

# Zeta Plus™ U & UW Series

## For Filtration of Insulation Oil Used in Power Generation

Zeta Plus™ U & UW Series filter cartridges have long been the industry standard for reconditioning dielectric oil.

### Charge-Modified Media

Zeta Plus U & UW filter media are specifically designed for the reconditioning of insulating oils used in the utility industry. Zeta Plus charge-modified filter media uses electrokinetic adsorption to remove contaminants and colloid materials smaller than those removed by mechanical sieving alone.

### High Efficiency Grades

Zeta Plus Utility Series Filters are available in two formulations, U & UW. The U formulation is recommended for use with oils contaminated mainly with carbon particles while the UW formulation is specially formulated for use with oils contaminated with both carbon particles and moisture.



## Features & Benefits

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### Charge-modified Depth Media

- Extremely high contaminant removal efficiencies and longer service life

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### Water Absorbent Formulation (UW Grade)

- Superior water removal capabilities

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### Integral, Multiple Length Cartridges

- Minimal operator exposure to contaminated oils

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### Zeta Plus Cartridge Lifting Device Handles

- Easy installation and removal for faster and more convenient operation

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### UW Grades Stop Flow When Water-saturated

- Prohibits recontamination of filtrate with water and identifies filter service life

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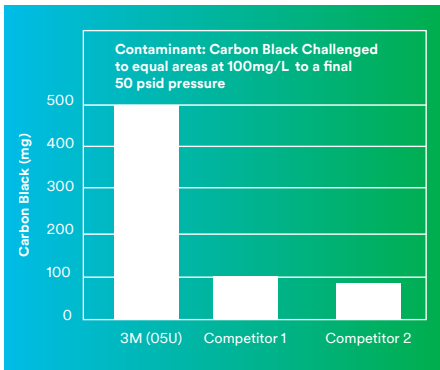
### Pretensioned Cartridge Assembly

- Strong, integral cartridge under the most severe operating conditions

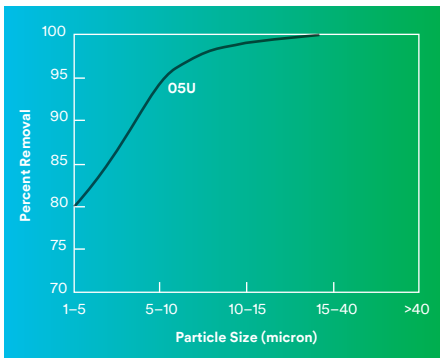
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### Filters are Predried and Packaged with Desiccant in Water-impervious Foil Packaging

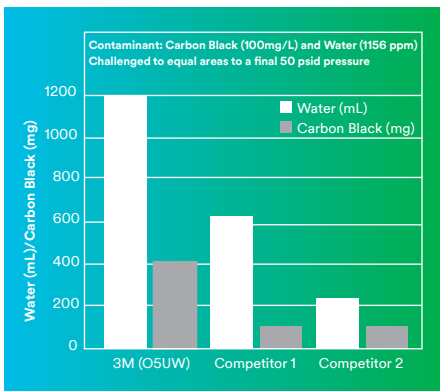
- Ensures that water removal capability is not compromised prior to use



**Chart 1. Zeta Plus 05U Series formulation media exhibits up to 5 times the contaminant removal capacity of competitive products.**



**Graph 1. Typical removal efficiencies for the 05U grades of Zeta Plus U Series formulation media**



**Chart 2. Zeta Plus 05UW Series formulation media provides superior particulate and water removal when compared to competitive products.**

### User-Friendly Design

A number of innovations enhance the convenience of Zeta Plus cartridge systems for easier operation, fast turn-around time and operator protection.

Zeta Plus Cartridge Lifting Device handles and integral, double height cartridges have been developed for more convenient cartridge installation and removal, and minimizing operator contact with dielectric fluids.

Clean oil means both proper insulation of transmission devices and quenched arcs in circuit breakers and other devices. The build-up of contaminants in the oil is one of the major reasons for loss of dielectric strength, equipment malfunction and eventual breakdown. Zeta Plus 05U Series formulation removes contaminating particles in insulating oil.

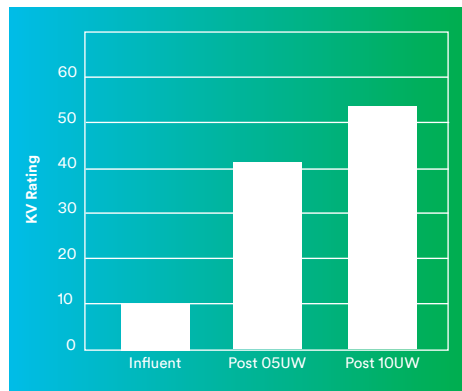
As depicted in Chart 1, Zeta Plus 05U series filter media removes significantly more carbon than competitive products. The greater capacity and longer life of Zeta Plus 05U series filter media mean longer filter life and reduced filtration costs.

### Automatic Shut-off on Saturation

Because of its special construction, Zeta Plus 05UW and 10UW series cartridges will plug on saturation with water, effectively shutting off flow. This feature is important for two reasons. First, it provides the user with a clearly defined end-point to filter life. Second, unlike the competitive products, the automatic shut-off prevents recontamination of the filtrate with water.

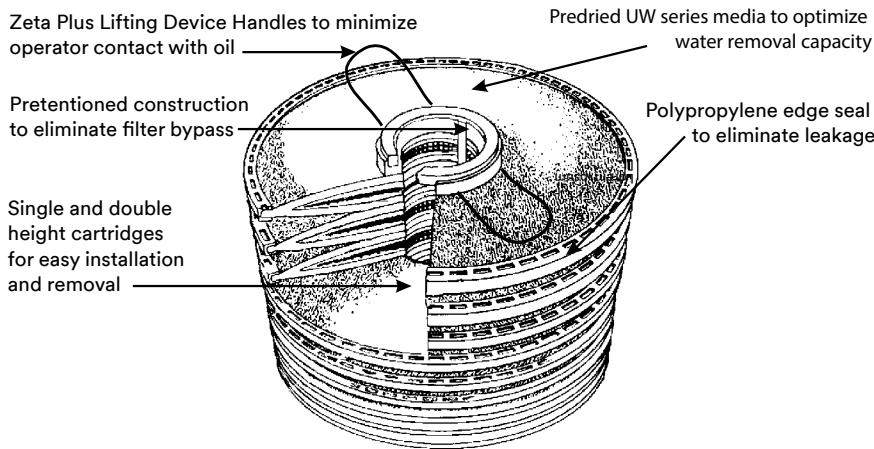
### Enhanced Manufacturing and Packaging

Humid site conditions limit the effectiveness of competitive products when their construction and packaging does not prevent absorption of water from the air during storage and transit. Zeta Plus UW series cartridges, however, reach the customer site at optimum water removal capacity because the cartridges are convection dried and sealed in water impervious foil packaging with a desiccant pouch.



**Representative of numerous field and laboratory trials in which service aged oil with <10 KV values were significantly improved by filtration with Zeta Plus U Series formulation filter cartridge.**

**Zeta Plus U & UW Series Filters Provide Superior Construction and Ease of Use**



**Zeta Plus Lifting Device Handles, above, for easier cartridge installation and removal, and to minimize operator contact with oil-laden cartridges.**

**Zeta Plus U & UW Series Cartridges are Available in a Wide Variety of Configurations**

Cartridge Catalog Number	Nominal Diameter	Height	Number of Cells	Approx. Media Area (ft <sup>2</sup> )	Standard Package Units per Carton	Available Media
<b>Z8UE1</b>	8"	6-11/16"	8	3.5	15	05U
						05UW
						10UW
<b>Z2UA1</b>	12"	7-11/16"	9	9	2	05U
<b>Z2UB1</b>		7-3/8"	8	8		05UW
<b>Z2UA2</b>	12"	15-3/8"	18	18	1	10UW
<b>Z2UB2</b>		14-3/4"	16	16		05U
						05UW
						10UW



**Double Length Cartridges, shown above, for fast cartridge change-out, operator protection and convenience.**

**System Sizing** – The recommended flow for Zeta Plus Performance Series U and UW grades is 1 gpm/ft.<sup>2</sup> (2400 lph/m<sup>2</sup>). At this flow, a 16 cps oil will show an initial differential pressure drop of about 3.5 psi (0.25 bar). When used with a 1 cps oil, an initial differential pressure of well under 1 psi (0.07 bar) can be expected.

**Operating Parameters**

Maximum Operating Temperature	140°F (60°C)
Maximum Operating Differential Pressure	30–35 psid (2.1–2.5 bar)
Recommended Flow Rate	1 gpm/ft. <sup>2</sup> (2,400 lph/m <sup>2</sup> )

# Zeta Plus™ U & UW Series Ordering Guide

## U Series Cartridges

Cartridge Diameter	Cartridge Height	Construction	Gasket Material	Packaging	Media Grade	Media Formulation
<b>Z8UE</b> (8" Diameter)	1 – Single Height	<b>2P</b> – w/Zeta Plus Lifting Device Handles	<b>D</b> – Nitrile	2 – Premium (water impervious foil bag)	05	<b>U</b> – Particulate removal from dielectric oils
<b>Z2UA</b> (12" Diameter)	1 – Single Height 2 – Double Height	<b>2P</b> – w/Zeta Plus Lifting Device Handles	<b>D</b> – Nitrile	2 – Premium (water impervious foil bag)	05	<b>U</b> – Particulate removal from dielectric oils

## UW Series Cartridges

Cartridge Diameter	Cartridge Height	Construction	Gasket Material	Packaging	Media Grade	Media Formulation
<b>Z8UE</b> (8" Diameter)	1 – Single Height	<b>2P</b> – w/Zeta Plus Lifting Device Handles	<b>D</b> – Nitrile	2 – Premium (water impervious foil bag)	05 10	<b>UW</b> – Particulate and water removal from dielectric oils
<b>Z2UB</b> (12" Diameter)	1 – Single Height 2 – Double Height	<b>2P</b> – w/Zeta Plus Lifting Device Handles	<b>D</b> – Nitrile	2 – Premium (water impervious foil bag)	05 10	<b>UW</b> – Particulate and water removal from dielectric oils

**PLEASE NOTE: The Ordering Guide above is for reference only. Not all combinations are available. Please consult with your 3M Representative to determine the appropriate part number for your application.**

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