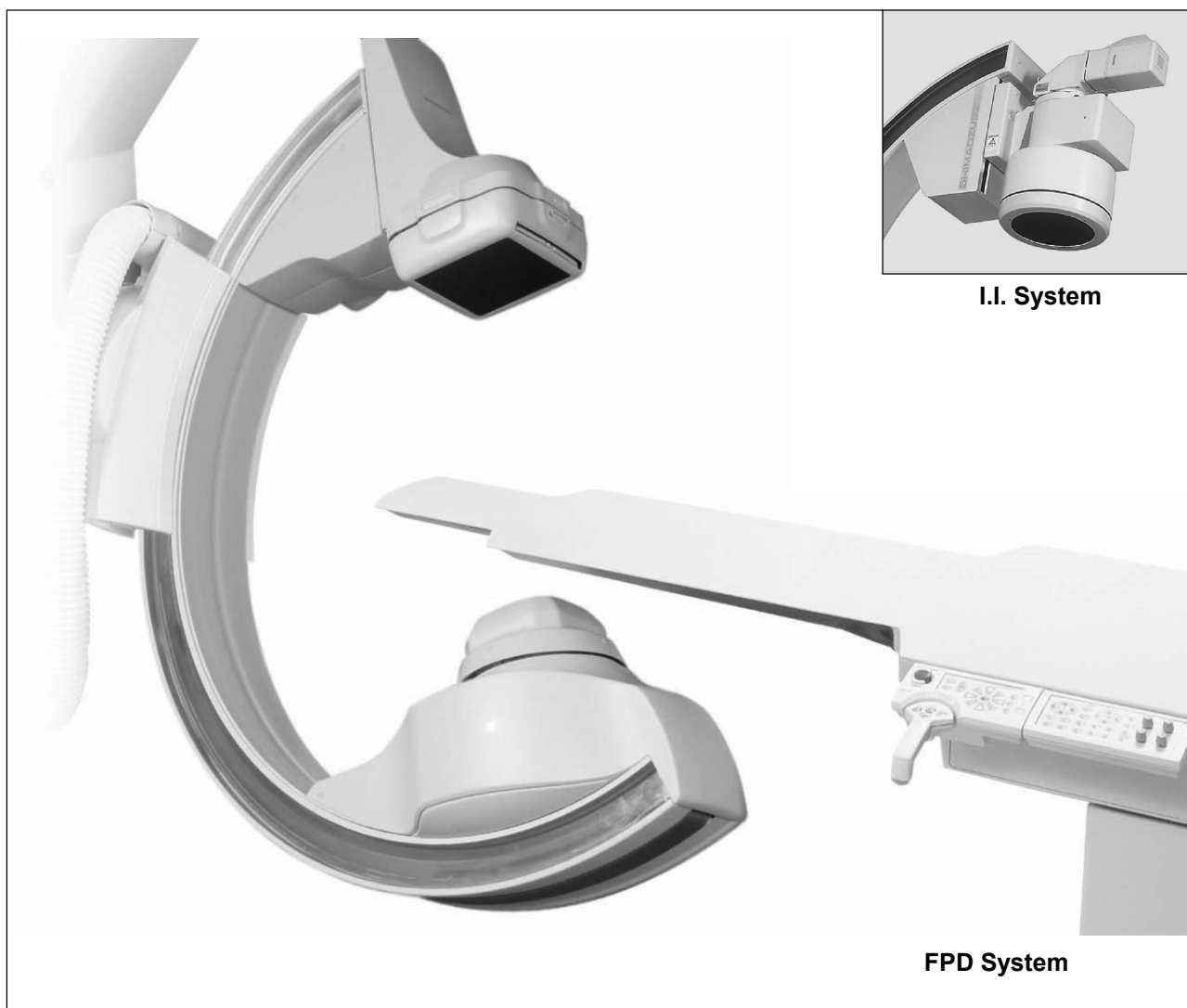


SHIMADZU

PRODUCT DATA

Ceiling-Mounted
C-Arm System

MH-200S



MH-200S C-arm system pictured here shows the 9" FPD unit, the 12" I.I. unit, and the KS-70 catheterization table.

The MH-200S Series C-arm system is designed for a variety of cardiac and general angiographic/digital subtraction procedures, including interventional studies, neural studies, and peripheral run-off exams.

FEATURES

- (1) Ceiling-mounted design provides clear, easy-to-clean floor space
 - Ease of cleaning improves examination room hygiene.
 - Clear floor space allows efficient positioning of ancillary equipment around the catheterization table.
- (2) Highly maneuverable C-arm moves in both longitudinal and lateral directions
 - Allows complete head-to-foot imaging without patient repositioning.
 - C-arm can be easily positioned even for arm examinations.
- (3) Complete patient access
 - C-arm can be positioned at any of 6 sides (head end, right side, left side, $\pm 45^\circ$ slanted left side, 45° slanted right head side)
- (4) Direct-conversion Flat-Panel
 - 9" or 17" detector can be attached.
- (5) Excellent range of positions
 - Up to 108 projection angles for routine examinations can be programmed for one-touch recall. (Direct Memory in CyberGrip)
 - High-speed arm positioning (Max. 25°/s)
 - For safety, all C-arm movements are controlled by microcomputer to prevent a collision with the table or the patient.
 - Contact-type collision sensors are standard on I.I./FPD and the X-ray tube front.
 - INTELLISHIELD is a contact avoidance sensors embedded around the 17" FPD to automatically stop C-arm operation when the patient is detected
 - Provides deep positioning such as, CRAN 50° (with 9"/12" I.I., 9"FPD), LAO 60° (left side position)
 - Remote Console makes it easy to control C-arm movement from the control room (optional).
- In emergencies, C-arm can be quickly pushed away from patient.
- (6) One-hand operation (CyberGrip)
 - Simply twist the grip to move the C-arm up/down and left/right. Moreover, C-arm movement speed instantly changes according to how fast the grip is moved, directly reflecting the user's style of operation.
- (7) Built-in MBH filter
 - MBH (Multi Beam Hardening) filters (3 types for I.I., 4 types for FPD) are built into the front end of the X-ray tube. Easily select the optimum filter either automatically or manually to exclude unnecessary X-rays from the image.

COMPONENTS

STANDARD ITEMS

(1) Main Unit.....	1
(2) CyberGrip.....	1
(3) Bedside Console	1
(4) Display Unit (for I.I. system)	1
(4) Information Display (for FPD. system).....	1
(5) Control Cabinet	1
(6) Transformer Unit	1
(7) Accessories	
• I.I./FPD Front Sensor	1
• TV Camera Rotation Mount (for I.I. system).....	1
• Collimator F-50 (With Front Switch)	1

OPTIONAL ITEMS

- Monitor Support (MTA Series)
- Remote Console or Collimator Console
- Peri Console (for I.I. system)
- Console Cart (for Bedside Console)
- Steel Rail Adaptor (for FPD system)

PRODUCT DATA MH-200S

INSTALLATION REQUIREMENTS

Space required for installation	Depth × Width 600 cm × 650 cm or more Height 285 cm (installation also possible at 270 cm, 275 cm, 280 cm)
Operation ready load	1,200 kg (including the ceiling rail)
Power source	Single phase: 100 V AC ± 10%, 0.5 kVA, 50/60 Hz Three phase: 400 V AC/200 V AC ± 10%, 3 kVA, 50/60 Hz
Type/degree of protection against electrical shock	Class I, Type B equipment
Grounding	Grounding resistance of 100Ω or less, with annealed 1.6 mm dia. copper wire
Ambient condition (excluding FPD unit ^{*1})	
• Temperature	+10°C to +40°C
• Humidity	30% RH to 85% RH
• Atmospheric pressure	700 hPa to 1060 hPa

*1 Refer to product data for DAR-9400f/9000/5000, AUD150G, and UD150G-40.

IMAGE SYSTEM/C-ARM SPECIFICATIONS

Item		Description			
Image system	Grid	X-ray image recording unit	I.I.	9" FPD	17" FPD
		Type	D242, D310	260 × 248	482x452
		Grid ratio	10	10	10
		Grid density	44 lines/cm	44 lines/cm	50 lines/cm
		Intermediate material	Fiber (non-metal)		
	SID	9" I.I./ 9" FPD and 12" I.I.	PA: 90 to 115 cm	AP: 90 to 110 cm	
		9" FPD	PA: 90 to 115 cm	AP: 90 to 105 cm	
		17" FPD	PA: 95 to 120 cm	AP: 95 to 110 cm	
	Distance between focus and center of rotation		73 cm		
	Magnification at center of C-arm		x1.23 to x1.58 (9" I.I./9" FPD and 12" I.I. (standard)) x1.30 to x1.65 (17" FPD)		
Travel distance of image system		25 cm			
Travel speed of image system		Max. 6.0 cm/sec. (I.I.) Max. 8.0cm/sec. (9/17" FPD)			
C-arm	Rotation around body axis (LAO/RAO)	C-arm insertion from left side of patient LAO60° to RAO90° (Speed 15°/s, variable)			
		Insertion from head LAO120° to RAO120° (Speed 25°/s, variable)			
		Insertion from right side LAO90° to RAO60° (Speed 15°/s, variable)			
	Tilt in direction of body axis (CRAN/CAUD)	CRAN50(45)° to CAUD45°: () indicates 17" FPD is used. (Speed 15°/ s, variable)			
		CRAN50(45)° to CAUD45°: () indicates 17" FPD is used. (Speed 15°/s, variable)			
Longitudinal ceiling travel		290 cm (I.I.) (Speed 12.5 cm/sec., variable)	287.5cm (9/17" FPD) (Speed 15 cm/sec., variable)		

PRODUCT DATA **MH-200S**

IMAGE SYSTEM/C-ARM SPECIFICATIONS (cont.)

Item		Description
C-arm	Lateral ceiling travel	160 cm Speed: 9 cm/sec (I.I.) 10 cm/sec (9/17"FPD) (Stroke is from -15cm to + 45cm, lateral insertion of C-arm)
	AP position	Changeable (No AP projection is available when C-arm is inserted from right side.)
	Vertical axis swivel	CW45° to CCW180° 6 positions at -45°, 0°, 45°, 90°, 135° and 180° Speed 90°/ 9 sec. (FPD forward/backward time is not included)
	Radius within C-arm	90 cm
	Height of center of rotation	107 cm

DA/DSA/RSM-DSA SPECIFICATIONS

Item		Details	
Rotation DA/DSA	Max. range for Rad. (R-DA)	Rotation of C-arm around body axis	C-arm insertion from left side of patient LAO60° to RAO90° Inclination in direction of body axis CRAN30° to CAUD30°
			Insertion from head LAO120° to RAO120°
			Insertion from right side LAO90° to RAO60°
		Rotation of C-arm in direction of body axis	CRAN45° to CAUD45° (15°/sec.) Inclination around body axis RAO30° to LAO30°
	Max. range for Rad.(R-DSA)	Rotation of C-arm around body axis	C-arm insertion from the left side of the patient LAO55° to RAO85° Inclination in direction of body axis CRAN30° to CAUD30°
			Insertion from the head side LAO115° to RAO115° (15°/sec.) LAO105° to RAO105° (20, 25°/sec.) LAO100° to RAO100° (30 to 40°/sec.)
		Insertion from the right side LAO85° to RAO55°	
	Rotation of C-arm in direction of body axis	CRAN40° to CAUD40° (15°/sec.) Inclination around body axis RAO30° to LAO30°	
	Rotation speed around body axis	Insertion from side (L/R) position: 15°/sec. Insertion from head: 40°/sec. Range: 35°, 30°, 25°, 20°, 15°/sec. (selectable before installation)	
RSM-DSA*1	Rotation	Same as rotation DA	
	Precession	Swing angle: 30° (± 5°) Speed: 6 sec./cycle (max. 3 cycles)	
	Pendulum	Swing angle: Fixed to LAO 15° to RAO 15° (± 5°) Speed: 6 sec/cycle (max. 3 cycles) Inclination in direction of body axis: CRAN30° to CAUD30°	
3D -Recon(Optional)	Projection angle	<u>3D-Angiography</u> RAO105° to LAO95° (40°/s, 60°/s) Rotation direction: RAO LAO Rotation Speed : 40°/s or 60°/s (Selectable only during installation) <u>CT-Like Imaging</u> RAO120° to LAO95° (10°/s, 20°/s) Rotation direction: RAO LAO Rotation Speed : 10°/s (for Head) or 20°/s (for Head & Abdomen)	

*1 Standard for DAR-9400f, Optional for DAR-9000

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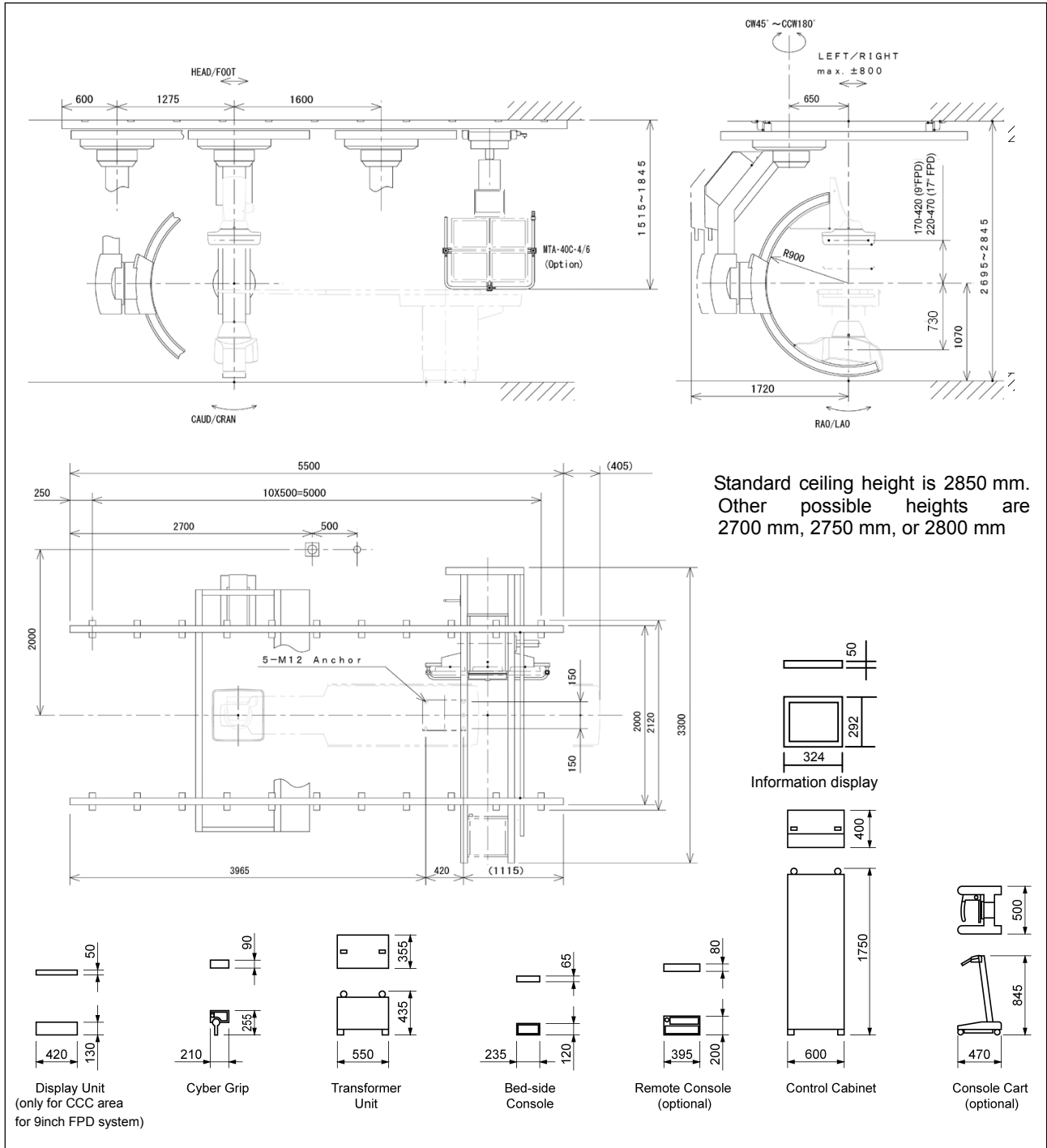
SYSTEM CONFIGURATION

Catheterization table		KS-60/70	
X-ray tube ^{*1} ^{*2}		0.6/1J317C-282AX, LX-2011, LX-3081	
X-ray image recording unit	I.I.	9L series 12L series, 12LT/HG series, TH9438QX(9), TH9436QX(12)	
	FPD	Direct-conversion 9" FPD (9" x 9" square), 17" FPD (17"x17" square)	
X-ray high voltage generator		UD150G-40/D150GC-40	UD150B-40
Digital angiography system		DAR-9400f (with FPD combined system)	DAR-9000 (with 9" or 12" I.I. combined system)

PRODUCT DATA MH-200S

DIMENSIONS (9" and 17" FPD System)

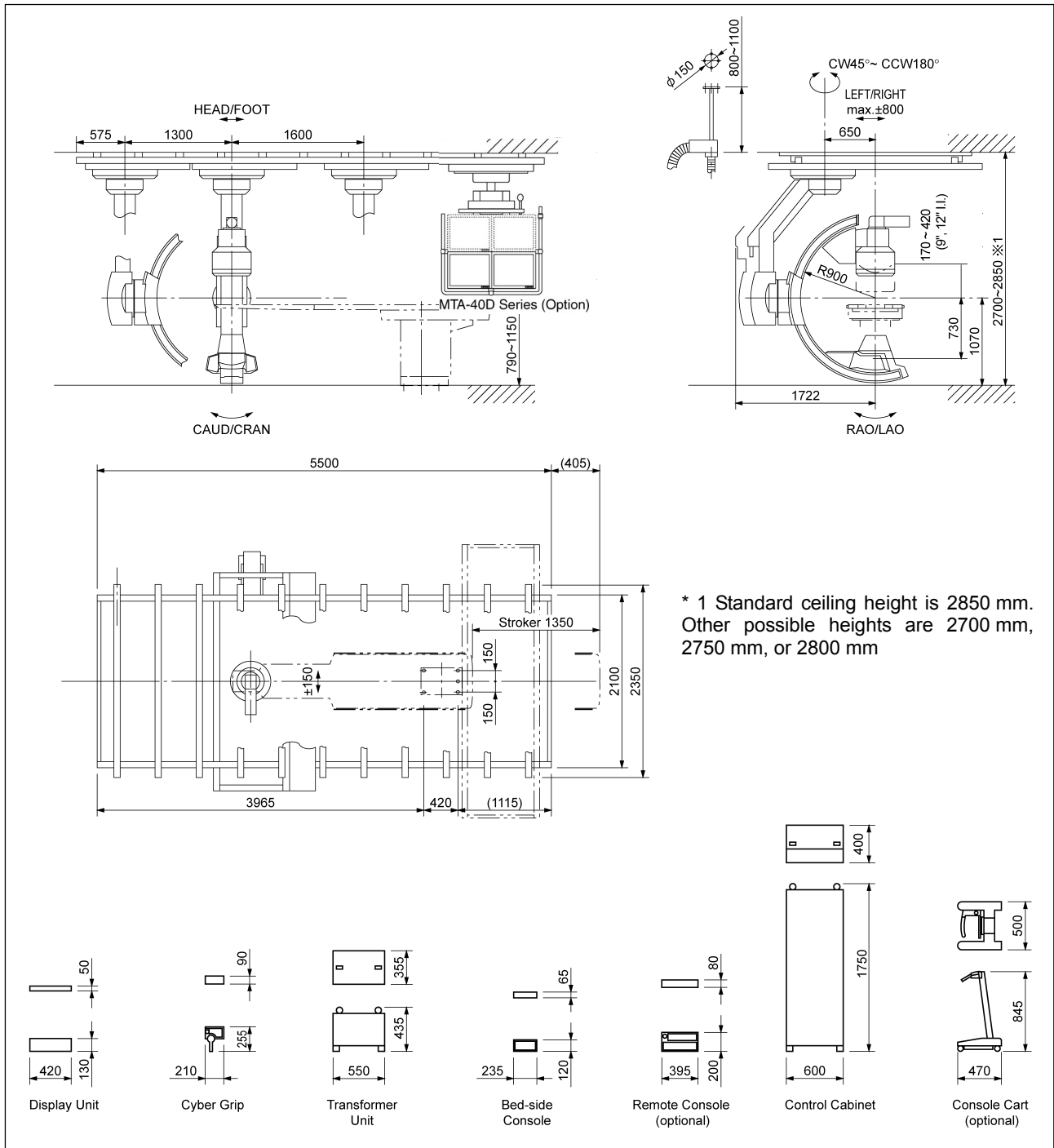
Unit : mm



PRODUCT DATA MH-200S

DIMENSIONS (I.I. System)

Unit : mm



Remarks

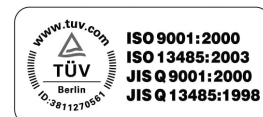
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- * The appearances and specifications are subject to change for reasons of improvement without notice.
- * Certain configurations may not be available pending regulatory clearance. Contact your Shimadzu representative for information on specific configurations.



SHIMADZU CORPORATION. International Marketing Division

3. Kanda-Nishikicho 1-chome, Chiyoda-ku, Tokyo 101-8448, Japan Phone: 81(3)3219-5641 Fax: 81(3)3219-5710
Cable Add.: SHIMADZU TOKYO

URL <http://www.shimadzu.com>



Shimadzu Corporation Medical Systems Group has been certified by TUV Rheinland as a manufacturer of medical equipment and systems in compliance with ISO9001:2000 Quality Management Systems and ISO13485:2003 Medical Equipment Quality Management Systems.