

Micrafilter Presentation.

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A Brief History of Micrafilter

- Established in 1994 in Maidstone, Kent
- Tubes manufactured
- Housings purchased
- 2010 MicraFilter moved to Washington



Product Range



MicraSteel

Stainless Steel
Filter Housings



MicraGold

Aluminium
Filter Housings



MicraLescer MicraTube

Filter Cartridges



MicraDif MicraSorb

Disposable Filter Cartridges

MicraSteel Stainless Steel Filter Housings

- Specially designed for high efficiency filtration of gases and liquids in critical applications
- Manufactured from solid steel bar stock in accordance with NACE MR-01-75 and ISO 15156-1
- Pressure range from full vacuum to 350 barg (5000 psig)
- Maximum working temperature of 200°C
- Suitable for use with all grades of MicraLescer, MicraTube and MicraMesh
- 100 and 350 barg models available



MicraGold Aluminium Filter Housings

- Range of anodised aluminium filters
- Specially designed for the removal of oil, water and particulate from compressed air or gas streams mainly in fine instrument filtration systems
- Available with polycarbonate bowls making them suitable for use on instrumentation panels and vacuum applications
- All aluminium parts are corrosion protected by anodisation, making them ideal for use in harsh conditions
- 10 and 16 barg models available



MicraMesh Filter Cartridges

- Manufactured from five layers of mesh, sintered together to form an integrated filter cartridge
- Retains solid and liquid contaminants from gas samples and solid contaminants from liquid samples
- Excellent corrosion protection, pressure differential resistance and are supplied complete with a fitted PTFE gasket
- Can be used in the temperature range from -240°C to 260°C (-400°F to 500°F)
- 5 filter grades available: 5, 10, 25, 75, 100 micron



MicraLescer Filter Cartridges

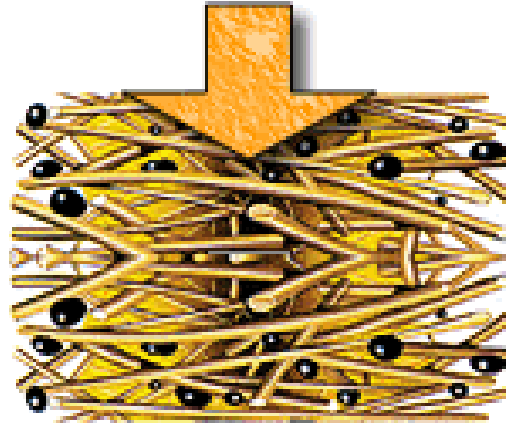
- High efficiency, self-supporting, fluorocarbon resin bonded, borosilicate glass microfibre filter cartridges
- Suitable for use in gas and liquid applications
- Designed to coalesce liquid particles through a two layer construction; the inner layer forms the main filtration and the coarser outer layer provides drainage
- Typical applications of MicraLescer include two-stage separation, for example, oil aerosol from gases.
- 4 filter grades available
- Direction of flow is from inside to out



Theory of Operation

- **Depth Filtration**

- Random matrix of interwoven fibres
- Different lengths and diameters to present a difficult path
- Takes into account how particles behave in moving airstream
- Variety of capture mechanisms occur in gas filtration
- General Uses
 - Gas Filtration:
 - Coalescing Filters
 - Vacuum Separators



MicraTube Filter Cartridges

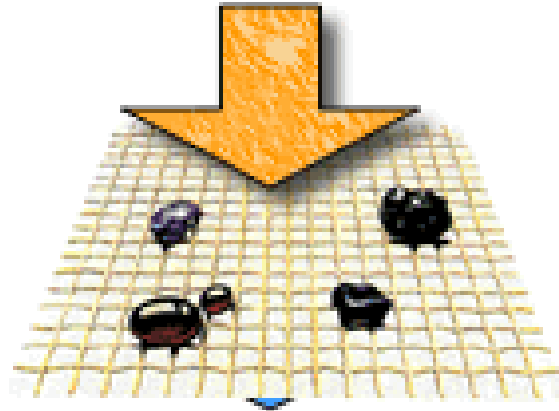
- High efficiency, self-supporting, fluorocarbon resin bonded, borosilicate glass microfibre filter cartridges
- Suitable for use in industrial, medical and instrumentation applications using air, gas or liquid
- Can be used at high pressure, low pressure and under vacuum and at temperatures up to 150°C (302°F)
- 5 filter grades available
- Surface filtration



Theory of Operation

- **Surface Filtration**

- Straining or sieving utilising a material consisting of a matrix of uniform equally sized holes
- Particle larger than opening
- Therefore physically stopped
- General uses
 - Liquid Filtration:
 - Oil Filters
 - Blood Filtration
 - General Purpose Water Filtration



MicraDif Disposable Filters

- Protect gas analysers and other sensitive equipment from particulate contamination
- Suitable for use in compressed air, vacuum or liquid applications
- Designed to push fit into flexible tubing for vacuum and low pressure applications or to fit pipe couplings for higher pressure applications
- 5 filter grades available
- Maximum pressure 9 barg
- Possible introduction of a coalescing range



MicraSorb Disposable Filters

- Removes trace extraneous vapours that are present in gas analyser samples and vapour contamination in laboratory applications, also the clean up of instrument or actuator air supplies
- Sealed transparent body for easy visual monitoring of performance and to contain contamination
- Six types of adsorbent
- Maximum pressure 9 barg



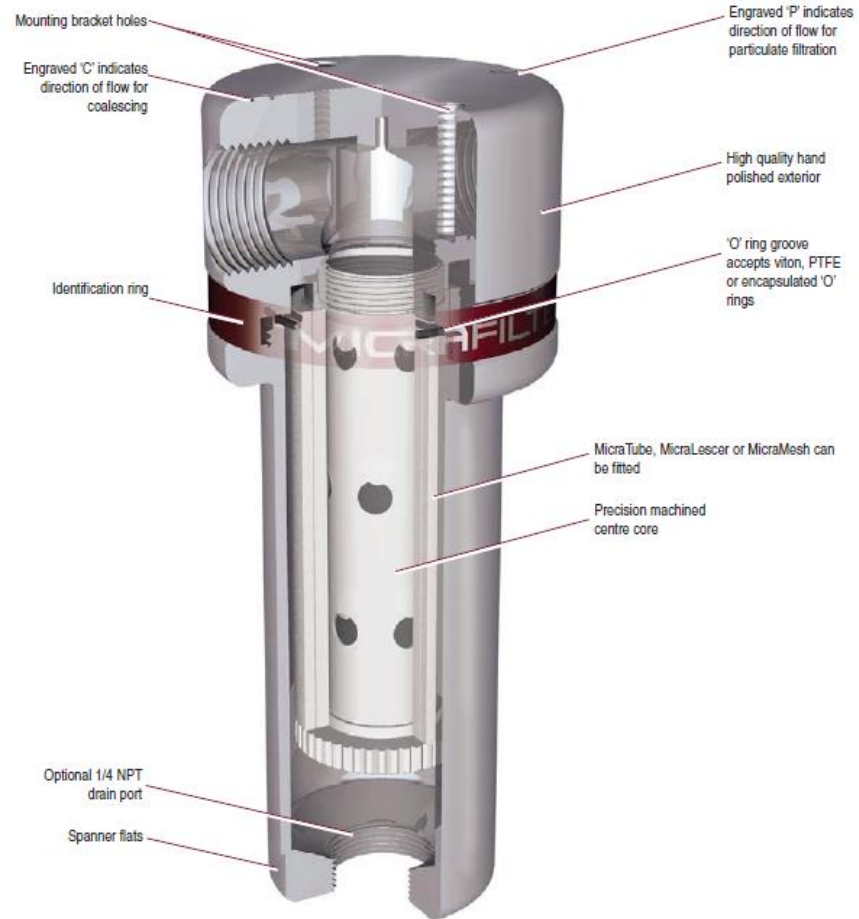
Alternatives & Bespoke Cartridges

- Cartridges designed to fit original manufacturers equipment, including Balston and Headline
- Equal or better performance than the original
- Certified performance for complete peace of mind
- Bespoke size MicraLescer and MicraTube filter cartridges available, should you have specific requirements



Product Range

- Air & gas filtration
- Liquid filtration
- Alternative technology
 - P & C flows
 - Precision core
 - Self sealing



Manufacturing Process

- Borosilicate glass micro fibres
- Dissolved in water at a specific concentration (product dependant)
- Fast and slow mixers used to distribute the fibres throughout the water
- By adding hydrochloric acid, the pH is reduced to between 3.2 and 3.5 as this is the pH at which the fibres are most evenly dispersed throughout the water



Manufacturing Process

- Mandrels used under vacuum to pull fibres out of the water and form tube
- Inner diameter controlled closely by mandrel size
- Tubes are rolled lightly to smooth out the media
- Outer diameter is checked using a ring gauge
- Outer diameter more variable
- Alignment of inner and outer surfaces of the tube is critical to achieving a consistency in the wall thickness



Manufacturing Process

- Master tube is dried in oven at 110°C and then dipped into bonding resin (dissolved in acetone)
- Dipped tube is dried in air to remove all acetone (testing is carried out on the exhaust of the drying cupboard to ensure all acetone has been extracted)
- Binder resin is cured at specified temperature in oven (typically 240°C, it is very important that no acetone remains during this curing phase)
- Cooled and cut to required length



Product Specification & Performance

- Pressure Equipment Directive (housings)
- ISO 8573.1 air quality classification
- ISO12500 performance statement
- Customer specific – geometry
- High quality
- Quoted pressures, temperatures & filtration performance meet industry standards



Product Application

- Many Micrafilter products are used as a pre-filter for protection of delicate equipment including:
 - Gas analysers for monitoring oxygen, carbon dioxide, sulphates (responsible for acid rain) in the environment
 - FT-IR spectrometers (used to identify unknown chemicals and contaminants in liquids)
 - HP-LC analysis machines (as above)



Product Application



- A modern FT-IR analyser looking for greenhouse gases etc in the atmosphere
- FT-IR spectrometers typically employ pre-filters to prevent the delicate sensors from being overloaded



- Used in Gas Measurement systems during the production of Steel
- Removal of Tar and other particulate as Gas is being measured for its calorific value

Product Application



- Gas Measurement Systems
 - Micratubes fitted internally
 - For use in portable biogas & landfill gas analysers

Product Application

- Flue gas analyser for detecting carbon monoxide and other dangerous gases
- The MicraDif type prefilter prevents particles (dust) from entering and contaminating the sensor





Thank you for your attention