

Catalogue of Power Resistors

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INDEX

● DR Series Of Non-Flammable Wire-Wound Power Resistors -----	2
DDR Type 10W -1300W Tubular Ceramic, Fixed-Type Wire-Wound Resistor-----	2
DCR Type 100W -250W Tubular Ceramic, C-Shaped Wire-Wound Resistor-----	2
DNR Type 50W -1300W Tubular Ceramic, Low Inductive Wire-Wound Resistor-----	3
DSR Type 20W -1300W Tubular Ceramic, Variable Wire-Wound Resistor-----	3
● DQ Series Of Non-Flammable Wave-Shape Ribbon-Wound Power Resistors -----	5
DQR Type 75W -2000W Tubular Ceramic, Wave-Type Wire-Wound Resistor-----	5
DQN Type 75W -2000W Tubular ceramic, wave, low inductive wire-wound resistor-----	5
DQS Type 75W -2000W Tubular Ceramic, Wave, Variable Wire-Wound Resistor-----	6
● ZR Series Of Non-Flammable Flat Wire-Wound Power Resistors -----	7
ZZR Type 40W -300W Flat Ceramic Form, Set-Type, Wire-Wound Resistor-----	7
ZQR Type 60W -450W Flat Ceramic Form, Wave-Type Wire-Wound Resistor-----	7
ZNR Type 40W-300W Flat Ceramic Form, Set-Type, Low Inductive Wire-Wound Resistor-----	8
ZQN Type 60W-450W Flat Ceramic Form, Wave-Type, Low Inductance Resistor-----	8
● AL Series Of Large Capacity Metal-Clad Power Resistors -----	9
ASQ Type High Voltage, Aluminum Encased Resistor-----	9
ASH Type High Voltage, Aluminum Encased Resistor-----	10
ASZ Type High Voltage, Aluminum Encased Resistor-----	10
● VR Series Of Variable Wire-Wound Power Resistors -----	11
FVR Type 25W-100W-----	11
● ST Series Of Wire-Wound Starter Power Resistors -----	12
DST Type 500W Tubular Ceramic, Starter Wire-Wound Resistor-----	12
DST Type 600W-1000W Tubular Ceramic, Starter Wire-Wound Resistor-----	12
● SS Series Of Slide-Type Wire-Wound Power Resistors -----	13
BSR Type 200W -1300W Slide-Type Wave, Variable Wire-Wound Resistor-----	13
BSQ Type 300W -2000W Slide-Type Wave, Variable Wire-Wound Resistor-----	13
● Assembly-Type Load Resistor Box -----	14
BDR Type 200W-3200W High Voltage, Assembly-Type Resistance Box -----	14
BQR Type 300W-4800W High Voltage, Assembly-Type Resistance Box -----	14



TOKEN MEANS QUALITY AND SERVICE

NON-FLAMMABLE WIRE-WOUND POWER RESISTORS

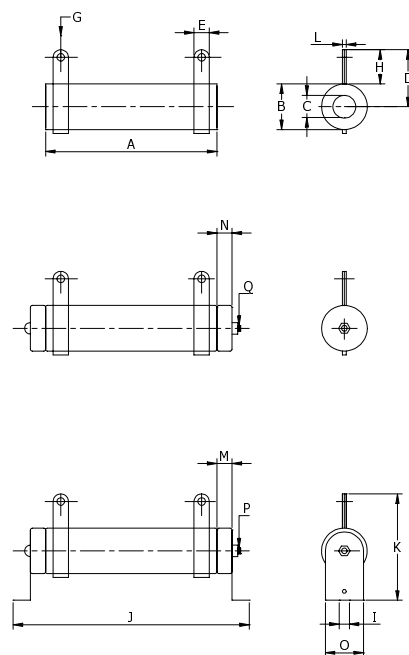
DR RESISTOR SERIES

A tubular ceramic resistor has two terminals, and is wound with copper wire or chromium alloy wire to provide the resistance and then coated with a high temperature, non-flammable resin. After the semi-finished resistor is cool and dry, insulation is applied through a high-temperature process and the mounts are attached. Since the winding is excellent, many taps can be added, impedance is low and the r shape can be altered to produce many types of resistors. These resistors are suitable for educational modeling applications, load testing, industrial machinery, electric power distribution, instruments, automation control installations, etc. For custom specifications, please contact us to discuss the details.



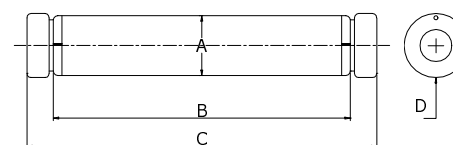
DDR TYPE 10W -1300W

Tubular Ceramic, Fixed-Type Wire-Wound Resistor																
Power Rating	Dimensions (m/m)															Resistance Range (Ω)
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	
10W	45	12	6	15	4	54	2	9	3	62	28	1.0		6	10	1~3 K Ω
20W	60	17	8	22	5	78	2	12	4	90	36	1.0		6	16	1~7 K Ω
30W	80	17	8	22	5	100	2	12	4	112	36	1.0		6	16	1~10 K Ω
40W	110	17	8	22	5	128	2	12	4	140	36	1.0		6	16	1~13 K Ω
50W	110	25	16	30	8	150	5	18	6	166	58	1.2	6		27	0.1~25 K Ω
60W	90	28	18	32	8	130	5	19	6	146	60	1.2	6		27	0.1~30 K Ω
80W	110	28	18	32	8	150	5	19	6	166	60	1.2	6		27	0.1~40 K Ω
100W	140	28	18	32	8	180	5	19	6	196	60	1.2	6		27	0.1~50 K Ω
120W	160	28	18	32	8	200	5	19	6	216	60	1.2	6		27	0.1~60 K Ω
150W	195	28	18	32	8	235	5	19	6	251	60	1.2	6		27	0.3~75 K Ω
160W	185	35	24	36	10	225	5	19	8	245	76	1.6	6		34	0.3~80 K Ω
200W	210	35	24	36	10	250	5	19	8	274	76	1.6	6		34	0.3~100 K Ω
250W	210	40	25	38	12	250	5	20	8	274	78	1.6	6		34	0.5~125 K Ω
300W	260	40	25	38	12	300	5	20	8	320	78	1.6	6		34	0.5~150 K Ω
400W	330	40	25	38	12	370	5	20	8	395	78	1.6	6		34	0.5~200 K Ω
500W	330	50	35	50	12	380	6	25	9	400	100	1.6	8		40	0.5~250 K Ω
600W	400	50	35	50	12	450	6	25	9	470	100	1.6	8		40	0.8~300 K Ω
700W	460	50	35	50	12	510	6	25	9	530	100	1.6	8		40	0.8~350 K Ω
800W	460	60	40	55	15	515	6	30	10	535	110	1.6	10		50	0.8~400 K Ω
1000W	540	60	40	55	15	595	6	30	10	615	110	1.6	10		50	1~500 K Ω
1300W	650	65	42	62	15	702	6	30	10	722	115	1.6	10		50	1~750 K Ω



DCR TYPE 100W -250W

Tubular Ceramic, C-Shaped Wire-Wound Resistor					
Power Rating	Dimensions (m/m)				Resistance Range (Ω)
	A	B	C	D	
100W	28	140	165	30	20-20 K Ω
120W	28	165	190	30	25-25 K Ω
150W	28	195	220	30	30-30 K Ω
200W	28	254	279	30	35-35 K Ω
250W	28	300	325	30	40-40 K Ω



HOW TO ORDER

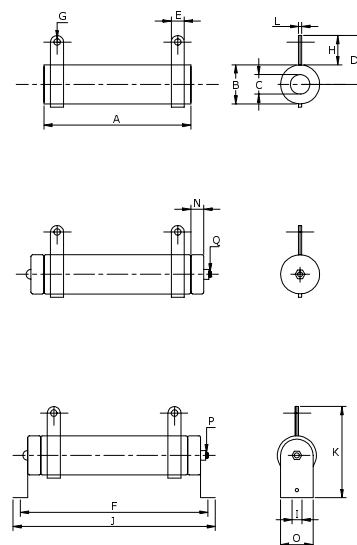
DDR	1000W	500 Ω	J	G
↓	↓	↓	↓	↓
Product Type.	Rated Power.	Resistance Value. (Ω)	Resistance Tolerance.	Assembly Method.
DDR type DCR type	10W~1300W 100W~250W	(Ω) Indicates resistance value in units of ohms.	J=±5% K=±10%	2-8 part assembly G- Horizontal mount N- No mounts. Z- Vertical mount.



TOKEN MEANS QUALITY AND SERVICE

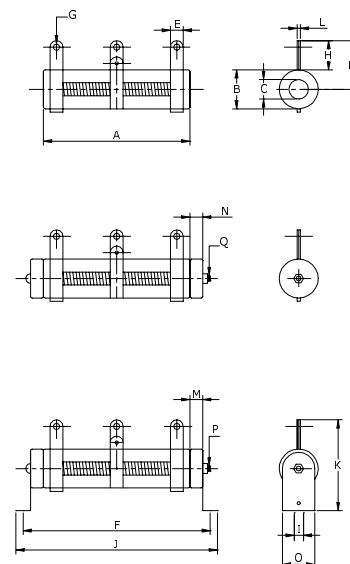
DNR TYPE 50W -1300W

Tubular Ceramic, Low Inductive Wire-Wound Resistor																
Power Rating	Dimensions (m/m)															Resistance Range (Ω)
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	
50W	110	25	16	30	8	150	5	18	6	166	58	1.2	6		27	0.1~10 K Ω
60W	90	28	18	32	8	130	5	19	6	146	60	1.2	6		27	0.1~12 K Ω
80W	110	28	18	32	8	150	5	19	6	166	60	1.2	6		27	0.1~16 K Ω
100W	140	28	18	32	8	180	5	19	6	196	60	1.2	6		27	0.1~20 K Ω
120W	160	28	18	32	8	200	5	19	6	216	60	1.2	6		27	0.1~24 K Ω
150W	195	28	18	32	8	235	5	19	6	251	60	1.2	6		27	0.3~30 K Ω
160W	185	35	24	36	10	225	5	19	8	245	76	1.6	6		34	0.3~35 K Ω
200W	210	35	24	36	10	250	5	19	8	274	76	1.6	6		34	0.3~40 K Ω
250W	210	40	25	38	12	250	5	20	8	274	78	1.6	6		34	0.5~50 K Ω
300W	260	40	25	38	12	300	5	20	8	320	78	1.6	6		34	0.5~60 K Ω
400W	330	40	25	38	12	370	5	20	8	395	78	1.6	6		34	0.5~80 K Ω
500W	330	50	35	50	12	380	6	25	9	400	100	1.6	8		40	0.5~100 K Ω
600W	400	50	35	50	12	450	6	25	9	470	100	1.6	8		40	0.8~120 K Ω
700W	460	50	35	50	12	510	6	25	9	530	100	1.6	8		40	0.8~140 K Ω
800W	460	60	40	55	15	515	6	30	10	535	110	1.6	10		50	0.8~160 K Ω
1000W	540	60	40	55	15	595	6	30	10	615	110	1.6	10		50	1~200 K Ω
1300W	650	65	42	62	15	702	6	30	10	722	115	1.6	10		50	1~260 K Ω



DSR TYPE 20W -1300W

Tubular Ceramic, Variable Wire-Wound Resistor																
Power Rating	Dimensions (m/m)															Resistance Range (Ω)
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	
20W	60	17	8	22	5	78	2	12	4	90	36	1.0		6	16	1~1K Ω
30W	80	17	8	22	5	100	2	12	4	112	36	1.0		6	16	1~1.5K Ω
40W	110	17	8	22	5	128	2	12	4	140	36	1.0		6	16	1~2K Ω
50W	110	25	16	30	8	150	5	18	6	166	58	1.2	6		27	0.1~5K Ω
60W	90	28	18	32	8	130	5	19	6	146	60	1.2	6		27	0.1~6K Ω
80W	110	28	18	32	8	150	5	19	6	166	60	1.2	6		27	0.1~8K Ω
100W	140	28	18	32	8	180	5	19	6	196	60	1.2	6		27	0.1~10K Ω
120W	160	28	18	32	8	200	5	19	6	216	60	1.2	6		27	0.1~12K Ω
150W	195	28	18	32	8	235	5	19	6	251	60	1.2	6		27	0.3~15K Ω
160W	185	35	24	36	10	225	5	19	8	245	76	1.6	6		34	0.3~16K Ω
200W	210	35	24	36	10	250	5	19	8	274	76	1.6	6		34	0.3~20K Ω
250W	210	40	25	38	12	250	5	20	8	274	78	1.6	6		34	0.5~25K Ω
300W	260	40	25	38	12	300	5	20	8	320	78	1.6	6		34	0.5~30K Ω
400W	330	40	25	38	12	370	5	20	8	395	78	1.6	6		34	0.5~40K Ω
500W	330	50	35	50	12	380	6	25	9	400	100	1.6	8		40	0.5~50K Ω
600W	400	50	35	50	12	450	6	25	9	470	100	1.6	8		40	0.8~60K Ω
700W	460	50	35	50	12	510	6	25	9	530	100	1.6	8		40	0.8~70K Ω
800W	460	60	40	55	15	515	6	30	10	535	110	1.6	10		50	0.8~80K Ω
1000W	540	60	40	55	15	595	6	30	10	615	110	1.6	10		50	1~100K Ω
1300W	650	65	42	62	15	702	6	30	10	722	115	1.6	10		50	1~130K Ω



HOW TO ORDER

DSR	400W	100 Ω	K	G
↓	↓	↓	↓	↓
Product Type.	Rated Power.	Resistance Value. (Ω)	Resistance Tolerance.	Assembly Method.
DNR type DSR type	50W~1300W 20W~1300W	(Ω) Indicates resistance value in units of ohms.	J=±5% K=±10%	2-8 part assembly G- Horizontal mount N- No mounts. Z- Vertical mount.



TOKEN MEANS QUALITY AND SERVICE

PERFORMANCE SPECIFICATIONS		
Test Item	Test Methods	Characteristics
Resistance tolerance	JIS-C-5202 5-1	Resistance Nominal Tolerance $1 \leq R$ $1 > R$ $\pm 5\%$ (J) $\pm 10\%$ (K)
Temperature coefficient	JIS-C-5202 5-2	$\pm 200 \text{ppm}/^\circ\text{C}$ max.
Power rating load	JIS-C-5202 5-4	$\Delta R/R \leq \pm(0.5\%+0.1\Omega)$ Surface temperature up 350°C max.
Short-term overload	JIS-C-5202 5-5 1000% rated power 5 seconds	Free of appearance or structural irregularity $\Delta R/R \leq \pm(2\%+0.1\Omega)$
Insulation resistance	JIS-C-5202 5-6 500VDC	$100\text{M}\Omega$ min
Dielectric withstanding voltage	JIS-C-5202 5-7 1000VDC 1 minute Between terminal and anchor stand	Free of appearance or structural irregularity $\Delta R/R \leq \pm(0.1\%+0.05\Omega)$
Terminal strength	JIS-C-5202 6-1 8Kg 30 seconds	Free of appearance or structural irregularity
Resistor strength	JIS-C-5202 6-2 30Kg 30 seconds	Free of appearance or structural irregularity
Vibration	JIS-C-5202 6-3 1.5m/m 10 ~ 50 ~ 10 Hz/min X-Y-Z 2 hours each	Free of appearance or structural irregularity surface coating crack. $\Delta R/R \leq \pm(1\%+0.05\Omega)$
Thermal shock	JIS-C-5202 7-3 Room temp. 30 minutes ON- 55°C 15 minutes OFF	Resistor free of structural irregularity $\Delta R/R \leq \pm(2\%+0.1\Omega)$
Humidity	JIS-C-5202 7-5 40°C 90%RH 240 hours	Free of appearance or structural irregularity surface coating crack $\Delta R/R \leq \pm(3\%+0.1\Omega)$
Load life	JIS-C-5202 7-10 90 minutes ON 30 minutes OFF 500 hours	Free of appearance or structural irregularity surface coating crack $\Delta R/R \leq \pm(3\%+0.1\Omega)$
Flame retardation	JIS-C-5202 7-13-3-2 100% - 600% rated power load	US UL-94 flame retardation test V-0 grade noncombustible
Remarks	1. Resistance and resistance tolerance were tested in-house with micro resistance meter. 2. Resistor coating refers to UL-certified data provided by supplier.	

HOW TO ORDER

<u>DNR</u> ↓ Product Type.	<u>600W</u> ↓ Rated Power.	<u>500Ω</u> ↓ Resistance Value. (Ω)	<u>J</u> ↓ Resistance Tolerance.	<u>G</u> ↓ Assembly Method.
DDR type DNR type DSR type DCR type	10W~1300W 50W~1300W 20W~1300W 100W~250W	(Ω) Indicates resistance value in units of ohms.	J=±5% K=±10%	2-8 part assembly G- Horizontal mount N- No mounts. Z- Vertical mount.



NON-FLAMMABLE WAVE-SHAPE RIBBON-WOUND POWER RESISTORS

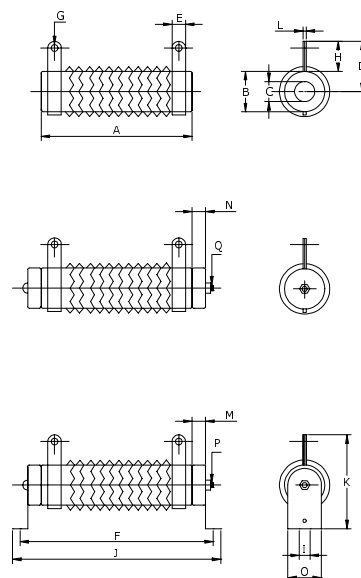
DQ RESISTOR SERIES

A tubular ceramic resistor has two terminals, and is wound with a resistance element consisting of a wave-shaped alloy ribbon. A high temperature, non-flammable resin insulation is applied after cooling and drying through a high temperature process and then the component mounts are attached. The resistance value range is relatively low due to alloy material limitations; see the DR resistor series if high resistance values are required. This product supports the use of numerous taps, has low impedance, and can be fabricated in various shapes to support a wide range of resistor applications. These resistors are suitable for educational modeling applications, load testing, industrial machinery, electric power distribution, instruments, automation control installations, etc. For custom specifications, please contact us to discuss the details.



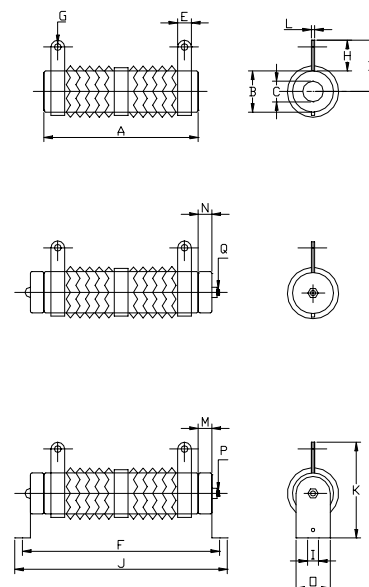
DQR TYPE 75W -2000W

Tubular Ceramic, Wave-Type Wire-Wound Resistor															
Power Rating	Dimensions (m/m)														Resistance Range (Ω)
	A	B	C	D	E	F	G	H	I	J	K	L	M	O	
75W	110	25	16	30	8	150	5	18	6	166	58	1.2	6	27	0.1~8 Ω
90W	90	28	18	32	8	130	5	19	6	146	60	1.2	6	27	0.1~9 Ω
120W	110	28	18	32	8	150	5	19	6	166	60	1.2	6	27	0.1~12 Ω
150W	140	28	18	32	8	180	5	19	6	196	60	1.2	6	27	0.1~15 Ω
180W	160	28	18	32	8	200	5	19	6	216	60	1.2	6	27	0.1~18 Ω
225W	195	28	18	32	8	235	5	19	6	251	60	1.2	6	27	0.1~23 Ω
240W	185	35	24	36	10	225	5	19	8	245	76	1.6	6	34	0.1~24 Ω
300W	210	35	24	36	10	250	5	19	8	274	76	1.6	6	34	0.3~30 Ω
375W	210	40	25	38	12	250	5	20	8	274	78	1.6	6	34	0.3~38 Ω
450W	260	40	25	38	12	300	5	20	8	320	78	1.6	6	34	0.3~45 Ω
600W	330	40	25	38	12	370	5	20	8	395	78	1.6	6	34	0.3~60 Ω
750W	330	50	35	50	12	380	6	25	9	400	100	1.6	8	40	0.3~75 Ω
900W	400	50	35	50	12	450	6	25	9	470	100	1.6	8	40	0.3~90 Ω
1000W	460	50	35	50	12	510	6	25	9	530	100	1.6	8	40	0.5~100 Ω
1200W	460	60	40	55	15	515	6	30	10	535	110	1.6	10	50	0.5~120 Ω
1500W	540	60	40	55	15	595	6	30	10	615	110	1.6	10	50	0.5~150 Ω
2000W	650	65	42	62	15	702	6	30	10	722	115	1.6	10	50	0.5~200 Ω



DQN TYPE 75W -2000W

Tubular ceramic, wave, low inductive wire-wound resistor															
Power Rating	Dimensions (m/m)														Resistance Range (Ω)
	A	B	C	D	E	F	G	H	I	J	K	L	M	O	
75W	110	25	16	30	8	150	5	18	6	166	58	1.2	6	27	0.1~8 Ω
90W	90	28	18	32	8	130	5	19	6	146	60	1.2	6	27	0.1~9 Ω
120W	110	28	18	32	8	150	5	19	6	166	60	1.2	6	27	0.1~12 Ω
150W	140	28	18	32	8	180	5	19	6	196	60	1.2	6	27	0.1~15 Ω
180W	160	28	18	32	8	200	5	19	6	216	60	1.2	6	27	0.1~18 Ω
225W	195	28	18	32	8	235	5	19	6	251	60	1.2	6	27	0.1~23 Ω
240W	185	35	24	36	10	225	5	19	8	245	76	1.6	6	34	0.1~24 Ω
300W	210	35	24	36	10	250	5	19	8	274	76	1.6	6	34	0.3~30 Ω
375W	210	40	25	38	12	250	5	20	8	274	78	1.6	6	34	0.3~38 Ω
450W	260	40	25	38	12	300	5	20	8	320	78	1.6	6	34	0.3~45 Ω
600W	330	40	25	38	12	370	5	20	8	395	78	1.6	6	34	0.3~60 Ω
750W	330	50	35	50	12	380	6	25	9	400	100	1.6	8	40	0.3~75 Ω
900W	400	50	35	50	12	450	6	25	9	470	100	1.6	8	40	0.3~90 Ω
1000W	460	50	35	50	12	510	6	25	9	530	100	1.6	8	40	0.5~100 Ω
1200W	460	60	40	55	15	515	6	30	10	535	110	1.6	10	50	0.5~120 Ω
1500W	540	60	40	55	15	595	6	30	10	615	110	1.6	10	50	0.5~150 Ω
2000W	650	65	42	62	15	702	6	30	10	722	115	1.6	10	50	0.5~200 Ω

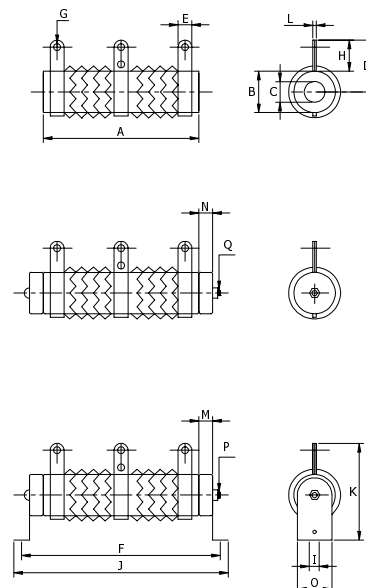




TOKEN MEANS QUALITY AND SERVICE

DQS TYPE 75W -2000W

Tubular Ceramic, Wave, Variable Wire-Wound Resistor																
Power Rating	Dimensions (m/m)															Resistance Range (Ω)
A	B	C	D	E	F	G	H	I	J	K	L	M	O			
75W	110	25	16	30	8	150	5	18	6	166	58	1.2	6	27	0.1~8Ω	
90W	90	28	18	32	8	130	5	19	6	146	60	1.2	6	27	0.1~9Ω	
120W	110	28	18	32	8	150	5	19	6	166	60	1.2	6	27	0.1~12Ω	
150W	140	28	18	32	8	180	5	19	6	196	60	1.2	6	27	0.1~15Ω	
180W	160	28	18	32	8	200	5	19	6	216	60	1.2	6	27	0.1~18Ω	
225W	195	28	18	32	8	235	5	19	6	251	60	1.2	6	27	0.1~23Ω	
240W	185	35	24	36	10	225	5	19	8	245	76	1.6	6	34	0.1~24Ω	
300W	210	35	24	36	10	250	5	19	8	274	76	1.6	6	34	0.3~30Ω	
375W	210	40	25	38	12	250	5	20	8	274	78	1.6	6	34	0.3~38Ω	
450W	260	40	25	38	12	300	5	20	8	320	78	1.6	6	34	0.3~45Ω	
600W	330	40	25	38	12	370	5	20	8	395	78	1.6	6	34	0.3~60Ω	
750W	330	50	35	50	12	380	6	25	9	400	100	1.6	8	40	0.3~75Ω	
900W	400	50	35	50	12	450	6	25	9	470	100	1.6	8	40	0.3~90Ω	
1000W	460	50	35	50	12	510	6	25	9	530	100	1.6	8	40	0.5~100Ω	
1200W	460	60	40	55	15	515	6	30	10	535	110	1.6	10	50	0.5~120Ω	
1500W	540	60	40	55	15	595	6	30	10	615	110	1.6	10	50	0.5~150Ω	
2000W	650	65	42	62	15	702	6	30	10	722	115	1.6	10	50	0.5~200Ω	



PERFORMANCE SPECIFICATIONS		
Test Item	Test Methods	Characteristics
Resistance tolerance	JIS-C-5202 5-1	Resistance Nominal Tolerance $1 \leq R$ $1 > R$ $\pm 5\%$ (J) $\pm 10\%$ (K)
Temperature coefficient	JIS-C-5202 5-2	$\pm 400 \text{ PPM}/^\circ\text{C MAX}$
Power rating load	JIS-C-5202 5-4	$\Delta R/R \leq \pm(0.5\% + 0.1 \Omega)$ Surface temperature up 350°C MAX
Short-term overload	JIS-C-5202 5-5 500% rated power 5 seconds	Free of appearance or structural irregularity $\Delta R/R \leq \pm(2\% + 0.1 \Omega)$
Insulation resistance	JIS-C-5202 5-6 500VDC	$100 \text{ M}\Omega \text{ min.}$
Dielectric withstanding voltage	JIS-C-5202 5-7 1000VDC 1 minute Between terminal and anchor stand	Free of appearance or structural irregularity $\Delta R/R \leq \pm(0.1\% + 0.05 \Omega)$
Terminal strength	JIS-C-5202 6-1 8Kg 30 seconds	Free of appearance or structural irregularity
Resistor strength	JIS-C-5202 6-2 30Kg 30 seconds	Free of appearance or structural irregularity
Vibration	JIS-C-5202 6-3 1.5m/m 10 ~ 50 ~ 10 Hz/min X-Y-Z 2 hours each	Free of appearance or structural irregularity Surface coating crack $\Delta R/R \leq \pm(1\% + 0.05 \Omega)$
Thermal shock	JIS-C-5202 7-3 Room temp 30 minutes ON- 55°C 15 minutes OFF	Resistor free of structural irregularity $\Delta R/R \leq \pm(1\% + 0.05 \Omega)$
Humidity	JIS-C-5202 7-5 40°C 90%RH 240 hours	Free of appearance or structural irregularity Surface coating crack $\Delta R/R \leq \pm(3\% + 0.1 \Omega)$
Load life	JIS-C-5202 7-10 90 minutes ON-30 minutes OFF500 hours	Free of appearance or structural irregularity Surface coating crack $\Delta R/R \leq \pm(5\% + 0.1 \Omega)$
Flame retardation	JIS-C-5202 7-13-3-2 100% - 600% rated power load	US UL-94 flame retardation test V-0 grade noncombustible
Remarks	1. Resistance and resistance tolerance were tested in-house with micro resistance meter. 2. Resistor coating refers to UL-certified data provided by supplier.	

HOW TO ORDER

<u>DQS</u> ↓ Product Type.	<u>2000W</u> ↓ Rated Power.	<u>32Ω</u> ↓ Resistance Value. (Ω)	<u>K</u> ↓ Resistance Tolerance.	<u>G</u> ↓ Assembly Method.
DQR type DQN type DQS type	75W~2000W 75W~2000W 75W~2000W	(Ω) Indicates resistance value in units of ohms	H=±3% J=±5% K=±10%	2-8part-assembly G-Horizontal mount N-No mounts. Z-Vertical mount.



NON-FLAMMABLE FLAT WIRE-WOUND POWER RESISTORS

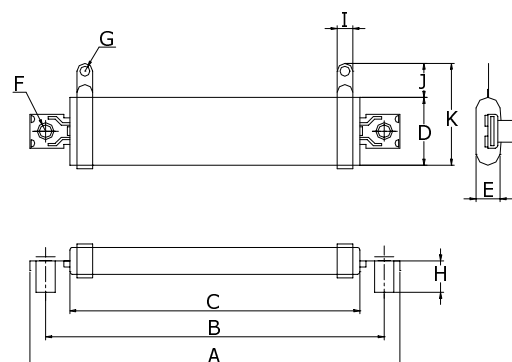
ZR RESISTOR SERIES

A flat tubular ceramic has two terminals and is wound with either copper wire or chromium alloy wire as a resistant is coated with a high-temperature non-flammable resin. When cooled and dried, it is encapsulated in insulation through a high-temperature process before the final installation of the component mounts. It is mainly utilized for industrial installations where height is limited. Due to the excellent windings, many taps can be added, impedance is low, and PC board is insert able, and usable for many other integrated applications. These resistors are suitable for educational modeling applications, load testing, industrial machinery, electric power distribution, instruments, automation control installations, etc. For custom specifications, please contact us to discuss the details.



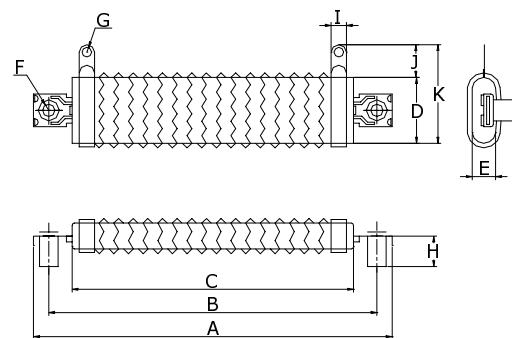
ZZR TYPE 40W -300W

Flat Ceramic Form, Set-Type, Wire-Wound Resistor												
Power Rating	Dimensions (m/m)											Resistance Range (Ω)
	A	B	C	D	E	F	G	H	I	J	K	
40W	83	70	50	28	11	5.2	4.1	13	6.5	12	42	0.1~5K Ω
55W	123	110	90	28	11	5.2	4.1	13	6.5	12	42	0.1~6 K Ω
70W	153	140	120	28	11	5.2	4.1	13	6.5	12	42	0.1~7 K Ω
95W	183	170	150	28	11	5.2	4.1	13	6.5	12	42	0.1~10 K Ω
100W	193	180	160	28	11	5.2	4.1	13	6.5	12	42	0.1~12 K Ω
120W	218	205	185	28	11	5.2	4.1	13	9	12	42	0.1~15 K Ω
150W	218	205	185	35	11	5.2	5.2	13	9	13	48	0.1~18 K Ω
200W	243	230	210	35	11	5.2	5.2	13	9	13	48	0.1~25 K Ω
250W	287	274	254	35	11	5.2	5.2	13	9	13	48	0.1~30 K Ω
300W	333	320	300	35	11	5.2	5.2	13	9	13	48	0.1~35 K Ω



ZQR TYPE 60W -450W

Flat Ceramic Form, Wave-Type Wire-Wound Resistor												
Power Rating	Dimensions (m/m)											Resistance Range (Ω)
	A	B	C	D	E	F	G	H	I	J	K	
60W	83	70	50	28	11	5.2	4.1	13	6.5	12	42	1~4 Ω
80W	123	110	90	28	11	5.2	4.1	13	6.5	12	42	1~5 Ω
100W	153	140	120	28	11	5.2	4.1	13	6.5	12	42	1~7 Ω
140W	183	170	150	28	11	5.2	4.1	13	6.5	12	42	1~9 Ω
150W	193	180	160	28	11	5.2	4.1	13	6.5	12	42	1~10 Ω
180W	218	205	185	28	11	5.2	4.1	13	9	12	42	1~12 Ω
225W	218	205	185	35	11	5.2	5.2	13	9	13	48	1~15 Ω
300W	243	230	210	35	11	5.2	5.2	13	9	13	48	1~20 Ω
375W	287	274	254	35	11	5.2	5.2	13	9	13	48	1~25 Ω
450W	333	320	300	35	11	5.2	5.2	13	9	13	48	1~30 Ω



HOW TO ORDE

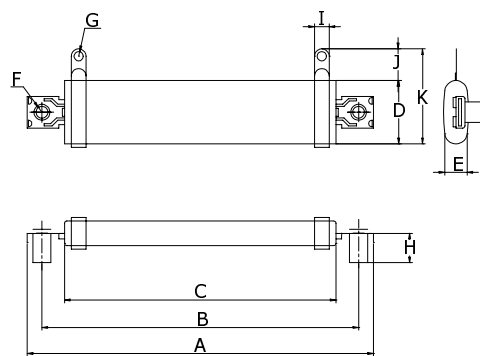
<u>ZZR</u>	<u>55W</u>	<u>10 Ω</u>	<u>J</u>	<u>G</u>
↓	↓	↓	↓	↓
Product Type.	Rated Power.	Resistance Value. (Ω)	Resistance Tolerance.	Assembly Method.
ZZR type ZQR type	40W~300W 60W~450W	(Ω) Indicates resistance value in units of ohms.	H=±3% J=±5% K=±10%	2-8part-assembly G-Horizontal mount N-No mounts. Z-Vertical mount.



TOKEN MEANS QUALITY AND SERVICE

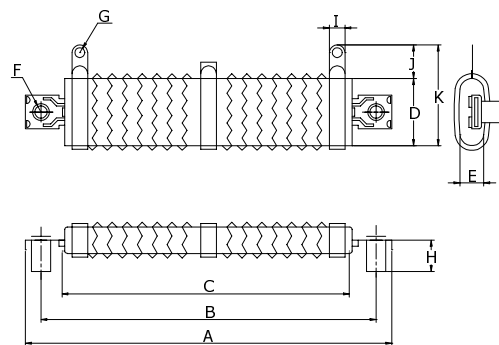
ZNR TYPE 40W-300W

Flat Ceramic Form, Set-Type, Low Inductive Wire-Wound Resistor												
Power Rating	Dimensions (m/m)											Resistance Range (Ω)
	A	B	C	D	E	F	G	H	I	J	K	
40W	83	70	50	28	11	5.2	4.1	13	6.5	12	42	0.1~2 K Ω
55W	123	110	90	28	11	5.2	4.1	13	6.5	12	42	0.1~2.5 K Ω
70W	153	140	120	28	11	5.2	4.1	13	6.5	12	42	0.1~3 K Ω
95W	183	170	150	28	11	5.2	4.1	13	6.5	12	42	0.1~4.5 K Ω
100W	193	180	160	28	11	5.2	4.1	13	6.5	12	42	0.1~5.5 K Ω
120W	218	205	185	28	11	5.2	4.1	13	9	12	42	0.1~7 K Ω
150W	218	205	185	35	11	5.2	5.2	13	9	13	48	0.1~8.5 K Ω
200W	243	230	210	35	11	5.2	5.2	13	9	13	48	0.1~12 K Ω
250W	287	274	254	35	11	5.2	5.2	13	9	13	48	0.1~14 K Ω
300W	333	320	300	35	11	5.2	5.2	13	9	13	48	0.1~16 K Ω



ZQN TYPE 60W-450W

Flat Ceramic Form, Wave-Type, Low Inductance Resistor												
Power Rating	Dimensions (m/m)											Resistance Range (Ω)
	A	B	C	D	E	F	G	H	I	J	K	
60W	83	70	50	28	11	5.2	4.1	13	6.5	12	42	1~4 Ω
80W	123	110	90	28	11	5.2	4.1	13	6.5	12	42	1~5 Ω
100W	153	140	120	28	11	5.2	4.1	13	6.5	12	42	1~7 Ω
140W	183	170	150	28	11	5.2	4.1	13	6.5	12	42	1~9 Ω
150W	193	180	160	28	11	5.2	4.1	13	6.5	12	42	1~10 Ω
180W	218	205	185	28	11	5.2	4.1	13	9	12	42	1~12 Ω
225W	218	205	185	35	11	5.2	5.2	13	9	13	48	1~15 Ω
300W	243	230	210	35	11	5.2	5.2	13	9	13	48	1~20 Ω
375W	287	274	254	35	11	5.2	5.2	13	9	13	48	1~25 Ω
450W	333	320	300	35	11	5.2	5.2	13	9	13	48	1~30 Ω



HOW TO ORDER

<u>ZNR</u>	<u>300W</u>	<u>500Ω</u>	<u>J</u>	<u>G</u>
↓	↓	↓	↓	↓
Product Type.	Rated Power.	Resistance Value. (Ω)	Resistance Tolerance.	Assembly Method.
ZNR type ZQN type	40W~300W 60W~450W	(Ω) Indicates resistance value in units of ohms.	H=±3% J=±5% K=±10%	2-8part-assembly G-Horizontal mount N-No mounts. Z-Vertical mount.



LARGE CAPACITY METAL-CLAD POWER RESISTORS

AL RESISTOR SERIES

An aluminum-encased resistor consists of an alloy metal coil-type resistance element assembled into an aluminum enclosure. Following high-temperature anodization, the enclosure is filled with a special non-flammable cement paste and after hardening, insulation is applied through a high-temperature process. Since the resistor is embedded in the heat-proof cement, it is not affected by external mechanical force, dusty environments, and extreme duty. It is durable, vibration-proof, dissipates heat well, and has a low temperature coefficient, with resistance varying in direct proportion. Supporting a flexible range of applications, the product is easy to utilize and install. Applications include industrial machinery, load testing, electric power distribution, instruments, and automated control installations. For custom specifications, please contact us to discuss the details.

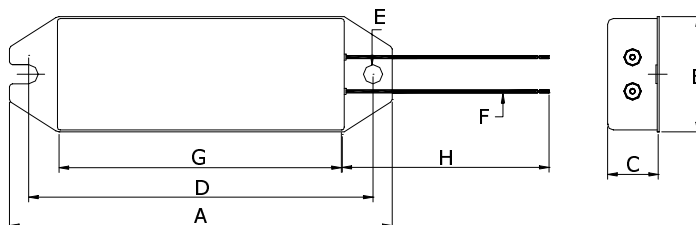


PERFORMANCE SPECIFICATIONS

Test Item	Test Methods	Characteristics
Resistance tolerance	JIS-C-5202 5-1	Tolerance resistance $\pm 10\%$ (K)
Temperature coefficient	JIS-C-5202 5-2	$\pm 200\text{PPM}/^\circ\text{C max.}$
Power rating load	JIS-C-5202 5-4	$\Delta R/R \leq \pm(0.5\%+0.1\Omega)$ Surface temperature up 350°C max.
Short-term overload	JIS-C-5202 5-5 1000% rated power 5 seconds	Free of appearance or structural irregularity $\Delta R/R \leq \pm(2\%+0.1\Omega)$
Insulation resistance	JIS-C-5202 5-6 1000VDC	100M Ω min.
Dielectric withstanding Voltage	JIS-C-5202 5-7 2000VDC 1 minute	Free of appearance or structural irregularity $\Delta R/R \leq \pm(0.1\%+0.05\Omega)$
Terminal strength	JIS-C-5202 6-1 8Kg 30 seconds	Free of appearance or structural irregularity
Resistor strength	JIS-C-5202 6-2 30Kg 30 seconds	Free of appearance or structural irregularity
Vibration	JIS-C-5202 6-3 5m/m 10 ~ 50 ~ 10 Hz/min X-Y-Z 2 hours each	Free of appearance or structural irregularity surface coating crack. $\Delta R/R \leq \pm(1\%+0.05\Omega)$
Thermal shock	JIS-C-5202 7-3 Room temp. 30 minutes ON- 55°C 15 minutes OFF	Resistor free of structural irregularity $\Delta R/R \leq \pm(2\%+0.1\Omega)$
Humidity	JIS-C-5202 7-5 40°C 90%RH 240 hours	Free of appearance or structural irregularity surface coating crack. $\Delta R/R \leq \pm(3\%+0.1\Omega)$
Load life	JIS-C-5202 7-10 90 minutes ON - 30 minutes OFF 500 hours	Free of appearance or structural irregularity surface coating crack. $\Delta R/R \leq \pm(3\%+0.1\Omega)$
Flame retardation	JIS-C-5202 7-13-3-2 100% - 600% rated power load	US UL-94 flame retardation test V-0 grade noncombustible
Remarks	1. Resistance and resistance tolerance were tested in-house with micro resistance meter. 2. Resistor coating refers to UL-certified data provided by supplier.	

ASQ TYPE

HIGH VOLTAGE, ALUMINUM ENCASED RESISTOR



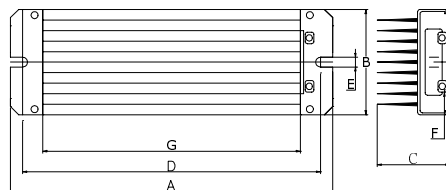
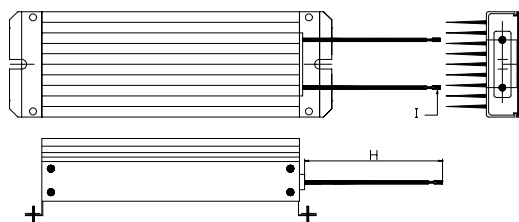
Power Rating	Dimensions (m/m)								Weight	Resistance Range (Ω)
	A	B	C	D	E	F	G	H		
60W	100	30	13	90	4.5	0.75mm ²	75	400	66/g	1-10K Ω
80W	150	34	21	140	5	0.75mm ²	125	400	170/g	1-10K Ω
120W	182	42	21	172	6	0.75mm ²	150	400	175/g	1-10K Ω



TOKEN MEANS QUALITY AND SERVICE

ASH TYPE

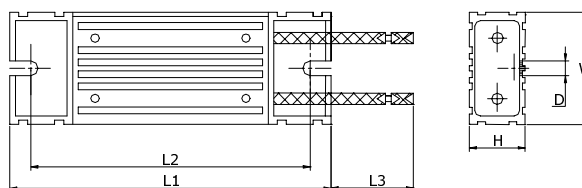
HIGH VOLTAGE, ALUMINUM ENCASED RESISTOR



Power Rating	Dimensions (m/m)									Weight	Resistance Range (Ω)
	A	B	C	D	E	F	G	H	I		
200W	200	65	45	185	6	M5x8mm	160	300	2mm2	725/g	1-10K Ω
300W	280	65	45	265	6	M5x8mm	240	300	2mm2	1050/g	1-10K Ω
400W	360	65	45	345	6	M5x8mm	320	300	2mm2	1295/g	1-10K Ω
500W	440	65	45	425	6	M5x8mm	400	300	2mm2	1650/g	1-10K Ω
600W	520	65	45	505	6	M5x8mm	480	300	2mm2	1935/g	1-10K Ω

ASZ TYPE

HIGH VOLTAGE, ALUMINUM ENCASED RESISTOR



Power Rating	Dimensions (m/m)						Weight	Resistance Range (Ω)
	W $\pm$ 1	H $\pm$ 1	L1 $\pm$ 2	L2 $\pm$ 2	D $\pm$ 0.5	L3 $\pm$ 10		
60W	40	20	115	100	5.2	200	165/g	2-2K Ω
80W	40	20	140	125	5.2	200	190/g	2-2.5K Ω
100W	40	20	165	150	5.2	200	225/g	2-3K Ω
120W	40	20	190	175	5.2	200	275/g	3-4K Ω
150W	40	20	215	200	5.2	200	310/g	3-5K Ω
200W	60	30	165	150	5.2	300	500/g	3-6K Ω
300W	60	30	215	200	5.2	300	675/g	5-7K Ω
400W	60	30	265	250	5.2	300	850/g	5-8K Ω
600W	60	30	335	320	5.2	300	1070/g	5-9K Ω
800W	60	30	400	385	5.2	300	1250/g	5-10K Ω

HOW TO ORDER

ASQ



Product Type.

ASQ type
ASH type
ASZ type

400W



Power Rated.

60W~120W
200W~600W
60W~800W

20 Ω



Resistance Value. (Ω)

(Ω) Indicates resistance value in units of ohms.

K



Resistance Tolerance.

J=±5%
K=±10%

N



Assembly Method.

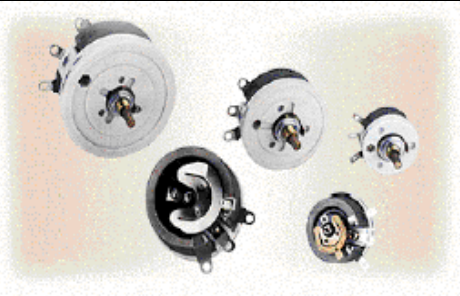
G-Horizontal mount
N-No mounts.
Z-Vertical mount.



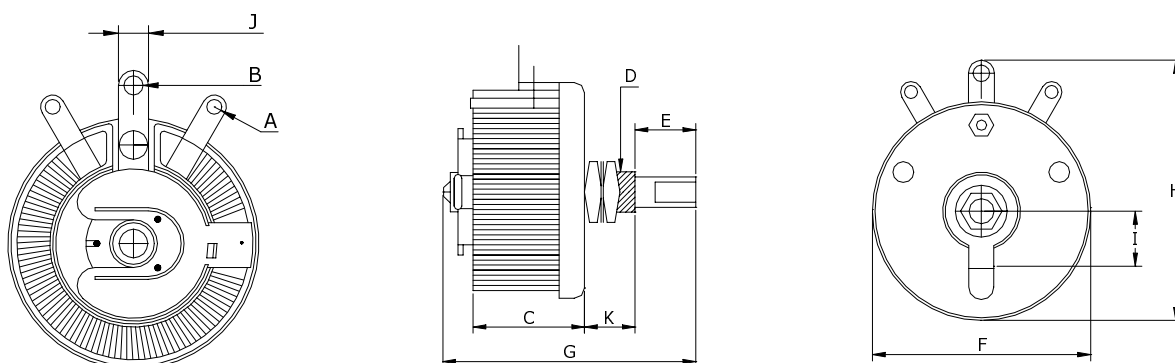
VARIABLE WIRE-WOUND POWER RESISTORS

VR RESISTOR SERIES

A C-shaped ceramic or chromium-alloy wire as a resistance element. Except for the slide contact surface, the entire component is coated with a high-temperature, non-flammable resin. After cooling and drying, insulation is applied through a high-temperature process. Then, a centered rotating adjuster component is installed, which slides along the resistance element and varies the resistance to the desired value. The scope of the application includes educational modeling, load simulations, industrial machinery RPM adjustment, voltage and current adjustment, instruments, and automated control installations. For custom specifications, please contact us to discuss the details.



FVR TYPE 25W-100W



Power Rating	Dimensions (m/m)											Weight	Resistance Range (Ω)
	A	B	C	D	E	F	G	H	I	J	K		
25W	2.5	3.2	22	3/8"	6x12	42	50	50	11	5	10	74/g	5 Ω -2.5K Ω
50W	4.2	4.2	28	3/8"	6x12	64	60	70	11	8	14	160/g	7 Ω -3.5K Ω
100W	4.2	4.2	42	3/8"	6x12	85	75	90	11	8	14	372/g	10 Ω -5K Ω

PERFORMANCE SPECIFICATIONS

Test Item	Test Methods	Characteristics
Resistance tolerance	JIS-C-5261 5-1	Resistance tolerance $\pm 10\%$
Insulation resistance	JIS-C-5261 6-1 500VDC	100M Ω min
Dielectric withstanding voltage	JIS-C-5261 7-1 1000VDC 1 minute Between terminal and axis	Free of appearance or structural irregularity
Terminal strength	JIS-C-5261 6-5 3Kg 30 seconds	Free of appearance or structural irregularity $\Delta R/R \leq \pm(2\%+0.1\Omega)$
Vibration	JIS-C-5261 6-6 1.5m/m 10 ~ 50 ~ 10 Hz/min X-Y-Z 2 hours each	Free of appearance or structural irregularity $\Delta R/R \leq \pm(2\%+0.1\Omega)$
Load life	JIS-C-5261 7-7	Free of appearance or structural irregularity $\Delta R/R \leq \pm(5\%+0.1\Omega)$
Full gyration angle	JIS-C-5261 6-1	300 $\pm 5^\circ$ C
Flame retardation	100% - 600% rated power load	US UL-94 flame retardation test V-0 grade noncombustible
Remarks	1. Resistance and resistance tolerance were tested in-house with micro resistance meter. 2. Resistor coating refers to UL-certified data provided by supplier.	

HOW TO ORDER

FVR ↓ Product Type. FVR type	25W ↓ Rated Power. 25W~100W	2.5KΩ ↓ Resistance Value. (Ω) (Ω) Indicates resistance value in units of ohms.	K ↓ Resistance Tolerance. K $\pm 10\%$
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WIRE-WOUND STARTER POWER RESISTORS

ST RESISTOR SERIES

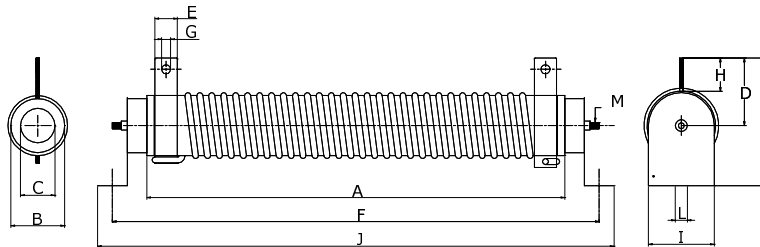
A tubular ceramic resistor has a fixed number of windings and is wound with alloy wire as a resistance element. The staggering wound is made according to the desired resistance value, followed by the placement of the component mounts. It provides high starter resistor power and is durable, is high temperature-resistant, dissipates heat well, has a low temperature coefficient that varies in direct proportion, and is suitable for application loads involving brief current surges. Due to the set number of windings on the ceramic form, the resistance value range is relatively low.

Tolerance is $\pm 10\%$ and this product is available in various shapes or in resistance boxes. Suitable for motor starters, load measurements, industrial machinery, electric power distribution, instrumentation, and automation control installations, etc. For custom specifications, please contact us to discuss the details.



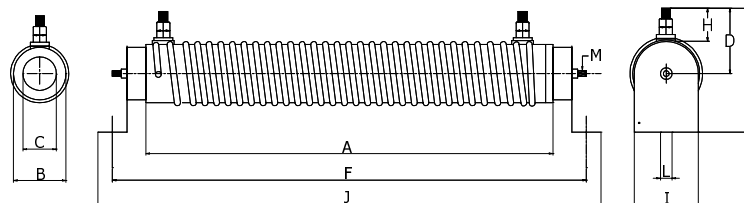
DST TYPE 500W

TUBULAR CERAMIC, STARTER WIRE-WOUND RESISTOR



DST TYPE 600W-1000W

TUBULAR CERAMIC, STARTER WIRE-WOUND RESISTOR



Power Rating	Dimensions (m/m)												Weight	Resistance Range (Ω)
	A	B	C	D	E	F	G	H	I	J	K	L		
500W	280	40	23	45	15	326	6	22	34	346	85	8	970/g	3.5 Ω -7 Ω
600W	300	44	26	50	15	342	8	32	34	362	90	8	1277/g	0.5 Ω -3 Ω
1000W	420	48	30	56	15	470	8	32	40	490	105	9	1887/g	0.5 Ω -3 Ω

HOW TO ORDER

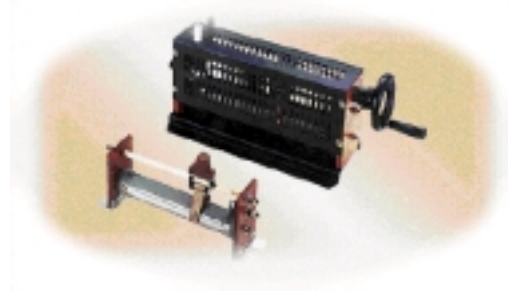
DST	1000W	0.5Ω	K
↓	↓	↓	↓
Product Type.	Rated Power.	Resistance Value. (Ω)	Resistance Tolerance.
DST type	500W~1000W	(Ω)Indicates resistance value in units of ohms.	K= $\pm 10\%$



SLIDE-TYPE WIRE-WOUND POWER RESISTORS

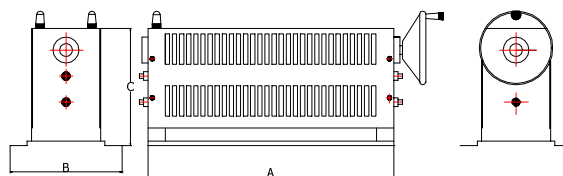
SS RESISTOR SERIES

A tubular ceramic form has copper-alloy or chromium-alloy windings as a resistance element, with the resistor mount attachment method the same as the other resistors described. Except for the sliding contact surface on the windings, the entire component is coated with a high-temperature non-flammable resin. The adjustment mechanism is a rotating point that slides directly on the resistance element, which allows variation of the resistance value (See the specifications of the DR series and VR series for exact features). Suitable for education, testing, load simulations, automation control installations, etc. For custom specifications, please contact us to discuss the details.



BSR TYPE 200W -1300W

Slide-Type Wave, Variable Wire-Wound Resistor							
Power Rating	Dimensions (m/m)						Resistance Range (Ω)
	CASE	A	B	C	Ceramic Rod	Bakelite	
200W	A	285	130	135	28x250	120x70x10	0.5-2K Ω
400W	B	360	150	185	40x325	170x90x10	0.5-4K Ω
500W	B	360	150	185	40x325	170x90x10	0.5-5K Ω
1000W	C	570	160	200	60x535	185x100x10	0.5-10K Ω
1300W	D	680	160	200	65x645	185x100x10	0.5-13K Ω

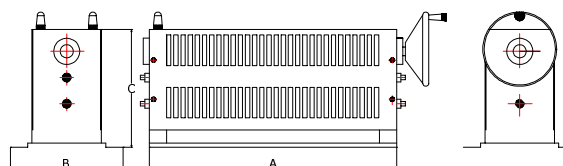


HOW TO ORDER

BSR ↓ Product type.	500W ↓ Rated power.	10 Ω ↓ Resistance value. (Ω)	K ↓ Resistance tolerance.	G ↓ Assembly method.
BSR type	200W~1300W	(Ω) Indicates resistance value in units of ohms.	K=±10%	G- Horizontal mount N- No mounts. Z- Vertical mount.

BSQ TYPE 300W -2000W

Slide-Type Wave, Variable Wire-Wound Resistor							
Power Rating	Dimensions (m/m)						Resistance Range (Ω)
	CASE	A	B	C	Ceramic Rod	Bakelite	
300W	A	285	130	135	28x250	120x70x10	0.5-30 Ω
600W	B	360	150	185	40x325	170x90x10	0.5-60 Ω
750W	B	360	150	185	40x325	170x90x10	0.5-75 Ω
1500W	C	570	160	200	60x535	185x100x10	0.5-150 Ω
2000W	D	680	160	200	65x645	185x100x10	0.5-200 Ω



HOW TO ORDER

BSQ ↓ Product type.	2000W ↓ Rated power.	20 Ω ↓ Resistance value. (Ω)	K ↓ Resistance tolerance.	G ↓ Assembly method.
BSQ type	300W~2000W	(Ω) Indicates resistance value in units of ohms.	K=±10%	G- Horizontal mount N- No mounts. Z- Vertical mount.



ASSEMBLY-TYPE LOAD RESISTOR BOX

BOX RESISTOR SERIES

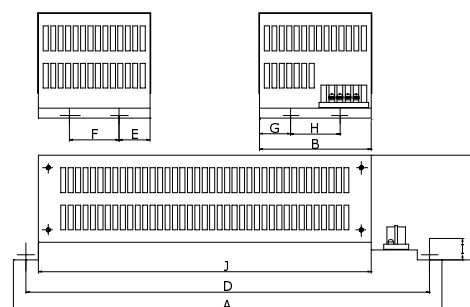
An assembly-type power resistor enclosure contains DR series of and/or DQ series resistors. The box offers excellent protection and safety, in that it not only provides high power load capability and durability, excellent heat dissipation, and a low temperature coefficient that is directly proportional, but also accommodates a flexible range of assembly options for convenient utilization and installation (Refer to the DR series and DQ series features for exact specifications). Suitable for educational modeling applications, load testing, industrial machinery, electric power distribution, instruments and automation control installations, etc. For custom specifications, please contact us to discuss the details.



BDR TYPE 200W-3200W

High Voltage, Assembly-Type Resistance Box

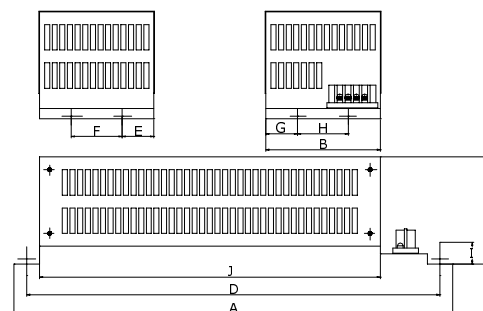
Power Rating	Dimensions (m/m)											Resistance Range (Ω)
	CASE	A	B	C	D	E	F	G	H	I	J	
200W	A	345	90	76	325	45		43		8	268	0.1~100K Ω
400W	A	345	90	76	325	45		43		8	268	0.1~200K Ω
400W	B	450	152	100	428	30	90	74		10	355	0.1~200K Ω
800W	B	450	152	100	428	30	90	74		10	355	0.1~400K Ω
1200W	C	450	300	100	428	74	146	74	146	10	355	0.1~600K Ω
1600W	C	450	300	100	428	74	146	74	146	10	355	0.1~800K Ω
2000W	D	560	250	195	535	27	190	122		10	420	0.1~1000K Ω
2400W	D	560	250	195	535	27	190	122		10	420	0.1~1200K Ω
2800W	D	560	250	195	535	27	190	122		10	420	0.1~1400K Ω
3200W	D	560	250	195	535	27	190	122		10	420	0.1~1600K Ω



BQR TYPE 300W-4800W

High Voltage, Assembly-Type Resistance Box

Power Rating	Dimensions (m/m)											Resistance Range (Ω)
	CASE	A	B	C	D	E	F	G	H	I	J	
300W	A	345	90	76	325	45		43		8	268	0.1~30K Ω
600W	A	345	90	76	325	45		43		8	268	0.1~60K Ω
600W	B	450	152	100	428	30	90	74		10	355	0.1~60K Ω
1200W	B	450	152	100	428	30	90	74		10	355	0.1~120K Ω
1800W	C	450	300	100	428	74	146	74	146	10	355	0.1~180K Ω
2400W	C	450	300	100	428	74	146	74	146	10	355	0.1~240K Ω
3000W	D	560	250	195	535	27	190	122		10	420	0.1~300K Ω
3600W	D	560	250	195	535	27	190	122		10	420	0.1~360K Ω
4200W	D	560	250	195	535	27	190	122		10	420	0.1~420K Ω
4800W	D	560	250	195	535	27	190	122		10	420	0.1~480K Ω



HOW TO ORDER

<u>BDR</u> ↓ Product Type.	<u>2400W</u> ↓ Rated Power	<u>13.6 Ω</u> ↓ Resistance Value. (Ω)	<u>K</u> ↓ Resistance Tolerance.	<u>G</u> ↓ Assembly Method.
BDR type BQR type	200W~3200W 300W~4800W	(Ω) Indicates resistance value in units of ohms.	J=±5% K=±10%	G-Horizontal mount N-No mounts. Z-Vertical mount.