



Made for ASTM D5185

The system was designed for commercial laboratories that produce spectroscopic elemental results using the method ASTM D5185** and allows you to easily modify dilution ratios.



Negligible Carry-over

Designed with the unique CINRG syringe pump used on all our instruments, the small amount of sample utilized for dilutions is easily washed with our mechanical washing station, results in negligible carry-over.



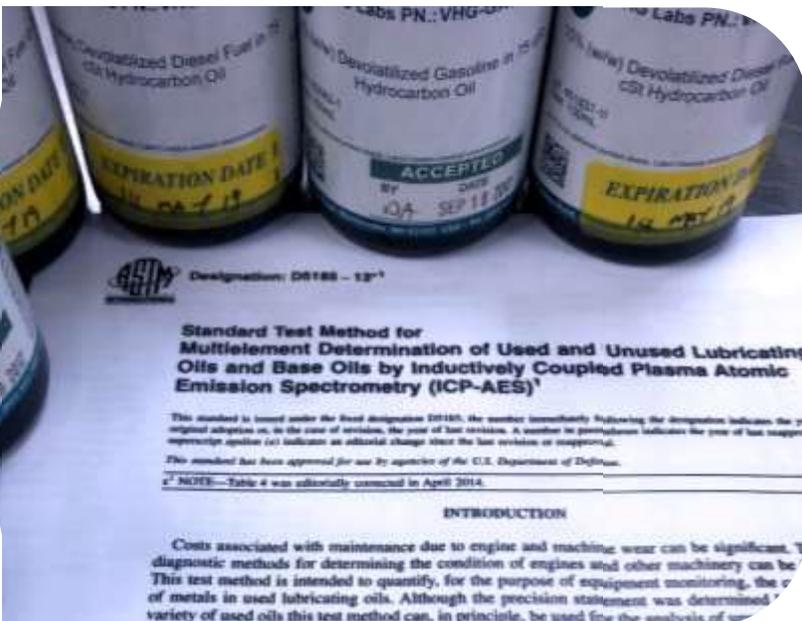
Fully Configurable

Designed to work with any rack size, the system allows for the configuration of up to eight (8) input/output racks of various bottle/tube radius and height and includes options for standards.

Dependable Technology

The CINRG CS-SDS-2 Automated Sample Dilution system is a fully automated system that meets the requirements of laboratories that utilize ASTM D5185** for spectroscopic elemental analysis and perform sample dilution prior to analysis by an ICP spectrometer.

The system combines equipment from several leading equipment manufacturers with some innovative technology and sophisticated software. The system has a high degree of flexibility and can be customized to a large extent to suit local laboratory processing rack sizes and sample volume requirements.

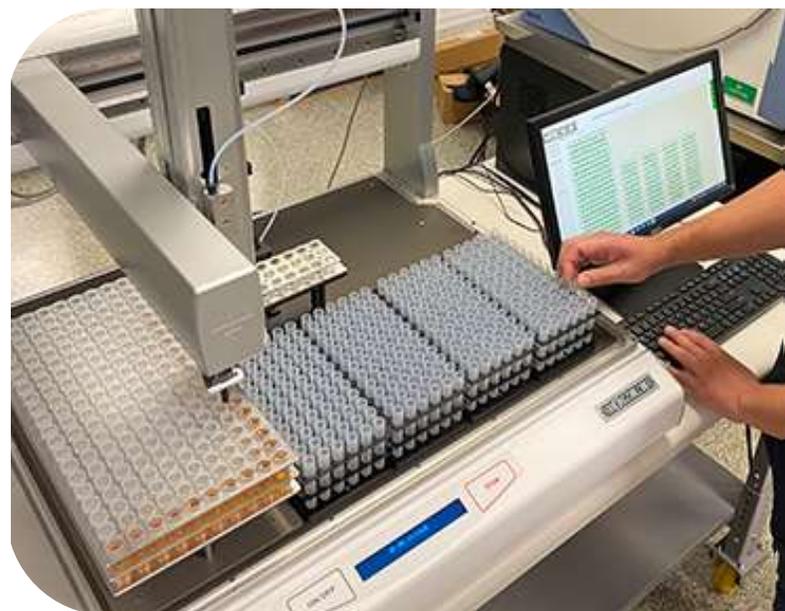


Designed for ASTM D5185

Initially designed for laboratories utilizing the method ASTM D5185** for the for Multielement Determination of Used and Unused Lubricating Oils and Base Oils by Inductively Coupled Plasma Atomic Emission Spectrometry (ICP-AES)**, the CINRG CS-SDS-2 was designed to perform accurate dilutions using custom dilution ratios from 1:3 up to 1:100 (sample:solvent). The CINRG CS-SDS-2 is suitable for any pre-dilution method utilizing organic solvents and petroleum-based fluids.

High Volume Sample Throughput

The sample table is designed to hold at total of eight (8) laboratory racks. Depending on your laboratory rack dimensions the system can hold up to three input racks (racks holding laboratory samples) and a single output rack (rack holding diluted samples) as well as a single rack for standards (i.e. internal standards to be run every 20 samples). In this manner the sample dilution system, working at a rate of 30 seconds per sample, is capable of diluting close to 960 samples in a standard 8-hour laboratory shift.



Negligible Carry-Over

The system minimizes needle contamination by limiting the initial plunge depth into the oil sample being tested and further minimizes needle contamination through the use of a unique piston-driven sample needle. After dispensing the diluted oil sample into the sample tube the needle returns to the wash station and both the internal and external needle surfaces are cleaned using both solvent and mechanical agitation before processing proceeds to the next sample. Carry-over levels are on this system are less than 0.1% (i.e. < 2 ppm carry-over from a 2000 ppm standard).



Accurate Dilution

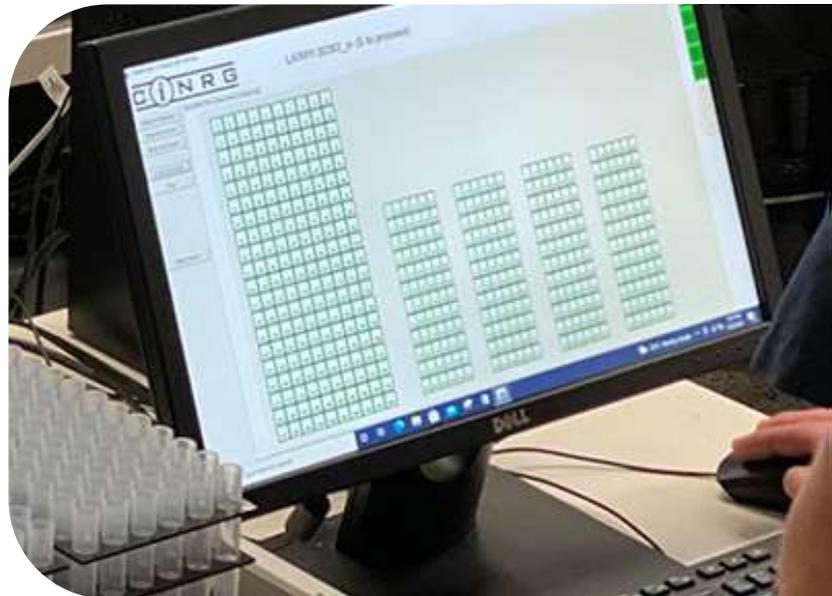
The unique piston-driven sampling needle coupled with the highly accurate solvent dispensing syringe system and a unique drip removal feature provides superior sample volume measurement and a high level of precision. The CINRG CS-SDS-2 is the most accurate dilution system on the market for used oil analysis.

Together with the small sample volume required, low solvent usage, and negligible carry-over, the system is ideal for commercial oil analysis laboratories.

Fully Configurable

CINRG will configure your dilution system to work with your laboratory racks and ICP racks. The system will arrive fully configured to maximize the number of samples that can be processed unattended. The software allows for this configuration by allowing you to specify all locations data (x,y,z) for up to five input/output racks, as well as the wash station.

Additionally, the software allows for control of every conceivable parameter associated with dilution ratios, wash cycles and the insertion of control standards. If required, the system can be completely reconfigured on-site to accommodate a completely different rack geometry.



*** - ASTM D5185 requires that samples are diluted using weight/volume measurements, however, the vast majority of commercial oil analysis laboratories use a modified method, designated ASTM D5185m in order to prepare samples using volume/volume measurements. A new ASTM method has currently been proposed for the use of volume/volume measurements in the preparation of standards and samples for oil analysis.*

Specifications

System Performance

* - based on 1:10 dilution using 0.5 ml of sample.

Parameter	Specification
Sample Through-put	30 sec/sample* - Throughput 120 samples/hour*
Carry-Over	< 0.1% (<i>i.e.</i> < 2 ppm after 2000 ppm sample)
Solvent Usage	7.5 ml/sample (4.5 ml for dilution, 3.0 ml for wash)*
Sample Batch Size	Customizable. Up to eight (8) input / output racks can be defined with different dimensions. An output rack can also be used for standards.

Syringe Pump

Parameter	Specification
Model	Gilson 4220 Verity Pump
No. of Syringes/Valves	Dual syringe / valve with t-piece (1 x 25 ml, 1 x 1.0 ml)

Sample Level Sensor

Parameter	Specification
Model	Baumer UNKC 09
Accuracy	±0.1 mm from 3mm to 150mm

Physical Specifications

Parameter	Specification
Dimensions	35" (W) x 38" (H) x 30" (D) (890mm x 965mm x 762mm)
Weight	150 lbs (68 kg)
Voltage Requirement	100-120VAC / 230-240VAC selectable, 50/60 Hz.
Input Current	5.0A @ 100-120V, 2.5A @ 230-240V



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