



EVERYTHING

IN A

NEW

LIGHT.

Triggered Spark Gaps Ceramic-Metal

PerkinElmer's Triggered Spark Gaps are a family of versatile high voltage switches. They consist of three electrodes in a hermetically sealed, pressurized ceramic envelope. Triggered Spark Gaps are generally characterized by a peak current capability of thousands to tens of thousands of amperes, delay times of tens of nanoseconds, arc resistance of tens of milliohms and inductance of 5 to 30 nanohenries. They are suitable for capacitor switching applications such as flash-lamps, electrically pumped gas lasers, medical lithotripters, and as crowbar protection devices.



Features

- Fast switching operation
- High voltage holdoff
- Ceramic-metal construction
- No warm up period
- High current capability
- Long life

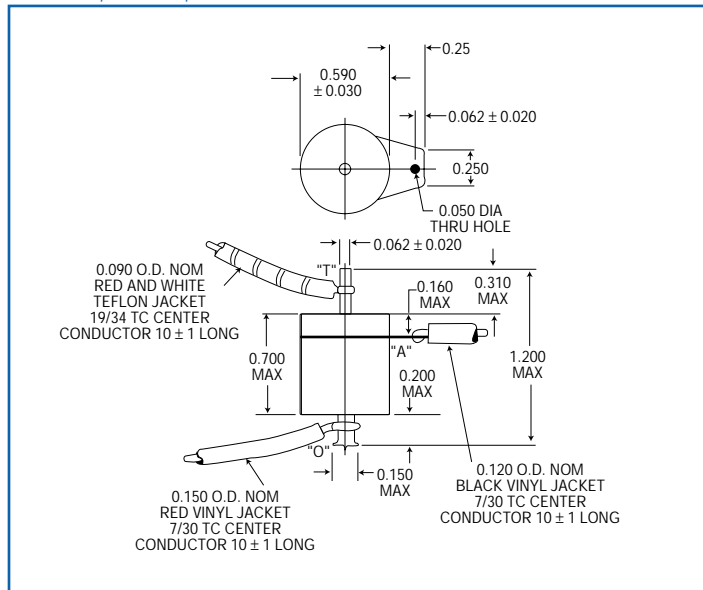
Triggered Spark Gap Ratings

| PerkinElmer Model No. | O-A Range, kV Min/Max (1, 10) | | SBV, kV (4) | V _T Min Trig (kV Open Circuit) (5) | Trigger Mode | Recommended PerkinElmer Transformer (6, 7) | Typical Delay Time* * when operated in mode A (Nanoseconds) | | Simultaneous Ratings Crowbar Service, Typical Life: 5000-20,000 Shots (11) | Simultaneous Ratings Repetitive Switching Typical Life: 1-5 Million Shots (11) |
|-----------------------|-------------------------------|------------|-------------|---|--------------|--|--|------|--|--|
| | At 70% SBV | At 40% SBV | | | | | | | | |
| GP-89 | 0.7 | 2.1 | 2.6 | 10 | C | TR-148A | 100 | 1000 | 5 kA peak 0.1 coulomb | 3 millicoulombs/shot I _b = 35 mAdc I _p = 6 Aac |
| GP-90 | 1.3 | 3.4 | 4.2 | | C | | | | | |
| GP-91 | 4.4 | 10 | 12.5 | | A,C | TR-180B | | | | |
| GP-93 | 8 | 20 | 25 | | A, C | | | | | |
| GP-82B | 0.4 | 1.6 | 2 | 10 | A,B | TR-148A | 30 | 300 | 7.5 kA peak 0.2 coulomb | 4 millicoulombs/shot I _b = 60 mAdc I _p = 8 Aac |
| GP-31B | 2 | 6 | 7.5 | | A | TR-180B | | | | |
| GP-20B | 3.5 | 11 | 14 | | | | | | | |
| GP-46B | 8 | 20 | 25 | | | | | | | |
| GP-85 | 2 | 6 | 8 | 20 | A,B | TR-1795 | 30 | 300 | 25 kA peak 0.4 coulomb | 4 millicoulombs/shot I _b = 100 mAdc I _p = 10 Aac |
| GP-86 | 6 | 15 | 20 | | A | TR-180B | | | | |
| GP-87 | 10 | 24 | 30 | | | TR1700 | | | | |
| GP-70 | 12 | 36 | 42(8) | | | | | | | |
| GP-30B | 2 | 6 | 7.5 | 20 | A,B | TR-1795 TR-1700 | 30 | 300 | 50 kA peak 0.5 coulomb | 10 millicoulombs/shot I _b = 200 mAdc I _p = 15 Aac |
| GP-22B | 6 | 15 | 19 | | A | | | | | |
| GP-12B | 10 | 24 | 30 | | | | | | | |
| GP-14B | 12 | 36 | 42(8) | | | | | | | |
| GP-41B | 12 | 36 | 42 | 20 | A,B | TR-1795 | 30 | 300 | Peak currents up to 100 kA and charge transfer up to 5 coulombs are obtainable at reduced life (100-1000 shots). | |
| GP-32B | 20 | 48 | 60(8) | | A | TR-1700 | | | | |
| GP-15B | 25 | 60 | 86(8) | | | | | | | |
| GP-74B | 40 | 100 | 120(8) | 20 | A | TR-1795 | 30 | 300 | | |
| GP-81B | 40 | 100 | 120(9) | | | TR-1700 | | | | |

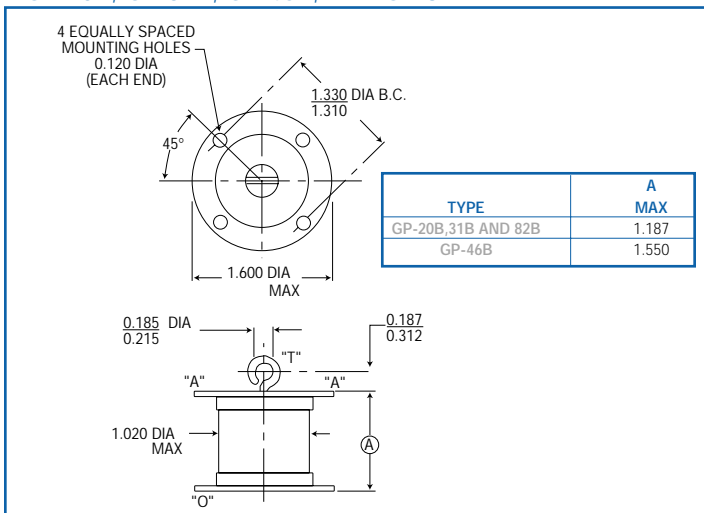
Notes

- Optimum operating voltage is typically 60 to 80% of SBV.
- Operation below minimum value may result in erratic firing over time.
- Operation at this value may result in self-firing over time.
- Represents minimum main-gap breakdown voltage with no trigger applied.
- Value shown contains safety factor for end-of-life requirements.
- PerkinElmer TM-11A Trigger Module can be used to trigger all gaps.
- Transformers listed vary mechanically and electrically. See PerkinElmer Transformer Data Sheet.
- These units must be operated in a liquid or gas dielectric to prevent external flashover: GP-70 and GP-14B, above 24 kV; GP-32B and GP-15B, above 35 kV; GP-74B and GP-81B, above 60 kV.
- Designed for high altitude, high holdoff conditions.
- Other voltage ranges and mechanical configurations are available on request; for example, the GP-20B can be supplied with a 6 to 16 kV operating range by specifying GP-20B-20. The 20 would be the SBV and E-E maximum would be 80% of SBV = 16kV.
- E = Stored energy in joules ($\frac{1}{2}CV^2$), I_b = average current in amperes, I_p = RMS current in amperes, R = total circuit resistance in ohms, P = average power in watts.

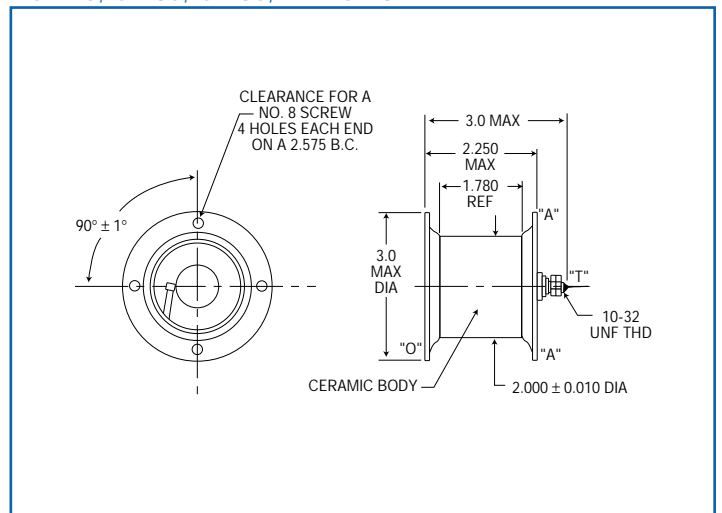
GP-89, GP-90, GP-91 AND GP-93



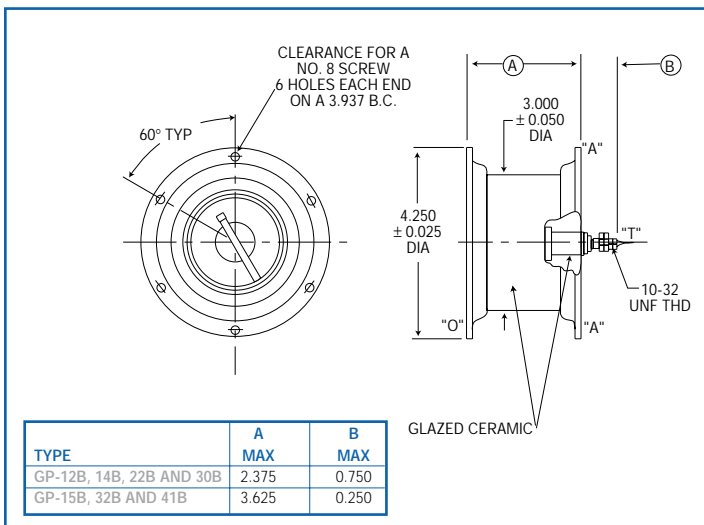
GP-20B, GP-31B, GP-46B, AND GP-82B



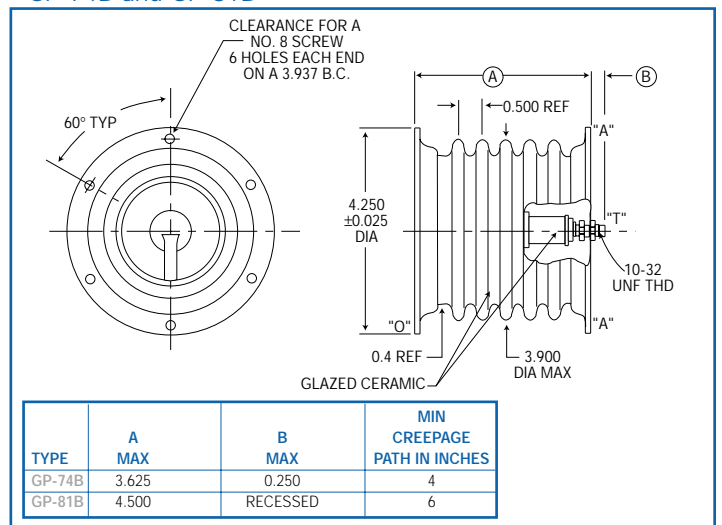
GP-70, GP-85, GP-86, AND GP-87



GP-12B, GP-14B, GP-15B, GP-22B, GP-30B, GP-32B AND GP-41B



GP-74B and GP-81B



"A" = ADJACENT ELECTRODE,

"O" = OPPOSITE ELECTRODE,

"T" = TRIGGER PROBE

Note: Dimensions in inches

All data and specifications subject to change without notice.

Environmental Specifications

| | |
|--------------------------------|------------------------------|
| Ambient temperature range | |
| Operating temperature range | -54 to +100°C |
| Nonoperating temperature range | -65 to +125°C |
| Vibration | 15 to 500 Hz at 10 g maximum |
| Shock | 50 g, 11 milliseconds |
| Thermal Shock | -65 to +125°C |

Electrical Specifications

| | |
|---------------------------|--|
| Electrode capacity | Less than 5 pf. |
| Interelectrode resistance | Greater than 10 ¹⁰ ohms at 500 V. |

Mechanical Specifications

| | |
|-------------------------|--|
| Envelope | Ceramic-metal, hermetically sealed, exposed metal parts nickel plated. |
| Torque applied to studs | 6 inch-pounds maximum. |

Marking

PerkinElmer's trademark, part designation, and date code.

PerkinElmer welcomes inquiries about special types. We would be pleased to discuss the requirements of your application and the feasibility of designing a type specifically suited to your needs.

Our Quality and Environmental Policy

*“Our goal is to supply our customers
the agreed quantity of specified products and services,
defect free and on time while conducting business
in an environmentally responsible manner”*

* All values are nominal; specifications subject to change without notice.

To request additional information, receive a quote, or place an order, please contact PerkinElmer Optoelectronics at office listed below.



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