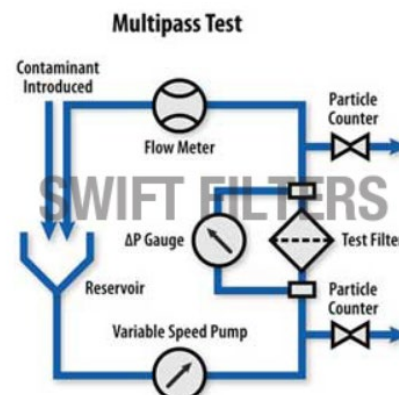


Filter Element Technology Testing

With more than 45 years of filtration experience, Swift Filters understands the technology, the issues and the requirements of producing reliable cost-effective filtration solutions. Contamination is the dominant factor in the failure of hydraulic and lubrication systems.

Contamination affects component wear and downtime, and ultimately the costs of operating your fluid pressure system. With proper filtration, fluid cleanliness is improved resulting in longer fluid life, less maintenance time is required, equipment is more reliable, costly component replacement costs are reduced and there is less downtime.

Swift Filters excel at designing and manufacturing both standard and custom filter elements. Our products are used in the most demanding applications, including military, aerospace, high performance racing and a number of heavy-duty industrial markets, just to name a few.



Filter Testing

All Swift Filter elements conform to the latest ISO standards. There are a number of ISO quality standards that are applicable to filtration, including:

- ISO 2941 – Collapse and burst resistance
- ISO 2942 – Fabrication and integrity testing
- ISO 2943 – Material compatibility with fluids
- ISO 3723 – Method for end load test
- ISO 3724 – Flow fatigue characteristics
- ISO 3968 – Pressure drop vs. flow rate
- ISO 16889 – Multi-pass method evaluating filtration performance of filter elements

Note: ISO standard 16889 (updated from ISO 4572) provides a common format to rate liquid filter performance. It allows for comparison of published filter Beta ratios, rather than relying on micron ratings. The chart below provides a particle size comparison of the more recent ISO 16889 standard with the old ISO 4572 standard.

Note: ISO standard 16889 (updated from ISO 4572) provides a common format to rate liquid filter performance. It allows for comparison of published filter Beta ratios, rather than relying on micron ratings. The chart below provides a particle size comparison of the more recent ISO 16889 standard with the old ISO 4572 standard.

Bx(c)=1000 (ISO 16889)	2.5	5	7	12	22
Bx=200 (ISO 4572)	<1	3	6	12	25



Filter Element Technology Testing

There are a number of ISO target cleanliness codes that can be used to help when designing your system. Conditions that include cold starting, high levels of shock and vibration, if the component can affect safety and/or reliability, or any other severe operating conditions or combination of conditions should be part of your design criteria when selecting the proper filters.

Cleanliness required for typical hydraulic components:

Component	ISO code
Servo valves	16/14/11
Proportional valves	17/15/12
Vane and piston pumps and motors	18/16/13
Directional and pressure control valves	18/16/13
Flow control valves and cylinders	20/18/15
New unused fluid	20/18/15

The NFPA (National Fluid Power Association) also publishes several standards applicable to filtration elements which are available on their website.

Filter Media Choices

The typical filter element choices are Cellulose, Micro-Fiberglass and synthetic materials and Stainless Steel Wire Cloth. Each media has its own level of performance, with varying levels of cost, capture efficiency, dirt holding capacity, differential pressure capability and system life.

When making a choice for your application contact our customer service department should you need any help. For example, in low pressure applications cellulose elements may be appropriate, while high pressure corrosive applications may call for stainless steel wire cloth elements.

For the highest level of capture efficiency and dirt holding capacity, microglass filters are an excellent choice.

When choosing filter element media, lifecycle costs are an important consideration. The ability to clean and re-use stainless steel mesh elements, or the high efficiency of micro-fiberglass has an effect on longer term cost considerations. Let us assist with any application questions or problems.

