



Power Generation

Ultipor® SRT Filter Elements

The Next Generation in Anti-Static, Stress-Resistant Media

Innovative Media Performance

Pall's new series of hydraulic and lube filter elements feature Ultipor® SRT (stress-resistant technology) media for unsurpassed performance and value. Ultipor SRT elements provide:

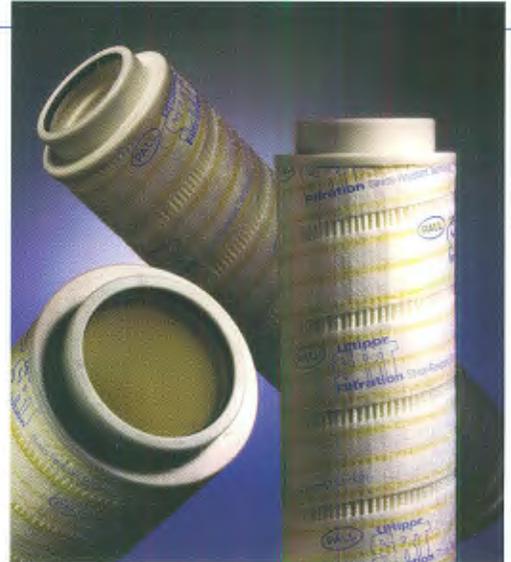
- Greatly reduced static charge build-up
- Low element pressure drop for small envelope size and long life
- Optimum performance at all stages of filter life for cleaner fluid
- Optimum performance under cyclic flow and pressure conditions for cleaner fluid

Ultipor SRT Filter Technology

Designing filter elements has traditionally been a question of balance. Make a filter finer and more efficient and you have to sacrifice clean pressure drop and/or service life, and with ever-increasing flow rate per M² (ft²) of filter media (flux), static charging/discharging can lead to significant operational problems. With the Ultipor SRT filter design, we've improved the filter's ability to maintain fluid cleanliness while at the same time reducing clean pressure drop and adding more filter area to capture dirt while significantly reducing static charge generation. The result: better, more consistent system protection combined with long filter service life in an environmentally friendly package (see Table 2).

Filter Media Charging Measurements

Sample description	Average charge generation in turbine lube oil (current, nA)	
	No heat exposure	After 149°C (300°F) for 1 hour
Standard glass fiber material	620 ± 100	1,200 ± 200
Surface modified standard glass fiber material	250 ± 40	490 ± 70
Glass fiber-based ESD material (SRT)	80 ± 20	80 ± 20



Ultipor SRT Filter Elements

Field Trials with New ESD Element

Problem System	Result from Using ESD Element
Power plant lube system—clicking noise	Eliminated noise and burn marks and reduced charging by ~98%
Power plant varnish formation	Maintained varnish potential levels

Conclusions

- Electrostatic charging can be a problem in hydraulic and lube systems (Varnish formation)
- Grounding housings and pipes does not reduce the charge generated
- Standard glass and paper media can create electrostatic charging
- New electrostatic dissipative filter substantially reduces charging and signs of noise, sparking, and filter damage, both in laboratory and field testing



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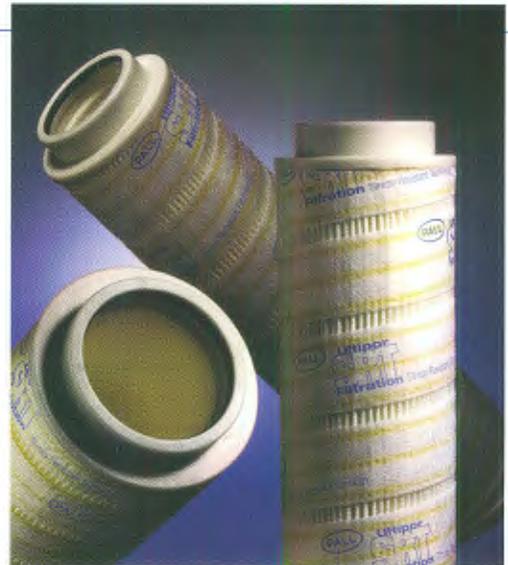
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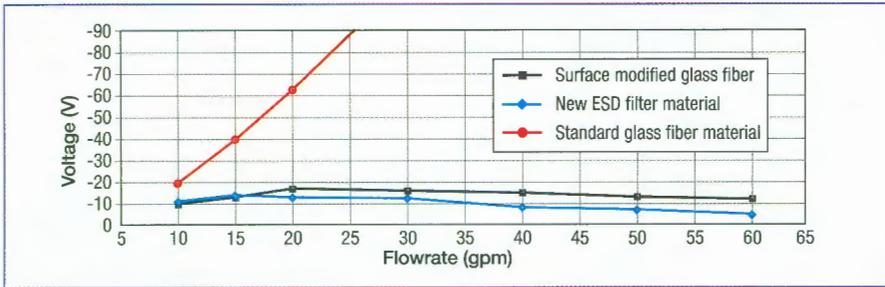


Figure 4 Pleated Element Charging chart

Table 1 Filter Performance Ratings

Ultipor SRT Filter Grade	ISO Code Rating per Stress-Resistance Test (80% ΔP)*
MP	15/10/04
MN	17/13/05
MS	19/16/06

* based on 4 bar (60 psid) terminal pressure drop

Table 2 The Ultipor SRT Filter Advantage

Feature	Advantage	Benefit
Ultipor SRT media Construction	<ul style="list-style-type: none"> Extremely low charge generation Increased stability under cyclic or dirt 	<ul style="list-style-type: none"> Reduced rate of varnish formation Cleaner fluid under cyclic conditions loading conditions Highest performance throughout the filter's service life
Tapered pore media	<ul style="list-style-type: none"> Dirt captured throughout the media depth 	<ul style="list-style-type: none"> Long filter service life
Tight fiber matrix with small fiber size	<ul style="list-style-type: none"> High particle removal efficiency (Betas) Consistent performance 	<ul style="list-style-type: none"> Cleaner fluid Increased system protection
Thin media pack	<ul style="list-style-type: none"> More filter area per element 	<ul style="list-style-type: none"> Long filter life Lower filtration costs
Low pressure drop	<ul style="list-style-type: none"> Smaller package size Less cold start bypass Longer filter life Less stress on the filter element 	<ul style="list-style-type: none"> Lower package cost and less space requirement Increased system protection Lower element change-out cost Consistent filter performance throughout its life

Ultipor SRT Filter Performance

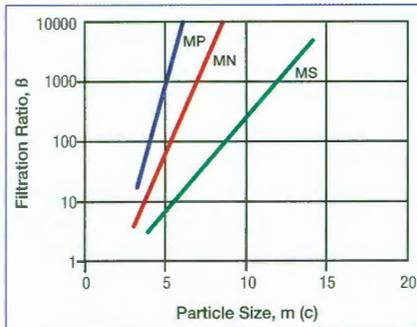


Figure 3 Filtration Ratios per ISO 16889

Specifications

Filter Ratings

- Stress-Resistance Test (80% Δp) ISO Code rating (see Table 1)
- Multi-pass filter ratings (per ISO 16889), see Figure 3

Element Collapse Pressure Rating (ISO 2941)

- 10 bar (150 psid)

Fluid Compatibility (ISO 2943)

Compatible with petroleum oils, water glycols, water-oil emulsions, and high water containing fluids. Fluorocarbon seals are available for industrial phosphate esters, diesters, and specified synthetics.

Filter Element Hardware

Corrosion protected end caps and core

Flow Fatigue (ISO 3724)

Contact factory; element structure incorporates upstream and downstream medium support to achieve maximum fatigue cycle life.

Fabrication Integrity (ISO 2942)

Fabrication integrity is validated and assured during the manufacturing

process by numerous evaluations and inspections including Bubble Point testing.

Temperature Range

- Nitrile seals: -43°C (-45°F) to +107°C (+225°F)
- Fluorocarbon seals: -29°C (-20°F) to +120°C (+250°F)

Notes: Maximum 60°C (140°F) for water-based fluids. Maximum 93°C (199°F) for phosphate fluids.

Quality Control

All elements are manufactured by Pall to exacting procedures and strict quality controls. Elements are checked against rigorous ongoing validation test protocols within Pall Corporation. Pall is accredited to ISO 9001 and QS 9000.

Ultipor SRT elements are available in many retrofit and upgrade configurations (Hilliard, Parker, Hydac etc). To verify correct part number and media choice, please contact your local Pall representative.



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