SPARK DIRECT READING SPECTROMETER (STANDARD TYPE)

OES-R530-U

- 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)

STANDARD DELIVERY

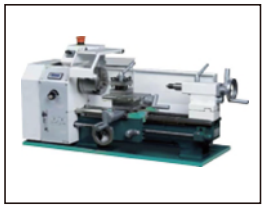
Main unit	1 pc
Computer	1 set
Printer	1 pc
Voltage regulator	1 pc
Calibration sample	1 set
Electrode brush (OES-T350-BR)	1 set
Analysis and calibration software	1 set
Consumable and spare parts	1 set*

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

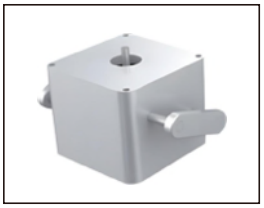
OPTIONAL ACCESSORY

Spectral standard sample	**MSS series**	select standard sample based on the test material
Spectral sample grinder	**OES-MY100-U**	13.78"DIA, 480V
Lathe	**OES-R420-LATHE**	8.66×11.81", 110V
Small sample fixture	**OES-R420-RODLIKE**	.13~.27"DIA regular bar sample
	OES-R420-FILIFORM	.02~.11"DIA filament sample
Gasket	**OES-R420-GASKET1**	Copper, ID.236"
	OES-R420-GASKET2	Copper, ID.314"
	OES-R420-GASKET3	Boron nitride, ID.157"
	OES-R420-GASKET4	Boron nitride, ID.236"
N analysis module	**OES-R530-MC-N**	the measurement range can be customized, used with **OES-R530-U**
Na analysis module	**OES-R530-MC-NA**	
K analysis module	**OES-R530-MC-K**	
Li analysis module	**OES-R530-MC-LI**	

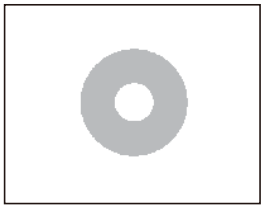
spectral sample grinder **(optional)**



lathe **(optional)**



small sample fixture **(optional)**



gasket **(optional)**

SPECIFICATION

Part No.		OES-R420-U	OES-R530-U
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-runge 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	
	dispersion	class I: 0.74nm/mm, class II: 0.37nm/mm	
Curve	standard curve	carbon steel/low and medium alloy steel (**A1**), plain stainless steel (**A2**), Al-Si-Cu alloy (**B1**)	
	customized curve	curves can be added or customized for special base materials (Mg, Ti, Pb, Sn, Mn, etc.)	
Excitation source	excitation frequency	20~1000Hz	
	excitation current	90A	
	excitation voltage	190V	
Spark stand	discharge parameter	inductance: 120μH, resistance: 3.5Ω, capacitance: 5μF, voltage: 380V	
	dimension	4.92x3.74", max. load 110.23lb	
	lens	one-piece lens isolation valve	
	excitation electrode	tungsten electrode	
Gas supply	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		68~77°F, <70%RH	
Power supply		AC110V, 60Hz, 1Ø, 16A, 2.5KW, ground resistance <4Ω	
Dimension (L×W×H)		18.50×34.33×17.13"	
Weight		176.37lb	220.46lb

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

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	.0015-1.5	.005-2.0	.08-2.5	.006-2.0	.9-4.5
Si	.005-2.0	.005-2.0	.005-2.0	.003-2.0	.1-5.5
Mn	.005-2.5	.002-2.5	.005-2.0	2.0-25	.005-2.5
P	.001-.1	.002-0.1	.003-.1	.003-.2	.003-1.0
S	.001-.1	.001-0.1	.001-.1	.003-.1	.003-.2
Cr	.001-5.0	5-35	.01-7.9	.005-30	.005-5.0
Ni	.002-5.0	.004-30***	.005-2.5	.005-7	.002-5.0
Mo	.003-2.0	.005-4.0	.01-10.0	.006-2.5	.003-2.0
Cu	.002-1.5	.005-4.0	.005-1.5	.006-2.0	.005-2.0
W	.001-2.0	.002-1.0	1.0-20.0	.006-.5	.006-1.0
V	.002-1.5	.002-.5	.01-6.0	.006-1.5	.001-1.0
Ti	.001-1.0	.003-1.0	.004-.5	.003-1.0	.001-.5
Nb	.001-.5	.005-3.0	.002-1.0	.006-3.0	.002-1.0
Al	.001-1.5	.004-1.5	.005-.2	.004-.5	.001-.4
Mg	-	-	-	-	.001-.1
Ce	-	-	-	-	.001-.1
Zr	.004-.5	-	-	-	.003-.1
Co	.001-.5	.003-.5	.006-10	.003-.5	.001-.2
B	.0008-.02	.002-.02	-	.002-.02	.003-.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

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	.001-.5	.05-1.0	.001-.2	.001-.1	.5-12.0	.001-.5	.001-.1
As	.003-.2	.003-.3	.003-.2	.003-.2	.003-.1	.003-.05	.003-.1
Bi	.002-.01	.002-.01	.002-.1	-	-	.001-.02	.001-.01
Cd	.001-.15	-	.001-.01	-	-	-	-
Co	-	-	.003-.15	-	-	.006-.2	.006-.25
Fe	.003-.5	.003-1.0	.003-.35	.003-.35	.005-6.5	.03-1.0	.03-1.0
Mg	-	-	-	.005-.01	.005-.1	.003-.15	.003-.15
Mn	-	.001-.2	.003-.2	.005-.5	.005-3.0	.005-1.5	.005-1.0
Ni	.005-.5	.01-1.0	.005-2.0	.005-1.5	.01-7.0	.5-35.0	5.0-20.0
P	.003-.05	.003-.1	.003-.6	.01-1.0	.003-.05	.003-.05	.01-.1
Pb	.005-.5	.2-5.0	.005-10.0	.005-1.5	.002-.2	.002-.05	.002-2.0
S	.001-.01	.001-.01	-	.002-.1	-	.002-.1	.002-.1
Sb	.001-.1	.001-.1	.001-.6	.001-.5	-	.001-.02	.001-.02
Si	.001-.2	.001-.2	.004-.15	.004-.15	.004-.5	.002-.2	.002-1.0
Sn	.005-.1	.005-1.0	.01-12.0	.1-12.0	.005-.3	.005-.1	.005-.2
Zn	.5-42.0	.5-42.0	.005-12.0	.002-1.5	.003-2.0	.005-1.0	10.0-35.0
Cr	-	-	-	-	.001-.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						

ALUMINUM BASE CURVES

Curve number	B1	B2	B3	B4
Elemental content (%)	Al-Si-Cu	Low-Al	Al-Mg-Si	Al-Zn
Cd	.001-.2	.002-.25	.002-.2	.002-.2
Cr	.002-.4	.002-.5	.002-.5	.005-.5
Cu	.002-1.0	.5-8.0	.002-2.0	.01-3.0
Fe	.002-1.5	.005-2.0	.005-1.5	.03-1.5
Mg	.002-1.5	.005-2.0	.005-15.0	.01-4.5
Mn	.001-.5	.005-1.0	.005-1.0	.01-1.0
Ni	.003-.5	.005-1.5	.005-1.0	.01-1.0
P	.005-.02	.005-.02	.005-.02	.005-.02
Pb	.002-.2	.005-.4	.005-.5	.005-.2
Si	.005-1.5	1.0-16.0	.01-25.0	.01-1.0
Sn	.003-.2	.0005-1.0	.005-.5	.005-.2
Ti	.003-.3	.003-.5	.003-.5	.003-.5
Zn	.005-1.5	.005-3.0	.01-3.0	.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	.005-6.0	.005-6.0	.005-4.5	.005-1.0
C	.005-.3	.005-.2	.005-.5	.005-.25
Co	.01-20.0	.005-1.0	.005-.5	.005-3.0
Cr	8.0-25.0	10.0-25.0	.005-.5	15.0-25.0
Cu	.005-.5	.005-.5	20.0-32.0	.005-1.5
Fe	.015-3.5	.01-20.0	.005-4.0	.5-20.0
Mg	.005-.05	.005-.05	.005-.1	-
Mn	.005-1.2	.005-1.2	.005-3.0	.005-1.5
Mo	.01-10.0	.01-10.0	.005-.1	5.0-23.0
Nb	.005-.5	.005-7.0	.005-.5	-
Si	.005-1.0	.005-.5	.005-4.5	.005-1.3
Ti	.005-6.0	.005-3.0	.005-1.5	.005-.5
V	.005-.6	.005-.5	-	.005-.5
W	.002-4.5	.005-.5	-	.5-6.0
Zr	.005-.15	.005-.05	.005-.1	-
Ni	REF	REF	REF	REF
Description	P, S, Pb, Ce, B, etc. in nickel base can be customized			

COBALT BASE CURVES

Curve number	E1	E2	E3	E4
Elemental content (%)	Co-Cr-W alloy (**optional**)	Co-Cr-Ni-W alloy (**optional**)	Co-Ni-Cr-Mo alloy (**optional**)	Co-Cr-Mo alloy (**optional**)
Al	.005-.48	.005-.48	.005-.48	.005-.48
C	.005-1.0	.005-1.0	.005-.5	.005-.5
Cr	18.0-31.0	18.0-31.0	18.0-31.0	18.0-31.0
Cu	.005-.3	.005-.3	.005-.05	.005-.05
Fe	.005-9.0	.005-3.0	.03-1.0	.005-3.0
Mn	.005-2.0	.005-2.0	.005-.3	.005-1.0
Mo	.005-1.5	.005-1.0	1.0-10.0	1.0-8.5
Nb	.005-4.2	.005-.5	.005-.5	.005-.5
Ni	.005-3.0	8.0-25.0	10.0-36.0	.005-5.0
Si	.005-1.0	.005-1.0	.005-1.0	.005-1.0
Ti	.005-3.0	.005-.05	-	.005-.05
W	3.0-16.0	3.0-16.0	.005-.1	.005-.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 (**optional**)	Zinc-Aluminum alloy (**optional**)
Al	.05-6.0	6.0-30.0
Cd	.005-.04	.005-.04
Cu	.005-3.0	.005-3.0
Fe	.005-.1	.005-.1
Mg	.005-.1	.005-.1
Ni	.005-.05	.005-.05
Pb	.005-.03	.005-.03
Si	.005-.05	.005-.05
Sn	.005-.01	.005-.02
Ti	.005-.3	.005-.3
Zn	REF	REF
Description	Sb, etc. in zinc base can be customized	