• Ultipor III design technology with Helical wrap support system.
• Filters with $\beta \times (c)$ ratio $\geq 1000$ & Efficiency 99.9% as per ISO 16889 (Multi pass test).
• ISO Certified Calibrated $\beta \times (c)$ ratio $\geq 1000$ will be mentioned on the filter element.
• Graded pore design of Filter Element along with upstream & downstream support.
• Tapered pore structure for better filtration results and long life.

**PALL filter elements go through following tests.**

- **ISO 2941:2009** Verification of collapse/burst pressure rating.
- **ISO 2942:2004** Verification of fabrication integrity and determination of the first bubble point.
- **ISO 2943:1998** Verification of material compatibility with fluids.
- **ISO 3968:2001** Evaluation of differential pressure versus flow characteristics.
Pall construction
• Single layer Resin Bonded Glass Fibre
• Poly support mesh up/down stream
• Spiral wrap firmly bonded to outer poly support mesh to prevent pleat bunching
• Robust construction for heavy duty service

** construction
• 4 separate layers, no resin bonding
• Some may only be paper media
• Wire support mesh up/down stream
• No spiral wrap or support for pleat pack – permits pleat bunching and fatigue failure
Filter Media Quantity

Pall KP: 115 pleats
Pall KS: 107 pleats
X-Make 20um: 90 pleats

Pleat Depth
Pall 18mm
X-Make 16mm

Media Surface Area
Pall KP: 2 x 115 pleats x 18mm = 4140mm length
X-Make 20um: 2 x 90 pleats x 16mm = 2880mm length
So.....1260mm extra with Pall = 43% more! (33% more with KS)
1965: Ultipor® Element

- Glass fibre media *
- Fixed/Uniform pore *
- Wire mesh up and down support
- Filters tested using Multi-pass Test *
- Rating based upon $\beta_x \geq 75$ *

$\beta_{(3)} \geq 75$ and 11g dirt capacity

* 1st in Industry!
1986: Ultipor II Element

- Tapered pore media *
- Polyester upstream support *
- Rating based upon $\beta_x = 200$ *
- 20 bar min collapse *
- Wire mesh support down

$\beta_{(3)} \geq 200$ and 19g dirt capacity

* 1st in Industry!
1992: Ultipor III elements

- Upstream & Downstream Nylon support mesh
- Helical wrap support *
- Increased area for longer service life

$\beta_{(3)} \geq 200$ and 25g dirt capacity

* 1st in Industry!
1994: Coreless Ultipor III

- Similar performance as Ultipor III
- No metal parts
  - Plastic end caps
  - Core is part of housing *

1999

Rated by ISO 16889 Multi-pass Test
\[ \beta_{(5)} (c) \geq 1000^* \] and 29g dirt capacity
2004: Ultipleat SRT

- Graded pore structure with uniform pores at each level*
- Lay-over pleat construction*
- Stress resistant media technology (SRT™)*
- Filters tested using the ‘new’ Cyclic Stabilization Test*
- Rating based upon Downstream cleanliness levels*
- Anti-static construction*

\[ \beta_{5(c)} = 1000 \text{ and } 53 \text{ gram Dirt Capacity} \]
(equivalent to \( \beta_{(x)} = 75 \) at 1.8 \( \mu m \))

* 1st in Industry!
<table>
<thead>
<tr>
<th>Number</th>
<th>Short Title</th>
<th>Issue</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISO 2941</td>
<td>Collapse/Burst Test</td>
<td>1974*</td>
</tr>
<tr>
<td>ISO 2942</td>
<td>Fabrication Integrity</td>
<td>2002*</td>
</tr>
<tr>
<td>ISO 2943</td>
<td>Compatibility Test</td>
<td>1998</td>
</tr>
<tr>
<td>ISO 3723</td>
<td>End Load</td>
<td>2003</td>
</tr>
<tr>
<td>ISO 3724</td>
<td>Flow Fatigue</td>
<td>1976*</td>
</tr>
<tr>
<td>ISO 3968</td>
<td>Flow/Pressure Drop</td>
<td>2002</td>
</tr>
<tr>
<td>ISO 11170</td>
<td>Filter Element Performance</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Qualification Programme</td>
<td></td>
</tr>
<tr>
<td>ISO 16889</td>
<td>Multi-pass Filtration Performance</td>
<td></td>
</tr>
</tbody>
</table>

*Under Review*
ISO 16889:1999

Flowmeter

ISO Medium Test Dust

Reservoir

ΔP Transducer

Downstream Sample

Automatic Particle Counter

Test Filter

Upstream Sample

Automatic Particle Counter