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# Spectroil Model D2R2

## DOUBLE DISC RAPID ROBOT

Robotic System for Automated Spectroil M Oil Analysis Spectrometers

The Rotating Disc Electrode (RDE) technique has a long history as an analytical method to analyze wear metals, contaminants and additives in new and used oils. Over the years it has been continuously improved, and today it is the standard used by the United States Department of Defense and the world's largest independent laboratories. For most applications, it is the preferred method for the analysis of used oils, particularly in high sample volume laboratories. In the past, the primary limitation of the RDE technique was that it was labor intensive. The Spectroil D2R2 is a cost effective instrument for unattended operation in busy oil analysis laboratories.


## The Double Disc Rapid Robot D2R2 makes it possible to provide automatic and unattended oil analysis with the RDE technique

The D2R2 Autosampler is a factory configuration option to the Spectroil M/C or Spectroil M/N spectrometer that provides automatic operation for the analysis of used oil samples. Any configuration of the Spectroil M that includes the Double Disc Rapid Robot is referred to as a Spectroil M/R.

The D2R2 Autosampler is an innovative design for automation that consists of two parts: a robot to exchange consumables, and an automatic sample changer for fully automatic and unattended operation. It is a robotics system that mounts to the spectrometer sample stand and fulfills all the functions of sequentially introducing and removing oil samples and exchanging graphite electrodes. It is self-contained and works independently of the spectrometer's operating software.

The D2R2 Autosampler was designed specifically for oil analysis using the RDE technique. The Spectroil D2R2 does not use the traditional rod electrode used in manual systems. A specially designed rotrode disc is used, allowing for unattended operation. The result is a rugged automated system with the reliability of the Spectroill M family and the unattended operation desired by laboratories with few personnel.

### D2R2 Operation

The D2R2 eliminates the need for continuous operator intervention by automatically performing all sample stand preparation and sample handling functions.

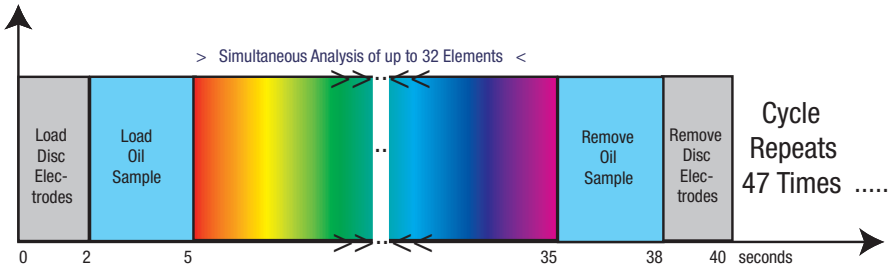
- 48 sample tray
- Automatic loading with 100
- Two rotrodes per sample to avoid cross contamination
- 80 samples per hour

The robotic arm in the sample changer brings the first sample cap to the electrodes and raises it for normal spark excitation. Thirty seconds later the analysis is terminated, the oil sample is removed and disposed of, and the used disc electrodes are automatically discarded. The process repeats with the introduction of new disc electrodes for the next oil sample.

## Features & Benefits

- Fully automatic, unattended operation
- Sample throughput of up to 80 samples per hour
- Sensors to monitor operation
- Specifically designed for used oil analysis
- Automatic magazine for rotrode discs
- Maintains JOAP database correlation
- Reduces operating costs

| AUTOSAMPLER SPECIFICATIONS | |
|---|---|
| Sample Tray | Indexed and numbered for 48 samples |
| Speed of Analysis | 40 seconds (30 sec. analysis time plus 10 sec. to change sample and consumables) |
| Oil Sample Vessels | Disposable |
| Size | 13.75 x 10.5 x 18 in (35 x 27 x 40 cm) |
| Weight | 40 lbs (18 kg) |
| Power | Supplied by Spectroil M |



Timing Cycle for Automatic Operation

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