

# MS Series Motor Starters

## Flameproof

Zone 1 and 2 – 21 and 22  
Gas (G) and Dust (D)

### Applications

- These motor starters are used in areas where hazardous material are handled or stored. These units provide:
  - Disconnecting means
  - Undervoltage protection
  - Circuit protection
  - Motor running protection
  - Thermal time delay overload protection

### Features

- Magnetic circuit breaker protects equipment and personnel and eliminates replacement of fuses.
- Three pole contactor.
- Thermal overload relay with manual reset push button.
- Green pilot light “Running/ON”.
- Rated voltage 400/415 Vac 50/60 Hz AC-3 category.
- Control circuit supplied via a transformer fed between phases.
- Direct entries or indirect entries with Ex e box allows use of cable gland with elastomer seal.
- Type 2 coordinated protection (IEC 60947-4-1) has the following benefits:
  - Safety - limiting the energy delivered to the short circuit ensures the safest applications for personnel, facilities and equipment.
  - Reduced costs - preventing short circuit damage to components minimizes labor and replacement costs.
  - Increased productivity - as component replacement due to short circuits is minimized, so are interruptions to production.
- Direct ammeter for 0.37 kW to 2.2 kW versions. Ammeter with current transformer for 3 kW to 75 kW versions.

### Standard Materials

- Body and cover:
  - Gray painted marine grade aluminum alloy (RAL 7038)
  - Cover bolts: stainless steel
  - Hinges: stainless steel
- Ex e box for indirect entries:
  - Gray (RAL 7038) painted aluminum alloy (size 2 and 6) or stainless steel (size 8 and 11)
  - Cover bolts: stainless steel

### Standard Finish

- Corrosion resistant gray powder coat epoxy

### Options

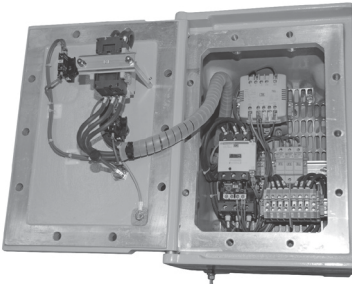
- Available up to 300 kW - contact your local representative.

### Certifications and Compliances

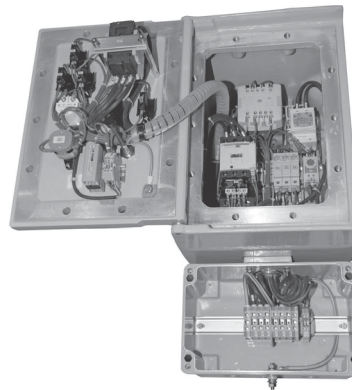
#### ◆ ATEX/ IECEx Certification

##### • Certification Type CF

- Gas: Zone 1 and 2
  - Conforming to ATEX 94/9/CE:  $\text{Ex}$  II 2 G
  - Type of Protection: Ex d IIB
  - Temperature class: T6
- Dust: Zone 21 and 22
  - Conforming to ATEX 94/9/CE:  $\text{Ex}$  II 2 D
  - Type of Protection: Ex tD A21
  - Surface Temperature: T80 °C



Ex d Version



Ex de Version



- Ambient Temperature:
  - CF 60: -50 °C to +55 °C
  - CF 20, 40, 50: -40 °C to +55 °C
  - CF 30: -20 °C to +55 °C
- CE Declaration of Conformity: 50229
- ATEX Certificate: LCIE 02 ATEX 6057X
- IECEx Certificate: IECEx LCI 08.0023X
- Index of Protection according EN/IEC 60529: IP66
- Impact Resistance (shock): IK10
- Internal Volume: > 2 dm<sup>3</sup> (2 liters)

#### ◆ EURASEC Certification

- EURASEC RU C-FR, Г5 05.B.00911

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### Catalog Numbering Guide

**MS**  
Series:  
MS - Motor Starters  
Zone 1  
ATEX/IECEX Certified

**B**  
Classification:  
B - Ex d IIB  
H - Ex d IIB + H<sub>2</sub>

**003**  
Power kW:  
003 - 0.37    090 - 9  
005 - 0.55    110 - 11  
007 - 0.75    150 - 15  
011 - 1.1    185 - 18,5  
015 - 1.5    220 - 22  
022 - 2.2    300 - 30  
030 - 3    370 - 37  
040 - 4    450 - 45  
055 - 5.5    550 - 55  
075 - 7.5    750 - 75

**D**  
Type:  
D - D.O.L. Direct On Line

**4**  
Rated Voltage:  
4 - 400/415 V 50/60 Hz

**2**  
Control Circuit Voltage:  
2 - 230 Vac 50/60 Hz via  
Transformer

**A**  
Options:  
A - Ammeter  
B - Indirect entries with  
Ex e Box  
E - Local emergency Stop  
H - Anti-condensation  
(Heater, Thermostat,  
Blue pilot light)  
S - Selector switch  
Hand/Off/Auto  
T - Fault trip signal with  
yellow pilot light  
F - Full Options  
(A,B,E,H,S,T)

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Motor Capacity AG-3 to 415 Vac	Size	Terminals Cross Section mm <sup>2</sup>	Cable Entries at Bottom	Weight kg	Volume dm <sup>3</sup>	Catalog Number
<b>Standard Version</b>						
<i>Fitted with magnetic circuit breaker, contactor with overload relay, Start/Stop buttons and green pilot light. (1 x M20 plugged).</i>						
0.37 kW	1	2.5	2 x M20 + 1 M20	16	25	MSB003D42
0.55 kW	1	2.5	2 x M20 + 1 M20	16	25	MSB005D42
0.75 kW	1	2.5	2 x M20 + 1 M20	16	25	MSB007D42
1.1 kW	1	2.5	2 x M20 + 1 M20	16	25	MSB011D42
1.5 kW	1	2.5	2 x M20 + 1 M20	16	25	MSB015D42
2.2 kW	1	2.5	2 x M20 + 1 M20	16	25	MSB022D42
3 kW	1	2.5	2 x M20 + 1 M20	16	25	MSB030D42
4 kW	1	2.5	2 x M20 + 1 M20	16	25	MSB040D42
5.5 kW	5	4.0	2 x M25 + 1 M20	56	126	MSB055D42
7.5 kW	5	6.0	2 x M25 + 1 M20	56	126	MSB075D42
9 kW	5	10.0	2 x M25 + 1 M20	56	126	MSB090D42
11 kW	5	10.0	2 x M25 + 1 M20	56	126	MSB110D42
15 kW	5	16.0	2 x M32 + 1 M20	56	126	MSB150D42
18.5 kW	7	25.0	2 x M32 + 1 M20	72	236	MSB185D42
22 kW	7	25.0	2 x M32 + 1 M20	72	236	MSB220D42
30 kW	7	35.0	2 x M40 + 1 M20	72	236	MSB300D42
37 kW	9	50.0	2 x M40 + 1 M20	132	370	MSB370D42
45 kW	9	70.0	2 x M50 + 1 M20	132	370	MSB450D42
55 kW	9	95.0	2 x M50 + 1 M20	132	370	MSB550D42
75 kW	9	120.0	2 x M63 + 1 M20	132	370	MSB750D42

<b>Full Options Version</b>						
<i>Standard version + HOA selector switch, local emergency stop, fault trip signal, ammeter, anti-condensation and indirect entries. (1 x M20 plugged.)</i>						
0.37 kW	4	2.5	2 x M20 + 1 x M20	51	700	MSB003D42F
0.55 kW	4	2.5	2 x M20 + 1 x M20	51	700	MSB005D42F
0.75 kW	4	2.5	2 x M20 + 1 x M20	51	700	MSB007D42F
1.1 kW	4	2.5	2 x M20 + 1 x M20	51	700	MSB011D42F
1.5 kW	4	2.5	2 x M20 + 1 x M20	51	700	MSB015D42F
2.2 kW	4	2.5	2 x M20 + 1 x M20	51	700	MSB022D42F
3 kW	4	2.5	2 x M20 + 1 x M20	51	700	MSB030D42F
4 kW	4	2.5	2 x M20 + 1 x M20	51	700	MSB040D42F
5.5 kW	6	4.0	2 x M25 + 1 x M20	62	700	MSB055D42F
7.5 kW	6	6.0	2 x M25 + 1 x M20	62	700	MSB075D42F
9 kW	6	10.0	2 x M25 + 1 x M20	62	700	MSB090D42F
11 kW	6	10.0	2 x M25 + 1 x M20	62	700	MSB110D42F
15 kW	6	16.0	2 x M32 + 1 x M20	62	700	MSB150D42F
18.5 kW	8	25.0	2 x M32 + 1 x M20	81	700	MSB185D42F
22 kW	8	25.0	2 x M32 + 1 x M20	81	700	MSB220D42F
30 kW	8	35.0	2 x M40 + 1 x M20	81	700	MSB300D42F
37 kW	10	50.0	2 x M40 + 1 x M20	145	700	MSB370D42F
45 kW	10	70.0	2 x M50 + 1 x M20	145	700	MSB450D42F
55 kW	10	95.0	2 x M50 + 1 x M20	145	700	MSB550D42F
75 kW	10	120.0	2 x M63 + 1 x M20	145	700	MSB750D42F

Controls

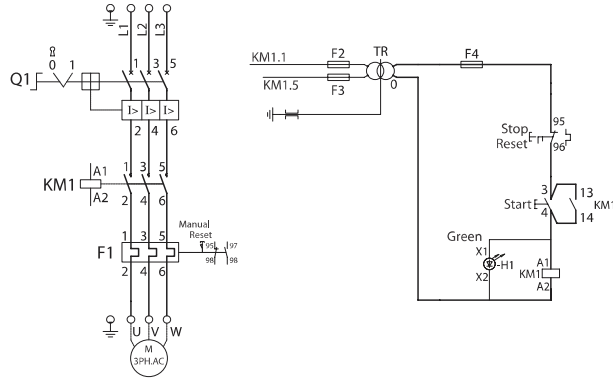
FLAMEPROOF Ex d ZONE 1 RATED MOTOR STARTERS

# MS Series Motor Starter Wiring Diagram and Dimensions

## Flameproof

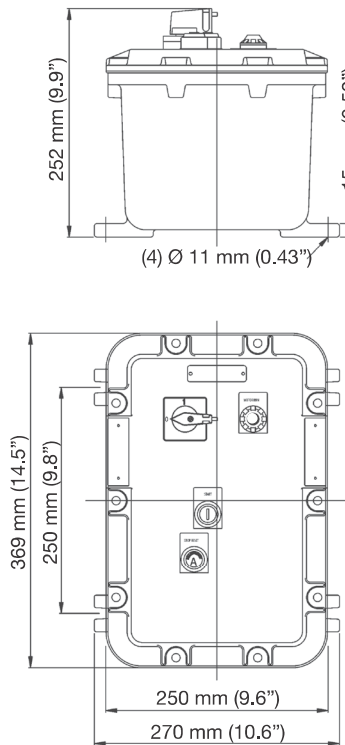
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### Wiring Diagram

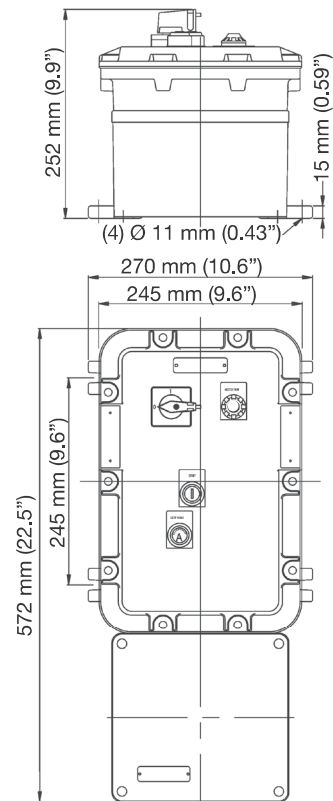


### Dimensions in Millimeters

Size 1: CF20B



Size 2: CF20B + CAe1



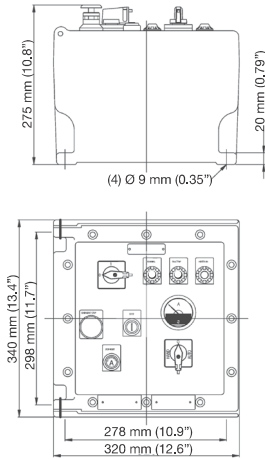
# MS Series Motor Starter Dimensions

## Flameproof

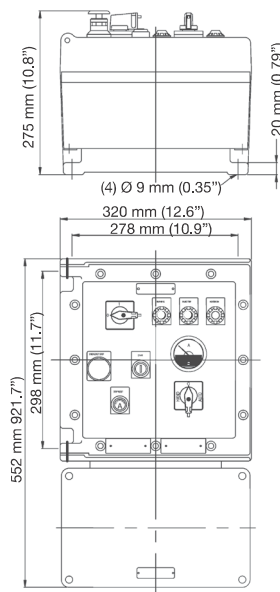
Zone 1 and 2 – 21 and 22  
Gas (G) and Dust (D)

### Dimensions in Millimeters

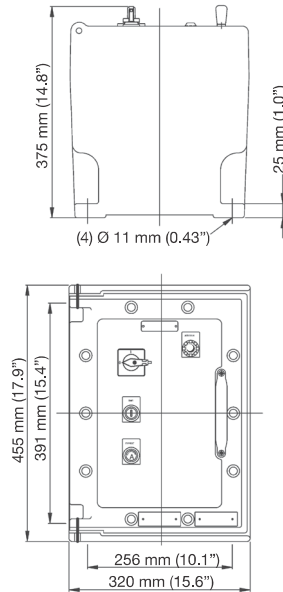
Size 3: CF30B



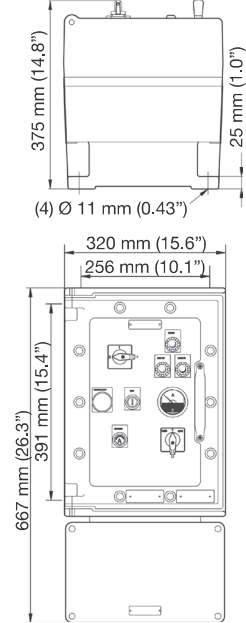
Size 4: CF30B + CAe2



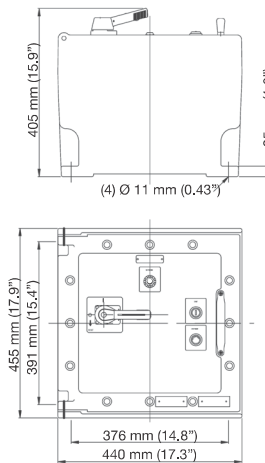
Size 5: CF40B



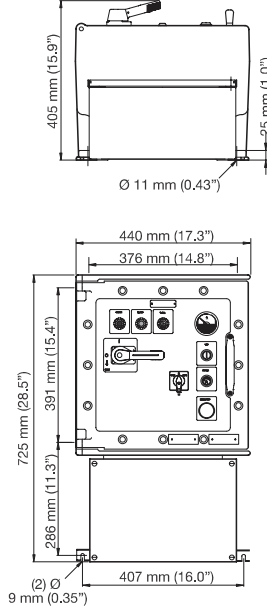
Size 6: CF40B + CAe2



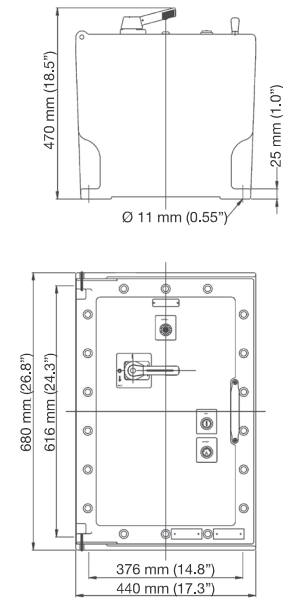
Size 7: CF50B



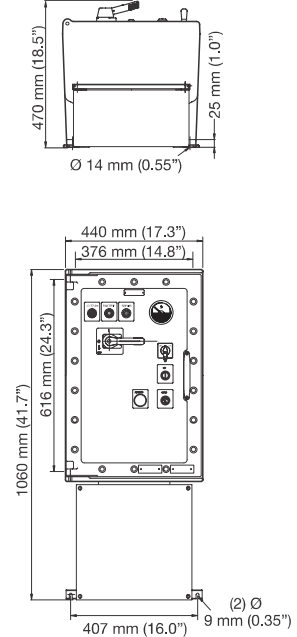
Size 8: CF50B + JBe47



Size 9: CF60B



Size 10: CF60B + JBe55



Controls

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