

# Crane Control Class 8503

Catalog

# 03

CRANE CONTROL  
CLASS 8503



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The Electric Controller and  
Manufacturing Company, LLC

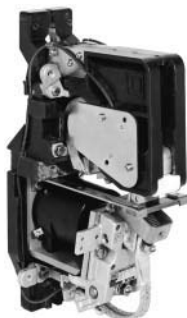
# Crane Control Class 8503

## Type M Line-Arc® AC Contactors

CRANE CONTROL CLASS 8503



**Class 8503**  
**Type MXDO1 Contactor**



**Class 8503**  
**Type MGO1 Contactor**

### GENERAL INFORMATION AND PRICING

Type M AC magnetic, mill type, clapper contactors are especially designed for heavy industry AC drives such as cranes and mill auxiliaries. These contactors are ideally suited for the control of AC motors. The basic contactor is furnished with a DC operating coil.

- Front connected
- High strength glass polyester insulating base for steel base mounting
- Line-Arc® method of arc extinction for longer tip life
- DC operating coil

#### Basic Contactor

The basic contactor is furnished without power lugs, electrical or mechanical interlocks.

Note: For coil voltages other than 230 V, 120 V, 75 V, 60 V, or 45 V add \$220 per contactor to the list price

Maximum VAC	Number of Poles ▲	NEMA Size	Open 8 Hr Ampere Rating	Open Type ●	
				Type	Price ★
600	Single Pole Normally Open	2	50	MXDO1	\$ 557.
		3	100	MEO1	932.
		4	150	MFO1	1130.
		5	300	MGO1	1526.
		6	600	MHO1	2862.

- ▲ See contactor Application Data for double pole contactors.
- See Class 9998 for coil data.

#### Factory Installed Modifications

Form	Description	NEMA Size	Price ★
Y781	Silver Faced Power Contact Tips	2	\$ 269.
		3	423.
		4	434.
		5	659.
		6	897.

#### Ordering Information Required:

1. Class
2. Type
3. Form
4. Coil Voltage

#### Accessory Kits For User Installation

Class 9999 user modification kits include all necessary mounting hardware and installation instructions.

NEMA Size	Mechanical Interlock ●		Tie Bar ●		Power Lug ▲	
	Type	Price ★	Type	Price ★	Type	Price ★
2	MM1	\$ 153.	MT1	\$ 54.	...	
3 & 4	MM2	153.	MT2	54.	ML1	\$ 54.
5	MM3	216.	MT3	54.	ML2	90.
6	MM4	270.	MT4	90.	ML3	207.

- ▲ Contains four clam shell type lugs. For copper conductors only.
- Two tie bar kits are required for each triple pole contactor.
- For use with normally-open contactors only.

NEMA Size	Electrical Interlock (one N.O. and one N.C. contact)	
	Type	Price ◇
2 to 6	MX11	\$140.

- ★ CP9B
- ◇ CP9C

#### Ordering Information Required:

1. Class
2. Type

CP9B CP9C Discount Schedule



## APPLICATION DATA

### Mounting

The Type M contactor with its insulated base can be mounted directly on uninsulated steel panels, angle iron frames, etc. The contactors are completely front-connected.

### Wiring

The NEMA Sizes 2 through 5 Type M contactors have a wire accessway in the base for convenient out-of-the-way routing of cables and control wires. Power connections to the NEMA Sizes 3 through 6 contactors can be made from either side.

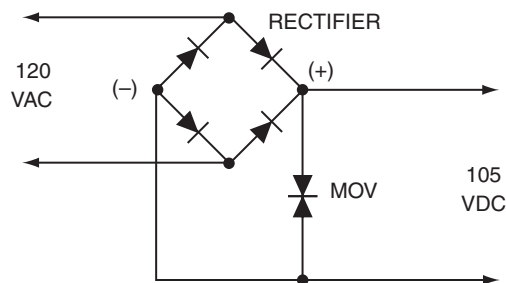
### Coil Data

Operating coils are designed in accordance with NEMA standards to withstand 110% of rated voltage continuously and to operate the contactor successfully at 80% of rated voltage. Standard coil voltages are 120 VDC and 240 VDC. For other available coil voltages, refer to the Class 9998 Coil Data Catalog Sheet.

### AC to DC Control Voltage Conversion

To control the DC contactor coil from a 120 VAC supply, order each double pole contactor, with 60 VDC coil or for triple pole contactors, order each contactor with a 36 VDC coil.

Connect the rectifier and suppressor (MOV) as shown.



Rectifier part no. is 27907-34220 (800 PIV, 30 A)

MOV part no. is 52906-028-59

### Double Pole and Triple Pole Contactors

Double pole, normally open contactors can be built by ordering two single pole, normally open contactors with half voltage coils and one tie bar kit. The two coils must be wired in series.

Triple pole, normally open contactors can be built by ordering three single pole, normally open contactors with one third voltage coils and two tie bar kits. The three coils must be wired in series.

### User Modification Kits

A number of Class 9999 user modification kits are available for use with Type M Contactors. Power contact tip parts kits are listed under Class 9998.

### Maximum Number of Accessories and Accessory Combinations for Single Pole, Normally Open Contactors

Two electrical interlock kits and any one of the following:

- Two mechanical interlock kits
- One tie bar kit and one mechanical interlock kit

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## Type M Line-Arc® AC Contactors

### APPLICATION DATA

#### Electrical Interlocks

Control circuit interlocks are available in units of one normally open and one normally closed contacts. On each single pole normally open and normally closed contactor a maximum of two interlock kits can be mounted. Interlock kits include the movable and stationary contacts plus all necessary hardware for mounting.

Electrical interlocks are rated in accordance with NEMA Standard ICS- 2-125 (A600 and N600 Table Ratings).



Class 9999 Type MX11  
Electrical Interlock Kit

A600	Maximum Continuous Amperes	Maximum Make and Break Current A ▲							
		120V		240V		480V		600V	
		Make	Break	Make	Break	Make	Break	Make	Break
AC	10	60	6	30	3	15	1.5	12	1.2

N600	Maximum Continuous Amperes	Maximum Make and Break Current A ▲					
		125V		250V		600V	
		Make	Break	Make	Break	Make	Break
DC	10	2.2	2.2	1.1	1.1	0.4	0.4

▲ Make and break ratings apply for double-throw contacts only when both the normally open and normally closed contacts are connected to the same polarity.

#### Mechanical Interlock

A horizontal mechanical interlock is available for mounting between two double or triple pole tied normally open contactors mounted side by side. This interlock prevents the two contactors from operating simultaneously.



Class 9999  
Type MM2  
Mechanical  
Interlock Kit

#### Lugs

Type M contactors are furnished without power lugs. A kit is available consisting of lugs and hardware for mounting on Size 3 and larger contactors. No power lug kits are available for the NEMA Size 2 contactors. This contactor is designed to use lugs supplied by the user.

#### Lug Wire Capacity

Lug Type ▲	Minimum Wire Size	Maximum Wire Size
ML1	Number 8	Number 00
ML2	Number 0	300 MCM
ML3	250 MCM	500 MCM

▲ Contains four clam shell type lugs. For copper conductors only.

#### Power Contact Tips

A Class 9998 power contact tips part kit consists of movable and stationary contact tips with necessary mounting hardware for two single pole contactors. Consult Catalog Section 9998 for additional information.

Copper contact tips are standard. Silver-faced contact tips are available and are recommended for applications where the contactors remain closed for long periods of time. Silver-faced contact tips are standard on crane manual-magnetic disconnect switches.

#### Tie Bar

Applications requiring double and triple pole Type M contactors can be met by supplying single pole (normally open only) contactors with tie bars. The tie bar is made from an insulating material and connects the armatures of the contactors together. For double and triple pole contactors, it is recommended that the operating coils be connected in series. Each coil should be rated for one half of system voltage for double pole contactors and one third of system voltage for triple pole contactors.

**APPLICATION DATA**

**Class 9999 AI1 Arc Suppressor**

The Class 9999 AI1 arc suppressor is designed to reduce arcing of pilot devices in DC inductive control circuits of 250 VDC or less.

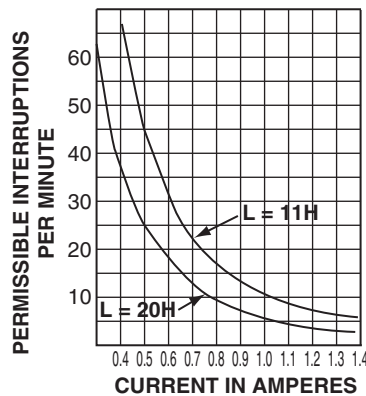


**Class 9999  
Type AI1  
Arc Suppressor**

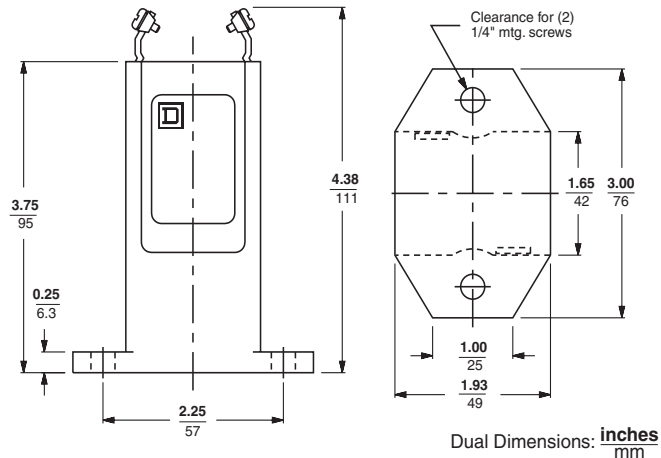
Type	Price
AI1	\$167.

The AI1 arc suppressor will limit the inductive voltage surge to a maximum of 600 VDC when applied in accordance with the application chart. When applying the arc suppressor to a circuit, two factors must be considered, the current drawn by the inductive load and the number of times per minute that the load will be interrupted. Once these two factors are determined, the application is checked against the application chart. The chart shows the maximum interruptions per minute that the arc suppressor can handle at a given current. As long as an application falls below the curve, the arc suppressor will handle the load. The arc suppressor is connected in parallel with the inductive load and is in the circuit at all times.

**Application Chart For AI1 Arc Suppressor**



**Approximate Dimensions and Weights**



Net Weight – 1 lb (0.45 kg)

Ordering Information Required:

1. Class 9999
2. Type AI1

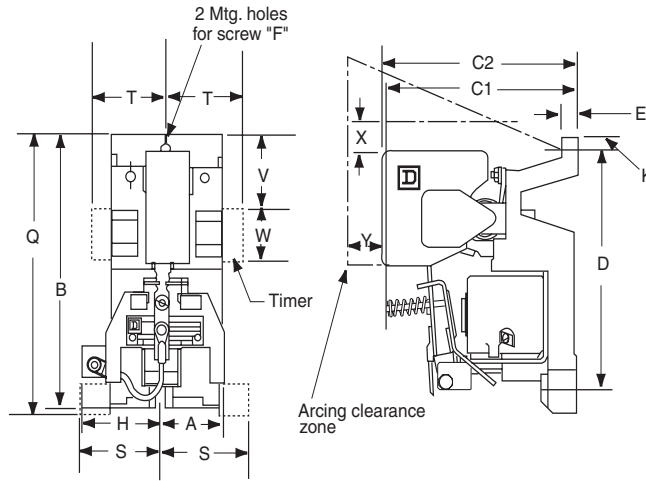
CP9B  Discount Schedule



**Crane Control Class 8503**  
**Type M Line-Arc® AC Contactors**

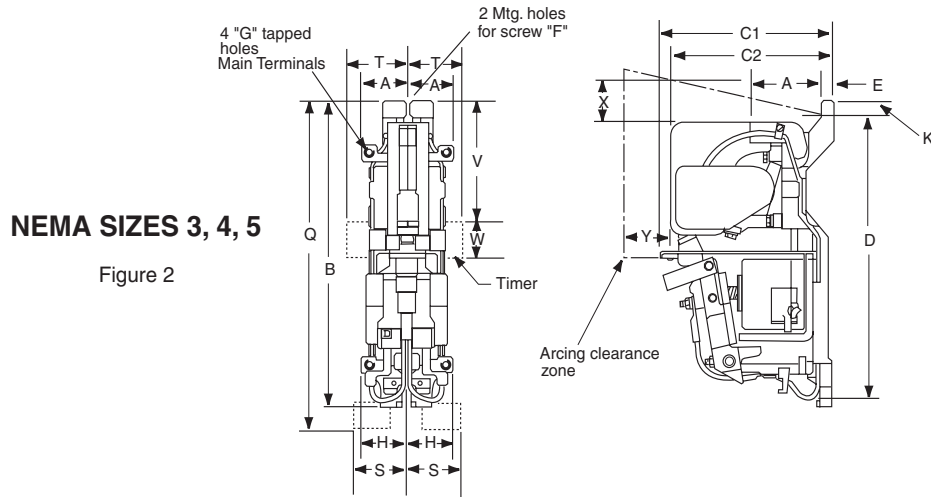
CRANE CONTROL  
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**APPROXIMATE DIMENSIONS**



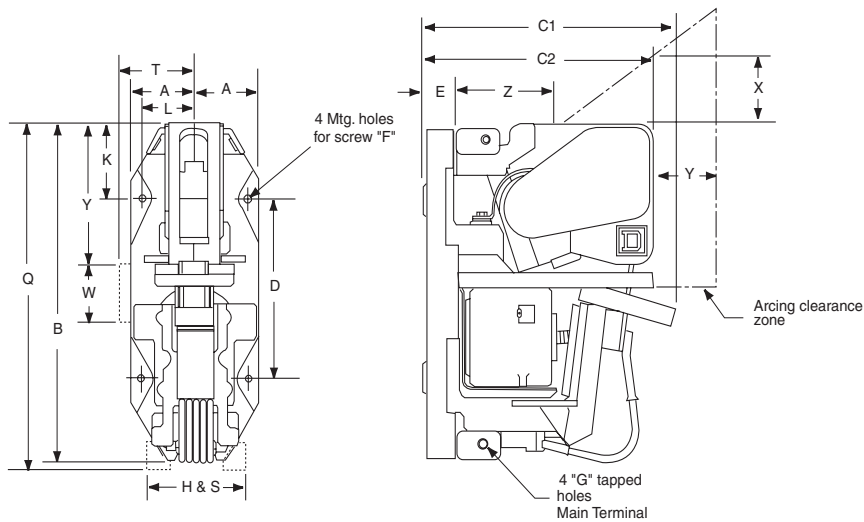
**NEMA SIZE 2**

Figure 1



**NEMA SIZES 3, 4, 5**

Figure 2



**NEMA SIZE 6**

Figure 3



# Crane Control Class 8503 Type M Line-Arc® AC Contactors

## APPROXIMATE DIMENSIONS AND WEIGHTS

NEMA Size	Type	Fig. No.	Contactor Dimensions ▲											Weight	Center to Center Spacing of S.P. Tied or Mechanically Interlocked Contactors
			A	B	C1	C2	D	E	F	G	H	K	L		
2	MXDO1	1	<u>1.79</u> 46	<u>8.65</u> 220	<u>6.00</u> 153	<u>6.38</u> 162	<u>7.56</u> 192	<u>0.52</u> 13	<u>0.25</u> 6	...	<u>2.29</u> 58	<u>0.44</u> 11	...	<u>7</u> 3	<u>5.63</u> 143
3	MEO1	2	<u>2.12</u> 54	<u>13.10</u> 333	<u>7.83</u> 199	<u>7.40</u> 188	<u>11.50</u> 292	<u>0.56</u> 14	<u>0.375</u> 10	5/16-18	<u>2.13</u> 55	<u>0.80</u> 20	...	<u>15</u> 7	<u>6.00</u> 153
4	MFO1		<u>2.75</u> 70	<u>16.54</u> 420	<u>9.50</u> 242	<u>9.68</u> 246	<u>14.50</u> 368	<u>0.96</u> 25	<u>0.375</u> 10	3/8-16	<u>2.78</u> 71	<u>1.02</u> 26	...	<u>30</u> 14	<u>7.00</u> 178
5	MGO1	2	<u>2.75</u> 70	<u>16.54</u> 420	<u>9.50</u> 242	<u>9.68</u> 246	<u>14.50</u> 368	<u>0.96</u> 25	<u>0.375</u> 10	3/8-16	<u>2.78</u> 71	<u>1.02</u> 26	...	<u>30</u> 14	<u>7.00</u> 178
6	MHO1	3	<u>3.50</u> 89	<u>19.15</u> 487	...	<u>13.64</u> 346	<u>6.00</u> 153	...	<u>0.375</u> 10	1/2-13	<u>2.85</u> 73	<u>8.30</u> 211	<u>2.94</u> 75	<u>70</u> 32	<u>9.00</u> 229

NEMA Size	Type	Fig. No.	Accessory Dimensions ▲		Arcing Clearance								
			Electrical Interlock		240 VAC			460 VAC			600 VAC		
			Q	S	X	Y	Z	X	Y	Z	X	Y	Z
2	MXDO1	1	<u>9.98</u> 253	<u>2.34</u> 60	<u>1.70</u> 43	<u>1.70</u> 43	...	<u>2.30</u> 59	<u>2.30</u> 59	...	<u>3.00</u> 76	<u>3.00</u> 76	...
3	MEO1	2	<u>13.74</u> 349	<u>2.43</u> 62	<u>2.00</u> 51	<u>2.00</u> 51	<u>4.00</u> 102	<u>2.00</u> 51	<u>3.00</u> 76	<u>4.00</u> 102	<u>2.00</u> 51	<u>6.00</u> 153	<u>4.00</u> 102
4	MFO1		<u>16.72</u> 424	<u>2.60</u> 66	<u>2.00</u> 51	<u>2.00</u> 51	...	<u>2.00</u> 51	<u>3.00</u> 76	...	<u>2.00</u> 51	<u>6.00</u> 153	...
5	MGO1	2	<u>16.72</u> 424	<u>2.60</u> 66	<u>2.00</u> 51	<u>2.00</u> 51	...	<u>2.00</u> 51	<u>3.00</u> 76	...	<u>2.00</u> 51	<u>6.00</u> 153	...
6	MHO1	3	<u>18.54</u> 471	<u>2.43</u> 62	<u>2.00</u> 51	<u>2.60</u> 66	<u>3.50</u> 89	<u>3.00</u> 76	<u>7.00</u> 178	<u>3.50</u> 89	<u>4.00</u> 102	<u>11.00</u> 280	...

The table below lists recommended minimum enclosure sizes for single pole – 460 VAC contactors with contactor mounted accessories. For triple pole contactors, increase width by 75%.

NEMA Size	Height	Width	Depth
2	<u>12.00</u> 305	<u>18.00</u> 457	<u>12.00</u> 305
3 4	<u>18.00</u> 457	<u>18.00</u> 457	<u>12.00</u> 305
5	<u>22.00</u> 559	<u>22.00</u> 559	<u>15.00</u> 381
6	<u>32.00</u> 813	<u>27.00</u> 686	<u>22.00</u> 559

▲ Electrical interlocks and all live electrical parts must have a  $\frac{0.50}{13}$  clearance to ground and other live electrical parts.

Dual Dimensions: in  
mm

Dual Weights: lb  
kg

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