

Physical Characteristics	
Height	Floor to Top of Tube Head Column Extended – 2192mm (86.29 in.) Floor to Focal Spot Column Extended – 2058mm (81.00 in.) Floor to Top of Tube Head Column Docked - 1390 mm (54.72 in.) Floor to Top of Tube Head Column (lowest position)- 870 mm (34.25 in.)
Width	583 mm (23 in.)
Length	1260 mm (46.9 in.)
Weight	558 kg (1232 lb)
Drive handle height	933 mm (36.7 in.) Measured from Floor to Top of Handle
Wheels	Rear wheels: 330 mm (11 in.) diameter Front wheels: 150 mm (5.9 in.) diameter

X-ray Tube Movements	
Vertical focal spot position (from floor)	Central ray perpendicular to floor Minimum – 724 mm (28.5 in.) Maximum – 2058 mm (81.0 in.)  Central ray parallel to floor Minimum – 696 mm (27.4 in.)
Horizontal focal spot position (relative to column center)	Minimum – 857 mm (33.7 in.) Maximum – 1340 mm (52.8 in.)
Column rotation range	± 270 degrees (relative to dock position)
Tube angulation	Tube angulation (alpha) ≥ +180/-135 degrees relative to zero Tube rotation (tau) +90 to -20 degrees (where zero = tube positioning straight down)
Collimator rotation range	+/- 90 degrees

Drive Characteristics	
Drive type	Motorized, with individual motor for each drive wheel Motors provide forward/reverse drive as well as directional control
Speed (tube in dock)	Forward: 0 to 5.8 kmh (0 to 3.6 mph) ±15% Reverse: 0 to 2.5 kmh (0 to 1.5 mph) ±15%
Maximum incline	Ability to drive up or down incline of ≤ 7 degrees (when tube is in docked position)
Automatic brake	Yes

<b>Electrical/Charge Capacity</b>	
Battery Type	Yuasa
Number of batteries	20
Type	Lead-acid
Nominal voltage	12-volt
Capacity	12 Amp-hour
Typical charge time	100% battery charge in ≤ 4 hours (start from 2 LED indicators on battery level indicator, w/ new batteries) 100% battery charge in ≤ 5.5 hours (start from no LED indicators on battery level indicator, w/ new batteries)
Typical usage capacity	The battery life allows for driving 2.4 km (1.5 mi.) and 120 exposures without charging. This assumes fully charged batteries and exposure technique factors of 70kV @ 10 mAs. Typical use time is very subjective based on many factors, including amount of exposures, energy of exposures, travel time and distance, and battery management.
Charger power requirement	110 / 240 VAC (nominal), 50/60 Hz

<b>Collimator</b>	
Manual collimator	Ralco R104 Series, Model 108 DHHS, Customization 237 Manual shutter control
Light output	≥200 LUX at 100 cm (39.4 in.)
Lamp type	LED
X-ray proofing	< 40 mR/h with X-ray beam = 150 kVp/4 mA. EN 60601-1-3 par. 29.204.3
Inherent filtration	2.0 mm Al at 75 kV
Rotation	±90 degrees
Filter Wheel (optional)	4 position: 0 mm Al, 2 mm Al, 1 mm Al + 0.2 mm Cu, 1 mm Al + 0.1 mm Cu
Other	Collimator complies with EN60601-1, EN60601-1-1, EN60601-1-3, UL2601, and CAN/CSA C22.2 No. 601.1.M90. and EN60825-1.

<b>X-ray Tube</b>	
X-ray tube type	Canon XRR-3336X
Tube voltage range	40-150 kV
Nominal focal spot size	0.6 and 1.2 mm focal spots
Nominal anode input power at 0.1s (IEC 60613)	Small (0.6mm) - 50 HZ ( 16.5 kW) 60 HZ (19.5 kW) Large (1.2mm) – 50 HZ (40.0 kW) 60 HZ (43.2 kW)
Target diameter	74 mm
Target angle	14 degrees
Target material	Rhenium-Tungsten faced Molybdenum
Heat storage capacity of anode	210 kJ (300,000 HU)
Anode Speed	50 HZ (2700 RPM) 60 HZ (3200 RPM)
Maximum heat content of tube assembly	750 kJ (1056 kHU)
Maximum housing continuous heat dissipation	150 W (13 kHU/min)
Inherent filtration of complete assembly	0.9 mm Al at 70 kV IEC60522:1999
Loading factors for leakage radiation	150 kV, 3.4 mA
High voltage connector type	Claymount mini-75
Other	X-ray tube assembly complies with IEC60601-1:2005 +A1:2012 (Ed3.1), IEC60601-2-28:2017

<b>X-ray Generator</b>	
Model	Manufactured by Carestream Model CGN-32-M
Maximum power output	32.25 kW (for exposures $\leq 20$ ms), 16 kW up to 100 ms, 15 kW up to 2800 ms. Maximum output power is achieved at 129 kV at 0.8 to 5 mAs.
Generator type	High-frequency ( $> 200$ kHz) output with digital feedback control circuitry
Technique type / range	2 point (kV and mAs only) kV: 40 to 150, in 1 kV increments mAs: 0.1 to 320 Time (ms): 3 to 2,800 (not user selectable) mA: 25 to 400 (not user selectable) mA steps = 25, 50, 100, 120, 150, 180, 250, 320, 400
Power requirement	Battery powered, 240 Vdc (+20%, -10%)
kV Accuracy	$\pm (5\% + 1)$ kV, $\pm (2\% + 1)$ kV between 70-85 KV (measured 5ms after the beginning of the exposure)
kV ripple	$\pm (4\%)$ p-p over the full operating range (for ripple frequency $\geq 10$ kHz)
kV rise time (10 – 90%)	$< 2.0$ ms (typically $< 1.5$ ms)
mAs Accuracy	$\pm(10\% + 0.20)$ mAs: $> 0.5$ mAs $\pm(10\% + 0.5)$ mAs: 0.1 mAs–0.5 mAs
Coefficient of Linearity	0.1 (Station to Station) for exposures $\geq 25$ mA or 3.2ms
Coefficient of Reproducibility	$\leq 0.05$ for kVp and mAs parameters
Rotor Type	Low-speed, “R” type
Protection	X-ray tube: <ul style="list-style-type: none"> <li>• Maximum mA, kW and filament current, for each focal spot.</li> <li>• Maximum kVp, adjustable for the installed tube</li> </ul> Generator: <ul style="list-style-type: none"> <li>• kV over/under voltage, mA over/under current.</li> <li>• Rotor failures (over/under current, failures)</li> </ul>

<b>Imaging Station-Preview Monitor</b>	
Type/size	Primary: <ul style="list-style-type: none"> <li>• Liquid Crystal Display (LCD), thin film transistor (TFT), 48.3 cm (19 in.)</li> </ul> Secondary (Tube Head Display): <ul style="list-style-type: none"> <li>• Liquid Crystal Display (LCD), thin film transistor (TFT), 21.0 cm (8.4 in.)</li> </ul>
Display resolution	Primary: 1280 x 1024, 60 or 75Hz Secondary: 800 x 600, 60 or 75Hz

Viewing Angle	Primary: 178°/178° (Horizontal / Vertical) Contrast Ratio = 10 Secondary: 160°/140° (Horizontal / Vertical) Contrast Ratio ≥10
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Imaging Station	
Single console integrating exposure control, detector control, and image output	Software, image processing, and DICOM output by Carestream Health Computer manufactured: Hewlett Packard <ul style="list-style-type: none"> <li>• Intel Core I5 10500T 2.3 – 3.8 GHz</li> <li>• OS: Windows 10</li> <li>• Memory 16GB</li> <li>• I/O 7 USB ports, 2x DisplayPort, 2 Ethernet</li> </ul>
Console Start-up Time	Off → Ready to Use: 1min 46sec Reboot → Ready to Use: 2min 6sec
Patient data entry	Touch-screen monitor; bar code or DICOM work list through HIS/RIS (optional)
Selection of exposure	Exposure techniques can be set manually or by anatomical programming for a variety of examination views
Image storage capacity	Up to 15000* images can be saved for retransmission or reprocessing. Images can be protected; otherwise they are reclaimed on a FIFO (first in, first out) basis. Images can be saved to removable media; CD or USB drive. *based on 500GB Solid State Drive
DICOM 3.0 compliance	DICOM Work List: Comply (option); DICOM Store: Comply; DICOM Print: Comply; DICOM Modality Performed Procedure Step (option); DICOM Store Commit: Comply
Image data output	12-bit log, 14.6 MB
Other components	<ul style="list-style-type: none"> <li>• Interfaces with the detector and the x-ray exposure equipment while providing upstream and downstream connectivity to acquire and transmit patient, exam, and image data in digital format.</li> <li>• Preview image is available in &lt;4 seconds total cycle time (processing speed) is &lt;20 seconds.</li> </ul> <p><b>Acquisition and distribution of data</b></p> <ul style="list-style-type: none"> <li>• Operator input: log on/log off; patient demographics (add / edit patients); patient accession number, study selection; search by patient name, ID, or visit number; output setup selection (workstations, archives, printers); RIS interface to acquire patient demographic</li> </ul>

<b>Imaging Station</b>	
	<p>and exam data (optional); and auto transmission of patient/exam/image data.</p> <p><b>Exposure and image capture</b></p> <ul style="list-style-type: none"> <li>Exposure factors for each exam view (programmed default factors with manual overrides; small/medium/large patient size selection; manual technique selection, tube warm-up capability, detector calibration)</li> </ul> <p><b>Acquire and process digital images</b></p> <ul style="list-style-type: none"> <li>Optimize grayscale display and apply examination specific nonlinear edge enhancement with built-in perceptual tone-scale processing (PTS).</li> <li>Optional EVP (enhanced visualization image processing) software is available.</li> <li>Display preview image (apply image cropping; apply image multi-formatting; add image markers, flip and rotate image, enter technologist comments; accept/reject image).</li> </ul> <p><b>Administrative</b></p> <ul style="list-style-type: none"> <li>System administrative (create/modify user logon and password; create/modify output printer configurations; manage image output queue; re-send image output; manage local database [view/delete patient image files]; protect selected patient/image files from reclamation; create/modify technologist comments; perform detector array calibration; generate test pattern images for output device QC).</li> <li>Remote diagnostic service capability via internet connection.</li> </ul> <p><b>Supported image outputs</b></p> <p>Supports output interfaces including DICOM Storage Service Class, DICOM Work List, and DICOM Print Service Class.</p>
Network communications	DRX-Revolution can communicate to the facility network thru a standard Ethernet connection or via a built-in wireless access point.

<b>Operator Console to Hospital Network Wireless</b>	
Network Protocol	TCP/IP
Network Type	Wireless LAN (WLAN)
Wireless Protocol	802.11 a/b/g/n
Frequency Band	2.4 GHz and 5 GHz
IP Addressing	DHCP or Static IP for wireless or wired connection
Client Adapter Model	Intel AX201NGW

<b>Security</b>	
Authentication	<p>EAP-PEAP-MS-CHAPv2 EAP-LEAP EAP-PSK</p> <p>The configuration with PEAP authentication is acceptable for use in the field.</p> <p>Please note that the use of the certificate file, to store authentication data, will require a CSH service engineer to connect to the system (either on site or remotely) to update the file.</p> <p>Please note that if the hospital changes the authentication specifics or the issued certificate expires on their network side, without making the necessary changes to the certificate file, the wireless communication to the hospital may stop functioning requiring a service call to connect.</p> <p>Authentication methods that require user-entered credentials at every login are not supported.</p>
Standard Grade Data in Transit (DIT) Wireless Encryption	WPA2-Enterprise or Personal with AES or TKIP
Military Grade FIPS Data in Transit (DIT) Wireless Encryption to Detector (Optional Accessory)	Meets U.S. National Institute of Standards Technology (NIST) Federal Information Processing Standard (FIPS) 140-2 Level 1
Intrusion Detection / Prevention System	Agent runs on console to prevent unauthorized processes or services from running

<b>Dose Area Product Meter (Optional Accessory)</b>	
Type	VacuTec — model VacuDAP 158 00 1
Upper limit of response range	0.8 nC/cGy-cm <sup>2</sup> (800 pC/μGy-m <sup>2</sup> ) 0.92 nC/cGy-cm <sup>2</sup> (920 pC/μGy-m <sup>2</sup> ) (w/additional absorber 0.5 mm Al)
Energy range	40 to 150 kV
Leakage Current	≤ 0.1 pA
Chamber filter effect	0.2 mm Al (70 kV) 0.25 mm Al (100kV)

<b>Encrypted Hard Drives (Optional Accessories)</b>	
Standard Grade Data at Rest (DAR) Hard Drive Encryption	Meets U.S. National Institute of Standards Technology (NIST) Federal Information Processing Standard (FIPS) 197, Advanced Encryption Standard (AES) 256



**“Rx only”**