

# Global® Non-Inductive Bulk Ceramic Power Resistors

(formerly Cesiwid)

Non-inductive bulk ceramic construction for uniform distribution of energy throughout resistor body. No film or wire to fail.

**Choose Type SP** for great A-C power handling capability, whether it be at power frequency or many megahertz.

**Choose Type AS** for its ability to absorb huge amounts of energy and for its non-inductive property at high voltage.

**Choose Type A** when high resistance is required in a high power non-inductive resistor.

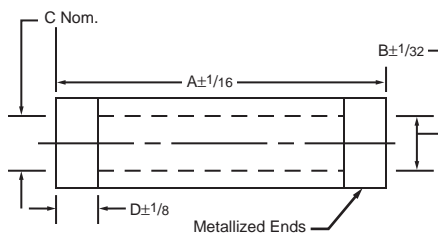
CHARACTERISTICS	Type SP	Type AS	Type A
Maximum Operating Temperature: °C	350	230 150*	230
Temperature Coefficient: Percent per degree C, -55°C to maximum rated temperature	+0.2 -0.08	+0.0 -0.08	+0.0 -0.2
Voltage Coefficient: Maximum percent per kilovolt per inch active length (overall length less termination)	1.0	1.0	-
Short Time Overload: Maximum percent change after 5 cycles 10 times rated power, 5 seconds on, 90 seconds off	2.0	2.0	-
Moisture Resistance: Maximum percent change when tested per MIL-STD-202 method 103	2.5	2.5	2.5

\*With epoxy insulation for use in oil.

## STANDARD SIZES

(Special sizes are also available: consult factory.)

Type	A	B	C (SP & AS)	C (A)	D
884 SP	2.0	0.50	0.22	-	0.25
885 SP, AS, & A	2.5	0.75	0.50	0	0.50
886 SP, AS, & A	5.0	0.75	0.50	0	0.62
887 SP, AS, & A	6.0	1.00	0.75	0.5	0.50
888 SP, AS, & A	8.0	1.00	0.75	0.5	0.88
889 SP, AS, & A	12.0	1.00	0.75	0.5	0.88
890 SP, AS, & A	18.0	1.00	0.75	0.5	0.88
891 SP	18.0	2.00	1.50	-	1.0
892 SP	24.0	2.00	1.50	-	1.0



## SERIES 800 AND 1000

This general line is available in a wide variety of sizes and terminations. They retain the non-inductive and heavy load characteristics of all Global ceramic resistors. These resistors can handle up to 1000 watts, 165 KJ and 165 KV in resistance values from 1 ohm to 1 megohm.



Parts are specified by the four or five character type number (for example 885SP, 888AS, 890A), the first two digits of the resistance, a single digit to indicate the power of ten multiplier, and a "J" for ±5%, a "K" for ±10%, or an "L" for ±20%. Where the resistance is less than ten ohms, the power of ten multiplier is not used, and an "R" replaces the decimal point. Thus R50 = 0.50 ohm, 7R5 = 7.5 ohm, 220 = 22.0 ohm, 152 = 1500 ohm, etc. Standard construction for SP resistors is aluminum metalization. Type A resistors have nickel metalization. Type AS resistors have silver metalization with a dielectric coating. This standard feature is designated by part number suffix "DS." Radial tab ("G") and axial tab ("H") terminations are available on SP and AS resistors. "No Arc" ("N") butt-end terminations are available on Type AS and A resistors for applications requiring high energy or current

## ELECTRICAL SPECIFICATIONS

Length and Diameter	Type	Resistance Available (ohms)		Average Power @ 40 C (watts)	Peak** Energy (joules)	Peak*** Voltage (volts)
		Min.	to Max.			
2" x 1/2"	884SP	1.0	200	22.5	250	1,000
2-1/2" x 3/4"	885SP	1.0	130	45	250	1,000
	885AS	6.0	1200	15	2,800	8,000
	885A	1500	220K	15	750	3,750
5" x 3/4"	886SP	1.0	330	90	500	4,000
	886AS	15.0	3300	30	7,000	20,000
	886A	3900	390K	30	1,500	10,000
6" x 1"	887SP	1.0	330	150	1,600	4,000
	887AS	12.0	3300	50	13,000	30,000
	887A	3900	390k	50	6,000	12,000
6" x 1-1/2"	1026AS	5.0	1200	70	37,000	30,000
8" x 1"	888SP	1.0	390	190	2,100	6,000
	888AS	15.0	3900	75	16,500	45,000
	888A	4700	470K	60	7,500	15,000
8" x 1-1/2"	1028AS	6.5	1875	100	46,000	45,000
12" x 1"	889SP	1.0	680	275	3,200	10,000
	889AS	25.0	6800	100	27,000	75,000
	889A	8200	680K	90	12,500	25,000
12" x 1-1/2"	1032AS	9.0	2500	150	75,000	75,000
18" x 1"	890SP	1.0	1000	375	4,200	16,000
	890AS	40.0	10K	150	43,000	120,000
	890A	12K	1M	125	20,000	40,000
18" x 1-1/2"	1038AS	15.0	3800	225	119,000	120,000
18" x 2"	891SP	1.0	450	750	15,000	16,000
24" x 2"	892SP	1.0	600	1000	17,500	22,000
24" x 1-1/2"	1044AS	20.0	4800	300	164,000	165,000

\*\* Allowable peak energy/voltage will depend on the resistance value. Consult Kanthal Global. \*\*\* Derate by 50% with epoxy coating. Energy ratings are based on pulses <10 milliseconds. Type SP ratings can be substantially greater for longer pulses. Consult Kanthal Global.

density performance. Epoxy coating is available on AS and A resistors for use in oil ("O"). Typical part numbers: 889SP501K represents a Type SP, 500 ohm ±10%, 886AS500KDS represents a standard Type AS, 50 ohm ±10%, with dielectric coating

and silver terminations. 890A503L represents Type A, 50,000 ohm ±20%. 886AS500KNO represents Type AS, 50 ohm ±10% with "No Arc" terminal and epoxy coating. Consult plant for termination dimension details and additional options and part number detail.

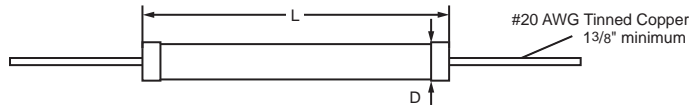
# Global® Non-Inductive Power Resistors For Special Problem Solutions

(formerly Cesiwid)

## SERIES 100/200 TYPE AS & SP AXIAL LEADED RESISTORS

### Candidates for Replacement of Carbon Composition Resistors

Type AS for high voltage and energy applications.  
Type SP for high AC and power handling capabilities.



SPECIFICATIONS	TYPE AS	TYPE SP
Short Time Overload, 10 Cycles 1000% Rated Power, 5 Sec. On, 90 Sec. Off	±2% Max.	±5% Max.
Life Test, 1000 Hour @ Rated Power	±5% Max	±5% Max.
Temperature Coefficient	+0.0 to -0.08%/°C	+0.2 to -0.08%/°C

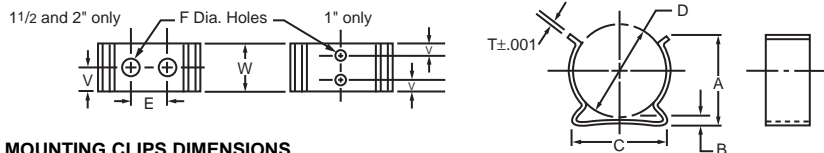
Body Size	Resistance Range, Ohms	Dia. (D) Max. in. (mm)	Length (L) Max. in. (mm)	Rated Peak** Voltage	Average* Power Rating, Watts @ 40°C Amb.	Rated* Peak Energy, Joules	Peak Current Amps
231AS 231SP	25-6,350 1-1,000	0.2 (5.1) 0.2 (5.1)	0.75 (19.1) 0.75 (19.1)	1,500 V 375 V	1.5 3	75 15	25 360
233AS 233SP	6-1,800 1-120	0.31 (7.9) 0.31 (7.9)	0.75 (19.1) 0.75 (19.1)	1,100 V 375V	2 7	170 20	35 550
234AS 234SP	12-5,000 1-330	0.31 (7.9) 0.31 (7.9)	1.125 (28.6) 1.125 (28.6)	2,500 KV 500 V	3 10	275 30	35 550
250AS 250SP	4-1,200 1-150	0.44 (11.1) 0.44 (11.1)	0.75 (19.1) 0.75 (19.1)	1,500 V 375 V	2.5 8.5	260 20	45 700
251AS 251SP	8-2,300 1-350	0.44 (11.1) 0.44 (11.1)	1.125 (28.6) 1.125 (28.6)	2,500 V 500 V	3.5 12	400 30	45 700
102AS 102SP	30-9,000 1-700	0.31 (7.9) 0.31 (7.9)	2.125 (54.0) 2.125 (54.0)	3,000 V 1,000 V	5 15	600 50	35 550
104AS 104SP	55-18,000 2-1,500	0.31 (7.9) 0.31 (7.9)	4.125 (104.8) 4.125 (104.8)	9,000 V 3,600 V	9 25	1,200 95	35 550
106AS 106SP	90-30,000 3-2,400	0.31 (7.9) 0.31 (7.9)	6.125 (155.6) 6.125 (155.6)	15,000 V 5,000 V	13 36	1,900 155	35 550
109AS 109SP	150-48,000 4-3,800	0.31 (7.9) 0.31 (7.9)	9.125 (231.8) 9.125 (231.8)	25,000 V 6,600 V	20 55	3,000 250	35 550

\*Rated Power. Derate linearly to 0 Watts at 230°C for Type AS. Derate linearly to 0 Watts at 350°C for Type SP. \*\*Allowable peak energy/voltage will depend on the resistance value and pulse width. Consult Kanthal Global. Energy ratings are based on pulse <10 milliseconds. Type SP ratings can be substantially greater for longer pulses. Consult Kanthal Global. Peak Current ratings presume pulse energy approaching rated peak energy values. Allowable current can be higher for lower energy values. Consult Kanthal Global.

## TERMINATION AND MOUNTING

Electrical connection to the resistive bodies of resistors is made by metal end bands. The standard metal is aluminum for Type SP, silver for Type AS and nickel for Type A. Special terminations of brass, copper or tinned ends are also available. Add "B", "C," or "T" respectively to the part number to designate these special terminations.

In most cases, connections to the resistors may be made by stock clips and connector caps such as these:



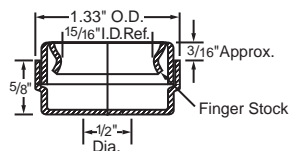
### MOUNTING CLIPS DIMENSIONS

Stock No.	Size	Holes	A	B	C	D	E	F	T	V	W
35370	1/2"	1	0.620	0.090	0.560	0.500		0.093	0.020	0.188	0.375
35267	3/4"	1	0.940	0.155	0.830	0.750		0.144	0.020	0.312	0.625
35268	1"	2	1.230	0.170	1.070	1.000		0.128	0.024	0.156	0.625
35371	1-1/2"	2	1.650	0.100	1.650	1.500	0.925	0.103	0.032	0.250	0.500
35269	2"	2	2.375	0.544	1.080	2.000	0.375	0.125	0.043	0.375	0.750

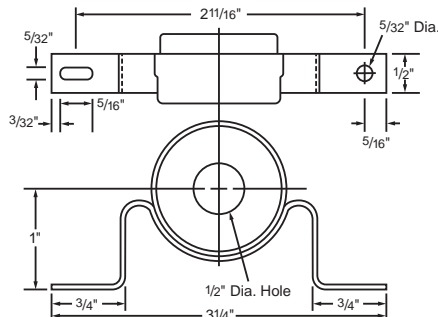
Material: Beryllium Copper

Finish: Electro Tin Plate

## CONNECTOR CAPS



**Part G-4361**  
**Connector Cap Assembly (without strap)**  
Material: Copper Cap, Beryllium-Copper Finger Stock



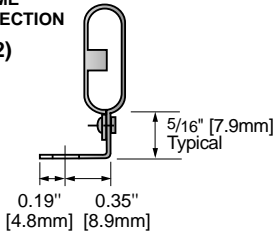
**Part G-4362**  
**Connector Cap Assembly (with strap)**  
Material: Copper Cap, Beryllium Copper, Finger Stock and Strap

## SERIES 500SP NON-INDUCTIVE BULK CERAMIC SLAB RESISTORS

Series 500SP Slab Resistors provide high power and energy dissipation in a slim, compact size. The Series 500SP design enables the designer to minimize resistor package size and cost while providing unequalled performance and reliability.

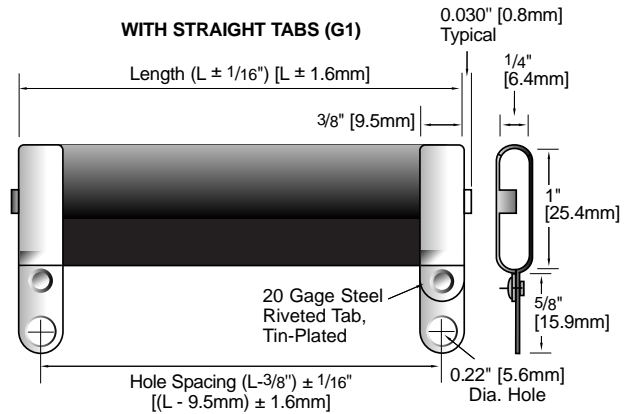
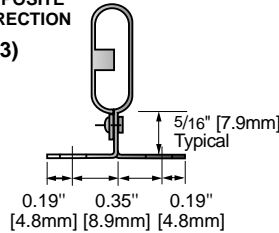
### WITH RIGHT ANGLE TABS

**SAME DIRECTION (G2)**



### WITH RIGHT ANGLE TABS

**OPPOSITE DIRECTION (G3)**

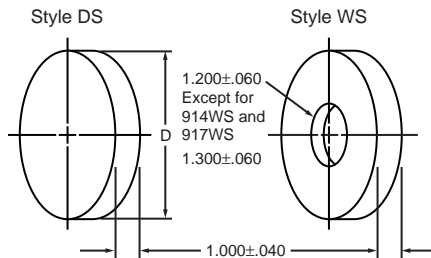


Type	Length (L)	Resistance Range (Ohms)	Average Power @ 40°C Amb. (Watts)	Peak* Energy @ 40°C Amb. (Joules*)	Peak Voltage (Volts)	Resistor Element Weight (Grams)
502SP	2" [50.8mm]	0.2 80	30	150	900	15
503SP	3" [76.2mm]	0.3 150	45	290	1900	22.5
504SP	4" [101.6mm]	0.4 210	60	480	2800	30
506SP	6" [152.4mm]	0.8 340	90	800	4700	45
508SP	8" [203.2mm]	1.0 470	120	1100	6700	60
510SP	10" [254.0mm]	1.3 600	150	1400	8500	75

\*Based on energy absorption in less than 10 milliseconds. Energy rating can be substantially greater for longer pulses. Contact Kanthal Global.

## SERIES 900 DISC AND WASHER STYLE RESISTORS

This Type AS high energy series is available in solid discs and washer styles.



### SPECIFICATIONS

Type	Style	Diameter "D" (inches)	Peak Energy (joules)	Available Resistances	
				Minimum	Maximum
911DS	Solid Disc	1.60 ± 0.06	9,000	1.6	100
912DS	Solid Disc	2.37 ± 0.06	21,000	0.7	90
913DS	Solid Disc	3.00 ± 0.08	33,000	0.5	56
914DS	Solid Disc	3.75 ± 0.08	52,500	0.3	36
913WS	Washer	3.00 ± 0.08	27,600	0.5	78
914WS	Washer	3.75 ± 0.08	47,000	0.3	40
915WS	Washer	4.37 ± 0.08	65,500	0.2	28
916WS	Washer	4.75 ± 0.08	79,500	0.2	24
917WS	Washer	5.00 ± 0.08	80,500	0.2	20

### CHARACTERISTICS

Maximum Temperature	230°C
Minimum Peak Voltage	5000 volts
Contacts	Brass metallization on faces
Recommended contact pressure	25 psi minimum; 100-300 psi preferred
Power Rating	Dependent upon mounting. In free air, parts will safely dissipate 2.5 watts per square inch of surface area at 40°C
Temperature coefficient of resistance	-0.1%/°C to 0.0%/°C