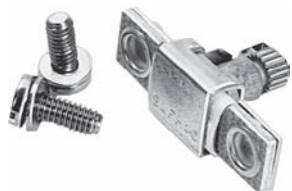


Heater Elements, Class SMF

General



Heater Elements Class SMF

Ordering Information

- Determine number of heater elements required from Table A.
- Determine motor full load current and service factor.
NOTE: If motor amps are unknown, an approximate value may be found on page 9/124. These values should be used with caution and only when motor amps are not available.
- If the motor and controller are in the same ambient temperature:
 - For 1.15 to 1.25 service factor motors use 100% of motor full load current for heater element selection.
 - For 1.0 service factor motors use 90% of motor full load current for heater element selection.
 - Heater elements are class 20.
- If the motor and controller are in different ambient temperatures multiply motor full load current by the multiplier in Table B. Use the resultant full load current for heater element selection.
- Select proper heater element from table below.
- All tables are based on the operation of the motor and controller in the same ambient temperature, 40°C (104°F) or less. Always be certain the correct heater element is installed in the starter before operating the motor.

Heater Catalog Number	Motor Full-Load Current (Amps)	List Price \$
SMFH01	0.157–0.173	
SMFH02	0.174–0.192	
SMFH03	0.193–0.212	
SMFH04	0.213–0.235	
SMFH05	0.236–0.261	
SMFH06	0.262–0.289	
SMFH07	0.290–0.321	
SMFH08	0.322–0.355	
SMFH09	0.356–0.399	
SMFH10	0.41–0.44	
SMFH11	0.45–0.49	
SMFH12	0.50–0.53	
SMFH13	0.54–0.58	
SMFH14	0.59–0.65	
SMFH15	0.66–0.71	
SMFH16	0.72–0.78	
SMFH17	0.79–0.85	
SMFH18	0.86–0.96	
SMFH19	0.97–1.04	
SMFH20	1.05–1.16	
SMFH21	1.17–1.25	
SMFH22	1.30–1.39	
SMFH23	1.38–1.54	
SMFH24	1.48–1.63	
SMFH25	1.57–1.75	
SMFH26	1.66–1.86	

Table A
Number of Heater Elements

Device	Number of Heater Elements	Notes
SMFF*1 SMFF*2 SMFF*3 SMFF*4 SMFF*5 SMFF*6	1	All single pole and two pole SMF starters require only 1 Heater Element.
SMFF*22 SMFF*44	2	Duplex Unit. One Heater Element per starter.
SMFF*11 SMFF*22	2	Two Speed Starter. One Heater Element per speed.

Heater Catalog Number	Motor Full-Load Current (Amps)	List Price \$
SMFH27	1.80–1.99	
SMFH28	1.96–2.15	
SMFH29	2.16–2.38	
SMFH30	2.39–2.75	
SMFH31	2.76–2.84	
SMFH32	2.85–3.06	
SMFH33	3.07–3.45	
SMFH34	3.46–3.70	
SMFH35	3.71–4.07	
SMFH36	4.08–4.32	
SMFH37	4.33–4.90	
SMFH38	4.91–5.35	
SMFH39	5.36–5.85	
SMFH40	5.86–6.41	
SMFH41	6.42–6.79	
SMFH42	6.80–7.57	
SMFH43	7.58–8.15	
SMFH44	8.16–8.98	
SMFH45	8.99–9.67	
SMFH46	9.68–9.95	
SMFH47	9.96–10.8	
SMFH48	10.9–12.1	
SMFH49	12.2–13.1	
SMFH50	13.2–13.9	
SMFH51	14.0–15.0	
SMFH52	15.1–16.0	

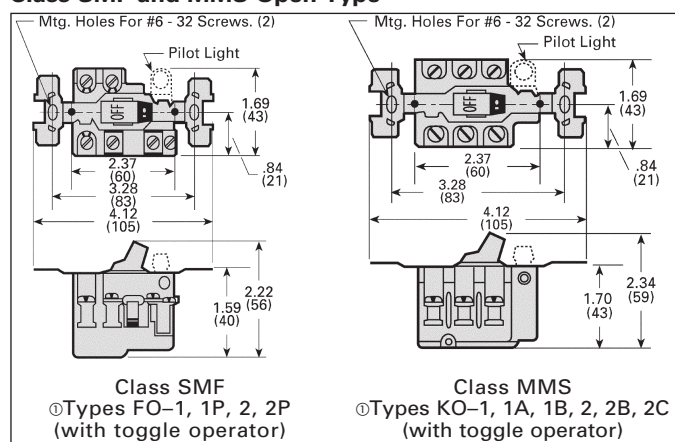
Table B—Special Applications
Heater Element Selection

Continuous Duty Motor Service Factor	Ambient Temperature of Motor		
	Same as Controller Ambient	Constant 10°C (18°F) Higher Than Controller Ambient	Constant 10°C (18°F) Lower Than Controller Ambient
	Full Load Current Multiplier		
1.15 to 1.25	1.0	0.9	1.05
1.0	0.9	0.8	0.95

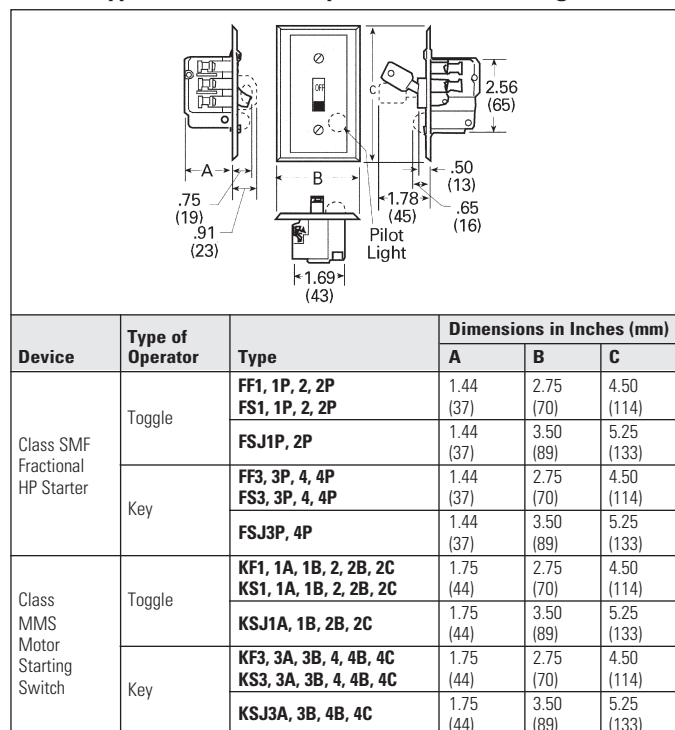
Class SMF, MMS

Dimensions

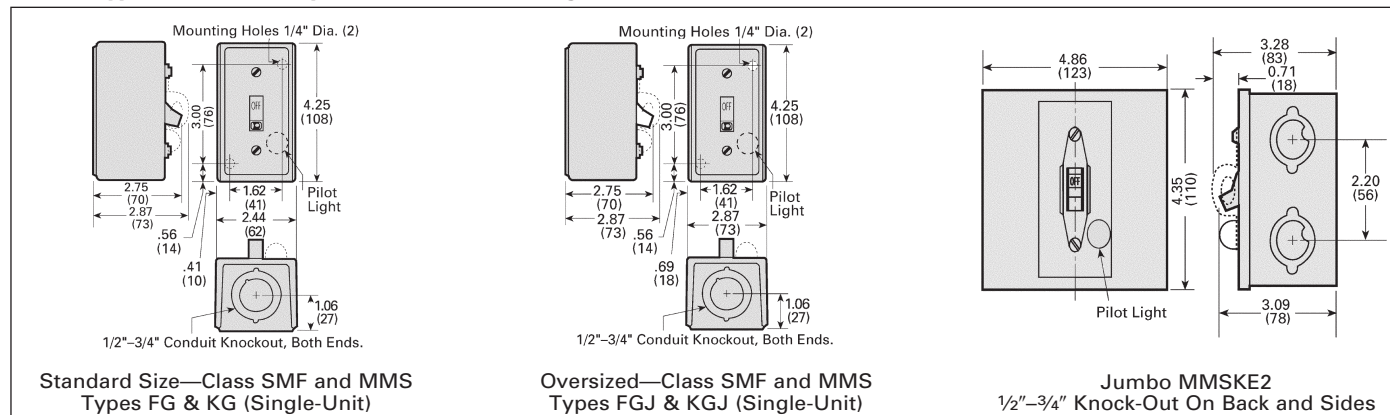
Class SMF and MMS Open Type



NEMA Type 1B General Purpose Flush Mounting



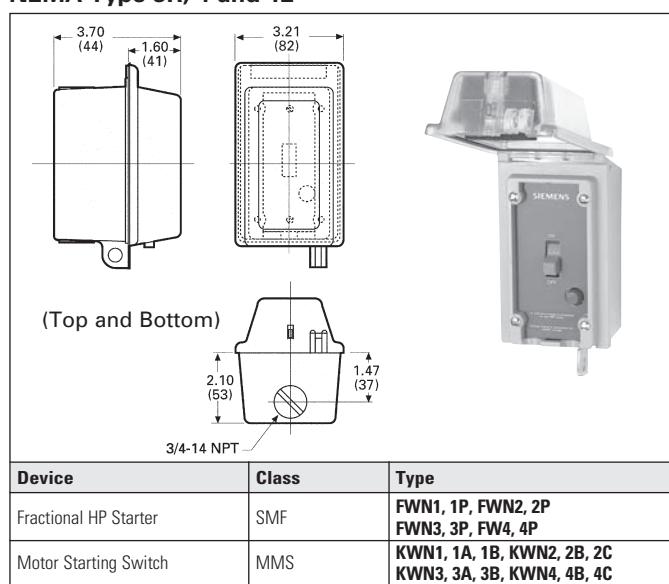
NEMA Type 1 General Purpose Surface Mounting Enclosures



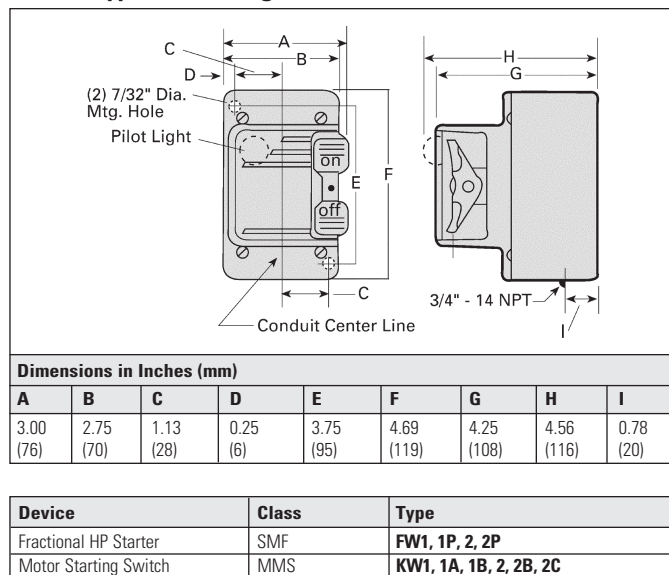
Note: Dimensions for reference, not for construction.
Dimensions are in inches (mm).

① Dimensions typical for key operator devices.

NEMA Type 3R, 4 and 12



NEMA Type 4 Watertight Die Cast Zinc Enclosure



Class SMF, MMS

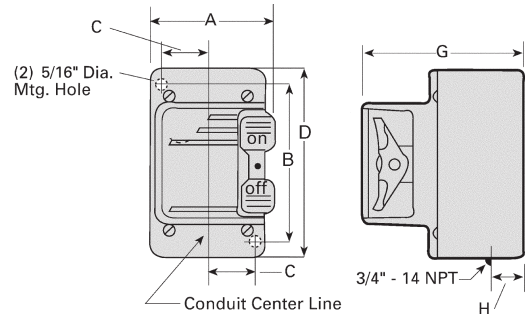
Dimensions

NEMA Type 7 and 9 Cast Aluminum Enclosure

Dimensions in Inches (mm)

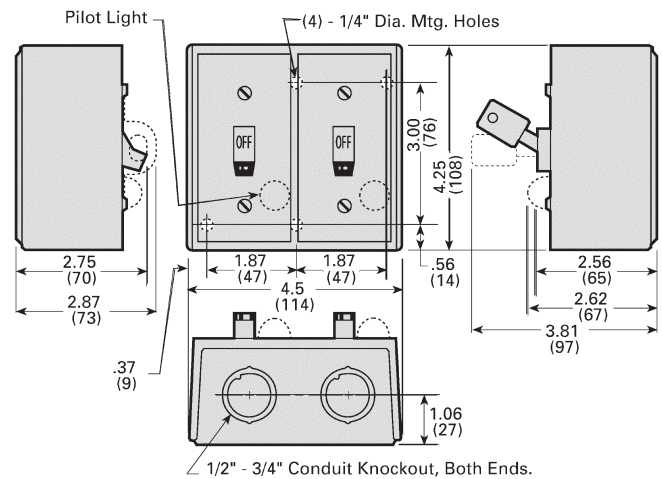
A	B	C	D	G	H
4.00 (101)	5.75 (146)	1.38 (35)	6.36 (161)	4.38 (111)	1.20 (30)

Device	Class	Type
Fractional HP Starter	SMF	FR1, FR2
Motor Starting Switch	MMS	KR1, KR2



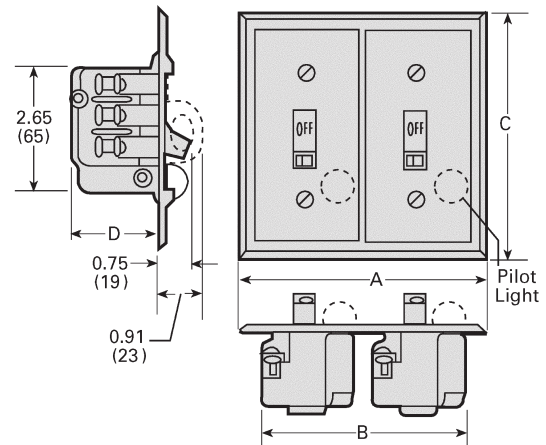
NEMA Type 1 General Purpose Enclosure For Two Unit Devices

Device	Type of Operator	Class	Type
One Starter	Toggle	SMF	FG02, 02P
	Key	SMF	FG04P
Two Starters	Toggle	SMF	FG222, 222P
	Key	SMF	FG44P
One Starter and One Sel. Switch ^①	Toggle	SMF	FG71, 71P, 72, 72P
	Key	SMF	FG74P
Reversing Switch ^②	Toggle	MRS	KG11, 11A, 11B, 22, 22A, 22B, 22C
Two Speed Starter	Toggle	SMF	FG11, 11P, 22, 22P
Two Speed Switch	Toggle	MMS	KG11, 11A, 11B, 22, 22B, 22C



NEMA Type 1B General Purpose Flush Mounting For Two Unit Devices

Device ^③	Type of Operator	Class	Type	A	B	C	D
Two Starters	Toggle	SMF	FF22, 22P	5.25 (133)	3.75 (95)	5.25 (133)	1.44 (37)
			FS22P	4.56 (116)	3.50 (89)	4.50 (114)	1.44 (37)
	Key	SMF	FF44P	5.25 (133)	3.75 (95)	5.25 (133)	1.44 (37)
			FS44P	4.56 (116)	3.50 (89)	4.50 (114)	1.44 (37)
One Starter and One Selector Switch ^④	Toggle	SMF	FF71, 71P, 72, 72P	5.25 (133)	0.75 (19)	5.25 (133)	2.00 (51)
			FS71P, 72P	4.56 (116)	3.50 (89)	4.50 (114)	2.00 (51)
	Key	SMF	FF74P	5.25 (133)	3.75 (95)	5.25 (133)	2.00 (51)
			FS74P	4.56 (116)	3.50 (89)	4.50 (114)	2.00 (51)
Reversing Switch	Toggle	MRS	KF11, 11A, 11B KF22, 22A 22B, 22C	5.25 (133)	3.75 (95)	5.25 (133)	1.75 (44)
Two Speed Switch	Toggle	SMF	FF11, 11P, 22, 22P	5.25 (133)	3.75 (95)	5.25 (133)	1.44 (37)
Two Speed Switch	Toggle	MMS	KF11, 11A, 11B 22, 22B, 22C	5.25 (133)	3.75 (95)	5.25 (133)	1.44 (37)



Note: Dimensions for reference, not for construction.
Dimensions are in inches (mm).

- ① Selector switch is on the left, increases overall depth to 3.50 in. (89 mm).
② Only one pilot light (located on right) is used on MRS switches.

- ③ Dimensions include factory wired power connections.
④ Selector switch is on the left, extends 1.62 in. (41 mm) from mounting surface.