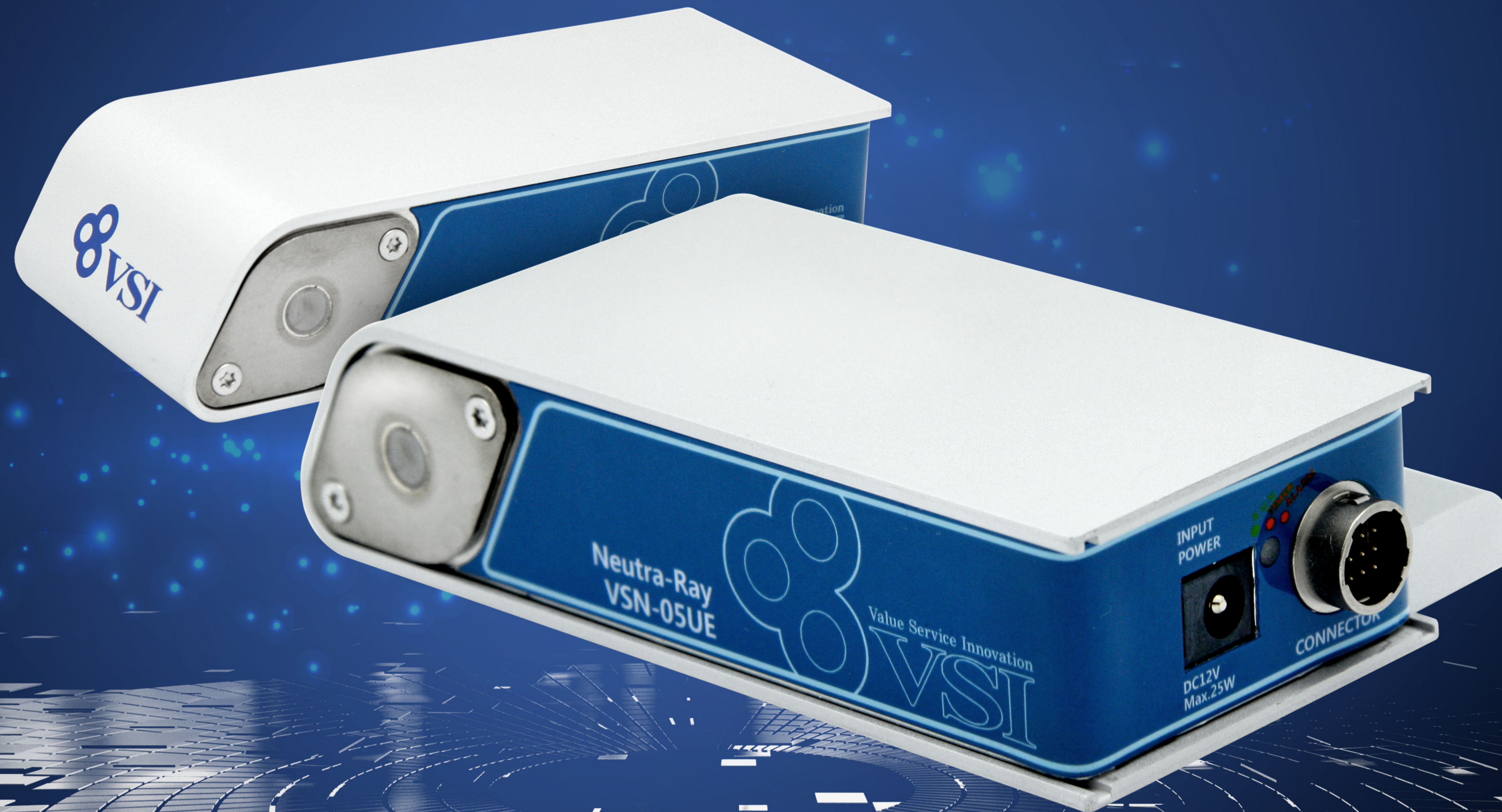


NEW Nanotechnology, NEW Breakthrough


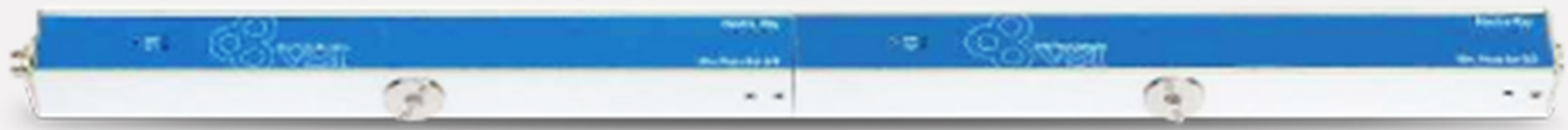
SOFT X-RAY IONIZER

Low voltage models, 5kV



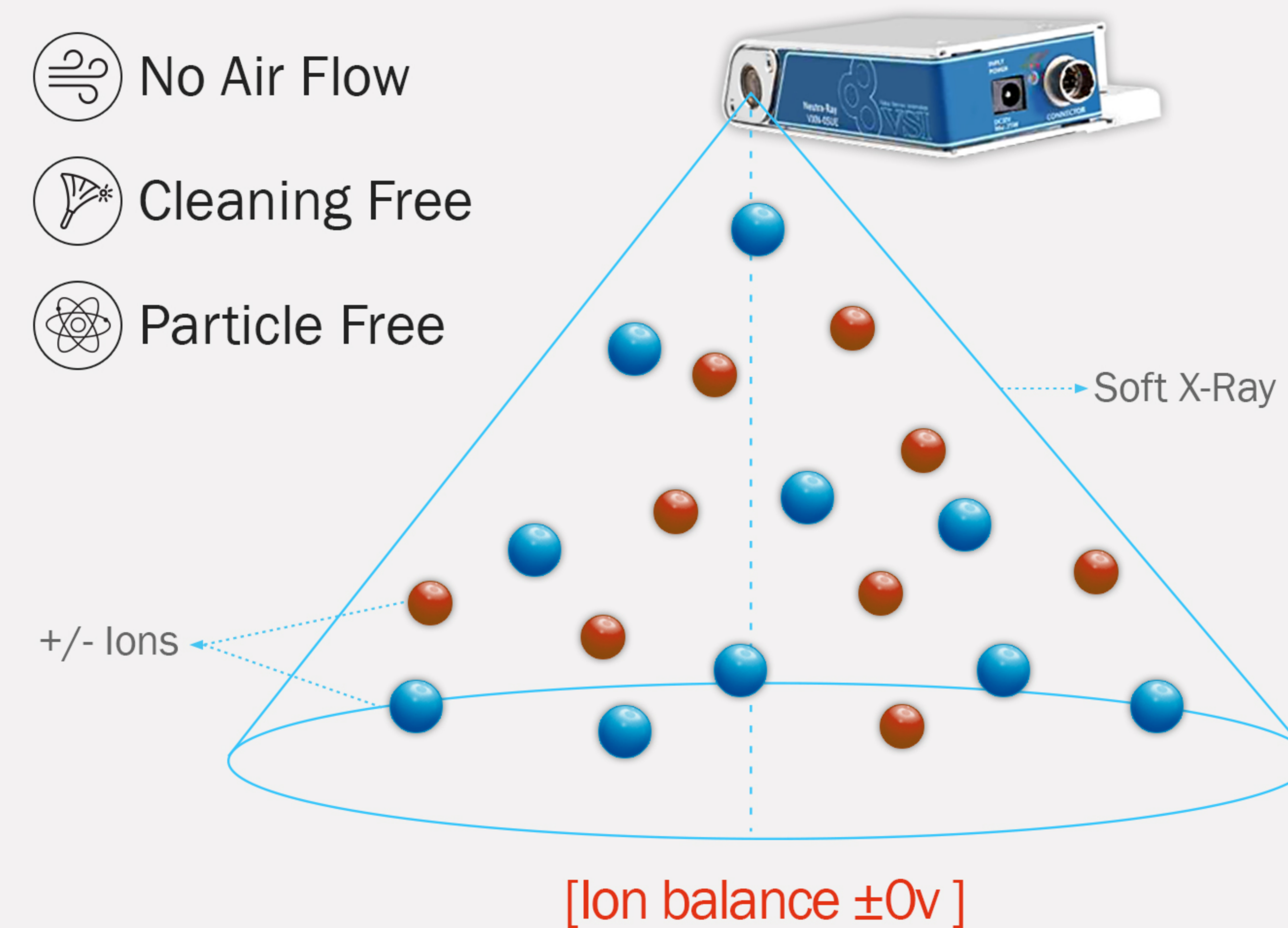
SOFT X-RAY vs CORONA DISCHARGE

Comparative Analysis with Corona Method

	Corona Discharge	Soft X-Ray
		
Air Supply	Required (CDA, N2 Supply)	Not Required
Particle Attraction	Yes (attraction, re-circulation)	No
Maintenance	Every 2-4 weeks (cleaning and adjustment)	Not Required
Ozone(O3) Generation	YES	No
Ion Balance	+/- 30v (adjustment required)	+/- 0v
Ionization Speed	Moderate	Fast
Operation Cost	Air Supply, Higher Power Consumption, Accesories	No Additional Cost



[Particle attraction on emitter pin (fuzz ball)]



SOFT X-RAY BENEFITS 01 - Particle Free

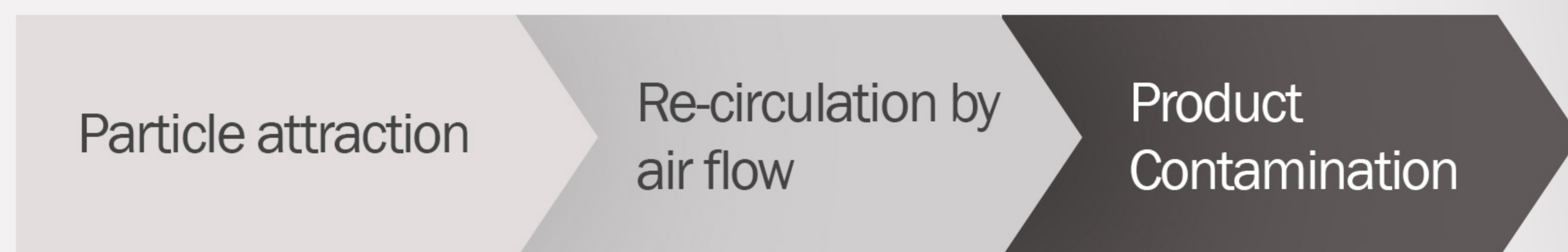
Why You Should Choose SOFT X-LAY

Corona discharge ionizers

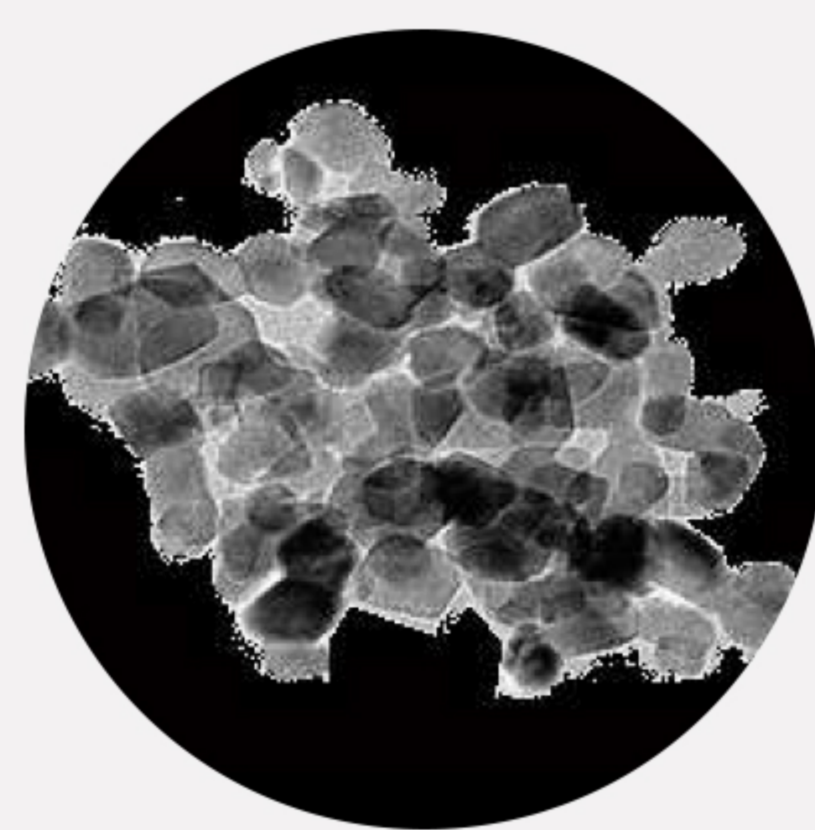
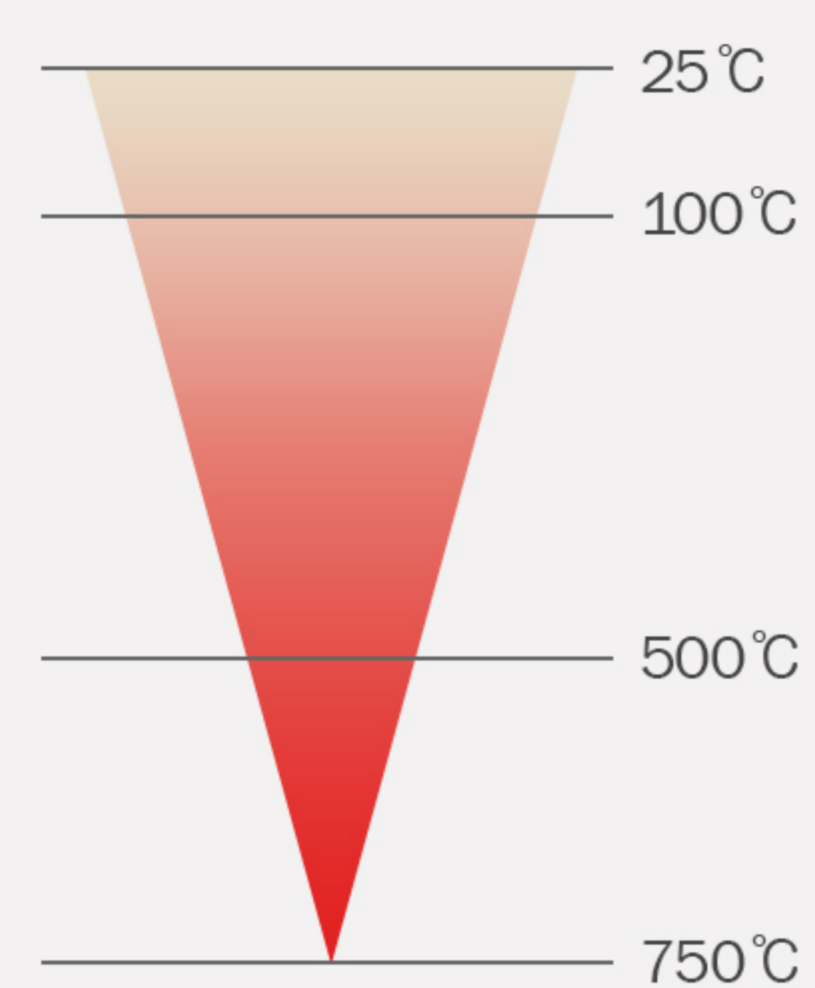


VSI's Photo ionizer

Problem 01 High temp with corona discharge
Particle attraction on the emitters



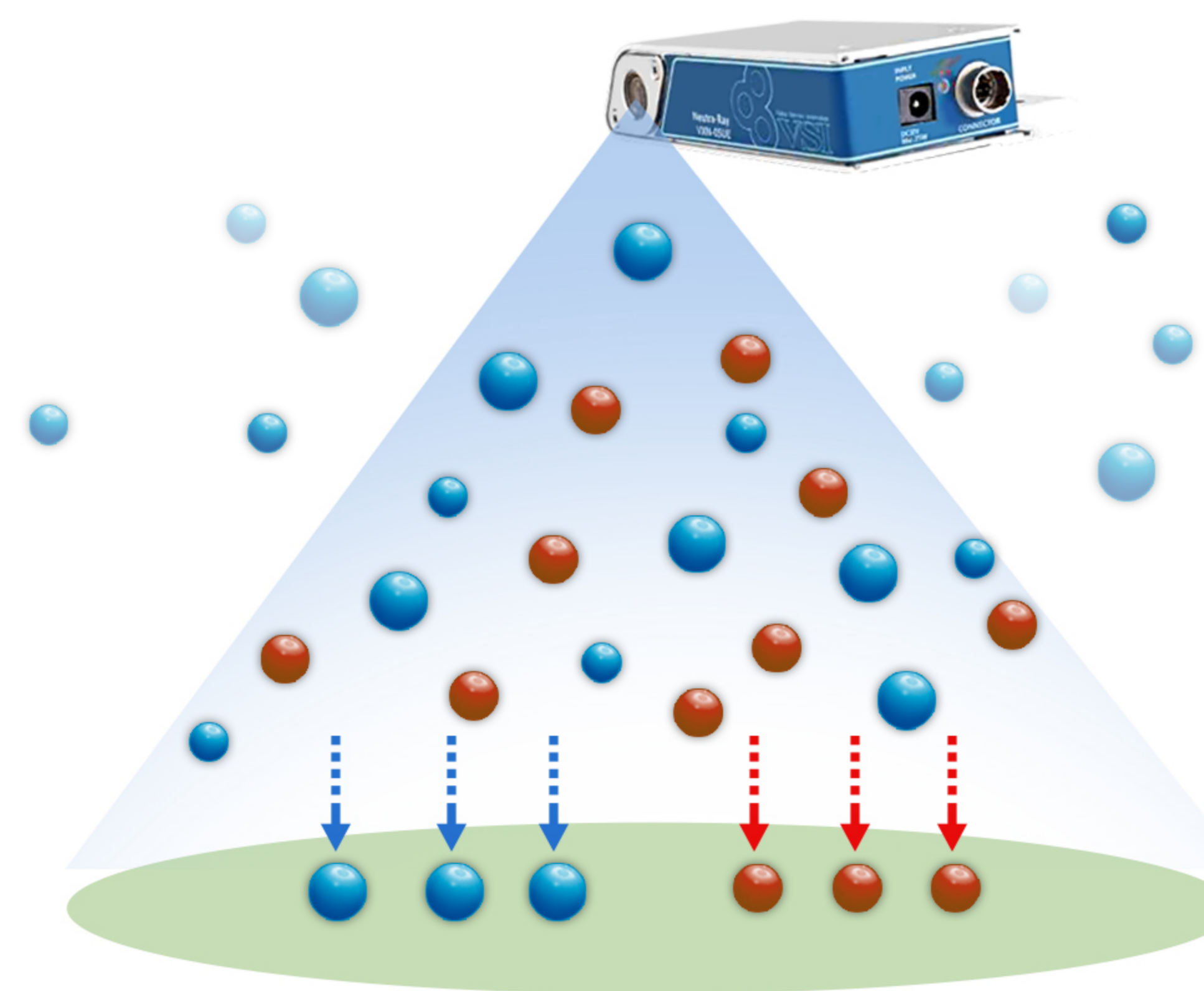
Problem 02 Pin contamination during advance process







① Temperature on emitter pins

② Particulates (gaseous substance)

③ Contaminated Pin



-  No Air supply required for Soft X-ray irradiation
-  Particle free, maintenance free
-  Large coverage area
-  Good for fast moving object

Soft X-ray tube (Replaceable) ▶



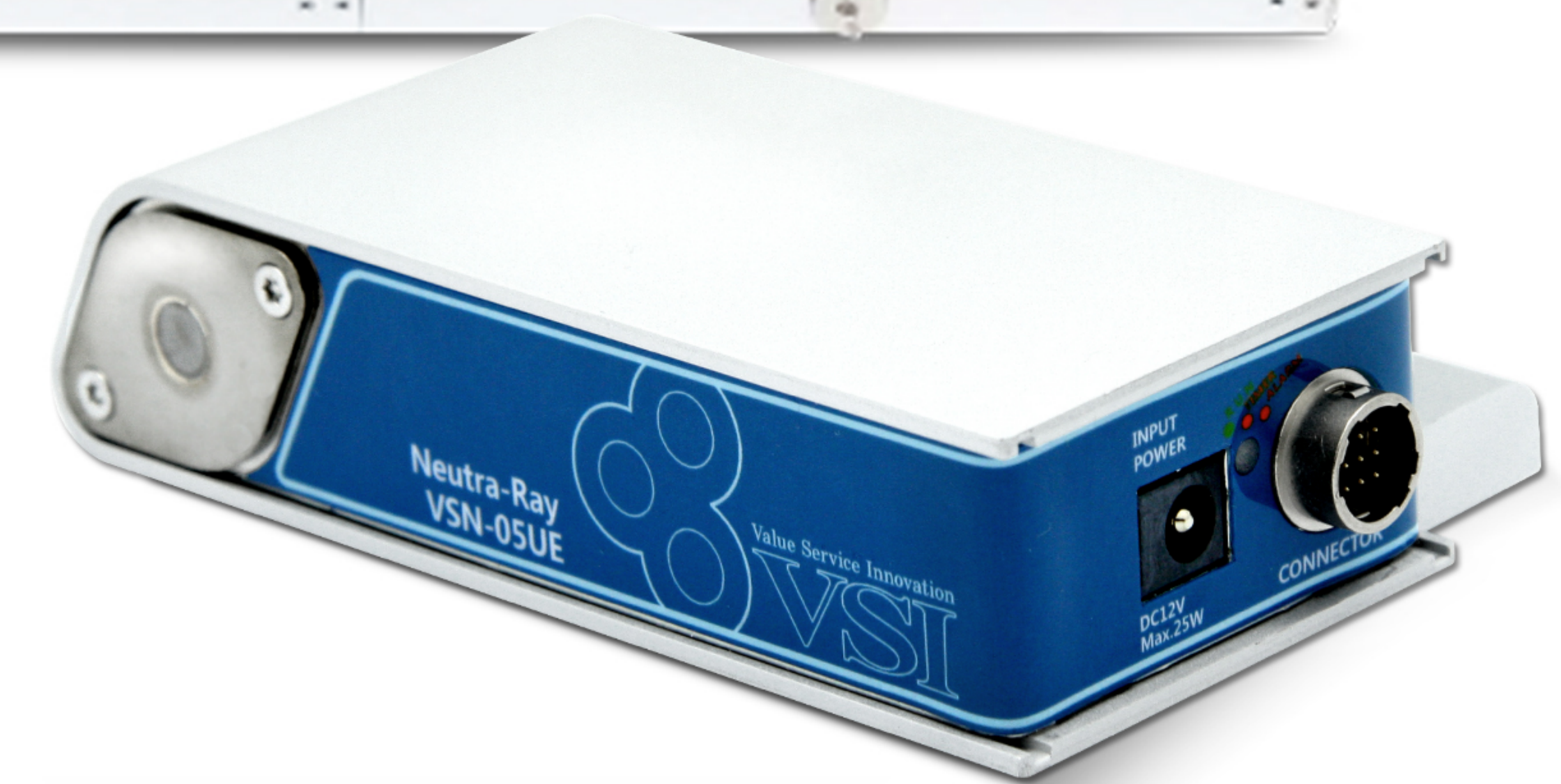
SOFT X-RAY BENEFITS 02 - Maintenance Free


Why You Should Choose SOFT X-LAY

Corona discharge ionizers

VSI's Photo ionizer

 High Maintenance Cost



Spot check	Periodic Maintenance	Material cost
<ul style="list-style-type: none"> ✓ Pin cleaning ✓ Balance adjustment 	<ul style="list-style-type: none"> ✓ Air circulation ✓ Monitoring and check (2~4hrs) 	<ul style="list-style-type: none"> ✓ Material cost ✓ Labor cost
<p>1~2 hr per time</p> <p>24 times per year</p>	<p>6 times per year</p>	<p>\$200~\$500 per year</p> <p> Labor cost ⁺</p>

※ Recommended

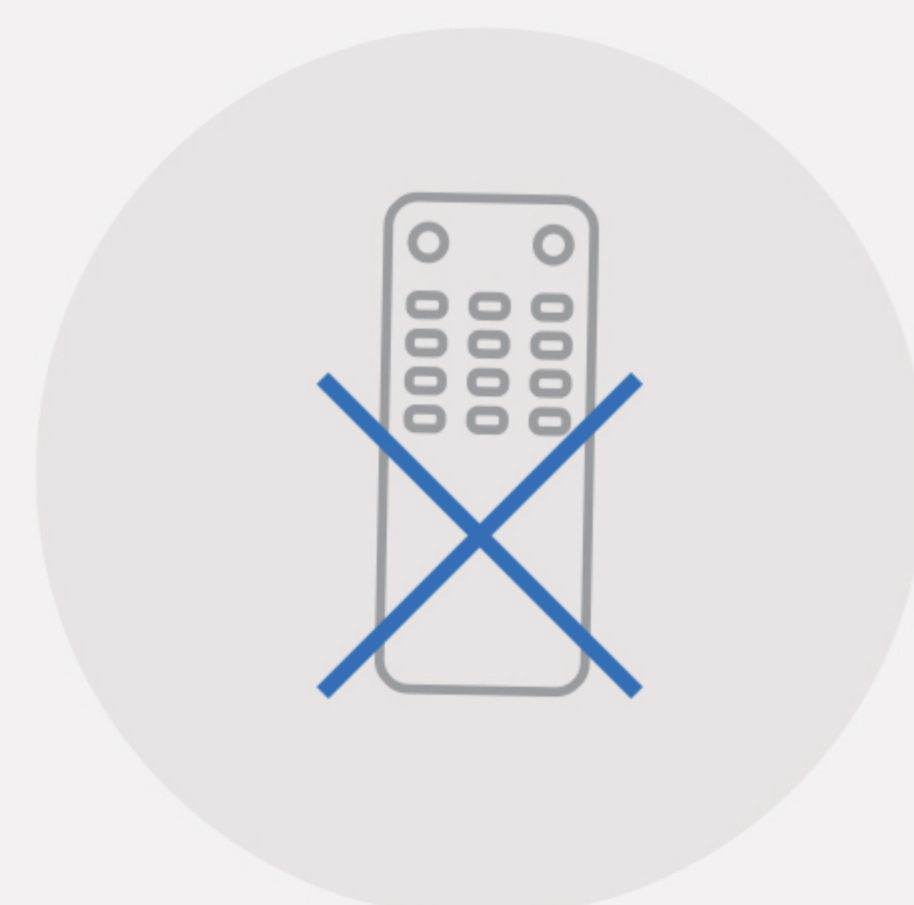
No maintenance
during the Tube lifetime (over 10K hours)

PRODUCT GROUP - Low voltage models(5kV)

Low Voltage models (5kV)



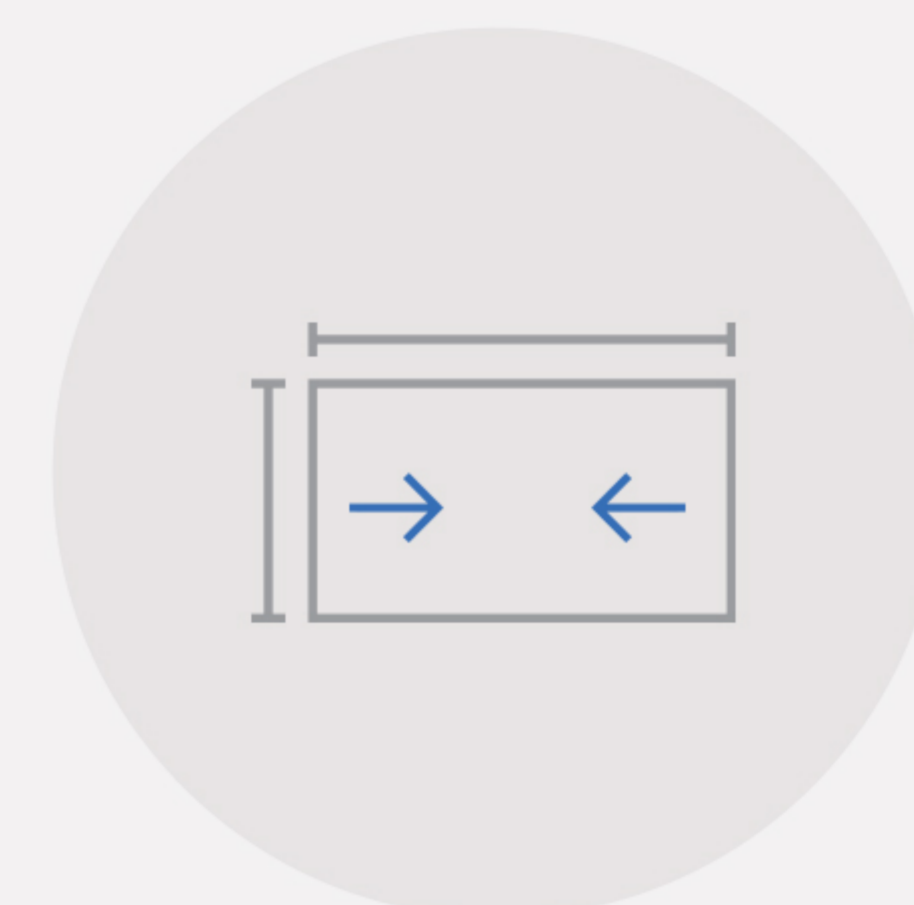
▲ VSN-05UE (All-in-one type)



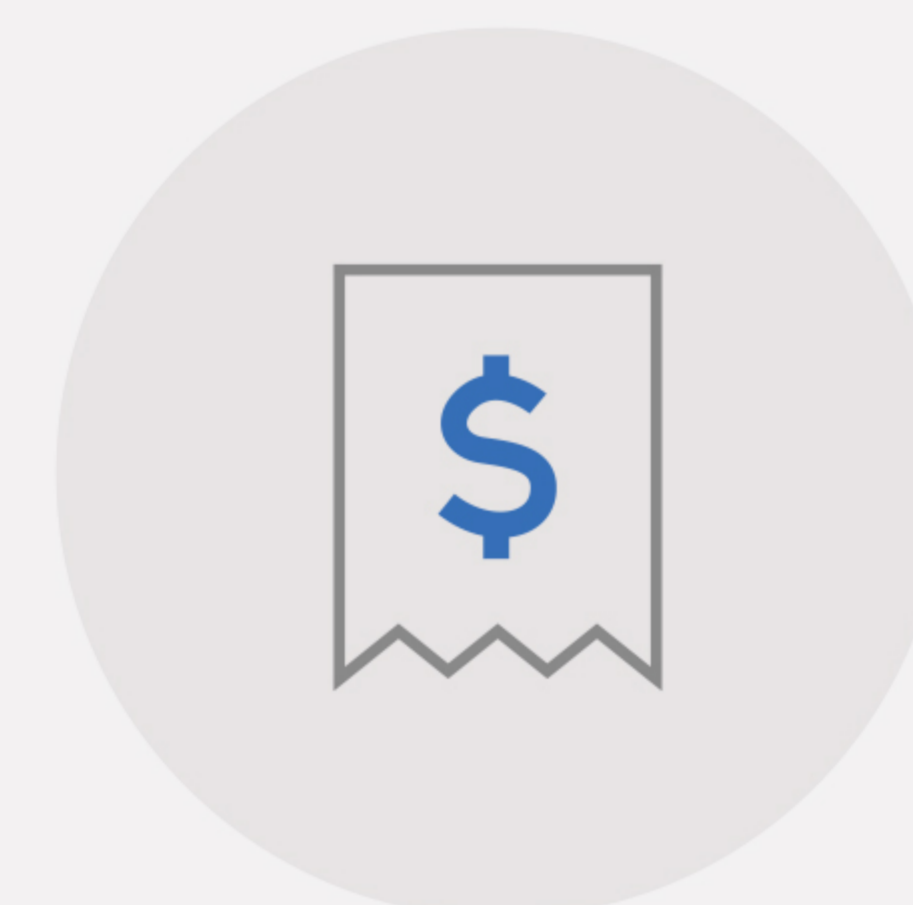
Integrated body
(No controller required)



Replaceable X-ray tube
(Low cost)



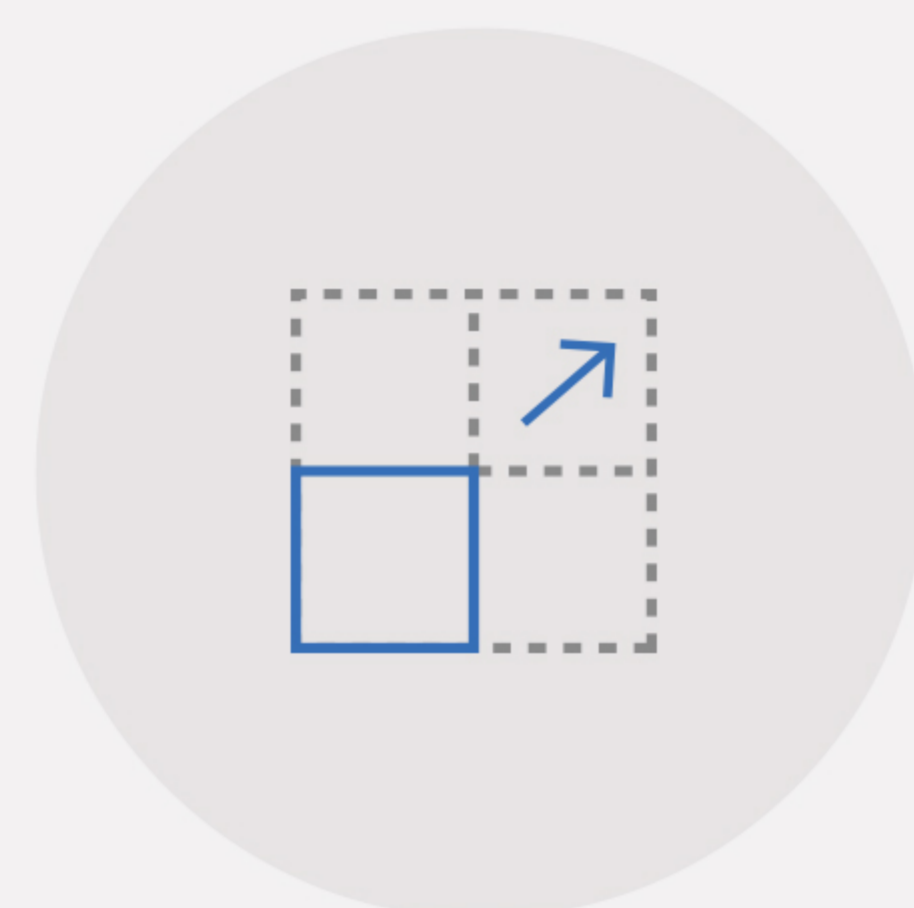
Compact size
(117.5mm×29mm×84.5m)



Reasonable price



▲ VSN-xxxxRD series (Slim Bar)



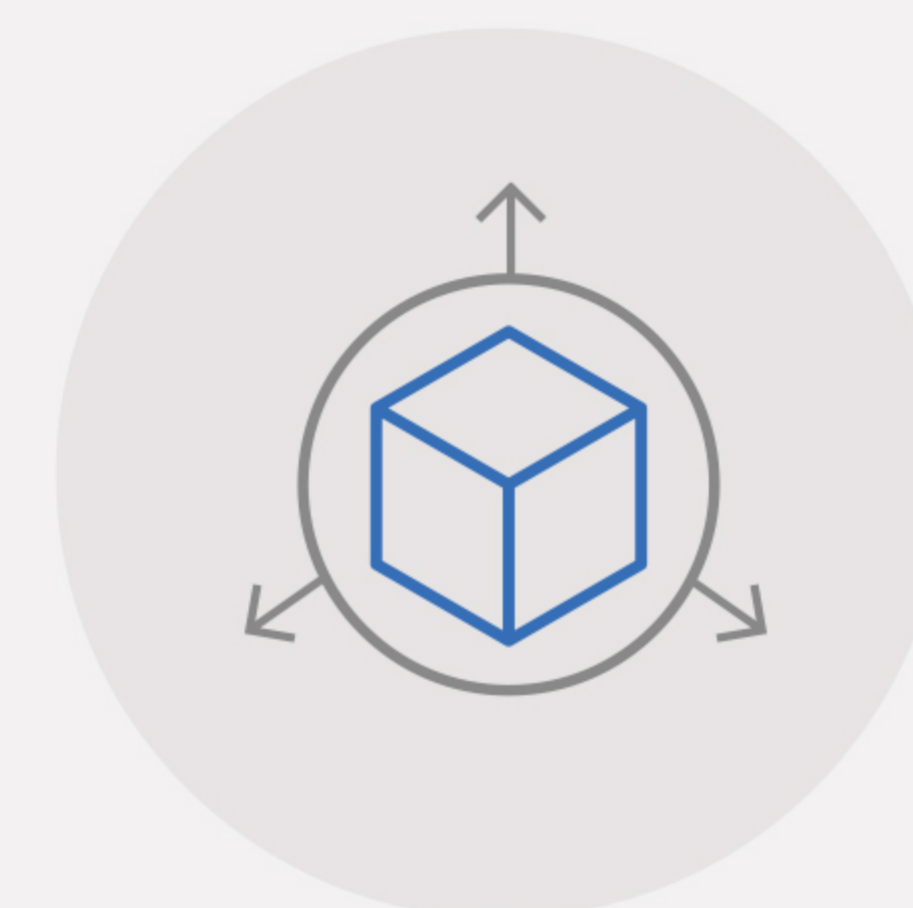
Expandable
module blocks



Replaceable X-ray tube
(Low cost)



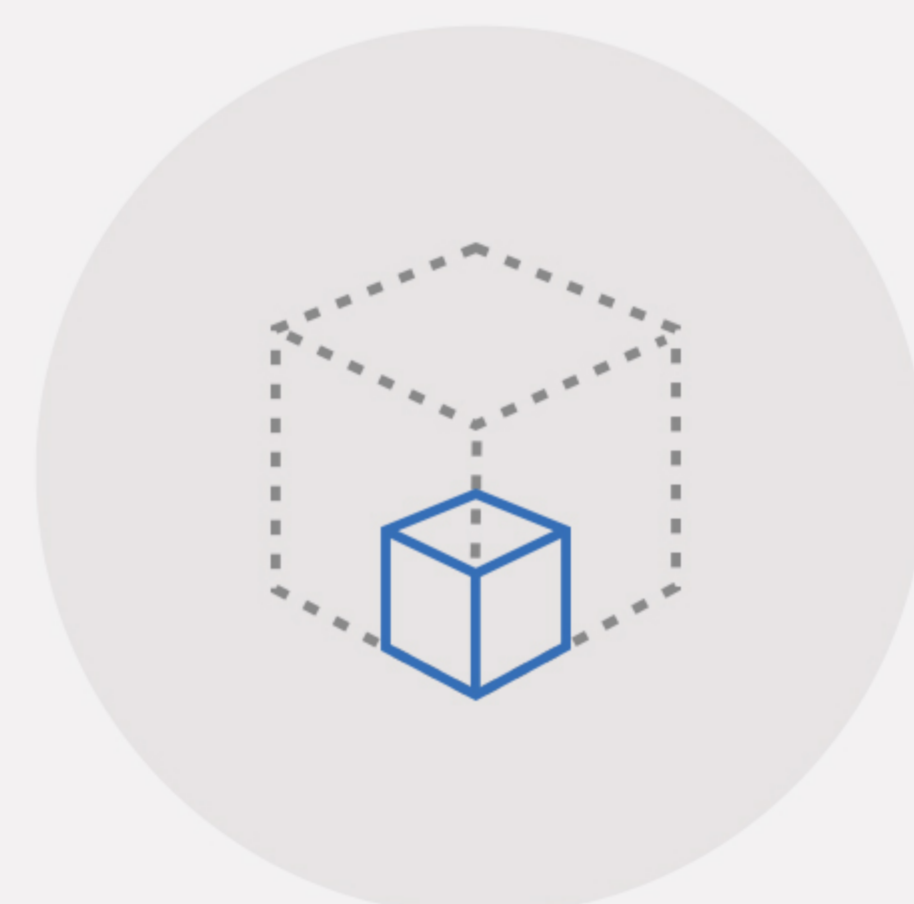
Bar+Controller
as a set



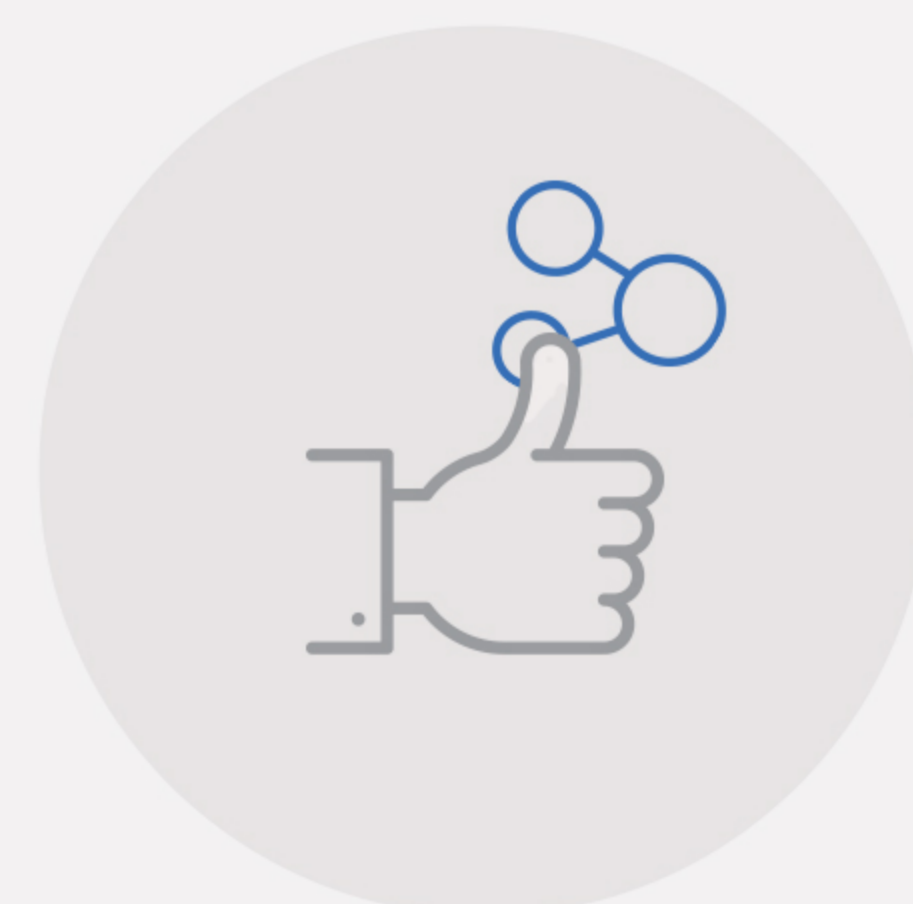
Large area coverage



▲ VSN-05Q (Pin type tube unit)



Minimal spatial
constraints



Ideal for target
ionization

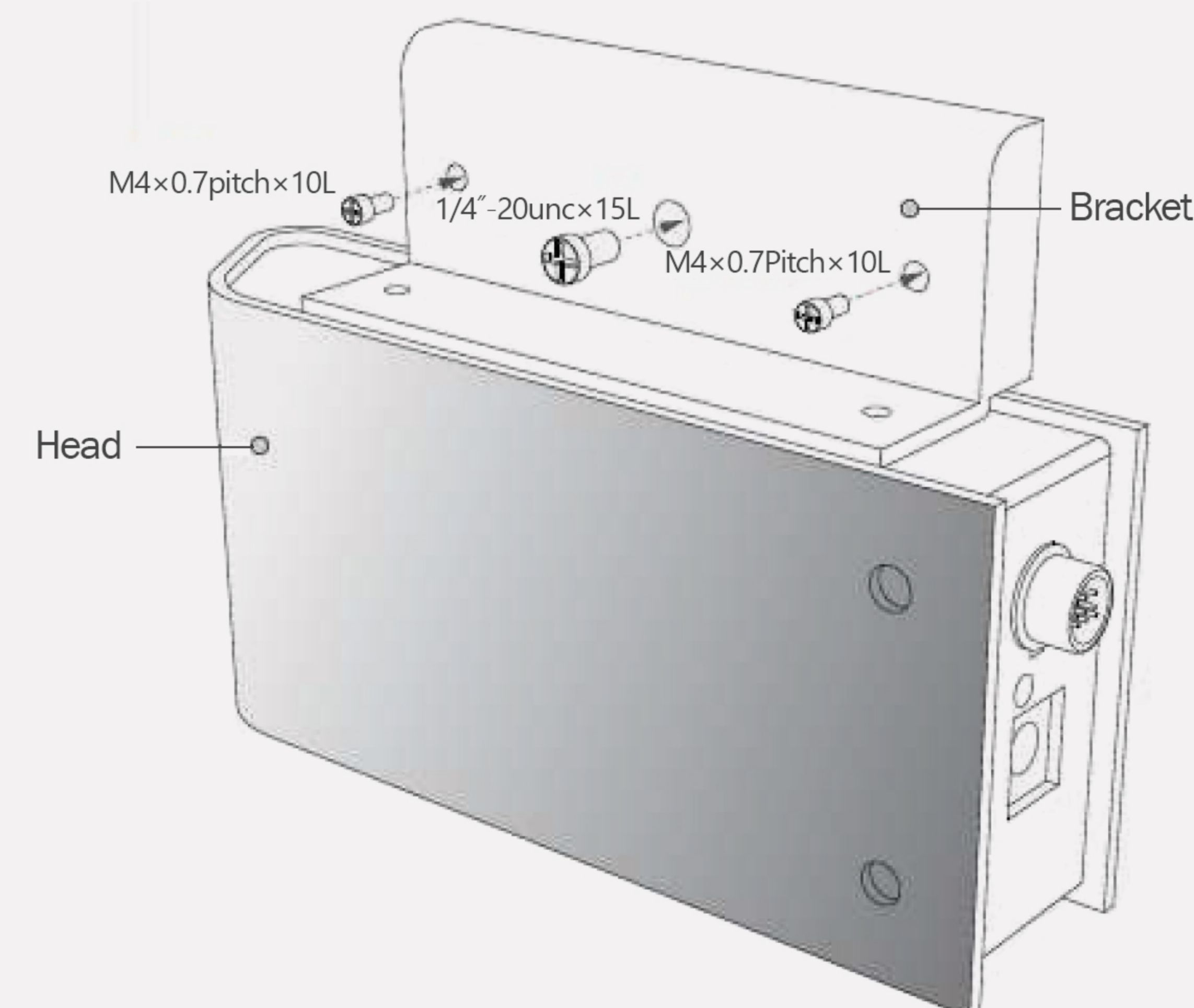
PHOTOIONIZER - VSN-05UE

VSN-05UE (All-in-one type)



> Replaceable Soft X-ray Tube
(※ Optional)

> LED Indicator
 ✓ Normal/Lifetime due/Error
 ✓ Operation status



Soft X-ray window <



DC12V Power input <
(110~220V power adaptor)

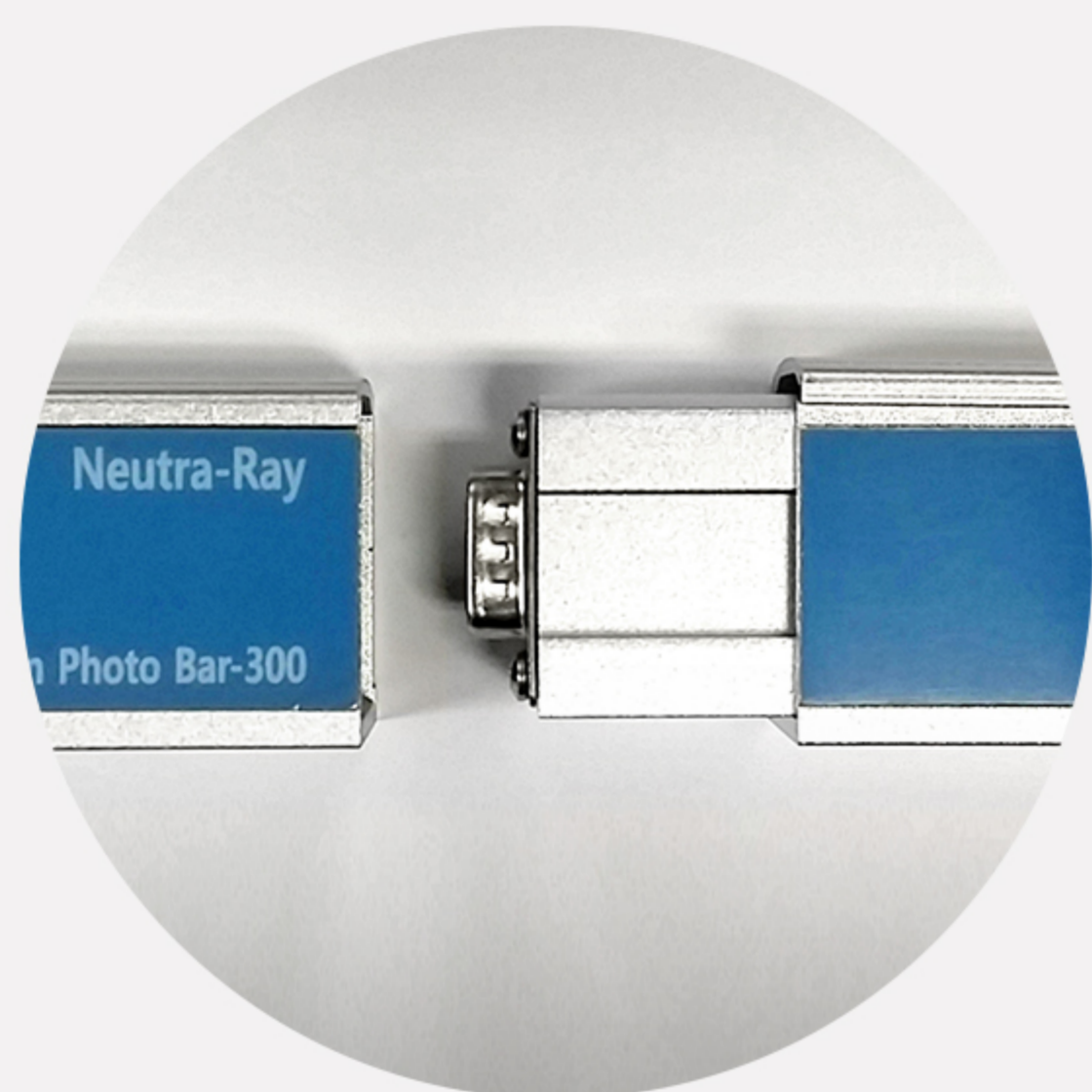
> Data Signal pins for extremal systems
 ✓ Remote on/off
 ✓ Inter-lock(safety alarm)

Main Application

- LCD manufacturing
- Semiconductor (supply to Samsung Electronic)
- Injection molding
- Film, packaging manufacturing
- Aerosol, pharmaceutical production

PHOTO SILM BAR - VSN-xxxxRD series

VSB-900RD (Bar unit)



- ✓ Expandable module block (300mm/ea)
(※ Max. 2,750mm)
- ✓ Replaceable by single module block



- ✓ Easy replaceable tube unit
(simply unscrew!)
- ✓ Ceramic tube body
(excellent durability)



- > LED indicators
 - ✓ Run status
 - ✓ Alarms



- > Display Window
 - ✓ Elapsed time, Run status

VSC-108E (Controller)

- > Control for max. 8 blocks
- > No periodic replacement required
- > Cable included

- ✓ Output (10m)
- ✓ I/O (5m)
- ✓ Power cord(1.8m)

Explosion proof Photo Bar



- ✓ Ignition free, Vacuum sealed body
- ✓ Photoionization type - Exclusively available by VSI
- ✓ Cert class: Ex nR II T6 IP66 (Korean standard)
- ✓ Replaceable module block and tube units
- ✓ Supply to LG Chem, etc.



Compatible controller (model: VSC-108E) ▲

PERFORMANCE - Decay time rate

Model: 5kV

Unit: sec.

Width(cm) Height(cm)	0	10	20	30	40	50
10	0.1	0.2	0.6	2.3	4	24.5
15	0.3	0.4	0.8	1.8	5	13.5
20	0.5	0.6	1	2	4	12.6
25	0.7	0.8	1.2	2.2	4.3	11.6
30	1.1	1.2	1.6	2.5	4.7	11.4
35	1.5	1.7	2.1	3.1	5.6	11.9
40	2.1	2.3	2.9	4.1	6.6	14.2
45	3	3.2	3.9	5.1	7.5	15.2
50	4.1	4.3	5.3	6.5	9.4	13.3
60	10	10.6	11.8	13	15	25.8

Measuring conditions

- > Model: Neutin(5kV)
- > Discharge: +1000V → +100V
- > Temp/Humi: 18.8°C/27%
- > Tester Model : TREK 156A

> Best ionization performance within 30cm distance.

> Key selection criteria :

- ✓ Angle
- ✓ Distance with object
- ✓ Required ionization speed

