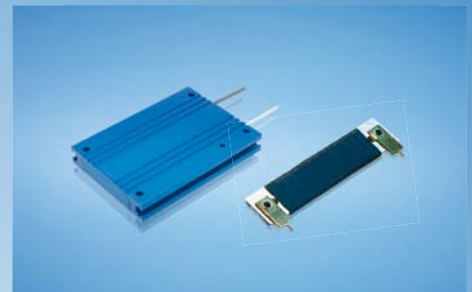


**DYNAMIK DURCH
WIDERSTAND**

***DYNAMICS
THROUGH RESISTANCE***



FRIZLEN
LEISTUNGSWIDERSTÄNDE
POWER RESISTORS

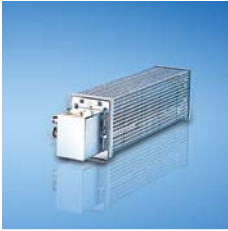


DYNAMIK DURCH WIDERSTAND

Wir über uns

DYNAMICS THROUGH RESISTANCE

About us



DIE KLASSIKER

Drahtgewickelte Rohrfestwiderstände
10 bis 6000 Watt

THE ORIGINAL ONES

Wirewound tubular fixed resistors
10 up to 6000 Watt

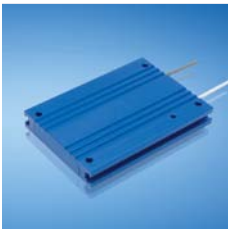


DIE FLEXIBLEN

**Zementierte
Drahtdrehwiderstände**
16 bis 1500 Watt

THE FLEXIBLE ONES

**Cement coated wirewound
variable resistors**
16 up to 1500 Watt



DIE INNOVATIVEN

**Drahtgewickelte Flachwiderstände,
auch gekapselt und in wassergekühlter
Ausführung**
5 bis 40000 Watt

THE INNOVATIVE ONES

**Wirewound flat resistors,
also enclosed and
watercooled**
5 up to 40000 Watt



DIE BELASTBAREN

Last- und Prüfwiderstände
0,01 bis 250 Kilowatt

THE LOADABLE ONES

Load- and test resistors
0.01 up to 250 Kilowatt



DIE MODULAREN

**Drahtgewickelte
Lamellenfestwiderstände**
0,15 bis 30 Kilowatt

THE MODULAR ONES

**Wirewound lamina type
fixed resistors**
0,15 up to 30 Kilowatt



DIE ROBUSTEN

Stahlgitterfestwiderstände
0,5 bis 250 Kilowatt

THE ROBUST ONES

Steel-grid fixed resistors
0,5 up to 250 Kilowatt



FRIZLEN SONDERGERÄTE

DC-POWERSWITCH
Kundenspezifische Widerstandsgeräte

FRIZLEN SPECIAL DEVICES

DC-POWERSWITCH
Customised resistor units

Das richtige Produkt für Ihre Anwendung

Suitable products for your application

Anwendungen	Application	Typleistung [kW]		Produktgruppe					
		min.	max.	T 100	T 200	T 300	T 400	T 500	T 600
Bremswiderstände für Frequenzumrichter- und Gleichstromantriebe	Braking resistors for frequency converters and DC drives	0,01	40,0			X		X	
		0,01	6,0	X				X	X
		6,0	30,0					X	X
		30,0	250						X
Belastungswiderstände für Spannungsquellen, Batterien, USV-Geräte, Generatoren und Netzgeräte	Load resistors for supply units, power packs, batteries, UPS units and generators	0,01	250				X		
Stufenlose Drehzahlverstellung von kleinen Gleich- und Wechselstrommotoren	Stepless variable speed adjustment for small AC and DC motors	0,01	1,5		X		X		
Feldsteller für Generatoren, Widerstände zur Strom- und Spannungsbegrenzung	Field rheostats for generators, resistors for current and voltage limitation	0,01	3,8	X	X				
Motorische Potentiometer als fernbetätigte Sollwertgeber	Motorised potentiometers as nominal value setters	0,01	1,5		X				
Widerstandsbaugruppen für Einbau in leistungselektronische Geräte	Resistor modules fitting into electronic power devices	0,01	0,75	X		X		X	
		0,3	2,0					X	
Anlass- und Stellwiderstände für Schleifringläufer- und Gleichstrommotoren	Starting and regulating resistors for slip-ring rotor and DC motors	0,15	30,0					X	
		0,5	250						X
Ständer-Vorschaltwiderstände für Kurzschlussläufermotoren	Stator series resistors for squirrel-cage motors	0,5	250						X
Strombegrenzungswiderstände zur Ladung und Entladung von Kondensatoren	Resistors for current limitation e.g. for charging and discharging of capacitors	0,01	1,0	X		X		X	
Experimentier- und Prüfwiderstände in Laboratorien, Schulen und Universitäten	Resistors for experimenting and testing in laboratories, schools and universities	0,01	50				X		
Widerstände zur Schutzbeschaltung, Filterwiderstände	Protective resistors, filter resistors	0,01	0,75	X		X		X	
		0,75	6,0	X				X	
		1,5	22,0						X



Wir über uns

Mit FRIZLEN Leistungswiderständen haben Sie elektrische Leistung voll im Griff.

Unser umfassendes Know-how zeigt sich im kompletten Spektrum vom Einzelstück bis zur Serie, für Leistungen von 5 Watt bis 250 Kilowatt.

Einsatz- und Anwendungsgebiete stellen die Anforderungen, die Lösungen entwickeln wir.

Ihrem Anforderungsprofil entsprechend berechnen und fertigen wir Widerstände und Widerstandskombinationen unter Berücksichtigung Ihrer Vorgaben. Natürlich beraten wir Sie gern und ermitteln auf Wunsch die Widerstandsdimensionierung mit Hilfe EDV-gestützter Berechnung und Simulation.

Hochwertige Standard- sowie Sonderlösungen von FRIZLEN sorgen für Dynamik im Verbund mit leistungselektronischen Geräten in Maschinen und Anlagen. Bewegung zu stoppen, konstant zu halten und exakte Abläufe zu ermöglichen – dabei unterstützen wir die elektrische Antriebstechnik und verbessern so die Dynamik Ihrer Antriebe.

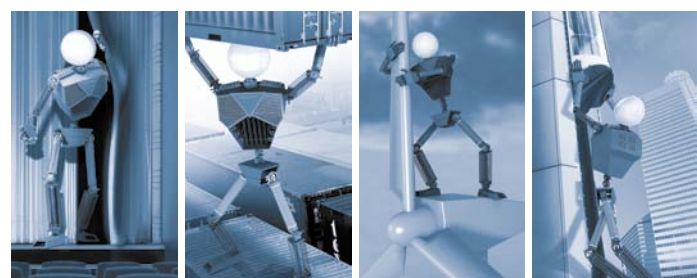
About us

Keep your electric power under control with FRIZLEN power resistors.

Our extensive know-how is demonstrated in a complete spectrum from single item up to series production, for power values from 5 watts up to 250 kilowatts. Different ranges of use and application set the requirements, we provide the solutions.

We design and produce resistors and resistor combinations exactly to meet your requirements. We are, of course, happy to advise you according to your specification. Upon request, we can determine resistor dimensioning using our computer-supported calculation and simulation system.

High-quality standard and special solutions from FRIZLEN ensure dynamics when you are dealing with high performance electrical equipment in machines and processes. We support electrically driven power engineering by stopping movement, keeping it constant and ensuring exact sequences, which improves the dynamics of your drive systems.





Zementierte Drahtdrehwiderstände

16 bis 1500 Watt

Zementierte Drahtdrehwiderstände in Grundausführung als Einzel-elemente.

- Mit angebauten Mikroschaltern, mit Skalenscheiben und Drehknopf
- In Reihenanordnung, mehrphasig oder parallel geschaltet
- Eingebaut in Gehäuse oder als staubgekapelte Ausführung
- Mit Motorantrieb, für Gleich- oder Wechselspannung, für verschiedene Spannungen und Durchlaufzeiten, mit Mikroschaltern, auch 10-Gang-Ausführung

Cement coated wirewound potentiometers

16 up to 1500 Watt

Cement coated wirewound potentiometers as individual components.

- With additional micro switches, with scale discs and adjusting knobs
- In in-line configuration, for multiple phases or switched in parallel
- Integrated in enclosure or dustproof encapsulated
- Motor driven, for different AC and DC operating voltages and operating times, with micro switches, also with precision ten turn potentiometer



Contents

This list comprises cement coated wirewound variable resistors (potentiometers) as single devices in cemented version, that can be integrated in other units and composed to potentiometer units in different degrees of protections and mounting types. According to request these resistors are also manufactured with motor drive for AC and DC voltage.

<i>maximum power</i>	<i>characteristics</i>	<i>type series</i>	<i>page</i>
	survey		T221E
	technical details		T222E
160 W	variable resistors, suitable for integration	R 10 – R 80*	T223E
1,0 kW	variable resistors, suitable for integration	R100 – R500	T224E
0,5 kW	enclosures, special designs, accessories	D, K, RK, RG...	T225E
1,5 kW	variable resistors with AC motor drive	RM..	T226E
1,5 kW	variable resistors with DC motor drive	RMC..	T227E
2 W	10 turn precision potentiometer with AC/DC motor drive	RM 2Z../RMC 2Z..	T228E

Properties

- **low temperature coefficient**
⇒ constant ohmic value at a large temperature range
- **fixation of wire by cementation**
⇒ good heat conducting properties
- **stepless variable resistance value**
⇒ change and/or adjustment or trimming by the user
- **various diameters and installation depths**
⇒ can be integrated, compact construction
- **with motor drive for various voltages and operating times**
⇒ remote control available
- **various accessories**
⇒ like scale discs, adjusting knobs, micro switches

Applications

- stepless variable adjustment for AC and DC motors
- field rheostats for generators
- resistors for current and voltage limitation
- starting resistor for DC voltage motors
- motorised potentiometers as nominal value setter
- integration in power supply units, power packs, switch cabinets and machines
- adjustable load resistors
- resistors for experimenting and testing in laboratories, schools and universities



T 200 - Survey

type series		R10 R20	R40 R80*	R100 R150	R250 R500	RG	RK	RM	RMC	RM2Z	RMC2Z
	page	T223E	T223E	T224E	T224E	T225E	T225E	T226E	T227E	T228E	T228E
characteristics	symbol										
typical power from [W]		16	50	120	300	8	8	16	16	2	2
typical power up to [W]		60	160	360	1000	250	25	1500	1500	2	2
dustproof							X				
micro switch available		X	X	X	X			X	X	X	X
degree of protection IP00	IP 00	X	X	X	X			X	X	X	X
degree of protection IP20	IP 20					X					
integration	E	X	X	X	X		X	X	X	X	X
AC - motor drive	Mot. AC							X		X	
DC - motor drive	Mot. DC								X		X
enclosure/ laboratory version						X					

Remark: * type R80 is not longer available

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We refer to our terms of sales and delivery.

**Technical details**

This list comprises cement coated wirewound variable resistors (potentiometer) with continuous dissipation from 16 W up to 500 W.

Construction

The ring-shaped bodies are made from steatite. The wires and bands with a low temperature coefficient, which are used for the resistance winding, are made from CuNi 44 according to DIN 17 471, 46 460 and 46 461 (formerly WM 50) for low and medium ohmic values or from CrNi 6015 according to DIN 17 742 and 46 463 (formerly WM 110) for high ohmic values. They are wound on distance and fixed and protected by a layer or a special cement which also improves the heat dissipation. The wire windings with rated continuous dissipation of resistors from 16 W to 500 W are produced according to DIN 41 473, 41 475 and 41 476.

All resistors are manufactured with 3 connections and isolated shaft and can be used as voltage divider and as series resistance. The standard types of sizes R 10, R 20, R 40 und R 80 are equipped with fast-on terminals 4,8 x 0,8; all the others with screw connections. The contacts are usually made of silver. A coppered carbon contact can be used for high ohmic values and frequent operations.

Continuous power rating

The listed typical power values are valid during permanent operation and at a maximum ambient temperature of 40° C. They are valid under the condition that cooling air may enter incessantly and that the potentiometers are fixed onto metallic surfaces. If the resistors are fixed onto non-metallic surfaces, the power rates should be lowered to about 70% of the listed values. If the ambient temperature is essentially higher than 40° C, the typical power has to be reduced by 5% for any temperature rise of 10 K.

In addition to the mentioned maximum and minimum ohmic values other values can be achieved if required.

Air and creepage distances

Air and creepage distances are rated according to IEC 664 (DIN EN 0110 part 1) for the overvoltage category III and degree of pollution 3 for grounded three-phase mains supplies up to 3 x 500 V. Testing voltage 2.5 kV AC. The test voltage between shaft and the connections (50 Hz AC voltage) is 1000 V for the ten turn precision potentiometer, 2000 V for R 10 and R 20, 2500 V for all other sizes.

Do not conclude from the calculated relation between the rated power and the maximum producible ohmic value to the rated voltage!

**Storage temperature/
Operation temperature/
Installation altitude**

Storage temperature: - 40° C to 80° C
Operation temperature: - 30° C to 40° C. If the ambient temperature is higher than 40°C, you have to decrease the continuous dissipation by 4% per 10 K temperature rise!
Installation altitude: 2000 m above sea level, you have to decrease the continuous dissipation for 10% per 1000 m altitude, maximum altitude 5000 m above sea level

Restrictions are for the type series RM.. because of the technical build-in devices.
Operation temperature: - 20° C to 40° C

How to order

When ordering resistors, following details should possibly be mentioned:
size of resistor, ohmic value (serie E 12 preferably), tolerance of resistance, desired accessories like knob, switches or scale disc, special types, application, power length of shaft.

If there are no given details for a resistor, we feel free to furnish according to our own ideas.



Type series R10 / R20
R40 / R80*

Cement coated wirewound variable resistors

IP
00

E



size	R10	R20	R40	R80*
production range in ohm $\pm 10\%$	1,5-10 k	2,2-15 k	3,9-27 k	4,0-33k
typical power in W at 40° C ambient temperature	16	30	50	80
connections, fast-on (solderable) or on request screw connections M3 in special design(only R40,R80)	4,8 x 0,8			
rotation angle, start to stop	290°	290°	300°	293°
rotation angle over winding	272°	275°	285°	278°
line of resistance	linear			
slider	silver contact			
excess temperature by nominal power	ca. 260° C			
test voltage in kV, 50 Hz	2	2	2,5	2,5
weight approx. g	50	80	150	200

*Type R80 is not longer available

basic construction standard shaft length measured from mounting plate is 35 mm	dim.	R10	R20	R40	R80
available special shaft lengths 18, 21, 24, 40 mm shaft length fitting to switches D30 and D41: 21 mm 12M-0802-00-001	A B C D E	34 28 40	42 30 48	54 40 60	68 50 75 30 M4

with attached micro switch with solder connections change over contact 250 V~, 4 A (in special design fast-on connectors 6,3x0,8)	dim.	R10	R20	R40	R80
Rxx ML1 1-pol. left (dim. B1) Rxx MR1 1-pol. right (dim. B1) Rxx ML2 2-pol. left (dim. B2) Rxx MR2 2-pol. right (dim. B2) 12M-0802-01-001	A B1 B2 C D	60 55 66 40 17	64 55 66 48 21	70 66 77 60 27	75 73 84 80 34

in 2fold in-line configuration (on request also in 3, 4 or 5fold in-line configuration available)	dim.	R10	R20	R40	R80
RZ.. configuration of 2 equal resistors on 1 shaft example: 2 equal resistors (each R20), with equal ohmic values (each 1k): type: RZ20-2x1k 12M-0802-00-001	A B C	34 66 40	42 71 48	54 91 60	68 119 80



Type series R100 / R150
R250 / R500

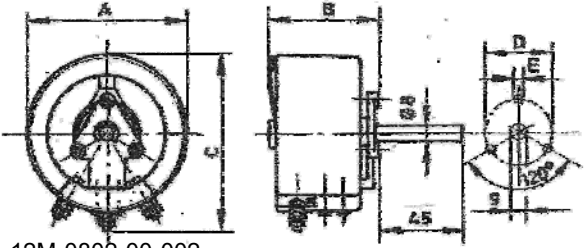
Cement coated wirewound variable resistors

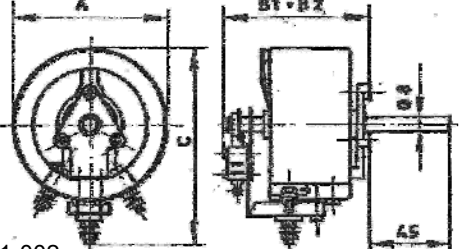
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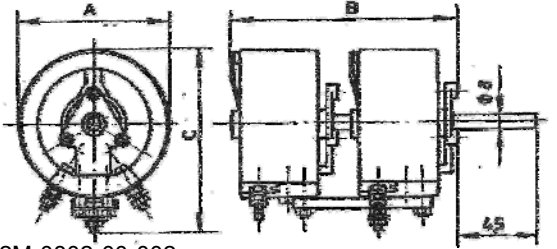
E

R100

size	R100	R150	R250	R500
production range in ohm $\pm 10\%$	1,2-39 k	1,5-47 k	1,8-47 k	3,3-10 k
typical power in W at 40° C ambient temperature	120	180	300	500
screw connections	M 4	M 4	M 4	M 5
rotation angle, start to stop	300°			
rotation angle, over winding	286°	286°	291°	290°
line of resistance	linear			
slider	silver-contact carbon-			
excess temperature by nominal power	approx. 285° C			
test voltage in kV, 50 Hz	2,5			
weight approx. g	500	600	1300	2700

basic construction standard shaft length measured from mounting plate is 45 mm	dim.	R100	R150	R250	R500
available special shaft lengths: 25, 33 mm shaft length fitting to switches D57 and D70: 25 mm		A B C D E M 4	86 82 98 36 M 4	86 80 153 60 M 4	198 98 210 80 M 5
12M-0802-00-002					

with attached micro switch with solder connections change over contact 250 V~, 4 A (in special design fast-on connectors 6,3x0,8)	dim.	R100	R150	R250	R500
Rxxx ML1 1-pol. left (dim. B1) Rxxx MR1 1-pol. right (dim. B1) Rxxx ML2 2-pol. left (dim. B2) Rxxx MR2 2-pol. right (dim. B2)		A B1 B2 C 108	86 106 117 108	142 94 105 168	198 118 129 225
12M-0802-01-002					

in 2fold in-line configuration (on request also in 3, 4 or 5fold in-line configuration available)	dim.	R100	R150	R250	R500
RZ... configuration of 2 equal resistors on 1 shaft example: 2 equal resistors (each R100), with different ohmic values (100 and 1k): type: RZ100-100/1k		A B C 108	86 172 108	142 166 168	198 215 225
12M-0802-00-002					



To type series R10 - R500

Enclosure, special designs, accessories

IP
20

IP
00

E



knob and scale disc for variable resistors			R10 R20	R40 R80	R100 R150	R250 R500
knob – type D	scale disc – type K	type D	30	41	57	70
		∅ A	31	41	57	70
		B	22	26	30	43
		∅ C	6	6	8	8
		G	16	19	27	27
		H	9	13	12	11
		type K	28	38	55	68
		∅ E	10,5	10,5	8,5	8,5
		∅ F	48	65	80	100
		∅ L	-	-	4,5	4,5
		∅ M	-	-	36	44/60

type series RK....	dim.	RK10 RK20	RK40		
variable resistors dustproof encapsulated, maximal load 0,5 x typical power, with push-on connections 4,8 x 0,8 (solderable)		A 53 B 57	59 71		

type series RG...	dim.	RG10 RG20 RG40	RG80 RG100 RG150	RG250	RG500
variable resistor, integrated in enclosure, with adjusting knob and scale disc, degree of protection IP 20, connections at the resistor maximal load 0,5 x typical power 12 M 0478		A 90 B 60 C 70 D 88	120 100 100 132	175 100 150 132	240 110 215 155

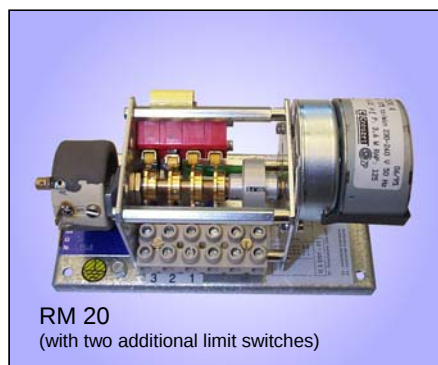
special designs and accessories

- zero position
- locking device (only R10, R20, R40, R80, R100, R150)
- screw driver slot (only R10, R20, R40, R80)
- different shaft length
- centre tap
- reduced tolerance
- sector winding (all sizes besides R10)
- in laboratory version, please look at our list T400E



Type series RM...

Variable resistors with AC-motor drive



RM 20
(with two additional limit switches)

IP
00

E

Mot.
AC

Variable resistor driven by a single phase synchronous motor 230 V, 50 Hz, mounted on a base plate, with adjustable safety clutch between motor and resistor, with 2 limit switches, motor terminals wired on terminals, operating times: 8/12/16/24/47/90s.

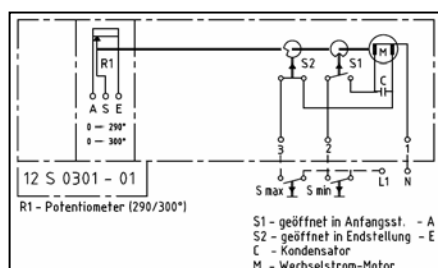
Technologies

- mounted on a base plate
- for 230 V AC, 50 Hz
- with safety clutch
- various operating times

The motor version of these variable resistors can be manufactured in a one-, two- or three-fold construction. In the standard version each resistor has the same ohmic value, however different ohmic values can also be combined. For the increase of the rated power and/or the current the variable resistors can also be switched in parallel.

Up to 3 further freely adjustable limit switches are optionally available. Thus further control functions can be realized by the customer.

Example of a wiring diagram:



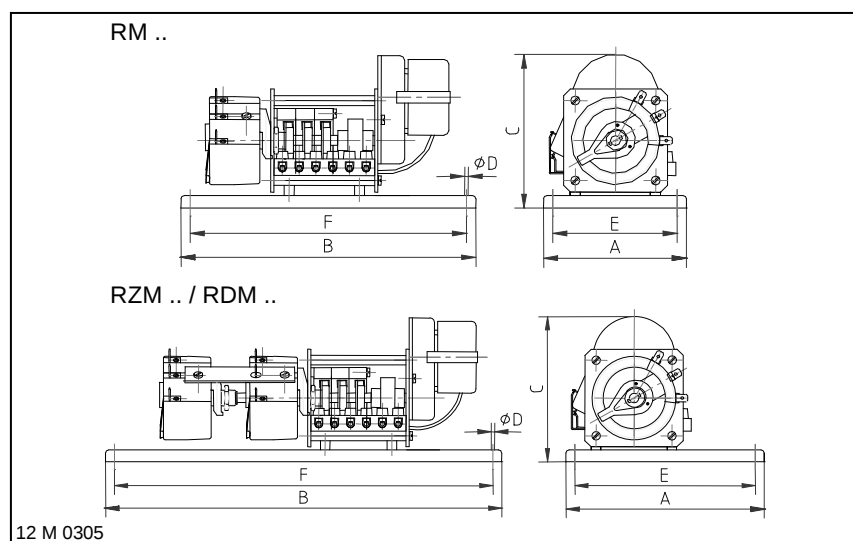
Illustr.: standard wiring diagram of type RM..., with 2 limit switches

Special designs

- combination of different typical powers (potentiometer)
- multiple in-line configuration (max. 4 to 5-fold)
- further operating times

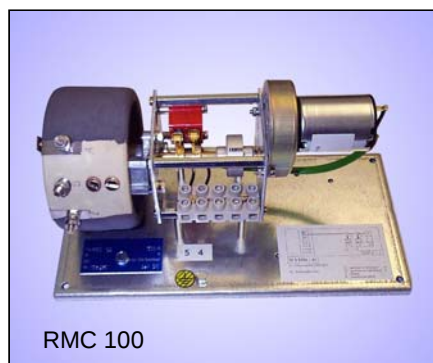
Electrical and mechanical data

type	production range Ω– value		dimension in mm							approx. weight. in kg
	from	up to	A	B	C	Ø D	E	F		
RM 10	1,5	10k	75	155	92	4,5	60	140	0,8	
RM 20	2,2	15k	75	155	92	4,5	60	140	0,8	
RM 40	3,9	27k	75	155	97	4,5	60	140	0,9	
RM 80	1,0	33k	110	220	98	4,5	95	205	1,1	
RM 100	1,2	39k	110	220	110	4,5	95	205	1,4	
RM 150	1,5	47k	110	240	110	4,5	95	225	1,5	
RM 250	1,8	47k	160	225	165	5,5	140	205	2,4	
RM 500	3,3	10k	220	250	220	5,5	200	230	4,3	
RZM 10	1,5	10k	110	220	92	4,5	95	205	1,0	
RZM 20	2,2	15k	110	220	92	4,5	95	205	1,1	
RZM 40	3,9	27k	110	220	97	4,5	95	205	1,2	
RZM 80	1,0	33k	110	240	98	4,5	95	225	1,4	
RZM 100	1,2	39k	110	290	110	4,5	95	275	2,0	
RZM 150	1,5	47k	160	335	110	4,5	140	315	2,7	
RZM 250	1,8	47k	160	335	165	5,5	140	315	3,7	
RZM 500	3,3	10k	220	420	220	5,5	200	400	7,8	
RDM 10	1,5	10k	110	290	92	4,5	95	275	1,1	
RDM 20	2,2	15k	110	290	92	4,5	95	275	1,2	
RDM 40	3,9	27k	110	290	97	4,5	95	275	1,4	
RDM 80	1,0	33k	110	350	98	4,5	95	335	1,8	
RDM 100	1,2	39k	110	350	110	4,5	95	335	2,6	
RDM 150	1,5	47k	160	440	110	4,5	140	420	3,6	
RDM 250	1,8	47k	160	440	165	5,5	140	420	5,1	
RDM 500	3,3	10k	220	570	220	5,5	200	550	11,1	



Type series RMC...

Variable resistors with DC-motor drive



RMC 100

IP 00	E	Mot. DC
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Variable resistor driven by a DC current motor 24 V, mounted on a base plate, with adjustable safety clutch between motor and resistor, with 2 limit switches, motor connections on terminals, operating times: 8/24/47/90s

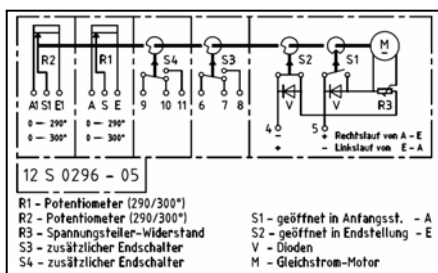
Technologies

- mounted on a base plate
- for ± 24 V DC
- with safety clutch
- various operating times

The motor version of these variable resistors can be manufactured in a two or three-fold construction. In the standard version each resistor has the same ohmic value, however different ohmic values can also be combined. For the increase of the rated voltage and/or the current the variable resistors can also be switched in parallel.

Up to 3 further freely adjustable limit switches are optionally available. Thus further control functions can be realized by the customer.

Example of a wiring diagram:



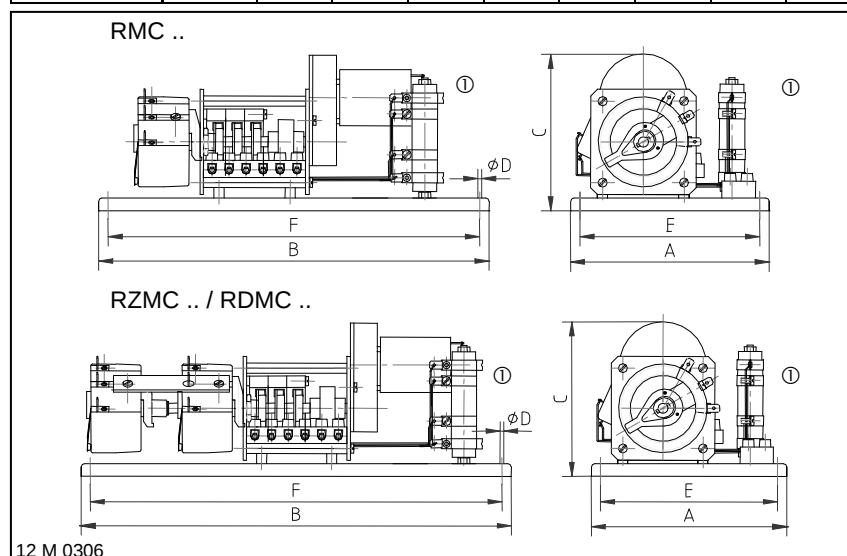
Illustr.: standard wiring diagram of type RZMC..., with 2 additional limit switches and voltage divider

Special designs

- combination of different typical powers (potentiometer)
- multiple in-line configuration (max. 4 to 5-fold)
- further operating times
- adjustable operating time with additional voltage divider resistor
- different mains voltages
- reversing relay type RMCW .. (for pole switching)

Electrical and mechanical data

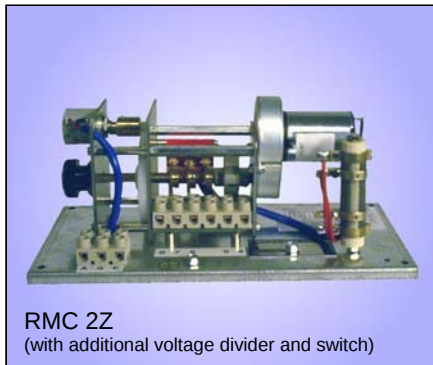
type	production range Ω – value		dimension in mm							approx. weight kg
	from	up to	A	B	C	∅ D	E	F		
RMC 10	1,5	10k	110	220	92	4,5	95	205	0,7	
RMC 20	2,2	15k	110	220	92	4,5	95	205	0,7	
RMC 40	3,9	27k	110	220	97	4,5	95	205	0,8	
RMC 80	1,0	33k	110	220	98	4,5	95	205	1,1	
RMC 100	1,2	39k	110	220	110	4,5	95	205	1,3	
RMC 150	1,5	47k	110	240	110	4,5	95	225	1,5	
RMC 250	1,8	47k	160	225	165	5,5	140	205	2,2	
RMC 500	3,3	10k	220	250	220	5,5	200	230	4,2	
RZMC 10	1,5	10k	110	220	92	4,5	95	205	0,9	
RZMC 20	2,2	15k	110	220	92	4,5	95	205	1,0	
RZMC 40	3,9	27k	110	240	97	4,5	95	225	1,1	
RZMC 80	1,0	33k	110	240	98	4,5	95	225	1,4	
RZMC 100	1,2	39k	110	290	110	4,5	95	275	1,9	
RZMC 150	1,5	47k	110	350	110	4,5	95	335	2,6	
RZMC 250	1,8	47k	160	335	165	5,5	140	315	3,6	
RZMC 500	3,3	10k	220	420	220	5,5	200	400	7,7	
RDMC 10	1,5	10k	110	290	92	4,5	95	275	1,1	
RDMC 20	2,2	15k	110	290	92	4,5	95	275	1,2	
RDMC 40	3,9	27k	110	290	97	4,5	95	275	1,4	
RDMC 80	1,0	33k	110	350	98	4,5	95	335	1,8	
RDMC 100	1,2	39k	110	350	110	4,5	95	335	2,6	
RDMC 150	1,5	47k	160	440	110	4,5	140	420	3,6	
RDMC 250	1,8	47k	160	440	165	5,5	140	420	5,1	
RDMC 500	3,3	10k	220	570	220	5,5	200	550	11,1	



① Optional (voltage divider to extend the operation time and/or to adjust to higher mains voltage)



Type series RM 2Z / RMC 2Z

Variable resistors with motor drive
ten turn precision potentiometerRMC 2Z
(with additional voltage divider and switch)IP
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Mot.
ACMot.
DCRM 2Z Variable resistor driven by a single phase-synchronous motor 230 V,
50 Hz, operating times: 8/12/16/24/47/90sRMC 2Z: Variable resistor driven by a DC motor 24 V, operating times:
8/24/47/90sBoth mounted on a base plate, with adjustable safety clutch between
motor and resistor, with 2 limit switches, motor connections on terminals.

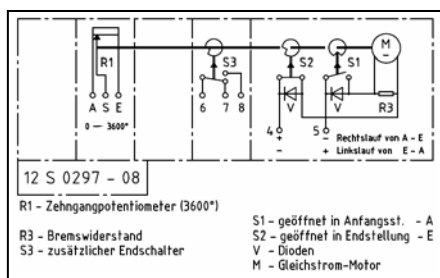
Technologies

- ten turn precision potentiometer
- mounted on a base plate
- for ± 24 V DC or 230 V AC, 50Hz
- with safety clutch
- various operation times
- typical power 2 W

The motor version of these variable resistors can be manufactured according to the necessary operating voltage for AC or DC version.

Up to 3 further freely adjustable limit switches are optionally available. Thus further control functions can be realized by the customer.

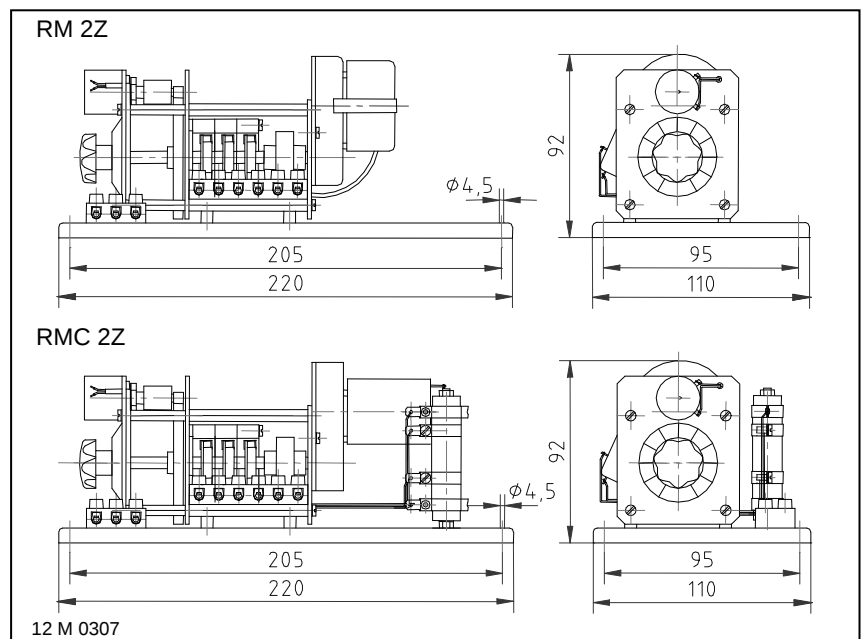
Example of a wiring diagram:



Illustr.: wiring diagram of type RMC 2Z..., with
1 additional limit switch

Electrical and mechanical data

type	possible Ω -values	approx. weight in kg
RM 2Z	100/200/500/1k/5k/10k/100k	1,0
RMC 2Z	100/200/500/1k/5k/10k/100k	1,1



Special designs

- further operating times
- adjustable operating time (only RMC 2Z) with additional voltage divider resistor
- different mains voltages
- with reversing relay type RMCW 2Z (for pole switching)
- further potentiometer
- typical power 3 W