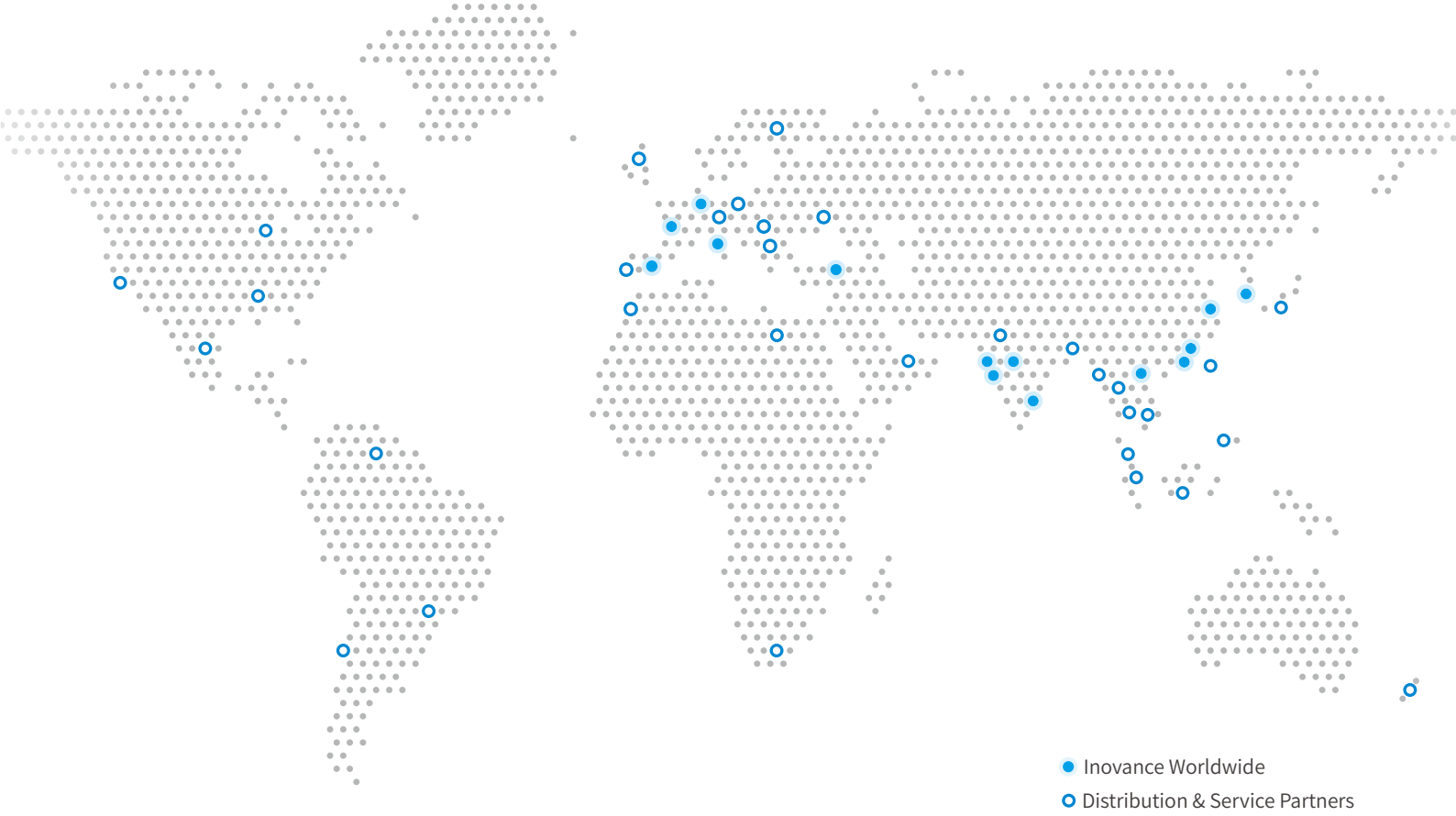
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FOLLOW US

INOVANCE

MD580 Series

High-Performance Engineering AC Drive



Safety Assured

- STO SIL3
- Fault monitoring by the black box

Reliable Design

- 3C3 and 3S3 conformal coating PCBs
- Built-in dual DC reactors as standard for 690 V models

Functions & Performance

- Drives both asynchronous/synchronous motors
- Multi-channel motor temperature detection
- Extensible IO resource
- Operating panel for convenient commissioning

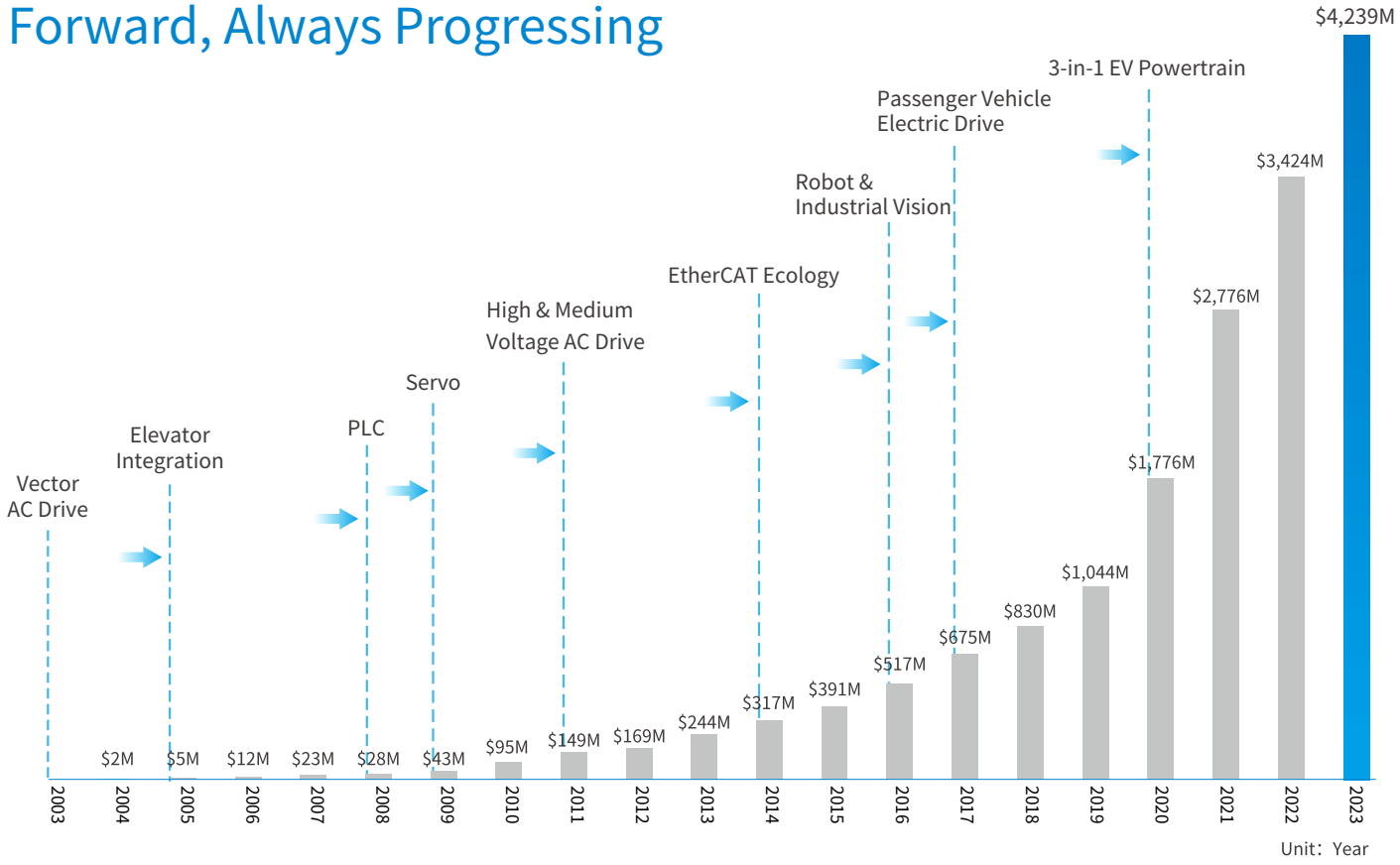


About Inovance

The Inovance Group, founded in 2003, is a rising star in the global industrial automation business and has revenues of $4.2 in 2023. Inovance is headquartered in Shenzhen, China, and has built a global operation with offices and facilities in Germany, France, Italy, Spain, Turkey, India, and South Korea. Additionally, the company has a strong network of distribution partners around the world.

The company 's flexible production techniques and expert understanding of all industry sectors - from plastics to printing to packaging to iron & steel production - have allowed it to establish globally leading industry-specific business units. Over the years, Inovance has built an engineering team with specialist expertise in industrial automation. This knowledge allows it to form strong partnerships with OEMs and end users, providing ongoing advice about how to get the most out of their automation solutions today, and how to stay prepared for the market and technology changes that are coming in future.

Forward, Always Progressing



2003
founded

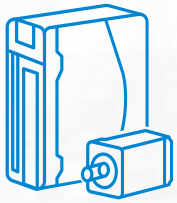
IPO:2010
Shenzhen, China

20,000
employees

Global
network of offices and distributors

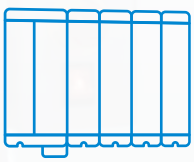
$4.2+bn
revenues in 2023

Servo System



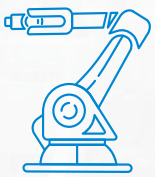
4,500,000+
sets delivered in 2023

AC Drive



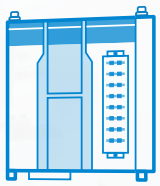
2,20,000+
sets delivered in 2023

Industrial Robot



22,000+
sets delivered in 2023

Controller

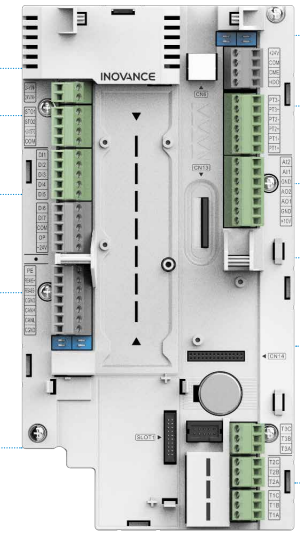


3,400,000+
sets delivered in 2023

Function & Features

01. Easy to Use

Control board



- Independent 24 V for communication and control circuits
- Built-in STO to confirm with SIL3
- 6 DIs + 1 HDI, PNP or NPN available
- RS-485 and CANlink communication (master/slave synchronization)
- Two communication protocols supported to meet requirements of PLC/DCS systems
- Communication expansion card
- 1 HDO, PNP or NPN available
- Three-channel sampling of motor temperature ; supports PT100, PT1000, PTC, and KTY
- 2 AIs + 2 AOs, 0-10 V or 0-20 mA
- Encoder PG card
- Motor safety temperature detection card and I/O expansion card
- Three delay outputs; programmable NO/NC contacts

Commissioning panel and software

Improved operating panel

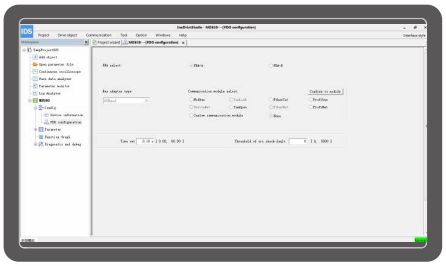
Screen enlarged by 120% to display more information

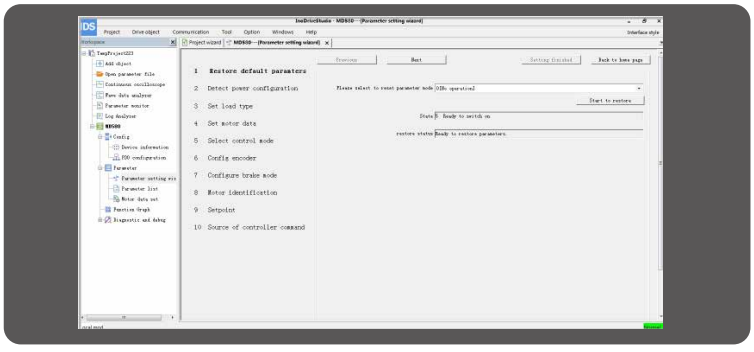
Improved silicone button to fit your hand for commissioning

TYPE-C port for convenient use









Commissioning wizard for beginners

Operating panel

Parameter display by group
Customized **quick** commissioning

Parameter copy and import
with one key

Several languages
switchover and screen brightness adjustment at your will



Commissioning without the user guide



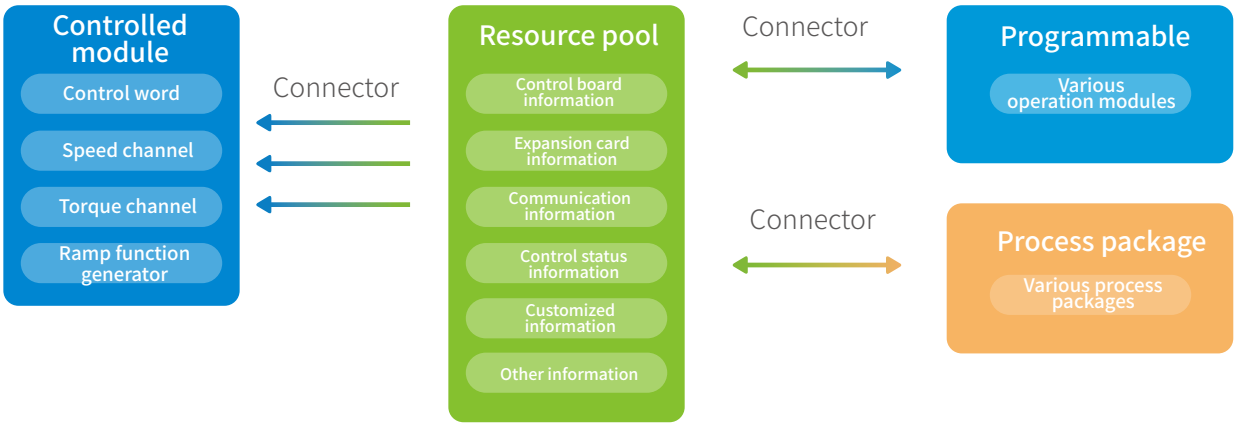


Data reconfiguration by connector

With the connector, customized requirements can be met without changing the software.

- Configuration of data in the controlled module and resource pool (virtual B connector), including the control word, input terminal status of the expansion card, input terminal status of the control board, driver status word, and driver running status data

- Modular software configuration (virtual K connector) of data in the resource pool, including the software variable, bus process data, speed channel, torque channel, and ramp function generator



02. Powerful Functions

Drive algorithm of synchronous and asynchronous motors

Supports both synchronous motors and asynchronous motors.
Supports three-channel temperature sampling by PTC, KTY, PT100, and PT1000.



Synchronous motor



Asynchronous motor



Motor Type	Supported Algorithm
Synchronous motor	SVC, FVC
Asynchronous motor	V/f, SVC, FVC

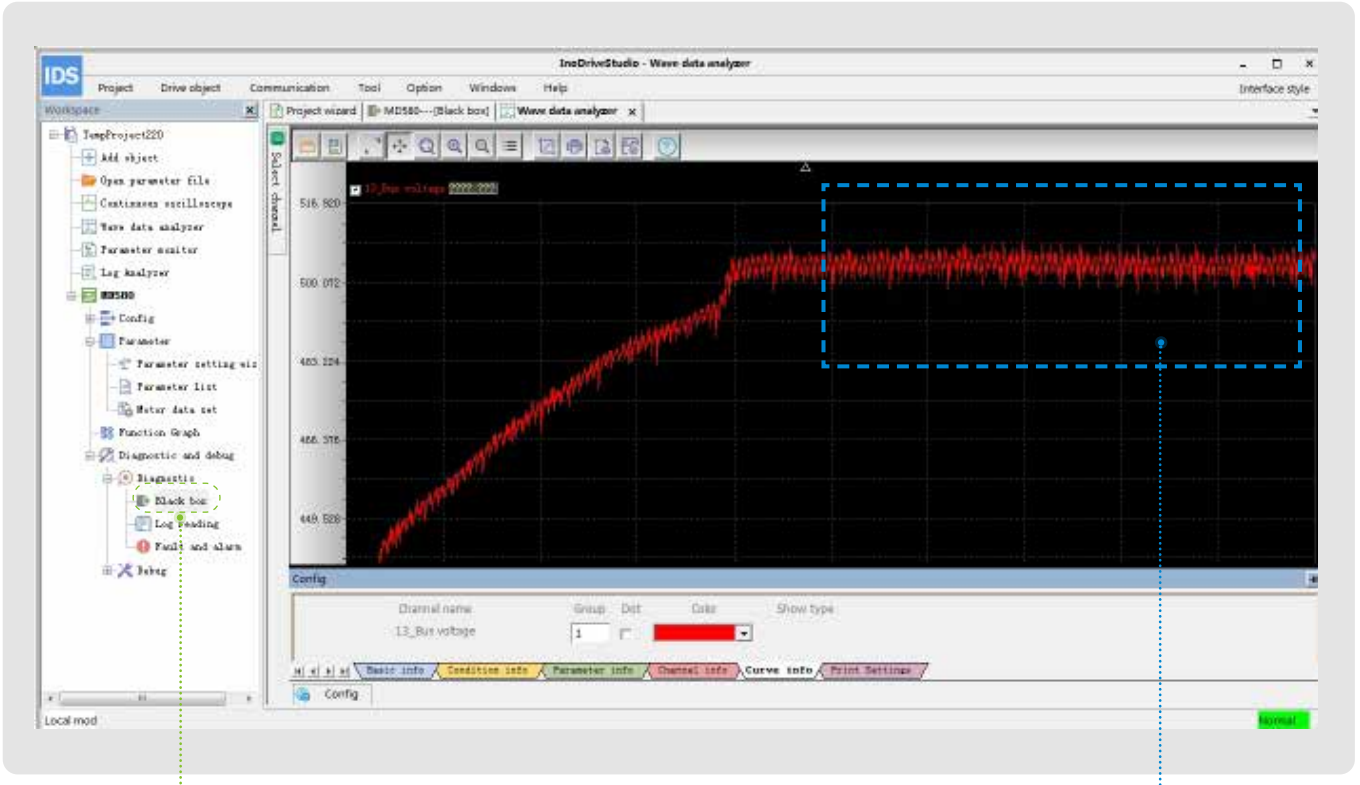
Type	Model	Function
PG card	MD38PG4	Applicable to the resolver; excitation frequency: 10 kHz; DB9 interface
	MD38PGMD	The card supports differential input, collector input, push-pull input, as well as differential output and collector output; therefore, it can be used to connect to different encoders and supports A/B phase input of the host controller.
	MD580-PG-AS1	Supports sin-cos and SSI encoders; full closed-loop
	MD580-PG-AU1	Supports ABZ (TTL level) and SSI encoders; full closed-loop

Performance

Item	Specification
Speed regulation range	1:50 (V/f control for asynchronous motors)
	1:200 (SVC for asynchronous motors)
	1:1000 (FVC for asynchronous motors)
Speed control accuracy	±1.0% (V/f control)
	±0.5% (SVC)
	±0.02% (FVC)
Speed fluctuation	0.5% (SVC)
	± 0.2% (FVC)
Torque response	< 5 ms (SVC)
	< 3 ms (FVC)

Fault monitoring by the black box

With the black box, you can analyze the fault immediately without waiting for reoccurrence of the fault.

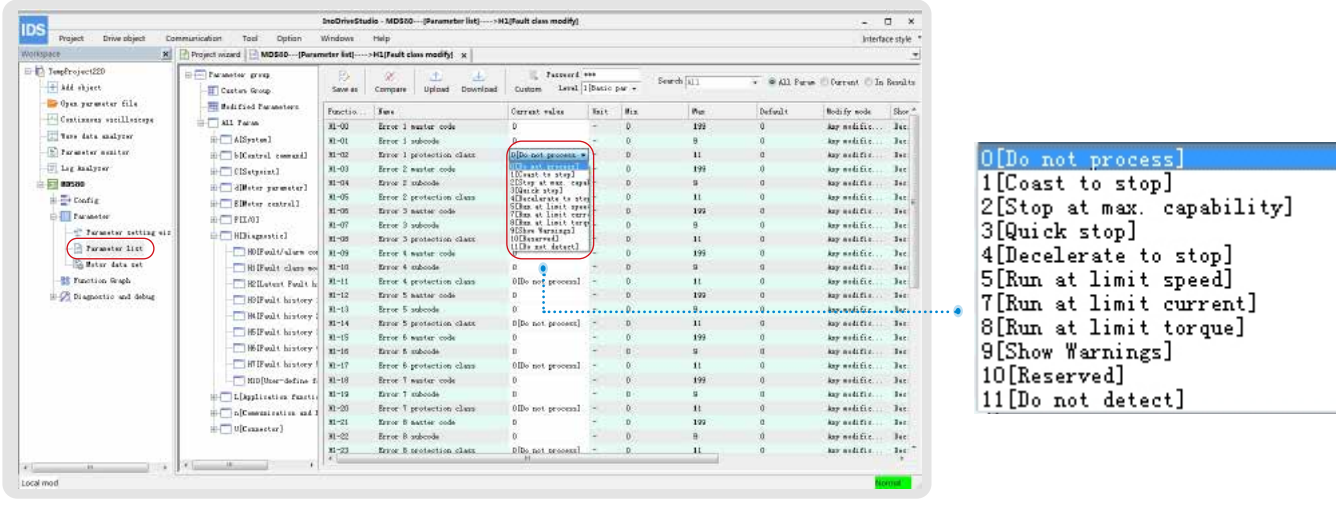


- Wave data within 50 specified periods
- Collection of 8 pieces of carrier periodic data
- Storage of the newest 80 groups of data by overwriting the old ones

- Collection of 4 pieces of internal data every 0.5 ms
- Collection of 48 pieces of internal data every 2 ms
- Collection of 16 pieces of customized data every 2 ms
- Collection of 5 pieces of internal data every 16 ms

Fault level selection

Eleven fault levels and all fault types can be selected.



Supported buses

- Modbus TCP bus
- Modbus RTU bus
- CANopen bus
- PROFIBUS DP bus
- PROFINET bus
- EtherNet/IP bus
- EtherCAT bus

Type	Model	Description
Communication card	MD580-SI-EM1	Modbus TCP communication card
	MD580-SI-RS1	Modbus RTU communication card
	MD580-SI-CAN1	CANopen communication card
	MD580-SI-DP1	PROFIBUS DP communication card
	MD580-SI-PN1	PROFINET communication card
	MD580-SI-EN1	EtherNet/IP communication card
	MD580-SI-ECAT1	EtherCAT communication card

03. Stable and Reliable

Hardware upgrade

Sheet metal structure covering all series

Brand new look



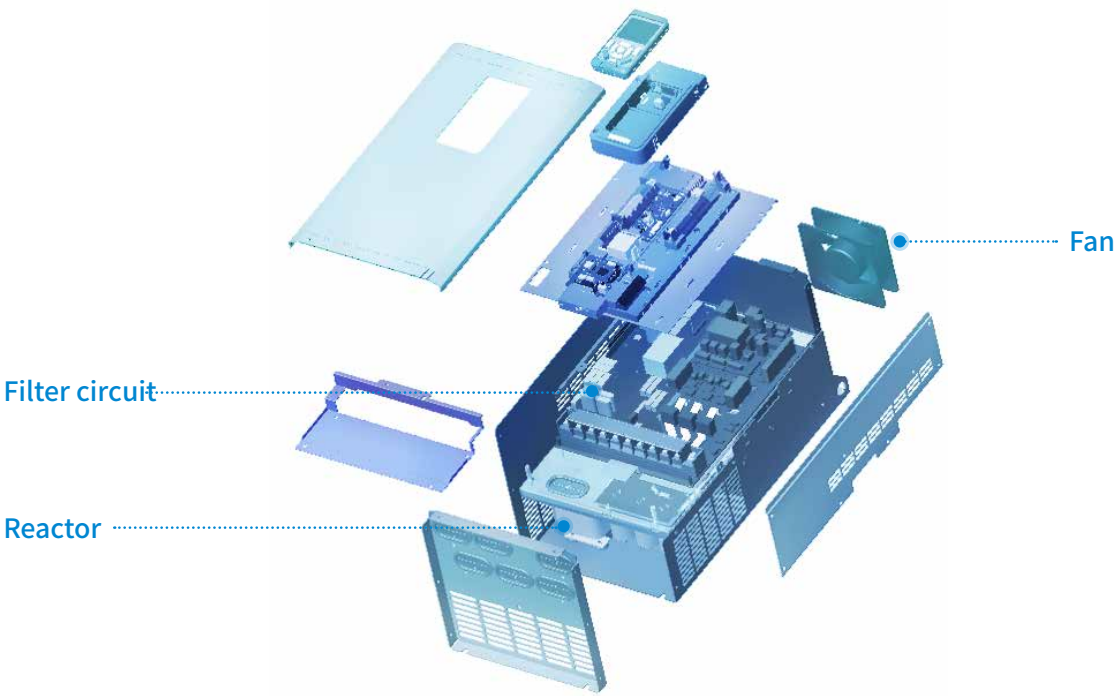
Anti-harmonic interference

Independent air duct of the power module heatsink to reduce pollution to electronic devices

Meeting various electromagnetic environment requirements

Standard built-in DC reactor, which improves power factors and reduces harmonic distortion

Built-in C3 filter as standard, and external C2 filter as optional, meeting EU EN 61800-3 requirements



Operation in harsh conditions

- Conformal coating
- Meets the environmental requirements of IEC 60721-3-3 standard 3C3 (chemical gas)
- Meets the environmental requirements of IEC 60721-3-3 standard 3S3 (solid particles)
- Modular design to facilitate quick replacement of faulty components on the site





04. Safety

STO function

Built-in STO confirms with the following:

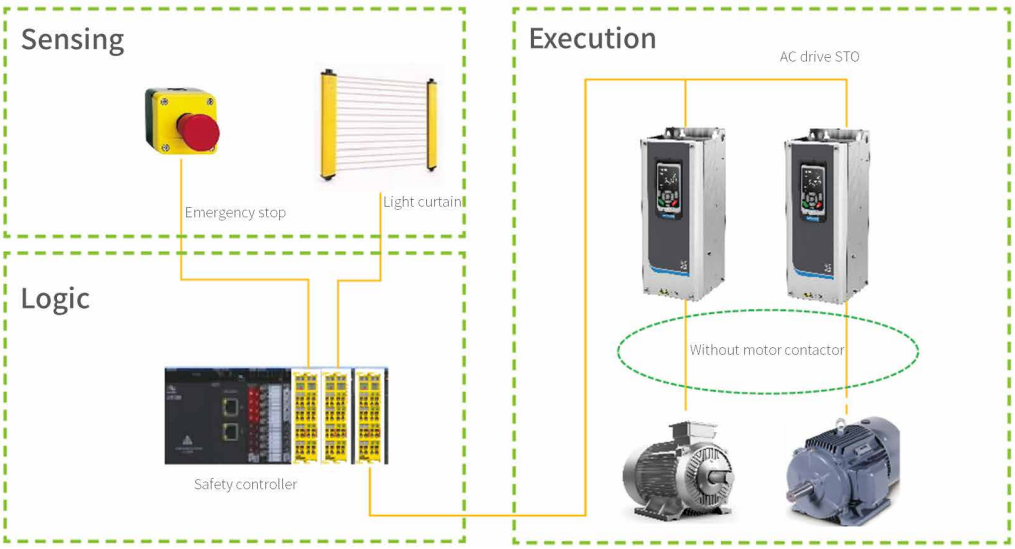
- EN/IEC61800-5-2
- IEC 61508 ed2:SIL 3
- EN/IEC62061:SIL CL3
- EN ISO 13849-1:PL e

Certified by TÜV SÜD



Simplified safety circuit

- Saves space and cables.
- Removes components that easily wear out such as contactors.
- Keeps the power on after the emergency stop to ensure quick production recovery.



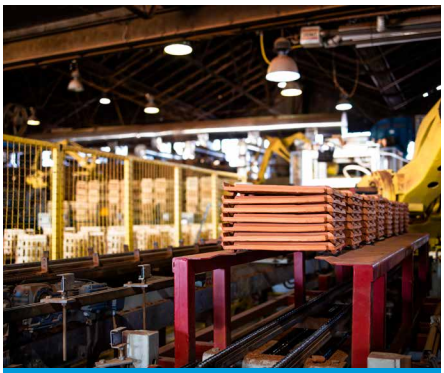
Applicable Industries



Metallurgy



Non-ferrous metal



Architectural material



Paper making



Municipal engineering



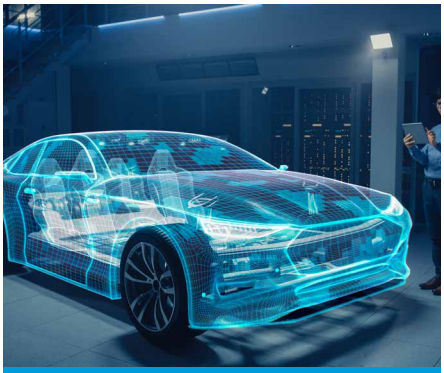
Chemical engineering



Electricity

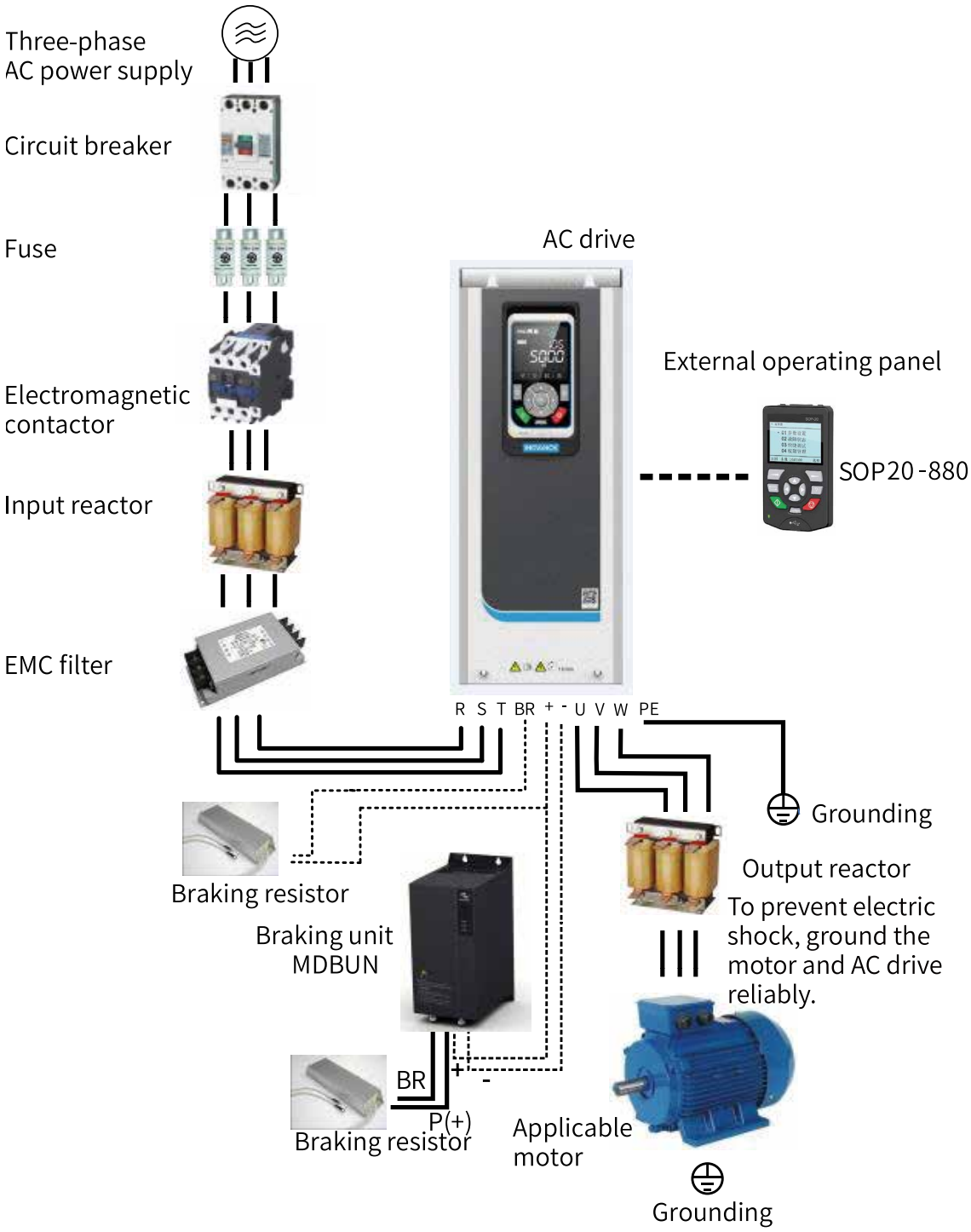


Rubber



Automobile

Typical System Connection



Notes: Regarding to peripheral components selection, please refer Hardware Guide or Selection Chart.

Ordering Code

400V Model

MD580 - 4T 75 B - L - INT

Code	Product Name
MD580	AC drive series

Code	Power Rating (kW)
4T	Three-phase 380-480 V

Code	Output Current (A)
2R1	2.1
...	...
820	820

Code	Variant
INT	International variant

Code	Output AC Reactor
Null	Without output AC reactor
-L	With output AC reactor Applicable to T10 to T12 models

Code	Braking Unit
Null	Without braking unit
B	With braking unit

690V Model

MD580 - 01S - 0271 - 7 - B - INT

Code	Product Name
MD580	AC drive series

Code	Product Series
01S	AC drive (single-drive system)

Code	Output Current
07A4	7.4 A
09A9	9.9 A
...	...
0271	271 A

Code	Voltage Rating
7	Three-phase 525-690 V

Code	Standard Option
B	With braking unit
Null	Without braking unit

Code	Variant
INT	International variant

Note: STO is a standard configuration for all MD580 models by default, it is not indicated in Model codes.

Specifciations-400V Models

Structure	Model MD580-*-INT	Light Duty			Heavy Duty			Option Selection	
		Rated Power (kW)	Rated Input Current (A)	Rated Output Current (A)	Rated Power (kW)	Rated Input Current (A)	Rated Output Current (A)	Optional AC Input Reactor	AC Output Reactor
T1	4T2R1B	0.7	2.5	2.1	0.4	1.8	1.5	MD-ACL-10-5-4T	MD-OCL-5-1.4-4T-1%
	4T3R1B	1.1	3.7	3.1	0.8	2.4	2.1	MD-ACL-10-5-4T	MD-OCL-5-1.4-4T-1%
	4T3R8B	1.5	4.6	3.8	1.1	3.7	3.1	MD-ACL-10-5-4T	MD-OCL-5-1.4-4T-1%
	4T5R1B	2.2	6.4	5.1	1.5	4.6	3.8	MD-ACL-10-5-4T	MD-OCL-7-1.0-4T-1%
	4T7R2B	3.0	9.1	7.2	2.2	6.3	5.1	MD-ACL-10-5-4T	MD-OCL-10-0.7-4T-1%
	4T9B	3.7	11.3	9.0	3.0	9.0	7.2	MD-ACL-40-1.45-4T	MD-OCL-10-0.7-4T-1%
T2	4T13B	5.5	15.9	13.0	3.7	11.4	9.0	MD-ACL-40-1.45-4T	MD-OCL-15-0.47-4T-1%
	4T17B	7.5	22.4	17.0	5.5	16.7	13.0	MD-ACL-40-1.45-4T	MD-OCL-20-0.35-4T-1%
T3	4T25B	11.0	32.9	25.0	7.5	21.9	17.0	MD-ACL-40-1.45-4T	MD-OCL-30-0.23-4T-1%
	4T32B	15.0	39.7	32.0	11.0	32.2	25.0	MD-ACL-40-1.45-4T	MD-OCL-40-0.18-4T-1%
T4	4T37B	18.5	48.6	37.0	15.0	41.3	32.0	MD-ACL-50-0.28-4T	MD-OCL-40-0.18-4T-1%
T5	4T45(B)	22.0	59.0	45.0	18.5	49.5	37.0	MD-ACL-60-0.24-4T-2%	MD-OCL-50-0.14-4T-1%
	4T60(B)	30.0	65.8	60.0	22.0	59.0	45.0	MD-ACL-80-0.17-4T-2%	MD-OCL-60-0.12-4T-1%
T6	4T75(B)	37.0	71.0	75.0	30.0	57.0	60.0	MD-ACL-80-0.17-4T-2%	MD-OCL-80-0.087-4T-1%
	4T91(B)	45.0	86.0	91.0	37.0	69.0	75.0	MD-ACL-90-0.16-4T-2%	MD-OCL-120-0.058-4T-1%
T7	4T112(B)	55.0	111.0	112.0	45.0	89.0	91.0	MD-ACL-120-0.12-4T-2%	MD-OCL-120-0.058-4T-1%
	4T150(B)	75.0	143.0	150.0	55.0	106.0	112.0	MD-ACL-150-0.095-4T-2%	MD-OCL-150-0.047-4T-1%
T8	4T176(B)	90.0	167.0	176.0	75.0	139.0	150.0	MD-ACL-200-0.07-4T-2%	MD-OCL-200-0.035-4T-1%
	4T210	110.0	198.0	210.0	90.0	164.0	176.0	MD-ACL-250-0.07-4T-2%	MD-OCL-250-0.028-4T-1%
	4T253	132.0	239.0	253.0	110.0	196.0	210.0	MD-ACL-250-0.056-4T-2%	MD-OCL-330-0.021-4T-1%
T9	4T304	160.0	295.0	304.0	132.0	240.0	253.0	MD-ACL-330-0.042-4T-2%	MD-OCL-330-0.021-4T-1%
	4T377	200.0	359.0	377.0	160.0	287.0	304.0	MD-ACL-330-0.042-4T-2%	MD-OCL-490-0.014-4T-1%
T10	4T426	220.0	410.0	426.0	200.0	365.0	377.0	MD-ACL-490-0.028-4T-2%	MD-OCL-490-0.014-4T-1%
	4T426-L	220.0	410.0	426.0	200.0	365.0	377.0	MD-ACL-490-0.028-4T-2%	/
	4T465	250.0	456.0	465.0	220.0	410.0	426.0	MD-ACL-660-0.028-4T-2%	MD-OCL-490-0.014-4T-1%
	4T465-L	250.0	456.0	465.0	220.0	410.0	426.0	MD-ACL-660-0.028-4T-2%	/
T11	4T520	280.0	507.0	520.0	250.0	441.0	465.0	MD-ACL-660-0.021-4T-2%	MD-OCL-660-0.011-4T-1%
	4T520-L	280.0	507.0	520.0	250.0	441.0	465.0	MD-ACL-660-0.021-4T-2%	/
	4T585	315.0	559.0	585.0	280.0	495.0	520.0	MD-ACL-660-0.021-4T-2%	MD-OCL-660-0.011-4T-1%
	4T585-L	315.0	559.0	585.0	280.0	495.0	520.0	MD-ACL-660-0.021-4T-2%	/
T12	4T650	355.0	624.0	650.0	315.0	565.0	585.0	MD-ACL-800-0.021-4T-2%	MD-OCL-660-0.011-4T-1%
	4T650-L	355.0	624.0	650.0	315.0	565.0	585.0	MD-ACL-800-0.021-4T-2%	/
	4T725	400.0	708.0	725.0	355.0	617.0	650.0	MD-ACL-800-0.017-4T-2%	MD-OCL-800-0.0087-4T-1%
	4T725-L	400.0	708.0	725.0	355.0	617.0	650.0	MD-ACL-800-0.017-4T-2%	/
	4T820	450.0	782.0	820.0	400.0	687.0	725.0	MD-ACL-1000-0.017-4T-2%	MD-OCL-800-0.0087-4T-1%
	4T820-L	450.0	782.0	820.0	400.0	687.0	725.0	MD-ACL-1000-0.017-4T-2%	/

* For details, contact Inovance technical engineers.

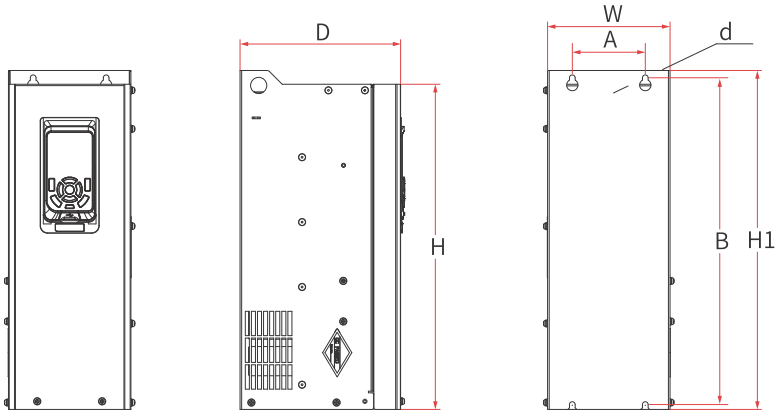
Specifciations-690V Models

Structure	Model MD580-*-INT	No Overload		Light Overload		Heavy Overload	
		Rated Current A	Rated Power kW	Rated Current A	Rated Power kW	Rated Current A	Rated Power kW
S4	01S-07A4-7-B	7.4	5.5	7	5.5	5.6	4
	01S-09A9-7-B-	9.9	7.5	9.4	7.5	7.4	5.5
	01S-14A3-7-B	14.3	11	13.6	11	9.9	7.5
	01S-0019-7-B	19	15	18.1	15	14.3	11
	01S-0023-7-B	23	18.5	21.9	18.5	19	15
	01S-0027-7-B	27	22	25.7	22	23	18.5
S5	01S-0035-7	35	30	33	30	26	22
	01S-0042-7	42	37	40	37	35	30
	01S-0049-7	49	45	47	45	42	37
S6	01S-0061-7	61	55	58	55	49	45
	01S-0084-7	84	75	80	75	61	55
S7	01S-0098-7	98	90	93	90	84	75
	01S-0119-7	119	110	113	110	98	90
S8	01S-0142-7	142	132	135	132	119	110
	01S-0174-7	174	160	165	160	142	132
S9	01S-0210-7	210	200	200	200	174	160
	01S-0271-7	271	250	257	250	210	200

* For details, contact Inovance technical engineers.

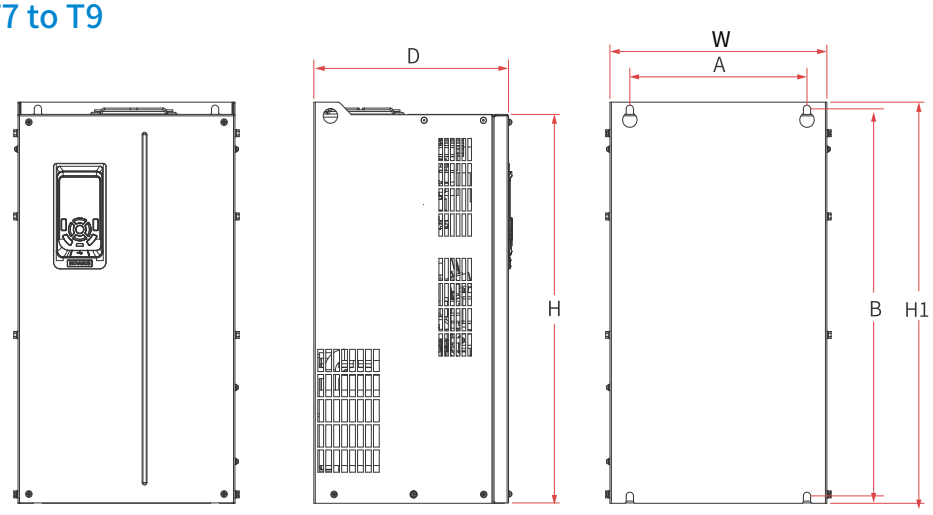
Dimensions-400V Models

Frame size T1 to T6



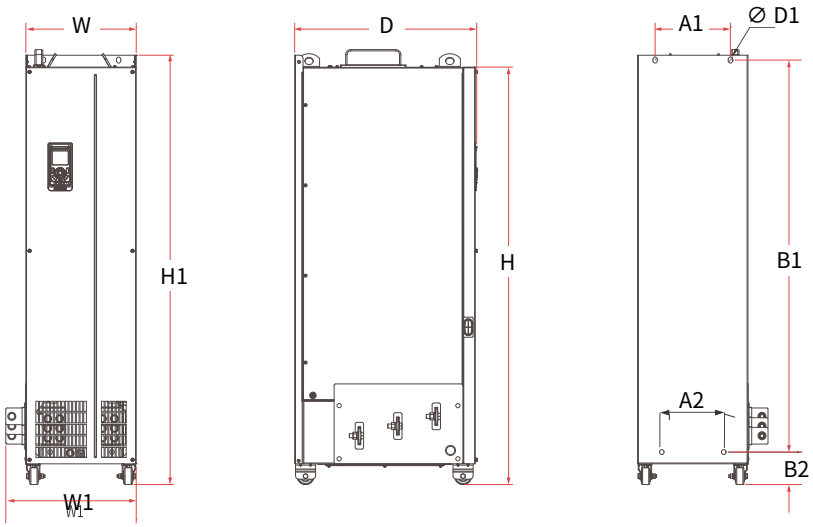
Structure	Mounting Hole Dimension mm (in.)		Outline Dimension mm (in.)				Mounting Hole Diameter mm (in.)	Weight kg (lb)
	A	B	H	H1	W	D		
T1	90 (3.5)	380 (15.0)	381 (15.0)	395 (15.6)	151 (5.9)	175 (6.9)	Ø7 (0.3)	6.2 (13.6)
T2	90 (3.5)	380 (15.0)	381 (15.0)	395 (15.6)	151 (5.9)	181.5 (7.2)	Ø7 (0.3)	7 (15.4)
T3	90 (3.5)	403 (15.9)	404 (15.9)	418 (16.5)	151 (5.9)	198 (7.8)	Ø7 (0.3)	8.2 (18.0)
T4	120 (4.7)	427 (16.8)	427 (16.8)	442 (17.4)	185 (7.3)	203 (8.0)	Ø7 (0.3)	9.9 (21.8)
T5	170 (6.7)	468.5 (18.5)	460 (18.1)	486 (19.1)	210 (8.3)	224 (8.8)	Ø7 (0.3)	14.9 (32.8)
T6	200 (7.9)	438 (17.3)	429 (16.9)	455 (17.9)	250 (9.9)	252.5 (9.9)	Ø7 (0.3)	23.7 (51.9)

Frame size T7 to T9



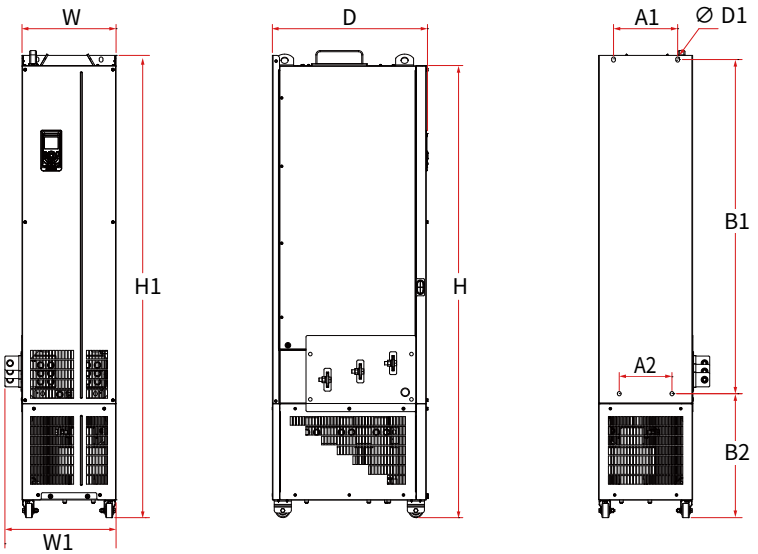
Structure	Mounting Hole Dimension mm (in.)		Outline Dimension mm (in.)				Mounting Hole Diameter mm (in.)	Weight kg (lb)
	A	B	H	H1	W	D		
T7	245 (9.7)	523 (20.6)	525 (20.7)	542 (21.4)	300 (11.8)	269 (10.6)	Ø10 (0.4)	35 (77.2)
T8	270 (10.6)	560 (22.1)	554 (21.8)	580 (22.9)	338 (13.3)	309.4 (12.2)	Ø10 (0.4)	51.5 (113.5)
T9	320 (12.6)	890 (35.1)	874 (34.4)	915 (36.1)	400 (15.8)	314.6 (12.4)	Ø10 (0.4)	85 (187.4)

Frame size T10 to T12 (without AC output reactors)



Structure	Mounting Hole Dimension mm (in.)				Outline Dimension mm (in.)					Mounting Hole Diameter mm (in.)	Weight kg (lb)
	A 1	A2	B1	B2	H	H1	W	W1	D	D1	
T10	240 (9.5)	150 (5.9)	1035 (40.8)	86 (3.4)	1086 (42.8)	1134 (44.7)	300 (11.8)	360 (14.2)	500 (19.7)	ϕ13 (0.5)	110 (242.5)
T11	225 (8.9)	185 (7.3)	1175 (46.3)	97 (3.8)	1248 (49.2)	1284 (50.6)	330 (13.0)	390 (15.4)	545 (21.5)	ϕ13 (0.5)	155 (341.7)
T12	240 (9.5)	200 (7.9)	1280 (50.4)	101 (4.0)	1355 (53.4)	1405 (55.4)	340 (13.4)	400 (15.8)	545 (21.5)	ϕ16 (0.6)	185 (407.9)

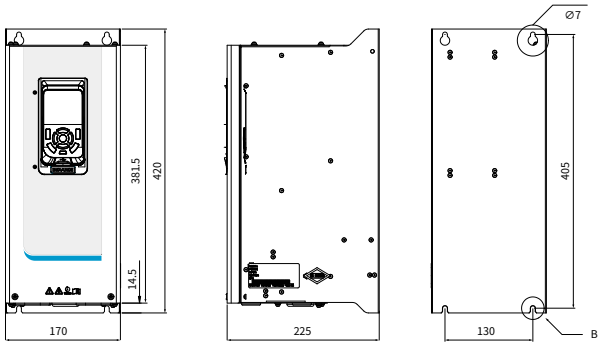
Frame size T10 to T12 models (with AC output reactors)



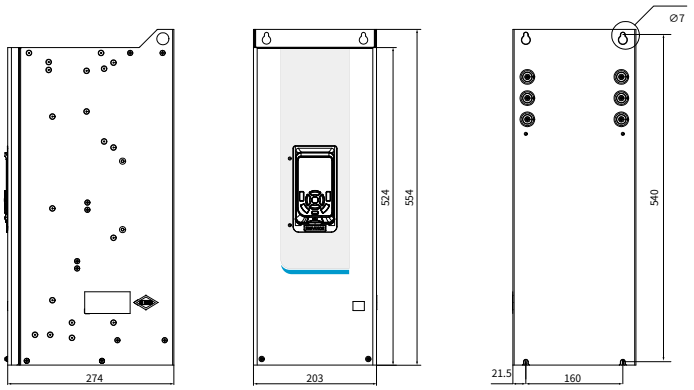
Structure	Mounting Hole Dimension mm (in.)				Outline Dimension mm (in.)					Mounting Hole Diameter mm (in.)	Weight kg (lb)
	A 1	A2	B1	B2	H	H1	W	W1	D	D1	
T10	240 (9.5)	150 (5.9)	1035 (40.8)	424 (16.7)	1424 (56.1)	1472 (58.0)	300 (11.8)	360 (14.2)	500 (19.7)	ϕ13 (0.5)	160 (352.7)
T11	225 (8.9)	185 (7.3)	1175 (46.3)	435 (17.1)	1586 (62.5)	1622 (63.9)	330 (13.0)	390 (15.4)	545 (21.5)	ϕ13 (0.5)	215 (474.0)
T12	240 (9.5)	200 (7.9)	1280 (50.4)	432 (17.0)	1683 (66.3)	1733 (68.3)	340 (13.4)	400 (15.8)	545 (21.5)	ϕ13 (0.5)	245 (540.1)

Dimensions-690V Models

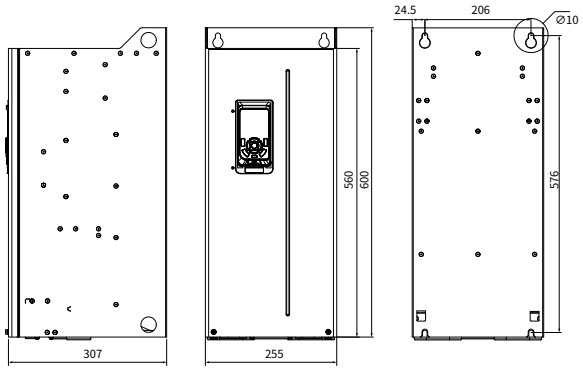
Frame size S4 to S9



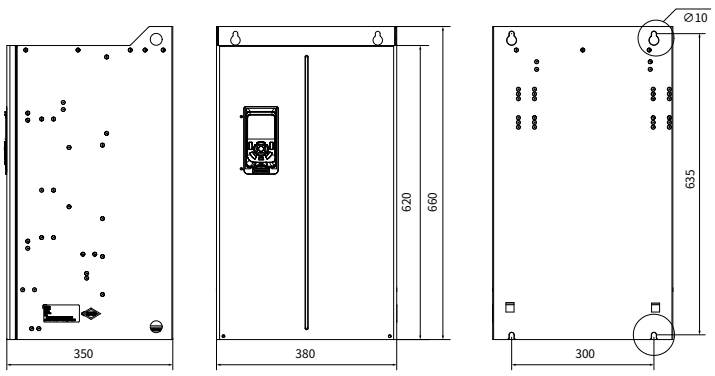
690V-22KW (S4)



690V-45KW (S5)



690V-110KW (S6 to S7)



690V-250KW (S8 to S9)

Structure	Mounting Hole Dimension mm (in.)		Outline Dimension mm (in.)				Mounting Hole Diameter mm (in.)	Weight kg (lb)
	A	B	H	H1	W	D		
S4	130	405	381.5	420	170	225	Ø7	11
S5	160	540	524	554	203	274	Ø7	20
S6 to S7	206	576	560	600	255	307	∅ 10	35
S8 to S9	300	635	620	660	380	350	∅ 10	65

Technical Specifications

Item		Technical Specification
Basic functions	Output frequency	V/f control: 0-599 Hz Vector control: 0-599 Hz
	Carrier frequency	0.8-12 kHz (varies with different models)
	Input frequency resolution	Digital setting: 0.01 Hz Analog setting: maximum frequency x 0.025%
	AC drive capacity	5.5-250 kW (690 V series); 0.75-450 kW (400 V series)
	Input voltage	690 V models: Three-phase 525-690 VAC (-15% to +10%, namely 446-759 VAC) 400 V models: Three-phase 380-480 VAC (-15% to +10%, namely 323-528 VAC)
	Motor type and control mode	Three-phase asynchronous motors: SVC, FVC, and V/f control
		Permanent magnet synchronous motors: SVC and FVC
	Speed adjustment range	1:50 (V/f control for asynchronous motors) 1:200 (SVC for asynchronous motors) 1:1000 (FVC for asynchronous motors)
	Speed stability accuracy	±1.0% (V/f control) ±0.5% (SVC) ±0.02% (FVC)
	Speed fluctuation	±0.5% (SVC) ±0.2% (FVC)
	Torque response time	< 5 ms (SVC) < 3 ms (FVC)
	Torque control mode	SVC and FVC
	Torque control accuracy	±5% (SVC) ±3% (FVC)
	Overload capability	Light overload: 110% for 1 minute every 5 minutes Heavy overload: 150% for 1 minute every 5 minutes
	Start torque	0.25 Hz/150% (SVC); 0 Hz/180% (FVC)
	Torque boost	Automatic torque boost; manual torque boost: 0.1% to 30.0%
	V/f curve	Straight-line V/f curve, multi-point V/f curve, square V/f curve, N-power V/f curve (N = 1.2/1.4/1.6/1.8) , and V/f separation curve

Customized functions	Acceleration/ Deceleration curve	Straight-line or S-curve acceleration/deceleration; four modes of acceleration/deceleration time ranging from 0.0s to 1000.0s
	Internal PID	One set of proportional-integral-derivative (PID) parameters to implement closed-loop process control
	Communication/Bus	RS485 communication card: Supports the Modbus RTU protocol. DP communication card: Supports the PROFIBUS DP protocol. CANopen communication card: Supports the CANopen protocol. PROFINET IO communication card: Supports the PROFINET IO industrial Ethernet protocol. Modbus TCP communication card: Supports the Modbus TCP industrial Ethernet protocol. EtherNet/IP communication card: Supports the EtherNet/IP protocol. EtherCAT communication card: Supports the EtherCAT protocol.
	Running command source	SOP-20 operating panel, InoDriveStudio, LED operating panel, communication, and terminal
	Frequency reference source	Two groups of set values, motorized potentiometer, and multi-reference
	DC braking	DC braking current at startup: 0.0% to 100.0%; DC braking time at startup: 0.00s to 100.00s; Start speed of DC braking for stop: 0.0 RPM to 6000.0 RPM; DC braking current for stop: 0.0% to 100.0%; DC braking time for stop: 0.00s to 100.00s
	Jog control	Jog frequency range: –600.0% to +600.0%; Jog acceleration/deceleration time: 0.0s to 1000.0s
	Multi-speed running	The drive supports up to 16 speeds by using the control terminals.
	Overvoltage/ Overcurrent stall control	The drive limits the current and voltage automatically during operation to avoid frequent tripping caused by overvoltage/overcurrent.
	Quick current limit	This function minimizes the occurrence of overcurrent faults and guarantees proper operation of the drive.
	Torque limit and control	This function limits the torque during running to avoid frequent tripping caused by overcurrent and realizes torque control in the vector control mode.
	VDC voltage control	Load feedback energy compensates for any voltage reduction, allowing the drive to continue to operate for a short time.
	Multi-thread field buses	Modbus RTU, CANopen, PROFIBUS DP, PROFINET IO, Modbus TCP, EtherCAT, and EtherNet/IP
	Multiple encoder types	Differential encoder, open-collector encoder, resolver, ABZ and SSI full closed-loop encoder, and sin-cos and SSI full closed-loop encoder
	Advanced software	The software of the AC drive allows users to configure parameters and provides a virtual oscilloscope that can be used to minotor the internal drive status.
	Motor overtemperature protection	The following temperature sensors are supported: PT100, PT1000, KTY-84, and PTC-130.
	Two control channels and two setpoint channels avaliable	

HMI	AI	Two standard AIs AI1: 0-10 V/0-20 mA input; 12-bit resolution; correction accuracy of 0.5%; PT100/ PT1000/PTC130/KTY84 supported AI2: 0-10 V/0-20 mA input; 12-bit resolution; correction accuracy of 0.5% Two optional AIs (provided by the expansion card) AI3 to AI4 : 0-10 V/0-20 mA input; 12-bit resolution; correction accuracy of 0.5%
	AO	Two standard AOs: 0-10 V or 0-20 mA which is selected via jumper; 12-bit resolution; correction accuracy of 1% Two optional AOs (provided by the expansion card): 0-10 V or 0-20 mA which is selected via parameters; 12-bit resolution; correction accuracy of 1%
	DI	Six standard normal DIs: PNP and NPN input methods available Two optional normal DIs (provided by the expansion card): PNP and NPN input methods available One high-speed DI: PNP and NPN input methods available; input frequency < 100 kHz
	DO	One DO supports normal output and high-speed output. When the DO is used as the normal DO, PNP and NPN output methods are available. When the DO is used as the high-speed DO, a maximum of 100 kHz frequency is supported. Three standard relay output terminals with programmable NO/NC contacts Two optional relay output terminals (provided by the expansion card) with programmable NO/ NC contacts
	Operating panel	LED operating panel as standard, external LCD operating panel as optional
Environment requirements	Operating location	Indoor location without direct sunlight, dust, corrosive gas, combustible gas, oil mist, water vapor, drip, or salt
	Altitude	⩽ 1000 m: derating not required; > 1000 m: derate by 1% for every additional 100 m; Maximum altitude: 3000 m;
	Operating temperature	-10° C to +50° C. When the temperature is higher than 40°C , derate by 1.5% for every additional 1° C.
	Storage temperature	-20° C to +60° C
	Overvoltage category	OVCIII
	Pollution degree	PD2
	IP rating	IP20 (open type, applicable to IEC-certified products)
	Power system	TT/TN (VDR and EMC screws required), IT

Accessories

Name		Option Model	Supported AC Drive Model	Function
Braking component	Built-in braking unit	Model with "B"	/	Standard for 22 kW models and below and optional for models above 22 kW
	External braking unit	MDBUN-60-T	400 V, 110 kW models and above; 690 V, 30 kW models and above	/
		MDBUN-90-T		
		MDBUN-200-T		
		MDBUN-200-7T		
Expansion card	Motor safety temperature detection card	MD580-HSMT-ATEX1	T1 to T3 models of the MD580 (400 V); All models of the MD580 (690 V)	Explosion-proof card
		HSMT-10	T4 to T12 models of the MD580 (400 V)	
	Sin-cos and SSI encoder card	MD580-PG-AS1	All models of the MD580 (400 V)	Supports sin-cos and SSI encoders; full closed-loop
	ABZ and SSI encoder card	MD580-PG-AU1		Supports ABZ (TTL level) and SSI encoders; full closed-loop
	Multi-functional I/O expansion card	MD580-IO-RD1		I/O expansion card, supporting four DIs, two ROs, two AIs, and two AOs
	EtherCAT communication card	MD580-SI-ECAT1		EtherCAT industrial Ethernet
	EtherNet/IP communication card	MD580-SI-EN1		EtherNet/IP industrial Ethernet
	CANopen communication card	MD580–SI-CAN1	Applicable to all models	CANopen bus adaption card
	Modbus RTU communication card	MD580–SI-RS1		Modbus RTU bus adaption card
	PROFIBUS DP communication card	MD580–SI-DP1		PROFIBUS DP bus adaption card
	PROFINET IO communication card	MD580–SI-PN1		PROFINET IO industrial Ethernet card
	Modbus TCP communication card	MD580–SI-EM1		Modbus TCP industrial Ethernet card
	Resolver interface card	MD38PG4		Applicable to the resolver; excitation frequency: 10 kHz; DB9 interface
	MD38PGMD multi-function encoder card	MD38PGMD		The encoder card supports differential input, collector input, push-pull input, as well as differential output and collector output; therefore, it can be used to connect to different encoders and supports A/B phase input of the host controller.
Cable	LED operating panel	MDKE-10		The external LED operating panel is connected to the AC drive through the RJ45 port.
	External LCD operating panel	SOP-20-880		The external LCD operationg panel is used for parameter copy and download.
	SOP-20-880 mounting base	CP600-BASE1		The SOP-20-880 can be installed to the cabinet door by using the mounting base.
	MDKE-10 mounting base	MD580-AZJ1		The MDKE-10 can be installed to the cabinet door by using the mounting base.
	Extension cable	MDCAB		The standard eight-conductor, three-meter cable can connect to the LED and LCD operating panel.
	Main circuit cable	Lugs manufactured by Suzhou Yuanli are recommended. For details of recommended lugs, see the product user guide.		It is recommended that the input and output main circuit cables, and power cables use symmetrical shielded cables. Compared with four-conductor cables, symmetrical shielded cables can reduce electromagnetic radiation in the whole transmission system.
	Control circuit cable	All control circuit cables must be shielded cables. Use a separate shielded cable for each type of analog signal, and use shielded twisted pair cables for digital signal.		

Electrical Wiring

