

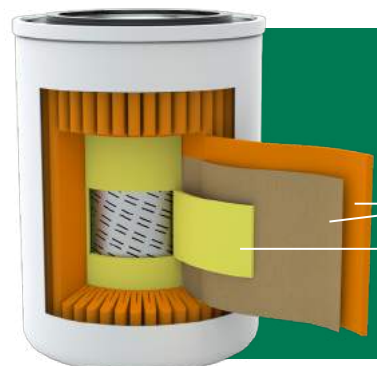
# OUR FILTER MEDIAS

TODAY'S FUELS REQUIRE MORE THAN A "ONE-FILTER-FITS-ALL" SOLUTION

We build our medias to meet the specific needs of the various fuels you filter, ensuring optimal protection against fuel contamination no matter what fuel you're filtering.

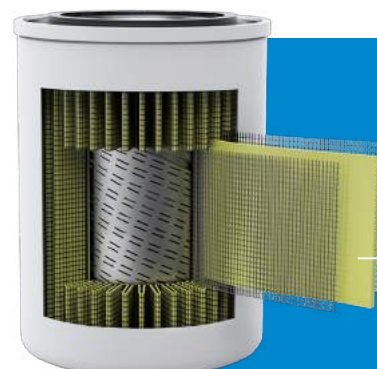
## Detect Water & Remove Particulate

These filters capture particulate **and** detect excess water. When water-contaminated fuel passes through the filter, the media swells and restricts flow to notify the operator that water is present and action is required.



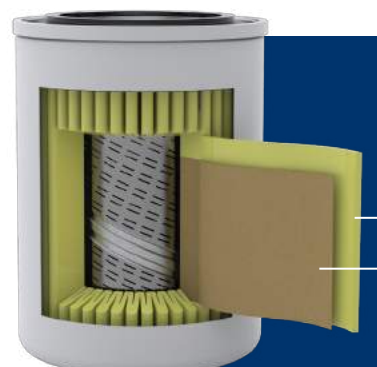
**Multi-Fuel®**  
For Gasoline and Ethanol Blends up to 25%

- Proprietary Microglass-Cellulose hybrid pleat pack
- Advanced water **and** phase separation detection material between two Microglass layers restricts flow when water is detected



**Hydroglass®**  
For Gasoline, Diesel/ULSD and Biodiesel Blends up to 20%, and 100% Biodiesel

- Advanced water detection material between two Microglass layers restricts flow when water is detected

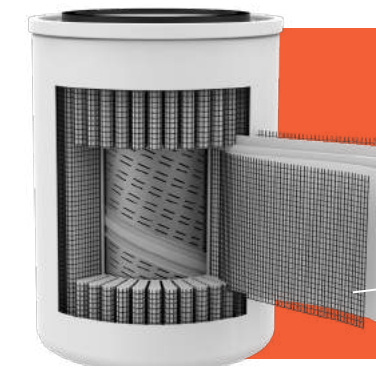


**Hydrosorb®**  
For Gasoline, Diesel, and ULSD

- Proprietary Microglass-Cellulose hybrid pleat pack
- Water detection material between Microglass-Cellulose laminate restricts flow when water is detected


## Remove Particulate

When contaminants such as dirt, rust, and microbial growth (non-liquid contamination) pass through the filter, the media captures the particulate.




**Microglass**  
For Gasoline and Ethanol Blends up to 25%, Diesel/ULSD and Biodiesel Blends up to 20%, and 100% Biodiesel

- Spun bond synthetic material for support and filter media protection
- Coated steel wire for strength and rigidity
- Wet laid synthetic fibers



**Cellulose**  
For Gasoline and Ethanol Blends up to 25%, Diesel, and ULSD

- Resin bound plant-based fiber material



**Ultimate Defense**  
When you see the Ultimate Defense label (or the shield), you're seeing the best media we offer. Filters with this label all contain at least one layer of Microglass media. Compared to Cellulose, Microglass's synthetic fibers generally provide increased retention, lower clean filter differential pressure, and less resistance to fluid flow.

OUR MEDIAS

# SELECTING A FILTER FOR YOUR APPLICATION

## Selecting a Media

What to consider when choosing a media:

**Fuel type:** Each fuel type has distinct properties that influence its filtration requirements.

**Water contamination:** Water is the largest threat to your fuel supply. We recommend using water-detecting medias in almost every situation. See pages 5-6 for more information.

**Performance:** Some of our medias provide more protection than others. Look for the Ultimate Defense label (or the shield) to ensure you are getting maximum performance from your filter. See page 7 for more information.

Use these factors and the chart below to select the media that's right for your application:

	Remove Particulate & Detect Water	Remove Particulate
Straight Gasoline	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 2px; background-color: #004a99; color: white; display: inline-block;">HYDROSORB</div> <div style="font-size: 12px;"> </div> <div style="border: 1px solid black; padding: 2px; background-color: #004a99; color: white; display: inline-block;">HYDROGLASS</div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 5px;"> <div style="font-size: 12px;"> </div> <div style="border: 1px solid black; padding: 2px; background-color: #008000; color: white; display: inline-block;">MULTI-FUEL</div> </div>	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 2px; background-color: #e67e22; color: white; display: inline-block;">CELLULOSE</div> <div style="font-size: 12px;"> </div> <div style="border: 1px solid black; padding: 2px; background-color: #e67e22; color: white; display: inline-block;">MICROGLASS</div> </div>
Ethanol Blends up to 25%	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="font-size: 12px;"> </div> <div style="border: 1px solid black; padding: 2px; background-color: #008000; color: white; display: inline-block;">MULTI-FUEL</div> </div>	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 2px; background-color: #e67e22; color: white; display: inline-block;">CELLULOSE</div> <div style="font-size: 12px;"> </div> <div style="border: 1px solid black; padding: 2px; background-color: #e67e22; color: white; display: inline-block;">MICROGLASS</div> </div>
Ethanol Blends up to 85%		<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="font-size: 12px;"> </div> <div style="border: 1px solid black; padding: 2px; background-color: #e67e22; color: white; display: inline-block;">MICROGLASS <small>WITH "HA" IN MODEL #</small></div> </div>
Diesel/ULSD	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 2px; background-color: #004a99; color: white; display: inline-block;">HYDROSORB</div> <div style="font-size: 12px;"> </div> <div style="border: 1px solid black; padding: 2px; background-color: #004a99; color: white; display: inline-block;">HYDROGLASS</div> </div>	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 2px; background-color: #e67e22; color: white; display: inline-block;">CELLULOSE</div> <div style="font-size: 12px;"> </div> <div style="border: 1px solid black; padding: 2px; background-color: #e67e22; color: white; display: inline-block;">MICROGLASS</div> </div>
Biodiesel Blends up to 100%	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="font-size: 12px;"> </div> <div style="border: 1px solid black; padding: 2px; background-color: #004a99; color: white; display: inline-block;">HYDROGLASS</div> </div>	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="font-size: 12px;"> </div> <div style="border: 1px solid black; padding: 2px; background-color: #e67e22; color: white; display: inline-block;">MICROGLASS</div> </div>



## Selecting a Series

Flow rate, maximum pressure conditions, and thread size (on existing installations) all influence the filter series you choose. Once you've determined these factors, use the chart below to select a series:

Series/Model	Max Flow*	Max PSI
200, 250, 260, 300, 400, 450, 475	25 GPM	50
800, 800SL	40 GPM (80 GPM if using Dual Head Adapter)	50
Centurions	30, 60, or 90 GPM (Depending on Adapter)	50
Vikings	120, 150, 300, or 500 GPM (Depending on Model)	150

\*These rates assume good conditions and moderate temperatures.

### Remember that the filter isn't the only thing that affects flow...

Using a 35 GPM pump and an 800 series filter does not guarantee you will get 35 GPM out of the nozzle at all times. Other variables that can restrict flow include:

- Excessive or undersized plumbing
- Low temperatures (cold temperatures can lead to reduced flow in some fuels due to changes in viscosity)
- Filter nearing the end of its useful life, meaning that it is clogged with contamination (water, particulate, etc.)

If you anticipate low temperatures and/or a flow rate at or near the maximum rate for a given filter series, we recommend moving up to the next series.



# PROTECTING FUEL FROM WATER

Water continues to reign as the largest threat to your fuel supply. It can find its way into your fuel during delivery; from rain, humidity, or condensation; via leaks; and a number of other ways. Water causes significant problems in fuel no matter what type of fuel you're using. That's why we recommend using water-detecting filters in almost every situation.

## How our water-detecting filters work:

1. Fuel containing water and particulate enters the filter.
2. Water detection material swells and causes reduced flow.
3. Slow flow notifies the operator that water is present and action is required.

## Detecting Excess Water in Fuel

The restricted flow that occurs when excess water passes through our water-detecting medias is the most obvious and immediate indication of water contamination, but it's not the only indication. Signs of water contamination can also manifest in these ways:

- Shorter than typical service intervals for the filter
- Rapid decrease in system flow rate
- Rapid increase in differential pressure

Particulate contamination can also create these conditions. If any of these conditions occur or persist, this may indicate a potentially larger scale issue. Be sure to monitor changes that occur in your fueling system and act when concerned about the presence of water or other contaminants.

Follow this simple guide to find your best defense against water:

When Using:	For Straight Gasoline		For Ethanol Blends up to 25%		For Diesel or ULSD		For Biodiesel*
	Better Defense	Best Defense	Better Defense	Best Defense	Better Defense	Best Defense	Best Defense
70094 (260-10)	70062 (260HS-10)	70232 (260HG-02) 70236 (260HG-10) 70117 (260MB-10)	-	70117 (260MB-10)	70062 (260HS-10)	70232 (260HG-02) 70236 (260HG-10)	70232 (260HG-02) 70236 (260HG-10)
70095 (260-30)	70062 (260HS-10) 70067 (260HS-30)	70232 (260HG-02) 70236 (260HG-10) 70117 (260MB-10)	-	70117 (260MB-10)	70062 (260HS-10) 70067 (260HS-30)	70232 (260HG-02) 70236 (260HG-10)	70232 (260HG-02) 70236 (260HG-10)
70010 (300-10)	70059 (300HS-10)	70235 (300HG-10) 70122 (300MB-10)	-	70122 (300MB-10)	70059 (300HS-10)	70235 (300HG-10)	70235 (300HG-10)
70012 (300-30)	70059 (300HS-10) 70064 (300HS-30)	70235 (300HG-10) 70122 (300MB-10) 70018 (300MB-30)	70018 (300MB-30)	70122 (300MB-10)	70059 (300HS-10) 70064 (300HS-30)	70235 (300HG-10)	70235 (300HG-10)
70015 (400-10)	70060 (400HS-10)	70008 (400HG-10) 70120 (400MB-10)	-	70120 (400MB-10)	70060 (400HS-10)	70008 (400HG-10)	70008 (400HG-10)
70016 (400-30)	70060 (400HS-10) 70065 (400HS-30)	70008 (400HG-10) 70120 (400MB-10) 70106 (400MB-30)	70106 (400MB-30)	70120 (400MB-10)	70060 (400HS-10) 70065 (400HS-30)	70008 (400HG-10)	70008 (400HG-10)
70034 (450-10)	-	70075 (450HS-10) 70023 (450MB-10)	-	70023 (450MB-10)	-	70075 (450HS-10)	-
70027 (450-30)	70076 (450HS-30)	70075 (450HS-10) 70023 (450MB-10)	-	70023 (450MB-10)	70076 (450HS-30)	70075 (450HS-10)	-
70097 (475-10)	-	70098 (475HS-10) 70111 (475MB-10)	-	70111 (475MB-10)	-	70098 (475HS-10)	-
70092 (475-30)	70043 (475HS-30)	70098 (475HS-10) 70111 (475MB-10)	-	70111 (475MB-10)	70043 (475HS-30)	70098 (475HS-10)	-
70019 (800-10)	70063 (800HS-30)	70037 (800HG-02) 70024 (800HG-10)	-	-	70063 (800HS-30)	70037 (800HG-02) 70024 (800HG-10)	70037 (800HG-02) 70024 (800HG-10)
70020 (800-30)	70063 (800HS-10) 70068 (800HS-30)	70037 (800HG-02) 70024 (800HG-10)	-	-	70063 (800HS-10) 70068 (800HS-30)	70037 (800HG-02) 70024 (800HG-10)	70037 (800HG-02) 70024 (800HG-10)

\*Includes biodiesel blends up to 20% and 100% biodiesel. We only show best defense options because the distinct properties of biodiesel require the specific filters listed. Please contact us with questions or to learn more.

WATER CONTAMINATION

# ULTIMATE DEFENSE

## THE PROTECTION YOUR FUEL & EQUIPMENT NEED

We all know that today's equipment and engines are more advanced (and more expensive) than ever before. What you may not realize is that they also require cleaner fuel than ever before. Additionally, the use of additives and fuel blends (biodiesel, ULSD, etc.) further increase the need for advanced protection. Basic filtration just doesn't cut it—your fuel and equipment need more.

That's why we always recommend using an Ultimate Defense media whenever possible. Our Ultimate Defense medias all contain at least one layer of Microglass, which consists of synthetic fibers that are smaller in size and more uniform in diameter than the natural fibers of Cellulose. This generally means increased retention, lower clean filter differential pressure, and less resistance to fluid flow. In other words, these filters are better equipped to provide the advanced protection that today's fuels and equipment require.

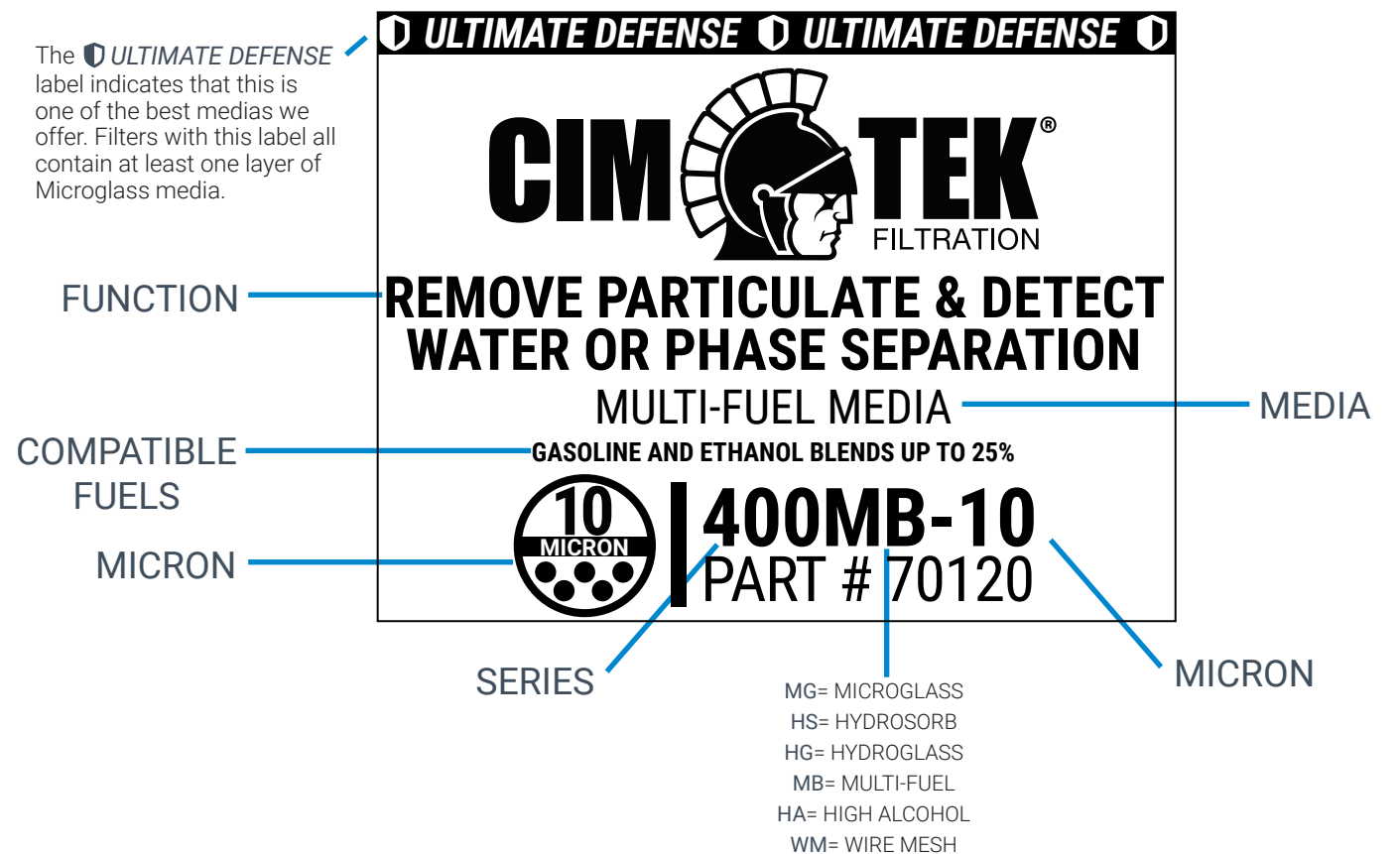
# READING OUR LABEL

Our labels help you quickly identify everything you need to know about our filters. Use the guide below to understand every element of the filter label.

## The color tells you what the filter does



## The label gives you all the details



READING OUR LABEL