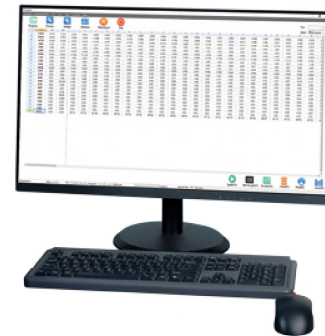


SPARK DIRECT READING SPECTROMETER (STANDARD TYPE)



OES-R420



computer (included)

- Widely used in metallurgy, casting, machinery, iron and steel and non-ferrous metal industries, etc.
- Can be used for sample analysis of metals and their alloys such as Fe, Al, Cu, Ni, Co, Mg, Ti, Zn, Pb, Sn, Mn, etc.
- It can automatically calibrate the pixel drift to ensure the stability of the optical system
- Fractional exposure is used to lower the detection limit of trace elements
- Equipped with a coaxial spinning air excitation stage, pressurized self-purge, excitation for thousands of times without cleaning
- Supports intelligent grade recognition, automatic carbon equivalent calculation, etc.
- The software is available in multiple languages (Chinese, English, German, Spanish)

SPECIFICATION

Code		OES-R420	OES-R530
Optical system	spectral range	160~500nm	130~800nm*
	Lightroom material	cast aluminum	cast iron
	detector	multiple CCD detectors, unlimited maximum number of detection channels	
	optical system construction	paschen-range construction, grating focal length 500mm, roland circle diameter: 500mm	
	raster scribing	2700 lines/mm	
	resolution	better than 0.01nm (line resolution 0.7407nm/mm, pixel resolution 0.005926nm)	
	pixel dimension	8μm	
Curve	dispersion	class I: 0.74nm/mm, class II: 0.37nm/mm	
	standard curve	carbon steel/low and medium alloy steel (A1), plain stainless steel (A2), Al-Si-Cu alloy (B1)	
Excitation source	customized curve	curves can be added or customized for special base materials (Mg, Ti, Pb, Sn, Mn, etc.)	
	excitation frequency	20~1000Hz	
	excitation current	90A	
Spark stand	excitation voltage	190V	
	discharge parameter	inductance: 120μH, resistance: 3.5Ω, capacitance: 5μF, voltage: 380V	
	dimension	125×95mm, max. load 50kg	
	lens	one-piece lens isolation valve	
Gas supply	excitation electrode	tungsten electrode	
	argon quality	purity: 99.999%, pressure: ≥0.6MPa	
	flow rate	tidal flushing mode, excitation: 8L/min, standby: 60ml/min	
General analysis time		<40s	
Data processing		after instrument excitation, acquisition and countback to independently control the integration exposure time of different CCDs	
Work environment		20~25°C, <70%RH	
Power supply		AC220V, 50Hz, 1Ø, 16A, 2.5KW, ground resistance <4Ω	
Dimension (L×W×H)		470×872×435mm	
Net weight		80kg	100kg

* The instrument can be optionally equipped to analyze elements N, Li, Na, and K

STANDARD DELIVERY

Main unit	1 pc
Computer	1 set
Printer	1 pc
Voltage regulator	1 pc
Calibration sample	1 set
Electrode brush (OES-T350-BR)	1 set
Analysis and calibration software	1 set
Consumable and spare parts	1 set*

*Including polarimeter, pressure reducing valve, electrode brush and other consumable and spare parts



spectral sample grinder
(optional)



lathe (optional)



small sample fixture (optional)



gasket (optional)

OPTIONAL ACCESSORY

Spectral standard sample	MSS series	select standard sample based on the test material
Spectral sample grinder	OES-MY100	Ø350mm, 380V
Lathe	OES-R420-LATHE	220×300mm, 220V
Small sample fixture	OES-R420-RODLIKE	Ø3.1~7mm regular bar sample
	OES-R420-FILIFORM	Ø0.5~3mm filament sample
Gasket	OES-R420-GASKET1	copper, ID6mm
	OES-R420-GASKET2	copper, ID8mm
	OES-R420-GASKET3	boron nitride, ID4mm
	OES-R420-GASKET4	boron nitride, ID6mm
N analysis module	OES-R530-MC-N	the measurement range can be customized, used with OES-R530
Na analysis module	OES-R530-MC-NA	
K analysis module	OES-R530-MC-K	
Li analysis module	OES-R530-MC-LI	

IRON BASE CURVES

Curve number	A1	A2	A3	A4	A5 **
Elemental content (%)	Medium and * low alloy steel	Plain stainless steel	High speed tool steel	Cr-Mn stainless steel	Nodular iron
C	0.0015-1.5	0.005-2.0	0.08-2.5	0.006-2.0	0.9-4.5
Si	0.005-2.0	0.005-2.0	0.005-2.0	0.003-2.0	0.1-5.5
Mn	0.005-2.5	0.002-2.5	0.005-2.0	2.0-25	0.005-2.5
P	0.001-0.1	0.002-0.1	0.003-0.1	0.003-0.2	0.003-1.0
S	0.001-0.1	0.001-0.1	0.001-0.1	0.003-0.1	0.003-0.2
Cr	0.001-5.0	5-35	0.01-7.9	0.005-30	0.005-5.0
Ni	0.002-5.0	0.004-30***	0.005-2.5	0.005-7	0.002-5.0
Mo	0.003-2.0	0.005-4.0	0.01-10.0	0.006-2.5	0.003-2.0
Cu	0.002-1.5	0.005-4.0	0.005-1.5	0.006-2.0	0.005-2.0
W	0.001-2.0	0.002-1.0	1.0-20.0	0.006-0.5	0.006-1.0
V	0.002-1.5	0.002-0.5	0.01-6.0	0.006-1.5	0.001-1.0
Ti	0.001-1.0	0.003-1.0	0.004-0.5	0.003-1.0	0.001-0.5
Nb	0.001-0.5	0.005-3.0	0.002-1.0	0.006-3.0	0.002-1.0
Al	0.001-1.5	0.004-1.5	0.005-0.2	0.004-0.5	0.001-0.4
Mg	—	—	—	—	0.001-0.1
Ce	—	—	—	—	0.001-0.1
Zr	0.004-0.5	—	—	—	0.003-0.1
Co	0.001-0.5	0.003-0.5	0.006-10	0.003-0.5	0.001-0.2
B	0.0008-0.02	0.002-0.02	—	0.002-0.02	0.003-0.2
Fe	REF	REF	REF	REF	REF
Description	La, As, Pb, Sn, Sb, Bi, Ca, Zn, Se, etc. in iron base can be customized				

* Including carbon steel curve

** Nodular iron samples are required to be whitening treated samples

*** Stainless steel in the nickel content of the standard configuration for the 0.004-30%, can be extended up to 40% according to requirements

ALUMINUM BASE CURVES

Curve number	B1	B2	B3	B4
Elemental content (%)	Al-Si-Cu	Low-Al	Al-Mg-Si	Al-Zn
Cd	0.002-0.25	0.001-0.2	0.002-0.2	0.002-0.2
Cr	0.002-0.5	0.002-0.4	0.002-0.5	0.005-0.5
Cu	0.5-8.0	0.002-1.0	0.002-2.0	0.01-3.0
Fe	0.005-2.0	0.002-1.5	0.005-1.5	0.03-1.5
Mg	0.005-2.0	0.002-1.5	0.005-15.0	0.01-4.5
Mn	0.005-1.0	0.001-0.5	0.005-1.0	0.01-1.0
Ni	0.005-1.5	0.003-0.5	0.005-1.0	0.01-1.0
P	0.005-0.02	0.005-0.02	0.005-0.02	0.005-0.02
Pb	0.005-0.4	0.002-0.2	0.005-0.5	0.005-0.2
Si	1.0-16.0	0.005-1.5	0.01-25.0	0.01-1.0
Sn	0.0005-1.0	0.003-0.2	0.005-0.5	0.005-0.2
Ti	0.003-0.5	0.003-0.3	0.003-0.5	0.003-0.5
Zn	0.005-3.0	0.005-1.5	0.01-3.0	0.01-10.0
Al	REF	REF	REF	REF
Description	Sb, Sr, V, Zr, Ag, As, B, Be, Ca, Ce, Ga, Co, etc. in aluminum base can be customized			

NICKEL BASE CURVES

Curve number	D1	D2	D3	D4
Elemental content (%)	Nimonic alloy	Inconel alloy	Monel alloy	Hartz alloy
Al	0.005-6.0	0.005-6.0	0.005-4.5	0.005-1.0
C	0.005-0.3	0.005-0.2	0.005-0.5	0.005-0.25
Co	0.01-20.0	0.005-1.0	0.005-0.5	0.005-3.0
Cr	8.0-25.0	10.0-25.0	0.005-0.5	15.0-25.0
Cu	0.005-0.5	0.005-0.5	20.0-32.0	0.005-1.5
Fe	0.015-3.5	0.01-20.0	0.005-4.0	0.5-20.0
Mg	0.005-0.05	0.005-0.05	0.005-0.1	—
Mn	0.005-1.2	0.005-1.2	0.005-3.0	0.005-1.5
Mo	0.01-10.0	0.01-10.0	0.005-0.1	5.0-23.0
Nb	0.005-0.5	0.005-7.0	0.005-0.5	—
Si	0.005-1.0	0.005-0.5	0.005-4.5	0.005-1.3
Ti	0.005-6.0	0.005-3.0	0.005-1.5	0.005-0.5
V	0.005-0.6	0.005-0.5	—	0.005-0.5
W	0.002-4.5	0.005-0.5	—	0.5-6.0
Zr	0.005-0.15	0.005-0.05	0.005-0.1	—
Ni	REF	REF	REF	REF
Description	P, S, Pb, Ce, B, etc. in nickel base can be customized			

COPPER BASE CURVES

Curve number	C1	C2	C3	C4	C5	C6	C7
Elemental content (%)	Zn-Brass	Pb-Brass	Sn-Bronze	P-Bronze	Al-Bronze	Cu-Ni alloy	Cu-Ni-Zn alloy
Al	0.001-0.5	0.05-1.0	0.001-0.2	0.001-0.1	0.5-12.0	0.001-0.5	0.001-0.1
As	0.003-0.2	0.003-0.3	0.003-0.2	0.003-0.2	0.003-0.1	0.003-0.05	0.003-0.1
Bi	0.002-0.01	0.002-0.01	0.002-0.1	—	—	0.001-0.02	0.001-0.01
Cd	0.001-0.15	—	0.001-0.01	—	—	—	—
Co	—	—	0.003-0.15	—	—	0.006-0.2	0.006-0.25
Fe	0.003-0.5	0.003-1.0	0.003-0.35	0.003-0.35	0.005-6.5	0.03-1.0	0.03-1.0
Mg	—	—	—	0.005-0.01	0.005-0.1	0.003-0.15	0.003-0.15
Mn	—	0.001-0.2	0.003-0.2	0.005-0.5	0.005-3.0	0.005-1.5	0.005-1.0
Ni	0.005-0.5	0.01-1.0	0.005-2.0	0.005-1.5	0.01-7.0	0.5-35.0	5.0-20.0
P	0.003-0.05	0.003-0.1	0.003-0.6	0.01-1.0	0.003-0.05	0.003-0.05	0.01-0.1
Pb	0.005-0.5	0.2-5.0	0.005-10.0	0.005-1.5	0.002-0.2	0.002-0.05	0.002-2.0
S	0.001-0.01	0.001-0.01	—	0.002-0.1	—	0.002-0.1	0.002-0.1
Sb	0.001-0.1	0.001-0.1	0.001-0.6	0.001-0.5	—	0.001-0.02	0.001-0.02
Si	0.001-0.2	0.001-0.2	0.004-0.15	0.004-0.15	0.004-0.5	0.002-0.2	0.002-1.0
Sn	0.005-0.1	0.005-1.0	0.01-12.0	0.1-12.0	0.005-0.3	0.005-0.1	0.005-0.2
Zn	0.5-42.0	0.5-42.0	0.005-12.0	0.002-1.5	0.003-2.0	0.005-1.0	10.0-35.0
Cr	—	—	—	—	0.001-0.1	—	—
Cu	REF	REF	REF	REF	REF	REF	REF
Description	Be, Ti, Te, Se, C, B, Au, Ag, etc. in copper base can be customized						

COBALT BASE CURVES

Curve number	E1	E2	E3	E4
Elemental content (%)	Co-Cr-W alloy	Co-Cr-Ni-W alloy	Co-Ni-Cr-Mo alloy	Co-Cr-Mo alloy
Al	0.005-0.48	0.005-0.48	0.005-0.48	0.005-0.48
C	0.005-1.0	0.005-1.0	0.005-0.5	0.005-0.5
Cr	18.0-31.0	18.0-31.0	18.0-31.0	18.0-31.0
Cu	0.005-0.3	0.005-0.3	0.005-0.05	0.005-0.05
Fe	0.005-9.0	0.005-3.0	0.03-1.0	0.005-3.0
Mn	0.005-2.0	0.005-2.0	0.005-0.3	0.005-1.0
Mo	0.005-1.5	0.005-1.0	1.0-10.0	1.0-8.5
Nb	0.005-4.2	0.005-0.5	0.005-0.5	0.005-0.5
Ni	0.005-3.0	8.0-25.0	10.0-36.0	0.005-5.0
Si	0.005-1.0	0.005-1.0	0.005-1.0	0.005-1.0
Ti	0.005-3.0	0.005-0.05	—	0.005-0.05
W	3.0-16.0	3.0-16.0	0.005-0.1	0.005-0.1
Co	REF	REF	REF	REF
Description	V, P, S, Ta, Sn, B, etc. in cobalt base can be customized			

ZINC BASE CURVES

Curve number	F1	F2
Elemental content (%)	Die-casting zinc alloy	Zinc-Aluminum alloy
Al	0.05-6.0	6.0-30.0
Cd	0.005-0.04	0.005-0.04
Cu	0.005-3.0	0.005-3.0
Fe	0.005-0.1	0.005-0.1
Mg	0.005-0.1	0.005-0.1
Ni	0.005-0.05	0.005-0.05
Pb	0.005-0.03	0.005-0.03
Si	0.005-0.05	0.005-0.05
Sn	0.005-0.01	0.005-0.02
Ti	0.005-0.3	0.005-0.3
Zn	REF	REF
Description	Sb, etc. in zinc base can be customized	