

PROVEN PARTICLE REDUCTION IN ALD & CVD PROCESSES



FLP 515 - STAINLESS STEEL FIBER MEDIA

Mott High Purity Filters provide 9-log filtration of particles down to 0.0015 μm resulting in particle-free gas. The FLP is designed for filtration of low vapor pressure, high temperature gases generated in a direct liquid injection system, where the process utilizes a vaporization chamber. FLP515 is ideal for filtering vapor phase low pressure dopants or organometallic precursor vapors such as TEMAZ, TEOS, TiCl₄, TDMAT, TEPO, TEB, POCl, Z4MS, Ztomcats, Trans-LC, TMB, and others.



MATERIALS

- » Hardware: 316L SS
- » Filter Medium: 316L SS
- » Wetted Hardware Surface Finish: 5 Ra, Electro-polished

APPLICATIONS

The FLP is designed for filtration of low vapor pressure gases from a mixture of chemical precursor vapor liquid source volatile precursors, high temperature gases generated in a direct liquid injection system, where the process utilizes a vaporization chamber.

OPERATING CONDITIONS

- » Maximum Operating Pressure: 2500 psig (172.5 barg)
- » Maximum Operating Temperature for Inert Gas: 450°C
- » Maximum Differential Pressure: 500 psid (34.5 bar)

PROVEN RESULTS

Mott filters have been proven to perform in various semiconductor manufacturing environments, including but not limited to:

| | Environment 1 | Environment 2 | Environment 3 | Environment 4 |
|---|------------------|------------------|------------------|--|
| Precursor Type | ZrO ₂ | ZrO ₂ | HfO ₂ | CpZr(NMe ₂) ₃ & Sr-20 |
| Process Type | ALD | ALD | CVD | ALD |
| Filter Model | FLP515FF33 | FLP515FF33 | FLP515FF33 | FLP515FF33 |
| Vaporizer | MSP | MSP | Horiba | TRIJET |
| Operating Temperature | 150°C | 150°C | 150°C | 150°C |
| Chamber Pressure (mTorr) | 0.8~0.9 | 0.7~0.8 | - | 8 |
| Carrier Gas Operating Pressure | 15~24 | 15~24 | 15~24 | 15~24 |
| Flow Rate (SLPM) | 20.45 | 1.90 | 9.4 | ≤ 5 sccm |
| Process | High-K | High-K | High-K | ZYALD & SR-20 |
| Uniformity (%) | ~ ≤ 2 | ~ ≤ 2 | ~ ≤ 5 | ≤ 3 |
| Particle Size (μm) | ~0.08 | ~0.08 | ~0.14 | ~0.1 |
| P/C (bare) | ≤ 200 | ≤ 200 | ≤ 400 | ≤ 100 |
| P/C (pattern) | ≤ 20 | ≤ 20 | ≤ 400 | Unknown |