

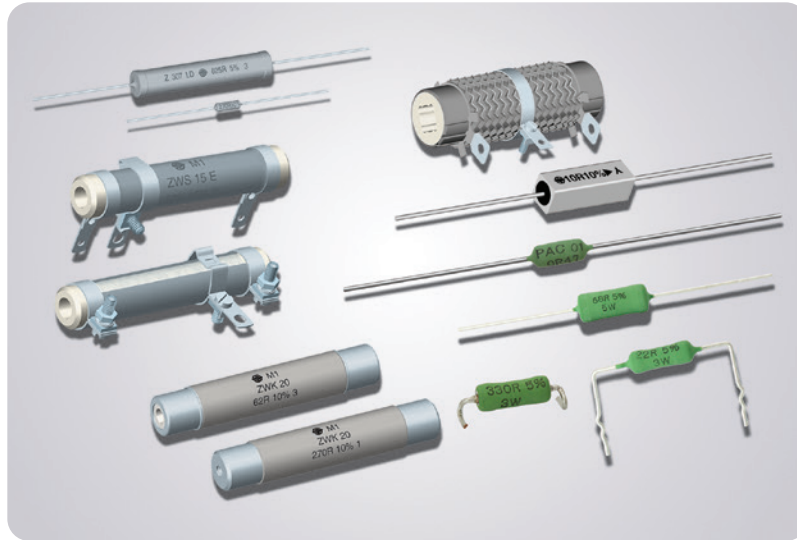


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INDUSTRIAL WIREWOUND RESISTORS

Cement Coated

Cement-Coated Wirewound Resistors



FEATURES

- Power range of 1 W to 500 W
- Resistance range of 0.056 Ω to 620 k Ω
- Temperature range: -55 °C to +250 °C
- Fire-proof construction according to UL94-V0
- Lead (Pb)-free
- High quality ceramic core
- Outstanding endurance
- Adjustable and non-inductive styles available
- RoHS-compliant
- High voltage surge (up to 12 kV) for specially designed components
- Fusing time < 30 s for 45 W overload for safety versions
- Special cement coating for immediate interruption without flame and explosion when mains voltage (220 VRMS) is applied

RESOURCES






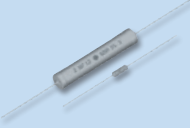
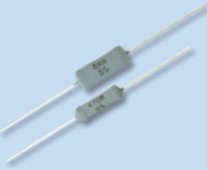
- For application of Vishay resistors in energy meters, please check <http://www.vishay.com/docs/28777/enrgymet.pdf>.
- For application of Vishay resistors in electronic ballasts, please check <http://www.vishay.com/docs/28776/appvr25.pdf>.



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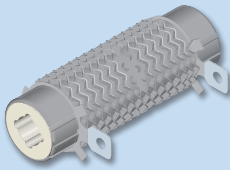
Model	Product	Wattage	Resistance Range	Tolerance (± %)*	TCR (ppm/K)*	Applications	
AC 	AC 01, AC01-AT	1 W	0.10 Ω - 2.4 kΩ	5	-10...-80/ 100...180	<ul style="list-style-type: none"> Filters Capacitor discharge Brake resistors Power supplies Welding equipment Rail systems Voltage dividers Converters Automotive Energy meters 	
	AC 03, AC03-AT	3 W	0.10 Ω - 5.1 kΩ				
	AC 04, AC04-AT	4 W	0.10 Ω - 6.8 kΩ				
	AC 05, AC05-AT	5 W	0.10 Ω - 10 kΩ				
	AC 07, AC07-AT	7 W	0.10 Ω - 15 kΩ				
	AC 10, AC10-AT	10 W	0.22 Ω - 27 kΩ				
Safety Resistor AC01..CS, AC03..CS, AC05..CS   UL1412 recognized; UL file no. E362452	AC01..CS	1 W	3 Ω - 100 Ω	5	200	<ul style="list-style-type: none"> Washing machines Chargers Energy meters 	
	AC03..CS	3 W	4.7 Ω - 100 Ω				
	AC05..CS	5 W	10 Ω - 100 Ω				
PAC 	PAC 01	1 W	0.10 Ω - 2.2 kΩ	1	± 100		
	PAC 02	2 W	0.10 Ω - 3.6 kΩ				
	PAC 03	3 W	0.10 Ω - 4.7 kΩ				
	PAC 04	4 W	0.10 Ω - 8.2 kΩ				
	PAC 05	5 W	0.10 Ω - 10 kΩ				
	PAC 06	6 W	0.10 Ω - 12 kΩ				
WSZ 	WSZ 6720	1.8 W	1 Ω - 510 Ω	1	-10...-80 100...180		
			0.22 Ω to 510 Ω	2			
			0.10 Ω to 3.3 kΩ	5			
			0.10 Ω to 3.3 kΩ	10			
Z300 	Z 301	1 W	.30 Ω - 2.0 kΩ	5 / 10	-10...-80/ 100...180		
	ZDA 0411	2 W	0.47 Ω - 4.3 kΩ	5 / 10			
				on request			1 / 2
	Z 302	3 W	0.10 Ω to 3.3 kΩ	5 / 10			
				0.22 Ω - 510 Ω			1 / 2
	Z 303	4 W	0.10 Ω - 3.9 kΩ	5 / 10			
				1.0 Ω - 1.0 kΩ			1 / 2
Z 305	6 W	1.0 Ω - 2.4 kΩ	5 / 10				
			1.2 Ω - 2.4 kΩ	1 / 2			
Z 306	8 W	0.10 Ω - 16 kΩ	5 / 10				
			1.0 Ω - 4.7 kΩ	1 / 2			
Z 307	10 W	0.20 Ω - 30 kΩ	5 / 10				
			1.0 Ω - 8.2 kΩ	1 / 2			
High Voltage Surge Z300-CXX 	Z301-C	1 W	0.30 Ω - 2 kΩ	10 / 5	200	High voltage surge (up to 12 kV) according to IEC 61000-4-5, for usage in: <ul style="list-style-type: none"> Energy meters Appliances Industrial electronics 	
	ZDA0411-C	2 W	0.47 Ω - 4.3 kΩ				
	Z302-C	3 W	0.22 Ω - 3.3 kΩ				
	Z303-C	4 W	0.47 Ω - 3.9 kΩ				
	Z304-C	5 W	0.62 Ω - 5.6 kΩ				
	Z304-5	6 W	0.15 Ω - 10 kΩ				



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Model	Product	Wattage	Resistance Range	Tolerance ± %*	TCR (ppm/K)*	Applications
Z300-C00 Standard 	Z301-C00	1 W	0.30 Ω to 2 kΩ	200	± 10 / ± 5	<ul style="list-style-type: none"> • Non-flammable cement coating • High power dissipation in small size • Radial and Z-bend termination
	ZDA0411-C00	2 W	0.47 Ω to 4.3 kΩ			
	Z302-C00	3 W	0.22 Ω to 3.3 kΩ			
	Z303-C00	4 W	0.47 Ω to 3.9 kΩ			
	Z304-C00	5 W	0.62 Ω to 5.6 kΩ			
	Z305-C00	6 W	0.15 Ω to 10 kΩ			
ZWK 	ZWK 10 ZWK 10 Ni	10 W	0.47 Ω - 22 kΩ 0.24 Ω - 3.9 kΩ	2 / 5 / 10 5 / 10	650...750/ -10...-80/ 100...180	<ul style="list-style-type: none"> • Filters • Capacitor discharge • Brake resistors • Power supplies • Welding equipment • Rail systems • Voltage dividers • Converters • Automotive
	ZWK 15 ZWK 15 Ni	15 W	0.47 Ω - 33 kΩ 0.36 Ω - 5.6 kΩ	2 / 5 / 10 5 / 10		
	ZWK 20 ZWK 20 Ni	20 W	0.75 Ω - 51 kΩ 0.56 Ω - 9.1 kΩ	2 / 5 / 10 5 / 10		
	ZWK 40 ZWK 40 Ni	40 W	1.5 Ω - 100 kΩ 1.1 Ω - 18 kΩ	2 / 5 / 10 5 / 10		
	ZWK 60 ZWK 60 Ni	60 W	1.8 Ω - 130 kΩ 1.5 Ω - 24 kΩ	2 / 5 / 10 5 / 10		
	ZWK 90 ZWK 90 Ni	90 W	2.7 Ω - 200 kΩ 2.2 Ω - 36 kΩ	2 / 5 / 10 5 / 10		
	ZWK 150 ZWK 150 Ni	150 W	4.7 Ω - 360 kΩ 3.9 Ω - 62 kΩ	2 / 5 / 10 5 / 10		
ZBS 	ZBS 20/100 ZBS 20/100 E	50 W	0.13 Ω - 6.2 Ω	10 / 5	650...750/ -10...-80/ 100...180	<ul style="list-style-type: none"> • Filters • Capacitor discharge • Brake resistors • Power supplies • Welding equipment • Rail systems • Voltage dividers • Converters • Automotive
	ZBS 20/165 ZBS 20/165 E	100 W	0.27 Ω - 12 Ω			
	ZBS 20/265 ZBS 20/265 E	150 W	0.47 Ω - 22 Ω			
	ZBS 30/100 ZBS 30/100 E	75 W	0.10 Ω - 8.2 Ω			
	ZBS 30/133 ZBS 30/133 E	110 W	0.15 Ω - 12 Ω			
	ZBS 30/165 ZBS 30/165 E	150 W	0.20 Ω - 16 Ω			
	ZBS 30/215 ZBS 30/215 E	200 W	0.27 Ω - 24 Ω			
	ZBS 30/265 ZBS 30/265 E	250 W	0.30 Ω - 27 Ω			
	ZBS 30/330 ZBS 30/330 E	300 W	0.39 Ω - 36 Ω			
	ZBS 45/370 ZBS 45/370 E	375 W	0.75 Ω - 56 Ω			
	ZBS 60/370 ZBS 60/370 E	500 W	0.91 Ω - 75 Ω			

Note: E = adjustable — Ni = non-inductive

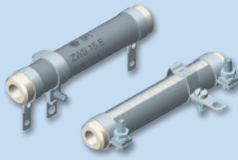
* Ohmic values are not available in all tolerances and TC values. For more details, refer to datasheets at www.vishay.com or contact your local sales office.



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INDUSTRIAL WIREWOUND RESISTORS

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Model	Product	Wattage	Resistance Range	Tolerance ± %*	TCR (ppm/K)*	Applications
ZWS 	ZWS 6 ZWS 6 E ZWS 6 Ni	6 W	0.82 Ω - 13 kΩ 0.82 Ω - 4.7 kΩ 0.15 Ω - 2.4 kΩ	2 / 5 / 10 5 / 10 5 / 10		<ul style="list-style-type: none"> • Filters • Capacitor discharge • Brake resistors • Power supplies • Welding equipment • Rail systems • Voltage dividers • Converters • Automotive
	ZWS 8 ZWS 8 E ZWS 8 Ni	8 W	0.68 Ω - 20 kΩ 0.62 Ω - 6.8 kΩ 0.24 Ω - 3.6 kΩ	2 / 5 / 10 5 / 10 5 / 10		
	ZWS 12 ZWS 12 E ZWS 12 Ni	12 W	0.62 Ω - 27 kΩ 0.56 Ω - 9.1 kΩ 0.33 Ω - 5.1 kΩ	2 / 5 / 10 5 / 10 5 / 10		
	ZWS 15 ZWS 15 E ZWS 15 Ni	15 W	0.68 Ω - 33 kΩ 0.68 Ω - 11 kΩ 0.39 Ω - 6.2 kΩ	2 / 5 / 10 5 / 10 5 / 10		
	ZWS 20 ZWS 20 E ZWS 20 Ni	20 W	0.62 Ω - 43 kΩ 0.62 Ω - 15 kΩ 0.47 Ω - 8.2 kΩ	2 / 5 / 10 5 / 10 5 / 10		
	ZWS 35 ZWS 35 E ZWS 35 Ni	35 W	1.1 Ω - 82 kΩ 1.1 Ω - 27 kΩ 0.91 Ω - 15 kΩ	2 / 5 / 10 5 / 10 5 / 10		
	ZWS 50 ZWS 50 E ZWS 50 Ni	50 W	1.3 Ω - 91 kΩ 1.3 Ω - 33 kΩ 1.1 Ω - 16 kΩ	2 / 5 / 10 5 / 10 5 / 10		
	ZWS 100 ZWS 100 E ZWS 100 Ni	100 W	2.7 Ω - 200 kΩ 2.7 Ω - 68 kΩ 2.2 Ω - 33 kΩ	2 / 5 / 10 5 / 10 5 / 10		
	ZWS 30/100 ZWS 30/100 E ZWS 30/100 Ni	75 W	2.4 Ω - 180 kΩ 2.4 Ω - 56 kΩ 2.0 Ω - 30 kΩ	2 / 5 / 10 5 / 10 5 / 10		
	ZWS 30/133 ZWS 30/133 E ZWS 30/133 Ni	110 W	3.3 Ω - 240 kΩ 3.3 Ω - 82 kΩ 2.7 Ω - 43 kΩ	2 / 5 / 10 5 / 10 5 / 10		
	ZWS 150 ZWS 150 E ZWS 150 Ni	150 W	4.7 Ω - 360 kΩ 4.7 Ω - 120 kΩ 3.9 Ω - 62 kΩ	2 / 5 / 10 5 / 10 5 / 10		
	ZWS 250 ZWS 250 E ZWS 250 Ni	250 W	8.2 Ω - 620 kΩ 8.2 Ω - 220 kΩ 6.8 Ω - 110 kΩ	2 / 5 / 10 5 / 10 5 / 10		

Note: E = adjustable — Ni = non-inductive

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