NEMA Type 7/9 disconnect switch

Installation & maintenance information

EATON CROUSE-HINDS SERIES

IF 1772

SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE

APPLICATION

Eaton's NEMA Type 7/9 disconnect switches are suited for Class I, Divisions 1 & 2, Groups B, C, D; Class II, Division 1, Groups E, F, G; Class II, Division 2, Groups F, G; Class III; and Class I, Zones 1 & 2, Groups IIB + H_2, as defined by the National Electrical Code® as well as in damp, wet or corrosive locations.

Additionally, this series is suitable for NEMA 3, 4, 4X applications. Eaton's NEMA Type 7/9 disconnect should be installed, inspected, maintained and operated by qualified and competent personnel only.

INSTALLATION

⚠WARNING

To avoid risk of electrical shock, electrical power must be OFF before and during product installation and maintenance. Failure to comply can result in damage to equipment, injury or death to personnel.

1. Select a mounting location that will provide suitable strength and rigidity for supporting the Eaton's NEMA Type 7/9 disconnect switch. Weights and dimensions are listed below.

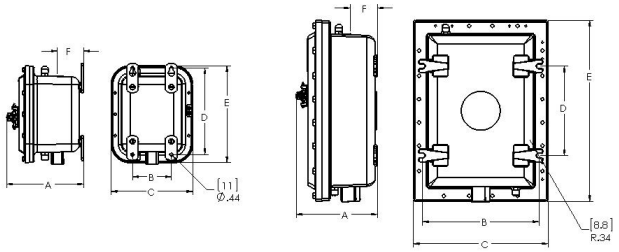


Figure 1

Table 1

Series	A		B		C		D		E		F		Weight	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	Kg
DS361UX	9.74	247	5.00	127	10.47	266	11.13	283	12.47	317	3.50	89	33	15
DS362UX	9.90	251	7.00	178	12.53	318	15.13	384	16.53	420	3.50	89	51	23
DS363UX	10.28	261	9.00	229	14.67	373	17.13	435	18.67	474	3.50	89	72	33
DS361FX	10.02	255	7.00	178	12.67	322	13.13	333	14.67	373	3.50	89	47	21
DS362FX	9.90	251	7.00	178	12.53	318	15.13	384	16.53	420	3.50	89	51	23
DS363FX	10.40	264	15.00	380	17.31	440	11.50	292	23.31	592	3.50	89	108	49

2. Securely fasten enclosure to the mounting location, and then attach enclosure into conduit system. Install approved conduit or cable sealing fittings in all conduit entries within 18 inches (46cm) of enclosure per the National Electrical Code requirements.

⚠CAUTION

To avoid risk of explosion, hazardous location information specifying Class and Group listing of each device is marked on the nameplate of each enclosure. Class and Group list for and device penetrating the enclosure must be suitable for the classification of location in which the enclosure is installed. Conduit sealing fittings MUST be installed in each attached conduit run within 18 inches of the enclosure per the National Electrical Code.

3. For Eaton's NEMA Type 7/9 disconnect switch enclosures furnished with disconnect switch, please see Step 4. For Eaton's NEMA Type 7/9 disconnect switch enclosures furnished without disconnect switch, select appropriate disconnect switch from Table 2 below (ordered separately).

Table 2

Series	Amperage	Switch type	Manufacturer	Mfr.'s part #
DS361UX	30A	Non-fusible	EATON	DS16U
DS362UX	60A		EATON	DS26U
DS363UX	100A		EATON	DS36U
DS361FX	30A	Fusible	EATON	DS161R
DS362FX	60A		EATON	DS262R
DS363FX	100A		EATON	DS363R

a. Using hardware provided, securely mount disconnect switch on mounting plate with line terminals on top and load terminals on bottom. Use existing holes in mounting plate; please refer to mounting plate drawing below. Be sure to tighten screws to 3 ft.-lbs. (0.4 Kg.-m.).

Mounting plate drawing

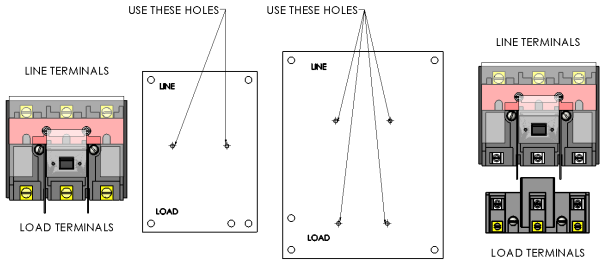


Figure 2

b. The rating for each disconnect can be observed in Table 3.

Table 3 – Fusible and non-fusible switches, 3-pole, 600 VAC max., 250 VDC max.

Mfr.'s part #	Ampere rating	Fuse type	Maximum horsepower rating			Voltage
			480 VAC	600 VAC	250 VDC	
DS16U	30	N/A	15	20	5	600 VAC, 125/250 VDC
DS26U	60		30	50	10	
DS36U	100		60	75	20	
DS161R	30	Class J	15	20	5	
DS262R	60		30	50	10	
DS363R	100		60	75	20	

4. Ensure the operator is in the OFF position and then remove the cover bolts while securing cover. Carefully open the cover fully to prevent damage to the machined joint flame path and cover gasket.

⚠CAUTION

To avoid the risk of explosion, hammers or prying tools must not be allowed to damage the flat machined joint surfaces or cover gasket. Do not handle covers roughly or place them on surfaces that might damage or scratch the flat machined joint surfaces.

⚠CAUTION

To avoid the risk of explosion, do not use cover bolts as a means to lift the enclosure. Excessive force on the partially retracted cover bolts may damage the bolt. Use appropriate lifting method for safety.

5. Pull wires into enclosure, making sure they are long enough to make the required electrical connections. Install the proper wire clamps or other approved devices to hold the wires securely in place. Install the ground, line and load wires. Tighten the wire binding screws to torque values shown on Table 4.

Note:

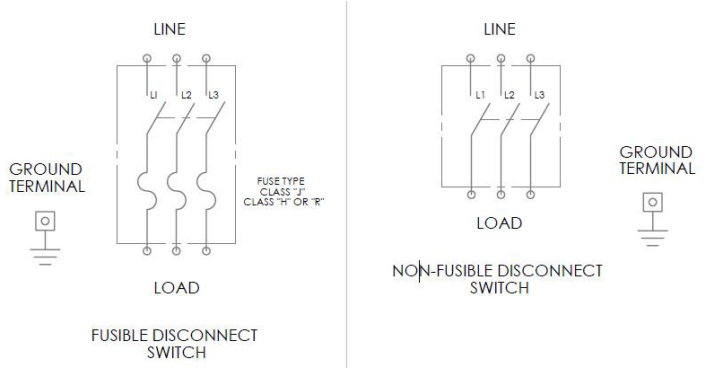
a. The internal grounding terminal shall be used as equipment grounding means. The external terminal is only a supplemental bonding connection.

Table 4			Terminal torque value	
Series	**Amperage**	**Wire range**	**in.-lb.**	**N-m**
DS361UX	30A	#10-#8 AWG	35-40	4-5
DS362UX	60A	#6-#3 AWG	45	5
DS363UX	100A	#1-1/0 AWG	50	6
DS361FX	30A	#10-#8 AWG	35-40	4-5
DS362FX	60A	#6-#3 AWG	45	5
DS363FX	100A	#1-1/0 AWG	50	6

b. Maximum wire sizes are recommended based on NEC minimum wire bending space at each terminal per designated enclosure. Select wire gauge per NEC standard.
c. Table 4 lists maximum wire gauges for 55°C ambient temperature.
d. Use copper wire only. Wire to be rated at 75/90°C.

6. For fusible disconnects, install Class J fuses. Contact Eaton's Bussmann Division for more fuse information.
7. Test wiring for good connection by performing a continuity check. Also, check for unwanted grounds with an insulation resistance tester.

WIRING DIAGRAM



⚠CAUTION

To avoid the risk of explosion, clean both machined joint surfaces of body and cover before closing. Dirt or foreign material must not accumulate on flat machined joint surfaces. Surfaces must seat fully against each other to provide a proper explosionproof joint.

8. Make sure that operator and fork are in the OFF position.

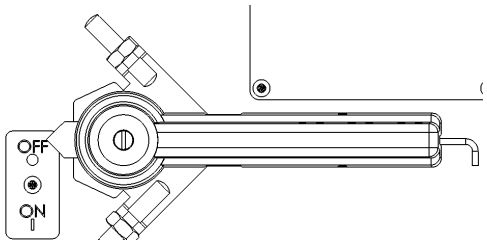


Figure 3

9. Fully tighten all cover bolts. See Table 5.

Table 5		Torque value	
Series	**Cover screw**	**ft.-lb.**	**N-m**
DS361UX	5/16"-18	20-25	27-34
DS362UX	3/8"-16	35-40	48-54
DS363UX	3/8"-16	35-40	48-54
DS361FX	3/8"-16	35-40	48-54
DS362FX	3/8"-16	35-40	48-54
DS363FX	1/2"-13	40-45	54-61

⚠CAUTION

To avoid the risk of explosion, all unused conduit openings must be closed properly with an approved plug, drain or breather such as the Crouse-Hinds series PLG plugs or ECD breather/drains. NO CONDUIT OPENINGS ARE TO BE ADDED IN THE FIELD.

MAINTENANCE

⚠WARNING

To avoid electrical shock and personal injury, always disconnect primary power source before opening enclosure for inspection or service, and lock them out.

1. Electrical and mechanical inspections must be done on a regular basis. It is recommended that inspections be performed a minimum of once a year.
2. If necessary to open enclosure for inspection or service, always disconnect primary power source and refer to cautionary statement or nameplate before opening cover. Area must be free of flammable gases and vapor before opening cover.
3. Perform visual check for undue heating evidenced by discoloration of wires or other components, damage or worn parts or leakage evidenced by water or corrosion in the interior.
4. Electrically check to make sure that all connections are clean and tight and that contacts in the components make and break as required.
5. Mechanically check that all parts are properly assembled and operating mechanisms move freely.
   a. For more operator adjustment instructions, see Figure 4.

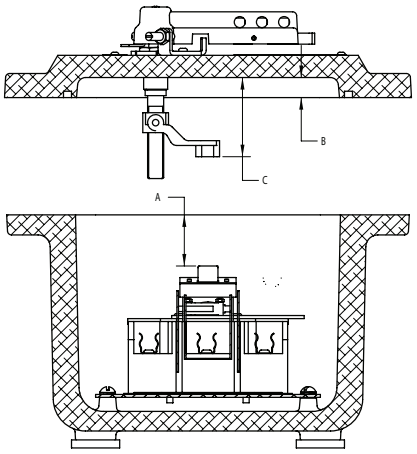
⚠CAUTION

To properly lock out device, put operating handle on OFF position. Press the silver lockout plate tab on the handle inward (note spring resistance). Place an OSHA approved lock or hasp through any of the three (3) holes of the handle and secure the device.

When it is safe to do so, verify that the handle cannot be moved to the ON position.

STOP ADJUSTMENT

1. Move operator to ON position.
2. Put light pressure on handle in the ON direction and hold in that position. Fork should be touching toggle.
3. Turn stop screw until it touches handle.
4. Tighten stop nut.
5. Move operator to OFF position.
6. Put normal pressure on handle in the OFF direction until the handle stops. Hold in that position.
7. Turn stop screw until it touches handle.
8. Tighten stop nut.



FORK HEIGHT IS TO BE SET FOR EACH UNIT ACCORDING TO THE FOLLOWING PROCEEDURE:

1. WITH THE SWITCH IN THE OFF (DOWN) POSITION, MEASURE THE DISTANCE "A" FROM THE MACHINED FLANGE OF THE BODY TO THE TOP OF THE SWITCH TOGGLE.
2. MEASURE THE DEPTH "B" FROM THE MACHINED FLANGE TO THE INSIDE SURFACE OF THE DOMED COVER.
3. ADD DIMENSIONS "A" + "B" + .37" TO OBTAIN DIMENSION "C". THIS WILL BE THE HEIGHT FROM THE INSIDE SURFACE OF THE COVER TO THE BOTTOM OF THE OPERATING FORK AS SHOWN.

"C" = "A" + "B" + .37"

Figure 4

Eaton recommends an Electrical Preventive Maintenance Program as described in the National Fire Protection Association Bulletin NFPA 70B.