

DEL MEDICAL

MDR

MOBILE DIGITAL RADIOGRAPHIC SYSTEM



Cart Size and Positioning

Width (transport position):	22.7" (57.6 cm)
Length (transport position):	46.2" (117.3 cm)
Height (transport position):	53.3" (135.4 cm)
Transport handle height:	35" (89 cm)
Tube positioning:	Friction locks for quiet operation
Focus-ground distance:	27.2" to 80.5" (69 cm to 204.5 cm)
Max height:	85.7" (217.7 cm)
Arm extension (telescopic):	14.2" (36 cm)
Front range:	28" to 42" (71 cm to 107 cm)
Lateral range:	20" to 34.5" (51.7 cm to 87.7 cm)
Rotation of x-ray tube head:	A-swivel, $\pm 180^\circ$ B-swivel, $\pm 320^\circ$ (from transport position) C-swivel, 127° (90° forward, 37° backward)
Weight (batteries included):	959lbs. (435 kg)
Apron hook:	Included on column
Bin for wipes:	Built-in

Drive

Speed forward (transport position):	0 - 3 MPH (0 - 1.4 m/s)
Speed forward (working position):	0 - 1.6 MPH (0 - 0.72 m/s)
Speed backwards:	0 - 1.6 MPH (0 - 0.72 m/s)
Inching feature:	Allows positioning at bedside from the tube head for subtle forward, backward, right and left movement
Adaptive speed handle:	Adjusts to walking speed
Transport handle height:	35" (89 cm)
Maximum incline:	12°
Front wheel:	4.9" (12.5 cm) diameter / damped, antistatic
Rear wheel:	11.8" (30 cm) diameter / antistatic
Features:	- Fail-safe stop when handle is released - Anti-collision sensor across front

DR Workstation

Operating system:	Windows 10 Pro 64-bit
Processor:	2.3 GHz Intel Core i5
Storage:	500 GB SSD
Memory:	8 GB RAM
Display:	19" touchscreen monitor

DR Detectors

Compatible integrated DR detectors:	DELWORKS E-Series 14" x 17" and 24 cm x 30 cm size detectors
Battery:	Two (2) batteries included w/ detector
Charger:	Three (3) bay battery charger included / Trickle charger included in detector storage bin
Features:	- Additional room for multiple detectors and grid cap in storage bin - Trickle charge cable charges while powered on

X-ray

Maximum generator power:	40 kW (400 mA @ 100 kV)
Inverter high-voltage frequency:	40 kHz
Max ripple:	<2% @ 100 kV
Climbing time:	<1 ms @ 100 kV
kV variation range:	40 - 130 kV in steps of 1 kV
kV accuracy:	±5% (IEC 60601-2-54)
mA variation range:	70 - 400 mA automatically associated to kV
mA accuracy:	±10% (IEC 60601-2-54)
mAs variation range:	0.1 - 320 mAs with increases of 12.5%
mAs precision:	±10% (IEC 60601-2-54)
Exposure times range:	0.001 - 3 sec according to set mAs
Exposure times accuracy:	±10% (IEC 60601-2-54)
Continuous input anodic power:	120 W
mAs range per kV:	Small focus (40 - 130 kV / 0.1 - 200 mAs) Large focus (40 - 130 kV / 0.63 - 320 mAs)
Exposure control:	Wired handswitch (Included) Remote handswitch (Optional) - Operates via line of sight IR - Works through glass and leaded glass - Range 10 m (34 ft) +

Tube

Thermal capacity of anode:	300 kHU (225 kJ)
Nominal focus dimensions (IEC 60336):	0.6 mm small focus / 1.2 mm large focus
Anodic angle:	12.5°
Maximum voltage at the tube:	150 kV
Maximum continuous anode dissipation:	500 W

Collimator

Model:	Ralco R108 F
Collimation:	Manual with internal light source, multilayer squared field
Assembly plan from focus:	3.14" (80 mm)
Coverage of the field at 40" (100 cm) SID (FFD)	Minimum (0' x 0') / Maximum (17" x 17" (43 cm x 43 cm))
Lighting source:	Clusters of high-brightness LED power
Centering and SID:	Double laser line for 1 m (39.4") SID definition
Lamp lighting time:	30 seconds
Light intensity (IEC 60601-2-54):	> 160 lux
Minimum contrast ratio (IEC 60601-2-54):	4:1
Focal distance measurement:	Retractable tape measurer (max extension 3 m)
Inherent filtration:	2 mm equivalent Al/75 kV
Rotation:	± 120°

Filtration

Tubehead assembly:	1.5 mmAl @ 75 kV
Collimator:	2.0 mmAl @ 75 kV
Total filtration of tubehead assembly:	3.5 mmAl @ 75 kV
Additional filtration of DAP meter:	0.3 mmAl @ 75 kV (if DAP option is present)
Total filtration:	3.8 mmAl @ 75 kV

Batteries

Battery type:	Maintenance free lead acid AGM (x13)
Power voltage:	12 V / 18 Ah each; 156 V / 235 Ah total
Battery function:	Drive and exposure
Battery life:	8 hours when fully charged - movement and imaging
Charging time:	5 hours standard
Safety shutoff:	Temperature / overvoltage / charge timeout
Battery status:	- Charging animation (charging in progress) - Solid (charging complete)

Input Power for Charging

Input power:	115 / 230 VAC ±10%, standard single phase and ground
Frequency:	50 / 60 Hz ±5 Hz
Power requirements:	10 A @ 125 VAC
Absorbed current:	10 A
Line compensation:	Automatic
Line resistance:	<1 Ω @ 115 VAC
Power supply cable:	9.5' (2.9 m), retractable

External Interfaces

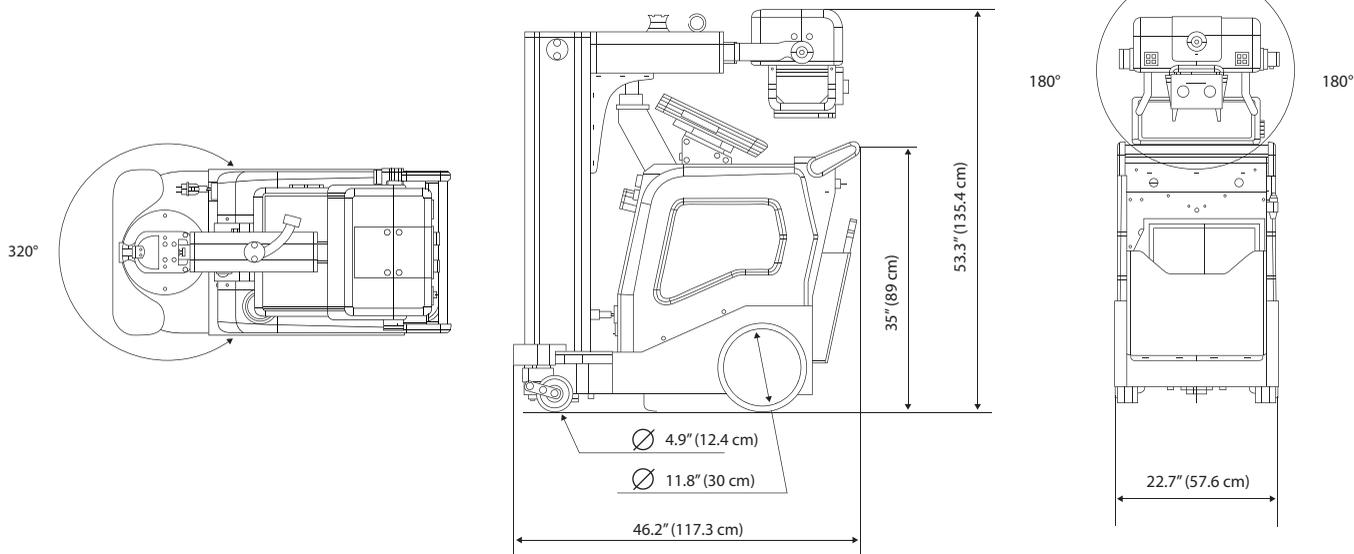
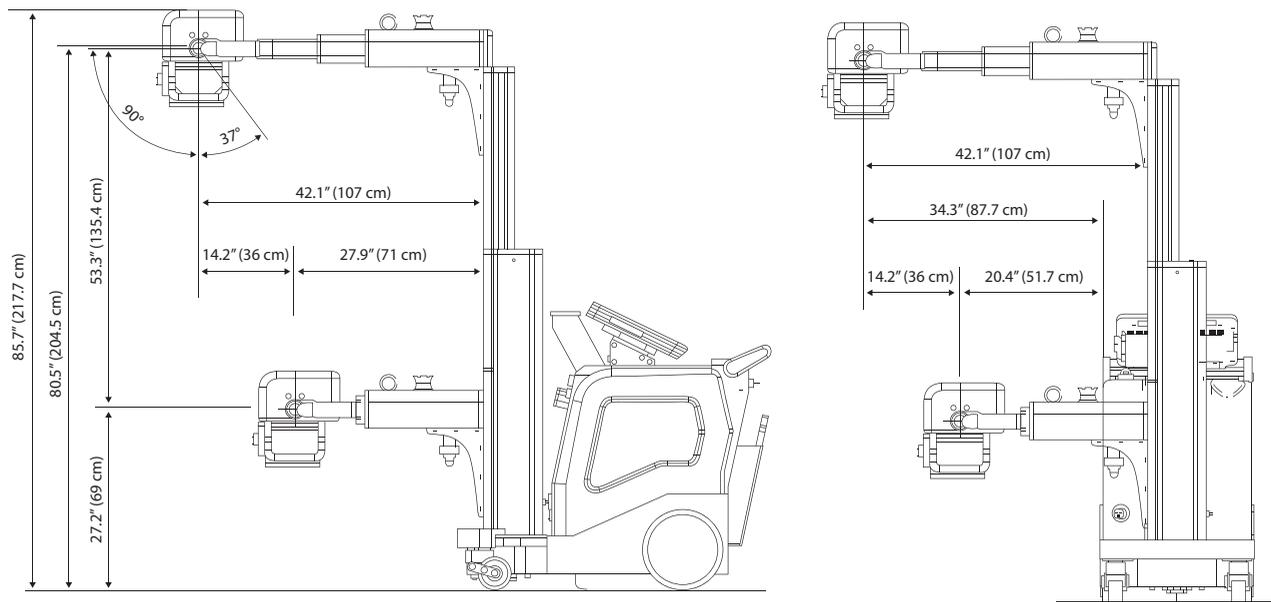
- AC power
- USB
- Ethernet
- Exposure handswitch
- Bucky

Safety Features

- Emergency stop (back right corner of mobile unit)
- Front bumper collision sensor
- Drive system deadman switch (drive bar activated)
- Removable key to prevent operation
- Circuit breaker to prevent power surge (on at all times)
- Drive system manual release enables pushing MDR if batteries are fully discharged
- Safety shutdowns
 - Filament current
 - Tubehead temperature
 - Overloading
 - Max kV or fault in HV
 - Check of stored data
 - Microcontrollers auto-test
 - Battery overvoltage
- Use coefficient (duty-cycle) according to the applied power waiting $t = kV * mAs / 100 (s)$

Environmental Conditions

	Operating	Storage / Transport
Temperature	50°F - 104°F (10°C - 40°C)	-13°F - 158°F (-25°C - 70°C)
Relative Humidity	30% - 75% non-condensing	10% - 90% non-condensing
Pressure	700 hPa - 1060 hPa	500 hPa - 1060 hPa



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