

## Fuel Purifier, Fuel Water Separator, Macko & Duplex Filters, Diesel Purifier

This new dual composite and innovative fuel filter, integrated with water separators and fuel filters, and developed by Korea.

Macko (GR-7010, GR-7020) & Duplex (GR-500, GR-550, GR-600) Fuel Filters have been awarded “Seal of Excellence” by Kotra (Korean Trade-Investment Promotion Agency). This Kotra award is also “A Mark of Quality, High Technology and Trustworthiness”.

Macko & Duplex Filter has also been widely used in South Korea by government departments and major private companies, like Hyundai Machinery Co., Ltd., Hyundai Bus, Daewoo Commercial Tractor, Dong-A Diesel (Caterpillar), Mitsubishi Engine Korean Branch, etc since 2003.

Macko & Duplex Fuel Filter composes of 2 casings :

- 1) Primary Casing
  - completely separate and settlement of water by water separation plate;
  - separate foreign particles into the bottom transparent casing;
  - remove iron and sludge with strong magnetic field;
  - refine high molecules into corpuscles with strong magnetic field of 1000 gauss;
  - eradicate microbes and bacteria with strong magnetic field.
- 2) Secondary Casing
  - consists of fine micron filters;
  - effectively removes 85% of 1 micron particles & 97% of 10 micron particles;
  - protects devices such as injectors, ECU and CRDI;
  - clean fuel and extend life time of fuel filters;
  - increase combustion rate and reduce contamination;
  - enhance engine performance and reduce fuel consumption.

The filter effectively removes water also 85% of 1 micron or larger contaminants & 97% of 10 microns or large contaminants from fuel.

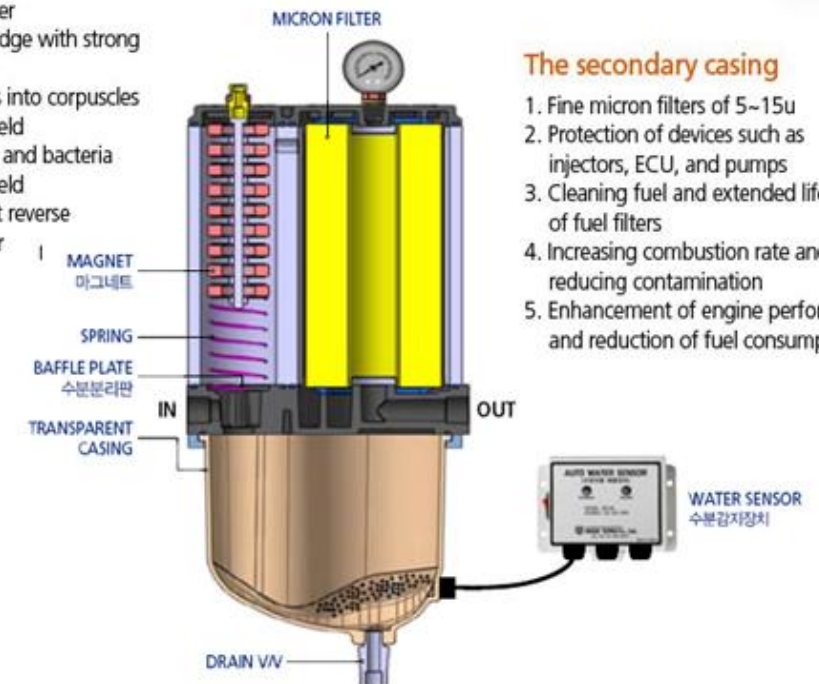
In particular, there is a transparent casing at the bottom of filter so that the amount of water and contaminants collected can be monitored easily. This casing shape is specially designed to prevent reverse flow of settled water.

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### 2.Features and effects of the MACKO FILTERS

#### The primary casing

1. Special dual composite structure.
2. The structure of magnets through multiple stages
3. Complete separation and settlement of water and foreign matter
4. Removal of iron and sludge with strong magnetic field
5. Refining high molecules into corpuscles with strong magnetic field
6. Eradication of microbes and bacteria with strong magnetic field
7. The structure to prevent reverse flow of separated water



#### The secondary casing

1. Fine micron filters of 5~15u
2. Protection of devices such as injectors, ECU, and pumps
3. Cleaning fuel and extended lifetime of fuel filters
4. Increasing combustion rate and reducing contamination
5. Enhancement of engine performance and reduction of fuel consumption



The filter is installed in between fuel tank and fuel pump.

Maintenance is easy with regular cleaning of magnets with air or light oil and replacement of micron filter at about every 500 hrs or 10,000 miles.

Five models are available as illustrated in table below.

For machinery greater than 1000 HP, 2 or more Macko Filters can be installed in parallel.

Description	unit	GR-500	GR-550	GR-600	GR-7010	GR-7020
Max Flow Rate	liter / hour	75	120	215	359	673
Inlet & Outlet Size	NPT "	1/4 & 3/8	1/4 & 3/8	1/4 & 3/8	1/2	1/2
Filter Element (Sizes : 10,20,30 micron)	model	GF-500	GF-550	GF-600	GF-7010	GF-7020
1st Filtration		Multiple magnet	Multiple magnet	Multiple magnet	Multiple magnet	Multiple magnet
2nd Filtration at 1 micron	% efficiency	85	85	85	85	85
at 10 micron	% efficiency	97	97	97	97	97
Magnet Strength	Gauss	1,000	1,000	1,000	1,000	1,000
Pressure Drop Indication for Maintenance	kPa	N/A	N/A	0.96	1.73	2.76
Max Allowable Pressure	kPa			103	103	103
Water Storage Capacity	ml			185	785	785
Height	mm	217	270	312	450	550
Width	mm	92	92	92	135	135
Depth	mm	125	125	125	190	190
Weight	kg	1.3	1.6	2.2	3.8	5.8
Working Temperature	C	35-124	35-124	35-124	35-124	35-124
For Machine Type	HP	100	150	200	500	1,000
Option Part		N/A	N/A	Water Sensor	Water Sensor	Water Sensor

