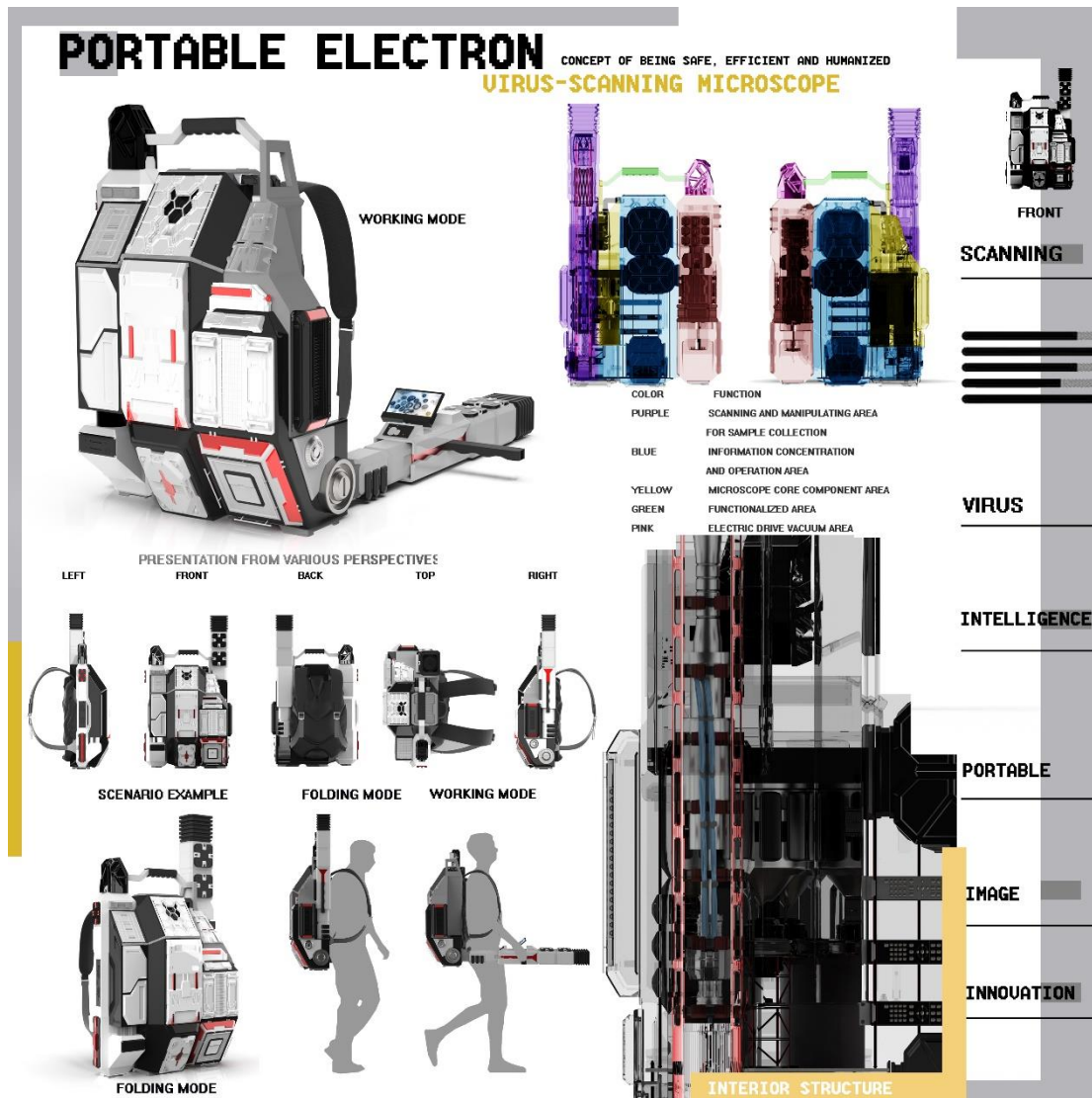


Basic principle and material description of portable electron virus-scanning microscope



The COVID-19 has been rampant in recent years. In addition to specific medicines and vaccinations, how to prevent epidemic and detect virus as quickly as possible , and study the environmental characteristics of its existence have become crucial. In terms of equipment functions, it adopts the principle of scanning electron microscope. After detecting a virus, it will automatically generate pictures and send it to the background server through the cloud to compare it with the virus database to determine which virus has the highest similarity, so as to make the correct decision.

The whole equipment aims to fully reflect the concept of being safe, efficient and humanized. The main body adopts the modeling techniques such as straight lines and rounded and beveled corners, and integrates the equipment components.

A good design does not only mean a good appearance, but also its internal structure, materials, assembly and the like. This equipment contains hundreds of parts after being split, and each part is completed by the designer after careful research and repeated scrutiny. The internal and external functional partitions should consider both the practicability of functional components and the aesthetics of the appearance, so that the equipment can meet the function at the same time, as well as make the visual aesthetics of the equipment appearance to achieve the best!

In terms of the structure, the scanning electron microscope is mainly composed of seven major systems, namely the electronic optical system, the signal detection processing and display system, the image recording system, the sample chamber, the vacuum system, the cooling circulating water system, and the power supply system.

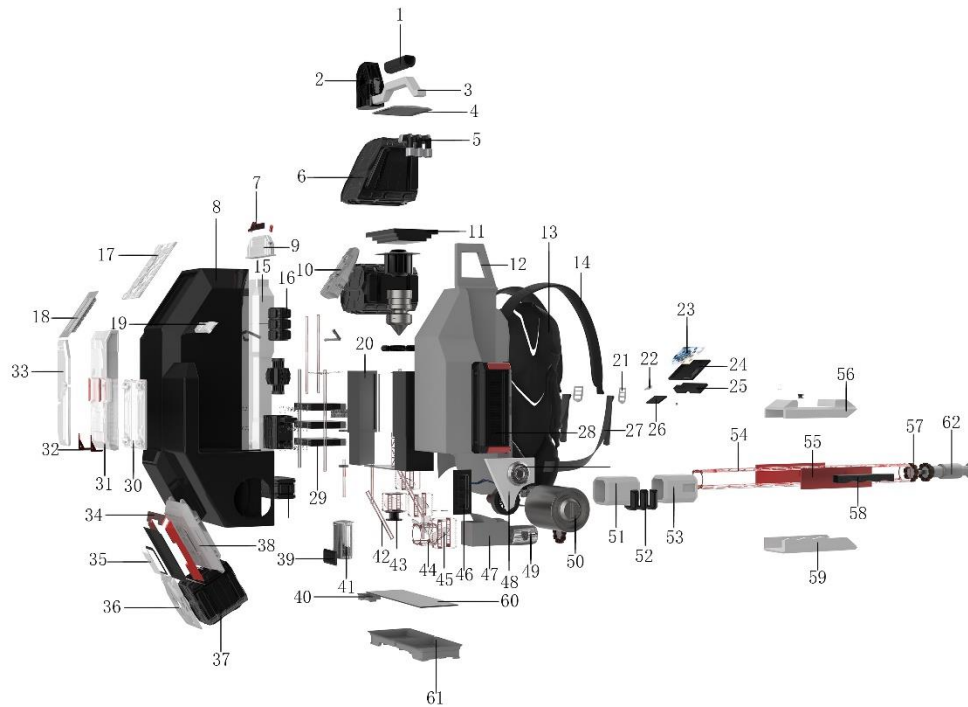
It bombards the surface of the sample with a finely focused electron beam, and observes and analyzes the surface or fracture morphology of the sample by interacting with the sample to generate secondary electrons and backscattered electrons.

Like all components of an electron microscope, the electron gun is sealed in a special vacuum chamber to protect it from contamination, vibration and noise. In addition to protecting the electron gun from contamination, the vacuum environment is beneficial for obtaining high-resolution images

In the absence of a vacuum, there may be other atoms and molecules in the tube that interact with the electrons, deflecting the electron beam and degrading the image. The high vacuum environment also improves the collection efficiency of electrons by the detector inside the tube.

The most important thing for this product is portability, so theoretically, the electron beam needs to pass through the deflection coil to change the electron beam path through the magnetic field, so as to achieve the effect of the scanner being rotatable to improve portability.

Picture 1



Serial No.	Part Name	材质 Material	Function
1	leather handle cover	pu leather	Let the handle fit the palm as much as possible
2	vacuum pump motor	aluminum alloy	Evacuate the vacuum chamber
3	handle	PPS polyphenylene sulfide engineering plastics	The host can be picked up at any time
4	quick release hidden line board	PPS polyphenylene sulfide engineering plastics	Protection and hidden wiring , quick disassembly for easy debugging and maintenance
5	small cable duct	PPS polyphenylene sulfide engineering plastics	Protect cables
6	information processing device	PPS polyphenylene sulfide engineering	The collected samples can be analyzed

		plastics	
7	small hidden line board	PPS polyphenylene sulfide engineering plastics	Protect and conceal wiring
8	host shell	PPS polyphenylene sulfide engineering plastics	Protect internal devices
9	wireless transceiver	ABS plastic	Used to realize wireless transmission function
10	shock ABSorbing bumper	POM polyacetal plastic	It has a certain buffering effect on the internal device and the shell
11	cathode	copper , graphite	For electron gun operation
12	case handle	PPS polyphenylene sulfide engineering plastics	Easy for the host to take
13	back foam pad	EVA pad	Allow users to use the device more comfortably
14	shoulder strap	nylon webbing	Allows the user to carry the device
15	vacuum pump case	PPS polyphenylene sulfide engineering plastics	Protect the vacuum pump
16	vacuum device	PPS polyphenylene sulfide engineering plastics	Ensure the normal operation of the electronic optical system and prevent sample contamination
17	hidden circuit board	PPS polyphenylene sulfide engineering plastics	Protect and conceal wiring
18	hidden circuit board	PPS polyphenylene sulfide engineering	Protect and conceal wiring

		plastics	
19	ventilation grill	PPS polyphenylene sulfide engineering plastics	Evacuate the heat
20	condenser	lanthanum crown glass	Funnel electrons to the sample
21	shoulder strap adjustment buckle	ABS plastic	Adjust the length of the shoulder straps
22	sampler switch	NR natural rubber	Direct control of the sampler
23	display screen	IPS screen	Display sampling content and parameters
24	screen case	ABS plastic	Protection
25	display screen mount	ABS plastic	Supporting displays and hidden wiring
26	Sampler switch wiring board	ABS plastic	Protect and conceal wiring
27	adjustment belt	braided nylon	Change the length of the shoulder straps
28	radiator	copper, aluminum, PPS plastic	Cool the device
29	operation module	PCB board	Analyze the collected samples
30	wiring board	ABS plastic	Protect and conceal wiring
31	external electron microscope adjustment module	PPS polyphenylene sulfide engineering plastics	Adjust electron microscope parameters
32	right angle bracket	aluminum alloy	Fix equipment
33	protective case for vacuum pump	aluminum alloy	Protect the vacuum pump
34	bumper	POM polyacetal plastic	It has a certain buffering effect on the internal device and shell
35	hidden circuit board	ABS plastic	Protect and conceal wiring
36	power protection board	PPS polyphenylene sulfide engineering plastics	Protect the power
37	power supply	PC plastic	Power supply
38	astigmatism aberration		Optical Imaging Compensation

	compensator		
39	heat sink	copper , PPS , aluminum	Heat dissipation
40	fixed pile	PPS polyphenylene sulfide engineering plastics	Fix equipment
41	secondary electron detector		Secondary electron reception
42	electron microscope stand	aluminum alloy	Stand equipment
43	beam lens	lanthanum crown glass	Transmit optical information
44	mirror stand	aluminum alloy	Support mirror
45	reflector	lanthanum crown glass	Reflect beam
46	control circuit	PCB board	Realize electronic operation function
47	transformer	PPS , copper	Ensure voltage safety
48	rotary shaft buffer plate	POM polyacetal plastic	It has a certain buffering effect on the internal device and the shell
49	photomultiplier tube	photocathode Materials	Realizing high-sensitivity photosensors
50	large swivel bearing	aluminum alloy	Achieve structure rotation
51	protective case for sample collector	PPS polyphenylene sulfide engineering plastics	Protect equipment
52	wiring conduit	PPS polyphenylene sulfide engineering plastics	Protect cables
53	sample collector protective case	PPS polyphenylene sulfide engineering plastics	Protect equipment
54	structural stand for sample collector	aluminum alloy	Support equipment
55	shadow shield	PPS polyphenylene	Shadow shield

		sulfide engineering plastics	
56	sampler and display case	PPS polyphenylene sulfide engineering plastics	Protect equipment
57	deflection coil	magnet, nichrome wire	Deflected electron beam
58	sample collector with stowable handle	PPS polyphenylene sulfide engineering plastics , PU leather	Easy to handle
59	sample collector protective case	PPS polyphenylene sulfide engineering plastics	Protect equipment
60	bottom floor stand bumper	PPS polyphenylene sulfide engineering plastics	It has a certain buffering effect on the internal device and the shell
61	bottom floor stand	PPS polyphenylene sulfide engineering plastics	Barrier equipment and ground friction

picture 1

(Note: There is no information on the material of individual components in the current market or literature)

picture 2



Color	Function
purple	scanning and manipulating area for sample collection
blue	Information concentration and operation area
yellow	Microscope core component area
green	functionalized area
pink	Electric drive vacuum area

Show Details

