

Metso

Crushers

Offline oil filtration solutions

Avoid oil changes and gain
maximum uptime with clean oil



Oil contamination

Challenge

Oil contamination causes approximately 80% of all system failures and reduces equipment reliability.

Extreme contamination of the oil systems with particles and water causes critical downtime and high replacement costs for these cost-intensive components.

Contamination takes the form of insoluble materials, dust particles, sand and rubber (hard contaminants), oil degradation products such as varnish, resin and oxidation residues (soft contaminants) and water. The smallest particles, (below 5 μm), free water and deposits from oil degradation products are often responsible for defects.

Oil contamination causes approximately 80% of all system failures

Nordberg® HP & GP Series™ cone crushers Filtration principle

The Metso offline oil filter is used for oil maintenance, generally as an offline filtration system in continuous operation.

Metso offline oil filters have very large dirt holding capacities. The systems are almost maintenance free and have a very low cost of operation.



Dirty and clean oil samples, before and after oil filtration. The filter inserts have absorbed the contamination from the crusher oil, and an oil change has now been avoided.



Dirty and clean Metso filter inserts.

Why choose Metso offline oil filter?

By installing the Metso offline oil filter and keeping the oil clean, the majority of all problems related to contamination can be prevented.

You will also enjoy the following benefits:

- increased uptime for production machinery
- extended oil lifetime
- removes water as a contaminant that causes metal breakdown
- low consumption of lubricants
- savings in inline filters
- extended service life for crusher and lubrication components
- higher uptime due to purified oil in the system

Oil is continuously kept clean and free of contamination.

Sustainability

Filter inserts:

- Made of 100% natural wood cellulose fibres from sustainable resources = low carbon footprint compared to traditional oil filters
- The filter insert has no metals, plastics or chemicals

Electrical motors:

- IE3 premium efficiency motors reduces energy consumption vs traditional International Efficiency (IE) motors
- Flow drive/frequency converter makes it possible to clean oil without electrical preheating

Sustainability advantages:

- Oil lasts longer in the machine
- Less waste oil
- Less new oil must be produced
- Components last longer as they have consistent oil quality
- Reduced spare parts
- Less transport of resources
- Less CO₂ generated
- Fewer oil changes results in reduced labor costs and equipment shutdowns
- Increased worker and environmental safety due to the decreased handling of oil



Nordberg HP, GP and MP Series and Metso cone crushers

Oil filter selection guide

Oil filter model name: 27/54 PV

Crusher type: Stationary crushers

Types: GP100, GP100S, GP11F, GP11M, GP200, GP200S, GP220, GP300, GP300S, GP330, GP550, GP500S, HP100, HP200, HP3, HP300, HP4, HP400, HP5, HP500, HP6,

Lube oil volume: 200-500 L

Lube oil type: ISO VG 150-220 cSt

Requires: 2 x 27/27 inserts



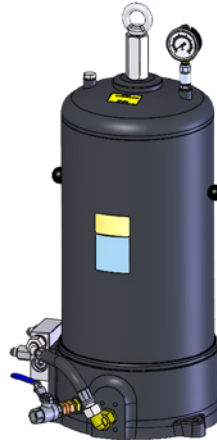
Oil filter model name: 27/54 P, By-pass

Crusher type: Lokotrack mounted units

Types: LT220GP, LT200HPX

Lube oil volume 200-300 L

Requires: 2 x 27/27 inserts



Oil filter model name: 427/54 MZ

Crusher type: Stationary crushers

Types: HP800, MP800, MP1000

Lube oil volume: 1,000-2,000 L

Lube oil type: ISO VG 150-220-320-460 cSt

Requires: 8 x 27/27



Oil filter model name: 15/25 PV

Crusher type: Mobile and Stationary crushers

Types: Hydraulic oil

Oil volume: < 500 L

Lube oil type: ISO VG 150-220 cSt

Hydraulic oil type: ISO VG 46-68 cSt

Requires: 1 x 15/25 insert



Oil filter model name: 27/54 PV

Crusher type: Mobile crushers

Types: NW550GP, NW500GP, NW500HP, NW400HP, NW600HP, LT220D, LT330D, LT Special Projects, NW Special Projects

Lube oil volume: 200-500 L

Lube oil type: ISO VG 150-220 cSt

Requires: 2 x 27/27 inserts



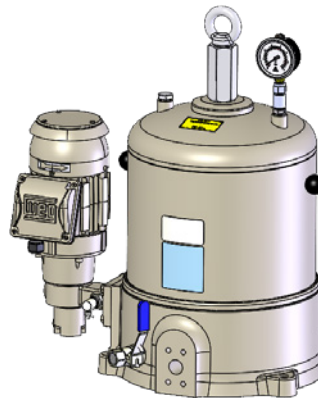
Oil filter model name: 27/27 PV-P

Crusher type: Portable crushers NW Rapid

Types: NW220GPS, NW200HPS, NW330GPS, NW300HPS, NW300HP, NW330GP, NW300GP(S)

Oil volume: 200-400 L

Requires: 1 x 27/27 insert



15/25 Offline oil filter insert

Filter Dimensions: 470 x 393 mm (wxh)
(+ 245 mm free height)



27/27 Offline oil filter insert

Filter Dimensions: 940 x 550 mm (wxh)
(+ 600 mm free height)



Read more at [metso.com/products-and-services/parts/crusher-parts](https://www.metso.com/products-and-services/parts/crusher-parts)

Success story

Filter installation on crusher lube oil Clean oil and clean system - after only three weeks

Site: NCC Roads Oy, Ohkola, Saharintie, Finland
System: Nordberg® GP300
Oil type: Full synthetic 150 grade lubricating oil
Filter type: Metso offline oil filter 27/54
Insert type: 2 x B27/27

Before installing the Metso offline filter, crusher had been operating several thousands of hours.

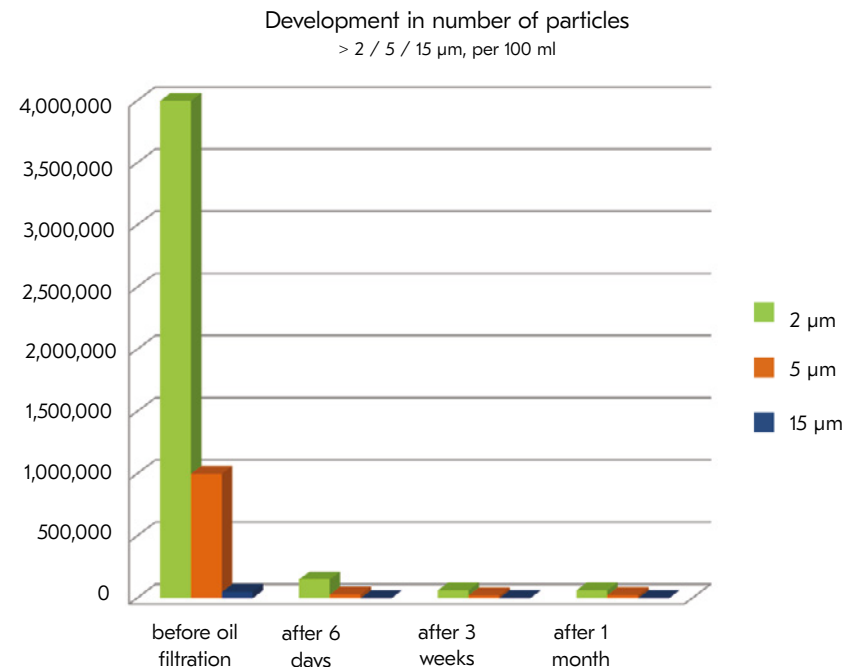
The contamination level before installation of the Metso offline oil filter was very high, having an ISO level up to 22/20/15.

After only six days of filtration, contamination level was reduced significantly.

After three weeks filtration the oil and system is clean and the ISO cleanliness level is kept stable at 16/15/11.

After oil filtration:

- ISO level was reduced from 22/20/15 to 16/15/11
- Clean oil and clean system after only three weeks of oil filtration



Success story

Oil changes no longer needed!

On a crusher installation in Norway, four units in total were equipped with Metso offline oil filters in 2009.

Test sample analysis were carried out every 3,000 hours.

Typically, the oil changes were carried out after 2,000 hours, but after installation of the Metso offline oil filter, no oil changes were needed, only top-up and scheduled oil analysis.

After oil filtration:

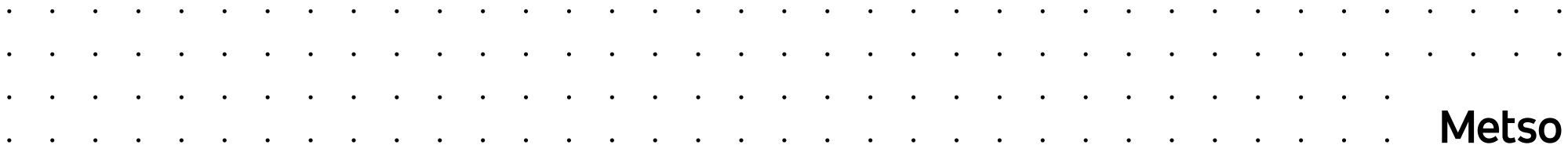
- No oil changes needed
- 14,000 ltrs of oil saved on four crushers during 20,000 operating hours



Clean oil is returned to the crusher tank after oil filtration.

Metso is a frontrunner in providing sustainable technologies, end-to-end solutions and services for the aggregates, minerals processing and metals refining industries globally. By helping our customers increase their productivity, improve their energy and water efficiency and environmental performance with our process and product expertise, we are the **partner for positive change**.

metso.com



Metso