EDS Series Factory Sealed Manual Motor Starters and Contactors

Explosionproof, Dust-Ignitionproof

NEC/CEC:
Class I, Division 1 and 2, Groups C, D
Class II, Division 1 and 2, Groups E, F, G
Class III
NEMA 3, 3R, 7CD, 9EFG

Applications

- Manual motor starters are available to meet any plant installation requirement.
- They may be used to install a variety of electrical wiring devices and comes complete with covers and dead-end or feed-thru hub arrangements. Available with or without heater.
- Complete units are ideal for manual starting of small Vac or Vdc motors in locations made hazardous by the presence of flammable vapors, gases or combustible dust.

Features

- Easily readable operator handle with provisions for padlocking in the ON or OFF position.
- Cast in hubs.
- Interchangeable heater units.

Standard Materials

- Body and cover: malleable iron
- Sealing chamber: copperfree (4/10 of 1% max.) aluminum
- Operating handle: nylon

Standard Finishes

- Body and cover: gray epoxy powder coat

Options

- For Aluminum Backbox and Cover add suffix -**A**.
- Starters are furnished with one interchangeable heater. Select heater number from heater selection table and add appropriate suffix to catalog number. For example, a complete catalog number with Allen-Bradley ◂ motor starter and Allen-Bradley ◂ 0-17 amp heater: EDS150-1MSAB-AB1.

NEC/CEC Certifications and Compliances

- UL Standards: UL 508, UL 698, UL 1203
- CSA Standards: C22.2 No 14-M, C22.2 No. 25, C22.2 No. 30
- cULus Listed: E76550, E81751

1–Gang
Dead–End

2–Gang
Feed–Thru

◂ *Allen-Bradley is a registered trademark of Rockwell Automation.*

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Factory Sealed Manual Motor Starters

Poles	Hub Size (Inches)	Catalog Number Cover/Chamber/Device Allen Bradley ◄ ①	Catalog Number Cover/Chamber/Device Cutler–Hammer ✣ ①	1–Gang Catalog Number ② Dead–End	1–Gang Catalog Number ② Feed–Thru	2–Gang Catalog Number ② Dead–End	2–Gang Catalog Number ② Feed–Thru
1	1/2	EDK1MSAB	EDK1MSW	**EDS150-1MS**	**EDSC150-1MS**	**EDS250-1MS**	**EDSC250-1MS**
	3/4			**EDS175-1MS**	**EDSC175-1MS**	**EDS275-1MS**	**EDSC275-1MS**
	1			**EDS110-1MS**	**EDSC110-1MS**	**EDS210-1MS**	**EDSC210-1MS**
2	1/2	EDK2MSAB	EDK2MSW	**EDS150-2MS**	**EDSC150-2MS**	**EDS250-2MS**	**EDSC250-2MS**
	3/4			**EDS175-2MS**	**EDSC175-2MS**	**EDS275-2MS**	**EDSC275-2MS**
	1			**EDS110-2MS**	**EDSC110-2MS**	**EDS210-2MS**	**EDSC210-2MS**

Manual Motor Starter Horsepower Ratings

Poles	120–240 Vac	32 Vdc	120 Vdc	240 Vdc	Allen–Bradley ◄ Catalog Number	Cutler–Hammer ✣ Catalog Number
1	1 HP	—	—	—	**Bulletin 600**	—
2	1 HP	—	3/4 HP	3/4 HP	**Bulletin 600**	—
1	1 HP	1/4 HP	—	1/4 HP	—	**MST01**
2	1 HP	1/4 HP	1 HP	1 HP	—	**MST02**

EFD Non-Factory Sealed Manual Contactors — No Heater Options

Poles	Hub Size (Inches)	Catalog Numbers Dead–End	Catalog Numbers Feed–Thru	Description	Switch Ratings
2	1/2	**EFD150-2MS**	**EFDC150-2MS**	SQUARE D Class 2510, Type KO-1	30 Amp, 250 Vac/Vdc; 20 Amp, 600 Vac; 1 HP, 115 Vac; 2 HP, 230 Vac; 3 HP, 460-575 Vac
	3/4	**EFD175-2MS**	**EFDC175-2MS**		
	1	**EFD110-2MS**	**EFDC110-2MS**		
3	1/2	**EFD150-3MS**	**EFDC150-3MS**	ARROW-HART AH7810-UD	30 Amp, 600 Vac; 3 HP, 120 Vac; 7-1/2 HP, 240 Vac; 15 HP, 480 Vac; 15 HP 600 Vac
	3/4	**EFD175-3MS**	**EFDC175-3MS**		
	1	**EFD110-3MS**	**EFDC110-3MS**		

Non-Factory Sealed Components

Poles	Description	Catalog Number
—	Cover only	**EFKMSQ**
2	Device only	**EFS2MSQ**
3	Device only	**EFS3MSQ**

✣ *Cutler-Hammer is a registered trademark of Eaton Corporation.*
◄ *Allen-Bradley is a registered trademark of Rockwell Automation.*
① *For heaters, see following page.*
② ***Ordering Instructions:*** *Add suffix -**AB** to catalog number for Allen-Bradley motor starter; add suffix -**W** for Cutler-Hammer motor starter. Starters are furnished with one interchangeable heater. Select heater number from heater selection table and add appropriate suffix to catalog number. For example, a complete catalog number with Allen-Bradley motor starter and Allen-Bradley heater: **EDS150-1MSAB-AB1**. For Aluminum Backbox and Cover add suffix -**A**.*

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EDS Series Factory Sealed Manual Motor Starter and Contactor Heaters

Allen-Bradley and Cutler-Hammer heaters and starters are not interchangeable with each other.

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The "Full Load Motor Current" listed in the tables below are ratings which determine the proper heat element that should be used with the EDS Series starters. Refer to motor nameplate for its full load motor current. It is our recommendation that for normal conditions the heater element selected should have a capacity of 20 to 25% greater than the full load current of the motor. This applies to standard +40 °C (+104 °F) temperature rise motors. For +50 °C (+122 °F) rise motors, a heater not greater than 115% full load current should be selected.

However, due to the difference between full load motor currents of various motor manufacturers of the same size motors, the above information is approximate.

If selection of heater element is uncertain as might be in the case of a motor subject to frequent starting and intermittent load, it is advisable to contact the starter manufacturer or his local representative giving full particulars, such as motor horsepower, voltage, phase cycles, name or manufacturer or pertinent data that may aid in the selection of the proper heater element.

Allen-Bradley ◂

Full Load Motor Current (Amp)	Add Suffix EDS
0.17	**-AB1**
0.21	**-AB2**
0.25	**-AB3**
0.32	**-AB4**
0.39	**-AB5**
0.46	**-AB6**
0.57	**-AB7**
0.71	**-AB8**
0.79	**-AB9**
0.87	**-AB10**
0.98	**-AB11**
1.08	**-AB12**
1.19	**-AB13**
1.30	**-AB14**
1.43	**-AB15**
1.58	**-AB16**
1.75	**-AB17**
1.88	**-AB18**
2.13	**-AB19**
2.40	**-AB20**
2.58	**-AB21**
2.92	**-AB22**
3.09	**-AB23**
3.32	**-AB24**
3.77	**-AB25**
4.16	**-AB26**
4.51	**-AB27**
4.93	**-AB28**
5.43	**-AB29**
6.03	**-AB30**
6.83	**-AB31**
7.72	**-AB32**
8.24	**-AB33**
8.90	**-AB34**
9.60	**-AB35**
10.80	**-AB36**
12.00	**-AB37**
13.50	**-AB38**
15.20	**-AB39**

Cutler-Hammer ✢

Full Load Motor Current (Amp)	Heater Rating (Amp)	Add Suffix EDS
0.40-0.43	0.50	**-WH1**
0.44-0.48	0.55	**-WH2**
0.49-0.53	0.61	**-WH3**
0.54-0.58	0.67	**-WH4**
0.59-0.64	0.74	**-WH5**
0.65-0.71	0.81	**-WH6**
0.72-0.78	0.89	**-WH7**
0.79-0.87	0.98	**-WH8**
0.88-0.95	1.10	**-WH9**
0.96-1.03	1.20	**-WH10**
1.04-1.15	1.30	**-WH11**
1.16-1.27	1.45	**-WH12**
1.28-1.35	1.60	**-WH13**
1.36-1.51	1.70	**-WH14**
1.52-1.67	1.90	**-WH15**
1.68-1.83	2.10	**-WH16**
1.84-1.99	2.30	**-WH17**
2.00-2.23	2.50	**-WH18**
2.24-2.47	2.80	**-WH19**
2.48-2.71	3.10	**-WH20**
2.72-2.95	3.40	**-WH21**
2.96-3.27	3.70	**-WH22**
3.28-3.59	4.10	**-WH23**
3.60-3.99	4.50	**-WH24**
4.00-4.39	5.00	**-WH25**
4.40-4.79	5.50	**-WH26**
4.80-5.26	6.00	**-WH27**
5.27-5.83	6.60	**-WH28**
5.84-6.39	7.30	**-WH29**
6.40-7.03	8.00	**-WH30**
7.07-7.74	8.80	**-WH31**
7.75-8.46	9.70	**-WH32**
8.47-9.35	10.60	**-WH33**
9.36-10.30	11.70	**-WH34**
10.31-11.35	12.90	**-WH35**
11.36-12.47	14.20	**-WH36**
12.48-13.67	15.60	**-WH37**
13.68-15.12	17.10	**-WH38**
15.13-16.00	18.60	**-WH39**

✢ *Cutler-Hammer is a registered trademark of Eaton Corporation.*
◂ *Allen-Bradley is a registered trademark of Rockwell Automation.*

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EFD Mounting Bodies for EDS Series Factory Sealed Motor Starters

Explosionproof, Dust-Ignitionproof

Furnished with Internal Ground Screw.

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Class II, Division 1 and 2, Groups E, F, G
Class III
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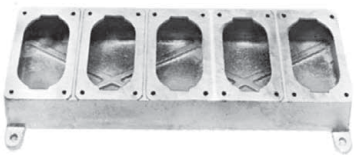
	Type	Hub Size (Inches)	Catalog Number Malleable Iron	Catalog Number Aluminum
1-Gang				
	Dead-End	1/2	**EFD150NLQ**	**EFD150ANLQ**
		3/4	**EFD175NLQ**	**EFD175ANLQ**
		1	**EFD110NLQ**	**EFD110ANLQ**
	Feed-Thru	1/2	**EFDC150NLQ**	**EFDC150ANLQ**
		3/4	**EFDC175NLQ**	**EFDC175ANLQ**
		1	**EFDC110NLQ**	**EFDC110ANLQ**
2-Gang				
	Dead-End	1/2	**EFD250NLQ**	**EFD250ANLQ**
		3/4	**EFD275NLQ**	**EFD275ANLQ**
		1	**EFD210NLQ**	**EFD210ANLQ**
	Feed-Thru	1/2	**EFDC250NLQ**	**EFDC250ANLQ**
		3/4	**EFDC275NLQ**	**EFDC275ANLQ**
		1	**EFDC210NLQ**	**EFDC210ANLQ**
Tandem ①				
	Dead-End	1/2	**EFDT50NLQ**	—
		3/4	**EFDT75NLQ**	—
		1	**EFDT10NLQ**	—
	Feed-Thru	1/2	**EFDCT50NLQ**	—
		3/4	**EFDCT75NLQ**	—
		1	**EFDCT10NLQ**	—
Blank Bodies for Brazed Hubs				
	1-Gang		**EFD1NL**	
	2-Gang		**EFD2NL**	
	3-Gang		**EFD3NL**	
	4-Gang		**EFD4NL**	
	5-Gang		**EFD5NL**	

① *For tandem bodies, external seals must be installed within 1.5 meters (5 feet) of each conduit entrance for Class I, Groups C and D.*

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EFD Cast Device Boxes; Blank Bodies for Brazed Threaded Hubs

Ordering Information

1-, 2-, 3-, 4- and 5-Gang Boxes. Brazed Threaded Hubs for Rigid Conduit, 1/2" thru 1"; Brazed Union Hubs, 1/2" thru 1".

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Class I, Division 2, Groups B, C, D
Class II, Division 1 and 2, Groups E, F, G
Class III
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Determine catalog number as follows:
(1) Select EFD device box catalog number;
(2) Select "Standard Hub Arrangement Diagram" number; and
(3) Select symbols that represent hub sizes from "Symbol Table." (Use "0" where no hub is required, and separate the various divisions of the complete catalog number by dashes.)

Example
The blank body device box selected is EFD3NL and the hub arrangement is diagram #8. Hub "a" is to be 3/4" brazed threaded; hub "b", 1" brazed threaded; hub "c", 3/4" brazed threaded; hub "d", no hub is required; and hub "e", 1" brazed union.
The complete catalog number will be:
EFD–3NL–8–23203E

If a "Standard Hub Arrangement" is not suitable for the application, or when hubs are to be more accurately spaced, submit sketch locating hubs (1) from centerlines of walls and (2) from outside back of box (or from mounting lug surface if lugs are supplied).

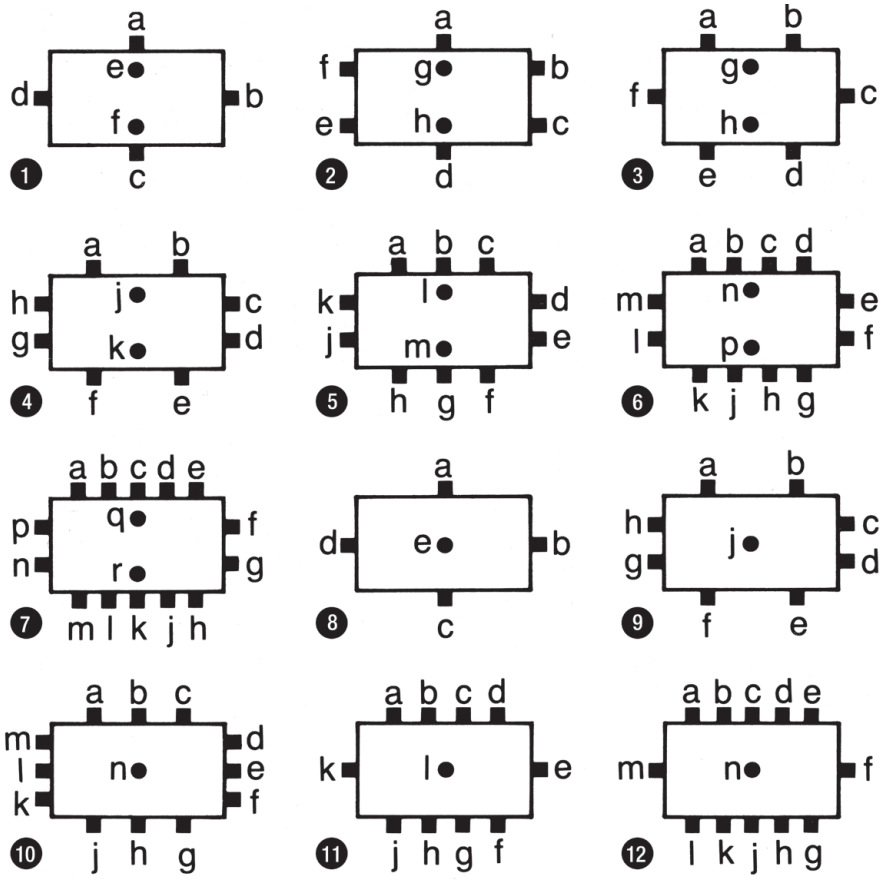
All hubs will be located in centerlines of walls and evenly spaced unless otherwise specified.

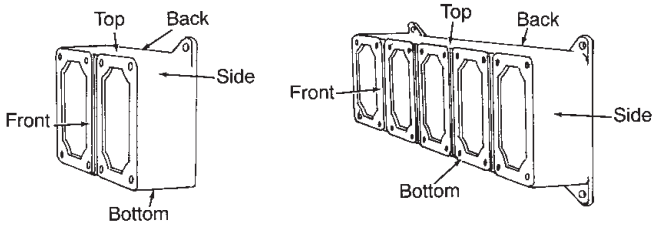
Symbol Table

Hub Size (Inches)	Brazed Threaded Hub Symbol	Brazed Union Hub Symbol
Blank	0	0
1/2	1	1E
3/4	2	2E
1	3	3E

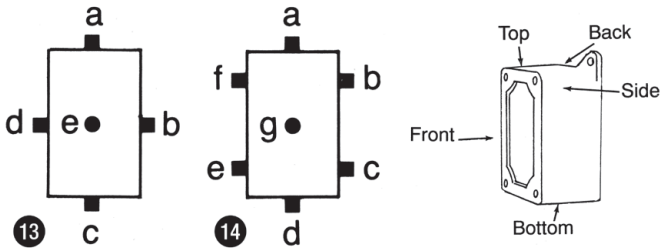
Standard Hub Arrangement Diagrams
Hub "a" is always TOP of box

2–, 3–, 4– and 5–Gang (Front View)





1–Gang (Front View)



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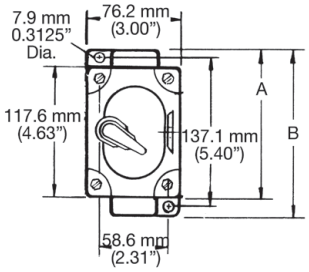
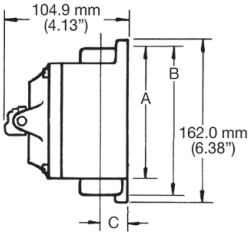
Dimensions in Millimeters (Inches)

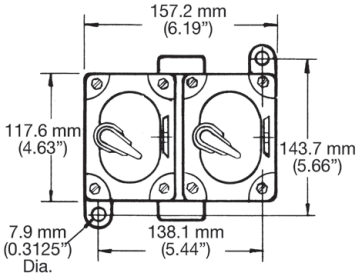
1-Gang and 2-Gang



1–Gang Front



1– and 2–Gang Side



2–Gang Front

Hub Size (Inches)	Dimensions in Millimeters (Inches) A	B	C
1/2	153.9 (6.06)	172.9 (6.81)	19.0 (0.75)
3/4	153.9 (6.06)	172.9 (6.81)	22.3 (0.88)
1	156.7 (6.17)	178.5 (7.03)	25.4 (1.00)

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