutdown | | ● | ● |
| | Slide pieces and plates | Visual check plus adjustment of slide pieces, alignment measurements for plates | Shutdown | | ● | ● |
| | Feed openings, Suspension plate, pin and cotter | Visual check | Shutdown | | ● | ● |
| Pipelines | Cloth wash filter bag & slurry sieve | Visual check of both components | Shutdown | | ● | ● |
| | Transmitters & sensors | Visual check of both components plus functional check fo sensor | Shutdown | | ● | ● |
| Valves and actuators | Valves & popping device (optional) | Visual check, leakage test and function check, optional popping device functional check | Shutdown | | ● | ● |
| Hydraulics | Pump and clutch | Visual and functional check | Shutdown | | ● | ● |
| | Accumulator | Nitrogen pre-charge check | Shutdown | | ● | ● |
| Pneumatics | Pneumatic box & pressing regulator | Visual check inside pneumatic box, visual and functional check of regulator | Shutdown | | ● | ● |
| Extra services | Spare parts | Spare parts stock audit & availability check | Shutdown | | | ● |
| Hydraulic unit | Hydraulic pump | Condition inspection, calibration, functionality and leakage check | Shutdown | | | ● |
| | Hydraulic valves | Condition inspection, adjustment and functionality check | Shutdown | | | ● |
| | Oil cooler and accumulator | Condition inspection and functionality test | Shutdown | | | ● |
| | Oil analysis (optional for package 1 & 2) | Oil sample | Shutdown | | | ● |
| Hydraulic field circuit | Hydraulic cylinders | Functionality and leakage check | Shutdown | | | ● |
| | Hydraulic valves | Valve adjustment and functionality check | Shutdown | | | ● |
| Reservoir | Reservoir system | Cleaning and field circuit flushing | Shutdown | | | ● |

*Number of shifts filter needs to be stopped to complete each inspection with optimum number of technicians (in addition to inspection while filter is in operation)
Components and tasks may vary depending on the type of filter

FFP Filter - Inspection packages

| Category | Component | Task | Filter status | Package 1 | Package 2 | Customized |
|-------------------------------|---|--|---------------|--------------------------------------|--|---------------------------------------|
| | | | | Filter Visuals and Vitals (1 shift)* | Filter Mechanical Verification (2 shifts)* | Filter Comprehensive (2 to 5 shifts)* |
| Safety | Safety gates, safety fence, isolation valves, main switches, warning stickers and signs | Visual check of the safety components | Operation | ● | ● | ● |
| | Gate limit switches, emergency stops and pull wires | Visual checks plus functional check of switches & emergency stop buttons | Short stop | ● | ● | ● |
| Crosshead, end piece | Locking pins operation, roller movement | Visual check of movements on locking pins and rollers | Operation | ● | ● | ● |
| | Hydraulic piping, roller condition, piping and valves, bolt connections | Visual check, leakages, lubrication schedule | Short stop | ● | ● | ● |
| | Locking pins, crosshead movement | Operational check | Operation | ● | ● | ● |
| Headpiece, headpiece piping | Piping, headpiece condition | Visual check of leakages | Operation | ● | ● | ● |
| | Bolt connections, o-rings | Visual check of bolts & torque check if needed, seal leakage check | Short stop | ● | ● | ● |
| Skeleton, sidebars | Cylinder fixing, sidebars, locking pin holes | Visual check of condition | Operation | ● | ● | ● |
| | Cylinder fixing, bolt connections, side bar sliding surface | Visual check of sliding surface, random bolt torque check | Short stop | ● | ● | ● |
| Plate pack | Plate pack, slide pieces, lip seals, connecting links | Overall check of plate pack | Short stop | ● | ● | ● |
| | Plate pack opening | Operational check, leakage & pressures check | Operation | ● | ● | ● |
| Cloth shaking, cloth flushing | Cloth shaking performance, cloth flushing performance | Visual check of cloth washing system | Operation | ● | ● | ● |
| | Cloth shaking operation, cloth flushing pipes and seals, bellows and mufflers | Visual and functional check, adjustment if needed | Shutdown | ● | ● | ● |
| Filter cloth | Filter cloth operation | Condition monitoring during operations (OIU and cake discharge) | Operation | ● | ● | ● |
| | Cloth condition, weight bars | Visual check of cloth | Short stop | ● | ● | ● |
| Service tools | Plate lifting, cloth lifting tools | Visual check, tool functions | Operation | ● | ● | ● |
| | Plate lifting, cloth lifting tools | Tool function test | Short stop | ● | ● | ● |
| Valves, actuators, bellows | Valves, piping bellows | Visual check on condition | Short stop | ● | ● | ● |
| Hydraulics | Hydraulic motors & filters | Visual check, motor check, filter check on changeout | Operation | ● | ● | ● |
| | Hoses | Visual check for leakages | Short stop | ● | ● | ● |
| Pneumatics | Pneumatic box | Visual check from outside box | Operation | ● | ● | ● |
| | Piping | Visual check and leakages check | Short stop | ● | ● | ● |
| Corrosion | Corrosion, corrosion protection | Visual check on filter painting and corrosion protection | Short stop | ● | ● | ● |
| Process parameters | Process parameters | Collection and comparison to design criteria | Operation | ● | ● | ● |
| Swivel plates | Vat cleanliness, operation | Visual cleanliness check, check swivel plate leakages to conveyor | Operation | | ● | ● |
| | Bearings, sensors, bolt connections | Visual checks plus lubrication schedule | Shutdown | | ● | ● |
| Hydraulic cylinders | QAC, sealing cylinders | Visual check of operation | Operation | | ● | ● |
| | Pressing head, cylinder fixing, eye bearings, rod condition | Visual and functional test, lubrication schedule, leakage check | Shutdown | | ● | ● |
| Plate Pack | Seals, membranes, | Visual check for wear leakages, membrane leakage test | Shutdown | | ● | ● |
| | Slide pieces and connecting links | Visual check for plate movement | Shutdown | | ● | ● |
| | Plate condition and channels | Visual check of plates | Shutdown | | ● | ● |
| Pipelines | Connections, transmitters & sensors | Visual check for leakages, conditional & functional check | Shutdown | | ● | ● |
| Hydraulics | Pump and clutch | Visual and functional check, sound when rotating | Shutdown | | ● | ● |
| | Oil analysis | Oil sample analysis | Shutdown | | ● | ● |
| | Accumulator | Nitrogen pre-charge check | Shutdown | | ● | ● |
| Pneumatics | Pneumatic box & pressing regulator | Visual check inside pneumatic box, regulator visual & functional check | Shutdown | | ● | ● |
| Extra services | Spare parts | Spare part stock audit | Operation | | | ● |
| Hydraulics | Hydraulic unit | Pump condition monitoring & valve adjustment check, (P&Q) amplifier calibration, reservoir cleaning & field circuit flushing | Shutdown | | | ● |
| | Oil cooling system | Functional and performance check | Shutdown | | | ● |

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CC Filter - Inspection packages

| Category | Component | Task | Filter status | Package 1 | Package 2 | Customized |
|---|---|---|---------------|--------------------------------------|--|---------------------------------------|
| | | | | Filter Visuals and Vitals (1 shift)* | Filter Mechanical Verification (2 shifts)* | Filter Comprehensive (2 to 5 shifts)* |
| General inspection | Filter frame and painting | Visual check | Operation | ● | ● | ● |
| Agitator | Agitator motor | Visual check, check for noises, measure temperature | Operation | ● | ● | ● |
| Drum, distribution valve, plates & scrapers | Drum & drum motor | Visual check, measure temperature | Operation | ● | ● | ● |
| | Filtrate piping on the drum & scraper arms | Visual check | Operation | ● | ● | ● |
| | General condition of the distribution valve | Visual check, leaks, during filtration and plate regeneration | Operation | ● | ● | ● |
| | General condition of plates | Visual check, during operation and plate regeneration | Operation | ● | ● | ● |
| Piping, filtrate receiver & pumps | General condition of the piping & filtrate receiver | Visual overall check | Operation | ● | ● | ● |
| | Actuated valves | Functional check for each actuator valve | Short stop | ● | ● | ● |
| | Back-flushing expansion tank & vacuum hoses | Visual check, leaks, during filtration | Operation | ● | ● | ● |
| | Acid piping | Visual check, leaks, during plate regeneration | Operation | ● | ● | ● |
| | Slurry feeding piping, vacuum and filtration pump | Visual check during filtration | Operation | ● | ● | ● |
| | Oxalic acid pump (Hi-flow, option) | Visual check during plate regeneration | Operation | ● | ● | ● |
| | Vacuum pump & distribution valve rotameters (Hi-flow) | Visual check during filtration | Operation | ● | ● | ● |
| | High pressure pump (option) | Visual check | Operation | ● | ● | ● |
| Ultrasonic cleaning | Ultrasonic generators | Generator Amps, visual washing results check after combined washing | Operation | ● | ● | ● |
| Electrical & instrumentation | Valves & instruments | Visual check | Operation | ● | ● | ● |
| | Electrical panel cooling | Check temperature, condition of filter (if applicable) | Short stop | ● | ● | ● |
| | Emergency stop circuits, safety fence function (option) | Test functionality | Short stop | ● | ● | ● |
| | Filtrate receiver level probes & tank level probes (option) | Test functionality | Operation | ● | ● | ● |
| | Pressure transmitter | Test functionality | Operation | ● | ● | ● |
| | Back-flushing flow switch & flow transmitters | Test functionality | Operation | ● | ● | ● |
| Control panel | Indication lights | Test operation, illumination | Short stop | ● | ● | ● |
| | Switches/push buttons and OIU | Test operation | Short stop | ● | ● | ● |
| | Acid pumping indication lamp | Check during plate regeneration (acid feed) | Operation | ● | ● | ● |
| | Remote start warning system (option) | Test operation | Operation | ● | ● | ● |
| Lubrication, pressures & parameters | Lubrication | External visual check for grease distribution points & visible bearings | Short stop | ● | ● | ● |
| | Process parameters | Collection and comparison to design criteria/recommendations | Operation | ● | ● | ● |
| Agitator | Gearbox | Visual check, oil level, noises during operation | Shutdown | | ● | ● |
| | Flexible couplings and bearings | Visual check, measure & check clearances | Shutdown | | ● | ● |
| Drum, distribution valve, plates & scrapers | Drum gearboxes | Visual check, oil level, leaks, noises during operation | Shutdown | | ● | ● |
| | Drum bearing & scrapers | Visual check, check/test clearances | Shutdown | | ● | ● |
| | Tensioning spring / Pressure springs (Hi-flow) | Visual check, measure clearances | Shutdown | | ● | ● |
| | Plate alignment, hoses, distribution valve & inner parts | Visual check | Shutdown | | ● | ● |
| Piping, filtrate receiver & pumps | B/f filter, pressure regulator(s) & relief valve (Classic) | Visual check, disconnect and pressure test | Shutdown | | ● | ● |
| | Cake wash system (option) | Visual check, test with cake wash water | Shutdown | | ● | ● |
| | High pressure wash system (option) | Visual check, test with wash water | Shutdown | | ● | ● |
| | Nitric / Sulphuric acid pump | Overhaul | Shutdown | | ● | ● |
| | Vacuum relief valve (option) | Disconnect and vacuum test | Shutdown | | ● | ● |
| Ultrasonic cleaning | Ultrasonic transducers | Measurements: Capacitance and Resistance, nF, Ohms. | Shutdown | | ● | ● |
| Electrical & instrumentation | Solenoid valves | Check functionality | Shutdown | | ● | ● |
| Extra services | Spare parts | Stock audit and parts recommendations | Operation | | | ● |

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