



FILTRATION



DFE Filter Element Upgrades



Turbine Oil Coalescence



Varnish Removal & Prevention

Contamination Solutions for Power Generation



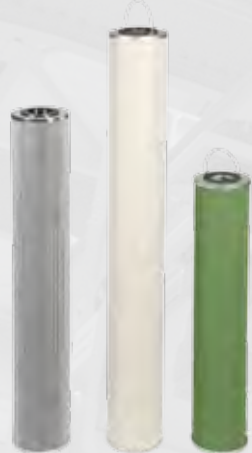
Vacuum Dehydration

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



Turbine Oil Conditioner
Coalesce & Particulate
Element Upgrades



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

**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



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



ECR- Electrostatic Removes Thermal
Degradation Sub-Micron Particles



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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