

Facility Requirements



X-Rad 320

Product description

The X-Rad 320 is a self-contained biological research irradiator that is usually installed in a laboratory or Vivarium. The crated unit is shipped in pieces (top and bottom) and must be assembled prior to operation. It can pass through a standard 3'-0" x 6'-8" doorway by removing shipping material and certain items during the transport and installation process. We strongly recommend the use of riggers to perform transport. A local rigger will typically do a walk-thru prior to the install to make sure they have all the correct tools on hand to make the smooth transition through hallways, barriers etc.

Dimensions (HxWxD)

Assembled:	78.5 x 57.5 x 40.75 inch	[1993.9 x 1460.5 x 1035 mm]
Cabinet:	47 x 38.5 x 40.75 inch	[1194 x 978 x 1035 mm]
Base:	27.5 x 33.5 x 38 inch	[794 x 851 x 965 mm]
Cooler:	21 x 13 x 30 inch	[535 x 340 x 770 mm]

Additional dimensions listed below

Weights

Assembled:	5170 lbs.	[2345 kg]
Cabinet:	4370 lbs.	[1982kg]
Base:	500 lbs.	[227 kg]
Cooler:	132 lbs.	[59.3 kg]

Additional weights listed below

Electrical

Mains Power

Voltage:	180-264V 1Ø
Current:	40A
Frequency:	47-63Hz
Fuse:	50A (slow blow)

Earth Ground (PE)

Gauge:	6 AWG [10 mm²]
Resistance:	0.3 Ω

Mains Power detailed

A Disconnect Box to be located within 3 meters of the X-ray unit with 50A slow blow fusing and a 1"NPT cord grip for the power.

A dedicated Earth Ground (PE) wire is required in addition to line voltage. A high quality 6 AWG ground should tie directly to a dedicated ground rod. If the X-Rad is being installed on the ground floor we suggest the ground rod be placed within the same room. Otherwise the ground rod should still be placed on the ground level and then wired into the room where the X-Rad will reside. Ground rod cannot place within 15feet of any other ground rod.

Precision X-Ray Irradiation will wire up to the disconnect box and ground point inside room during installation unless otherwise specified.

Internet access

Internet Access is required for TouchRAD remote support via Wi-Fi. Remote support is offered free of charge during the X-Rad's warrantee period. Once expired Remote support will be offered as a yearly subscription or pay per use. For Details into how Precision X-Rays remote support tool connects refer to the Precision X-Ray Remote Support document.

Cooling

When a unit is generating X-rays, it can produce up to 4000 watts of heat. A cooling unit pump is provided with the X-Rad that removes heat from the X-ray source via dielectric oil in the cooling unit and it is exchanged via air or water. The following options are available for this model X-Rad:

Oil to Air Cooler: This option requires no external cooling medium but instead uses a radiator and fan to remove the heat from the oil. This cooler is slightly noisier but, still acceptable when placed next to the X-Rad. Due to the heat generated when running X-rays, the room must have air conditioning to handle the ambient temperature. Note – a typical duty cycle of the unit is >50% approximately 6000 BTU/hr. Heat is only generated when the unit is making X-rays.

Oil to Water Cooler: Preferred Choice. This style will prevent the temperature from increasing in the treatment room and is also a smaller, quieter option. A chilled water source must be available to connect to at the time of installation. Normal city water source and waste drain is acceptable if local codes do not prohibit this (excess water going down the drain) Note – Water flow is controlled by a thermal sensor located inside the cooler. Water is only used when temperature increases. If chosen, aside from the chilled water supply, 3/8 ID barb fittings will need to be supplied along with a shut off valves and temperature gauges on both the supply and return lines. A flow meter (flow range of 0.2 – 2.0 gpm) will also need to be added to the return line only. Precision X-Ray will interface with the 3/8 ID barb fittings during installation.

Both cooler styles are located within 4 meters of the system.

NOTE – If the cooler style is not known at the time of X-Rad purchase, please provide update with this information shortly thereafter).

Dimensions

Assembled

Height:	78.5"	[1993.9mm]
Without X-Ray on Light	74.75"	[1892.3mm]
Without Feet or X-Ray on Light	73"	[1828.8mm]
Width:	57.5"	[1460.5mm]
Without TouchRAD	38.5"	[977.9mm]
Without Louver	33.75"	[857.25mm]
Depth:	40.75	[1035.05mm]
Without Handle/Latch	38.5"	[977.9mm]

Cabinet

Height:	47"	[1193.8mm]
Width:	57.5"	[1460.5mm]
Without TouchRAD	38.5"	[977.9mm]
Without Louver	33.75"	[857.25mm]
Depth:	40.75"	[1035.05mm]
Without Handle/Latch	38.5"	[977.9mm]

Base

Height:	27.5"	[698.5mm]
Without Feet	25"	[635mm]
Width:	33.5"	[850.9mm]
Depth:	38"	[965.2mm]

Weights

Assembled

Cabinet total	4370 lbs.	[2118.276Kg]
Tube	90 lbs.	[40.82 Kg]
Cabinet	3300 lbs.	[1496.85 Kg]
Door	740 lbs.	[335.65 Kg]
Louver	180 lbs.	[81.64 Kg]
TouchRAD with arm	60 lbs.	[27.21 Kg]
Base total	800 lbs.	[362.87Kg]
Base	500 lbs.	[226.79 Kg]
Generators	300lbs.	[136 Kg]

Minimum travel dimensions

Cabinet and Base Stacked	73" x 33.75" x 38.5"	[1829 x 858 x 978mm]
Cabinet	47" x 33.75" x 38.5"	[1194 x 858 x 978mm]

PRECISION

X-RAY IRRADIATION

Installation and training

We typically provide training for as many users as possible. A training session is normally 1 hour in duration and we like to limit each session to 12 people. There are 2 level of training; User and Super-user. The Super-User(s) are responsible for setting up the accounts of the normal users and providing them access to the various programs to be set up. They also are responsible for setting up the programs and experiments with the assistance of an RSO or Health Physicist. We like to divide the groups so that Super-Users either have more time or a separate training session.

Riggers requirements

The XRAD320 is a lead shielded enclosure, that when assembled, weighs over 5170 lbs. (2345 kg). It is normally shipped on two pallets. Assembly requires that the heavy shielded cabinet be lifted and placed onto a platform base, and the two pieces then bolted together once properly aligned. The assembly can be done either in the facility or prior to transport depending on the particular installation and the equipment available. Another crate containing power supply components must then be unpacked and the contents moved into final position underneath the cabinet. The unit will pass through a standard 35" (88cm) door opening.

A Precision X-ray trained installation engineer will be present during installation.



Typical XRAD320 Installation & Rigger Operations

Unpacking

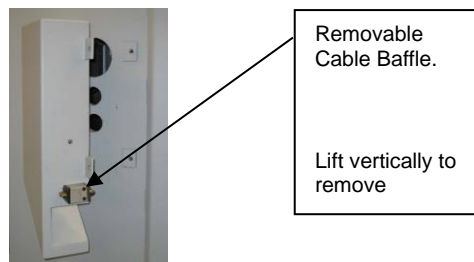
1. Carefully unpack each crate or skid but leave contents of internal boxes unopened.
2. When placing the Irradiation Cabinet onto the Stand, there is a steel plate which secures the Irradiation Cabinet to the skid it was shipped on. The plate must first be unbolted from the skid. Once the Cabinet is lifted, the plate must then be removed from the bottom of the Irradiation Cabinet. The bolts used to hold the plate to the Cabinet must then be re-used to bolt the Stand to the Cabinet once it is fitted and aligned.

Cabinet placement and installation

3. The Cabinet Leveling Feet must be installed onto the Stand before placing in the final room. They are located in one of the small boxes inside the crate with the stand. The Cabinet Leveling Feet screw into the four corners of the Stand on the under-side as shown in the attached image. It is usually easier to remove the Front Panel from the Stand before installing the Cabinet or Leveling Feet.



4. The Cabinet should be finally installed in the room no less than 8" (20cm) from the rear wall and left side wall of the room. Refer to plan drawing for specific location.
5. Depending on the width of the entry door to the treatment room, it may be necessary to temporarily remove the Side Cable Baffle from the Cabinet. The side baffle can be removed by undoing the (2) screws which keep the baffle closed to the cabinet, and then lifting the baffle off the hinges. CAUTION THE CABLE BAFFLE IS VERY HEAVY & REQUIRES 2 PERSONS TO REMOVE AND INSTALL.



6. Once placed, the Cabinet must be leveled so that the door remains motionless when partially open. Floor levelers must be adjusted so cabinet will not wobble.

7. Power supplies will be slid underneath the cabinet (Anode on left Cathode on right)
8. TouchRAD arm (optional) should be bolted to top of cabinet. The 2 front lifting eyes must be removed in order to do this.
9. Place the Junction Box on anode generator underneath the cabinet.
10. Remove all shipping materials from the premises.
11. All remaining Cables will be installed and arranged by the Precision X-Ray trained service engineer.