FERRANTI

DEMOUNTABLE LOW VOLTAGE X-RAY TUBE

B210D

A demountable X-Ray Tube with provision for rapid replacement of the filament.

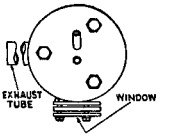
The tube has an inclined target which is water cooled and can be operated up to 10mA beam current at a target voltage of 40kV.

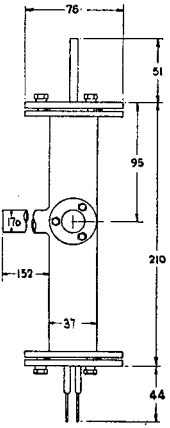
A special feature is the polythene window which can also be easily replaced if necessary.

As this polythene window is very transparent to soft X-Rays a very high intensity of X radiation can be obtained with target voltages as low as 5kV. The tube can therefore be operated under conditions which produce an X-Ray output which provides a much higher ratio of characteristic radiation to "white" radiation than is normally obtainable from conventional types of X-Ray tubes.

The electrical characteristics and focus of the tube can be controlled by application of suitable potentials to a screen which is positioned round the directly heated tungsten filament.

The tube is not of the micro-focus type but is primarily intended for use in applications requiring fairly fine focus at comparatively high power.





All dimensions shown are in millimetres.

PHYSICAL DETAILS.

Max. Overall Length	305 mm.
Max. Overall Diameter (excl. exhaust tube) ...	78 mm.
Max. Tube Diameter	38 mm.
For other dimensions see drawing.	
Mounting Position	Any.
Target	Copper.

RATINGS.

Max. Target Voltage	40 kV.
Max. Target Dissipation ...	400 watts.
Max. Negative Screen Voltage	1400 volts.
Max. Filament Current ...	3·5 Amps.

TYPICAL OPERATION.

Filament Current	2·0 Amps.
Filament Voltage	6·0 Volts approx.
Target Voltage	40 kV.
Screen Voltage	0 to −1400 Volts.
Spot Size (approx.) at 500 μA.	0·5 mm.
Spot Size (approx.) at 10 mA. ...	1·0 mm.

MODE OF OPERATION.

Adjust the filament current to 1·5 amps and set the screen voltage at −800V. Increase the E.H.T. supply to the Target continuously from zero to the required operating potential. Adjust the screen voltage to bring the beam to a sharp focus on the target (as indicated by the usual photographic methods). Adjust the filament supply to give the required beam current. Repeat the last two adjustments in order to obtain optimum focus. In general it is desirable to operate the tube with the highest negative screen potential which will give sufficient beam current.

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