

Comet FXE Microfocus Modules

FAQ

Questions

Q: What is your lead time for the FXE modules?

Q: How often is maintenance needed during normal operation?

Q: What is the lifetime of the tube?

Q: What is the lifetime of wear parts?

Q: How much time is needed for filament replacement?

Q: What vacuum level is needed to operate the tube?

Answers

A: Please contact your local sales contact to get the most current information. At the time of the webinar the estimated lead time was ten weeks (assuming no further supply chain disruptions).

A: The typical things that one has to maintain is greasing the cable, replacement of wear parts. This can easily be done by the user (some initial training is helpful), typically once per quarter or twice per annum dependent on usage. With our optionally available spring-loaded cables, the greasing maintenance interval will increase to twelve months.

A: The lifetime of the FXE X-ray tube head is virtually infinite, as all parts can be replaced, and are supplied by COMET X-ray. In practice, you will replace mostly only the wear parts, like filaments, targets and O-ring seals.

The warranty for the entire FXE module (i.e. including vacuum pumps, generators, coolers, control unit) is twelve months, warranty extensions are available.

A: The maintenance interval depends on the operation mode, tube power and how rigorously the user executes maintenance prevention functions. The most critical part is typically the emitter lifetime, which varies between 100 and 500 hours.

Targets have much longer lifetimes, as they can be rotated to yield a fresh spot. If no pristine spot can be found anymore, the target should be replaced. There is no warranty on wear parts.

A: A trained operator can vent the tube, exchange the grid unit (containing the premounted filament) and pump-down within about half an hour. If you're lacking experience, and need to adjust the new filament, up to two hours might be necessary. You can minimize downtime, by always having a spare grid unit on-the-shelf.

A: The integrated pressure sensors keep track of the vacuum quality. Once the factory-set residual pressure has been reached, the high voltage and emission generation can start.

Q: Can I predict the lifetime of wear parts?

A: As every user operates the FXE modules somewhat different it's hard to provide a reliable answer. We have implemented operation time counters that are accessible via the PLC interface. Customers can use these to build up their own statistics, based on their unique operation mode/power/usage pattern. Over time users should be able to draw conclusions.

Q: How will you train OEMs?

A: We have a thorough training and certification program, to ensure our OEMs are fully able to support their end users. We provide local support to the OEMs, should they require additional assistance.

Q: How does the FXE 225.48 compare to the MesoFocus (iXRS 225 MF)?

A: The FXE 225.48 is typically used in a lab environment or where image characterization and or measurement of features below 25 μm is required.

In terms of focus spot size both tube have an overlap. While the MF offers spot sizes of 50, 130 and 200 μm the FXE 225.48 offers a much bigger and continuous spot size range, from comparable MF resolutions at high power, down to resolutions as low as 4 μm .

The FXE has a smaller focal spot to object distance - FOD - about 6.7 mm, compared to 36 mm in the MF tube.

The beam angle of the FXE 225.48 is about 30°, while the iXRS 225 MF has a 40° angle.

The FXE is an open tube, hence will allow quick replacement of worn parts, like filaments and targets. In the long run you will save on material cost, as you'll never have to replace the entire tube.

While the FXE modules are a great fit for manual inspection at high resolutions, the sealed nature of the MF tubes makes them more suitable for in-line applications requiring moderate resolution down to 25 μm .

Q: How can I purchase replacement parts (both wear parts and spare parts)?

A: As we sell almost exclusively to OEMs, our OEM partner who installed the system is the first point of contact, and will receive spare parts, delivered by COMET Switzerland.

A: Delivery time to our OEMs for frequently used parts, such as wear parts, should be in the order of two weeks. In case a less frequently used spare part is requested, or major supply chain disruptions occur (like during the CoViD pandemic) delivery times will be longer, and you will get an estimate from us.

Q: Will you also offer dual head tubes (transmission and reflection head being exchangeable) and rod anode tubes?

A: At present, we have decided not to offer these special setups.

Q: Does COMET plan to offer higher kV Microfocus sources?

A: At present, our offering is limited to what you can see on our website. We will have a 190 kV Transmission Nanofocus Module available in 2022. For higher kV options of our reflection modules we would like to point to our upcoming launch of the 450 kV Mesofocus sealed tube.

Q: Is the system only available as a complete set, our could I add other generators?

A: An FXE module comes configured and tested. Any alteration, like using different HV generators would lack our thorough testing, and would void the warranty as we could not guarantee performance.

Q: You mentioned high power targets, can these be fitted instead of the standard target?

A: All our tubes come in their default configuration with the high power target option. This allows you to get the maximum power at any given focal spot size. Should you wish to use the standard transmission target instead, it can be configured at purchase.

Q: Can the tube be operated 24/7, or does it have a specified allowed duty cycle?

A: The tube can be operated (i.e. running inspection tasks) without interruption. In practice, to ensure best image quality you would want to recalibrate the focusing and centering stages, about once a day. If a tube is operated for several hours at maximum power, we recommend to cool down the focusing optics. While the reflection tubes come with a target cooling, all tubes can be fitted with an optional cooling bracket.

If you have any other questions, please don't hesitate to contact us.

You can find the contact information in the "Contact us" section on the Comet X-ray website: www.comet-xray.com