

# SHIMADZU

# PRODUCT DATA

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## RADspeed Pro

style edition Automatic Type

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### GENERAL

RADspeed Pro Automatic Type is a radiographic system that provides a comfortable examination environment for operator and patient alike.

The TM and ® symbols are omitted in this document.

## FEATURES

### (1) System layout

This system combines an X-ray high voltage generator, X-ray tube assembly, collimator, X-ray tube support, and if necessary, X-ray radiography table and/or X-ray radiography stand.

The abundant combination of system components allows a variety of system configurations according to the intended applications.

### (2) 50kHz Inverter system

Stable X-ray output and superior response are the key to obtaining high image quality at low exposure levels. Shimadzu achieves high image quality by using superior high-frequency inverter technology to reduce unwanted exposure from low-energy X-rays and by inhibiting voltage ripple in the X-ray tube to provide quick start-up characteristics.

### (3) Color-coded Status Indicator

The console panel indicates the status of the X-ray generator using color perimeter display with audible sound. The hand switch also lights up to indicate 'Ready' and 'Exposure' status.

This feature allows the operator to concentrate on patient care:

- Infant and frail elderly patients who need constant attention
- Split-second timing is required for patients who have difficulty holding their breath.
- Quick positioning and image capture

### (4) 800 kinds Advanced APR

Up to 800 Anatomical Programs can be registered on the system. Registering the conditions as programs associated with examination area and technique allows conditions to be set up smoothly.

Up to 7 different directions can be stored in each technique key. This feature is particularly effective for orthopedic surgery which requires exposures from several different directions.

### (5) Bucky tracking function (option)

Easily synchronize the travel of a bucky unit with the X-ray tube support position. This function is also available in oblique projection.

### (6) Auto Positioning (option)

The auto-positioning feature is interlocked with the APRs. This function moves the ceiling-mounted X-ray tube support to any desired position at the press of a single button and can automatically set the X-ray tube angle.

### (7) Auto-Filtering

When the APR is selected, the collimator filter also switches. Using the filter preset for each APR, such as the extremities or abdomen, minimizes unnecessary exposure to obtain high-quality radiographic images at the optimal X-ray dose.

### (8) Rubber-Cushioned Collimator

The perimeter of the collimator emission port is covered with rubber to cushion the impact if a patient bumps into the collimator.

### (9) Energy saving collimator with a bright irradiation field

LED is adopted as the light source to indicate the irradiation field. This reduces power consumption and improves brightness levels and durability.

### (10) Dose Management

A calculated Dose Area Product is available. After the exposure, the calculated Dose Area Product, based on the actual exposure parameters, is displayed.

The measured exposure parameters and calculated Dose Area Product can be displayed on a Generator console and sent to RIS/PACS system.

### (11) Removable Grid

Removing the grid during radiography allows reducing the exposure dose level in pediatric and orthopedic applications. Radiography is also possible using phototimer.

### (12) Heavy Duty 4-way floating table

The bucky table can support up to 295kg. Patient positioning is made easier with the extremely smooth-moving tabletop. Only longitudinal slide is available using dedicated switch.

### (13) Upgradable to DR system

The DR<sup>\*)</sup> system significantly improves diagnostic accuracy and workflow.

<sup>\*)</sup> The DR system is not a component of RADspeed Pro. Please use one belonging to your facility.

### (14) Speed Shot (option)

The anode of 0.6/1.2P326D-150 and 0.6/1.2P366D-150 type X-ray tubes can start up within 0.8 sec. This permits rapid radiography by halving the time required to prepare for exposures in comparison with previous models.

### (15) POWER GLIDE (option)

The POWER GLIDE assists your manual positioning of X-ray tube by motors and makes it light. It reduces technologists' burdens and increase patient throughput. The assist level can be selected from three levels.

## SYSTEM CONFIGURATION

The RADspeed Pro Automatic consists of X-ray high-voltage generator, X-ray tube assembly, collimator, and X-ray tube support and if necessary, X-ray radiography table and/or X-ray radiography stand.

### System configuration and accompanying documents

| Component                            | Model Name  |
|--------------------------------------|---|
| Whole system                         | RADspeed Pro  |
| X-ray high voltage generator         | 80kW 2 tubes type:<br>Operation Panel: GSC-2002L<br>Control cabinet: D150BC-40<br>80kW 1 tube type:<br>Operation Panel: GSC-2002L<br>Control cabinet: D150BC-41<br>65kW type:<br>Operation Panel: GSC-2002L<br>Control cabinet: D150VC-41<br>50kW type:<br>Operation Panel: GSC-2002L<br>Control cabinet: D150LC-41 |
| X-ray tube assembly                  | 0.6/1.2P326D-150, 0.6/1.2P366D-150  |
|                                      | 0.6/1.2P324DK-85, 0.6/1.2P364DK-85  |
|                                      | 0.6/1.2P164DK-85  |
|                                      | 0.6/1.2P323DK-85  |
|                                      | 0.6/1.2P38DE-85, 0.6/1.2P33DK-85  |
|                                      | 0.6/1.2P18DE-85, 0.6/1.2P13DK-85  |
|                                      | 1/2P18DK-85, 1/2P13DK-85  |
|                                      | 0.3/0.8P324DK-85  |
|                                      | 0.3/0.8P323DK-85  |
|                                      | 0.3/0.8P18DK-85   |
| Ceiling suspended X-ray tube support | CH-200  |
| X-ray Bucky stand                    | BR-120T   |
|                                      | BR-120  |
| X-ray Bucky table                    | BK-200  |
| X-ray Collimator                     | R-300   |

**SPECIFICATIONS**
**X-Ray High Voltage Generator**
**80kW type / 65kW type / 50kW type**

| Item  |                 |   | Specifications   |
|---|-----------------|---|--|
| Radiography technique   |                 |   | General radiography, Bucky radiography, Digital radiography  |
| Number of connectable X-ray tubes   |                 |   | 80kW type: 2 tubes or 1 tube<br>Others: 1 tube   |
| Setting range<br>*1 *2  | Radiography     | Tube voltage                                      | 40 to 150kV  |
|   |                 | Tube current                                      | 80kW type : 10 to 1,000mA<br>65kW type : 10 to 800mA<br>50kW type : 10 to 630mA  |
|   |                 | mAs   | 0.5 to 800 mAs   |
|   |                 | Time  | 0.001 to 10 sec  |
|   |                 | Nominal supply voltage (50/60Hz)                  |  |
| Power input   |                 |   | 80kW type, 65kW type :<br>3-phase AC: 120kVA<br><br>50kW type : 3-phase AC: 80kVA or single-phase AC: 95kVA  |
| Rated output  |                 |   | 80kW type : 80kW (100kV, 800mA)<br>65kW type : 65kW (100kV, 650mA)<br>50kW type : 50kW (100kV, 500mA)<br><br>Product of tube voltage and max. current that can flow in 0.1s at 100kV tube voltage  |
| Short-time rating *1  |                 |   | 80kW type : 150kV 500mA, 125kV 630mA, 100kV 800mA, 80kV 1000mA<br><br>65kW type : 150kV 400mA, 125kV 500mA, 100kV 650mA, 80kV 800mA<br><br>50kW type : 150kV 320mA, 125kV 400mA, 100kV 500mA, 80kV 630mA   |
| Nominal max. tube voltage and max. tube current that can flow at nominal max. tube voltage *1 |                 |   | 80kW type : Short-time rating: 150kV 500mA<br>Long-time rating: 125kV 12mA<br>65kW type : Short-time rating: 150kV 400mA<br>Long-time rating: 125 kV 9mA<br>50kW type : Short-time rating: 150kV 320mA<br>Long-time rating: 125kV 9mA                                    |
| Max. tube current and max. tube voltage to achieve max. tube current *1                       |                 |   | 80kW type : Short-time rating: 80kV 1000mA<br>Long-time rating: 75kV 20mA<br>65kW type : Short-time rating: 80kV 800mA<br>Long-time rating: 125kV 9mA<br>50kW type : Short-time rating: 80kV 630mA<br>Long-time rating: 125kV 9mA  |
| Tube voltage and tube current combination for max. electrical output *1                       |                 |   | 80kW type : Short-time rating: 80kV 1000mA, 100kV 800mA<br>Long-time rating: 75kV 20mA, 125kV 12mA<br>65kW type : Short-time rating: 100kV 650mA<br>Long-time rating: 125kV 9mA<br>50kW type : Short-time rating: 80kV 630mA, 100kV 500mA<br>Long-time rating: 125kV 9mA |
| Dimensions  | Operation panel | 308(W) x 345(H) x 82(D)mm                         |  |
|   | Control cabinet | 700(W) x 1830(H) x 400(D)mm                       |  |
| Mass  | Operation panel | 2.5kg   |  |
|   | Control cabinet | 80kW type, 65kW type : 250kg<br>50kW type : 240kg |  |

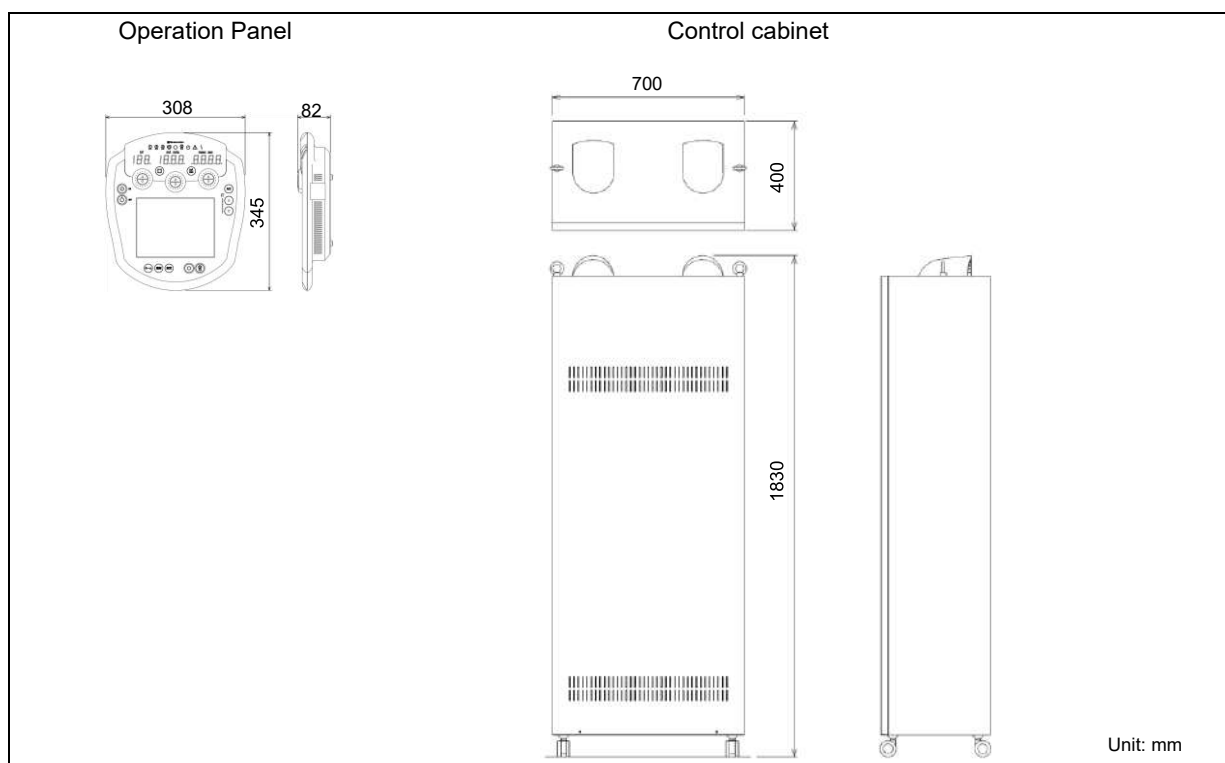
\*1: Specifications are limited according to the X-ray tube type.

\*2: The various conditions are as follows (conform to IEC-standards):

Tube voltage (within +/-10 %), Tube current (within +/-20 %)

mAs within +/- (10 % + 0.2 mAs), Time within +/- (10 % + 1 ms)

## DIMENSIONS



## Options

| Item                                       | Specifications   |
|--|--|
| Direct phototimer (AEC) Radiography option | Combination with a Shimadzu receiver permits phototimer(AEC) radiography. The following types can be used:<br>Xe detector-type phototimer receiver (SPT-XD series)<br>Number of pick up fields: 1/3/4(3 types)<br>Permitted combination: up to three receivers |
| Communication Unit                         | Permits communication of radiographic conditions with DR (Third party) unit  |

## X-Ray Tube Assembly

### 0.6/1.2P326D-150 & 0.6/1.2P366D-150

| Item   |                                       |                    | Specifications                                   |             |
|--|---------------------------------------|--------------------|--|-------------|
| Nominal X-ray tube voltage                   |                                       | Long-time          | 125kV  |             |
|  |                                       | Short-time         | 150kV  |             |
| X-ray tube assembly                          | Max. heat content                     |                    | 1100kJ (1600kHU)                                 |             |
|  | Nominal continuous input power        |                    | 470W (660HU/s) (with fan)                        |             |
| X-ray tube                                   | Max. anode heat content               |                    | 424kJ (600kHU)                                   |             |
|  | Max. anode heat dissipation rate      |                    | 2000W (2820HU/s)                                 |             |
|  | Max. continuous heat dissipation rate |                    | 300W (420HU/s)                                   |             |
| Nominal focal spot                           |                                       |                    | 0.6mm  | 1.2mm       |
| Nominal anode input power<br>(0.1sec, 180Hz) |                                       | 326D               | 38kW   | 96kW        |
|  |                                       | 366D               | 24kW   | 65kW        |
| Anode Target                                 |                                       | Material           | Rhenium-tungsten faced molybdenum                |             |
|  |                                       | Angle/<br>diameter | 326D   | 12° / 100mm |
|  |                                       |                    | 366D   | 16° / 100mm |
| Minimum total Filtration                     |                                       |                    | 1.7mm Al / 75kV (including added filter)         |             |
| Permanent Filtration                         |                                       |                    | 1.0mm Al / 75kV                                  |             |
| X-ray radiation field                        |                                       | 326D               | 430 x 430mm at SID 1m                            |             |
|  |                                       | 366D               | 350 x 350mm at SID 0.65m (538 x 538mm at SID 1m) |             |
| Mass (w/o Support ring and Fan)              |                                       |                    | 22kg   |             |

**0.6/1.2P324DK-85 & 0.6/1.2P364DK-85**

| Item                                      |                                       | Specifications                           |             |
|---|---------------------------------------|--|-------------|
| Nominal X-ray tube voltage                | Long-time                             | 125kV                                    |             |
|   | Short-time                            | 150kV                                    |             |
| X-ray tube assembly                       | Max. heat content                     | 1100kJ (1600kHU)                         |             |
|   | Nominal continuous input power        | 470W (660HU/s) (with fan)                |             |
| X-ray tube                                | Max. anode heat content               | 280kJ (400kHU)                           |             |
|   | Max. anode heat dissipation rate      | 1600W (2200HU/s)                         |             |
|   | Max. continuous heat dissipation rate | 300W (420HU/s)                           |             |
| Nominal focal spot                        |                                       | 0.6mm                                    | 1.2mm       |
| Nominal anode input power (0.1sec, 180Hz) | 324DK                                 | 38kW                                     | 92kW        |
|   | 364DK                                 | 24kW                                     | 65kW        |
| Anode Target                              | Material                              | Rhenium-tungsten faced molybdenum        |             |
|   | Angle/diameter                        | 324DK                                    | 12° / 100mm |
|   |                                       | 364DK                                    | 16° / 100mm |
| Minimum total Filtration                  |                                       | 1.7mm Al / 75kV (including added filter) |             |
| Permanent Filtration                      |                                       | 1.0mm Al / 75kV                          |             |
| X-ray radiation field                     | 324DK                                 | 350 x 350mm at SID 1m                    |             |
|   | 364DK                                 | 350 x 350mm at SID 0.65m                 |             |
| Mass (w/o Support ring and Fan)           |                                       | 21kg                                     |             |

**0.6/1.2P164DK-85**

| Item                               |                                       | Specifications                           |        |
|------------------------------------|---------------------------------------|--|--------|
| Nominal X-ray tube voltage         | Long-time                             | 125kV                                    |        |
|                                    | Short-time                            | 150kV                                    |        |
| X-ray tube assembly                | Max. heat content                     | 1100kJ (1600kHU)                         |        |
|                                    | Nominal continuous input power        | 470W (660HU/s) (with fan)                |        |
| X-ray tube                         | Max. anode heat content               | 280kJ (400kHU)                           |        |
|                                    | Max. anode heat dissipation rate      | 1600W (2200HU/s)                         |        |
|                                    | Max. continuous heat dissipation rate | 300W (420HU/s)                           |        |
| Nominal focal spot                 |                                       | 0.6mm                                    | 1.2mm  |
| Nominal anode input power (0.1sec) | 50Hz                                  | 12.7kW                                   | 34.3kW |
|                                    | 60Hz                                  | 13.8kW                                   | 37.3kW |
| Anode Target                       | Material                              | Rhenium-tungsten faced molybdenum        |        |
|                                    | Angle/diameter                        | 16° / 100mm                              |        |
| Minimum total Filtration           |                                       | 1.7mm Al / 75kV (including added filter) |        |
| Permanent Filtration               |                                       | 1.0mm Al / 75kV                          |        |
| X-ray radiation field              |                                       | 350 x 350mm at SID 0.65m                 |        |
| Mass (w/o Support ring and Fan)    |                                       | 21kg                                     |        |

**0.6/1.2P323DK-85**

| Item                                      |                                       | Specifications                           |       |
|---|---------------------------------------|--|-------|
| Nominal X-ray tube voltage                | Long-time                             | 125kV                                    |       |
|   | Short-time                            | 150kV                                    |       |
| X-ray tube assembly                       | Max. heat content                     | 1100kJ (1600kHU)                         |       |
|   | Nominal continuous input power        | 470W (660HU/s) (with fan),               |       |
| X-ray tube                                | Max. anode heat content               | 210kJ (300kHU)                           |       |
|   | Max. anode heat dissipation rate      | 1200W (1690HU/s)                         |       |
|   | Max. continuous heat dissipation rate | 250W (350HU/s)                           |       |
| Nominal focal spot                        |                                       | 0.6mm                                    | 1.2mm |
| Nominal anode input power (0.1sec, 180Hz) |                                       | 38kW                                     | 92kW  |
| Anode Target                              | Material                              | Rhenium-tungsten faced molybdenum        |       |
|   | Angle/diameter                        | 12° / 100mm                              |       |
| Minimum total Filtration                  |                                       | 1.7mm Al / 75kV (including added filter) |       |
| Permanent Filtration                      |                                       | 1.0mm Al / 75kV                          |       |
| X-ray radiation field                     |                                       | 350 x 350mm at SID 1m                    |       |
| Mass (w/o Support ring and Fan)           |                                       | 21kg                                     |       |

**0.6/1.2P38DE-85 & 0.6/1.2P18DE-85**

| Item                       |                                | Specifications               |  |
|----------------------------|--------------------------------|------------------------------|--|
| Nominal X-ray tube voltage | Long-time                      | 125kV                        |  |
|                            | Short-time                     | 150kV                        |  |
| X-ray tube assembly        | Max. heat content              | 1100kJ (1600kHU)             |  |
|                            | Nominal continuous input power | 235W (330HU/s) (without fan) |  |

| Item                                  |                                       | Specifications                           |       |
|---------------------------------------|---------------------------------------|--|-------|
| X-ray tube                            | Max. anode heat content               | 140kJ (200kHU)                           |       |
|                                       | Max. anode heat dissipation rate      | 640W (900HU/s)                           |       |
|                                       | Max. continuous heat dissipation rate | 210W (300HU/s)                           |       |
| Nominal focal spot                    |                                       | 0.6mm                                    | 1.2mm |
| Nominal anode input power<br>(0.1sec) | 50Hz (18DE)                           | 18kW                                     | 48kW  |
|                                       | 60Hz (18DE)                           | 21kW                                     | 53kW  |
|                                       | 180Hz (38DE)                          | 37kW                                     | 85kW  |
| Anode Target                          | Material                              | Rhenium-tungsten faced molybdenum        |       |
|                                       | Angle/diameter                        | 12° / 100mm                              |       |
| Minimum total Filtration              |                                       | 1.7mm Al / 75kV (including added filter) |       |
| Permanent Filtration                  |                                       | 1.0mm Al / 75kV                          |       |
| X-ray radiation field                 |                                       | 350 x 350mm at SID 1m                    |       |
| Mass (w/o Support ring and Fan)       |                                       | 21kg                                     |       |

**0.6/1.2P33DK-85 & 0.6/1.2P13DK-85**

| Item                                  |                                       | Specifications                           |        |
|---------------------------------------|---------------------------------------|--|--------|
| Nominal X-ray tube voltage            | Long-time                             | 125kV                                    |        |
|                                       | Short-time                            | 150kV                                    |        |
| X-ray tube assembly                   | Max. heat content                     | 1100kJ (1600kHU)                         |        |
|                                       | Nominal continuous input power        | 235W (330HU/s) (without fan)             |        |
| X-ray tube                            | Max. anode heat content               | 140kJ (200kHU)                           |        |
|                                       | Max. anode heat dissipation rate      | 640W (900HU/s)                           |        |
|                                       | Max. continuous heat dissipation rate | 210W (300HU/s)                           |        |
| Nominal focal spot                    |                                       | 0.6mm                                    | 1.2mm  |
| Nominal anode input power<br>(0.1sec) | 50Hz (13DK)                           | 12.5kW                                   | 34.5kW |
|                                       | 60Hz (13DK)                           | 14kW                                     | 37.5W  |
|                                       | 180Hz (33DK)                          | 24kW                                     | 65kW   |
| Anode Target                          | Material                              | Rhenium-tungsten faced molybdenum        |        |
|                                       | Angle/diameter                        | 16° / 100mm                              |        |
| Minimum total Filtration              |                                       | 1.7mm Al / 75kV (including added filter) |        |
| Permanent Filtration                  |                                       | 1.0mm Al / 75kV                          |        |
| X-ray radiation field                 |                                       | 350 x 350mm at SID 0.65m                 |        |
| Mass (w/o Support ring and Fan)       |                                       | 21kg                                     |        |

**1/2P18DK-85**

| Item                                  |                                       | Specifications                           |        |
|---------------------------------------|---------------------------------------|--|--------|
| Nominal X-ray tube voltage            | Long-time                             | 125kV                                    |        |
|                                       | Short-time                            | 150kV                                    |        |
| X-ray tube assembly                   | Max. heat content                     | 1100kJ (1600kHU)                         |        |
|                                       | Nominal continuous input power        | 235W (330HU/s) (without fan)             |        |
| X-ray tube                            | Max. anode heat content               | 140kJ (200kHU)                           |        |
|                                       | Max. anode heat dissipation rate      | 640W (900HU/s)                           |        |
|                                       | Max. continuous heat dissipation rate | 210W (300HU/s)                           |        |
| Nominal focal spot                    |                                       | 1mm                                      | 2mm    |
| Nominal anode input power<br>(0.1sec) | 50Hz                                  | 35kW                                     | 68.5kW |
|                                       | 60Hz                                  | 39kW                                     | 75kW   |
| Anode Target                          | Material                              | Rhenium-tungsten faced molybdenum        |        |
|                                       | Angle/diameter                        | 12° / 100mm                              |        |
| Minimum total Filtration              |                                       | 1.7mm Al / 75kV (including added filter) |        |
| Permanent Filtration                  |                                       | 1.0mm Al / 75kV                          |        |
| X-ray radiation field                 |                                       | 350 x 350mm at SID 1m                    |        |
| Mass (w/o Support ring and Fan)       |                                       | 21kg                                     |        |

**1/2P13DK-85**

| Item                       |                                       | Specifications               |      |
|----------------------------|---------------------------------------|------------------------------|------|
| Nominal X-ray tube voltage | Long-time                             | 125kV                        |      |
|                            | Short-time                            | 150kV                        |      |
| X-ray tube assembly        | Max. heat content                     | 1100kJ (1600kHU)             |      |
|                            | Nominal continuous input power        | 235W (330HU/s) (without fan) |      |
| X-ray tube                 | Max. anode heat content               | 140kJ (200kHU)               |      |
|                            | Max. anode heat dissipation rate      | 640W (900HU/s)               |      |
|                            | Max. continuous heat dissipation rate | 210W (300HU/s)               |      |
| Nominal focal spot         |                                       | 1mm                          | 2mm  |
| Nominal anode input power  | 50Hz                                  | 27.5kW                       | 64kW |



| Item                            |                | Specifications                           |     |
|---------------------------------|----------------|--|-----|
| (0.1sec)                        | 60Hz           | 30kW                                     | 70W |
| Anode Target                    | Material       | Rhenium-tungsten faced molybdenum        |     |
|                                 | Angle/diameter | 16° / 100mm                              |     |
| Minimum total Filtration        |                | 1.7mm Al / 75kV (including added filter) |     |
| Permanent Filtration            |                | 1.0mm Al / 75kV                          |     |
| X-ray radiation field           |                | 350 x 350mm at SID 0.65m                 |     |
| Mass (w/o Support ring and Fan) |                | 21kg                                     |     |

**0.3/0.8P324DK-85**

| Item                                      |                                       | Specifications                           |       |
|---|---------------------------------------|--|-------|
| Nominal X-ray tube voltage                | Long-time                             | 125kV                                    |       |
|   | Short-time                            | 150kV                                    |       |
| X-ray tube assembly                       | Max. heat content                     | 1100kJ (1600kHU)                         |       |
|   | Nominal continuous input power        | 470W (660HU/s) (with fan),               |       |
| X-ray tube                                | Max. anode heat content               | 280kJ (400kHU)                           |       |
|   | Max. anode heat dissipation rate      | 1600W (2200HU/s)                         |       |
|   | Max. continuous heat dissipation rate | 300W (420HU/s)                           |       |
| Nominal focal spot                        |                                       | 0.3mm                                    | 0.8mm |
| Nominal anode input power (0.1sec, 180Hz) |                                       | 11kW                                     | 54kW  |
| Anode Target                              | Material                              | Rhenium-tungsten faced molybdenum        |       |
|   | Angle/diameter                        | 12° / 100mm                              |       |
| Minimum total Filtration                  |                                       | 1.7mm Al / 75kV (including added filter) |       |
| Permanent Filtration                      |                                       | 1.0mm Al / 75kV                          |       |
| X-ray radiation field                     |                                       | 350 x 350mm at SID 1m                    |       |
| Mass (w/o Support ring and Fan)           |                                       | 21kg                                     |       |

**0.3/0.8P323DK-85**

| Item                                      |                                       | Specifications                           |       |
|---|---------------------------------------|--|-------|
| Nominal X-ray tube voltage                | Long-time                             | 125kV                                    |       |
|   | Short-time                            | 150kV                                    |       |
| X-ray tube assembly                       | Max. heat content                     | 1100kJ (1600kHU)                         |       |
|   | Nominal continuous input power        | 470W (660HU/s) (with fan),               |       |
| X-ray tube                                | Max. anode heat content               | 210kJ (300kHU)                           |       |
|   | Max. anode heat dissipation rate      | 1200W (1690HU/s)                         |       |
|   | Max. continuous heat dissipation rate | 250W (350HU/s)                           |       |
| Nominal focal spot                        |                                       | 0.3mm                                    | 0.8mm |
| Nominal anode input power (0.1sec, 180Hz) |                                       | 11kW                                     | 54kW  |
| Anode Target                              | Material                              | Rhenium-tungsten faced molybdenum        |       |
|   | Angle/diameter                        | 12° / 100mm                              |       |
| Minimum total Filtration                  |                                       | 1.7mm Al / 75kV (including added filter) |       |
| Permanent Filtration                      |                                       | 1.0mm Al / 75kV                          |       |
| X-ray radiation field                     |                                       | 350 x 350mm at SID 1m                    |       |
| Mass (w/o Support ring and Fan)           |                                       | 21kg                                     |       |

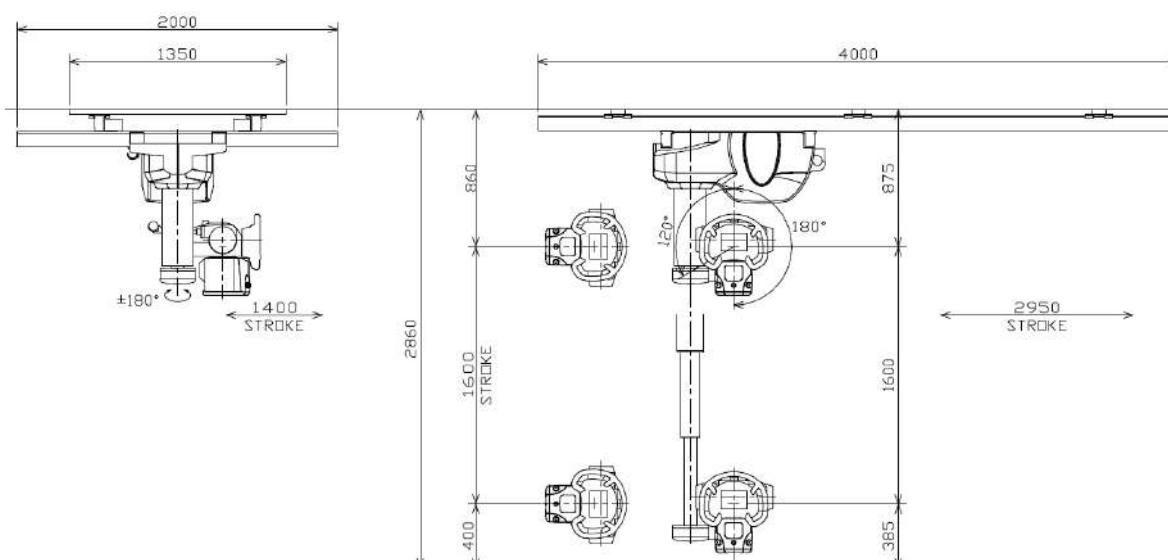
**0.3/0.8P18DK-85**

| Item                               |                                       | Specifications                           |        |
|------------------------------------|---------------------------------------|--|--------|
| Nominal X-ray tube voltage         | Long-time                             | 125kV                                    |        |
|                                    | Short-time                            | 150kV                                    |        |
| X-ray tube assembly                | Max. heat content                     | 1100kJ (1600kHU)                         |        |
|                                    | Nominal continuous input power        | 235W (330HU/s) (without fan)             |        |
| X-ray tube                         | Max. anode heat content               | 140kJ (200kHU)                           |        |
|                                    | Max. anode heat dissipation rate      | 640W (900HU/s)                           |        |
|                                    | Max. continuous heat dissipation rate | 210W (300HU/s)                           |        |
| Nominal focal spot                 |                                       | 0.3mm                                    | 0.8mm  |
| Nominal anode input power (0.1sec) | 50Hz                                  | 6kW                                      | 28kW   |
|                                    | 60Hz                                  | 6.4kW                                    | 31.2kW |
| Anode Target                       | Material                              | Rhenium-tungsten faced molybdenum        |        |
|                                    | Angle/diameter                        | 12° / 100mm                              |        |
| Minimum total Filtration           |                                       | 1.7mm Al / 75kV (including added filter) |        |
| Permanent Filtration               |                                       | 1.0mm Al / 75kV                          |        |
| X-ray radiation field              |                                       | 350 x 350mm at SID 1m                    |        |
| Mass (w/o Support ring and Fan)    |                                       | 21kg                                     |        |



**X-Ray Tube Support  
CH-200**

CH-200

| Item   | Standard type   | Rear-mounting type (*1)                           | Front mount L type (option)                       | Low-ceiling type (option)                               |
|--|---|---|---|---|
| In case of Standard type <span style="float:right">unit : mm</span>                |   |   |   |   |
|  |   |   |   |   |
| Maximum supportable weight   | 47kg  |   |   |   |
| Balancing system   | Spring-balanced type  |   |   |   |
| Ceiling fixtures rail  | Fixed rail: 3.3m / 4m / 5m / 5.5m<br>Travelling rail: 2m / 2.6m / 3.3m  |   |   |   |
| Movement of X-ray tube assembly  |   |   |   |   |
| Range of movement<br>Vertical travel   | With ceiling height of 2,860mm:<br>400 to 2,000mm   | With ceiling height of 2,860mm:<br>400 to 2,000mm | With ceiling height of 2,860mm:<br>320 to 1,920mm | With ceiling height of 2,710mm:<br>400 to 2,000mm       |
|  | Continuous  |   |   |   |
| Longitudinal travel  | 2,950 mm (with a 4m fixed rail) (*2)<br>4,450 mm (with a 5.5m fixed rail) (*2)  |   |   |   |
| Transverse travel  | 1,400mm (with a 2m travelling rail)<br>2,000mm (with a 2.6m travelling rail)<br>2,700mm (with a 3.3m travelling rail) |   |   |   |
| Rotation about the vertical axis   |   |   |   |   |
| Angle of rotation  | ±180°, continuous (click stops at 90° intervals)  |   |   | +30° to -90°, continuous (click stops at 90° intervals) |
| Rotation about the horizontal axis   |   |   |   |   |
| Angle of rotation  | +120° to -180°, continuous<br>Click stops at 0° and ±90°  |   |   |   |

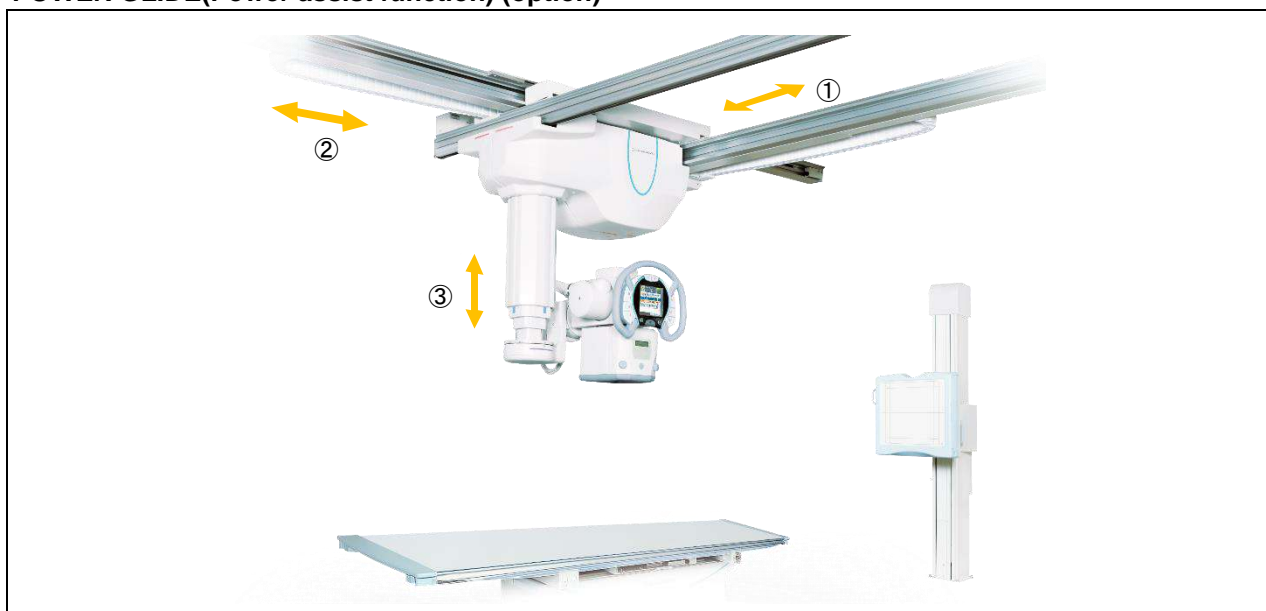
| Item                    | Standard type   | Rear-mounting type (*1) | Front mount L type (option) | Low-ceiling type (option) |
|-------------------------|---|-------------------------|-----------------------------|---------------------------|
| Operation               | Manual, electromagnetic lock(off lock)  |                         |                             |                           |
| Display                 | Angle of rotation displayed digitally.  |                         |                             |                           |
| Standard ceiling height | 2,860mm (*3)  |                         |                             | 2,710mm                   |
| Mass                    | 250kg (including support, 4m fixed rail, and 2m traveling rail)                                 |                         |                             |                           |
| Power source            | Single phase, AC100V, 0.2kVA, 50/60Hz<br>Single phase, AC 200, 220, 230, 240V, 1.0kVA, 50/60 Hz |                         |                             |                           |

\*1 Low-ceiling type and electric tomography, bucky synchronization unit are not available with the rear-mounting type.

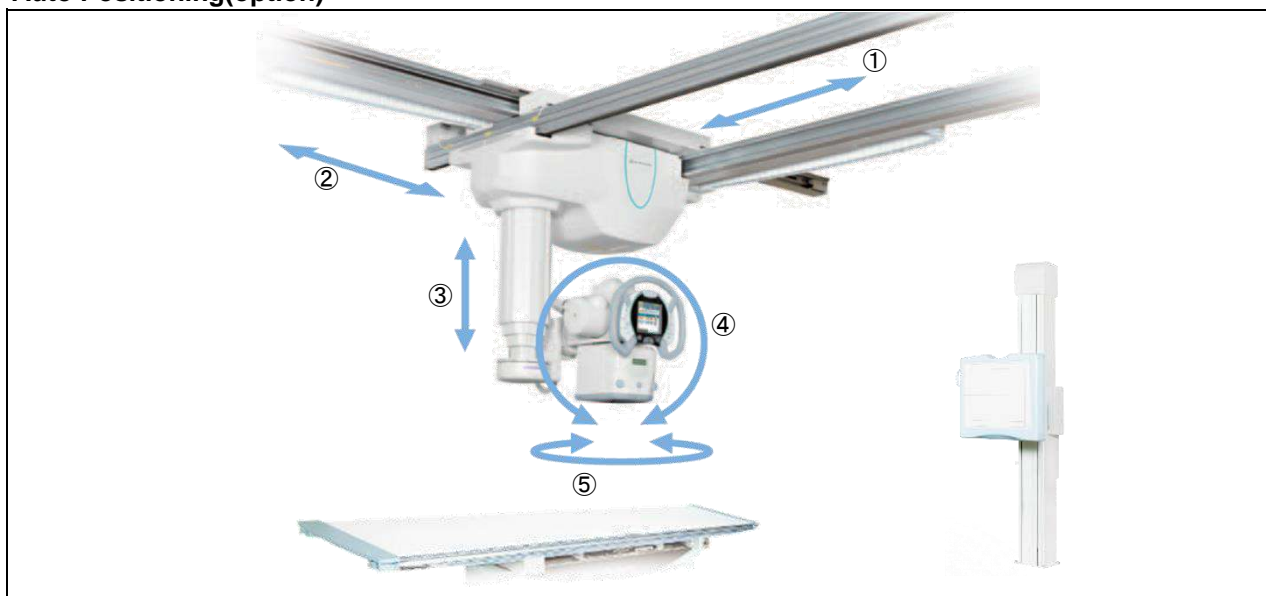
\*2 The traveling stroke decreases by 100mm in combination with the electronic tomography (optional) and the auto positioning function (optional).

\*3 It is possible to keep the vertical travel 400 to 2,000mm by installing the focal height 350mm lower, even when the ceiling height is 3,210 mm.

### POWER GLIDE(Power assist function) (option)



| Type                | Standard type   | Rear-mounting type | Front mount L type | Low-ceiling type |
|---------------------|---|--------------------|--------------------|------------------|
| Enable / Disable    | Enable  | Disable            | Enable             | Enable           |
| <b>Movement</b>     | ① Transverse travel<br>② Longitudinal travel<br>③ Vertical travel |                    |                    |                  |
| <b>Axis</b>         | <b>Speed</b>  |                    |                    |                  |
| Transverse travel   | 50cm/sec max.   |                    |                    |                  |
| Longitudinal travel | 50cm/sec max.   |                    |                    |                  |
| Vertical travel     | 60cm/sec max.   |                    |                    |                  |
| Assist strength     | High / Mid / Low  |                    |                    |                  |

**Auto Positioning(option)**


| Type                | Standard type   | Rear-mounting type | Front mount L type | Low-ceiling type |
|---------------------|---|--------------------|--------------------|------------------|
| Enable / Disable    | Enable  | Disable            | Enable             | Disable          |
| <b>Movement</b>     | ① Transverse travel<br>② Longitudinal travel<br>③ Vertical Travel<br>④ Tube Rotation(option)<br>⑤ Swivel(option)<br>⑥ Irradiation Field Collimation<br><br>⑦ Bucky Tracking(When combined with BR-120, BR-120T or BK-200) |                    |                    |                  |
| <b>Axis</b>         | <b>Speed</b>  |                    |                    |                  |
| Transverse travel   | 15cm/sec max.   |                    |                    |                  |
| Longitudinal travel | 15cm/sec max.   |                    |                    |                  |
| Vertical travel     | 12cm/sec max.   |                    |                    |                  |
| Tube rotation       | 20 degree sec max.  |                    |                    |                  |
| Swivel(option)      | 20 degree sec max.  |                    |                    |                  |
| Number of Memories  | 30 memories for Bucky Stand<br>30 memories for Bucky Table<br>30 memories for General radiodiography technique  |                    |                    |                  |


**Options**

| Item                                | Description  |
|-------------------------------------|--|
| Tractable cable management system   | It is placed along the ceiling rails to supports smooth positioning.   |
| Longitudinal or Lateral SID display | The display shows SID for bucky stand BR-120/120T.   |
| Vertical tracking                   | X-ray tube will follow the vertical motion of BR-120/120T and or table height of the BK-200.   |
| Bucky tracking                      | The bucky device of BK-200 will follow the axis of X-ray beam automatically.   |
| Auto collimation                    | The irradiation field of the collimator can be adjusted automatically in accordance with the SID and cassette size detected by bucky devise of the table and/or stand. |

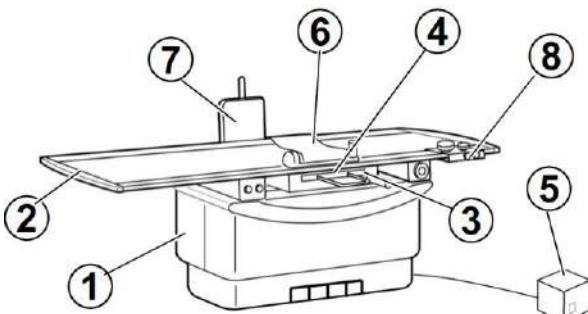
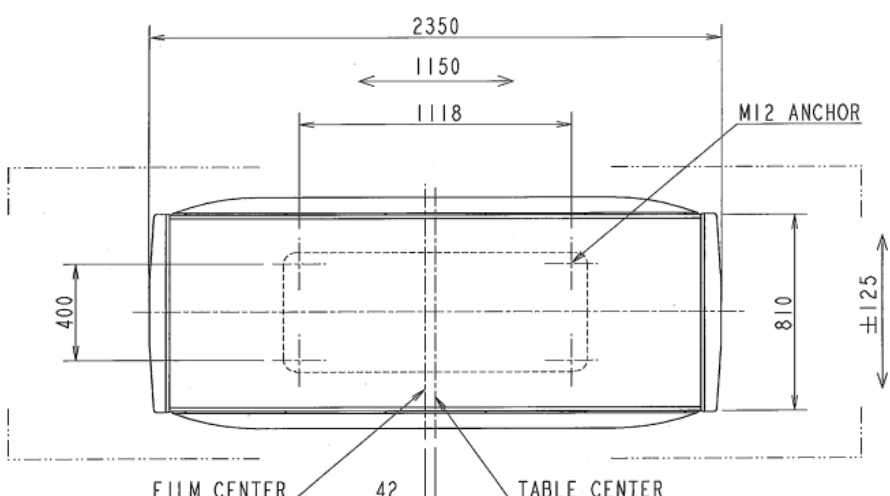
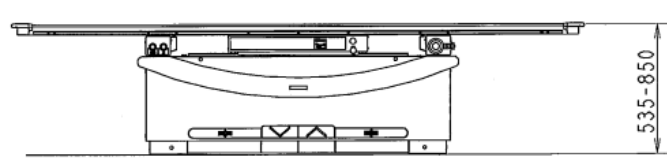
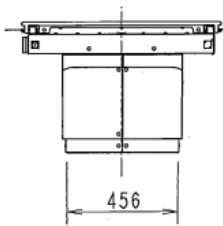
**Collimator**
**R-300**

| Item  |                                   | Specifications   |
|---|-----------------------------------|--|
| Max. voltage used for applicable X-ray tube |                                   | 150kV  |
| Radiation field                             | Shape                             | Rectangular  |
|   | Maximum field                     | 52.3 x 52.3cm @SID 100cm   |
|   | Minimum field                     | 0 x 0cm  |
| Radiation field indication                  | Average brightness                | 160lx @SID 100cm   |
|   | Accuracy                          | Less than 2% of SID  |
|   | Center of the field               | Dark hair cross  |
|   | Light source                      | LED  |
|   | Period of indication              | 30sec (timer-controlled)   |
| Opening indication                          | SID                               | 1, 1.5, 1.8, 2m  |
|   | Field size indication             | Digital indication   |
| Lead equivalent of leaves                   | Shielding leaves (H and V-leaves) | 3mm Pb eq.   |
|   | Middle leaves                     | 2mm Pb eq.   |
| Filtration                                  | Inherent filtration               | 1.1 mm Al eq. / 75kV   |
|   | Auto-filter                       | None / 0.1mm Cu / 0.2mm Cu / 0.3mmCu<br><br>It automatically selects the X-ray filter in accordance with the radiography conditions set with the X-ray high-voltage generator. |
| Turning mechanism                           |                                   | +/- 45°  |
| External dimensions                         |                                   | 231(W) x 317(D) x 259(H)mm   |
| Mass  |                                   | 10kg   |
| Power supply                                |                                   | 24VDC, 150VA   |

**Options**

| Item                    | Description   |
|-------------------------|---|
| Line marker             | Used to align the center positions of the Bucky device and the equipment, and to set the radiography position for long view radiography   |
| Detent                  | Fitted at the home position of the turning mechanism and serves to confirm the home position when the collimator is turned.   |
| DAP adapter for VACUTEC | This is a mounting adapter for ionization chamber manufactured by VACUTEC.<br>DAP can be displayed on the console of the high-voltage generator.<br>It also can be embedded in DICOM tag. |
| DAP adapter for PTW     | This is a mounting adapter for ionization chamber manufactured by PTW.  |

**X-ray Radiography Table  
BK-200**

| Item  |                                      | Specifications  |
|---|--------------------------------------|---|
| ① Main Body<br>② Floating Table Top Assembly<br>③ Bucky device<br>④ Grid type indicator<br>⑤ Control cabinet<br>⑥ Compression belt (optional)<br>⑦ Lateral cassette holder (optional)<br>⑧ Grip switch (optional) |                                      |     |
| Main Body   | Size of Tabletop                     | 810(Width) x 2,350(Length)mm<br>Flat tabletop   |
|   | Material of tabletop                 | Wood<br>CFRP(option)  |
|   | Attenuation equivalent for table     | 1.7mmAl. eq. (Wood)<br>0.7mmAl. eq. (CFRP)  |
|   | Longitudinal movement                | 1,150mm<br>Manual operation   |
|   | Lateral movement                     | +/- 125mm<br>Manual operation   |
|   | Tabletop Lock                        | Electromagnetic lock (off-lock)   |
|   | Vertical moving range                | 315mm<br>Motor drive  |
|   | Distance between tabletop and floor  | 535 to 850mm<br>(The tabletop stops once at Approx. 700mm.) *1  |
|   | Distance between tabletop and a film | 80mm  |
|   | Maximum allowable load               | 295kgf  |

| Item                    |                                 | Specifications  |  |
|-------------------------|---------------------------------|---|--|
| Bucky Device            | Cassette fixing position        | Center position   |  |
|                         | Bucky device moving stroke      | 400mm (+/- 200)   |  |
|                         | X-ray grid (Moving grid)        | Dimensions  | 438mm x 479mm                                    |
|                         |                                 | Intermediate material   | Al   |
|                         |                                 | Density, ratio<br>Note) Select one of the listed Grids              | 40 lines/cm 10:1 100cm<br>40 lines/cm 10:1 150cm |
| Installation Conditions | Required space for installation | 5,000(W) x 3,500(L)mm<br>(to combine with the X-ray support device) |  |
|                         |                                 | Mass  |  |
|                         | Power Supply                    | Single-phase AC200, 220, 230, 240V<br>1.4kVA, 50/60Hz               |  |

\*1 When installing, the stop position can be adjusted within a height range of 600 to 700mm.

### Options

| Item                            | Description  |
|---------------------------------|--|
| Compression belt                | This belt to be attached to the sides of the tabletop secures the patient's radiography region to the tabletop.  |
| Lateral cassette holder         | This holder to be attached to the side of the tabletop holds a cassette in lateral radiography.  |
| Grip switch                     | This switch to be attached to the side of the tabletop operates the floating tabletop.   |
| CFRP tabletop                   | This tabletop is made of CFRP (Carbon Fiber Reinforced Plastic).   |
| Table elevation Tracking device | Adds the following functions when combined with the X-ray tube support CH-200.<br>• The height of the X-ray tube support CH-200 is adjusted in conjunction with the height of the tabletop to maintain a constant exposure distance.<br>• The size of irradiation field is automatically adjusted. |
| Bucky tracking device           | Incorporated into the tabletop elevator, this unit drives the Bucky device electrically. When this option is selected, Bucky tracking radiography is available if the X-ray tube support CH-200 is combined.   |
| Hand grip                       | Equipped with tabletop side and grasped by patient so that the patient position keeps steady.  |
| Drip stand                      | Attached to the tabletop side and suspends the drip bins.  |
| Rear side foot switch           | Additional rear side foot switch which has the same function and shape than a front one.   |
| FPD rotation tray               | The FPD tray can be rotated 90 degree to change the orientation of FPD. (Portrait ↔ Landscape) This option is only for 14 x 17 inch (35 x 43 cm) FPD.  |

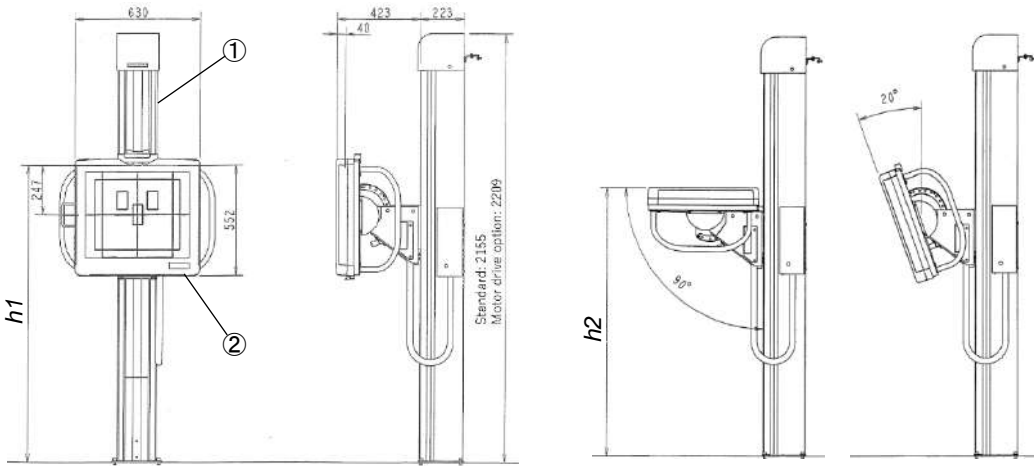
**X-Ray Radiography Stand  
BR-120**

| Item                      |  | Specifications   |  |
|---------------------------|--|--|--|
| ① Stand<br>② Bucky Device |  |  |  |
| Bucky device              | Distance between Bucky device gnathal hub and floor              | $h = 627(643) - 2,127(2,143)\text{mm}$ (Manual operation)<br>$h = 655(671) - 2,097(2,113)\text{mm}$ (Motor-driven operation)<br>(Figures in parentheses are dimensions when mounted on a base plate) |  |
|                           | Operation  | Manual or motor drive(option)<br>Electromagnetic lock (off lock)   |  |
|                           | Distance between Bucky device gnathal hub and center of detector | 247mm  |  |
|                           | Distance between Bucky device front face and a film              | 40mm   |  |
|                           | Cassette fixing position   | Center reference,<br>Top reference or bottom reference   |  |
|                           | X-ray grid(Fixed grid)   | Dimensions   | 438mm x 479mm                                      |
|                           |  | Interspace material  | Al   |
|                           |  | Density, ratio   | 40 lines/cm 10:1, 150cm                            |
|                           |  | Note) Select one of the listed Grids   | 40 lines/cm 12:1, 170cm<br>40 lines/cm 12:1, 180cm |
|                           | Attenuation equivalent for front panel                           | Mounting/removing  | Possible   |
| Installation conditions   | Required space   | 650mm(L) x 400mm(D)  |  |
|                           | Required ceiling height  | 2,350mm  |  |
|                           | Mass   | Standard: 120kg<br>When motor drive/Longview option installed : 145kg<br>Fender wall for Longview (option) : 70kg  |  |
|                           | Power Supply   | Single-phase AC100V, 0.2kVA, 50/60Hz   |  |



# BR-120T

BR-120T

| Item                                   | Specifications   |  |  |
|--|--|--|--|
| ① Stand<br>② Bucky Device              |  |  |  |
| Bucky device                           | Distance between Bucky device gnathal hub and floor surface                        | $h1 = 627(643) - 2,127(2,143)\text{mm}$ (Manual operation)<br>$h1 = 655(671) - 2,097(2,113)\text{mm}$ (Motor-driven operation)<br>$h2 = 540(556) - 2,040(2,056)\text{mm}$ (Manual operation)<br>$h2 = 568(584) - 2,020(2,036)\text{mm}$ (Motor-driven operation)<br>(Figures in parentheses are dimensions when mounted on a base plate) |  |
|  | Operation  | Manual or motor drive (option)<br>Electromagnetic lock (off lock)  |  |
|  | Distance between Bucky device gnathal hub and center of detector                   | 247mm  |  |
|  | Distance between Bucky device front face and a film                                | 40mm   |  |
|  | Bucky device tilting angle (manual operation)                                      | -20°, 0° (vertical),<br>15°, 30°, 45°, 60°, 75°, 90° (horizontal)  |  |
|  | Cassette fixing position   | Center reference,<br>Top reference or bottom reference   |  |
|  | X-ray grid (Fixed grid)  | Dimensions   | 438mm x 479mm                                      |
|  |  | Interspacer material   | Al   |
|  |  | Density, ratio   | 40 lines/cm 10:1, 150cm                            |
|  |  | Note) Select one of the listed Grids   | 40 lines/cm 12:1, 170cm<br>40 lines/cm 12:1, 180cm |
| Attenuation equivalent for front panel | Mounting/removing  | Possible   |  |
|  |  | 0.63mm Al eq.  |  |
| Installation conditions                | Required space   | 650mm(L) x 700mm(D)  |  |
|  | Required ceiling height  | 2,350mm  |  |
|  | Mass   | Standard: 160kg<br>When motor drive/Longview detection option installed: 185kg<br>Fender wall for Longview (option) : Approx.70kg  |  |
|  | Power Supply   | Single phase AC100V, 0.2kVA, 50/60Hz   |  |

## Options (Common for BR-120 and BR-120T)

| Item  | Description   |
|---|---|
| Overhead hand grip                          | For lateral chest exam to grip overhead, adjust the height by the position of gripping.   |
| Cassette holder                             | Cassette unit is attached on bucky device and holds a film cassette.  |
| Base plate                                  | Base plate is installed when the equipment cannot be mounted in the standard holes.   |
| Wall mounting option (standard for BR-120T) | Fix the top of column to wall. Use when the fixation to floor is difficult.   |
| Side hand grips                             | For P-A chest exam. to grip both hands, a pair of left and right.   |
| Bucky tracking device                       | By servo tracking device, the following functions are attached with CH-200 combined:<br>X-ray tube unit focus of X-ray tube support tracks automatically the center on height of Bucky device. Collimator for radiography radiation field operates automatically. |
| Compression belt                            | This belt fixes the radiography area of a patient on the Bucky device.  |
| Handy switch unit                           | To control collimator near a patient with handy switch unit.  |

| Item                              | Description   |
|-----------------------------------|---|
| Motor drive unit (w/ Foot switch) | To move the Bucky device vertically with foot switch.   |
| FPD rotation tray                 | The FPD tray can be rotated 90 degree to change the orientation of FPD. (Portrait↔Landscape) This option is only for 14 x 17 inch (35 x 43 cm) FPD. |

## Operation Environment

| Item                 | Specifications             |
|----------------------|----------------------------|
| Ambient temperature  | 10 to 40 degree C          |
| Relative humidity    | 30 to 85% (non condensing) |
| Atmospheric pressure | 800 to 1060hPa             |

## Power Supply

| Item   | Specifications  |
|--|---|
| Phase  | 3-phase, single-phase   |
| Frequency  | 50/60Hz   |
| Standard voltages  | 3-phase 200/220/240/380/400/415/440/480V<br>Single-phase 200/220/230/240V   |
| Permitted voltage range  | +/- 10% of standard voltage   |
| Supply capacity<br>(Digital Radiography system is not included.) | 80kW / 65kW type: 3-phase 120kVA<br>Single-phase 8.5VA<br>50kW type: 3-phase 80kVA<br>Single-phase 8.5kVA<br>or<br>Single-phase 95kVA |

### Remarks

- \* Every value in this Product Data Sheet is a standard value, and it may vary a little from the actual at each site.
- \* The appearances and specifications are subject to change for reasons of improvement without notice.
- \* Certain configurations may not be available pending regulatory clearance. Contact your Shimadzu representative for information on specific configurations.

## LABEL Description: RADspeed Pro

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Shimadzu Corporation

### Headquarters

1-3 Kanda Nishiki-cho, Chiyoda-ku, Tokyo 101-8448, Japan  
<https://www.shimadzu.com/med/>



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