



# ECR™ SYSTEMS FOR ELECTRO HYDRAULIC CONTROL (EHC) APPLICATIONS

## Overview

EHC fluids generally darken over time as they accumulate fine particles that are less than 1 micron in size. This contamination is not measured in ISO particle code analyses nor is it removed via mechanical particulate filters. This fine particulate contamination accounts for up to 90% of system contamination suggesting that as little as 10% of the EHC particulate contamination is being removed with existing filtration.

Patch testing (Figure 1, next page) is used to measure the levels of fine particulate contamination. Ideally, the patch should be white, while a dark patch indicates high levels

of contamination. This type of contamination is harmful in EHC applications as it causes increased air entrainment, which accelerates fluid breakdown, and leads to a more serious form of breakdown called micro dieseling.

ECR™ fluid conditioning systems are an essential tool for EHC fluid maintenance. When used as directed and as part of proper fluid maintenance program, ECR™ systems remove up to 90% of particulate contamination <5 microns, decrease air entrainment, improve fluid color and increase resistivity.

## ECR™ System Performance

Figure 1 shows the before and after results using an ECR™ system on a large GE EHC system operating at a 4000 MW power plant. Figure 2 shows the change in fluid color over time after installation of an ECR™ system.



Fig. 1—Patch test results before and after ECR™ system.



Fig. 2—Fluid clarity improvement over 3 months using an ECR™ system.

ECR SYSTEM SPECIFICATIONS		
	ECR 4000	ECR 8000
Reservoir Volume (L/gal)	1514/400	3028/800
Flow Rate (LPM/GPM)	109 x 51 x 145/ 43 x 20 x 57	142 x 51 x 145/ 56 x 20 x 57
Dimensions LxWxH (cm/in.)*	466	44
Weight (kg/lb)	156/345	247/545
Bulkhead fittings: Inlet/Outlet/Drain MNPT (in.)	1/1/-	1/1/1
Electrical Options	120-220 VAC 1P, 50-60 Hz standard. Other power configurations available on request. Supplied with standard 115 VAC cord. See electrical schematic.	
Current	15 Amps.	
Fluid Operating Temperature	28-50°C/ 82-122°F.	
Maximum Fluid Water Content	<500 ppm	
Electrostatic VAC	12 kV – 3 kV	
Seals	Viton.	
Tubing	Stainless steel tubing with common manifold, chemical resistant hose with Swagelok fittings	
Paint	Chemically resistant paint for EHC fluids.	

\*2.3 m/90 in. total vertical clearance required to change elements.

\*\*TMR™ water removal systems recommended for all ECR™ system installs.

## Connection Configuration

The ECR™ system should be installed in a kidney loop format as follows:

- Maximum vertical head: 3 m / 10 ft
- Maximum distance from reservoir: 4.6 m / 15 ft
- Maximum 4 elbows on inlet or outlet / No globe valves

## Consumables

There are 2 different elements for this application to accommodate known fluid operating conditions.

P/N 600907 When fluid resistivity values are <8 G-OHMS/cm

P/N 600990 When fluid resistivity values are >8 G-OHMS/cm

Recommended stock level: 1 set

## Consumables Replacement Interval

Clean-up mode: 1 month

Maintenance mode: 6 months

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