

# Permanent Sensitivity X-RAY COUNTER

## Description 6207 (153C)

The type 153C is an optimum design for an end mica window, X-Ray diffraction and fluorescence analysis counter. It has maximum sensitivity to the characteristic radiation of the usual X-Ray diffraction targets. The infinite-life, halogen filling allows the exposure of the tube to the direct X-Ray beam without any adverse effect.

## General Data

|                                   |                                          |
|-----------------------------------|------------------------------------------|
| Operating temperature range.....  | -55° to +75°C                            |
| Gas filling.....                  | Argon plus halogen admixture             |
| Cathode material.....             | stainless steel (28% chromium, 72% iron) |
| Mica window <sup>6</sup> .....    | 3 to 4 mg/cm <sup>2</sup>                |
| Mica window diameter.....         | 25/32"                                   |
| Length of sensitive gas path..... | 100 mm                                   |
| Recommended X-Ray beam width..... | 1.2 cm                                   |
| Effective cathode dimensions..... | 4 3/8" long x 7/8" O.D. x 3/64" wall     |

## Performance Data

|                                                         |                           |
|---------------------------------------------------------|---------------------------|
| Operating voltage <sup>1,4</sup> .....                  | 1500 volts D.C.           |
| Plateau length <sup>1</sup> .....                       | in excess of 400 volts    |
| Slope of plateau <sup>1,4</sup> .....                   | 3% to 8% per 100 volts    |
| Starting voltage (0.3 volt pulses) <sup>1</sup> .....   | 1300 to 1400 volts        |
| Capacity at terminals.....                              | 2.4 mmf                   |
| Radial sensitivity.....                                 | 65% to 70%                |
| Dead time (approx.).....                                | 150 microseconds          |
| Maximum counting rate <sup>5</sup> .....                | 1100 counts per second    |
| Background (Shielded 2" lead<br>and 1/8" aluminum)..... | 60 counts*per minute max. |
| Life expectancy in counts <sup>2</sup> .....            | unlimited by use          |

## Notes

<sup>1</sup> This data is obtained from an automatic plateau trace run on each tube.

A print of this trace is shipped with each tube.

<sup>2</sup> Guaranteed  $5 \times 10^{10}$  counts minimum.

<sup>3</sup> These tubes will operate satisfactorily anywhere on the plateau.

<sup>4</sup> At an average counting rate of 100 counts per second.

<sup>5</sup> For 20% dead time correction (approx.).

<sup>6</sup> 3.5 mg/cm<sup>2</sup> mica = .0005 inch = 12.70 microns.

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