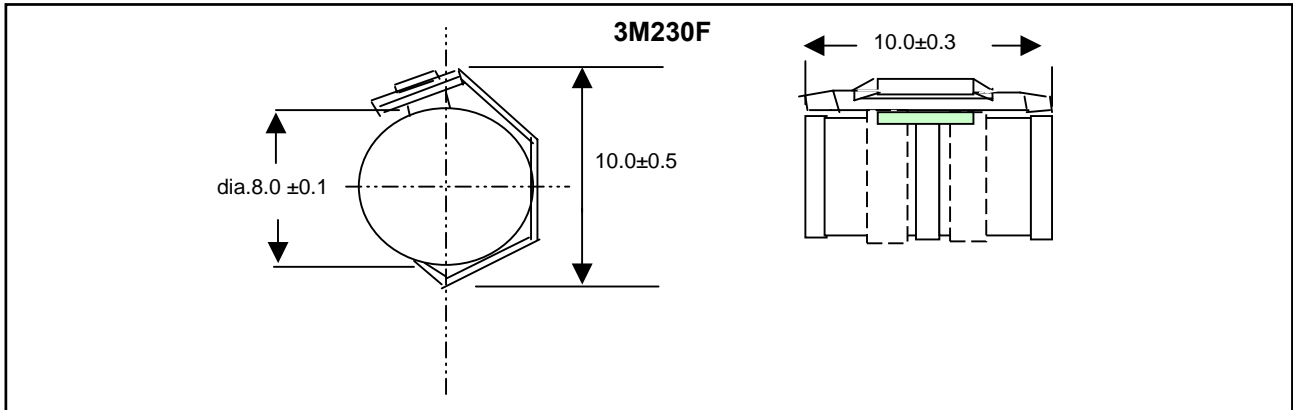


**HAKEL GAS DISCHARGE TUBES - SALIENT FEATURES**

- \* Stable breakdown voltage
- \* High insulation resistance; enables the use in high temperature and humidity
- \* Small capacitance; minimises transmission loss and noise even with high frequency range
- \* High durability against surges and fast restorability
- \* Long life
- \* Free of radioactive substance
- \* Inexpensive for superior performance
- \* High mechanical strength prevents leak and breakdown from strong shock
- \* Various types available



| Type 3 TERMINAL CERAMIC TYPE GD TUBE - 3M230F                             |                               |                    |                       |
|---|-------------------------------|--------------------|-----------------------|
| Sl. No.   | Description                   | Test Condition     | Specification         |
| <b>ELECTRICAL CHARACTERISTICS, Test Methods as per ITU-T (CCITT) K.12</b> |                               |                    |                       |
| 1   | D.C Spark-Over Voltage        | 100V/Sec           | 230 ±20%              |
| 2   | Impulse Spark-Over Voltage    | 100V/μsec          | <500V                 |
| 3   | Impulse Spark-Over Voltage    | 1000V/μsec         | <650V                 |
| 4   | Impulse Transverse Delay      | 1000 V/μ sec       | < 75ns                |
| 5   | Insulation Resistance         | 100V               | >10 <sup>10</sup> Ohm |
| 6   | Glow Voltage                  | 10 mA              | < 70 V                |
| 7   | Arc Voltage                   | 2 A                | < 10 V                |
| 8   | Capacitance                   | 1 M Hz             | < 1.5 pF              |
| 9   | DC Holdover Voltage           | 135 V              | < 150 ms              |
| 10  | Impulse Discharge Current     | 10000 A, 8/20μsec  | 10 Operations         |
|   |                               | 200 A, 10/700μsec  | 500 Operations        |
|   |                               | 200 A, 10/1000μsec | 300 Operations        |
| 11  | Alternating Discharge Current | 10 A r.m.s, 1 sec  | 10 Operations         |
| 12  | Fail-safe Operating Time      | 10 A r.m.s.        | < 5 Sec               |

**NOTES:**

1. All dimensions are in mm
2. Electrodes are nickel plated.
3. Marking on the GD Tube

3M230F  
 3 : 3 Terminal GD Tube  
 M : Dimension  
 230 : 230 Volts  
 F : With Fail-safe Mechanism  
 HAKEL : Manufacturer  
 MM : Month of manufacture  
 YY : Year of manufacture

4. Blister packing