

# ROTROIL

## TECHNICAL DATA

### Optical System:

Paschen Runge mounting  
Spectral field: 190 to 800 nm  
Focal length 500 mm  
High luminosity Holographic grating with 1200 or 2700 grooves/mm depending on application

### Source:

Multi-frequency spark source.  
Excitation parameters controlled by computer.

### Software:

MLab software, operating in Windows environment is very easy to be used. The operator can really use all the spectrometer's functions. Some of the most important functions are listed:  
Analysis  
Automatic standardization  
Printing and management of certificates  
Network linking and remote control  
Autodiagnosis

### Portable PC

PC built-in included with touch screen management (option)

**Power supply:** 110/220 V AC 16 A 1 KW

**Dimensions:** W 52.5 cm, H 73.0 cm, D 50.0 cm

**Weight:** 55 Kg



**GNR ANALYTICAL INSTRUMENTS GROUP**

Sales Office:

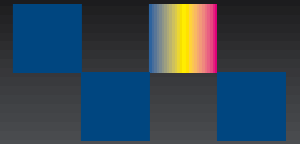
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Local Agent

In relation to the process of continuous development, GNR reserves the right to change the specification of the instrument without previous notice at any time.

**NEW**

OPTICAL EMISSION  
SPECTROMETER



**ANALYTICAL INSTRUMENTS GROUP**  
25 years of technology



The most advanced Rotating Disc Electrode  
Atomic Emission Spectrometer



# ROTROIL



GNR Analytical Instruments Group, active in the market for more than 25 years, thanks to its high expertise in the field produced several analytical instruments able to give the best solution to the different metallurgical needs.

GNR ROTROIL spectrometer is compliant to the ASTM D6595-00 Standard Test Method for determination of Wear Metals and Contaminants in used lubricating oils or used hydraulic fluids by Rotating Disc Electrode Atomic Emission Spectrometry.

The determination of debris in used oil is a key diagnostic method practiced in machine condition monitoring programs. The presence or increase in concentration of specific wear metals can be indicative of the early stages of wear if there are baseline concentration data for comparison. A marked increase in contaminant elements can be indicative of foreign materials in the lubricants, such as anti-freeze or sand, which may lead to wear or lubricant degradation. The test method identifies the metals and their concentration so that trends relative to time or distance can be established and corrective action can be taken prior to more serious or catastrophic failure.

Details of the inside of sample's chamber.



The ROTROIL spectrometer can be used in correlation with both ASTM norms and DoD JOAP for oil conditions monitoring and failure prevention procedure.

Typical application field varies from Military Forces, Airlines, Railways, Marine Fleets, Public and Private transportation companies, Mines, Refineries, Power Plants, Oil Plants, Oil recycler, Manufacturing plants, Commercial laboratories, Racing Team and whenever there is the needs for elemental analysis of of lubricating oils, transmission fluids, fuels, hydraulic fluids and greases for wear metals, contaminants, additives and corrosive impurities for preventive maintenance and reducing cost.



Canale	1	2	3	4	5	6	7	8	9	10
Fe	18.130	18.219	18.021	19.667	20.227	18.790	20.910	20.349	20.039	19.716
Cu	16.061	16.264	17.874	17.906	18.806	18.132	18.942	18.406	18.018	18.427
Al	18.911	18.903	18.966	18.907	19.679	19.153	20.052	19.374	18.953	18.378
Mn	18.415	18.226	18.964	20.630	21.378	19.957	22.047	21.524	20.971	20.356
Ca	18.921	18.825	18.232	18.192	19.980	19.461	20.107	18.575	17.769	18.298
Si	18.337	18.291	18.495	18.490	20.126	19.387	20.770	20.242	20.039	19.948
Pb	18.821	17.039	15.260	18.917	19.803	18.984	20.342	19.241	18.895	19.172
Sn	19.977	18.838	18.001	20.883	22.887	19.918	21.451	20.452	21.040	21.275
Zn	19.530	22.775	18.962	20.747	20.722	18.526	20.891	21.164	21.343	19.419
Ni	17.803	14.641	18.389	16.910	18.521	19.737	18.922	17.388	16.895	18.123
B	18.986	18.255	18.791	20.496	20.871	19.725	20.917	20.716	20.960	20.096
Ba	22.395	20.563	21.053	23.422	24.763	21.470	24.667	24.127	23.257	22.952
Co	17.586	17.326	17.175	18.868	18.896	16.963	19.223	19.185	18.958	18.608
K	1.012	1.226	1.671	1.323	0.680	1.091	0.949	1.321	1.189	0.948
Li	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Na	12.862	11.082	13.738	13.384	13.028	14.232	13.944	12.798	12.966	14.223
P	20.946	18.615	21.797	20.989	22.829	21.985	24.043	22.379	21.179	21.124

Pos	Element	Prog N°1 WEAR METALS	Prog N°2 ADDITIVES PPM
1	Ag	0/900	
2	Al	0/900	
3	B	0/900	900/5000
4	Ba	0/900	900/5000
5	Ca	0/900	900/5000
6	Cd	0/900	
7	Cr	0/900	
8	Cu	0/900	
9	Fe	0/900	
10	Mg	0/900	900/5000
11	Mn	0/900	
12	Mo	0/900	900/5000
13	Na	0/900	900/5000
14	Ni	0/900	
15	P	0/900	900/5000
16	Pb	0/900	
17	Si	0/900	
18	Sn	0/900	
19	Ti	0/900	
20	V	0/900	
21	Zn	0/900	900/5000

Above a typical screenshot of analysis taken by RTL spectrometer using oil program at 20 ppm level, possibility to print complete analysis report.

ROTROIL is the latest generation and most advanced version of the traditional Rotrode Emission Spectrometer, thanks to the new compact design it's a very strong and reliable unit, able to be moved and transported to different locations where the analysis must be taken. The new electronic board based on CCD detector improves the easiness and shorten the standard procedure to set up the unit and it allows simple future upgrade possibility with new elements and programs.

The optic chamber of 500 mm focal length based on Paschen-Runge mounting represents the best solution to obtain the better resolution and maximum intensity in order to have the best performances achievable with Rotating Disc Electrode Spectrometry.

Example of typical analytical programs for the analysis and evaluation of Additive and Wear Metals.

Possibility to extend upon request the application field with additional elements as K, As, Be, Bi, Ce, Co, In, La, Li, Sr, W, Y and other.

Key features:

- Rugged construction
- NO Gas required
- NO Sample preparation
- NO special skills required
- Analysis in 30 seconds
- Easy upgrade possibility



PC built-in included with touch screen management (option)