

# MAHLE



CleanLine filter

Efficient  
water separation

## CleanLine filter: an innovative concept for reliable results



*Water in diesel is a constant threat to the affected vehicle components. It causes metal parts to rust and reduces the lubricity of the fuel, which can clog the fuel pump. With the new CleanLine spin-on oil filter, MAHLE offers optimal protection for commercial vehicles with diesel engines.*

MAHLE CleanLine is an innovative, high-performance, and easy-to-change filter system for water and particle separation that achieves peak performance throughout its service life. The highlight is the two-stage variant for regions with inferior diesel quality. With this, dirt (stage 1) and water (stage 2) are removed separately, resulting in highly efficient cleaning.

### Three versions will be available worldwide:

- 2-stage CleanLine with integrated water reservoir (exclusively available in South America)
- 2-stage CleanLine without water reservoir (available in EMEA)
- 1-stage CleanLine without water reservoir (available in EMEA)

# CleanLine filter: functions in detail

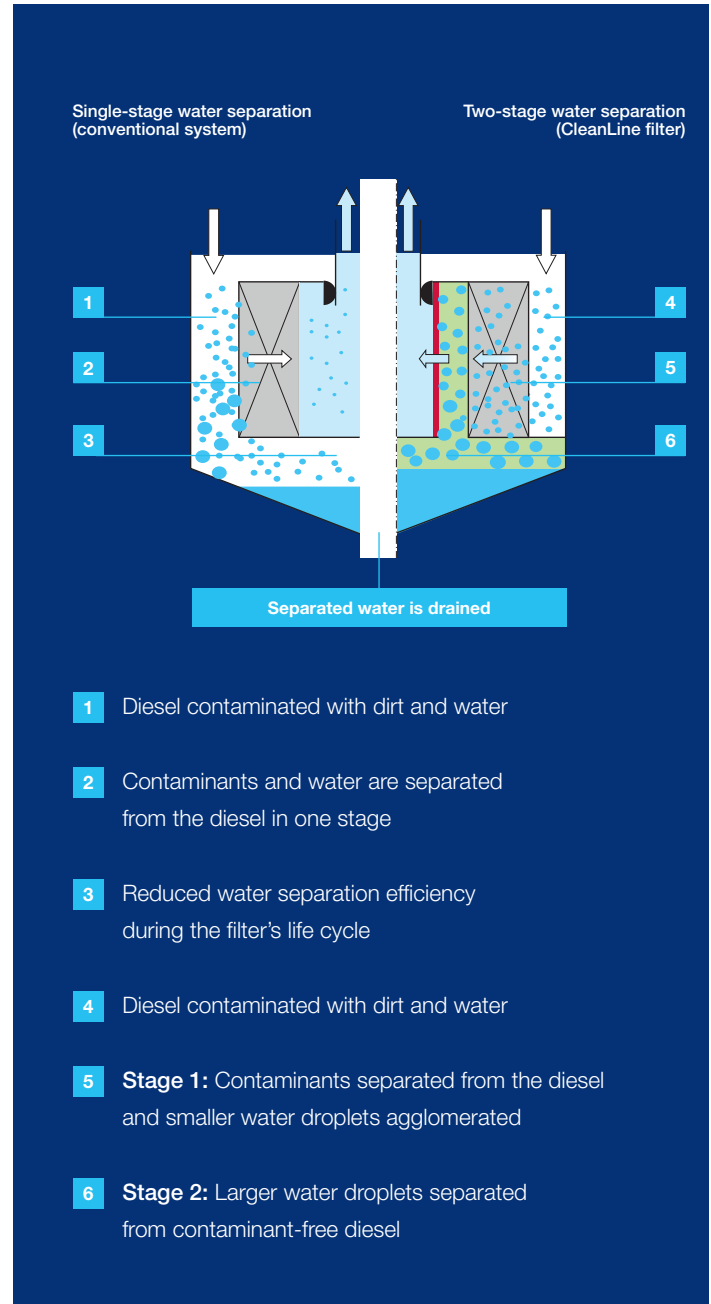
## More efficient water separation, less contamination, better performance in all areas.

Conventional filter systems work in a single stage. However, test results show that the water separation efficiency of these systems drops from 93% to less than 20% for contaminated fuel. That is why the CleanLine filter works on a two-stage principle.

### Stage 1: Filtration of contaminants from diesel fuel and agglomeration of water droplets

### Stage 2: Separation of agglomerated water droplets from the filtered fuel

By capturing contaminants in the first filter stage, the water can be separated more efficiently in the second stage. This ensures maximum water separation throughout the service interval. Furthermore, thanks to the separation of the two filter stages, even the smallest water droplets are separated.



# CleanLine filter: a comparison

Compared with its competitors, CleanLine has the highest water separation efficiency throughout the service life of the filter: over 93% when new. And even after 30,000 kilometers, it still separates as much as 70% of the water. Competitor products provide less than 20% separation after the same number of kilometers. The dust retention capacity of CleanLine is also significantly higher than that of conventional filters.

Condition of the filter	Water separation efficiency of conventional single-stage systems	Water separation efficiency of the two-stage CleanLine filter
New filter	Over 93%	Over 93%
Filter used under operating conditions	Up to 20%	Over 70%



## CleanLine separates more water from diesel fuel

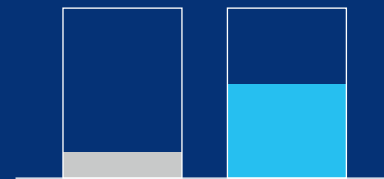
The superiority of two-stage filtration over conventional systems is best seen over time.



Engine with 0 hours of use  
0 km run after change



Engine with 300 hours of use  
20,000 km run after change



Engine with 750 hours of use  
50,000 km run after change

■ Competitor

■ CleanLine

Water content (ppm)



## Advantages of CleanLine filter

- Maximum water separation and dust retention capacity over lifetime
- Superior efficiency
- Better protection of the injection system
- Cost savings for maintenance of injectors and fuel pumps
- Robust plastic housing
- Reduced costs per kilometer
- Multi-application, resulting in lower documentation overheads
- Filters are easy to change and existing water reservoir can be used

STAGE 1

STAGE 2



# Model overview

MAHLE fuel filter	MAHLE CleanLine 1-stage	MAHLE CleanLine 2-stage	Manufacturer	Model	MANN-FILTER reference	Hengst reference
KC 249D	KC 648D	KC 624D	DAF Scania	XF 105 4-series	WK 1060/3 x	H7090WK30
KC 377D			New Holland	CR/CX/TX series	WK 1142/2 x	n/a
KC 378D			Volvo Trucks	FM12 and FM9	WK 1060/5 x	H7090WK10
KC 379D			New Holland	TC/TR/TX series	WK 1142 x	H7090WK10
KC 374D	KC 645D	KC 633D	IVECO Renault Trucks	Stralis/Strator/Trakker D/C series	WK 1070 x	H7090WK10
KC 384D			Renault Trucks Volvo Trucks	Midlum II/Premium Distribution FE II and FL II	WK 1040/1 x	H7062WK30
KC 429D	KC 646D	KC 634D	Renault Trucks Volvo Trucks	Magnum/Premium Distribution FH/FH II, FM	WK 11 001 x	H328WK
KC 491D			Renault Trucks Volvo Trucks	Magnum/Premium Distribution FH/FH II, FM	WK 10 006 z	H392WK
KC 296D	KC 652D	KC 629D	DAF	New XF, New CF, XF 105, XF 95	PL 420 x	H710WK
KC 505D			Mercedes-Benz KAMAZ	Actros MP4, Arocs, Antos, Atego III 5000/6000 series	PL 420/7 x	H356WK
KC 200	KC 697D	KC 699D	Mercedes-Benz	Actros MP2/MP3	WK 1080/7 x	H701WK
KC 375D			Mercedes-Benz Scania	Actros MP2/MP3, Atego II G/P/R series	WK 1080/6 x	H7160WK30
KC 430D			Caterpillar	Various	WK 1175 x	H7120WK10

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