

### W6/W9 Series Magnetic Hydraulic P&B Circuit Breakers

- Designed for the international market. UL Recognized (UL1077 and UL1500), CSA Accepted and VDE approved.
- Ratings to 50 amps.
- Heavy duty #10-32 stud connections. (W9)
- Quick-connect or screw terminals. (W6)
- Several delay curve options.
- Trip-free operation.

### Agency Approvals

- **UL:** Recognized as Supplementary Protector under UL 1077. Available models meet Ignition Protection requirements in accordance with UL1500. File E69543
- CSA: Accepted as a Supplementary Protector. File LR15734.
- VDE: Approved to VDE 0642/EN 60 934 (Circuit Breakers for Equipment) License No. 73782

Users should thoroughly review the technical data before selecting a product part number. It is recommended that users also seek out the pertinent approvals files of the agencies/ laboratories and review them to confirm the product meets the requirements for a given application.

### Electrical Data

#### **Calibration:**

Breakers will hold 100% of rated current.

Breakers may trip between 101% and 124% of rated load (134% for AC/ DC units).

Breakers must trip at 125% of rated load and above (135% for AC/DC units).

Dielectric Strength: 50/60 Hz., 1500V: DC, 1100V Insulation Resistance: 100 Megaohms at 500VDC

#### **Endurance:**

10,000 on/off cycles - 6000 at rated load, 4000 at no load.

Units tested at six cycles per minute, 1 second on and 9 seconds off at 25°C ambient.

### **Typical Resistance and Impedance**

Current	DC	50/60	
(Amps.)	Resistance	Impedance	
	(Ohms)	(Ohms)	
0.2	90	90	
1.0	1.2	1.2	
2.0	0.28	0.28	
5.0	0.04	0.04	
10.0	0.013	0.013	
20.0	0.004	0.005	
30.0	0.0027	0.004	
40.0	0.002	0.002	
50.0	0.0015	0.0015	
5.0 10.0 20.0 30.0 40.0	0.04 0.013 0.004 0.0027 0.002	0.04 0.013 0.005 0.004 0.002	

Tolerance: 0.1 - 4.99 ± 15%; 5 - 9.99 ± 20%; 10 - 15 ± 25%; 16 - 30 ± 50%.

### Mechanical/Environmental Data (continued)

Fungus and Moisture Resistance:

Special moisture resistant finish applied to all ferrous parts. Plastic parts are made of inherently fungus resistant material.

### Marking:

International "1" and "0" symbols are marked on the toggle for both W6 and W9. W9 units have "ON" and "OFF" molded into the area at the base of the toggle.

### Mounting:

Units are mounted with two #6-32 screws from the front of the panel. Metric models for use with M3 x 0.5 screws are available. To maintain published performance specifications, units should not be mounted more than 90° from their normal upright position. **Weight:** Approximately 2.5 ounces per pole.

### **Approvals and Ratings Table 1**

W6 Series	s UL1077/CSA (All Circuit Functions)						
Maximum Voltage	Frequency (Hz)	Phase	Current Rating (Amps)	Interrupting Capacity (Amps)			
65	DC	-	0.2 - 50	2,000			
277	50/60	1	0.2 - 20	5,000			
277	50/60	1	21 - 50	2,500			
277/480	50/60	3Ø-Wye	0.2 - 20	5,000			

#### W9 Series

UL1077/CSA (All Circuit Functions)

Maximum Voltage	Frequency (Hz)	Phase	Current Rating (Amps)	Interrupting Capacity (Amps)
65	DC	-	0.2 - 50	2,000
277	50/60	1	0.2 - 50	5,000
277/480	50/60	3Ø-Wye	0.2 - 20	5,000

### W6 or W9 Series VDE (Circuit Function X)

Maximum Voltage	Frequency (Hz)	Phase	Current Rating (Amps)	Interrupting Capacity (Amps)
65	DC	-	0.2 - 50	2,000
250	50/60	1	0.2 - 30	5,000
250	50/60	1	31 - 50	2,000
415/240	50/60	3Ø	0.2 - 30	5,000

### W6 or W9 Series UL1500 (Circuit Function X)

Maximum Voltage	Frequency (Hz)	Phase	Current Rating (Amps)	Interrupting Capacity (Amps)
48	DC	-	0.2 - 50	3,000
125/250	50/60	1	0.2 - 50	1,000
250	50/60	3Ø-Wye	0.2 - 50	1,000

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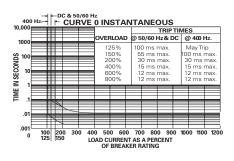
1000 1100 120

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### W6/W9 Series Magnetic Hydraulic P&B Circuit Breakers (Continued)

Time vs Current Trip Curves For W6 Series and W9 Series

### AC 50/60 Hz.

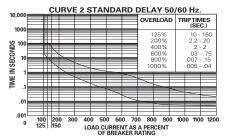


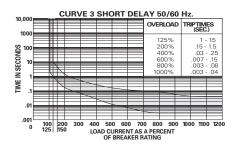
MOTOR START / LONG DELAY URVE 10 HIGH INRUSH 50/60 Hz AC

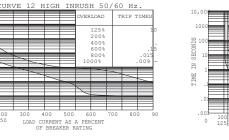
500 600 700

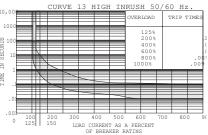
LOAD CURRENT AS A PERCENT OF BREAKER RATING

800 900









DC

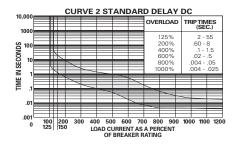
.001

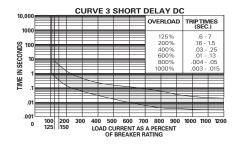
0

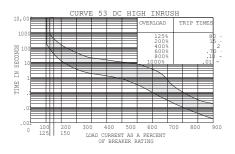
100 200 300 400 125 150 LOA

10,000

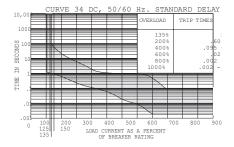
TIME IN SECONDS







AC/DC



### Note:

2

For instantaneous curves for all voltages refer to Curve 0 instananeous under the AC 50/60 Hz. heading

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			244	07		•		<b>a</b> a
Produ W6 Ser	ct code structure	Typical product code	W	67-	K 2	Q	1 2-	20
	Breaker Mounting							
	#6-32 mounting threads							
	M3.0 x 0.5 mounting threads							
67 68 69	<b>r of Poles</b> Single Pole Two Pole Three Pole Four Pole							
	Function (Only X is VDE app Series trip	proved)						
<b>1</b> B	or actuator per pole lack toggle <b>9</b> Red togg /hite toggle	le						
	actuator per unit lack toggle 8 White tog	ggle						
S T U	ation .250" QC (DIN 46 244) [30A Mi #8-32 screw [30A Max.] #10-32 screw [50A Max.] #8-32 screw, nickel plated, ber #10-32 screw, nickel plated, ber	nt inward 30° [30A Max.]						
#10-3	32 termination must be used fo	or <b>all</b> ratings of greater than 30 amp ad for circuit function D, but relay trip		equipped				
Maximu UL/C Type	<ul> <li>S 2 277/480VAC, 50/60 see outline dimensi</li> <li>5 65VDC</li> <li>7 AC/DC 277VAC, 50 (Time delay curve 3</li> <li>8 AC/DC 120VAC, 12</li> </ul>	0 Hz. [20A Max.] (Requires insulatin ion drawing) 0/60 Hz. or 65VDC 34 must be specified)	-	ecified)				
VDE Type	7 AC/DC 250VAC, 4-							
0 2 3	Standard delay12Short delay13	AC high inrush motor start / long of AC high inrush version of #2 AC high inrush version of #3 Combination AC/DC standard del	-					
<b>Amp R</b> 0.2 0.25	0.50 1.0 2.0 3.0 4.0		25.0 35 30.0 40		Consult fact other values			
	<ul> <li>Approval</li> <li>UL1077/CSA breaker</li> <li>VDE approved breaker</li> <li>UL1077/UL1500 ignition press</li> </ul>	otected breaker						

### Authorized distributors are more likely to stock the following items.

W67-X2Q10-3	W67-X2Q12-10	W67-X2Q13-3	W67-X2Q50-5	W67-X2Q52-30	W68-X2Q12-10	W68-X2Q110-10	W69-X2Q12-25
W67-X2Q10-5	W67-X2Q12-15	W67-X2Q13-10	W67-X2Q50-10	W67-X2Q110-15	W68-X2Q12-15	W68-X2Q110-20	W69-X2Q12-30
W67-X2Q12-2	W67-X2Q12-20	W67-X2Q13-15	W67-X2Q52-5	W67-X2Q110-20	W68-X2Q12-20	W69-X2Q12-5	W69-X2Q110-20
W67-X2Q12-3	W67-X2Q12-30	W67-X2Q13-20	W67-X2Q52-10	W68-X2Q12-3	W68-X2Q12-25	W69-X2Q12-10	W69-X2Q110-30
W67-X2Q12-5	W67-X2Q13-1	W67-X2Q13-25	W67-X2Q52-15	W68-X2Q12-5	W68-X2Q12-30	W69-X2Q12-15	
W67-X2Q12-7	W67-X2Q13-2	W67-X2Q13-30	W67-X2Q52-20	W68-X2Q12-7	W68-X2Q13-15	W69-X2Q12-20	

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Product code structure W9 Series	Typical product code	W 91-	X 1	1	2-	20	
Circuit Breaker Mounting W #6-32 mounting threads M M3.0 x 0.5 mounting threads							
Number of Poles91Single Pole92Two Pole93Three Pole94Four Pole							
Circuit Function (Only X is VDE approved) X Series trip							
Actuator One actuator per pole 1 Black toggle 2 White toggle							
Maximum Line Voltage (see Table 1 for curr UL/CSA1277VAC, 50/60 Hz.Types22777/480VAC, 50/60 Hz. [20, 5565VDC7AC/DC 277VAC, 50/60 Hz. (10, 10, 10, 10, 10, 10, 10, 10, 10, 10,	A Max.] or 65VDC e specified) C, 48VDC	nust be specified)					
VDE         1         250VAC, 415/240VAC           Types         5         65VDC           7         AC/DC 250VAC, 415/240VA           (Time delay curve 34 must b)							
2Standard delay12AC high3Short delay13AC high	inrush motor start / long de inrush version of #2 inrush version of #3 ation AC/DC standard delay	,					
Amp Rating           0.20         0.75         2.0         3.5         6.0         8.0         11.0           0.25         1.00         2.5         4.0         7.0         9.0         12.0           0.50         1.50         3.0         5.0         7.5         10.0         15.0	25.0 40.0 Consult f	factory for other va	lues				
Agency Approval           Blank         UL1077/CSA approved breaker           V         VDE approved breaker           M         UL1077/UL1500 ignition protected b	reaker						

### Authorized distributors are more likely to stock the following items.

W91-X112-1	W91-X112-15	W91-X113-15	W91-X152-40	W92-X112-5	W92-X112-30	W92-X1110-30	W93-X112-30
W91-X112-2	W91-X112-20	W91-X150-5	W91-X152-50	W92-X112-7	W92-X112-40	W93-X112-5	W93-X112-40
W91-X112-3	W91-X112-40	W91-X152-10	W91-X1110-20	W92-X112-10	W92-X112-50	W93-X112-10	W93-X112-50
W91-X112-5	W91-X112-50	W91-X152-15	W92-X112-1	W92-X112-15	W92-X113-15	W93-X112-15	W93-X1110-20
W91-X112-7	W91-X113-5	W91-X152-20	W92-X112-2	W92-X112-20	W92-X113-20	W93-X112-20	W93-X1110-30
W91-X112-10	W91-X113-10	W91-X152-30	W92-X112-3	W92-X112-25	W92-X1110-20	W93-X112-25	

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.750 (19.05)

Ø .156 (3.96) [2 PLACES PER POLE]

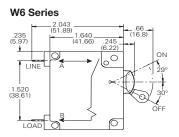
**Panel Mounting Cutout** 

Ø .625 +.010 -.000

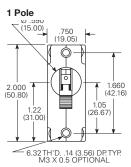
(15.88 +0.25) -0.00 1 PER POLE

1.048 (26.62)

### **Outline Dimensions - Toggle Actuator Models**

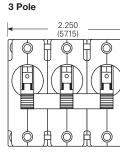


### W6 Series - One Actuator Per Pole



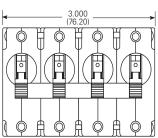
500

2 Pole



4 Pole

1.660

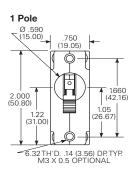


Note: Multi-pole models furnished with seperate handle tie hardware

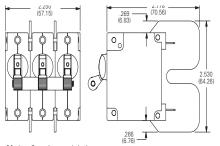
1.500

2 Pole

### W6 Series - One Actuator Per Unit



### 480V Model with Barriers



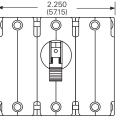
Note: 3-pole model shown

### Notes:

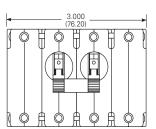
- 1. Terminal protrusion dimensions are referenced from back of mounting panel 2. Main terminals are male quick connect type .250 (6.35) wide x .031 (.79) thick x .377 (9.58) long. Optional 8-32 x .250 (6.35) or 10-32 x .250 (6.35) screw type
- 3. Panel mounting cutout detail mtg. detail tol.:  $\pm$  .005 (.13) unless noted. Add additional cutouts to correspond to number of poles. Outline drawing tolerance  $\pm$ .015 (.35) unless noted

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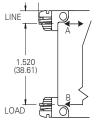


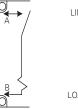
4 Pole



Note: 4-pole models furnished with sperate handle tie hardware

### **Termination Options**





LINE 🛱 LOAD 🛃

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LINE

I OAD

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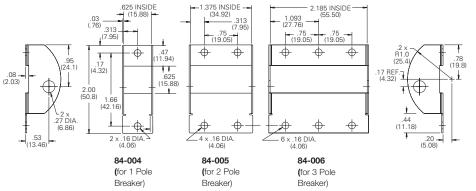
5

3 Pole



### Outline Dimensions - Optional Toggle Guards







84-004 toggle guard shown with W67 series circuit breaker mounted in a panel.

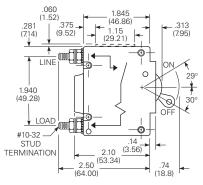
Optional toggle guards may be ordered seperately for use on W6 toggle actuator models. These guards help to prevent accidental operation and allow the breaker to be locked in the "off" position.



### **Outline Dimensions**

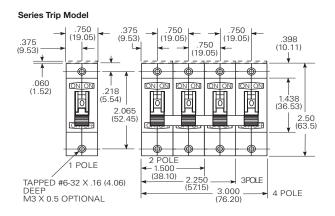
### W9 Series

#### Series Trip Model

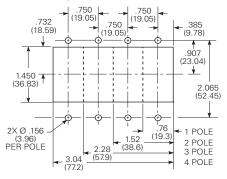


#### Note:

1. Top mounted plate (shown with broken line) is present only on UL1500 models



Panel Mounting Cutout Detail



### Notes:

1. Terminal protrusion dimensions are referenced from the back of the mounting panel

2. Mounting detail tolerance  $\pm$  .005 (13) unless noted 3. Outline drawing tolerance  $\pm$  .015 (.38) unless noted

Dimensions in brackets ( ) are in milimeters.

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Authorized Distributor

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