

X-ray Irradiator Comparison Chart
10/25/2018

Carolyn MacKenzie, cjmackenzie@berkeley.edu
University of California

Make	Primary Use	Model	Energy + Current	Typical Dose Rates Dose Rates	Key Features	Price Quote Base System	Shipping/ Training and Installation	Other Key Options	Initial Warranty Covered	Warranty 13-24 Mo.	Warranty 24-36 Mo.	Warranty 36-48 Mo.	External Radiation Field at max kVp and mA	Weight	Notes
Precision X-ray ¹	cells	Cell RAD	130 kV/ 5 mA	filtered 0.8-1.8-8 Gy/min; unfiltered up to 45 Gy/min	bench top unit-chamber is 14"x12"x12"			full automation \$27K-programmable motorized shelf, programmable adjustable collimator, and programmable automated filter selection; dose measurement system; digital imaging	1 yr				<0.5 mR/hr at 5 sm off external surfaces and <0.1 mR/hr at 10 cm	460 lbs	
RadSource ³	cells	RS 1800Q	160 kV / 11.25 mA	filtered 8 Gy/min; unfiltered 18 Gy/min	stand alone-self-contained cooling-			data logging capabilities; real time dosimtry \$5.3k	1yr				<0.5 mR/hr at 5 sm off external surfaces and <0.1 mR/hr at 10 cm	1000 lbs	
Precision X-ray ¹	cells	XRAD iR160	160 kV/ 18.75 mA	no filter 5 Gy/min; with filters 1-6 Gy/min	water or air cooled- chamber size 41"x25"x25"- generator external to the cabinet			touchrad dose measurement \$11.5K; automation feactures varied prices;	1 yr				<0.5 mR/hr at 5 sm off external surfaces and <0.1 mR/hr at 10 cm	2395 lbs	
Precision X-ray ¹	cells	XRAD 160XL	160 kV/ 18.75 mA	no filter 22-60 Gy/min with Cu filter 0.75-2 Gy/min	water cooled- pre-wired for option imaging equipment- chamber size 42"x26"x26"-generator within the cabinet and cabinet on wheels			touchrad dose measurement \$11.5K; automation feactures varied prices;	1 yr				<0.5 mR/hr at 5 sm off external surfaces and <0.1 mR/hr at 10 cm	3300 lbs	
Precision X-ray ¹	cells	MultiRad	160 kV / up to 25 mA / 4000 Watts	filtered 0.8-1.8 Gy/min; unfiltered 2-7 Gy/min	stand alone-closed loop water cooled chamber size-23"x16"x17"			full automation \$27K-programmable motorized shelf, programmable adjustable collimator, and programmable automated filter selection; dose measurement system; digital imaging	1 yr				<0.5 mR/hr at 5 sm off external surfaces and <0.1 mR/hr at 10 cm	3300 LBS	
RadSource ³	cells (manufacturer says for mice too)	RS 2000	160 kV / up to 25 mA /3000 watt or higher available	1.3-3.8 Gy/min animals; cells 5-10-17 Gy/min unfiltered	stand alone-self-contained cooling-RadPlus specimen holder for dose uniformity-chamber size- 17"x15"x17"			\$1500.00 larger capacity cooling system; integrated ion chamber for real time dosimetry \$5.3K; collimator kit \$3.4k; cages, etc.	1 yr				<0.5 mR/hr at 5 sm off external surfaces and <0.1 mR/hr at 10 cm	1450 lbs	
Kimtron ⁵	cells	IC-180	160 keV/ Polaris HV generator	2 beam conditioning filters with the unit	stand alone cabinet, chamber size- 38"x29"x29" x-ray tube case temperature monitoring to protect against overheat. Closed-loop 3500-WA tube-cooler – ultra quiet laboratory version			Modular Radiation Interface unit for dosimtry \$6,250.; Collimator set \$16,750.; additional beam filter set \$9,800.; automated dose control \$26,885.; Specimen platter rotation table \$2,575.; automated vector specimen shelf \$12,925. x-ray tube inversion options: quote	2 years warranty and service included	covered			<0.25 mR/hr R 5 cm	4500 lbs	

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Precision X-ray ¹	cells, mice, rats	MultiRad	225 kV/ up to 17.8 mA / 4000 watts	unfiltered 10-286 Gy/min depending on distance; filtered 1.3-42 Gy/min depending distance and filter type	stand alone-closed loop water cooled chamber size-23"x16"x17"			full automation \$27K-programmable motorized shelf, programmable adjustable collimator, and programmable automated filter selection; dose measurement system; digital imaging	1 yr				<0.5 mR/hr at 5 sm off external surfaces and <0.1 mR/hr at 10 cm	2550 lbs	
RadSource ³	cells, mice, rats	RS 2000	225 kV / 17.8 mA / 3000 watt or higher available	1.6-6.7 Gy/min animals; cells 5-10-17 Gy/min unfiltered	stand alone-self-contained cooling-RadPlus specimen holder for dose uniformity-chamber size- 17"x15"x17"			\$1500.00 larger capacity cooling system; integrated ion chamber for real time dosimetry \$5.3K; collimator kit \$3.4k; cages, etc.	1 yr				<0.5 mR/hr at 5 sm off external surfaces and <0.1 mR/hr at 10 cm	1450 lbs	
X-strahl ⁴	cells, mice, rats	CIX2	225 kV / 13.3 mA / 3000 watt	closed circuit water cooled; HT generator,	controller with touch screen panel; fully integrated; separate generator and heat exchanger.			video system \$806.; laser positioning \$1.9K; dose measuring system \$19.9K; varous filters nd collimators	1 yr				<0.2 mR/hr at 5 cm	2431 lbs plus generator and cooling equipment	
X-strahl ⁴	cells, mice, rats	CIXD	225 kV / 13 mA /3000 watt	2- 225 kV x-ray tubes- top and bottem of sample- inquire with vendor on dose rates	controller with touch screen panel; fully integrated; separate generator and heat exchanger.			video system \$806.; laser positioning \$1.9K; dose measuring system \$19.9K; varous filters nd collimators	1 yr				<0.2 mR/hr at 5 cm	4608 lbs plus generator and cooling equipment	
Kimtron ⁵	cells, mice, rats	IC-250	225 keV/5000 watts Polaris HV generator	>7.5 Gy/min at 30 cm with 2mm Al filter; unfiltered beam at 30 cm = >60 Gy/min	stand alone cabinet, chamber size- 38"x29"x29" x-ray tube case temperature monitoring to protect against overheat. Oil to air or oil or to building cooling water options for heat exchange.			Modular Radiation Interface unit for dosimtry \$6,250.; Collimator set \$16,750.; additional beam filter set \$9,800.; automated dose control \$26,885.; Specimen platter rotation table \$2,575.; automated vector specimen shelf \$12,925. x-ray tube inversion options: quote	2 years warranty and service included	covered			<0.25 mR/hr R 5 cm	4500 lbs	
Precision X-ray ¹	cells, mice, rats	225 series-XL quoted (iR, HP, XLD also available)	225 kV / 13.3 mA or 3000 watt (4500 watt is available)	unfiltered bean >12 Gy/min ; filtered beam 1-6.4 Gy/min	programmable exposure setings chamber size 14.75"x15"x22" standard			integrated dose measurement \$11.5K; hi power 4500 watt tube \$5.9K; imaging x-ray system OPTI Max \$79.5K	1yr				<0.5 mR/hr at 5 sm off external surfaces and <0.1 mR/hr at 10 cm	3000 lbs	

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Precision X-ray ¹	cells, mice, rats, rabbits, etc.	XRAD SmART	225 kV/3000 watt (or 4500 watt available)	Small Animal Radiation therapy System- unfiltered 6-11 Gy/min; filtered 1-5 Gy/min	Smart Pilot software and workstation; specimen positioning stage; rotational gantry; View camera, laser positioning;			Micro CT imaging option \$49.5K; OPTIMAX Luminescence imaging \$175K; collimation and treatment software; automated collimators & dosimetry options- see quote	1yr				<0.5 mR/hr at 5 sm off external surfaces and <0.1 mR/hr at 10 cm	4960 lbs	
Precision X-ray ¹	cells, mice, rats, rabbits, etc.	XRAD 320	320 kV/ 3000 watt or 4500 watt options	no filter >5 Gy/min with Cu filter 1-3 Gy/min	oil cooled- video monitoring of chamber, beam conditioning filters, pre-wired for option imaging equipment- chamber size- 41"x30"x35"			dose measurement \$11.5K; movable shelves \$4.7K, variable collimator \$16K, env. Chamber \$15K, x-ray imaging \$69.5K; laser cross hairs, pie cages, etc	1 yr				<0.5 mR/hr at 5 sm off external surfaces and <0.1 mR/hr at 10 cm	5020 lbs	
Precision X-ray ¹	cells, mice, rats, rabbits, etc	MultiRad 350 (used to be Faxitron)	350 kV / 11.4 mA / 4000 watt	unfiltered up to 140 Gy/min depending on distance; filtered 16.5-40 Gy/min depending distance and filter type- common distances results in 1-3 Gy/min	stand alone-closed loop heat exchanger- chamber size-23"x16"x17"			full automation \$27K-programmable motorized shelf, programmable adjustable collimator, and programmable automated filter selection; dose measurement system; digital imaging	1 yr				<0.5 mR/hr at 5 sm off external surfaces and <0.1 mR/hr at 10 cm	3470 lbs	
Kimtron ⁵	cells, mice, rats, rabbits, etc	IC-360	350 keV/5000 watts Polaris HV generator	2 beam conditioning filters - typical filtered dose rates 1-3 Gy/minute at 50 cm filtered; unfiltered beam >15 gray/min at 50 cm	stand alone cabinet, chamber size- 38"x29"x29" x-ray tube case temperature monitoring to protect against overheat. Oil to air or oil or to building cooling water options for heat exchange.			Modular Radiation Interface unit for dosimtry \$6,250.; Collimator set \$16,750.; additional beam filter set \$9,800.; automated dose control \$26,885.; Specimen platter rotation table \$2,575.; automated vector specimen shelf \$12,925. x-ray tube inversion options: quote	2 years warranty and service included	covered			<0.25 mR/hr R 5 cm	4500 lbs	
X-strahl ⁴	cells, mice, rats, rabbits, etc.	CIX3	320 kV / 10 mA / 3200 watt	oil cooled; 0.6-3.3 G/min filtered;	controller with touch screen panel; fully integrated; separate generator and heat exchanger.; chamber size: 23.4"x 25.6"x25.2"			video system \$806.; laser positioning \$1.9K; dose measuring system \$19.9K; flattening filters \$5.5k; collimators / turntable	1 yr				<0.2 mR/hr at 5 cm	3300 lbs plus generator and cooling equipment	

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					1. PRECISION X-RAY- 15 COMMERCE DRIVE, NORTH BRANFORD, CT 06471 note new prices as of 9/1/2018 due to merger have been provided E-MAIL: SALES@PXINC.COM Mr. Bill McLaughlin <wmclaughlin@pxinc.com> PHONE: 203-484-2011 WEBSITE: HTTP://WWW.PXINC.COM/										
					2. FAXITRON BIOPTICS has merged with Precision X-ray 8/1/2018 all MultiRad products talk with Robert Hase now with Precision GENERAL INQUIRIES: +1.520.399.8180 Mr. Robert Hase rhase@pxinc.com										
					3. RAD SOURCE TECHNOLOGIES 480 BROGDON RD. SUITE 500 SUWANEE, GA 30024 E-MAIL: RADAMS@RADSOURCE.COM Mr. Richard Adams PHONE: 815-477-1291 WEBSITE: HTTP://WWW.RADSOURCE.COM/										
					4. XSTRAHL INC. SUITE 300, 480 BROGDON RD., SUWANEE, GA 30024 t: (678) 765-8970 Ms. Linda Alfred LindaAlfred@xstrahl.com www.Xstrahl.com										
					5. KIMTRON, Inc 115 Hurley Road, Bldg. # 6 Oxford, CT 06478 (203) 262-3361 * Fax (203) 262-3373 pcawley@kimtron.com * www.kimtron.com Peter Cawley			* e-mail							