Mass Spec (Gas Analyzer)

IBS Caribe, Inc.
Innovations in Biosciences

Company Info.

- World Leader in Process Mass Spectrometers
- Over 30 Years Experience
- Over 400 Units Sold
- Recognized for Customer Care
- Fastest Analysis Rate
- Equal or Higher Mass Rate
- Greater Variety of Quads and Most Stable
    - Result – Gas Analyzers with a Greater Precision (At Least 1 Order of Magnitude) when compared to others.

Extrel
Core Mass Spectrometers

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Proven Pharmaceutical Applications

- Ambient Air Monitoring
- Dryers/ Vacuum Dryers
- Fermentation Headspace
- Lyophilizer Monitoring
- Solvent Recovery
- Waste Water Analysis

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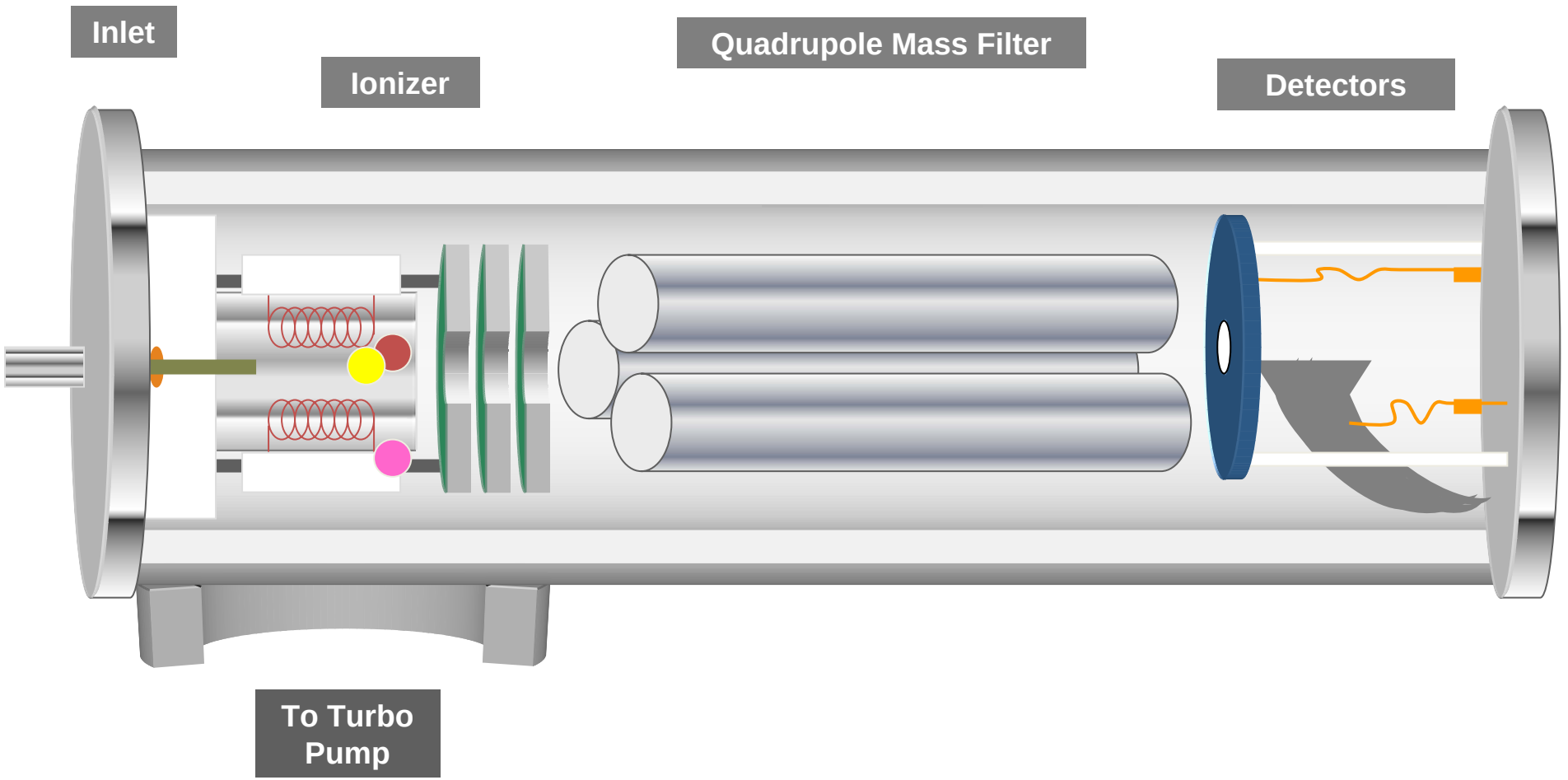
Theory (Analyzer)



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Theory
(Single Gas Analysis)

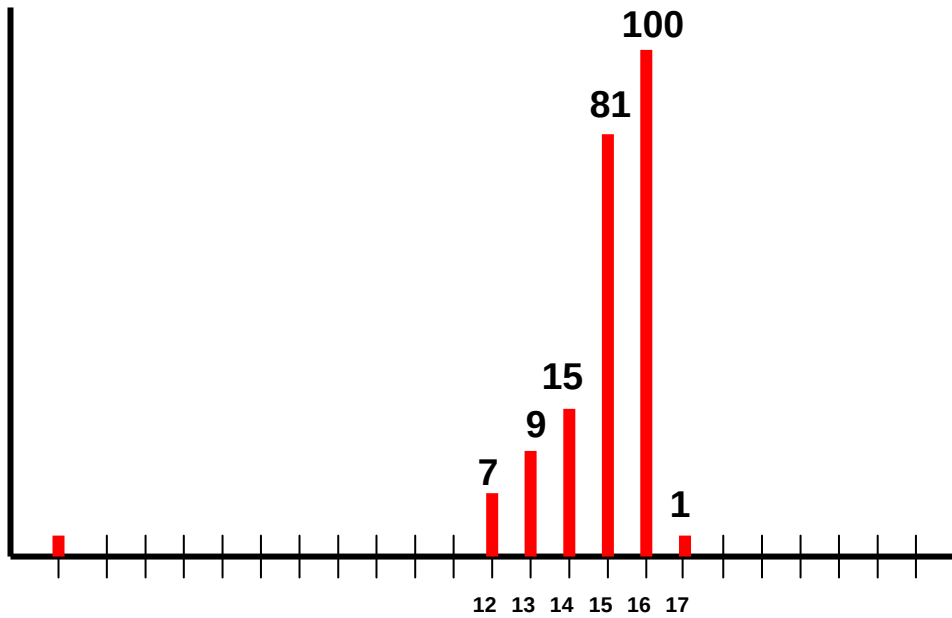
(16) $CH_4^+ \longrightarrow CH_3^+ + H$ (15)

$\longrightarrow CH_2^+$ (14)

$\longrightarrow CH^+$ (13)

$\longrightarrow C^+$ (12)

$\longrightarrow H^+$ (1)



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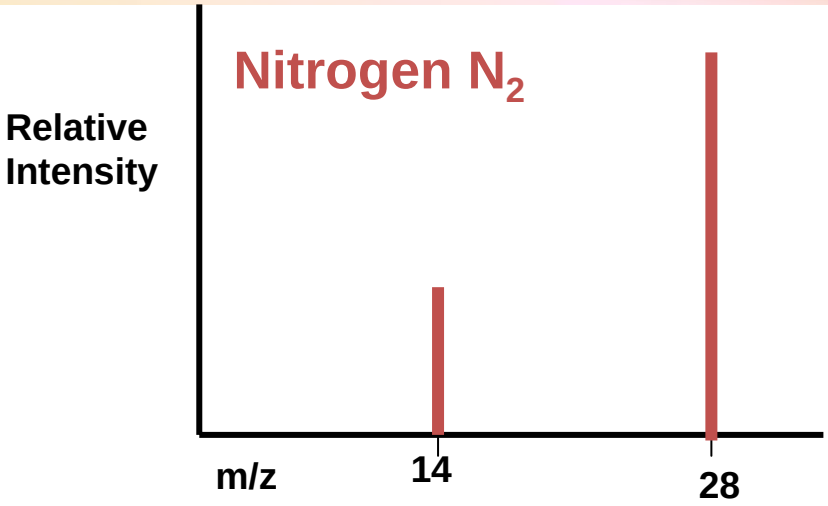
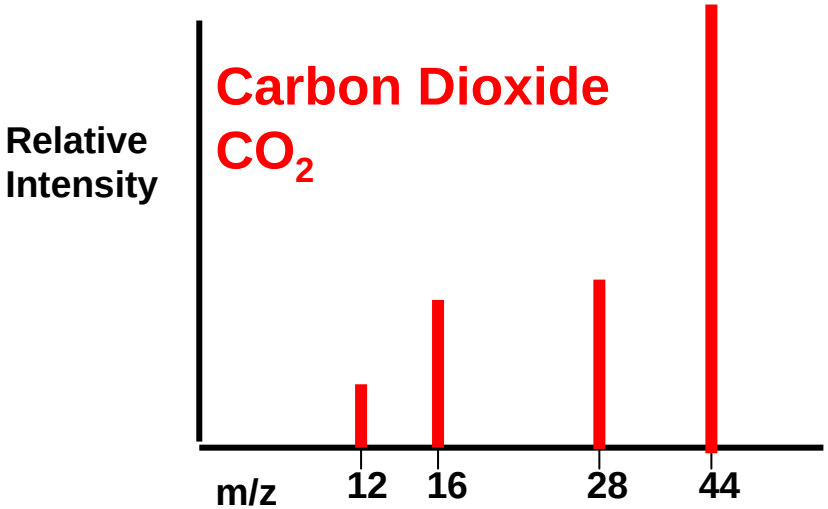
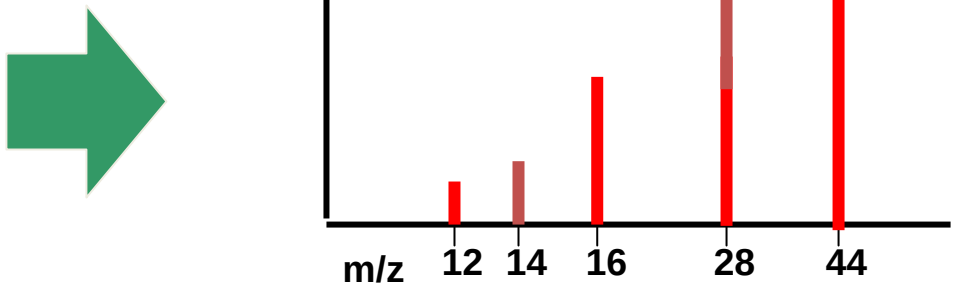
Theory
(Gas Mixture Analysis)







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Analyzers (MAX300-IG)

- Process Analyzer
- For Use in Hazardous Locations
    - Area Classifications:
        - General Purpose
        - Class1
            - Division 1 Groups: B,C,D,T3
            - Division 2 Groups: B,C,D,T3
        - ATEX Zone 1
            - Group IIB+H2,T3, or T4
- Software:
    - On Board Server
    - Web Based Questor 5 Process Control
    - Microsoft Windows XP
    - Internet Expolorer
- External Communications
    - Standard - Ethernet
    - Other Options Available

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Core Mass Spectrometers

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Analyzers (MAX300-LG)

- Laboratory Analyzer
- Area Classifications:
  - General Purpose
- Software:
  - External PC
  - Web Based Questor 5 Process Control
  - Microsoft Windows XP
  - Internet Explorer
  - and/or Merlin Automation Analytical Data System
- External Communications
  - Standard None
  - Other Options Available

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Core Mass Spectrometers

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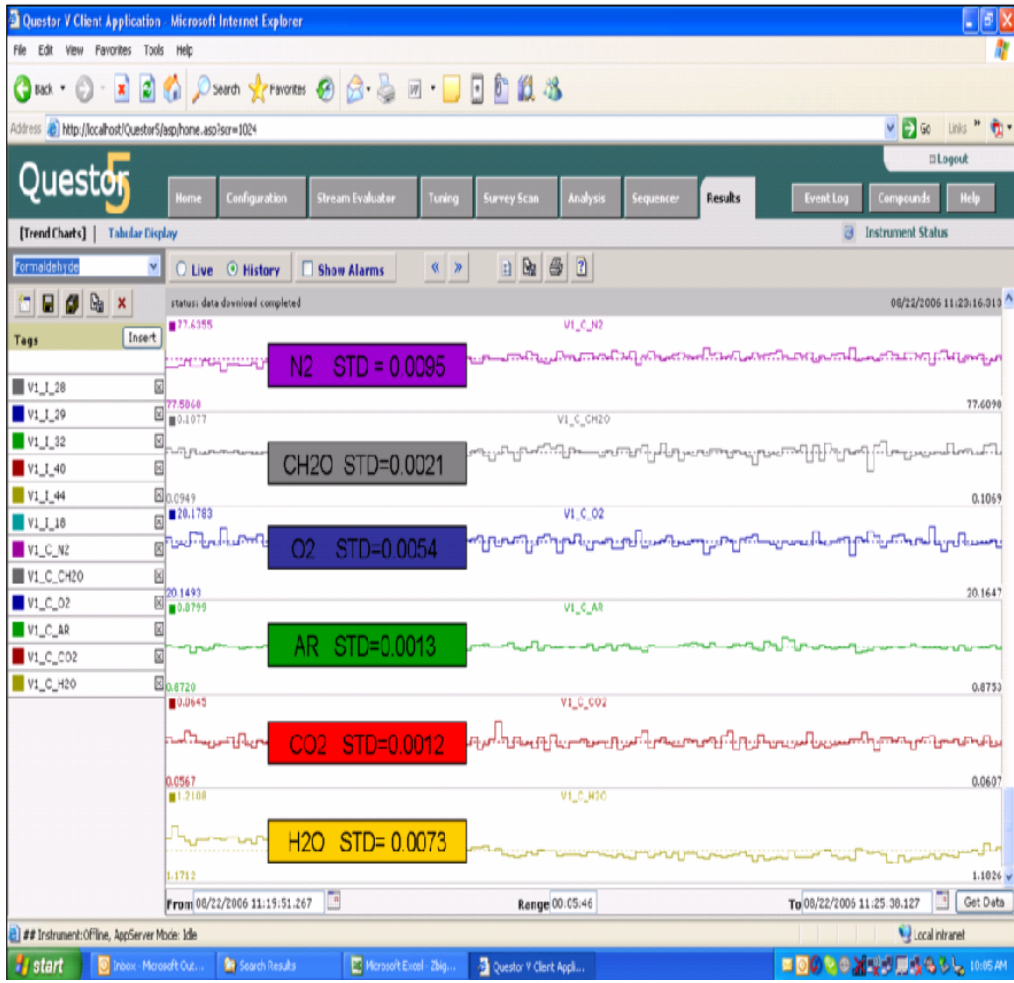
General Operational Specifications

- ¾” Quads
  - 1-250 AMU
  - 2-300 AMU (Optional)
- Sample Streams – Unlimited
- Number of Components – Unlimited
- Masses per Component – Unlimited
- Lower Detection Limit
  - 10 ppm for Faraday Detector
  - 10 ppb for Electron Multiplier
  - Automatic Switch
- Analysis Rate – 0.4s per component
- Precision/Accuracy - +/- 0.0025 1% Ar
- Stability - +/- 0.005 over 30 days 1% Ar
- Custom Modifications Depending on Application Needs
- Analyzer can be as far as 200m from sampling point



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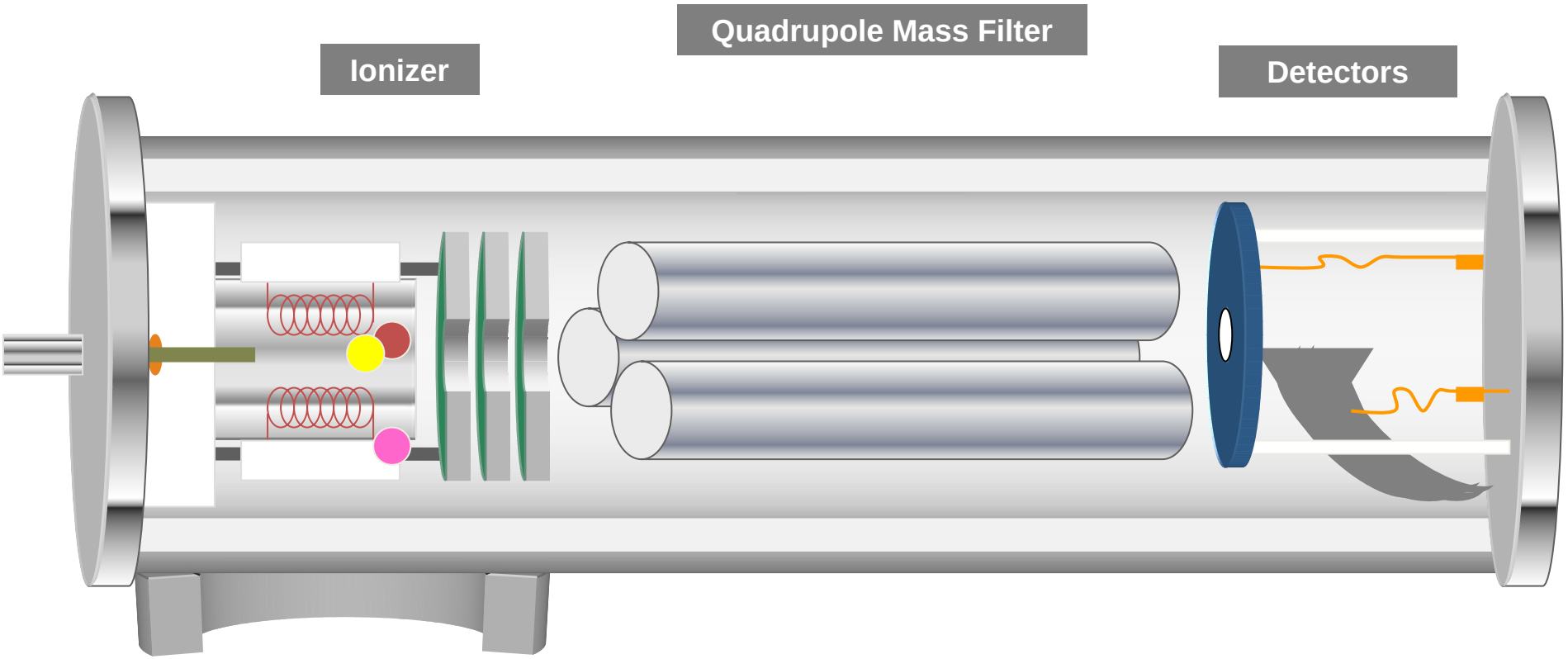
Ease of Cleaning/Maintenance



- Ionizer, Quadruple Mass Filter, and Detectors are all detachable for ease of maintenance.
  - One area of critic of mass spectrometers is the difficulty of entering inside the analyzer for cleaning and maintenance. Extrel is the only provider with this detachable feature, solving the problem of cleaning and maintenance.

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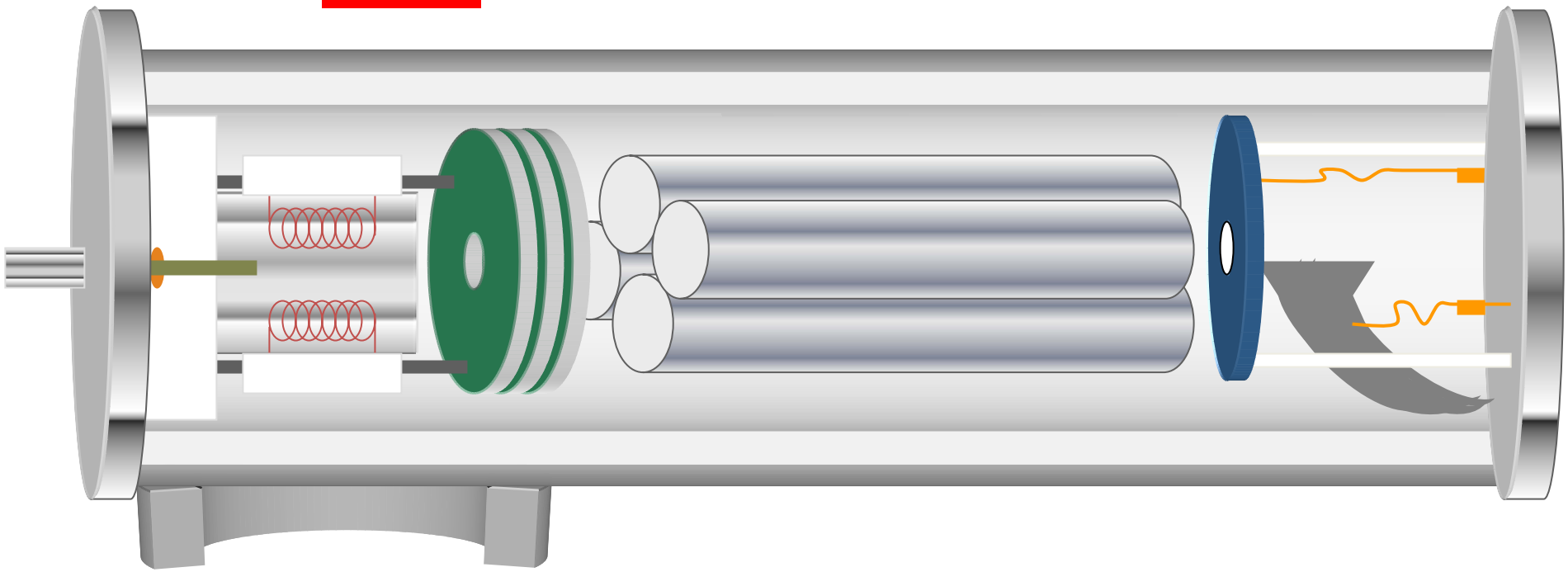
Ease of Cleaning/Maintenance

Ionizer



- Disposable
  - Change 1 to 1.5 Years (For Dirty Applications 6 Months)

- Two Filaments, One Active and One Spare with
  - Automatic Switchover for Continuous Operation

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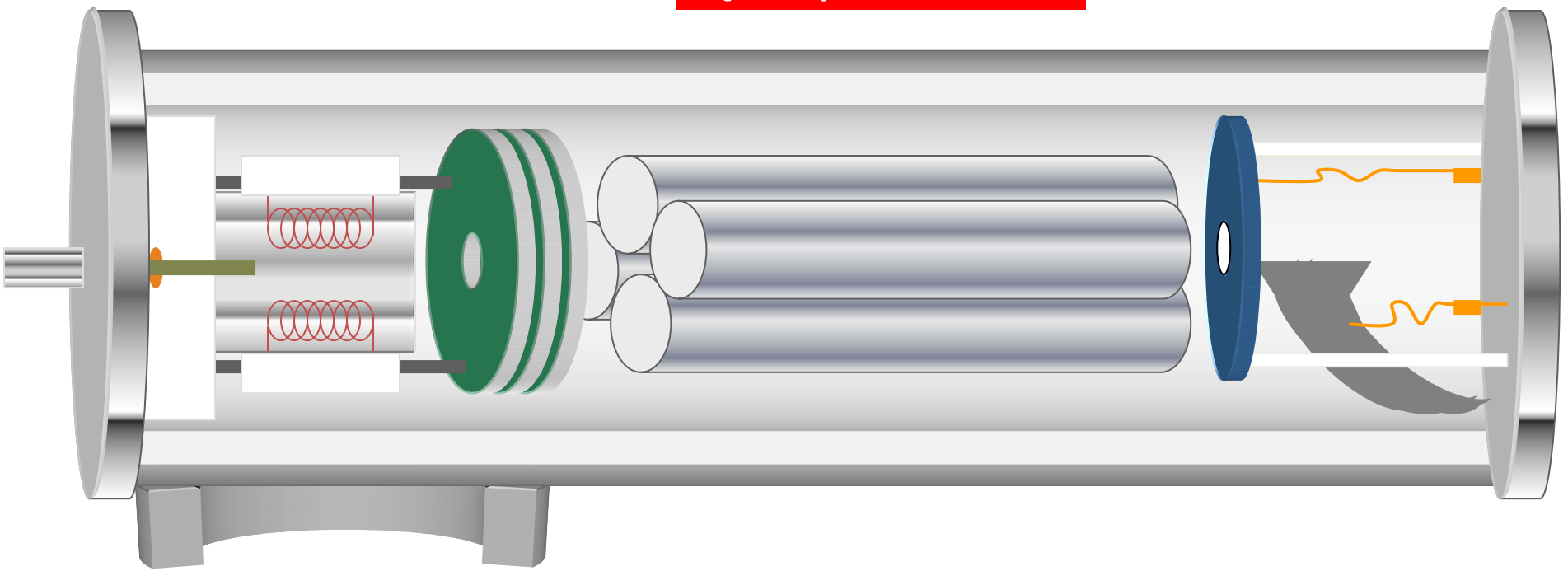
General Operational Specs.

Quadrupole Mass Filter



- Detachable for Cleaning
- Clean 1 to 1.5 Years (For Dirty Applications 6 Months)

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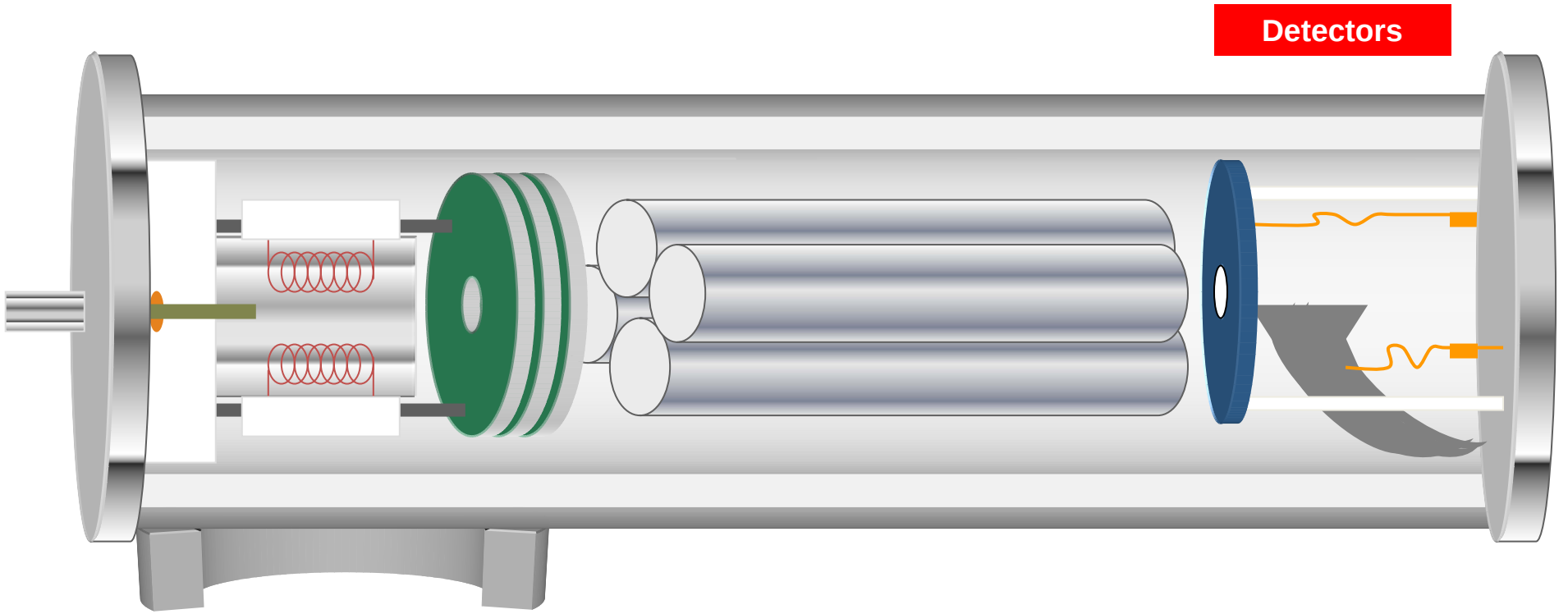
General Operational Specs.



- Faraday Detector - Clean 1 to 1.5 Years (For Dirty Applications 6 Months)
- Electron Multiplier – Lasts 2 to 3 Years (Disposable)

Demo Option

- Fill Fact Finder
- IBS Caribe, Inc. Ensures Proper Online Connection
- For Two Days Analyzer is Used Online
- FREE!!!