



Series G Molded Case Circuit Breakers 15 – 2500 Amperes for UL, CSA & IEC Applications

12-67

November 2008

Handle Mechanisms

Handle Mechanisms Overview

Handle mechanisms are used to operate molded case circuit breakers, molded case switches and motor circuit protectors. They are available in three basic configurations — Flange Mounted, Through-the-Door and Direct (Close-Coupled) — providing safe, dependable operation and ease of installation.

Flange Mounted

- Flex Shaft

Through-the-Door

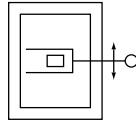
- Universal Rotary

Direct (Close Coupled)

- Universal Direct
- Euro IEC

Handle mechanisms are typically used on enclosed circuit breakers, control panels and motor control centers in many different applications. Eaton Electrical has a handle mechanism for virtually any need.

Flange Mounted Handle Mechanisms



The Flex Shaft™

Flange Mounted handle mechanisms mount on the flange of an enclosure door. The Flex Shaft is an extra heavy-duty mechanism that includes a flexible shaft in various lengths, 3 feet (0.9 m) through 10 feet (3 m) for use with various size enclosures.

The Flex Shaft handle will accept up to three padlock shackles, each with a maximum diameter of 3/8 inch (9.5 mm). Can be used with NEMA 12 fabricated enclosures. An optional handle is available for Flex Shaft that is suitable for use with NEMA 4 environments.

Flex Shaft comes preset from the factory, requiring only minor field adjustments on installation, which takes about 10 minutes — a significant time savings compared to installation of other types of flange handle mechanisms. The Flex Shaft mechanism also takes up less interior enclosure space than competitive designs and the handle fits standard flange cutouts. Flex Shaft handle can be remotely mounted from breaker, where an operator can use it by “funneling” the cable through conduit.

Flex Shaft is UL listed under File E64893 and meets CSA requirements.

Note: NEMA 4X handle mechanisms are available. Add Suffix X to the complete Catalog Number.

Note: When selecting the length of shaft, ensure minimum bending radius of 4 inches (101.6 mm) is maintained to operate properly.

The standard method of shipment includes the mechanism preset at the factory; however, minor field adjustments may be required.

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Flex Shaft Ordering Information

Table 12-122. Flex Shaft Ordering Information

Breaker Frame	Flexible Shaft Length in Feet (m)									
	2 (0.61)		3 (.9)		4 (1.2)		5 (1.3)		6 (1.8)	
	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$
EG	EHMFS02		EHMFS03		EHMFS04		EHMFS05		EHMFS06	
JG	N/A		JHMFS03		JHMFS04		JHMFS05		JHMFS06	
LG	N/A		—		LHMFS04		—		—	
NG	N/A		N/A		F5S04CI		F5S05CI		F5S06CI	
RG	N/A		N/A		F6S04		F6S05		F6S06	

Breaker Frame	Flexible Shaft Length in Feet (m)							
	7 (2.1)		8 (2.4)		9 (2.7)		10 (3.1)	
	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$
EG	EHMFS07		EHMFS08		EHMFS09		EHMFS10	
JG	JHMFS07		JHMFS08		JHMFS09		JHMFS10	
LG	LHMFS07		—		—		LHMFS10	
NG	N/A		N/A		N/A		F5S10CI	
RG	N/A		N/A		N/A		N/A	

Note: Add Suffix L to the complete Catalog Number for 6-inch (152.4 mm) handle.

Note: 3-Pole only for EG, 3 and 4 Pole for JG and LG.

Note: EG and LG can be left or right-hand mounted.

Flex Shaft Accessories (E- through R-Frame)

Table 12-123. NEMA 12 Safety Door Hardware for Flex Shaft ①

Handle Length in Inches (mm)	Catalog Number ②	Price U.S. \$
4.00 (101.6)	C361KJ4	
6.00 (152.4)	C361KJ6	
Roller Latch ③	C361KR	

① Customer: Consult with box manufacturer for correct door hardware and any adapters required for assembly.

② The 1/4-inch x 1/2-inch (6.35 x 12.7 mm) standard mill rectangular locking bar is not supplied with these kits.

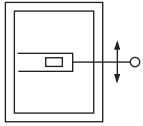
③ Third roller latch for use with 4- or 6-inch (101.6 or 152.4 mm) handle when 3 point latching is required.

Table 12-124. NEMA — IP Crossover

NEMA Type	IP Type
1	IP20
3R	IP55
12	IP54
4/4X	IP66

Handle Mechanisms

Through-the-Door Handle Mechanisms



Universal Rotary

The Cutler-Hammer Universal Rotary is suitable for use with NEMA 12 enclosure types. An optional NEMA 4/4X handle mechanism is also available. All rotary handle mechanisms include a handle "Lock Off," to prevent turning the breaker ON while in the OFF position. All Rotary handles indicate ON/OFF/Tripped/Reset positions, however, Universal Rotary has the added feature of international markings for ON (I) and OFF (O). The Universal Rotary is made of molded material. Inside handle is lockable.

The Universal Rotary mechanisms for EG, JG and LG MCCBs can be operated by hand with the door open or "locked off" to prevent operation with the door open.

For the NG-Frame MCCBs, a Cutler-Hammer Rotary with a metal handle (Table 12-126) is also available.

4/4X Handle Mechanism



EG-Frame



JG & LG-Frames
(JG Shown)

Table 12-125. Universal Rotary Ordering Information

Shaft Length in Inches (mm)	Handle Color	NEMA Rating	Complete Catalog Number ①		Price U.S. \$
			NEMA 1, 3R, 12	Price U.S. \$	
EG-Frame					
6.00 (152.4)	Black	1, 12	EHMVD06B		
12.00 (304.8)	Black	1, 12	EHMVD12B		
24.00 (609.6)	Black	1, 12	EHMVD24B		
6.00 (152.4)	Red	1, 12	EHMVD06R		
12.00 (304.8)	Red	1, 12	EHMVD12R		
24.00 (609.6)	Red	1, 12	EHMVD24R		
6.00 (152.4)	Black	4, 4X, 3R	EHMVD06BX		
12.00 (304.8)	Black	4, 4X, 3R	EHMVD12BX		
24.00 (609.6)	Black	4, 4X, 3R	EHMVD24BX		
6.00 (152.4)	Red	4, 4X, 3R	EHMVD06RX		
12.00 (304.8)	Red	4, 4X, 3R	EHMVD12RX		
24.00 (609.6)	Red	4, 4X, 3R	EHMVD24RX		
JG-Frame					
6.00 (152.4)	Black	1, 12	FJHMVD06B		
12.00 (304.8)	Black	1, 12	FJHMVD12B		
24.00 (609.6)	Black	1, 12	FJHMVD24B		
6.00 (152.4)	Red	1, 12	FJHMVD06R		
12.00 (304.8)	Red	1, 12	FJHMVD12R		
24.00 (609.6)	Red	1, 12	FJHMVD24R		
6.00 (152.4)	Black	4, 4X, 3R	FJHMVD06BX		
12.00 (304.8)	Black	4, 4X, 3R	FJHMVD12BX		
24.00 (609.6)	Black	4, 4X, 3R	FJHMVD24BX		
6.00 (152.4)	Red	4, 4X, 3R	FJHMVD06RX		
12.00 (304.8)	Red	4, 4X, 3R	FJHMVD12RX		
24.00 (609.6)	Red	4, 4X, 3R	FJHMVD24RX		
LG-Frame					
6.00 (152.4)	Black	1, 12	KLHMVD06B		
12.00 (304.8)	Black	1, 12	KLHMVD12B		
24.00 (609.6)	Black	1, 12	KLHMVD24B		
6.00 (152.4)	Red	1, 12	KLHMVD06R		
12.00 (304.8)	Red	1, 12	KLHMVD12R		
24.00 (609.6)	Red	1, 12	KLHMVD24R		
6.00 (152.4)	Black	4, 4X, 3R	KLHMVD06BX		
12.00 (304.8)	Black	4, 4X, 3R	KLHMVD12BX		
24.00 (609.6)	Black	4, 4X, 3R	KLHMVD24BX		
6.00 (152.4)	Red	4, 4X, 3R	KLHMVD06RX		
12.00 (304.8)	Red	4, 4X, 3R	KLHMVD12RX		
24.00 (609.6)	Red	4, 4X, 3R	KLHMVD24RX		
NG-Frame					
6.00 (152.4)	Black	1	HMVD5B		
6.00 (152.4)	Black	1	HMVD5BT ②		
6.00 (152.4)	Black	4, 4X, 3R	WHM5R06X		
12.00 (304.8)	Black	4, 4X, 3R	WHM5R12X		
16.00 (406.4)	Black	4, 4X, 3R	WHM5R16X		
24.00 (609.6)	Black	4, 4X, 3R	WHM5R24X		
RG-Frame					
9.00 (235.0)	Black	1	HMVD6B		

① Complete catalog number includes handle, mechanism, shaft and mounting hardware.

② Same as HMVD5B, except uses R-Frame T handle.

Table 12-126. Cutler-Hammer Rotary Ordering Information — NG-Frame

Shaft Length in Inches (mm)	Handle Color	Complete Catalog Number ③			
		NEMA 1, 3R, 12	Price U.S. \$	NEMA 4/4X	Price U.S. \$
6.00 (152.4)	Black	WHM5R06		WHM5R06X	
12.00 (304.8)	Black	WHM5R12		WHM5R12X	
16.00 (406.4)	Black	WHM5R16		WHM5R16X	
24.00 (609.6)	Black	WHM5R24		WHM5R24X	

③ Complete catalog number includes handle, mechanism, shaft and mounting hardware.

Handle Mechanisms

**Direct (Close-Coupled)
Handle Mechanisms**



Universal Direct (EG – LG)

Direct (Close-Coupled) Handle Mechanisms mount directly to the circuit breaker. They are used in shallow enclosures where the standard variable depth Through-the-Door type mechanism is not practical or cannot be used. They are typically for applications where high volume, standardized enclosures are being fabricated.

NEMA Ratings

Rated NEMA 1 and NEMA 12.

The Universal Direct handle mechanism is designed exclusively for the new Cutler-Hammer EG, JG and LG circuit breakers. It is available as standard with a door interlock to prevent opening the enclosure while the circuit breaker is in the ON position. It is also available without a door interlock.

The Universal Direct handle mechanism is UL 489 listed, IEC 60947-1/2 and meets CSA requirements.

The Euro IEC Direct handle mechanism is designed for NG and RG MCCBs. The Euro IEC Direct handle mechanism is 60947-112.

Table 12-127. Universal Direct Ordering Information

Frame	Black Handle Color				Red Handle Color	
	with Interlock	Price U.S. \$	without Interlock	Price U.S. \$	without Interlock	Price U.S. \$
	Catalog Number		Catalog Number		Catalog Number	
EG	EHMCCBI		EHMCCB		EHMCCR	
JG	—		JHMCCB		JHMCCR	
LG	—		LHMCCB		LHMCCR	

Table 12-128. Euro IEC Direct Ordering Information

Frame	Catalog Number	Price U.S. \$
	Black Handle	
NG	HMVD5B	
RG	HMVD6B	

Frame Sizes EG through JG

Dimensions

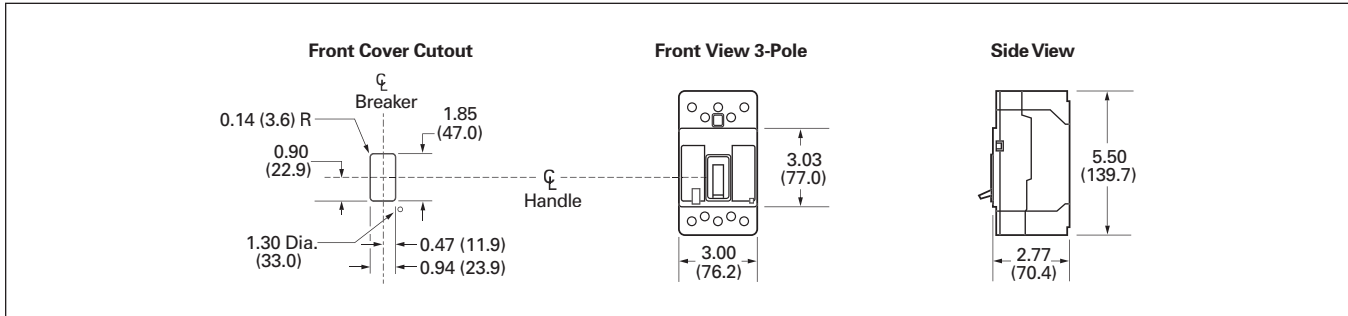


Figure 12-10. EG-Frame — Dimensions in Inches (mm)

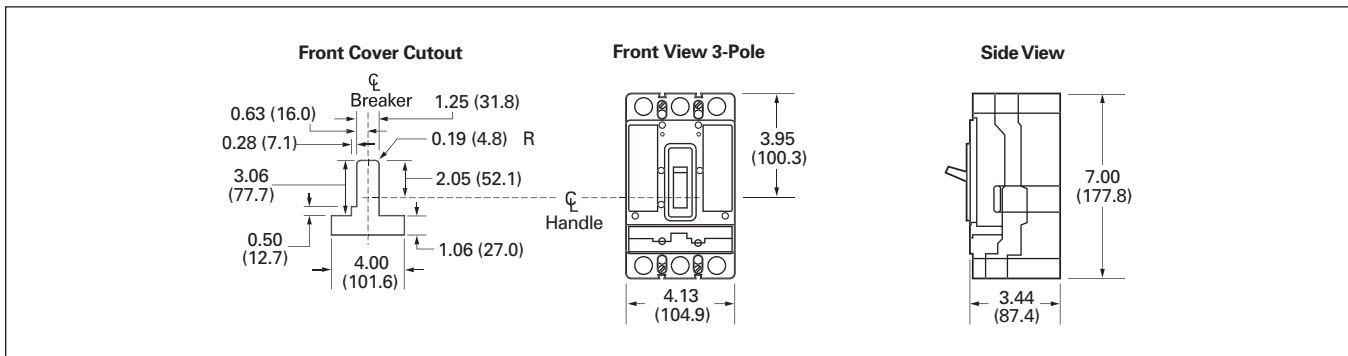


Figure 12-11. JG-Frame — Dimensions in Inches (mm)

Frame Sizes LG through NG

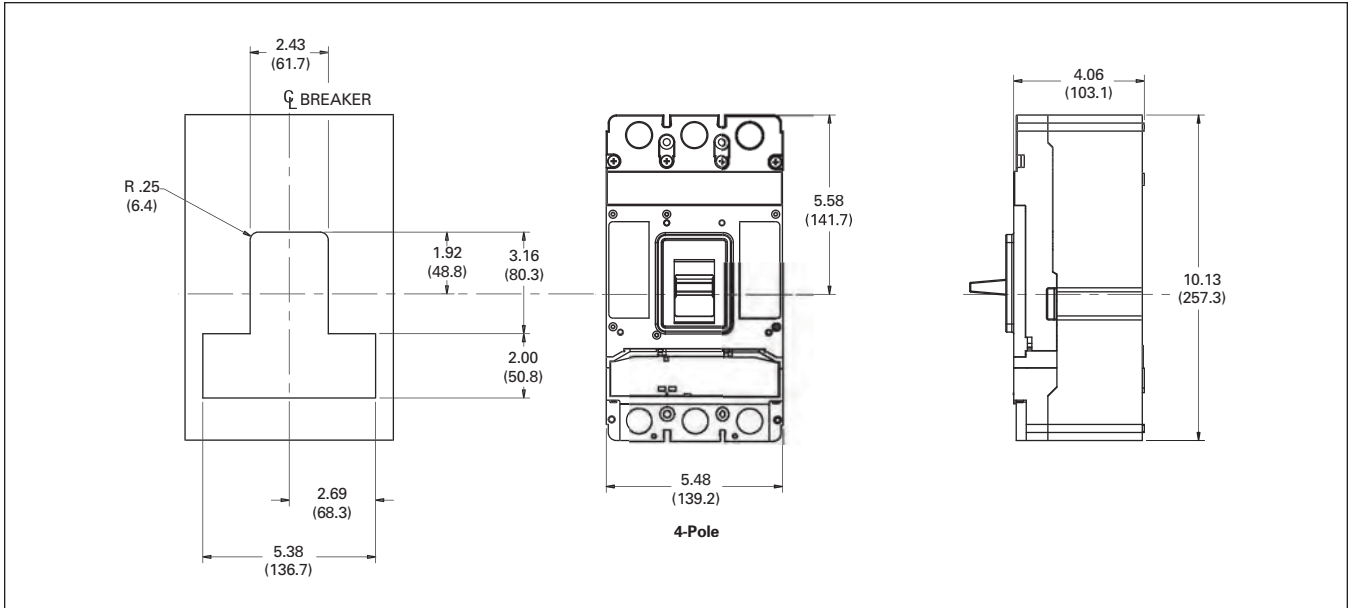


Figure 12-12. LG-Frame — Dimensions in Inches (mm)

Note: TA63IL, T63IL, T632L, TA632L terminals add 1.19 inches (30.2 mm) to line or load side of LG. LTS3K or LTS4K terminal covers add 2.13 inches (54.1 mm) to line or load side of LG.

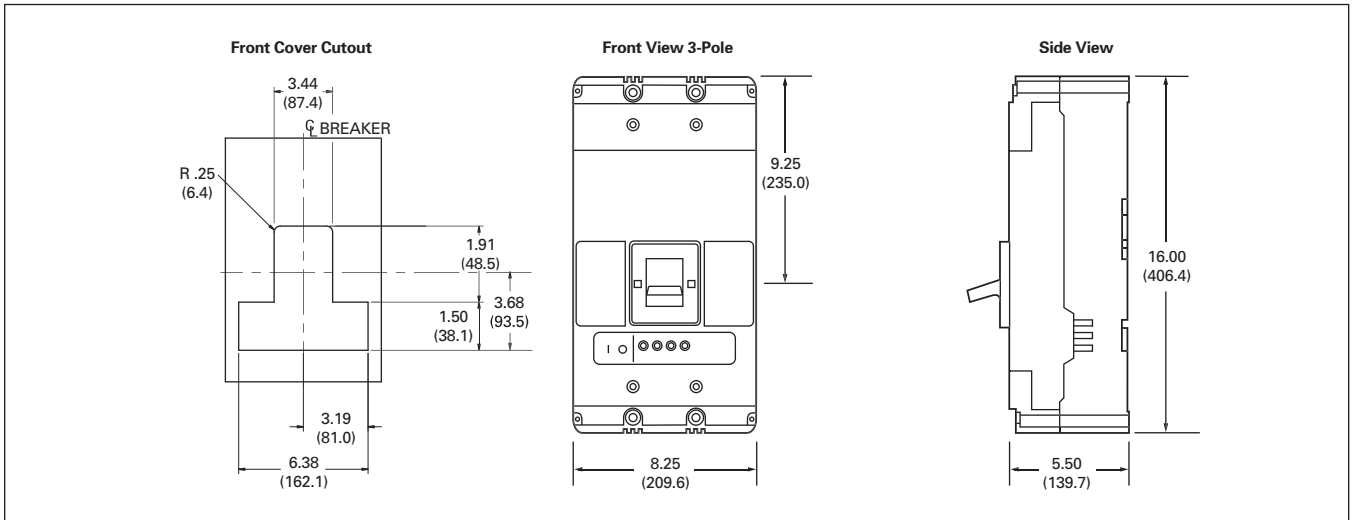


Figure 12-13. NG-Frame — Dimensions in Inches (mm)

Frame Size RG

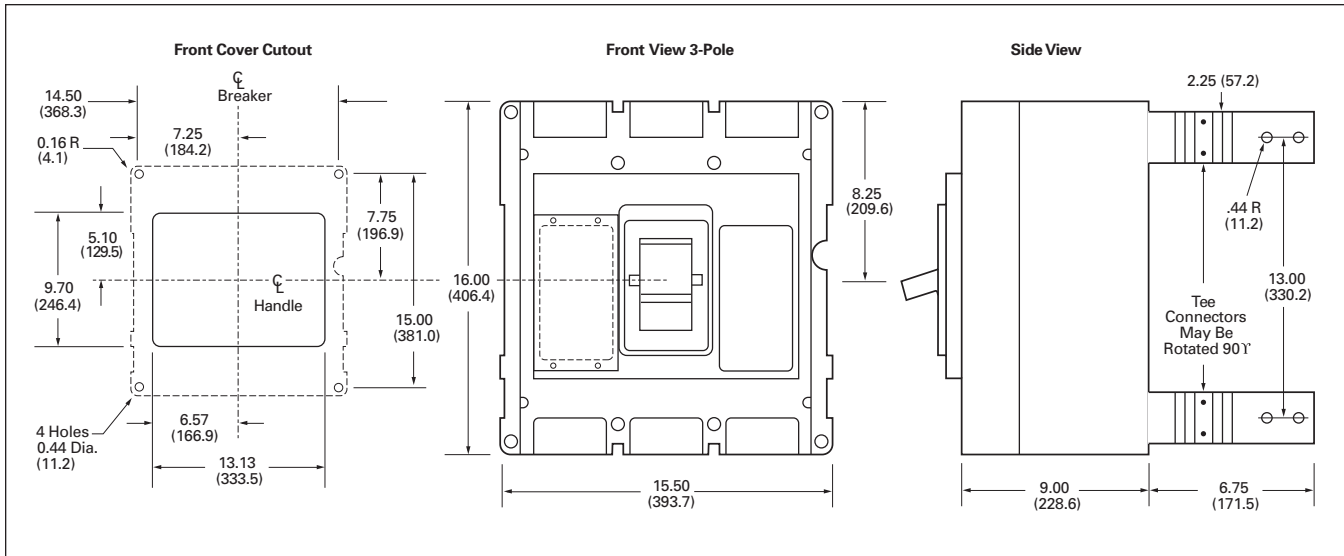


Figure 12-14. RG-Frame — Dimensions in Inches (mm)