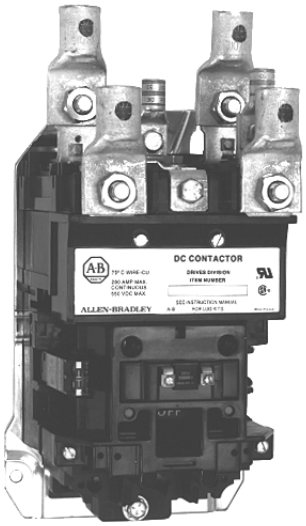
Technical Data

Allen-Bradley

DC Loop Contactors, Contactor Lugs and Dynamic Brakes

Catalog Numbers 1370



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Additional Resources

These documents contain additional information concerning related products from Rockwell Automation.

Resource	Description
1370 DC Loop Contactor and Lug Kit Installation Instructions, publication 1370-IN011	Provides installation, connection and maintenance information for 1370 DC Loop Contactors.
1370 Dynamic Brake Installation Instructions, publication 1370-IN017	Provides instructions for installing1370 dynamic brake resistors.
Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1	Provides general guidelines for installing a Rockwell Automation industrial system.
Product Certifications website, http://www.ab.com	Provides declarations of conformity, certificates, and other certification details.

You can view or download publications at http://www.rockwellautomation.com/literature/. To order paper copies of technical documentation, contact your local Allen-Bradley distributor or Rockwell Automation sales representative.

1370 DC Loop Contactors

The Bulletin 1370 DC Contactors are electromagnetically held contactors specially designed to switch the armature current from the DC drive module to a shunt wound DC motor. When used with the appropriate control logic design, these contactors can disconnect the motor armature from the DC drive module when a stop is initiated or in the event of a power failure.

Bulletin 1370 DC Contactors have the following features:

- The contactors feature a top-wired design with all power connections at the top of the contactor.
- Contacts - The double break silver cadmium oxide contacts are weld resistant for improved reliability. Movable contacts are wedge shaped, while the stationary contacts have a unique “fold back” design. On contact opening, this “fold back” design generates a strong magnetic field which quickly throws the arc off the contact surface. The arc is then cooled and extinguished by the surface of the arc chamber.
- Coil - The contactor coils are hot pressure molded in thermoset epoxy to protect against mechanical damage and harmful environments. The coil shunt plate is designed to retard the magnetic flux until the voltage applied reaches the “pick up” voltage. Each coil is provided with an exclusive thermal cutout which is designed to open on excessive currents or misapplied voltages.
- Magnet - The high efficiency magnet has a permanent air gap. Pole face wear cannot affect the air gap and cause magnetic sticking due to residual magnetism. Each magnet lamination is phosphate coated to provide ample resistance to corrosion.

Catalog Number Explanation

Position	1		2	3	4
	1370	–	D	C	56
	a		*b*	*c*	*d*

a

Product	
Code	Type
1370	DC Component

b

Type	
Code	Description
D	Non-Reversing w/DB

c

Device	
Code	Description
C	DC Loop Contactor

d

Current Rating	
Code	Amps
56	56
110	110
180	180
280	280

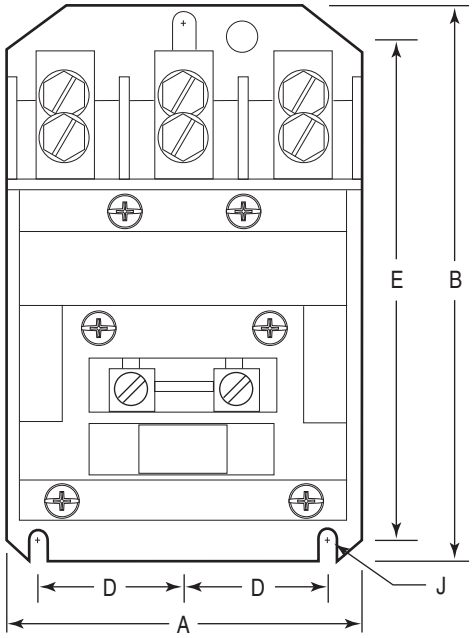
1370 DC Loop Contactors

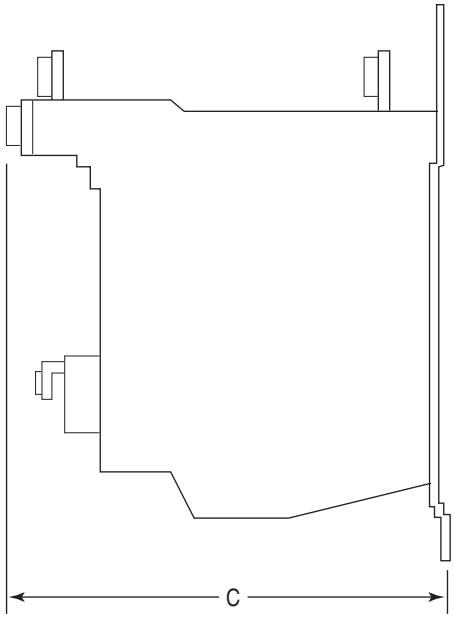
Contactor Specifications

Specification	Contactor	Rating
Contact Rating - N.O. (Armature)		
Voltage:	All	550V DC Maximum
Full Load Steady State Current:	56 A	56 A DC Maximum
	110 A	110 A DC Maximum
	180 A	180 A DC Maximum
	280 A	280 A DC Maximum
Contact Break Current (at 550V DC motor load):	56 A	112 A DC Maximum
	110 A	220 A DC Maximum
	180 A	360 A DC Maximum
	280 A	560 A DC Maximum
Contact Rating - N.C. (DB Pole)		
Voltage:	All	550V DC Maximum
Contact Make Current (at 550V DC resistive load):	56 A	112 A DC Maximum
	110 A	220 A DC Maximum
	180 A	360 A DC Maximum
	280 A	560 A DC Maximum
Auxiliary Contact Rating		
Voltage:	All	115V AC, 50/60 Hz
Continuous Current (all contactors):		10 A AC Maximum
Contact Break Current (all contactors):		6 A AC Maximum
Coil Ratings		
Voltage:	All	115V AC, 50/60 Hz
Operate:		Pickup: 75% of Nominal (minimum) Dropout: 55% of Nominal (maximum)
Breakdown Voltage	All	2,100V RMS (all electrical elements to ground)
Ambient Operating Temperature	All	0…65° C (32…149° F)
Mounting Orientation	All	Vertical, Wall Mount
Contact Termination		
Line and Load Terminals for N.O. Contacts:	56 A	10 - 32 x 25/64 screw, 35 lb•in torque
	110 A	1/4 - 28 x 3/8 bolt, 45 lb•in torque
	180 A	5/1 6 - 24 x 1/2 bolt, 150 lb•in torque
	280 A	1/2 - 13 stud with nut, 400 lb•in torque
Dynamic Braking Terminals for N.C. Contact:	56 A	10 - 32 x 25/64 screw, 35 lb•in torque
	110 A	1/4 - 28 x 3/8 bolt, lb•in torque
	180 A	5/1 6 - 24 x 1/2 bolt, 150 lb•in torque
	280 A	3/8 - 24 x 5/8 bolt, 240 lb•in torque
Coil Termination	All	Captive Pressure Plate for 2 - #12 AWG wires maximum
Contact Material	All	Silver Cadmium Oxide
Auxiliary Contact	All	with Captive Pressure Plate for 2 - #14 AWG wires maximum

1370 DC Loop Contactors

Approximate Mounting Dimensions and Weights





Current Rating *(Cont. Amps)*	**Power Poles**	**Catalog Number**	**Dimensions -** *mm (in.)*						**Weight** *kg (lbs.)*
			A	**B**	**C**	**D**	**E**	**J**	
56	2 - N.O., 1 - N.C.	1370-DC56	90.4 (3.56)	152.4 (6.00)	113.5 (4.47)	35.0 (1.38)	139.7 (5.50)	12.7 (0.5)	1.4 (3.0)
110	2 - N.O., 1 - N.C.	1370-DC110	100.1 (3.94)	173.0 (6.81)	117.6 (4.63)	40.1 (1.58)	160.3 (6.31)	12.7 (0.5)	1.8 (4.0)
180	2 - N.O., 1 - N.C.	1370-DC180	155.7 (6.13)	255.0 (10.04)	154.7 (6.09)	69.8 (2.75)	220.0 (8.66)	16.3 (0.64)	5.4 (12.0)
280	2 - N.O., 1 - N.C.	1370-DC280	177.8 (7.00)	289.6 (11.40)	194.6 (7.66)	80.3 (3.16)	250.0 (9.84)	20.0 (0.79)	10.0 (22.0)

1370 Lug Kits

1370 Lug Kits provide the required lugs to terminate wires on 1370 DC Loop Contactors. When properly installed, the lugs will provide a secure and gas-resistant termination.

The Lug Kit contains (2) DB Lugs and (4) Armature Line and Load Lugs.

A crimp tool that is UL certified is required to install the lugs. Please see the lug manufacturer's specifications for information on the appropriate crimp tools and methods.

Catalog Number Explanation

Position	1	2	3
	1370	LG	40
	a	b	c

a

Product	
Code	Type
1370	DC Component

b

Device	
Code	Description
LG	Lug Kit

c

Lug Current Rating	
Code	Max. Motor Amps
40	40
52	52
56	56
68	68
92	92
104	104
110	110
120	120
140	140
160	160
180	180
204	204
228	228
248	248
268	268
280	280

1370 Lug Kits

Specifications and Selection

Rated Motor Armature Current[1]	DC Contactor Rating	Armature Conductor Size[2]	DB Conductor Size[3]	Armature Conductor Crimp Lug Hole Size	DB Conductor Crimp Lug Hole Size	Lug Kit Catalog Number
A DC	*A DC*	*mm^2 (AWG)*	*mm^2 (AWG)*	*mm (in.)*	*mm (in.)*	
40	56	8.4 (8)	8.4 (8)	4.8 (0.19)	4.8 (0.19)	1370-LG40
52	56	13.3 (6)	8.4 (8)	4.8 (0.19)	4.8 (0.19)	1370-LG52
56	56	21.2 (4)	8.4 (8)	4.8 (0.19)	4.8 (0.19)	1370-LG56
68	110	21.2 (4)	8.4 (8)	6.4 (0.25)	6.4 (0.25)	1370-LG68
92	110	33.6 (2)	13.3 (6)	6.4 (0.25)	6.4 (0.25)	1370-LG92
104	110	42.4 (1)	13.3 (6)	6.4 (0.25)	6.4 (0.25)	1370-LG104
110	110	53.5 (1/0)	21.2 (4)	6.4 (0.25)	6.4 (0.25)	1370-LG110
120	180	53.5 (1/0)	21.2 (4)	7.9 (0.31)	7.9 (0.31)	1370-LG120
140	180	67.4 (2/0)	33.6 (2)	7.9 (0.31)	7.9 (0.31)	1370-LG140
160	180	85.0 (3/0)	33.6 (2)	7.9 (0.31)	7.9 (0.31)	1370-LG160
180	180	107.2 (4/0)	33.6 (2)	7.9 (0.31)	7.9 (0.31)	1370-LG180
204	280	126.7 (250 MCM)	42.4 (1)	12.7 (0.5)	9.5 (0.38)	1370-LG204
228	280	152.0 (300 MCM)	53.5 (1/0)	12.7 (0.5)	9.5 (0.38)	1370-LG228
248	280	177.4 (350 MCM)	67.4 (2/0)	12.7 (0.5)	9.5 (0.38)	1370-LG248
268	280	202.7 (400 MCM)	67.4 (2/0)	12.7 (0.5)	9.5 (0.38)	1370-LG268
280	280	253.4 (500 MCM)	85.0 (3/0)	12.7 (0.5)	9.5 (0.38)	1370-LG280

(1) The Rated Motor Armature Current is taken directly from the motor nameplate or motor data. The current listed in the table (column 1) is the maximum current allowed for the Armature Conductor Size (column 3) and the DC Contactor Rating (column 2).

(2) The armature conductors are sized by multiplying the Rated Motor Armature Current by 1.25 as provided for in NEC 430-22. The DC lug ratings are determined from NEC Table 310-16 for copper conductors, insulation temperature rated at 75° C (167° F) at an ambient temperature of 30° C (86° F). If conditions are other than shown in NEC Table 310-16 then refer to applicable codes.

(3) The dynamic braking (DB) conductors are sized as in Note 2, but at half ampacily due to the short time duration of current flow in these conductors, and has been sized to satisfy NEMA Standard ICS 3-302.62 - Dynamic Braking. If the load inertia is larger than that of the motor, calculations must be made to determine correct conductor sizing and DB resistor wattage per NEMA Standard ICS 3.302.62.

1370 Dynamic Brake Resistors

Dynamic Braking is an optional control function which facilitates motor stopping under fault conditions or in response to a Coast/DB Stop. Dynamic braking will not provide a holding brake function and is only effective when the motor is rotating.

The resistors are sized for an external inertia equal to two or three times the motor inertia and are suitable for three successive DB stops per hour from maximum speed.

A drive must be furnished with a normally closed M contactor pole in order to use dynamic braking.

Catalog Number Explanation

Position	1	2	3	4
	1370	– DB	L	65
	a	b	c	d

a

Product	
Code	Type
1370	DC Component

b

Device	
Code	Description
DB	Dynamic Brake

c

Voltage	
Code	Description
H	500V DC
L	240V DC

d

Rating		
Code	HP - 240V DC	HP - 500V DC
61	1	-
62	1.5	-
63	2	2
64	3	3
65	5	5
66	7.5	7.5
67	10	10
68	15	15
69	20	20
70	25	25
71	30	30
72	40	40
73	50	50
74	60	60
75	75	75
76	100	100
77	-	125
78	-	150
79	-	200

1370 Dynamic Brake Resistors

Specifications/Selection

Hp	Basic Catalog Number	Dimension Drawing	Connection Diagram	Total Watts	Total Resistance (Ohms)	Watts Per Resistor
240V DC Motor Armature Voltage						
1	1370-DBL61	1	A	325	36.0	325 x 1
1.5	1370-DBL62	1	A	420	2.0	420 x 1
2	1370-DBL63	1	A	420	2.0	420 x 1
3	1370-DBL64	1	A	420	15.0	420 x 1
5	1370-DBL65	1	A	420	8.6	420 x 1
7.5	1370-DBL66	1	A	345	6.0	345 x 1
10	1370-DBL67	1	A	330	5.0	330 x 1
15	1370-DBL68	1	A	385	3.5	385 x 1
20	1370-DBL69	1	A	345	2.6	345 x 1
25	1370-DBL70	1	A	330	2.0	330 x 1
30	1370-DBL71	1	A	330	2.0	330 x 1
40	1370-DBL72	2	B	560	1.4	280 x 2
50	1370-DBL73	2	B	730	1.0	365 x 2
60	1370-DBL74	2	B	730	1.0	365 x 2
75	1370-DBL75	3	C	990	0.67	330 x 3
100	1370-DBL76	3	C	870	0.47	290 x 3
500V DC Motor Armature Voltage						
2	1370-DBH63	1	A	255	81	255 x 1
3	1370-DBH64	1	A	245	62	245 x 1
5	1370-DBH65	1	A	245	45	245 x 1
7.5	1370-DBH66	1	A	350	27	350 x 1
10	1370-DBH67	1	A	420	20	420 x 1
15	1370-DBH68	1	A	405	12	405 x 1
20	1370-DBH69	2	B	660	10	330 x 2
25	1370-DBH70	2	B	660	9	330 x 2
30	1370-DBH71	2	B	770	7	305 x 2
40	1370-DBH72	2	B	690	5.2	345 x 2
50	1370-DBH73	2	B	660	4	345 x 2
60	1370-DBH74	2	B	660	4	345 x 2
75	1370-DBH75	3	D	810	3	270 x 3
100	1370-DBH76	3	D	840	2.1	250 x 3
125	1370-DBH77	3	D	840	2.1	250 x 3
150	1370-DBH78	3	D	1095	1.5	365 x 3
200	1370-DBH79	2	E	1680	1.5	280 x 6

1370 Dynamic Brake Resistors

Approximate Mounting Dimensions

Figure 1
Single Resistor

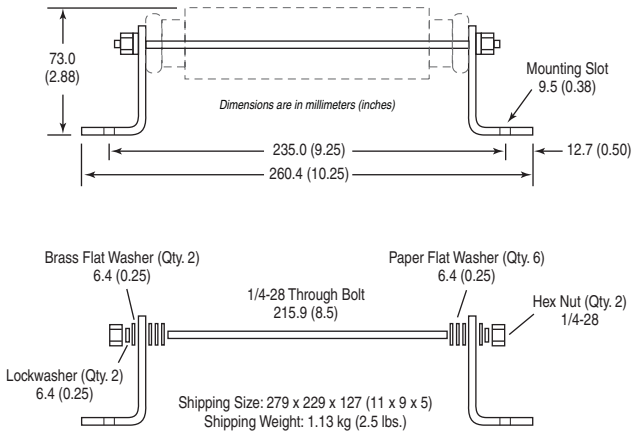


Figure 2
Two Resistors

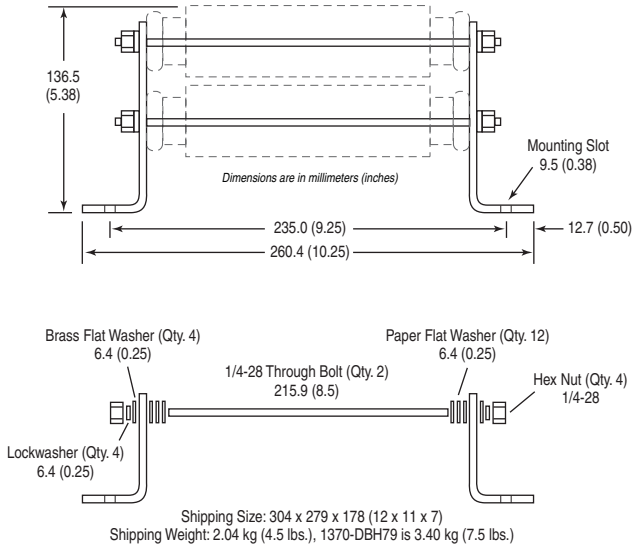
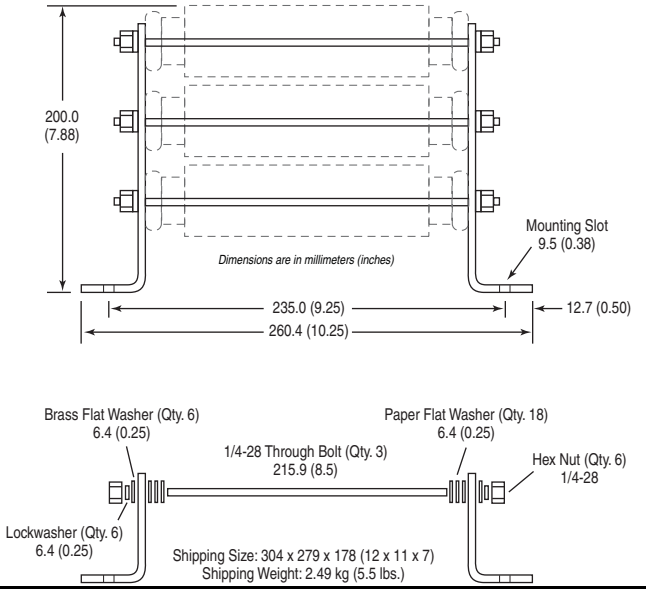


Figure 3
Three Resistors



1370 Dynamic Brake Resistors

Wiring Diagrams

Diagram A
Single Resistor

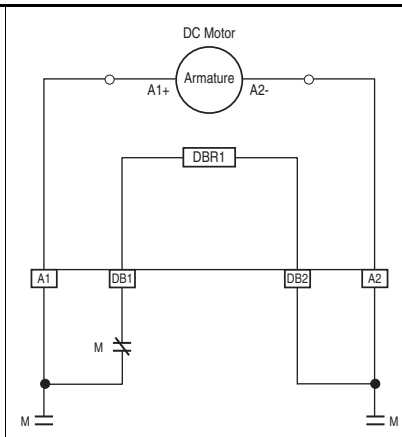


Diagram B
Two Resistors in Series

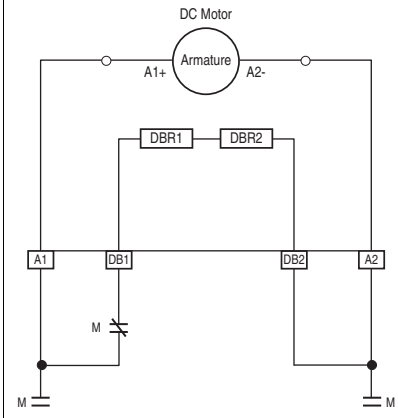


Diagram C
Three Resistors in Parallel

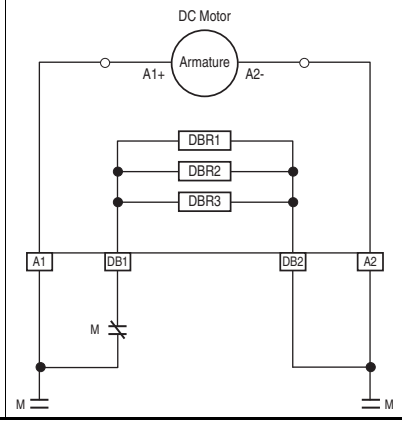


Diagram D
Three Resistors in Series

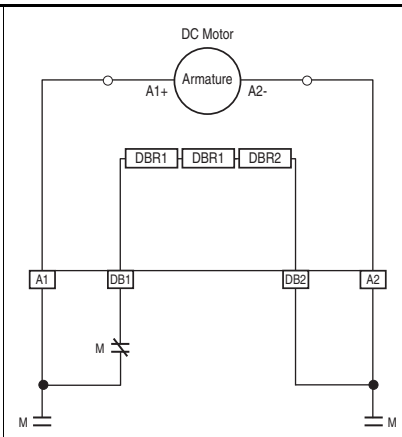
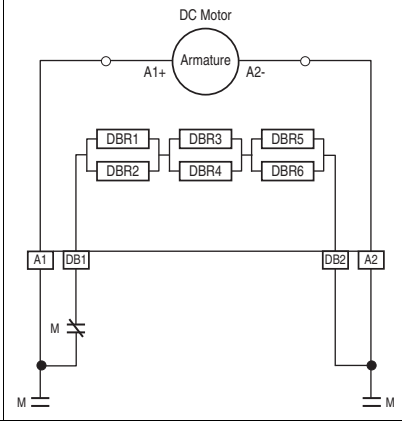


Diagram E
Three Groups in Series of Two Resistors in Parallel



Important User Information

Read this document and the documents listed in the additional resources section about installation, configuration, and operation of this equipment before you install, configure, operate, or maintain this product. Users are required to familiarize themselves with installation and wiring instructions in addition to requirements of all applicable codes, laws, and standards.

Activities including installation, adjustments, putting into service, use, assembly, disassembly, and maintenance are required to be carried out by suitably trained personnel in accordance with applicable code of practice.

If this equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

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