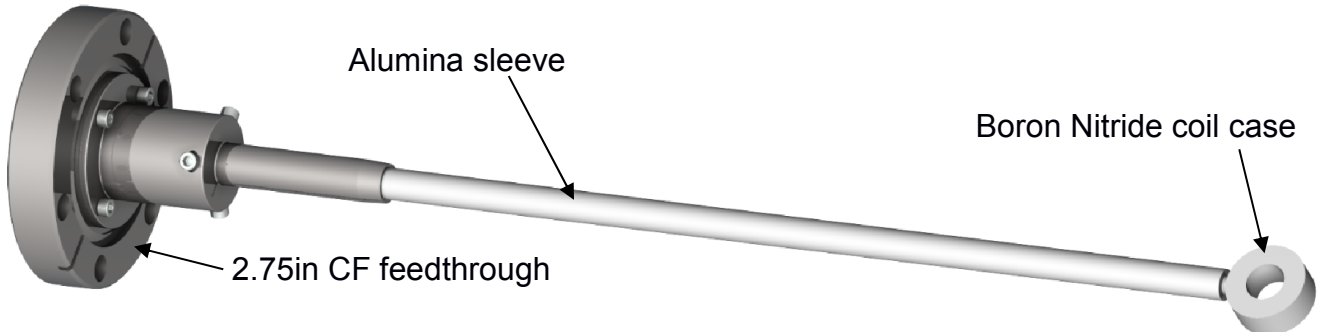




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Model number(s): M1-R-P
Descriptive name: Rogowski Coil Probe



Features:

- Measures the current passing through the coil
- Designed to be inserted into the plasma
- Designed for ultra-high vacuum (UHV) compatibility
- Custom coil diameter and probe arm length
- Mounts to many vacuum electrical feedthroughs
- Can be mounted on reciprocating drive for current profile measurement
- Electrostatically shielded for low capacitive noise and choked for common-mode isolation
- Includes custom integrator circuit
- Includes full calibration and transfer function characterization
- Probe head can be mounted behind wall tiles, around central column, diverter posts, and other locations (see M1-R-C spec sheet)

Operational ratings:

Max. current : 50 kA
Max. heat flux : 500 W/cm²
Max. frequency : 1 MHz
Bandwidth : 3 MHz
Min. major radius : 1 cm (pictured above)

Options and customization:

Coil diameter: determines the spatial resolution and collected current
Probe arm length: determines point (or range) of plasma profile to be measured
Mounting interface: various flange sizes and types (CF, KF, etc.) or custom drive mount
Full or partial coil: an array of partial coils may be used to reconstruct plasma location

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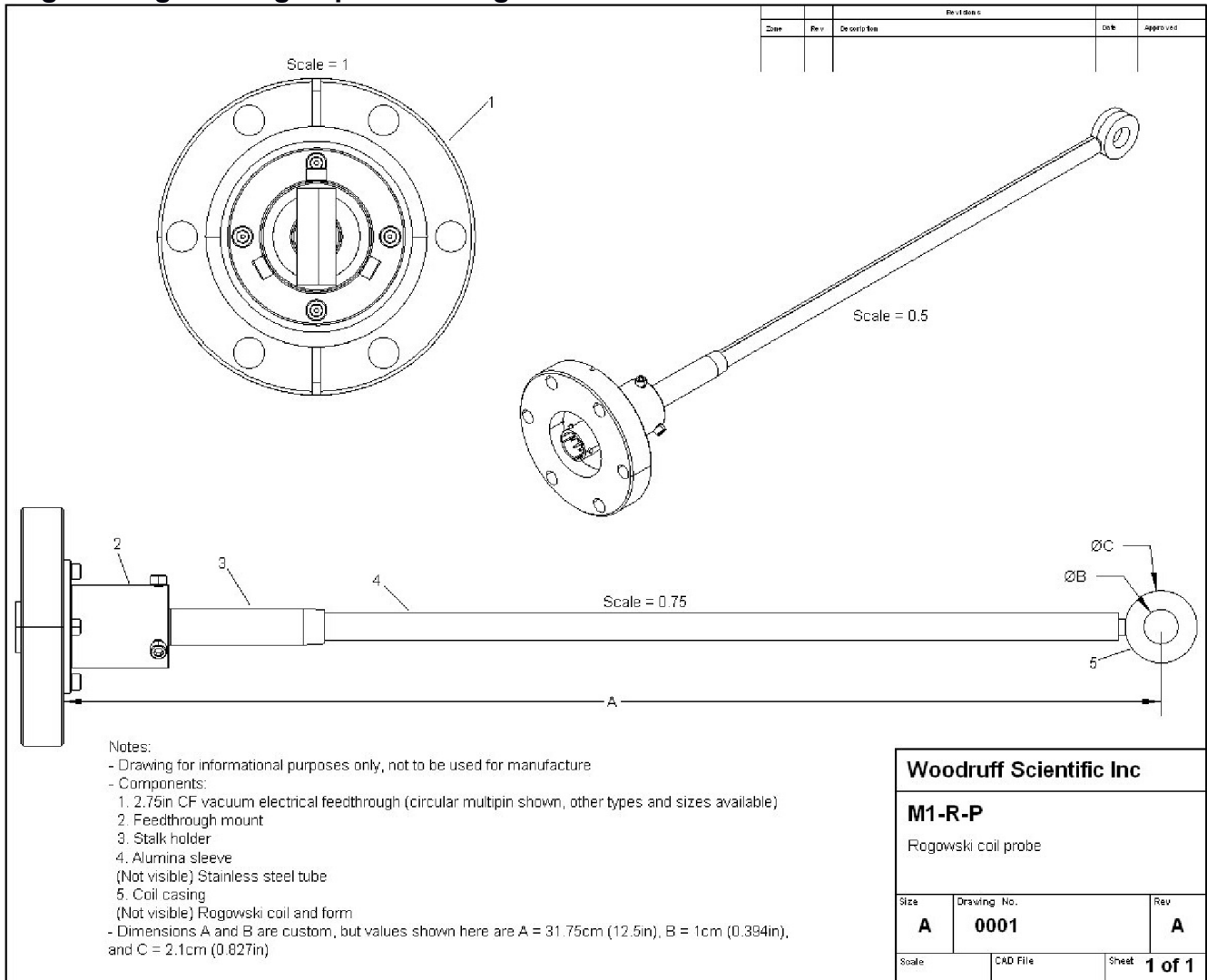


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Engineering drawing of probe configuration:



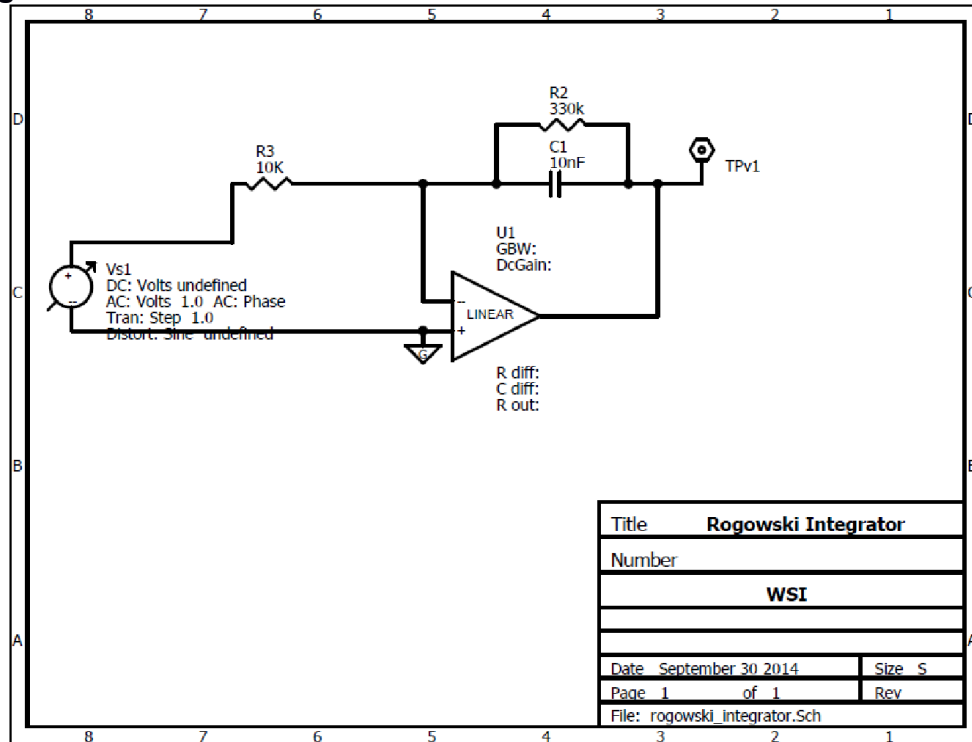


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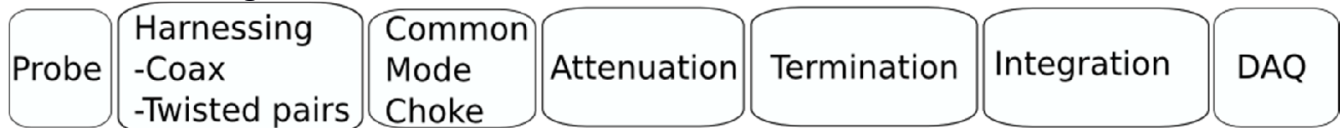
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Signal integrator circuit:



Connection diagram:





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Data analysis:

Recovering the current from a Rogowski coil measurement (potential trace at right) involves multiplying the Fourier transform of the signal (shown at bottom left) with the response function of the device (shown at bottom right). This response function is determined during calibration and provided with the device. Taking the inverse Fourier transform of the result provides the measured current (shown at right).

