

**HY-PRO**

FILTRATION

**VeneFilter**  
Filtration Separation Purification



DFE Filter Element Upgrades



Turbine Oil Coalescence



Varnish Removal & Prevention



Vacuum Dehydration

# Contamination Solutions for Power Generation

[www.venefilter.com](http://www.venefilter.com)

[www.hyprofiltration.com](http://www.hyprofiltration.com)

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# Fluid Contamination Under Control With Hy-Pro Filtration's Total System Cleanliness Approach

Hy-Pro DFE Rated Filter Elements & Fluid Contamination Equipment



Non-Spark Discharge Element Upgrades Prevent Fluid Degradation & Extend Additive Life



DFE Rated Filter Elements Upgrades for All Filter OEMs



Vacuum Dehydrator- Removes Free & Dissolved Water, Low ISO Codes



COT- Turbine Oil Coalesce Skid Rapidly Controls Water & Particulate



SVR- Soluble Varnish Removal System Stops Fail to Start and Unit Trips

## Hydraulic & Lube Filter Element Upgrades

## Off-Line Lube Oil Conditioning Skids

Turbine Oil Conditioner Coalesce & Particulate Element Upgrades

## Innovative Products Support & Solutions for Combustion & Steam Turbines. Hydro, Nuclear, HRSG, Natural Gas, Aeroderivative, Coal & Co-Generation Plants

## Compressor, Gearbox, Feed Pump & Seal Oil Contamination Solutions

## Phosphate Ester Fluid Maintenance (EHC)

FCL- Filter Cart for High Viscosity Fluid Conditioning & Transfer

DFN- Seal Oil & BFP Filtration Upgrades

FSL Side Loop Gearbox Filtration

FPL- Filter Panel Ideal for Compressors

Hy-Dry Desiccant Reservoir Breathers

TMR- Maintains Phosphate Ester Water Levels Below 300ppm

ECR- Electrostatic Removes Thermal Degradation Sub-Micron Particles

ICB- Dry Ion Charge Bonding Acid Scavenging Elements for Phosphate Ester EHC Systems



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# Cleaner Fluid... Longer Component & Fluid Life... More Uptime!

## Roller Contact Bearing

Current ISO Code	Target ISO Code	Target ISO Code	Target ISO Code	Target ISO Code
	2 x Life	3 x Life	4 x Life	5 x Life
26/24/21	22/20/17	20/18/15	19/17/14	17/15/12
25/23/20	21/19/16	19/17/14	17/15/12	16/14/11
22/22/19	20/18/15	16/16/13	16/14/11	15/13/10
23/21/18	19/17/14	17/15/12	15/13/10	14/12/9
22/20/17	18/16/13	16/14/11	15/13/10	13/11/8
21/19/16	17/15/12	15/13/10	13/11/8	-
20/18/15	16/14/11	14/12/9	-	-

## Hydraulic Component

Current ISO Code	Target ISO Code	Target ISO Code	Target ISO Code	Target ISO Code
	2 x Life	3 x Life	4 x Life	5 x Life
26/24/21	23/21/18	22/20/17	21/19/16	21/19/15
25/23/20	22/20/17	21/19/16	20/18/15	19/17/14
25/22/19	21/19/16	20/18/15	19/17/14	18/16/13
23/21/18	20/18/15	19/17/14	18/16/13	17/15/12
22/20/17	19/17/14	18/16/13	17/15/12	16/14/11
21/19/16	18/16/13	17/15/12	16/14/11	15/13/10
20/18/15	17/15/12	16/14/11	15/13/10	14/12/9
19/17/14	16/14/11	15/13/10	14/12/9	14/12/8
18/16/13	15/13/10	14/12/9	13/11/8	-
17/15/12	14/12/9	13/11/8	-	-
16/14/11	13/11/8	-	-	-
15/13/10	13/11/8	-	-	-
14/12/9	13/11/8	-	-	-

## Succeed with a Total Systems Cleanliness Approach

Developing a Total System Cleanliness approach to control contamination and care for fluids from arrival to disposal will ultimately result in more reliable plant operation and save money. Several steps to achieve Total Systems Cleanliness include: evaluate and survey all hydraulic and lubrication systems, establish a baseline and target fluid cleanliness for each system, filter all new fluids upon arrival and during transfer, seal all reservoirs and bulk tanks, install high quality particulate and desiccant breathers, enhance air and liquid filtration on existing systems, wherever suitable use portable or permanent off-line filtration to enhance existing filtration, improve bulk oil storage and handling during transfer, remove water and make a commitment to fluid cleanliness.

The visible cost of proper contamination control and Total Systems Cleanliness is less than 3% of the total cost of contamination when not kept under control. Keep your head above the surface and avoid the resource draining costs associated with fluid contamination issues including:

- Down Time and Lost Production
- Component Repair / Replacement
- Reduced Useful Fluid Life
- Wasted Materials and Supplies
- Root Cause Analysis Meetings
- Maintenance Labor Costs
- Unreliable Machine Performance
- Wasted Time and Energy



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