

3.1

NEMA Manual Starters

Starters and Switches

MS Series, Single-Phase Starters



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MS Series, Single-Phase Starters

Product Description

- The MS Motor Starter is a compact, versatile unit featuring heavy sliding contacts as well as “quick-make” and “quick-break” mechanism
- Standard with large pressure type terminals, straight-through wiring and a trip-free handle mechanism
- The “plug-in” heater element is keyed to ensure proper positioning and an adjustable knob allows a setting of plus or minus ten percent of the nominal heater rating

Application Description

The MS Manual Motor Starter provides manual control and overload protection to single-phase motors. By utilizing the interchangeable heater elements, the starter can protect motors ranging from 0.40A up to 16.0A. Ideal for HVAC applications.

Features

- Compact size
- Trip-free handle mechanism
- Keyed heater elements to ensure proper installation
- Starters available with red pilot light
- The operating handle of the enclosed units can be locked in the OFF position
- Enclosures are offered in NEMA 1, 3, 4 and 5
- Hazardous locations cast aluminum enclosures are available rated for Type 7, Class I, Group D (vapors) and Type 9, Class II, Groups E, F and G (dust)

Standards and Certifications

- UL File No. E19222, Category NLRV
- CSA File No. LR39402-6, Class 3211-05



Instructional Leaflet

IL12987G

Product Selection

When Ordering Specify

- Catalog number of manual motor starter
- Heater pack selection
- Any required accessories
- Heater coil selection according to the motor full load current requirements

MS Series Starters

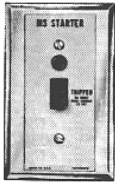
MS Series, Single-Phase Starters



Open Type

Number of Poles	Horsepower	Voltage	Catalog Number ^①
1	1	120/240V, 277 Vac	MST01
	1/4	120/240 Vdc	MST01
	1/4	32 Vdc	MST01
2	1	120/240V, 277 Vac	MST02
	1	120/240 Vdc	MST02
	1/4	32 Vdc	MST02

Switch and Pilot Light Mounted on Flush Plate



Flush Plate (No Enclosure Included)

Number of Poles	Flush Plate Type	Voltage	Catalog Number ^①
1	General purpose	Switch only	MST01FN
2		Switch with pilot light	MST02FN1P
1	Stainless steel	Switch only	MST01DN
		Switch with pilot light	MST01DN1P
2		Switch only	MST02DN
		Switch with pilot light	MST02DN1P

Note

^① Does not include heater. Select heater from tables on **Page V5-T3-8**.

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Enclosed Types

Switch and Pilot Light Mounted in Type 1 Enclosure



Number of Poles	Enclosure Type	Voltage	Catalog Number ①
1	General purpose Type 1	Switch only	MST01SN
		Switch with pilot light	MST01SN1P
2		Switch only	MST02SN
		Switch with pilot light	MST02SN1P

Waterproof Type 3, 4 and 5



1	Waterproof Type 3, 4 and 5	Through hub	MST01AH
2		Through hub	MST02AH

Hazardous Location Type 7D, 9E, 9F and 9G



1	Hazardous location ②	Through hub	MST01EH
2	Types 7D, 9E, 9F and 9G	Through hub	MST02EH

Typical Heater



Heater Element Installation



Heater Selection for MS Starters

Motor Full Load Current	Catalog Number	Motor Full Load Current	Catalog Number	Motor Full Load Current	Catalog Number	Motor Full Load Current	Catalog Number
0.4–0.43	MSH-5A	1.04–1.15	MSH1-3A	2.72–2.95	MSH3-4A	7.04–7.74	MSH8-8A
0.44–0.48	MSH-55A	1.16–1.27	MSH1-45A	2.96–3.27	MSH3-7A	7.75–8.46	MSH9-7A
0.49–0.53	MSH-61A	1.28–1.35	MSH1-6A	3.28–3.59	MSH4-1A	8.47–9.35	MSH10-6A
0.54–0.58	MSH-67A	1.36–1.51	MSH1-7A	3.60–3.99	MSH4-5A	9.36–10.30	MSH11-7A
0.59–0.64	MSH-74A	1.52–1.67	MSH1-9A	4.00–4.39	MSH5-0A	10.31–11.35	MSH12-9A
0.65–0.71	MSH-81A	1.68–1.83	MSH2-1A	4.40–4.79	MSH5-5A	11.36–12.47	MSH14-2A
0.72–0.78	MSH-89A	1.84–1.99	MSH2-3A	4.80–5.26	MSH6-0A	12.48–13.67	MSH15-6A
0.79–0.87	MSH-98A	2.00–2.23	MSH2-5A	5.27–5.83	MSH6-6A	13.68–15.12	MSH17-1A
0.88–0.95	MSH1-1A	2.24–2.47	MSH2-8A	5.84–6.39	MSH7-3A	15.13–16.00	MSH18-6A
0.96–1.03	MSH1-2A	2.48–2.71	MSH3-1A	6.40–7.03	MSH8-0A	—	—

Notes

① Does not include heater. Select heater from table above.

② Type 7D = Type 7, Class I, Group D; Type 9E, 9F and 9G = Type 9, Class II, Groups E, F and G.

Accessories

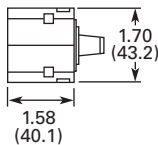
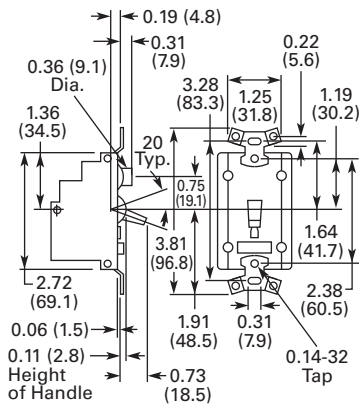
MS Accessories

Description	Catalog Number
Pilot light kit (NEMA 1 enclosure and flush plates)	MSPT
Box, 1 unit (NEMA 1 enclosure)	MS1BN
Cover, 1 unit (NEMA 1 enclosure)	MS1CN
Flush plate, 1 unit (steel)	MS1FN
Flush plate, 1 unit (stainless steel)	MS1DN
Handle guard (padlockable for NEMA 1 enclosure and flush plates)	MSLG

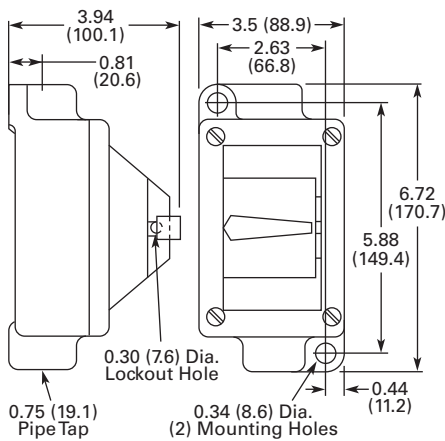
Dimensions

Approximate Dimensions in Inches (mm)

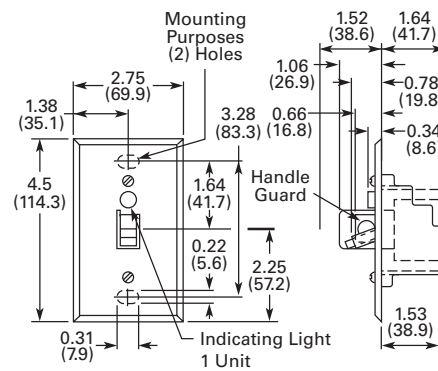
MS Motor Starter Toggle Operated Open Units



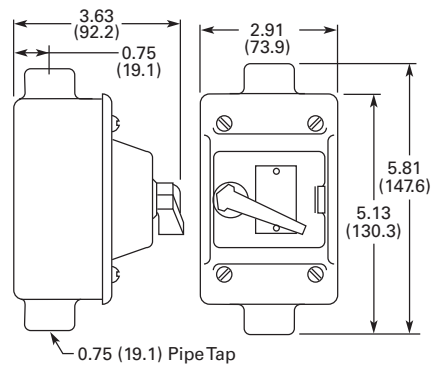
Hazardous Location (Cast Aluminum)



Flush Plates



Watertight (Cast Aluminum)



Type 1 Enclosure (Boxes and Covers)

