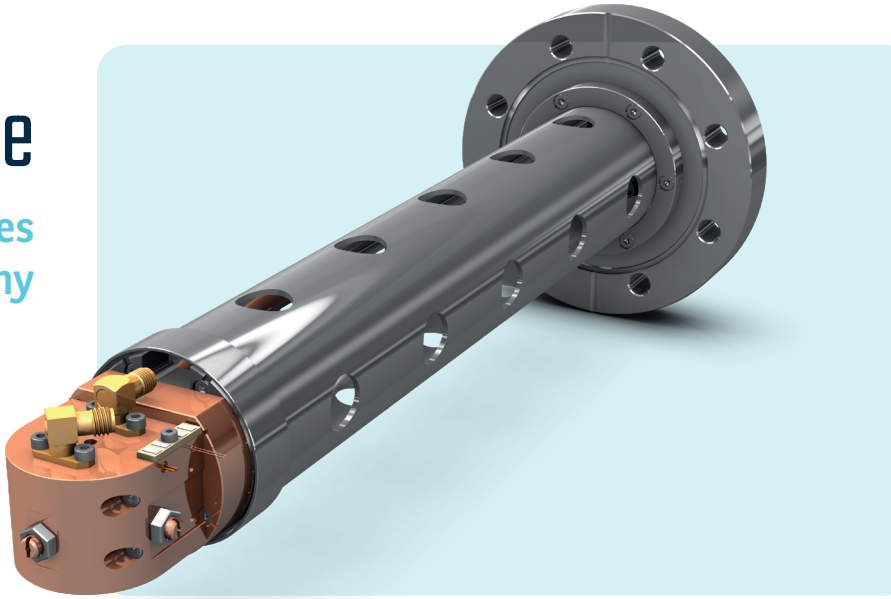
Doctor X

Deflection Module

Ultrafast electron techniques for crystallography



Cabinet with RF electronics and temperature control

The Deflection Module sweeps electron beams with femtosecond precision. An RF cavity operating in TM-110 mode creates a transverse magnetic field that deflect passing electrons. Electrons arriving at different times get kicked in different directions.

Two applications. For diagnostics: sweep the beam across a detector to measure pulse duration with sub-100 fs resolution. For pulse selection: sweep the beam across a slit to chop a continuous beam into ultrashort pulses.

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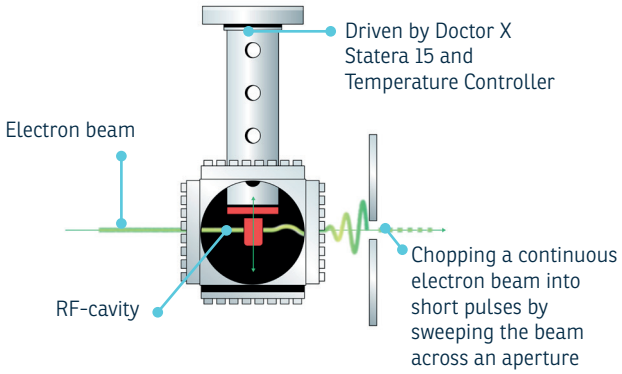
Deflection Module Infographic (chop)



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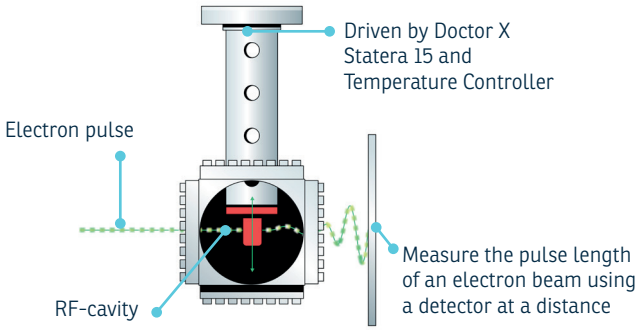
Deflection Module Infographic (streak)



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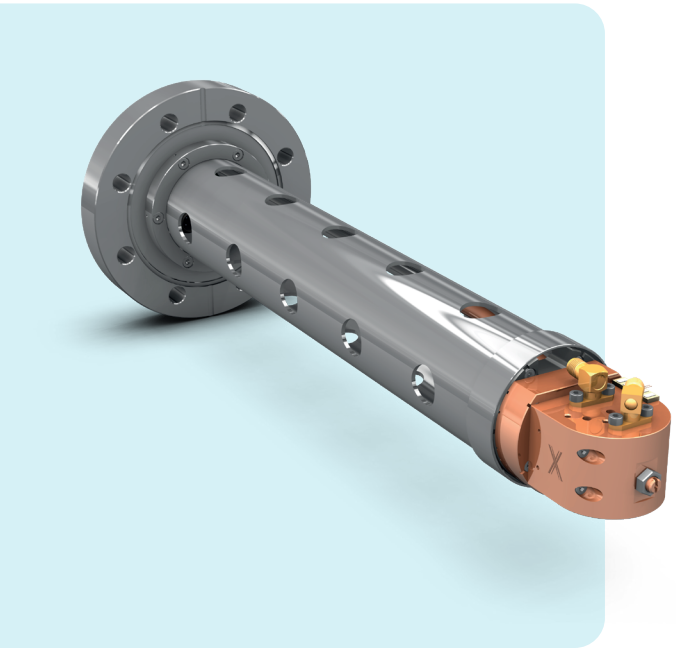


Deflection Module

The cavity uses a dielectric-loaded design that achieves 3 mT on-axis field at just 15 W input—compact and power-efficient. A bellows mount lets you move the cavity in and out of the beam path.

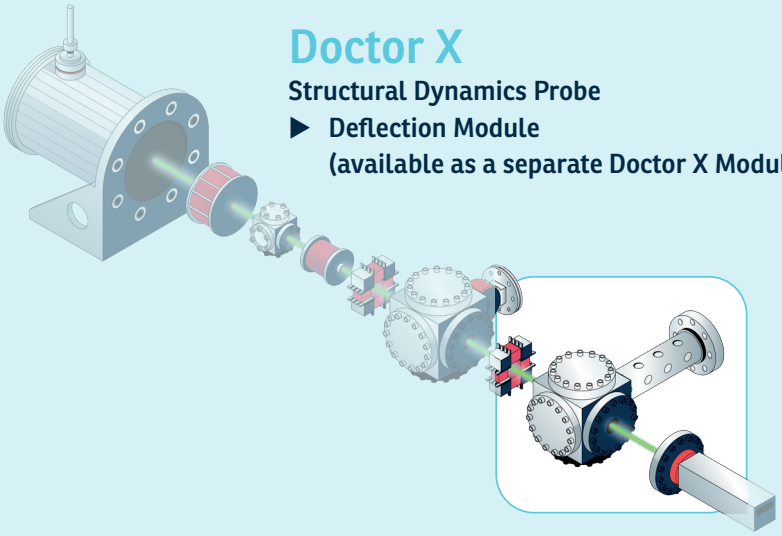
The module ships complete: precision-machined TM-110 mode RF cavity, 15 W amplifier with phase- and amplitude lock, thermal controller, and control software. Active phase- and amplitude lock electronics synchronize the RF to your reference signal.

Specifications

- Frequency: 1.5-3 GHz - adaptable to your laser / reference
- Quality factor: Q > 4000
- On-axis field: 3 mT at 15 W
- Applications: streak diagnostics, chopping

> "Doctor X makes research instruments that give scientists state-of-the-art time resolution which was previously not commercially available."

Dr. Ir. Jim Franssen - Senior Manager Research & Development



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Structural Dynamics Probe

▶ **Deflection Module**
(available as a separate Doctor X Module)

Doctor X

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