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# **DIRECT**

## **Electronics Tech.**

### **(BSR, BSQ) Slide Rotary Resistor Enclosure**

Web: [www.direct-token.com](http://www.direct-token.com)

Email: [rfq@direct-token.com](mailto:rfq@direct-token.com)

**Direct Electronics Industry Co., Ltd.**

**China:** 12F, Zhong Xing Industry Bld., Chuang Ye Road,  
Nan Shan District, Shen Zhen City,  
Guang Dong, China 518054  
Tel: +86 755 26055363; Fax: +86 755 26055365

**Taiwan:** No.137, Sec. 1, Zhongxing Rd., Wugu District,  
New Taipei City, Taiwan, R.O.C. 24872  
Tel: +886 2981 0109 Fax: +886 2988 7487

**▶ Product Introduction****One-of-A-Kind Enclosure Application to Hundreds of Enclosures.**

Following market demands, Direct Electronics provides enclosures to house unlimited combinations of resistors (DR or DQ Power Series) to meet design engineers and customer requirements.

Direct's high current adjustable power BSR, BSQ resistor is one-of-a-kind enclosure application to hundreds of enclosures per mount housing various resistor packages. Our engineering staff can assist the customer in meeting their unique design needs.

These quality design features include all stainless steel grids and terminals, high temperature insulation, welded construction, end-frames with gussets for added mechanical strength. Slotted mounting holes for easy installation.

Also accommodates a flexible range of assembly options for convenient utilization and installation. BSQ Ribwound resistors are particularly useful where high energy is to be dissipated in the lower Ohmic ranges. Replacements for many standard BSR round-wire resistors are available resulting in significant savings in space and cost.

The Power Adjustable BSR and BSQ Resistor is RoHS compliant and lead free. For unusual technical requirements and custom special applications, please contact us. Or link to Direct official website "[High Power Resistors](#)" to get more information.

**Features:**

- Resistance Tolerance: K( $\pm 10\%$ ).
- High power and high current applications.
- Flame resistant and rugged lead free coating.
- One-of-a-kind enclosure application to fit mount housing various resistor packages.

**To Calculate Max. Amperes:**

- Amperes = (Watts / Ohms)<sup>1/2</sup>



**► Construction**

**Rotary Slide Construction (BSR, BSQ)**

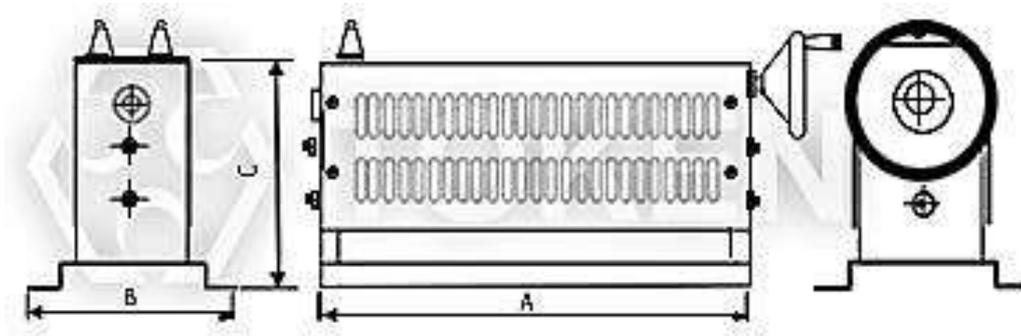
**High Current Adjustable Power Resistor Construction:**

- A tubular ceramic form has copper-alloy or chromium-alloy windings as a resistance element, with the mount attachment enclosures.
- These quality design features include all stainless steel grids and terminals, welded construction, high temperature insulation, end-frames with gussets for added mechanical strength. Slotted mounting holes for easy installation.
- The entire component is coated with a high-temperature non-flammable resin.
- The adjustable mechanism is a firm rotating point that slides directly on the resistance element, which allows variation of the desired resistance value.
- Also accommodates a flexible range of assembly options for convenient utilization and installation.

**► BSR Dimensions**

**Rotary Slide Dimensions (BSR)**

Wattage Rating	Dimensions (Unit: mm)						Max. Pickable Resistance Value ( $\Omega$ )
	Case	A	B	C	Ceramic Rod	Bakelite	
<b>200W</b>	A	285	130	135	28×250	120×70×10	6-1K $\Omega$
<b>400W</b>	B	360	150	185	40×325	170×90×10	8-2K $\Omega$
<b>500W</b>	B	360	150	185	40×325	170×90×10	10-2.5K $\Omega$
<b>1000W</b>	C	570	160	200	60×535	185×100×10	15-5K $\Omega$
<b>1300W</b>	D	680	160	200	65×645	185×100×10	16-6K $\Omega$

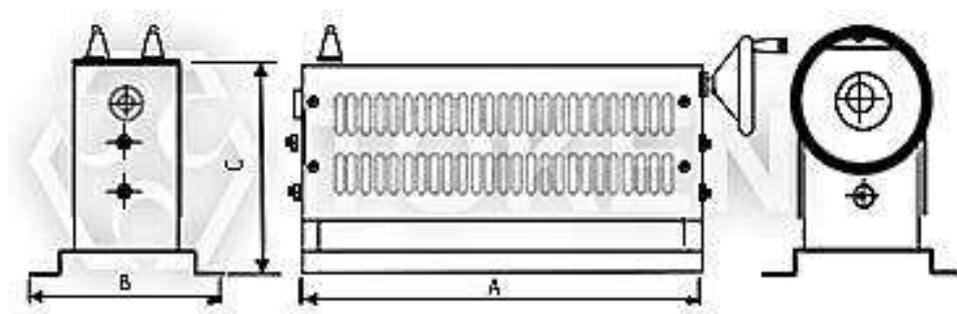


**Power Adjustable Slide Resistor (BSR) Dimensions**

**► BSQ Dimensions**

**Rotary Slide Dimensions (BSQ)**

Wattage Rating	Dimensions (Unit: mm)						Max. Pickable Resistance Value ( $\Omega$ )
	Case	A	B	C	Ceramic Rod	Bakelite	
<b>300W</b>	A	285	130	135	28×250	120×70×10	6-30 $\Omega$
<b>600W</b>	B	360	150	185	40×325	170×90×10	8-60 $\Omega$
<b>750W</b>	B	360	150	185	40×325	170×90×10	10-75 $\Omega$
<b>1500W</b>	C	570	160	200	60×535	185×100×10	15-150 $\Omega$
<b>2000W</b>	D	680	160	200	65×645	185×100×10	16-200 $\Omega$



**Power Adjustable Slide Resistor (BSQ) Dimensions**



## ▶ Application Notes

### Power Adjustable Application Notes (BSR, BSQ)

#### Determination of End Resistance Value of FVR, DQS, DSRA, DSRB, BSR, BSQ:

- Resistance Range means you can choose one maximum resistance value (Max. Pickable Resistance / End resistance value) at one of FVR, DQS, DSRA, DSRB, BSR, BSQ VR (Variable Resistor) type.
- After End Resistance Value confirmed, the minimum resistance (start resistance value) will be determined by depending on resistance of wire and wirewound type.

#### Power Rating of Variable Resistor:

The part Number formation of FVR, DQS, DSRA, DSRB, BSR, and BSQ:

Product type - Rated Wattage - Max. Pickable Resistance ( $\Omega$ ) - Resistance Tolerance

Product type means one of FVR, DQS, DSRA, DSRB, BSR, BSQ.

Rated Wattage means power rating at End Resistance Value.

Resistance Value ( $\Omega$ ) means maximum resistance value (End Resistance Value).

Resistance Tolerance means precision range of End Resistance Value.

1. Power Rating of VR (Variable Resistor) is determined by the maximum resistance value (End Resistance Value).
2. Resistance and Power Rating should be decreased while you are adjusting the screw.

#### Notes:

- Adjustability is 10% to 90% of full resistance value.
- Wattage is proportional to this adjusted resistance value.

#### Power Rating:

- Based on 25°C free air rating. The stated wattage rating applies only when the entire resistance is in the circuit.
- Setting the lug at an intermediate point reduces the wattage rating by approximately the same proportion.
- Example: If the lug is set at half resistance, the wattage is reduced by approximately one-half.

If you need current constant type or special specifications, please feel free to contact us.

## ▶ Order Codes

### Order Codes (BSR, BSQ)

BSQ	2000W	20R	K
Part Number	Rated Power (W)	Max. Resistance Value ( $\Omega$ )	Resistance Tolerance (%)
BSR	200W~1300W	Indicates resistance value in units of ohms.	K
BSQ	300W~2000W		±10%



**► General Information****Benefits & Features**

Providing design engineers with an economical resistor with high quality performance, Direct Electronics offers industry grade power wire wound devices.

Direct provide terminal blocks, thermal switches, fusing, fans, junction boxes, screened or solid bottom plates, conduit knockouts, and customer specified requirements. For large applications a welded frame construction is utilized to provide a robust design for power resistor mounting in both indoor and outdoor environments.

Products range from large capacity metal clad, nonflammable fixed and adjustable, wave ribbon wire-wound, slide, starter, box type, to nonflammable flat type. Direct extends a complete line for both military and commercial applications.

**Utilization Notes**

1. Smoke emitted from non-flammable resistors on initial use in powered circuits is a normal phenomenon and the component can be safely utilized.
2. All resistors manufactured by Direct Electronics Industry Corporation comply with the U.S. UL-94 non- flammability test, Class V-0, a continuous combustion period of zero seconds.
3. Never use organic solvents to clean non-flammable resistors.
4. Non-flammable resistors cannot be utilized in oil.
5. Non-flammable resistors cannot be used in high frequency machinery because of the inductance produced by the windings. A suitable type of resistor must be selected. Contact us for details.
6. In applications where resistors are subject to intermittent current surges and spikes, be sure in advance that the components selected are capable of withstanding brief durations of increased load.
7. Do not exceed the recommended usable load. Resistors must use within the rated voltage range to prevent the shortening of service life and/or failure of the wound resistance elements.
8. Minimum load. Resistors must be utilized at 1/10 or more of the rated voltage to prevent poor conductance due to oxidation build-up.
9. Although the hardness exceeds that of a 3H pencil lead, do not nick the resistor coating with screw drivers or other pointed objects.
10. Avoid touching non-flammable resistors in operation; the surface temperature ranges from approximately 350°C ~ 400°C when utilized at the full rated value. Maintaining a surface temperature of 200°C or less will extend resistor service life.
11. Keep temperature from rising by choosing a resistor with a higher rated capacity; do not use a component having the exact load value required. For considerations of safety in extended period applications, the resistor rating should be more than four times higher than the actual wattage involved, but never use a resistor at less than 25% of its rated power.
12. Application and Placement: Wire-wound resistors use different gauges of wire as resistance elements. Sometimes the gauge is extremely thin (finer than a strand of human hair) and very susceptible to breakage in environments containing salts, ash, dust and corrosives. Avoid utilization in such environments. Do not install in dusty areas because the accumulation will cause shorts and poor conductance.

