



TECHNOLOGIC[®]

Intelligent Pump Controller

TECHNOLOGIC

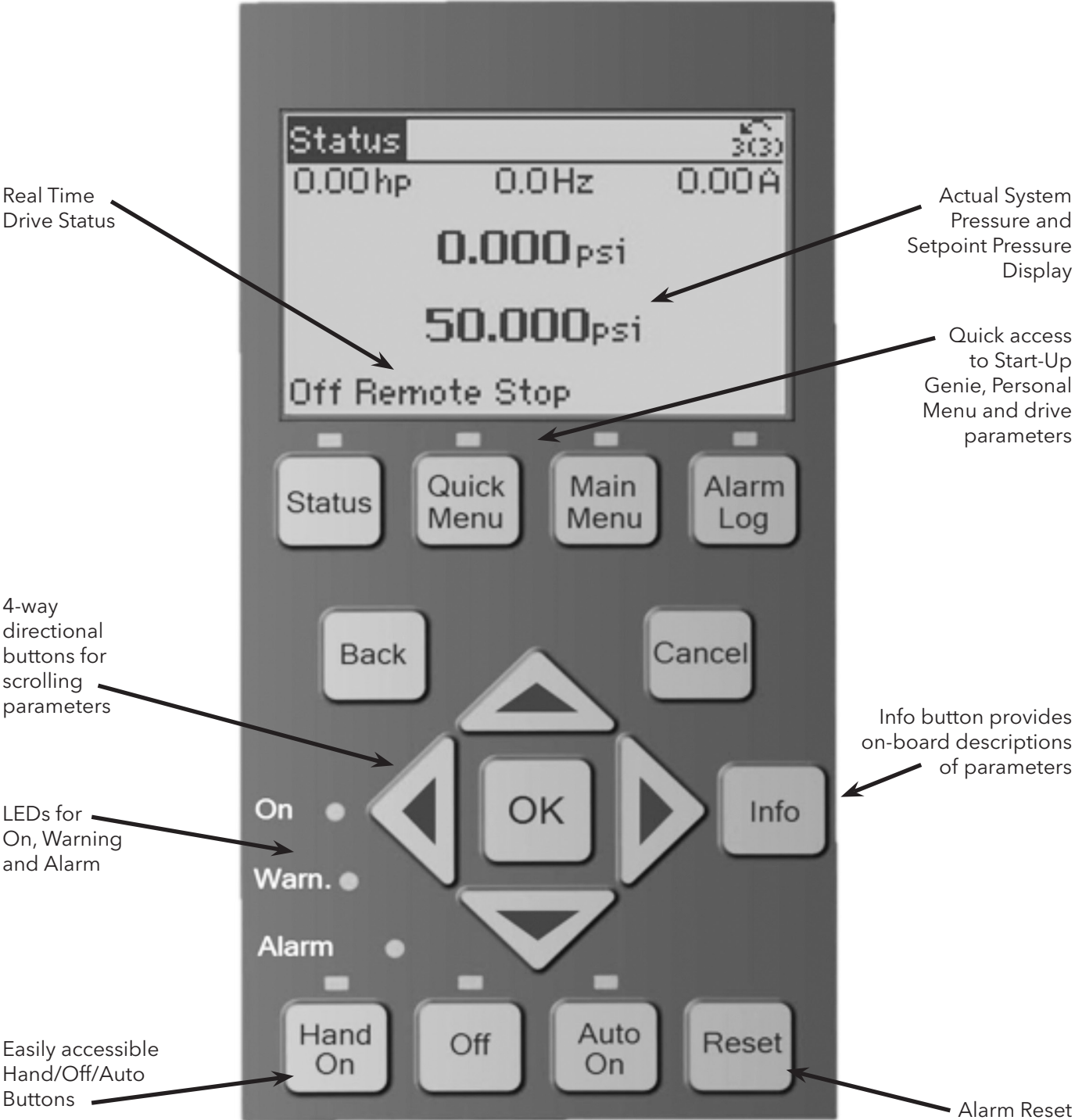
Intelligent Variable Speed Control

The **TECHNOLOGIC** Intelligent Pump Controller from Bell & Gossett® combines a market-leading variable speed drive with over 100 years of experience in designing and installing high performance pumping systems in commercial buildings. The **TECHNOLOGIC** provides variable speed pumping to control speed, pressure, flow and level over a wide range of Hydronic system applications. A few features of this versatile product include:

- Quick set-up Genie for fast system configuration
- Continuous scrolling menu to ensure no parameters are left out during programming
- Pump and system protection parameters designed specifically around hydronic systems
- Service and support from pump and system experts
- Communicate directly with BMS over Modbus, BACNet or N2 Metasys FLN
- Alarm Log key for quick access to last 5 alarms and maintenance events
- Hand on, Auto on, and Off buttons for easy pump operation at the keypad - No toggling between local and remote operation
- Duplex, alternation, and speed synchronization pumping control with auto lead/lag and alternate
- Constant speed lag control. Able to control 1 variable speed pump with up to 2 fixed speed lag pumps triggered by relays
- USB Connectivity supports remote diagnostics through PC software
- Dual DC-link reactors standard reduces harmonics to the level of a 5% AC line reactor without the voltage drop across the full load range
- EMC/RFI filters designed to reduce drive noise emissions and interference to strict standards
- Automatic Energy Optimization - Regulates output voltage to improve system efficiency as loads change
- By Pass panel option for across-the-line motor operation
- Built-in Pump Protection for end of curve, flow compensation and no/low flow



KEYPAD LAYOUT



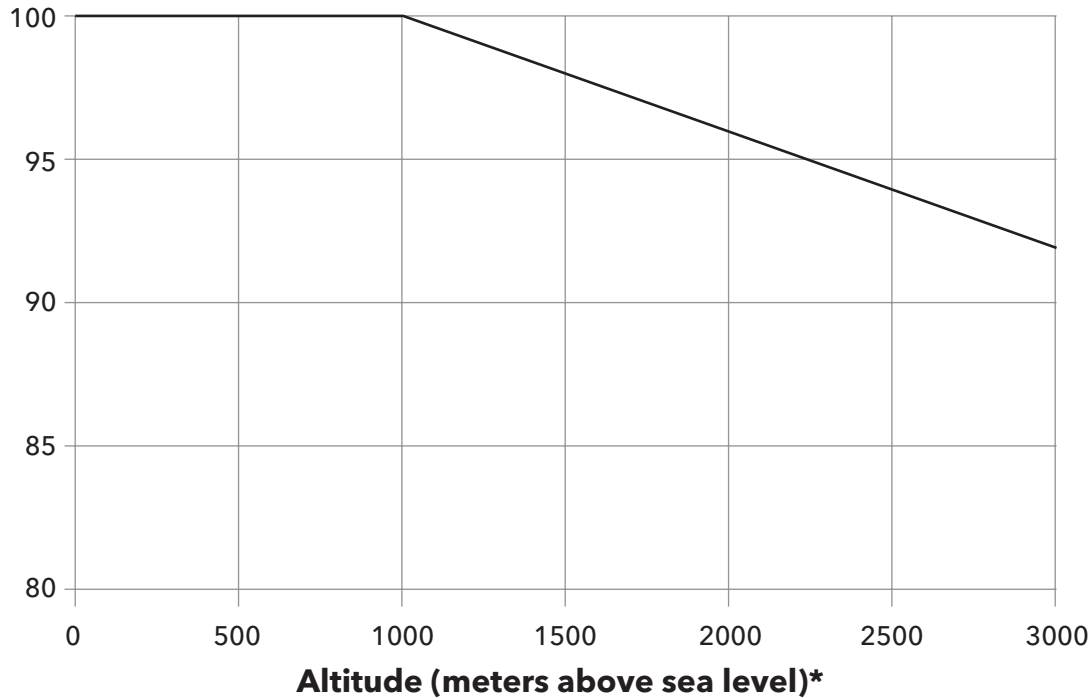
SPECIFICATIONS

Ratings and Enclosures



- IP20 Open, TYPE 1, TYPE 12, TYPE 3R, TYPE 4X
- 1.5 HP- 125 HP - wall or floor mounted
150 HP- 600 HP - wall or floor mounted
- Relative humidity lower than 95% without condensation
- Ambient temperature 14° F - 113° F (-10°C - 45°C). Higher temperatures can be achieved by derating the output amperage of the drive 10% for up to 122° F (50°C).
- At altitudes from 0 to 1000 meters (0 to 3300 feet) rated current is available. For altitudes above 1000 meters (3300 feet) use table listed below. Maximum 3000 meters (9900 feet). (Consult factory above 3000 meters (9900 feet)). See chart below for derate in % of output current.

I_{OUT}(%)



Electrical Characteristics

- INPUT POWER**
- 3 phase 380 V to 480 V ±10%
 - 1 phase 200 V to 240 V ±10%
 - 3 phase 200 V to 240 V ±10%
 - 3 phase 525 V to 600 V ±10%
 - Frequency 50 or 60 Hz, ±2Hz

- OUTPUT POWER**
- 3 phase from 0 to V_{supply}
 - 0 to 120 Hz frequency

BUILT-IN CONTROL CONNECTIONS

Analog input	1 fixed 4-20 MA, 1 0-10 VDC or 4-20MA
Programmable digital inputs	6, 2 can be used as digital outputs
Programmable Analog outputs	1, 0-10 V DC or 4 - 20 mA
Programmable relay outputs	2, standard Form C, 240 VAC, 2 A
Auxiliary voltage	+24 V DC, maximum 200 mA

PUMP AND MOTOR PROTECTIONS

Motor Protections

- Ground Fault
- Motor Stall
- Motor Over Temperature (Predictive and Sensor Based)
- Motor Condensation (Motor Preheat Circuit)
- Motor Overload (Programmable Action)

Pump Protections

- Pump No-Flow
- Under Pressure
- No Water / Loss of Prime
- Short-Cycle
- Vibration (Programming Automated)

COMMUNICATION OPTIONS (Repair Part Number)

Modbus TCP (P2002909)	DeviceNet (P2002911)	Profinet (P2002913)	Bacnet IP (P2002957)
Profibus (P2002910)	LonWorks (P2002912)	Ethernet IP (P2002914)	

Variable Speed Controllers

INTELLIGENT PUMP CONTROLLER EXPANSION CARDS:

Expansion cards are ordered as a field installable option using the part numbers listed.

INPUT/OUTPUT OPTIONS (Repair Part Number)

ANALOG I/O CARD (P2002901)

Includes: 3 Analog IN for 0 - 10VDC

OR

0-20mA*

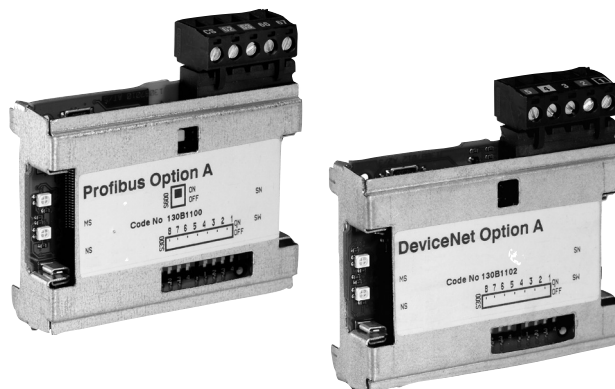
4-20mA*

Ni1000 Temperature Sensor

Pt1000 Temperature Sensor

3 Analog OUT for 0 - 10VDC

Battery backup for real-time clock



Used for: Providing battery backup of clock function during loss of power (real-time clock is native to the drive, and will reset to zero during power outage without Analog I/O card.)

Extension of analog I/O on control card (multi zone with 3 sensors)

Extended PID controllers with I/O's (set point inputs, sensor inputs and outputs)

AIN	GND	AIN	GND	AIN	GND	AOUT O-10VDC	GND	AOUT O-10VDC	GND	AOUT O-10VDC	GND
1	2	3	4	5	6	7	8	9	10	11	12

* Requires 510Ω resistor

GENERAL I/O CARD (P2002902)

Includes: 3 Digital IN, 2 Digital OUT, 2 Analog IN (voltage), 1 Analog OUT (current)

Used for: Extension of number of digital and analog inputs and outputs

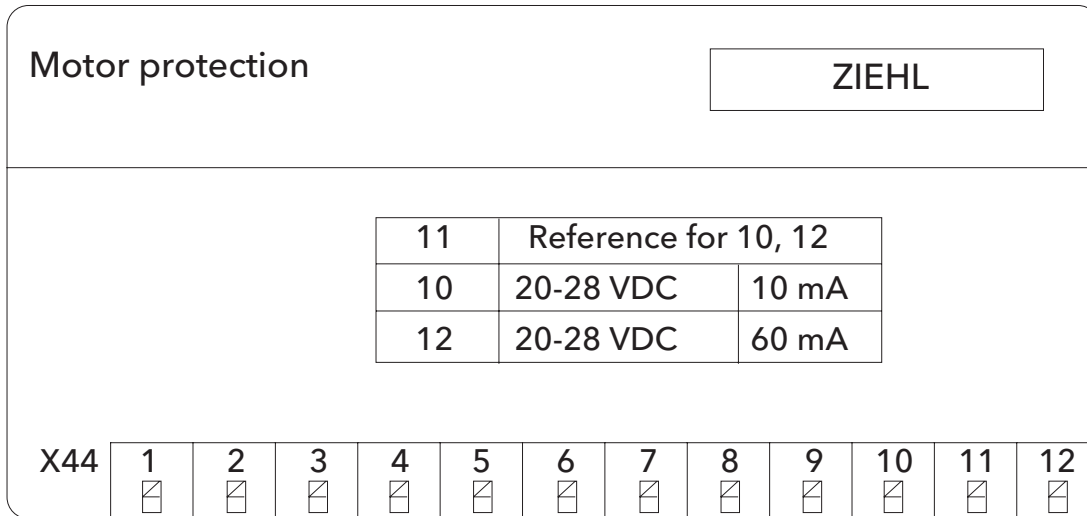
COM	DIN	DIN7	DIN8	DIN9	GND(1)	DOUT3	DOUT4	AOUT2	24V	GND(2)	AIN3	AIN4
X30/	1	2	3	4	5	6	7	8	9	10	11	12

INPUT/OUTPUT OPTIONS *(continued)*

PTC THERMISTOR CARD (P2002903)

Includes: Twelve terminal PTC card

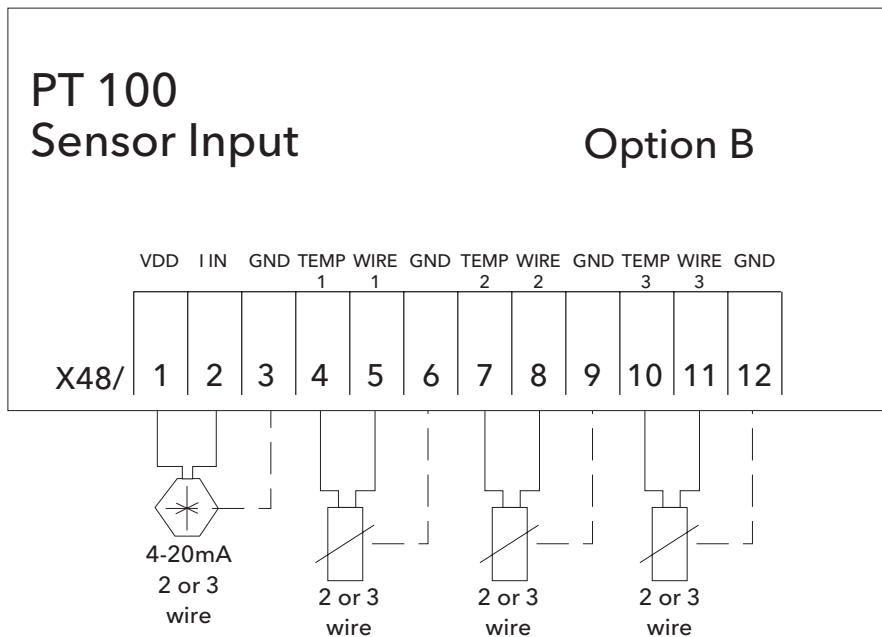
Used for: Monitor temperature of electric motor with PTC thermistor input (PTC Thermistor Card option is Certified for ATEX for use with motors in potentially explosive atmospheres.)



PT100 SENSOR INPUT CARD (P2002904)

Includes: Twelve terminal PTC100 card

Used for: Sensor Input for PT100 and PT1000 temperature sensors for motor bearing temperatures

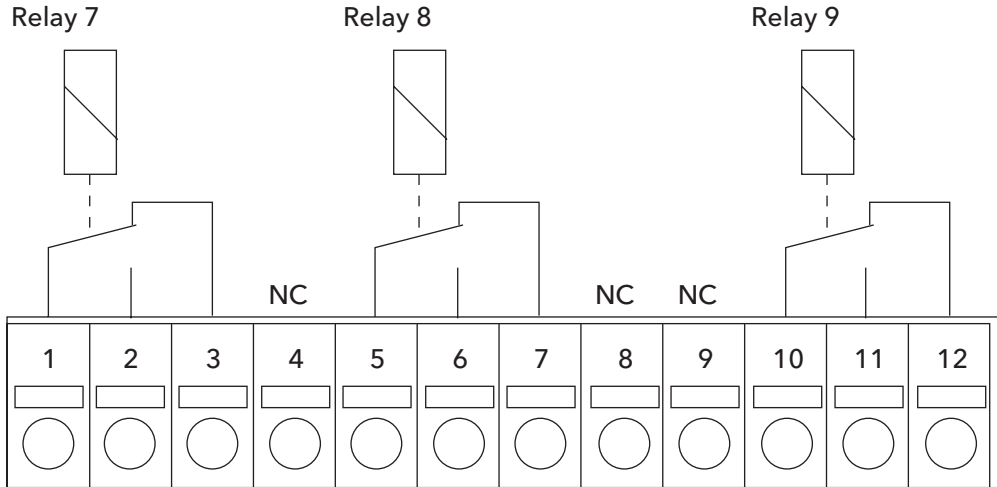


INPUT/OUTPUT OPTIONS *(continued)*

RELAY CARD (P2002905)

Includes: 3 standard Form C, 240 VAC, 2 A

Used for: Extension of the number of output relays

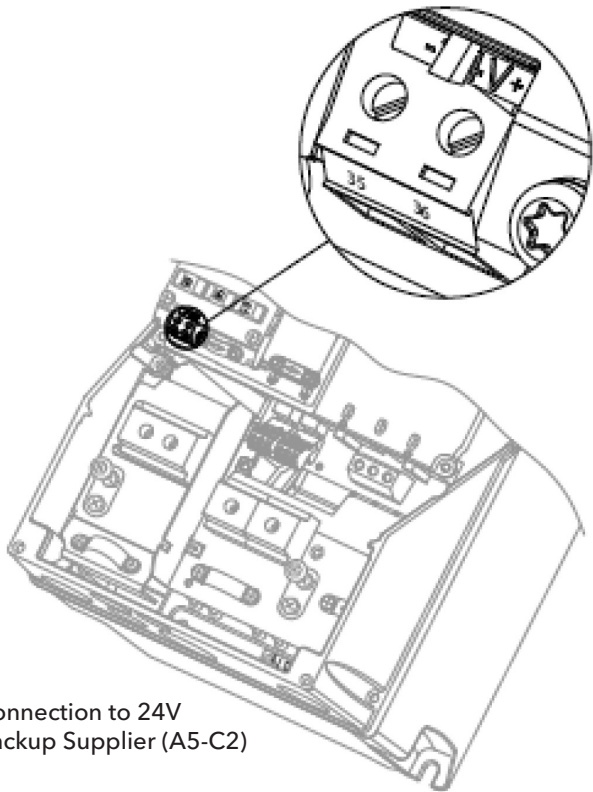


BACKUP OPTIONS

24VDC BACKUP (P2002906)

Includes: Positive and Negative Terminals for 24VDC

Used for: Interface to external 24 VDC auxiliary power supply
(Enables full LCP operation without line voltage supplied.)



Connection to 24V Backup Supplier (A5-C2)

Variable Speed Controllers

DISCONNECT OPTIONS

STANDARD DISCONNECT (SD) – Included

FUSED DISCONNECT (FD) - Optional

Available in these enclosures: NEMA 1, NEMA 3R, NEMA 12 and NEMA 4X.

Standard disconnect only available on single phase input drives.

Used for: Local disconnect of supply power to the drive.

MOTOR MOUNTING OPTIONS**MOTOR MOUNTING**

Includes: Two motor mounting plate adapters sized for motors 56C through 440 frame

Used for: Intended for motor mounting of the VFD. Requires a vertical configuration and the vertical motor to have a mounting foot. The Technologic with adapter plates mounts right to the motor foot!

**DV/DT FILTERS*** (ORDER SEPARATELY)

Includes: NEMA 3R dv/dt filter

Used for: Provides motor protection by limiting voltage spikes below 1,000 volts for long lead (submersible) applications.

FEATURES:

- 2 - 130 amps; 240V - 600V; 2 - 450 HP
- NEMA 3R Enclosure
- Carrier Frequency: 1 - 12 kHz
- Fundamental Frequency: 0 - 60 Hz
- Efficiency: > 98%
- Insulation Rating 600V Class
- Agency Approvals: UL, cUL
- Maximum Altitude: 6,000 feet
 - (Derate for applications above 6,000 feet)

* dv/dt filters are recommended on all pumping applications with Motor leads longer than 50'



DV / DT filters have been sized in the outdoor rated Product Charts (Page 8). DV /DT filters to be ordered separately to mount near the drive.

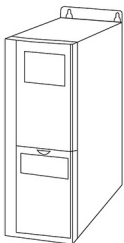
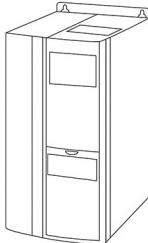
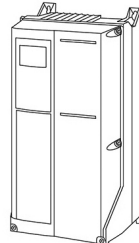
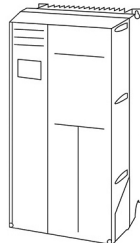
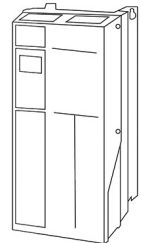
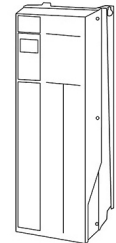
Variable Speed Controllers

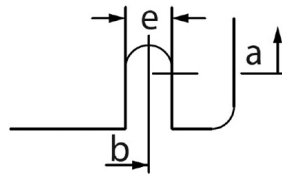
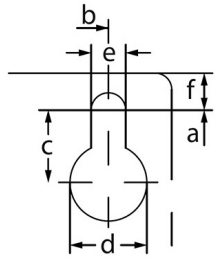
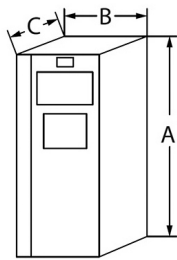
MECHANICAL DIMENSIONS

Frame size (HP):	A2		A3		A4	A5	B1	B2	B3	B4	C1	C2	C3	C4
208-230V	1.5-3		5		1.5-3	1.5-5	7.5-15	20	7.5-15	20-25	25-40	50-60	30-40	50-60
380-460V	1.5-5		7.5-10		1.5-5	1.5-10	15-25	30-40	15-25	30-50	50-75	100-125	60-75	100-125
575V			1.5-10			1.5-10	15-25	15-40	15-25	30-50	50-75	50-125	60-75	100-125
Enclosure Options	IP20 OPEN	TYPE 1	IP20 OPEN	TYPE 1	TYPE 12 TYPE 3R TYPE 4X	TYPE 12 TYPE 3R TYPE 4X	TYPE 1 TYPE 12 TYPE 3R TYPE 4X	TYPE 1 TYPE 12 TYPE 3R TYPE 4X	IP20 OPEN	IP20 OPEN	TYPE 1 TYPE 12 TYPE 3R TYPE 4X	TYPE 1 TYPE 12 TYPE 3R TYPE 4X	IP20 OPEN	IP20 OPEN
Height in (mm)														
Enclosure	9.69 (246)	14.65 (372)	9.69 (246)	14.65 (372)	15.35 (390)	16.54 (420)	18.90 (480)	25.59 (650)	13.78 (350)	18.11 (460)	26.77 (680)	30.31 (770)	19.29 (490)	23.62 (600)
with De-coupling Plate	14.72 (374)	-	14.72 (374)	-	-	-	-	-	16.5 (419)	23.43 (595)	-	-	24.8 (630)	31.5 (800)
Backplate	10.55 (268)	14.76 (375)	10.55 (268)	14.76 (375)	15.35 (390)	16.54 (420)	18.90 (480)	25.59 (650)	15.71 (399)	20.47 (520)	26.77 (680)	30.31 (770)	21.65 (550)	25.98 (660)
Distance Between Mounting Holes	10.12 (257)	13.78 (350)	10.12 (257)	13.78 (350)	15.79 (401)	15.83 (402)	17.87 (454)	24.57 (624)	14.96 (380)	19.49 (495)	25.51 (648)	29.09 (739)	20.51 (521)	24.84 (631)
Width in (mm)														
Enclosure	3.54 (90)	3.54 (90)	5.12 (130)	5.12 (130)	7.87 (200)	9.53 (242)	9.53 (242)	9.53 (242)	6.50 (165)	9.09 (231)	12.13 (308)	14.57 (370)	12.13 (308)	14.57 (370)
Backplate	3.54 (90)	3.54 (90)	5.12 (130)	5.12 (130)	7.87 (200)	9.53 (242)	9.53 (242)	9.53 (242)	6.50 (165)	9.09 (231)	12.13 (308)	14.57 (370)	12.13 (308)	14.57 (370)
Distance Between Mounting Holes	2.76 (70)	2.76 (70)	4.33 (110)	4.33 (110)	6.73 (171)	8.46 (215)	8.27 (210)	8.27 (210)	5.51 (140)	7.87 (200)	10.71 (272)	13.15 (334)	10.63 (270)	12.99 (330)
Depth in (mm)														
Without A/B Option Card*	8.07 (205)	8.07 (205)	8.07 (205)	8.07 (205)	6.89 (175)	7.87 (200)	10.24 (260)	10.24 (260)	9.76 (248)	9.53 (242)	12.20 (310)	13.19 (335)	13.11 (333)	13.11 (333)
With A/B Option Card*	8.66 (220)	8.66 (220)	8.66 (220)	8.66 (220)	6.89 (175)	7.87 (200)	10.24 (260)	10.24 (260)	10.31 (262)	9.53 (242)	12.20 (310)	13.19 (335)	13.11 (333)	13.11 (333)
Screw Holes inches (mm)														
Screw Hole c	0.31 (8)	0.31 (8)	0.31 (8)	0.31 (8)	0.32 (8.2)	0.32 (8.2)	0.47 (12)	0.47 (12)	0.31 (8)	-	0.47 (12)	0.47 (12)	-	-
Screw Hole d	0.43 (11)	0.43 (11)	0.43 (11)	0.43 (11)	0.47 (12)	0.47 (12)	0.75 (19)	0.75 (19)	0.47 (12)	-	0.75 (19)	0.75 (19)	-	-
Screw Hole e	0.22 (5.5)	0.22 (5.5)	0.22 (5.5)	0.22 (5.5)	0.26 (6.5)	0.26 (6.5)	0.35 (9)	0.35 (9)	0.27 (6.8)	0.33 (8.5)	0.35 (9)	0.35 (9)	0.33 (8.5)	0.33 (8.5)
Screw Hole f	0.35 (9)	0.35 (9)	0.35 (9)	0.35 (9)	0.24 (6)	0.35 (9)	0.35 (9)	0.35 (9)	0.31 (7.9)	0.59 (15)	0.39 (9.8)	0.39 (9.8)	0.67 (17)	0.67 (17)
Max. Weight - lb (kg)	11 (5)	12 (5.5)	15 (6.8)	16 (7.3)	22 (10)	31 (14.1)	51 (23.1)	60 (27.2)	27 (12.2)	52 (23.6)	100 (45.4)	144 (65.3)	78 (35.4)	111 (50.4)

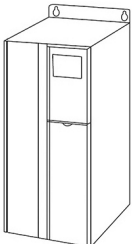
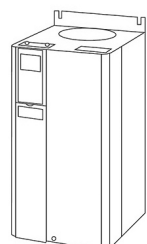
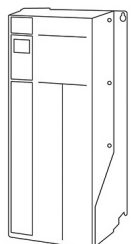
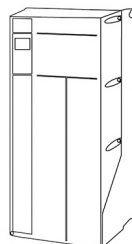
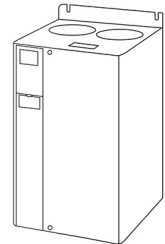
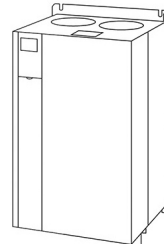
* Depth of enclosure will vary with different options installed.

DIMENSIONS

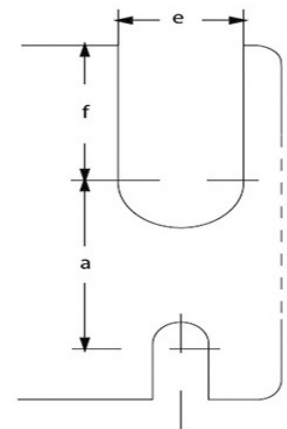
<p>A2</p>  <p>IP20/21* OPEN/TYPER 1</p>	<p>A3</p>  <p>IP20/21* OPEN/TYPER 1</p>	<p>A4</p>  <p>IP55/66 TYPE 12/4X</p>	<p>A5</p>  <p>IP55/66 TYPE 3R/12/4X</p>	<p>B1</p>  <p>IP21/55/66 TYPE 1/3R/12/4X</p>	<p>B2</p>  <p>IP21/55/66 TYPE 1/3R/12/4X</p>
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Top and bottom mounting holes

<p>B3</p>  <p>IP20/21* OPEN/TYPER 1</p>	<p>B4</p>  <p>IP20/21* OPEN/TYPER 1</p>	<p>C1</p>  <p>IP21/55/3R/66 TYPE 1/3R/12/4X</p>	<p>C2</p>  <p>IP21/55/3R/66 TYPE 1/3R/12/4X</p>	<p>C3</p>  <p>IP20/21* OPEN/TYPER 1</p>	<p>C4</p>  <p>IP20/21* OPEN/TYPER 1</p>
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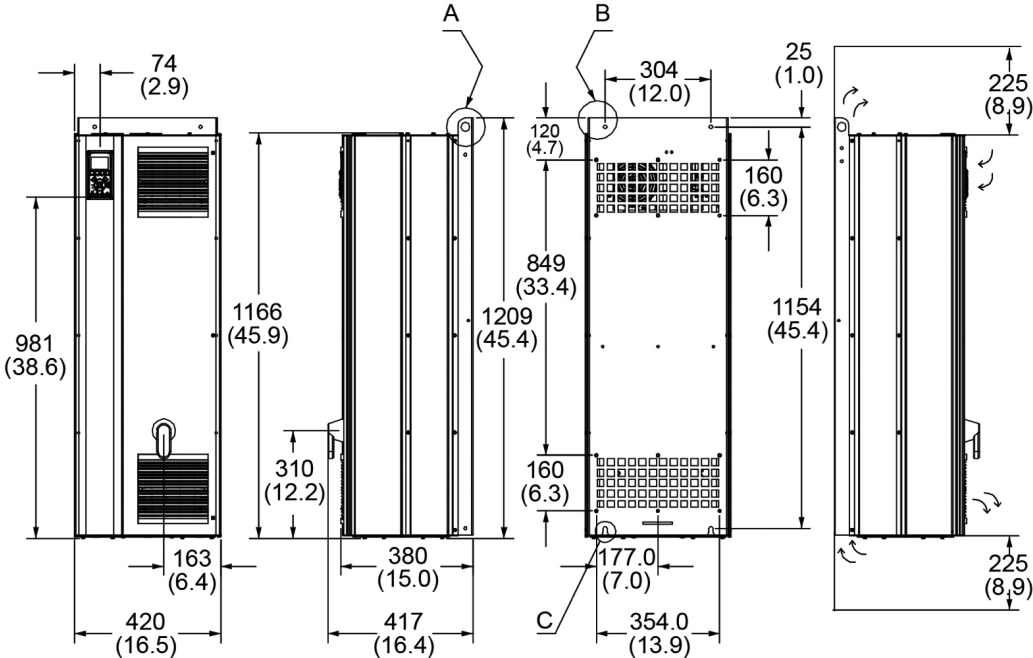
Top and bottom mounting holes
(B4 + C3 + C4 only)



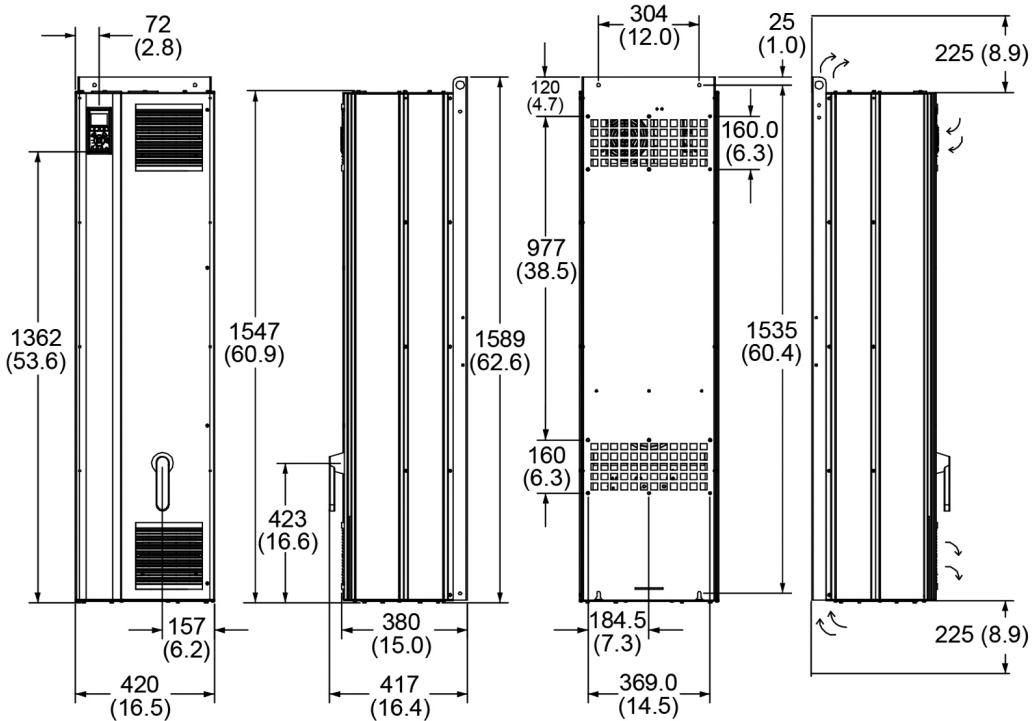
Variable Speed Controllers

DIMENSIONS

D1 ENCLOSURE, CABINET MOUNT - Dimensions in mm (in.)



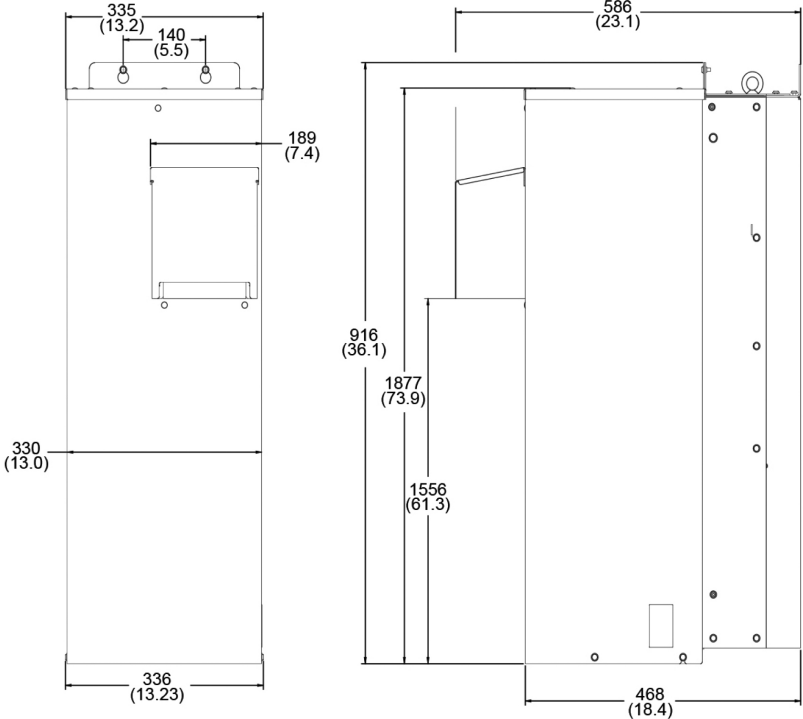
D2 ENCLOSURE, CABINET MOUNT - Dimensions in mm (in.)



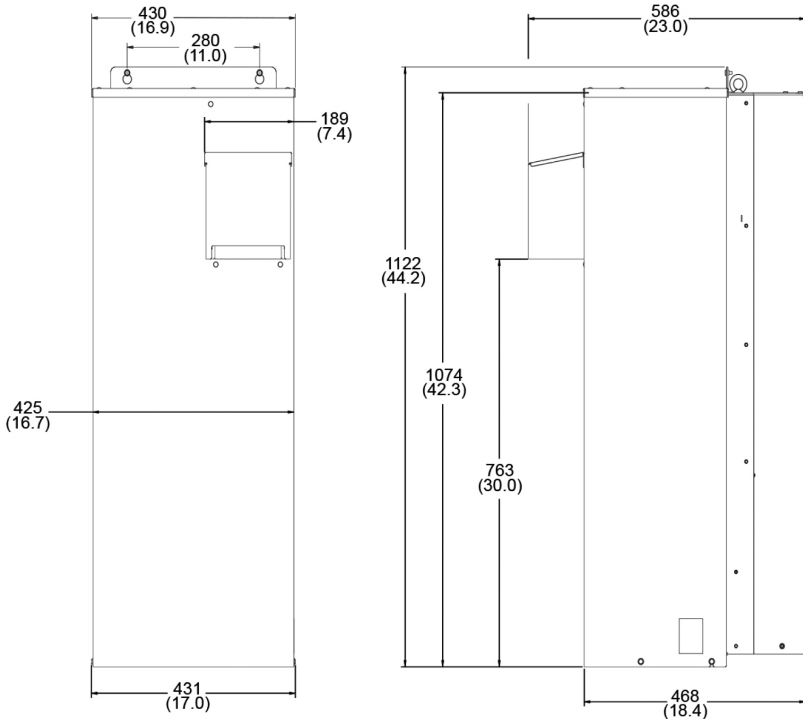
Variable Speed Controllers

DIMENSIONS

EXTERIOR DIMENSIONS FOR D1H WITH NEMA 3R KIT (9K715) - Dimensions in mm (in.)
Please note airflow directions



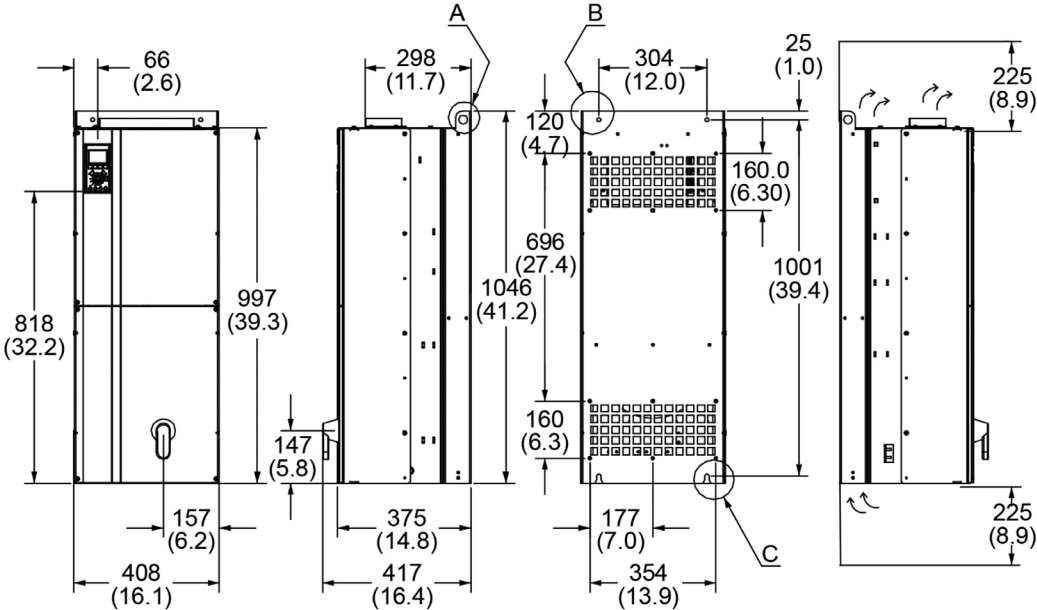
EXTERIOR DIMENSIONS FOR D2H WITH NEMA 3R KIT (9K716) - Dimensions in mm (in.)
Please note airflow directions



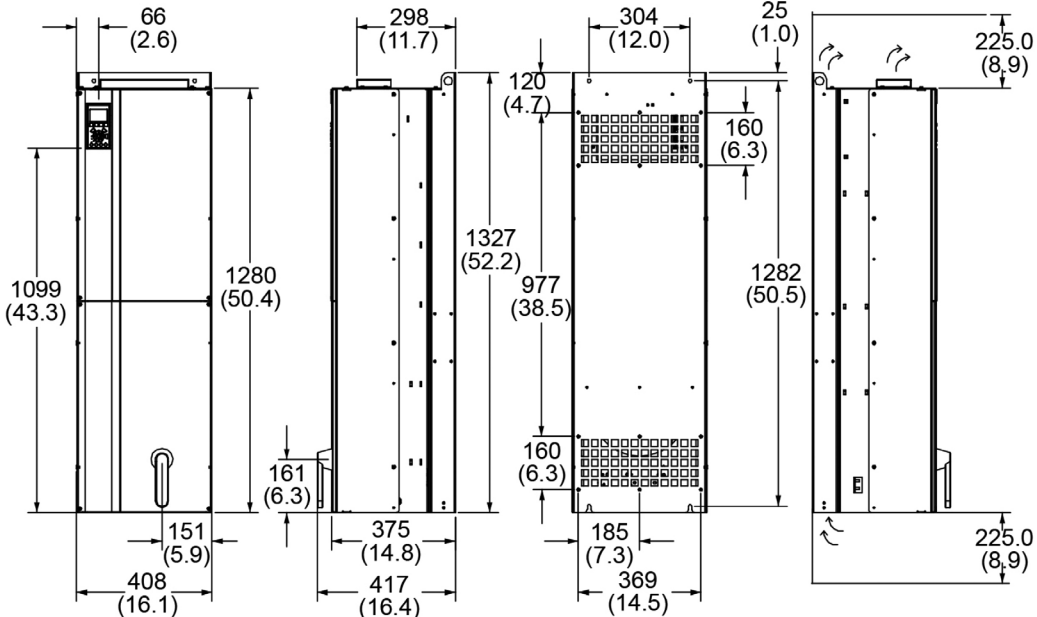
Variable Speed Controllers

DIMENSIONS

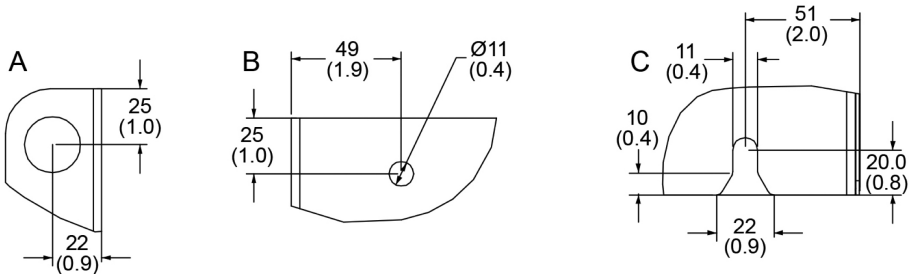
D3 ENCLOSURE, CABINET MOUNT - Dimensions in mm (in)



D4 ENCLOSURE, CABINET MOUNT - Dimensions in mm (in.)



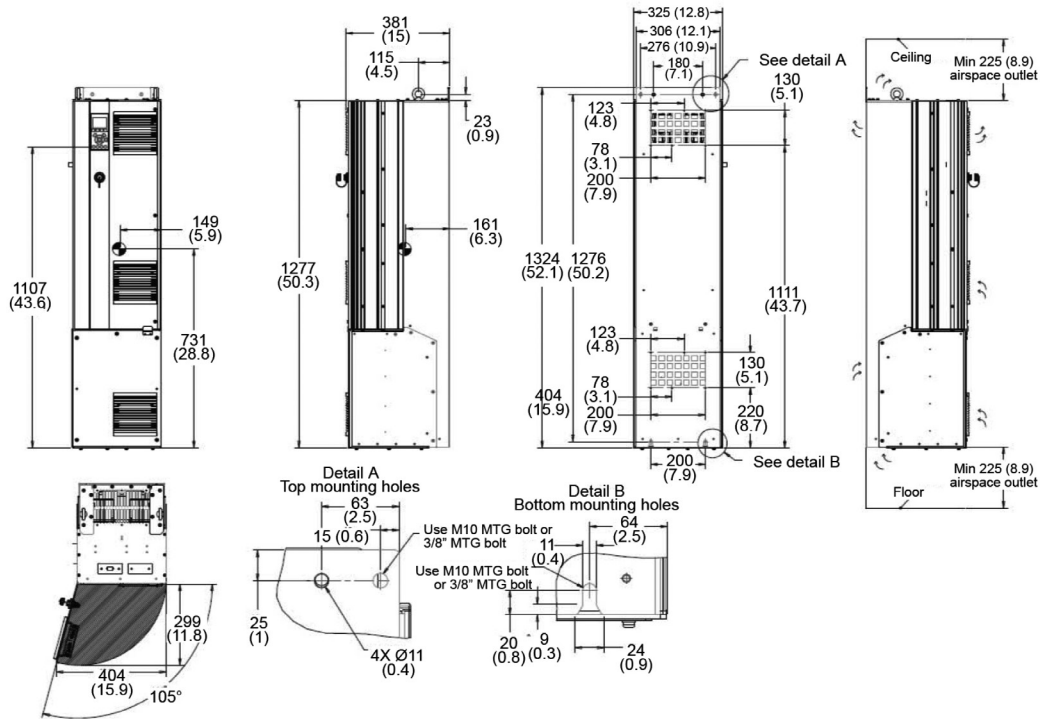
IP00/IP21/IP54 – ALL SIZES
Please note airflow directions



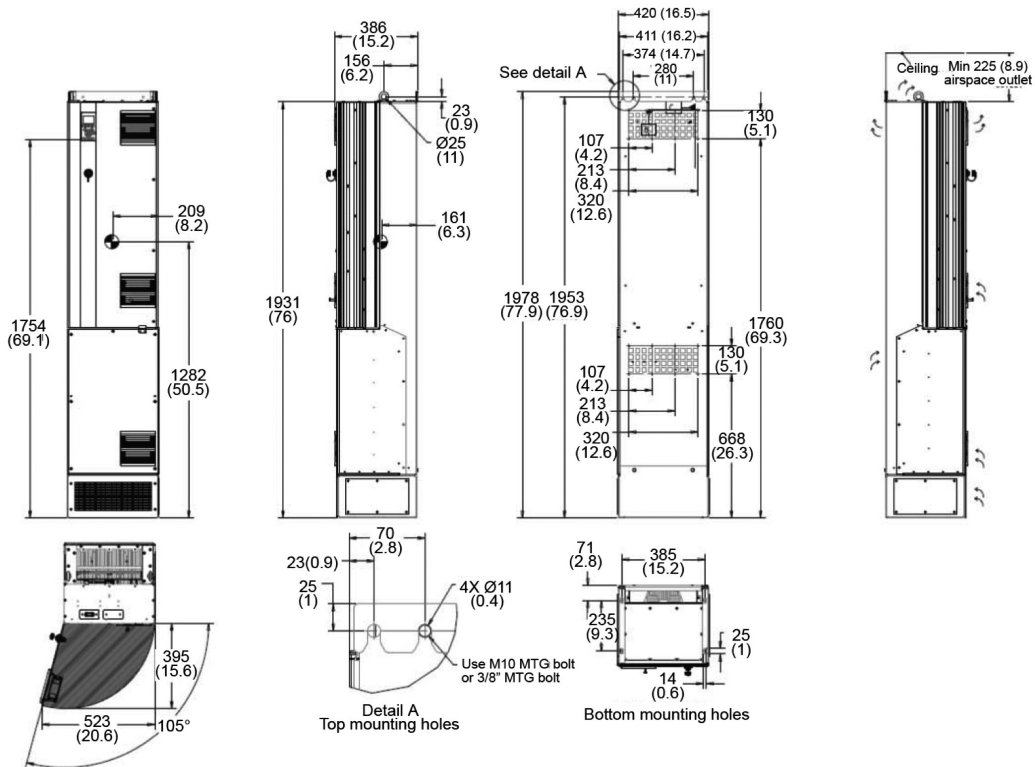
Variable Speed Controllers

DIMENSIONS

D5 ENCLOSURE - Dimensions in mm (in.)

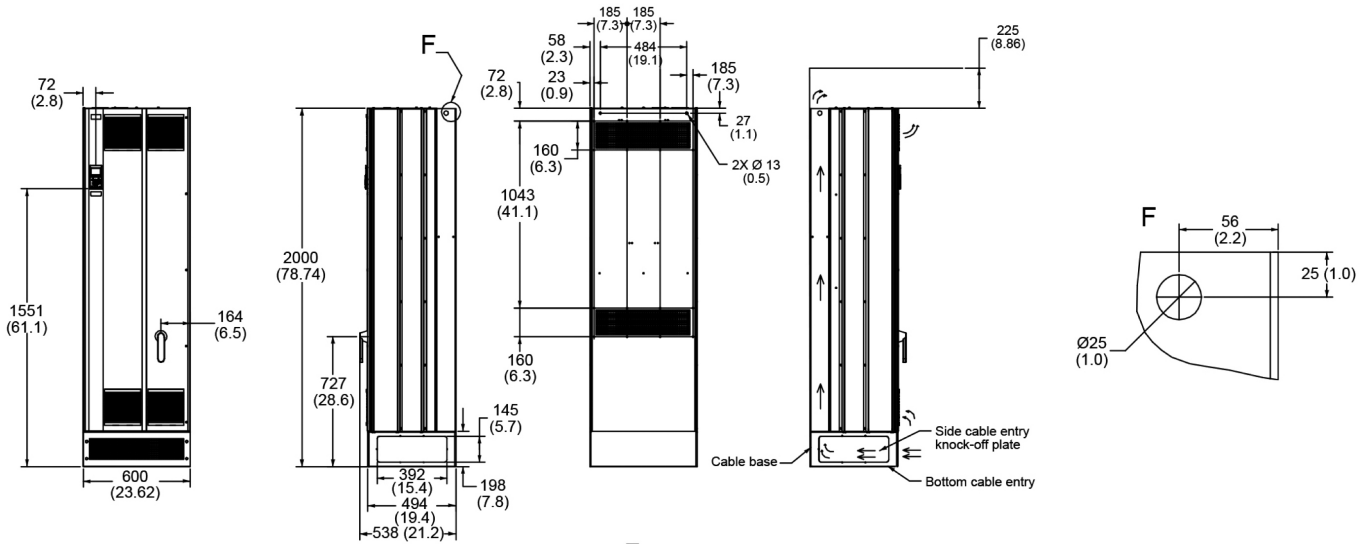


D7 ENCLOSURE - Dimensions in mm (in.)

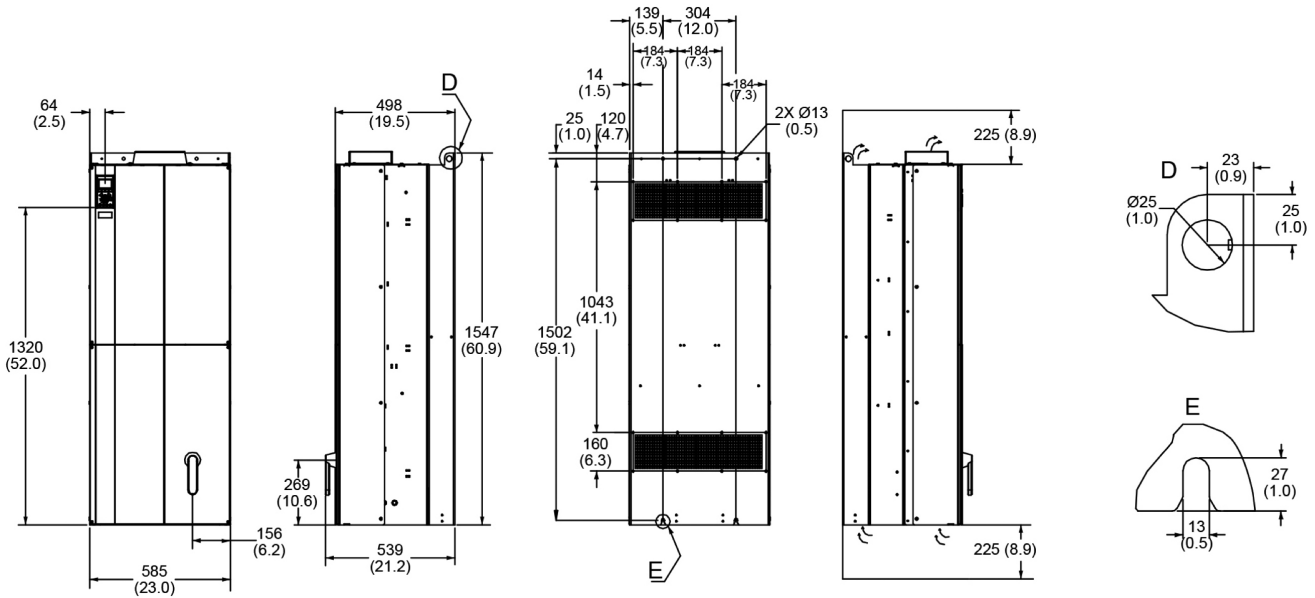


DIMENSIONS

E1 ENCLOSURE, FLOOR OR CABINET MOUNT - Dimensions in mm (in.)



E2 ENCLOSURE, FLOOR- OR CABINET-MOUNT - Dimensions in mm (in.)



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