

E7804X

Rotating Anode X-ray Tube Assembly

- ◆ Compact X-ray tube assembly for CT scanner featuring extremely high cooling performance.
- ◆ Liquid metal lubricated bearings (LM bearings) is applied in the rotation system.
- ◆ All-metal extra-heavy anode disc is constructed with specially processed rhenium-tungsten-faced molybdenum alloy target.
- ◆ The anode heat content is 2840 kJ (4000 kHU) and the maximum anode heat dissipation rate is 10.2 kW.



General Data

IEC Classification (IEC60601-1:1988+Amd.1:1991+Amd.2:1995)

..... **Class I ME EQUIPMENT**

Electrical:

Circuit:

High Voltage Generator Constant potential high-voltage generator

Grounding Center-grounded

Nominal X-ray Tube Voltage 135 kV

Nominal Focal Spot Value (IEC60336:1993):

Large Focus 1.7 × 1.6

Small Focus 0.9

Nominal Anode Input Power:

Large Focus 48 kW

Small Focus 30 kW

★The information contained herein is presented only as a guide for the applications of our products.
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★The information contained herein may be changed without prior notice. It is therefore advisable to contact TETD before proceeding with the design of equipment incorporating this product.

Absolute Maximum and Minimum Ratings

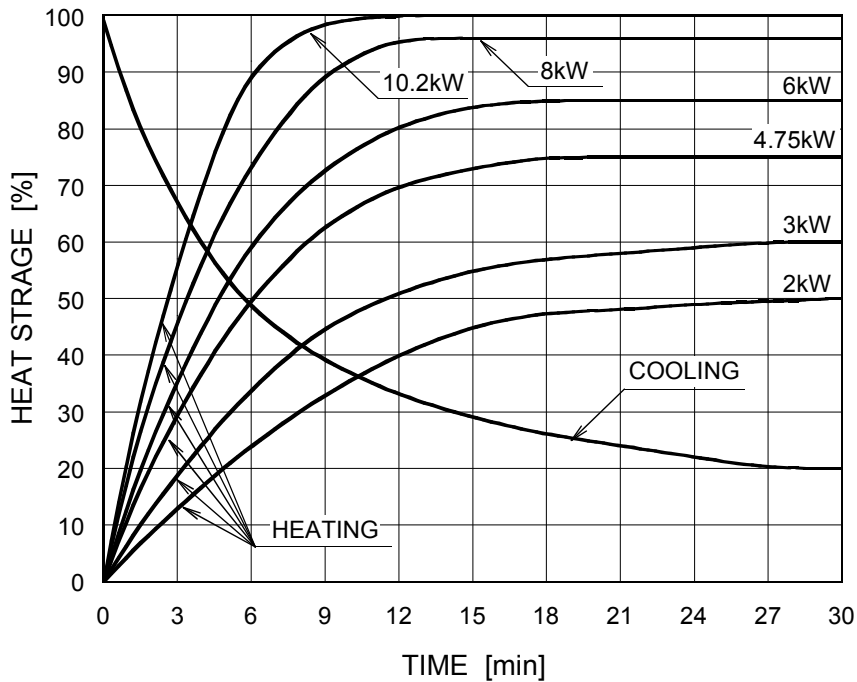
(At any time, these values must not be exceeded.)

Maximum X-ray Tube Voltage	135 kV
Between Anode (or Cathode) and Ground	67.5 kV
Minimum X-ray Tube Voltage	80 kV
Maximum X-ray Tube Current:	
Large Focus	400 mA
Small Focus	300 mA
Maximum Filament Current:	
Large Focus	5.2 A
Small Focus	5.2 A
Filament Voltage:	
Large Focus (At max. filament current 5.2 A)	9.7 ~ 13.2 V
Small Focus (At max. filament current 5.2 A)	10.1 ~ 13.8 V
Long Time Maximum Input	4.0 kW (5.63 kHU/s)
Thermal Characteristics:	
Maximum Anode Heat Content	2840 kJ (4000 kHU)
Maximum Anode Heat Dissipation	10.2 kW (14.4 kHU/s)
Operating Anode Heat Dissipation	5.7 kW (8.03 kHU/s)
X-ray Tube Assembly Heat Content	3750 kJ (3280kHU)
Maximum Continuous Heat Dissipation:	
With Heat Exchanger	4.0 kW (5.63 kHU/s)
	Ambient Temperature 45°C
	Oil Temperature 80°C

Environmental Limits

Operating Limits:	
Temperature	18 ~ 45 °C
Humidity	30 ~ 80 %
	(no condensation)
Atmospheric Pressure	70 ~ 106 kPa
Altitude.....	2000 m
Shipping and Storage Limits:	
Temperature	-20 ~ 75 °C
Humidity	20 ~ 90 %
	(no condensation)
Atmospheric Pressure	50 ~ 106 kPa

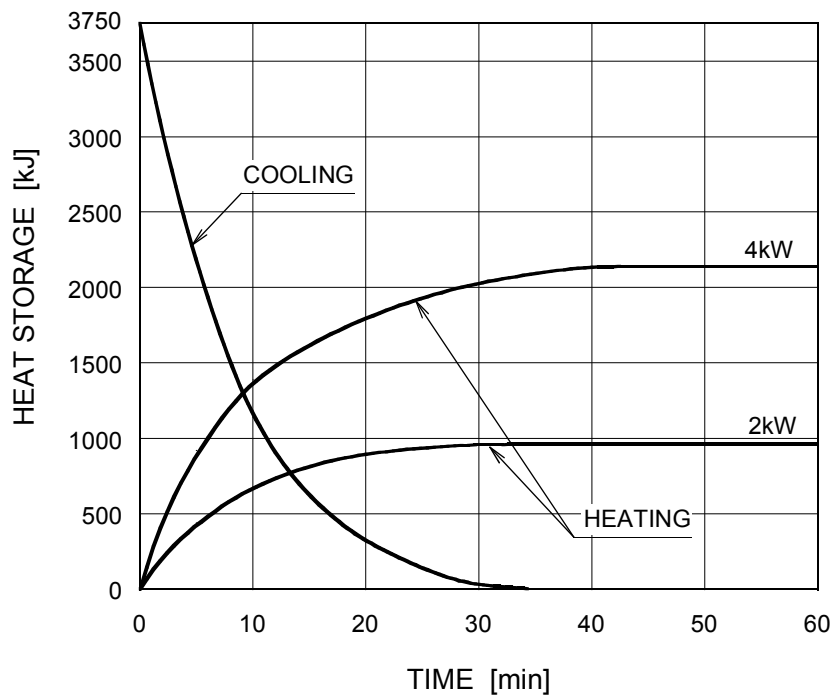
Anode Heating / Cooling Curve



Notes

1. Heat storage of the anode is calculated based on the anode thermal characteristics. This determines the X-ray input conditions for subsequent X-ray exposure. For specifying conditions, contact TETD.
2. To avoid the over-load, the OLP (overload protection) program should be used to restrict the X-ray input conditions. The X-ray tube assembly should not be used in systems which do not incorporate the OLP program.
When absolutely impossible to use a system which incorporate the OLP program, contact TETD for operating procedures.
3. Before you make the OLP program, contact TETD for the detail conditions.

X-ray Tube Assembly Heating / Cooling Curve

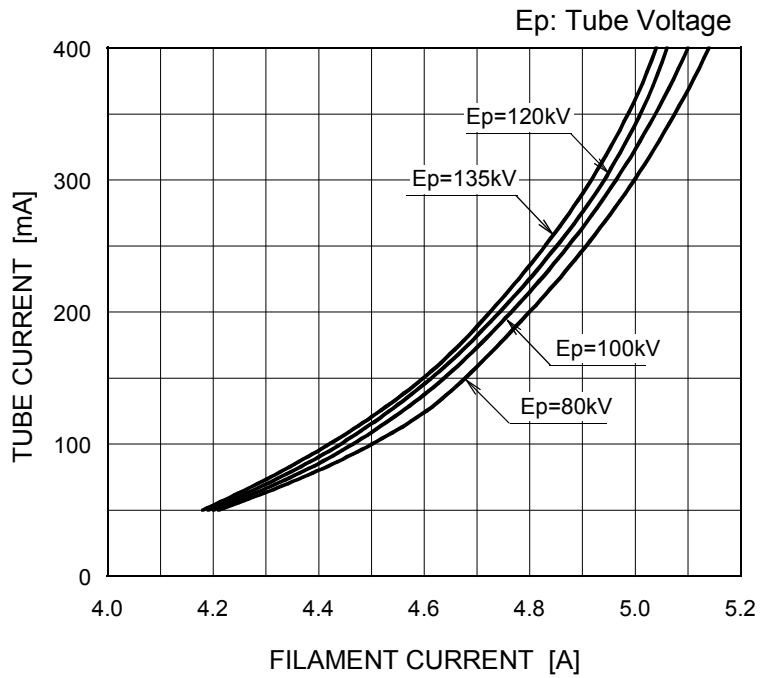


Maximum Rating Tables (Absolute Maximum Rating Tables)

Scan Time [Seconds]	Large Focus [kW]	Small Focus [kW]
1	48	30
5	48	30
10	43.5	29
20	40	27
30	37	26
40	36	25
50	28	24
60	28	22

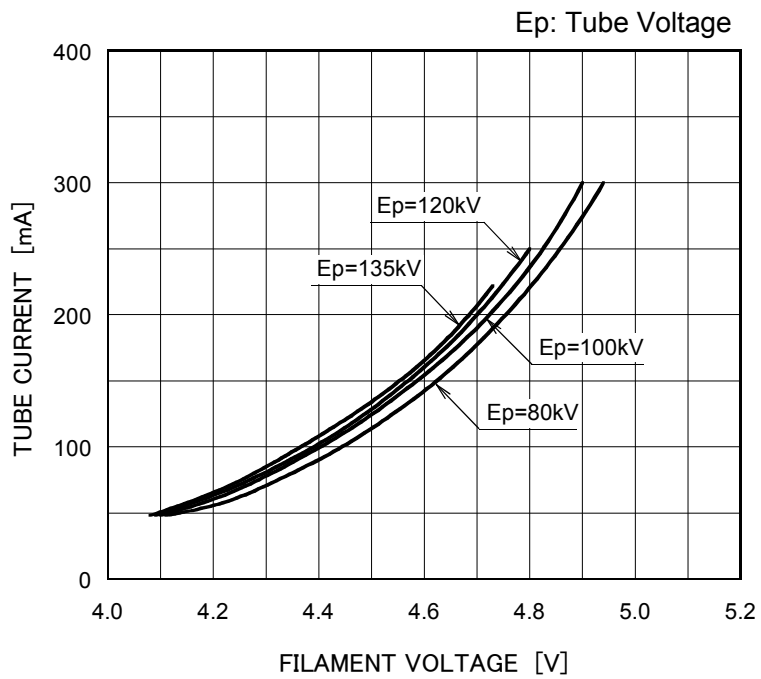
Emission Characteristics

Large Focus ■



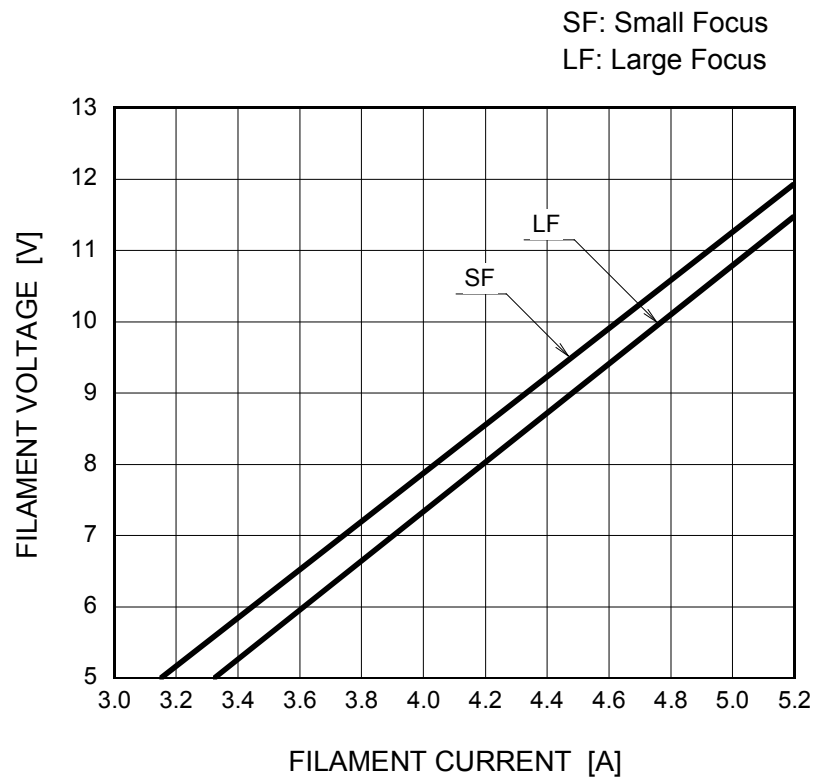
For reference Only

Small Focus □



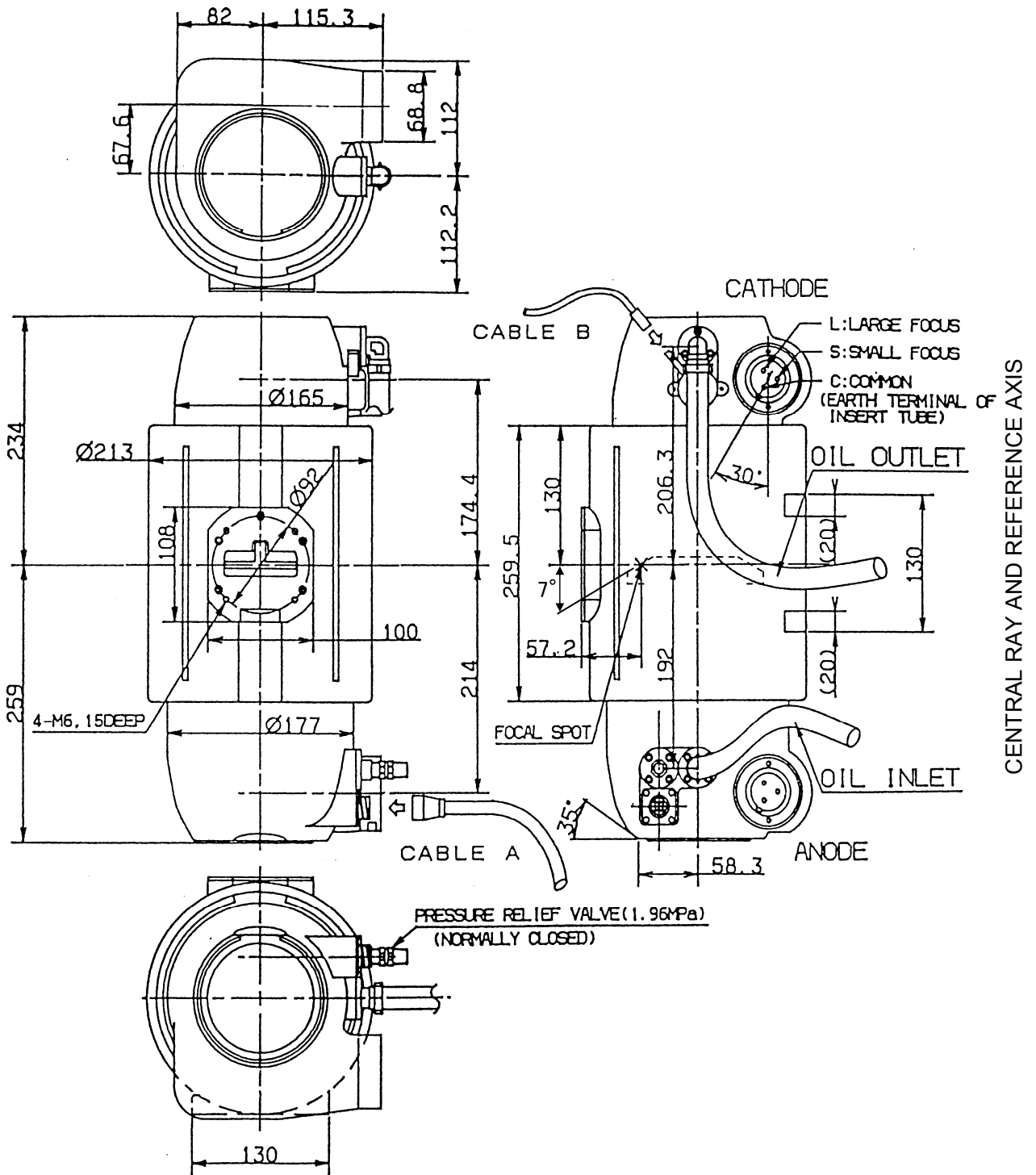
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Filament Characteristics

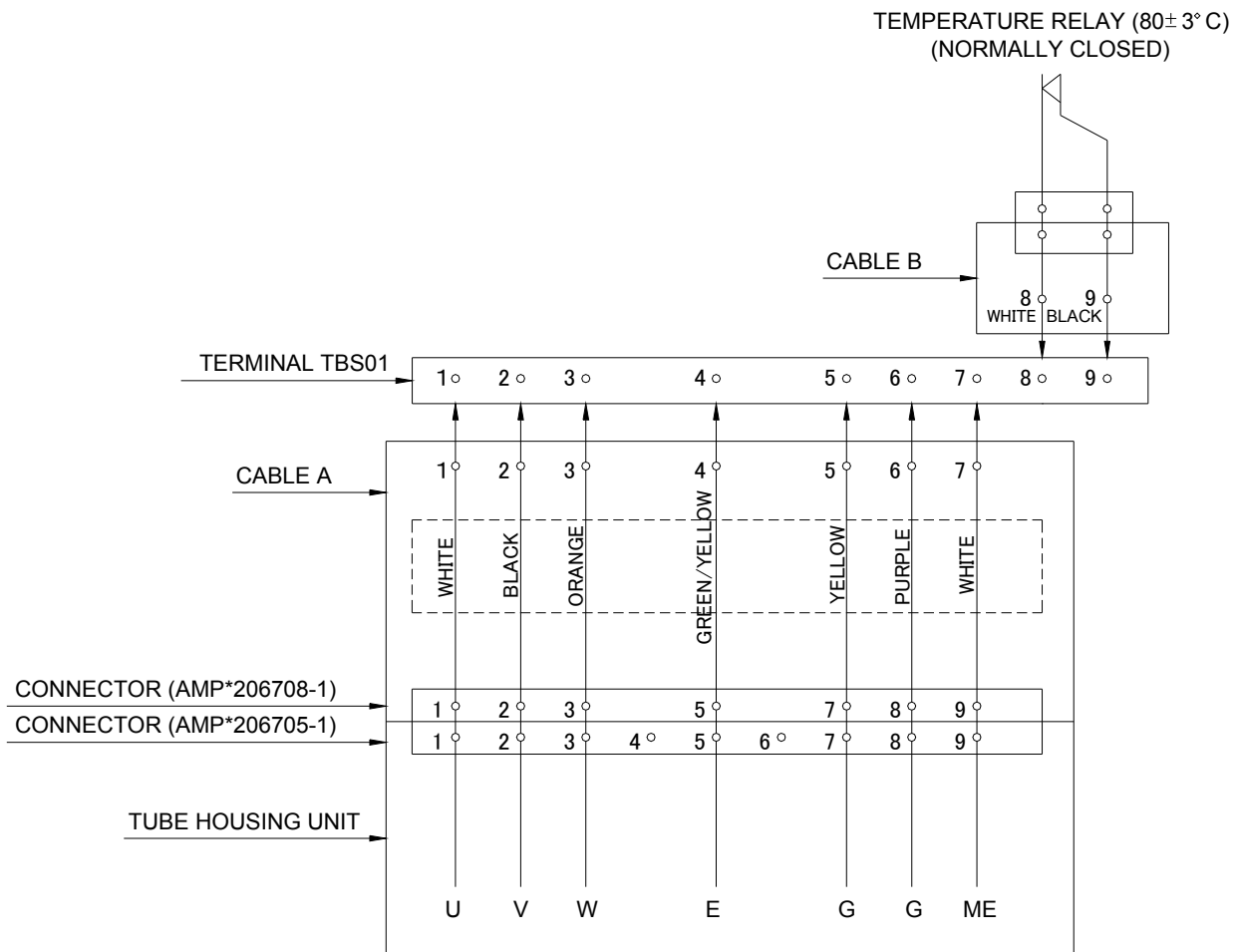
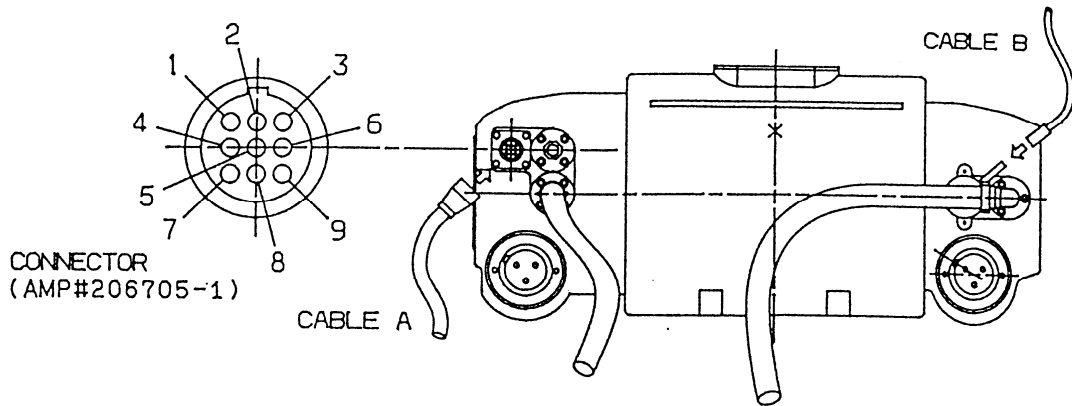


Dimensional Outline of Tube Housing Unit

Unit: mm



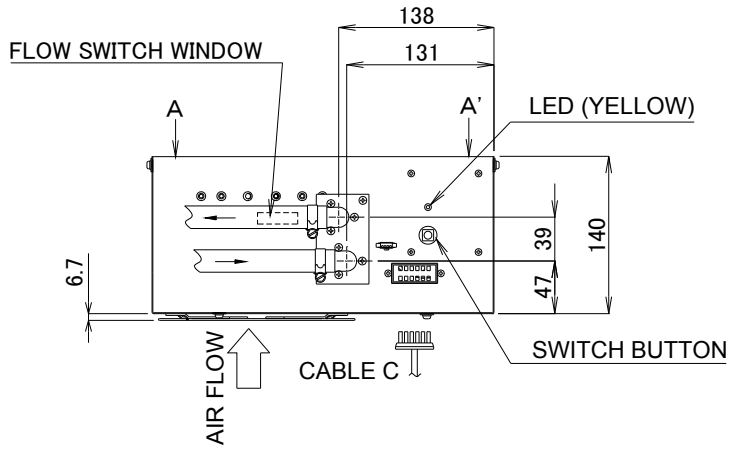
Terminal Connections of Tube Housing Unit



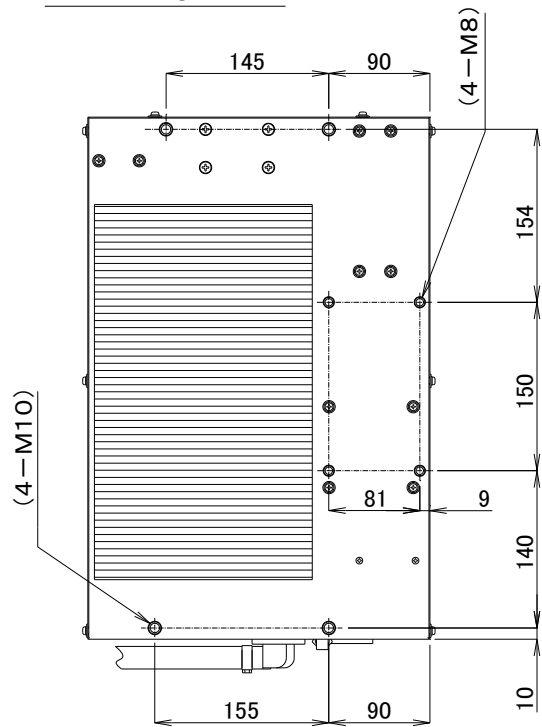
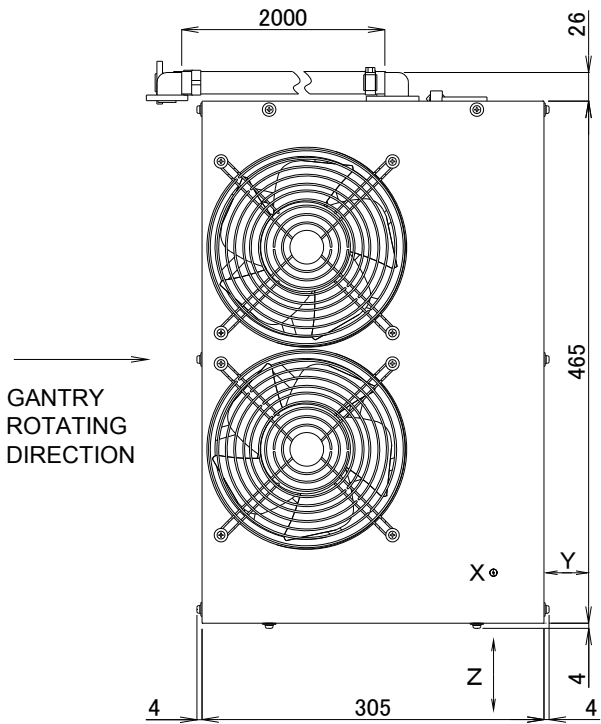
- U : U PHASE WINDING OF THE STATOR COIL
- V : V PHASE WINDING OF THE STATOR COIL
- W : W PHASE WINDING OF THE STATOR COIL
- E : EARTH TERMINAL OF HOUSING ASS.
- G : GETTER TERMINAL
- ME : EARTH TERMINAL OF INSERT TUBE METAL ENVELOPE

Dimensional Outline of Heat Exchanger

Unit: mm

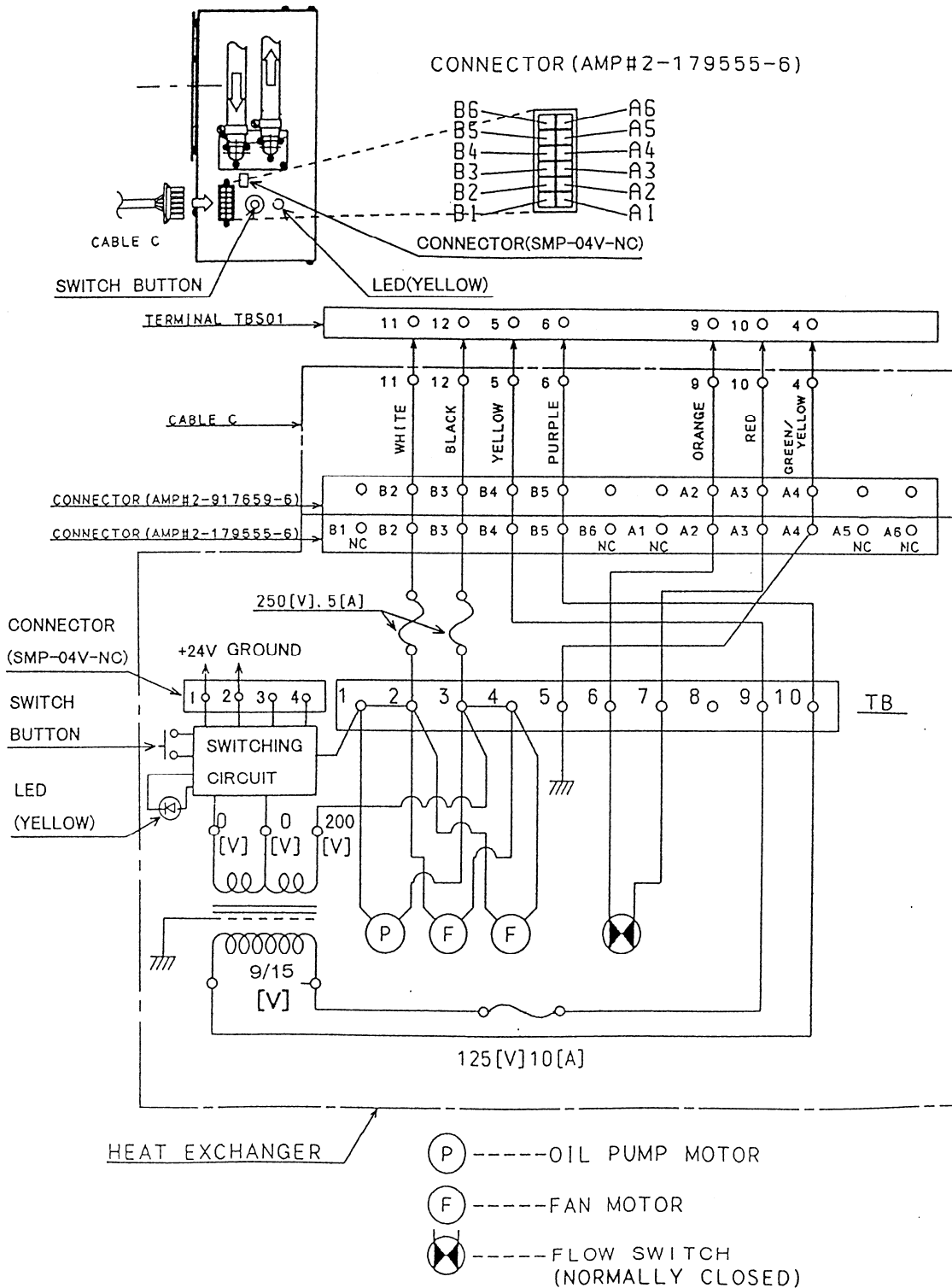


VIEW FROM A-A'



PAINT COLOR: WHITE (Munsell N9.5)

Terminal Connections of Heat Exchanger



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·Toshiba Electron Tubes & Devices Co., Ltd. meets internationally recognized Standards for Quality Management System ISO9001, ISO13485.