

## Optical Emission Spectrometer

**WLD – 4C Optical Emission Spectrometer****Application**

WLD – 4C OPTICAL EMISSION SPECTROMETER can be widely used in the fields of casting, metallurgy, machine manufacturing, shipbuilding, automobile manufacturing, and chemical industry etc. It is a necessary instrument for on – the spot sample analysis in metallurgy plants and for metal material inspection in quality inspection labs etc.

**Features:**

- Various metal bases can be analyzed: ferrous metals of Fe, Co, Ni and Ti base, and non-ferrous metals of Cu, Al, Pb, Mg, Zn and Sn base.
- Adopting the exciting source with high reproducibility and stability. The exciting frequency can be changed in the range of 150 – 600Hz to match the material to be analyzed and get the best analytical result.
- Adopting highly integrated data collecting and controlling system with high automation.
- High-speed analysis with high anti-jamming ability, good reproducibility and stability.
- Reasonable design with more integrated construction.
- Windows based software with easy and simple operation.
- In-built data base allowing long-distance data transfer.
- Quality control diagram can be established automatically for easy quality control and monitoring.
- High vibration resistance ability. It's not necessary to make vibration resistance base.
- Partial thermostat system for fewer requirements to the environment.

**Instrument Composition**

- Thermostat system
- Spectroscope system
- Vacuum system
- Gas-filling system
- Exciting source
- Argon supply system
- Measurement and control system
- Data Processing system

**Technical Data****Exciting source:**

- Power Voltage : 50Hz, 220V  $\pm$  10%
- Input Power : 1.0 KVA

**Spectroscope:**

- Spectral range 175 – 450nm
- Grating: 2400 L/mm concave grating in radius of 0.75m;
- Blazed at 300 nm (1<sup>st</sup> order); Ruled Area: 30x50mm<sup>2</sup> ;
- Reciprocal Linear dispersion : 0.55nm/mm;
- Entrance slit width : 20um
- Exit slit width : 50/75um
- Maximum number of channel : 36
- Constant temperature : 30<sup>0</sup> C  $\pm$  0.1<sup>0</sup> C

**Measurement and Control System**

- Measuring mode : sectional integration
- Measuring reproducibility : RSD  $\leq$  0.2%
- PMT high voltage power supply : Voltage:- -1000v,
- Stability : better than 0.5% (8h)
- PMT high voltage adjustment : controlled by PC

**Optical Emission Spectrometer**
**Data Processing System**

- Industrial controlled built in PC LCD display.
- Software: under Windows Operating System.

**Dimensions:**

- Main Unit : 1500(L) x 1000(D) x 1200 (H) mm
- Area required : 15-20 square meters
- Weight : about 450kg

**Laboratory Requirements:**

- Environment : temperature :  $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$  ; relative humidity : < 70%
- Purity of Argon gas : 99.999%
- Power supply : AC 380V  $\pm 10\%$  50Hz 3KW, 3-phase, 4-line.
- Ground Lead: An independent ground lead should be used for the spectrometer itself. Grounding wire resistance < 2 ohm.

**Analytical range for some major elements in Ferrous metals:**

Element	Content%	Channel	Element	Content%	Channel
Fe	0.002 – 0.50	1	Bi	0.001-0.50	1
P	0.001 – 2.0	1	La	0.005-0.50	1
S	0.001 – 0.35	1	Ce	0.005-0.50	1
B	0.0005 – 0.20	1	Si	0.001-5.0	1
Sn	0.002 – 0.50	1	Mg	0.005-1.0	1
Sb	0.002 – 0.50	1	Mn	0.001-20.0	1
As	0.001 – 0.30	1	AL	0.001-6.0	1
C	0.0025 – 4.0	1	V	0.005-6.0	1
Mo	0.001 – 10.0	1	Ti	0.005-3.0	1
W	0.01 – 22.0	2	Co	0.002-15.0	2
Cu	0.005 – 2.5	1	Pb	0.005-0.50	1
Ni	0.001 – 30.0	2	Nb	0.005-3.0	1
Cr	0.001 – 30.0	2	Zr	0.005-0.10	1

**Analytical range for some major elements in Non-ferrous metals:**

Element	Content%	Channel	Element	Content%	Channel
P	0.005 – 2.0	1	Sb	0.005-0.50	1
Sn	0.002 – 10.0	2	Al	0.0005-0.50	1
Zn	0.001 – 10.0	2	Cd	0.005-0.50	1
Si	0.0005 – 20.0	2	As	0.001-0.10	1
Fe	0.005 – 10.0	2	Bi	0.002-0.50	1
Cu	0.005 – 10.0	2	Be	0.002-0.50	1
Mg	0.005 – 10.0	2	Zr	0.002-3.0	1
Mn	0.002 – 3.0	1	La	0.001-0.50	1
Ti	0.005 – 1.0	1	Ce	0.001-0.50	1
Ni	0.005 – 3.0	1	Pr	0.001-0.50	1
Cr	0.005 – 3.0	1	Nd	0.001-0.50	1
B	0.002 – 0.50	1	Ga	0.005-0.50	1
V	0.002 – 0.50	1	Sr	0.002-0.50	1

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