



EVERYTHING

IN A

NEW

LIGHT.

Triggered Vacuum Gaps GPV-Series

The Triggered Vacuum

Spark Gaps are ideal high-voltage switches for applications where a wide operating voltage range is desired. The low end of the operating voltage range is independent of the Static Breakdown Voltage (SBV). Operating ranges from 300 volts to 80 kilovolts are possible. Switching times (from the trigger input to the start of main gap current flow) of less than 1 microsecond may be achieved when using a suitable trigger. These switches are commonly used in "crowbar" circuits for protection against overvoltage conditions.



Features

- Wide operating voltage range
- Ceramic-metal construction
- No warm up period
- High current capability
- Long life

Standard Model Operating Characteristics ⁽¹⁾

| Type Number | Static Breakdown Voltage ^(2,7) (Kilovolts) | Maximum Peak Current ⁽³⁾ (Kiloamperes) | Maximum Conducted Charge per shot ⁽⁴⁾ (Coulombs) | Contains Wall Shield ⁽⁵⁾ (Y/N) | Contains Mercury ⁽⁶⁾ (Y/N) | Typical Operating Voltage Range (Kilovolts) |
|-------------|---|---|---|---|---------------------------------------|---|
| GPV-63 | 65 | 50 | 0.5 | N | Y | 0.3 - 50 |
| GPV-6301 | 50 | 50 | 0.5 | N | Y | 0.3 - 40 |
| GPV-6313 | 100 | 60 | 0.5 | Y | N | 0.3 - 80 |
| GPV-6322 | 65 | 60 | 0.5 | Y | N | 0.3 - 50 |
| GPV-7013 | 40 | 20 | 0.3 | N | N | 0.3 - 32 |

Environmental Specifications

| | |
|--------------------------------|--|
| Ambient temperature range | |
| Operating temperature range | -54 to +100°C without mercury, -54 to +50°C with mercury |
| 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

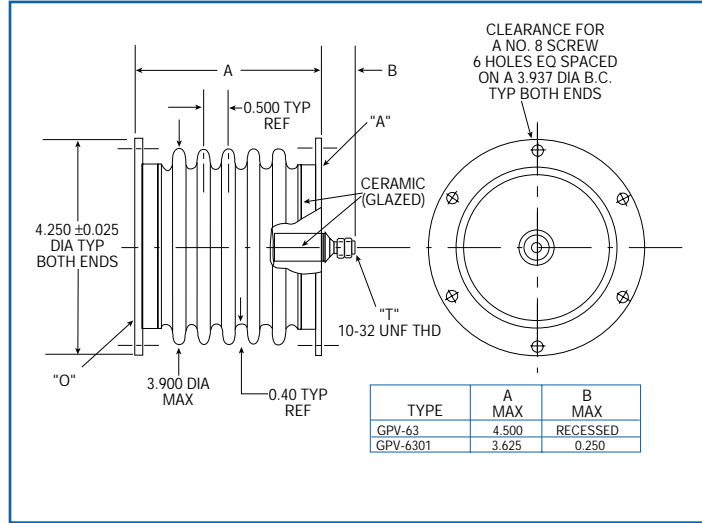
| | |
|-------------------------|--|
| Envelope | Ceramic-metal, hermetically sealed, exposed metal parts nickel plated. |
| Torque applied to studs | 6 inch-pounds maximum. |

Notes

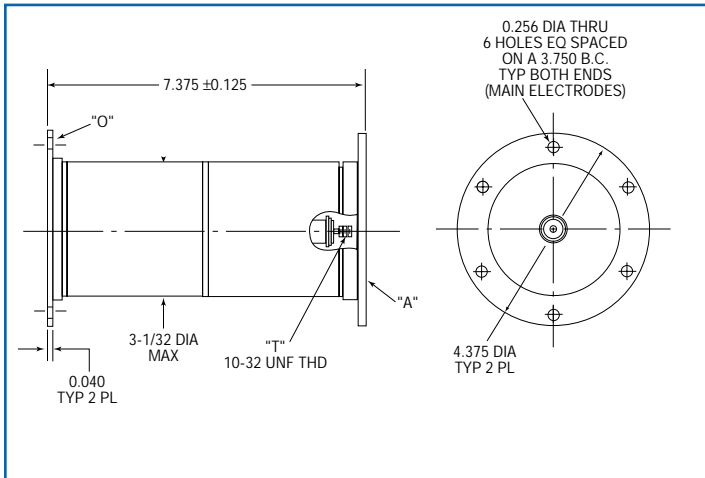
- The operating characteristics shown here are intended as an aid to *preliminary* gap selection. The characteristics listed are typical for the indicated types under standard environmental conditions. The conditions found in many applications will influence gap operating characteristics; therefore, some characteristics may not be simultaneously achievable. Prospective users of these gaps should be aware of the limitations in the data being presented. Contact PerkinElmer for information concerning the performance to be expected in the intended application.
- SBV is the Static (Self) Breakdown Voltage. It is the dc voltage across the main gap (between the opposite and adjacent electrodes, O-A) above which the gap is likely to break down (conduct) with no trigger applied.
- The peak current applies for a critically damped discharge. Current reversals degrade life, so gap operation in the underdamped condition should be avoided when possible.
- In underdamped circuits, each current half-cycle contributes to the total conducted charge, i.e., conducted charge increases independently of the direction of gap current. Therefore, the total conducted charge, including any "follow-through" current, should not exceed the maximum conducted charge indicated.
- Includes an internal shield to slow deposits of discharge debris on the insulating ceramic.
- A small amount of metallic mercury is used in these gaps to aid in the formation of the initial discharge. These gaps should not be operated above 50°C. Care should be exercised in the handling and disposal of these gaps.
- Proper application of these gaps may require them to be immersed in insulating oil or gas depending on the operating voltage level and environmental factors. A method to circumvent electrical breakdown across the outside surfaces of the ceramic insulators of the gap may be necessitated in some uses. Some of the more important factors to consider in determining the insulation qualities of the environment are altitude (local atmospheric pressure); humidity; dust; cleanliness; temperature and pulsed versus dc operation.

Mechanical Specifications

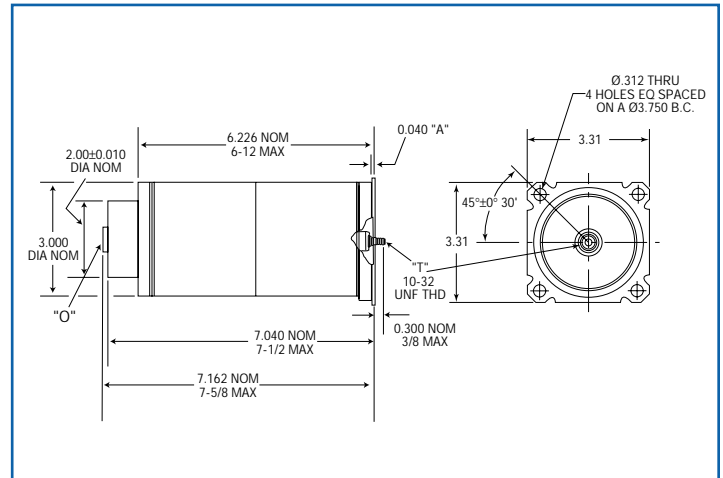
GPV-63, GPV-6301



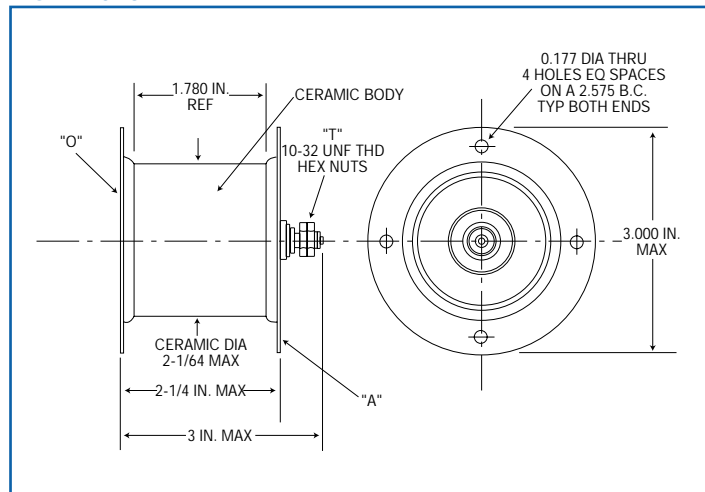
GPV-6313



GPV-6322



GPV-7013



"A" = ADJACENT ELECTRODE,

"O" = OPPOSITE ELECTRODE,

"T" = TRIGGER PROBE

Note: Dimensions in inches

All data and specifications subject to change without notice.

Marking

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

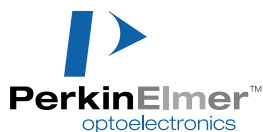
PerkinElmer welcomes inquiries about special types. We would be pleased to discuss the requirements of your application and the feasibility of designing a type specifically suited to your needs.

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.



PerkinElmer Optoelectronics
35 Congress Street
Salem, MA 01970
Toll Free: (800) 950-3441 (USA)
Phone: (978) 745-3200
Fax: (978) 745-0894

www.perkinelmer.com/opto

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