



TDI Series

General Purpose Inverters



www.tecmotors.co.uk

/ Company Profile



Established in 2006 TEC Electric Motors is now considered to be the largest independent electric motor supplier within the UK & Ireland. TEC's policy of re-investment in the business resulted in a move to a new modern 90,000 square foot facility in 2018. The stock holding of over £12 million GBP and approximately 150,000 units of motors is the largest in the UK. All backed by 24/7, 365 day call out; "Exceptional customer service" is the core of company beliefs.

2010 saw the introduction of the industrial gearbox division. Initially stocking a range of worm gear reducers providing interchangeability with most of our competitors. We have built upon this, adopting TEC's policy of re-investing in stock we now hold extensive ranges of worm, helical and bevel-helical gearboxes.



Other products Include:

- 2/4/6/8/10/12 pole motors
- 56-550 frame, up to 630kW UK stock
- Multi mount 56-200 aluminium
- Multi mount 80-280 cast iron
- Fixed feet 315-550 cast iron
- IE1, IE2, IE3 & IE4 efficiency rated
- ECA approved IE3 motors
- Increased output IE1 and IE2
- 1 phase motors 56-112 frame
- 1 phase motors 230/110 Volt
- 60Hz 1ph motors also available
- ATEX EEExde Zone 1, 71-355 frame
- ATEX Zone 2/22, 56-355 frame
- ATEX Zone 21 & ATEX single phase
- Brake motors, retro brake fitting
- Two speed, dual & tap wound
- Special voltages, special shafts
- Vector encoder motors
- Force ventilated motors
- Inverters - IP20, IP55, IP66 & IP66 switched
- MV/HV electric motors



TCNDK Worm boxes size 30-150

Ratios 5:1 to 100:1, Helical worm and combination worm up to 10,000:1 available.



WKM-WAH lightweight, high efficiency hypoid gear units size 50-90

Dimensionally interchangeable with worm gear range.



Cast iron WK range of bevel helical gear boxes

30mm to 160mm bore and torque range 200-50,000Nm.



Cast iron WR range of helical in-line gear boxes

25mm to 120mm shaft dia. and torque range 200-20,000Nm. Foot or output flange mounting.



Official UK Varvel Distributor

TEC are an in-house build centre for Varvel and can build all ratios and outputs throughout the RO/RN/RD range from stock components.



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TECDrive20-EU Series

TECDrive20-EU is a general purpose vector control inverter with certified STO (Safe Torque OFF) function. It's oriented for OEM equipment markets, mainly covering the applications of water treatment, printing and packaging, winding equipment, paper machinery, shearing equipment, plastic machinery, food machinery, cable machinery, textile machinery, HVAC, etc.



Main Features

1. V/F and Sensorless Vector Control
2. External keypad for parameters copy
3. Common DC bus solution (400V; $\geq 4\text{kW}$)
4. Starting torque up to 0.5Hz/150%
5. Built-in DC reactor for inverters $\geq 18.5\text{kW}$
6. Built-in braking unit on all models
7. Standard C3 filter ($\geq 4\text{kW}$), optional C3 filter ($\leq 2.2\text{kW}$) and C2 Filter



/ Features

Mini design for inverters ($\leq 2.2\text{kW}$); side by side installation of multiple inverters, reducing installation space



Flexible installation ways

Inverters ($\leq 2.2\text{kW}$) support wall mounting and rail mounting.

Inverters ($\geq 4\text{kW}$) support wall mounting and flange mounting.



Rail mounting

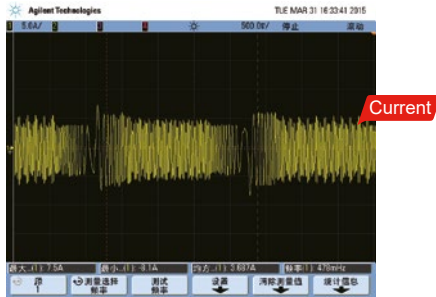


Wall mounting



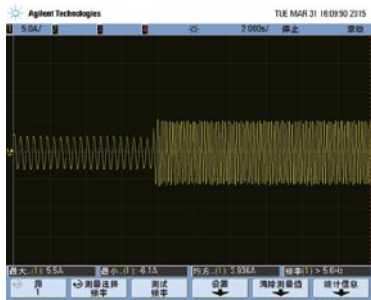
Excellent Performance

Excellent vector control performance

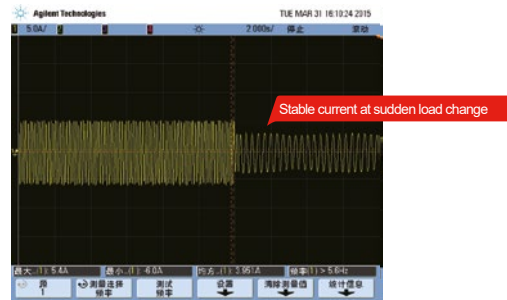


Current waveforms in vector control mode with 50Hz and full load

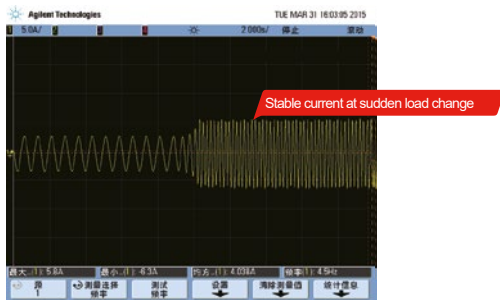
Excellent motor drive performance



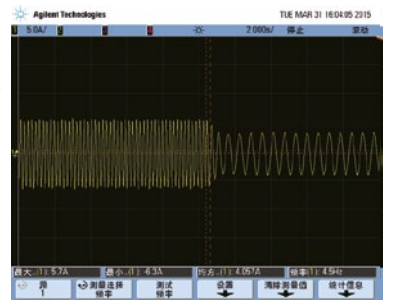
Current waveforms when sudden loading in V/F control mode with 2Hz and full load



Current waveforms when sudden unloading in V/F control mode with 2Hz and full load

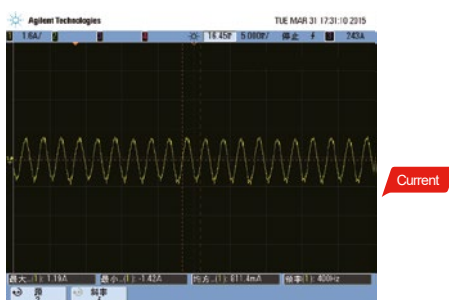


Current waveforms when sudden loading in vector control mode with 0.5Hz and full load

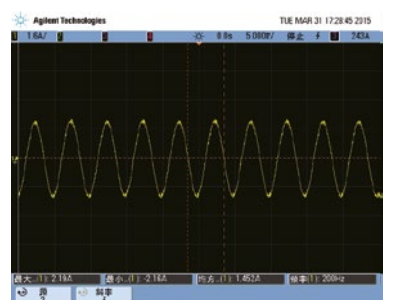


Current waveforms when sudden unloading in vector control mode with 0.5Hz and full load

Excellent high frequency running performance



Current waveforms when sudden loading in vector control mode with 0.5Hz and full load



Current waveforms when sudden unloading in vector control mode with 0.5Hz and full load

Multi-function and easy to use

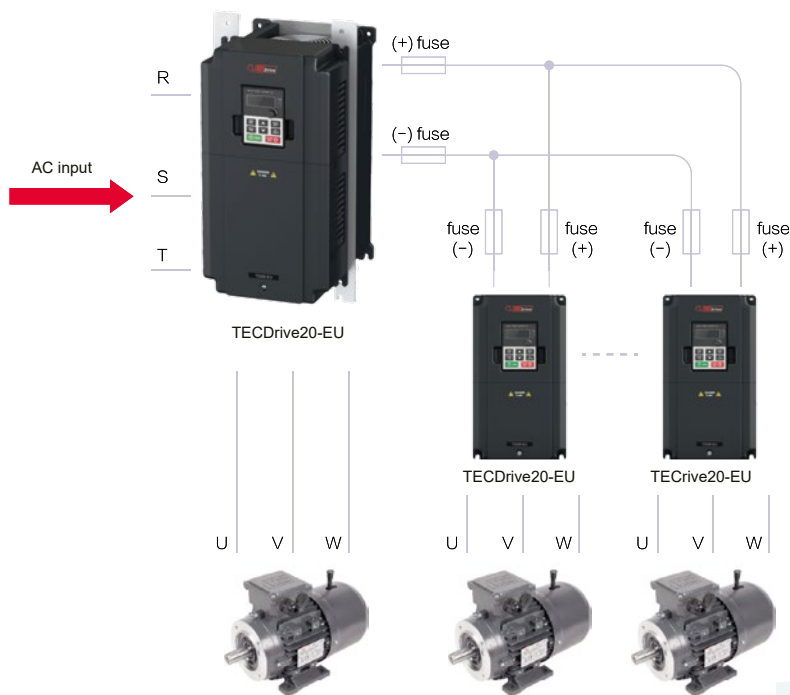
Built-in DC reactor for inverter $\geq 18.5\text{kW}$



Braking unit built in on all models



Inverter (400V; $\geq 4\text{kW}$) support the Common DC bus solution.



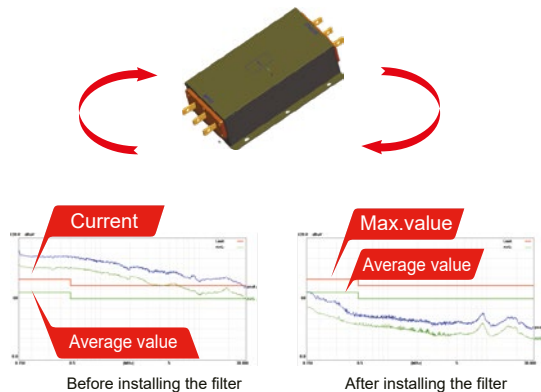
Built-in Safe Torque Off function

Model	Certification standard and level		
	IEC 61508	EN/ISO 13849-1	EN954-1
-S2:0.4~2.2kW -2:0.4~0.75kW -4:0.75~2.2kW	SIL2	PLd	Category3
-2:1.5~7.5kW -4:4~110kW	SIL3	PLe	Category3

C3 and C2 filters

C3 filters are built in inverters (3PH; 400V; ≥ 4 kW) and (3PH; 230V; ≥ 1.5 kW) by using J10 to determine the connection or disconnection. External C3 filters can be configured for inverters (1PH; 230V; ≤ 2.2 kW), (3PH; 400V; ≤ 2.2 kW) and (3PH; 230V; ≤ 0.75 kW).

External C2 filters are optional for all TDI20-EU series inverters.



Conductive interference test of the power supply terminals

Remarks:

- C2 filter: EMC performance of the inverter achieves the limited usage requirement in civil environment.
- C3 filter: EMC performance of the inverter achieves the limited usage requirement in industrial environment.

External keypad

The membrane keypad are standard for inverters (3PH; 400V; ≤ 2.2 kW), which also support external LED keypads. The keypads for inverters (3PH; 400V; ≥ 4 kW) can be used as external keypads.

TDI20-EU series inverters can be configured with LED keypad which has the data copy function to upload or download the parameters.



Pluggable design for cooling fans, easy maintenance



Abundant Software Functions

Function	Used to	Remarks
RS485 communication	Read and modify inverter parameters through connection to the upper computer so as to control inverter running status.	Configured with RS485 communication interface
PID	Carry out PID operation on feedback signals to control inverter output frequency and improve target accuracy and stability. Applicable to pressure, flow and temperature process control.	Supports PID output polarity switching.
Motor parameter autotuning	Carry out rotation or static autotuning, improving control accuracy and response speed.	Classified into rotation autotuning and static autotuning.
Simple PLC function	Change the running frequency and direction automatically according to the running time set by simple PLC to meet process requirements.	Supports multiple running modes.
Multi-step speed control	Meet the speed control requirements in different periods of time.	A maximum of 16 steps can be divided for multi-step speed control.
Multiple V/F curve settings	Meet the requirements of energy-saving operation for fans and water pumps and of various variable frequency power supplies; adapt to different load applications.	Linear, multi-dot, multi-power and V/F separation settings, implementing flexible setting of V/F curves.
Virtual terminals	Take external signals as local virtual I/O to reduce hardware configuration	Corresponding virtual terminal functions must be enabled in communication mode.
Delay of switching on and off	Provide more programming and control modes	Max. switching on/off delay is 50s
Uninterrupted running in instantaneous power off	Ensure uninterrupted running in instantaneous power off. Especially applicable to the situations with high requirements on continuous operation.	At transient voltage drop, the inverter can keep running by feedback energy without stop in valid time.
Various protection functions	Provide overall fault protection functions.	Various measures provided to protect against faults such as overcurrent, overvoltage, undervoltage, overheating, and overload, whose information can be saved.
Multiple braking modes available	Provide multiple braking modes, satisfying accurate and quick stop under different loads.	DC braking, flux braking, dynamic braking
Battery capacity display	Display the accumulative power consumption on the inverter without watt-hour meter.	Inverter power consumption can be queried.

Reliable QA

Perfect and Reliable Test System Ensure Products Adapt Complicated Site Environments and Achieved ACT Certificate of TÜV SÜD

Experiment Type	Experiment Name	Classification
Mechanical Reliability Experiments	Packaging Experiments	Package compression experiments
		Package Resonance imaging and storage test
		Package random vibration test
		Package dropping test
		Package rolling test
		Package dumping test
		Package inclined impact test
	Impact Test	Half-sine shock test (working and non-working state)
		Trapezoidal wave impulse test (non-working state)
	Vibration Test	Sinusoidal vibration test (working state)
Random vibration test (working and non-working state)		
Climatic Environmental Reliability Test	Temperature Experiment	Low temperature storage test
		High temperature storage test
		Low temperature working test
		High temperature working test
		Gradient temperature change test
		Temperature impact test
	Temperature Humidity Test	Constant temperature & humidity test
		Alternation temperature & humidity test
	Salt Spray Test	Constant salt spray test
		Alternation salt spray test
	Low Air Pressure Test	Combined dry heat & low air pressure test
		Combined cold & low air pressure test

Remarks:

The full name of ACT is Acceptance of Client's Testing, which means the German TÜV SÜD admit the technology level of the lab and accept their separate testing data and test reports officially.



Electric Vibration System



Low Pressure Test Chamber & Constant temperature and humidity test chamber



Faster temperature chamber & Thermal Shock Test Chamber

Applications

Textile machinery



Food machinery



Plastic machinery



Printing and packaging



Environmental protection equipment



Ceramic equipment



Woodworking equipment



Conveying equipment



Air compressor



Cable machinery



Technical specification

Function		Specification
Power Input	Input Voltage (V)	1PH 220V (-15%)~240V(+10%) 3PH 220V(-15%)~240V(+10%) 3PH 380V (-15%)~440V(+10%)
	Input Current (A)	Refer to the rated value
	Input Frequency (Hz)	50Hz or 60Hz, allowed range: 47~63Hz
Power Output	Output Motor Capacity (kW)	Refer to the rated value
	Output Current (A)	Refer to the rated value
	Output Voltage (V)	0~input voltage, error <5%
	Output Frequency (Hz)	0~400Hz
Technical Control Feature	Control Mode	SVPWM, SVC
	Adjustable-speed Ratio	1:100
	Speed Control Accuracy	± 0.2% (SVC)
	Speed Fluctuation	± 0.3% (SVC)
	Torque Response	<20ms (SVC)
	Torque Control Accuracy	10%
	Starting Torque	0. 5Hz/150% (SVC)
Running Control Feature	Overload Capability	150% of rated current: 1 minute 180% of rated current: 10 seconds 200% of rated current: 1 second
	Frequency Setting Method	Digital setting, analog setting, pulse frequency setting, multi-step speed running setting, simple PLC setting, PID setting, MODBUS communication setting Shift between the set combination and set channel.
	Auto-adjustment of the Voltage	Keep a stable voltage automatically when the grid voltage transients
Peripheral Interface	Fault Protection	Provide comprehensive fault protection functions: over-current, over-voltage, under-voltage, over-heating, phase loss and overload, etc.
	Analog Input	1 (AI2) 0~10V/0~20mA and 1 (AI3) -10~10V
	Analog Output	2 (AO1, AO2) 0~10V/0~20mA (Only 1 AO for inverters ≤2.2kW)
	Digital Input	4 common inputs, the Max. frequency: 1kHz; 1 high speed input, the Max. frequency: 50kHz
	Digital Output	1 Y1 terminal output;
Others	Relay Output	2 programmable relay outputs(Only 1 Relay output for inverters ≤2.2kW) RO1A NO, RO1B NC, RO1C common terminal RO2A NO, RO2B NC, RO2C common terminal Contactor capacity: 3A/AC250V
	Mountable Method	Wall and rail mountable
	Braking Unit	≤37kW Standard built-in. 45~110kW Optional built-in (model "-B")
	EMI Filter	Optional filter: meet the degree requirement of IEC61800-3 C2, IEC61800-3 C3
	Temperature of the Running Environment	-10~50°C Above 40°C, derate 1% for every additional 1°C.
	Altitude	<1000m Above 1000m, derate 1% for every additional 100m.
	Protective Degree	IP20
	Safety	Meet the requirement of CE
Cooling	Fan cooling	

Selection

Type designation key

TDI20 - 055G - 4 - B - EU

① ② ③ ④ ⑤

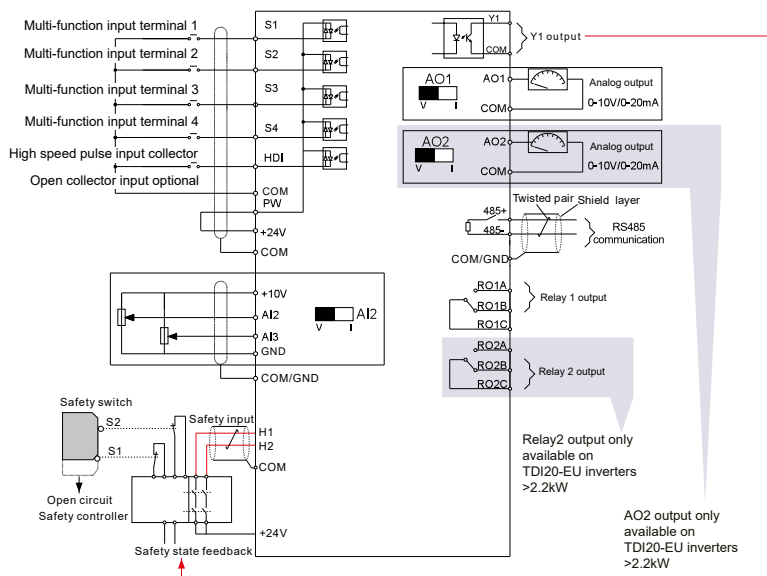
Key	No.	Detailed description	Detailed content
Abbreviation	①	Product abbreviation	TDI20-EU is short for TECDrive20-EU
Rated power	②	Power range+load type	055:55kW G: constant torque load
Voltage degree	③	Voltage degree	S2: AC 1PH 220V(-15%)~240V(+10%) 2: AC 3PH 220V(-15%)~240V(+10%) 4: AC 3PH 380V(-15%)~440V(+10%)
Additional information 1	④	Braking unit	B: For inverter ≥ 45 kW and With "B" assigned, means built-in braking unit.
Additional information 2	⑤	Special function	EU: built-in Safe Torque Off function; Without EU, without the function

Rated parameters

Model	Voltage degree	Output power (kW)	Input current (A)	Output current (A)	STO function
TDI20-0R4G-S2-EU	1PH 230V	0.4	6.5	2.5	Class SIL2 PLd CAT.3
TDI20-0R7G-S2-EU		0.75	9.3	4.2	
TDI20-1R5G-S2-EU		1.5	15.7	7.5	
TDI20-2R2G-S2-EU		2.2	24	10	
TDI20-0R4G-2-EU	3PH 230V	0.4	3.7	2.5	Class SIL3 PLe CAT.3
TDI20-0R7G-2-EU		0.75	5	4.2	
TDI20-1R5G-2-EU		1.5	7.7	7.5	
TDI20-2R2G-2-EU		2.2	11	10	
TDI20-004G-2-EU		4	17	16	
TDI20-5R5G-2-EU		5.5	21	20	
TDI20-7R5G-2-EU	7.5	31	30		
TDI20-0R7G-4-EU	3PH 400V	0.75	3.4	2.5	Class SIL2 PLd CAT.3
TDI20-1R5G-4-EU		1.5	5.0	4.2	
TDI20-2R2G-4-EU		2.2	5.8	5.5	Class SIL3 PLe CAT.3
TDI20-004G-4-EU		4	13.5	9.5	
TDI20-5R5G-4-EU		5.5	19.5	14	
TDI20-7R5G-4-EU		7.5	25	18.5	
TDI20-011G-4-EU		11	32	25	
TDI20-015G-4-EU		15	40	32	
TDI20-018G-4-EU		18.5	47	38	
TDI20-022G-4-EU		22	51	45	
TDI20-030G-4-EU		30	70	60	
TDI20-037G-4-EU		37	80	75	
TDI20-045G-4-EU		45	98	92	
TDI20-045G-4-B-EU		45	98	92	
TDI20-055G-4-EU		55	128	115	
TDI20-055G-4-B-EU		55	128	115	
TDI20-075G-4-EU		75	139	150	
TDI20-075G-4-B-EU		75	139	150	
TDI20-090G-4-EU		90	168	180	
TDI20-090G-4-B-EU		90	168	180	
TDI20-110G-4-EU	110	201	215		
TDI20-110G-4-B-EU	110	201	215		

Standard wiring

Wiring diagram of control circuit



Logic table for STO function

Input states and corresponding faults of STO function:

STO input state	Corresponding STO fault
H1, H2 opens simultaneously	Trigger STO function, the drive can't operate normally
H1, H2 closes simultaneously	Don't trigger STO function, the drive can operate normally
Either H1 or H2 opens or closes	Trigger STL1/STL2/STL3 fault, fault code: 38: Safety circuit of channel 1 is abnormal (STL1) 39: Safety circuit of channel 2 is abnormal (STL2) 40: Internal circuit is abnormal (STL3)

Control terminal diagram

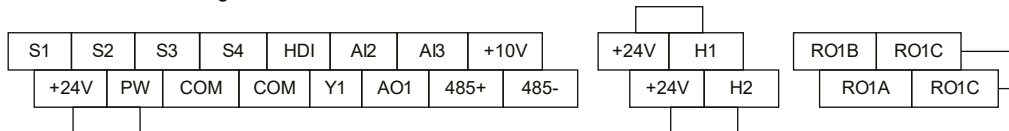


Fig 1 Connection terminal diagram for inverters ≤2.2kW

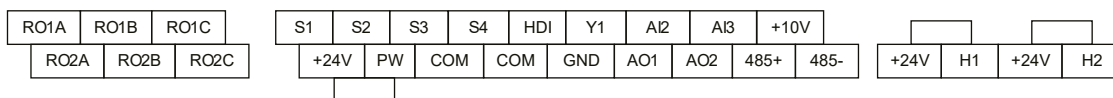
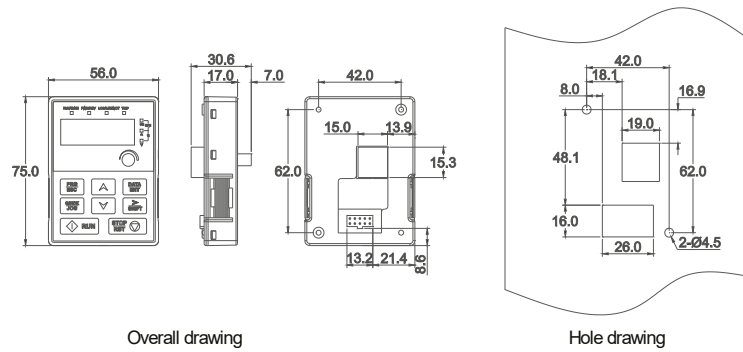


Fig 2 Connection terminal diagram for inverters ≥4kW

Installation dimension

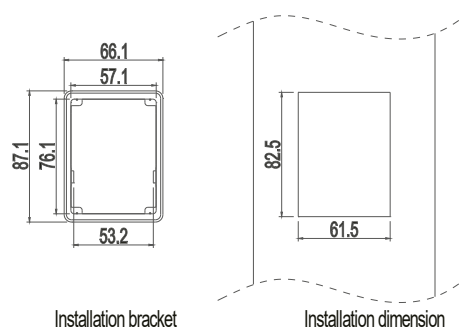
External keypad dimension



Overall drawing

Hole drawing

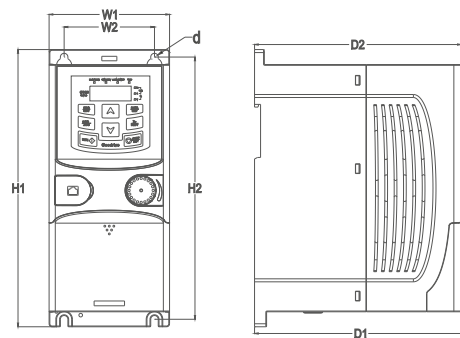
Note: The external keypad can be 20 meters away from the inverter at most.



Installation bracket

Installation dimension

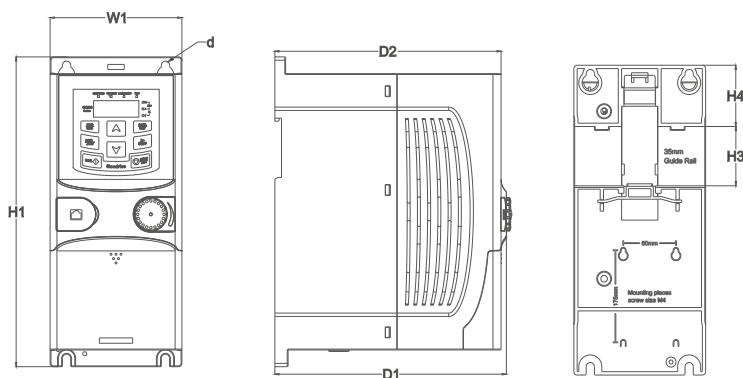
Inverter dimension



Wall mounting of 0.75~2.2kW inverters

Dimension (unit: mm)

Model	W1	W2	H1	H2	D1	D2	Hole (d)
TDI20-0R4G-S2-EU	80.0	60.0	160.0	150.0	123.5	120.3	5
TDI20-0R7G-S2-EU	80.0	60.0	160.0	150.0	123.5	120.3	5
TDI20-1R5G-S2-EU	80.0	60.0	185.0	175.0	140.5	137.3	5
TDI20-2R2G-S2-EU	80.0	60.0	185.0	175.0	140.5	137.3	5
TDI20-0R4G-2-EU	80.0	60.0	185.0	175.0	140.5	137.3	5
TDI20-0R7G-2-EU	80.0	60.0	185.0	175.0	140.5	137.3	5
TDI20-0R7G-4-EU	80.0	60.0	185.0	175.0	140.5	137.3	5
TDI20-1R5G-4-EU	80.0	60.0	185.0	175.0	140.5	137.3	5
TDI20-2R2G-4-EU	80.0	60.0	185.0	175.0	140.5	137.3	5



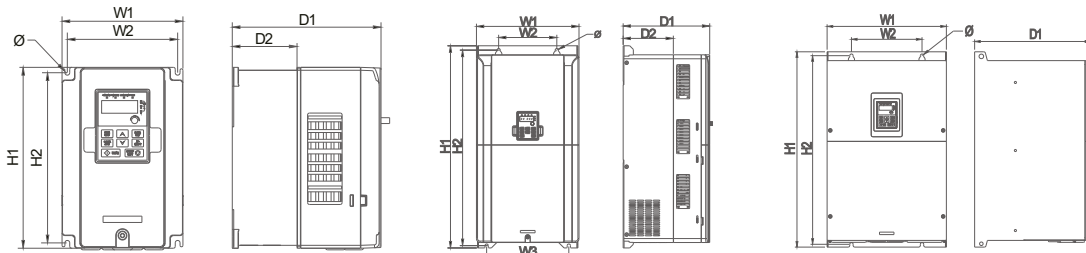
Rail mounting of inverters of 1PH 230V/3PH 400V ($\leq 2.2kW$) and 3PH 230V ($\leq 0.75kW$)

Dimension (unit: mm)

Model	W1	H1	H3	H4	D1	D2	Hole (d)
TDI20-0R4G-S2-EU	80.0	160.0	35.4	36.6	123.5	120.3	5
TDI20-0R7G-S2-EU	80.0	160.0	35.4	36.6	123.5	120.3	5
TDI20-1R5G-S2-EU	80.0	185.0	35.4	36.6	140.5	137.3	5
TDI20-2R2G-S2-EU	80.0	185.0	35.4	36.6	140.5	137.3	5
TDI20-0R4G-2-EU	80.0	185.0	35.4	36.6	140.5	137.3	5
TDI20-0R7G-2-EU	80.0	185.0	35.4	36.6	140.5	137.3	5
TDI20-0R7G-4-EU	80.0	185.0	35.4	36.6	140.5	137.3	5
TDI20-1R5G-4-EU	80.0	185.0	35.4	36.6	140.5	137.3	5
TDI20-2R2G-4-EU	80.0	185.0	35.4	36.6	140.5	137.3	5

Installation dimension

Inverter dimension



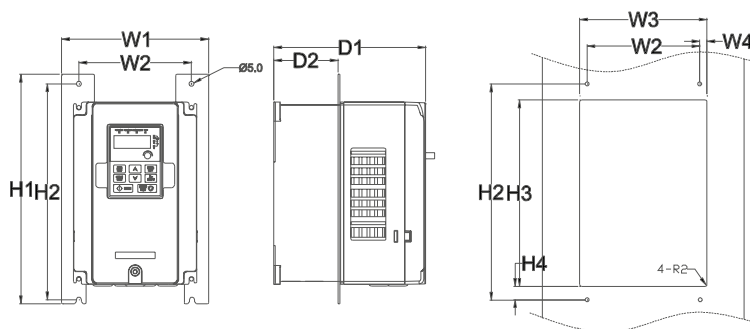
Wall mounting of 3PH 400V 4~37kW and 3PH 230V 1.5~7.5 kW inverters

Wall mounting of 3PH 400V 45~75kW inverters

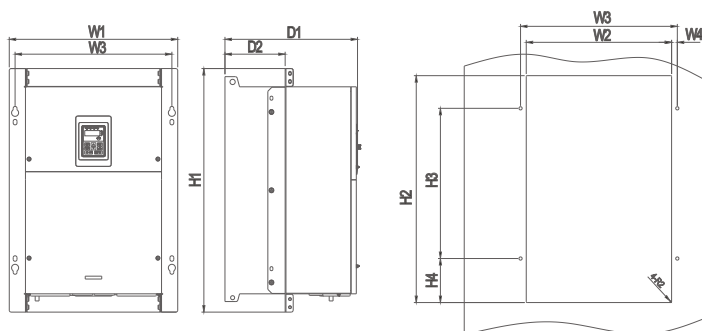
Wall mounting of 3PH 400V 90~110kW inverters

Dimension (unit: mm)

Model	W1	W2	W3	H1	H2	D1	D2	Hole (d)
TDI20-1R5G-2-EU	146.0	131.0	—	256.0	243.5	167.0	84.5	6
TDI20-2R2G-2-EU	146.0	131.0	—	256.0	243.5	167.0	84.5	6
TDI20-004G-2-EU	146.0	131.0	—	256.0	243.5	167.0	84.5	6
TDI20-5R5G-2-EU	170.0	151.0	—	320.0	303.5	196.3	113.0	6
TDI20-7R5G-2-EU	170.0	151.0	—	320.0	303.5	196.3	113.0	6
TDI20-004G-4-EU	146.0	131.0	—	256.0	243.5	167.0	84.5	6
TDI20-5R5G-4-EU	146.0	131.0	—	256.0	243.5	167.0	84.5	6
TDI20-7R5G-4-EU	170.0	151.0	—	320.0	303.5	196.3	113.0	6
TDI20-011G-4-EU	170.0	151.0	—	320.0	303.5	196.3	113.0	6
TDI20-015G-4-EU	170.0	151.0	—	320.0	303.5	196.3	113.0	6
TDI20-018G-4-EU	200.0	185.0	—	340.6	328.6	184.3	104.5	6
TDI20-022G-4-EU	200.0	185.0	—	340.6	328.6	184.3	104.5	6
TDI20-030G-4-EU	250.0	230.0	—	400.0	380.0	202.0	123.5	6
TDI20-037G-4-EU	250.0	230.0	—	400.0	380.0	202.0	123.5	6
TDI20-045G-4-EU	282.0	160.0	226.0	560.0	542.0	238.0	138.0	9
TDI20-055G-4-EU	282.0	160.0	226.0	560.0	542.0	238.0	138.0	9
TDI20-075G-4-EU	282.0	160.0	226.0	560.0	542.0	238.0	138.0	9
TDI20-090G-4-EU	338.0	200.0	—	554.0	535.0	329.2	—	9.5
TDI20-110G-4-EU	338.0	200.0	—	554.0	535.0	329.2	—	9.5



Flange mounting of 3PH 400V 4~75kW and 3PH 230V 1.5~7.5kW inverters



Flange mounting of 3PH 400V 90~110kW inverters

Dimension (unit: mm)

Model	W1	W2	W3	W4	H1	H2	H3	H4	D1	D2	Hole (d)	Nut
TDI20-1R5G-2-EU	170.2	131	150	9.5	292	276	260	6	167	84.5	6	M5
TDI20-2R2G-2-EU	170.2	131	150	9.5	292	276	260	6	167	84.5	6	M5
TDI20-004G-2-EU	170.2	131	150	9.5	292	276	260	6	167	84.5	6	M5
TDI20-5R5G-2-EU	191.2	151	174	11.5	370	351	324	12	196.3	113	6	M5
TDI20-7R5G-2-EU	191.2	151	174	11.5	370	351	324	12	196.3	113	6	M5
TDI20-004G-4-EU	170.2	131	150	9.5	292	276	260	6	167	84.5	6	M5
TDI20-5R5G-4-EU	170.2	131	150	9.5	292	276	260	6	167	84.5	6	M5
TDI20-7R5G-4-EU	191.2	151	174	11.5	370	351	324	12	196.3	113	6	M5
TDI20-011G-4-EU	191.2	151	174	11.5	370	351	324	12	196.3	113	6	M5
TDI20-015G-4-EU	191.2	151	174	11.5	370	351	324	12	196.3	113	6	M5
TDI20-018G-4-EU	266	250	224	13	371	250	350.6	20.3	184.6	104	6	M5
TDI20-022G-4-EU	266	250	224	13	371	250	350.6	20.3	184.6	104	6	M5
TDI20-030G-4-EU	316	300	274	13	430	300	410	55	202	118.3	6	M5
TDI20-037G-4-EU	316	300	274	13	430	300	410	55	202	118.3	6	M5
TDI20-045G-4-EU	352	332	306	13	580	400	570	80	238	133.8	9	M8
TDI20-055G-4-EU	352	332	306	13	580	400	570	80	238	133.8	9	M8
TDI20-075G-4-EU	352	332	306	13	580	400	570	80	238	133.8	9	M8
TDI20-090G-4-EU	418.5	361	389.5	14.2	600	559	370	108.5	329.5	149.5	9.5	M8
TDI20-110G-4-EU	418.5	361	389.5	14.2	600	559	370	108.5	329.5	149.5	9.5	M8
TDI20-022G-4-EU	200.0	185.0	—	340.6	328.6	184.3	184.3	104.5	184.3	104.5	6	184.3
TDI20-030G-4-EU	250.0	230.0	—	400.0	380.0	202.0	202.0	123.5	202.0	123.5	6	202.0
TDI20-037G-4-EU	250.0	230.0	—	400.0	380.0	202.0	202.0	123.5	202.0	123.5	6	202.0
TDI20-045G-4-EU	282.0	160.0	226.0	560.0	542.0	238.0	238.0	138.0	238.0	138.0	9	238.0
TDI20-055G-4-EU	282.0	160.0	226.0	560.0	542.0	238.0	238.0	138.0	238.0	138.0	9	238.0
TDI20-075G-4-EU	282.0	160.0	226.0	560.0	542.0	238.0	238.0	138.0	238.0	138.0	9	238.0
TDI20-090G-4-EU	338.0	200.0	—	554.0	535.0	329.2	329.2	—	329.2	—	9.5	329.2
TDI20-110G-4-EU	338.0	200.0	—	554.0	535.0	329.2	329.2	—	329.2	—	9.5	329.2

Note: In flange installation mode, the installation bracket is optional

Optional parts

External LED keypad

External keypad with parameter copy function, includes connection cable and mounting bracket.



parameter copying

Reactor

Input reactor: Improve the power factor of the input side of the inverter and control the higher harmonic current.

Output reactor: Prolong the effective transmitting distance of the inverter and control the sudden high voltage when switching on/off the IGBT of the inverter.



Filter

Input filter: Control the electromagnetic interference generated from the inverter, please install close to the input terminal side of the inverter.

Output filter: Control the interference from the output side of the inverter, please install close to the output terminals of the inverter.



Braking resistor

Auxiliary equipment for braking system, shorten the deceleration time.



Membrane of heat releasing holes at the side

Apply to severe environment and improve protective effect.

Derate 10% of the machine.





/ TDI350A Series

TDI350 is a brand new high-performance VFD which integrates the speed, torque, and position control. It is widely applicable to control over synchronous and asynchronous motors. It is highly extensible and flexible with PG card, PLC card, communication card and IO card, meeting the demands of various industries. It's oriented for mid&high end OEM market, mainly covering printing, packaging, winding, etc.



Features

- Support SVC and VC(Closed loop) control for both asynchronous and synchronous motors.
- Enable high precision of speed, position, torque control and fast speed response.
- Support Ethernet/IP, Profinet, CAN Master/Slave, etc.
- Accept plug-in of three expansion cards simultaneously (only two cards≤ 5.5kW(Gtype, 7.5HP)
- Integrate safety function-STO (Safe Torque OFF, SIL2).
- Unique I/F control and online transition with other control modes are very suitable for the situation where the asynchronous motor has low speed with high torque and the speed accuracy is not high.
- Multi-function LCD keyboard.
- Support optional Bluetooth card and WIFI card.
- Dual rating is available for the whole range of inverters.

Product Advantages

Performance improvement

Compared with the products of last generation, the performance is significantly improved



Motor auto-tuning

- Asynchronous motor—Eliminates the impact of the skin effect, improving the auto-tuning precision.
- Synchronous motor—Performs auto-tuning on the counter-electromotive force, effectively avoids the impact of the initial value of the counter-electromotive force.

DC braking

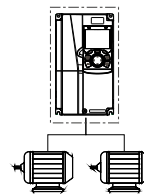
- The current change is smoother in the process of the motor entering DC braking from rotating, the current shock is weak, and the current response is faster.

Rotating speed tracking

- In any of the control modes, the rotating speed tracking method brings the least current shock, and thus significantly improves the stability.

High torque at low speed

- Special I/F control, featuring constant current source, highly applicable to scenarios where multiple motors are to be driven simultaneously and high torque is required at low speed.



State	IO/IN(M)(%)	
	Multi-point VF	I/F control
Before and after brake open in forward running	62.80%	133.40%
Before and after brake open in reverse running	62.50%	130.30%
Before and after brake close in forward running	65.70%	136.10%
Before and after brake close in reverse running	92.00%	136.30%

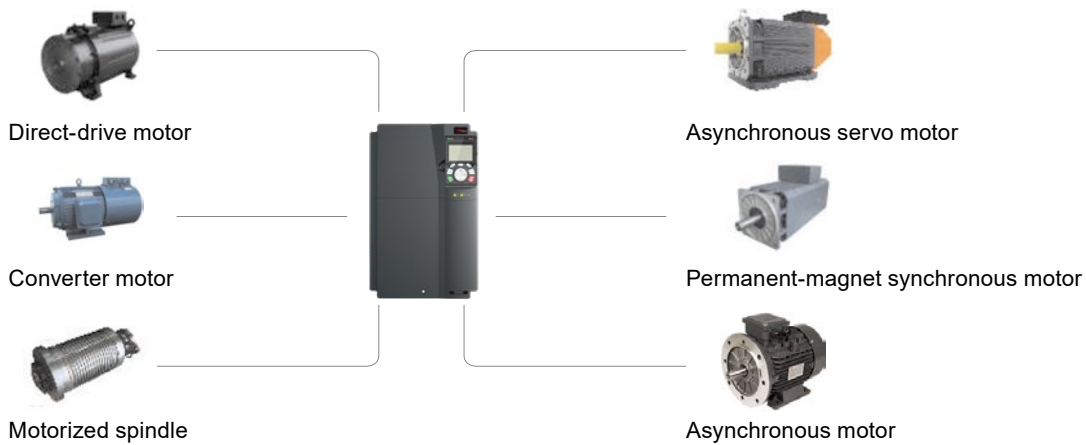
Data measured on a construction machinery site

Control performance

- New-type flux linkage observer, improving the stability of the high-speed control.
- New-type speed/current regulator, improving the current control result in quick start and reducing speed overshoot.
- New-type phase-locked loop, improving the stability of high-torque control.
- Compensation for output voltage phases and amplitude, improving the stability of high- and low-speed carriers.
- Adding the synchronous motor VF control mode based on reactive current control. The output current adapts to the load and the oscillation suppression algorithm.

Drive various motors

Applicable to drive different types of motors



Combine different controls

More precise, stronger torque, speed, and position control over motors

Characteristic indicator	TECDrive350A
Position control precision	±1 pulse

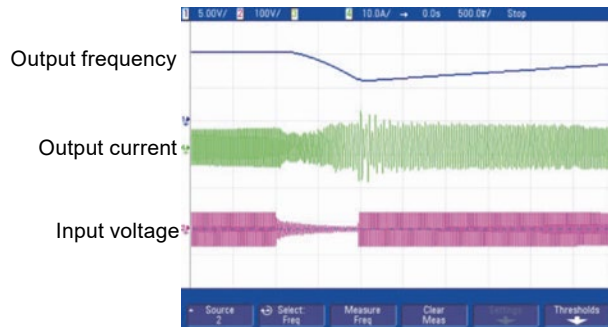
(2) Torque and speed control performance—Ensure stable mechanical operation, fast response, and low torque ripple

Characteristic indicator	TECDrive350A
Speed regulation range	1:1000
Speed stabilization precision	+0.02%
Response time in torque control	<10ms
Torque control precision	5%
Start frequency/higher start torque	0Hz/200%

Power loss ride-through

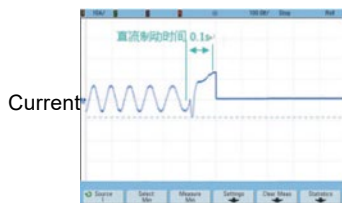
When the grid encounters a momentary power outage, the VFD can keep running by using the fed-back energy within a certain period of time.

It is highly applicable to chemical fiber and textile production lines and other scenarios where the device is required to run continuously.

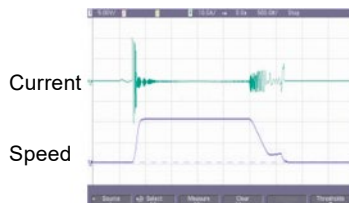


Multiple braking modes to enable fast stop

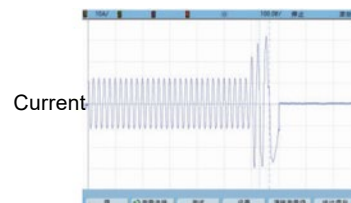
Dynamic braking	DC braking	Magnetic braking	Short-circuit braking
High torque fast speed	No brake unit or brake resistor required	No brake unit or brake resistor required; allowing fast braking	No brake unit or brake resistor required; allowing fast braking
Large-inertia loads scenarios are frequently braked	Applicable to scenarios where freely running motors are to be braked first and then started and where torque output needs to be kept after the motor is braked to run at the speed of zero	Applicable to scenarios where large inertia loads are to be fast stopped at low frequency	Applicable only to fast stop of PMSMs or braking and then starting freely running PMSMs



Current wave in the SVPWM mode for asynchronous motors
Frequency: 10Hz
Braking current: 100%



PMSM short-circuit braking wave
Acceleration time: 0.1s
Deceleration time is 0.4s

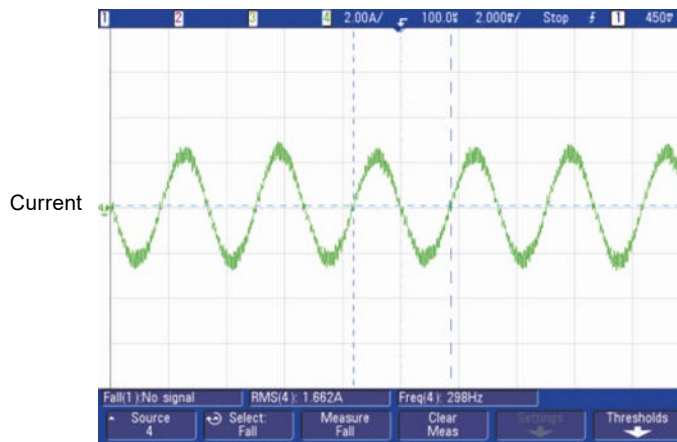


Magnetic flux braking current wave in the SVPWM mode for asynchronous motors
Frequency: 50Hz
Rated load: 100%

Proper voltage and current control, effectively reducing the number of VFD fault protection times

Overvoltage	Overcurrent
Regulates the output frequency to prevent the motor from an over-voltage situation due to fast deceleration.	Regulates the output frequency during deceleration to prevent over-current under heavy loads.

Excellent driving performance on special motors

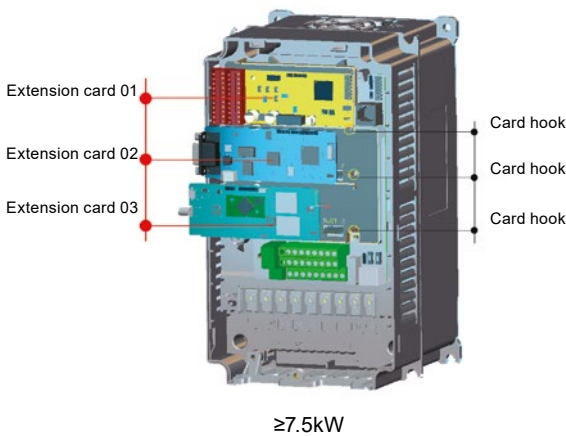


Current wave at 300 Hz with 100% of the rated load in the open-loop vector control mode for synchronous motors

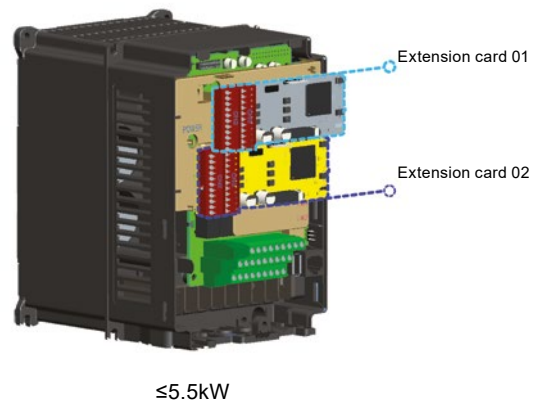
Multi-function

Enhanced extension performance

- (1) Optional PLC, I/O, communication, and PG cards
- (2) Consistent extension card dimensions



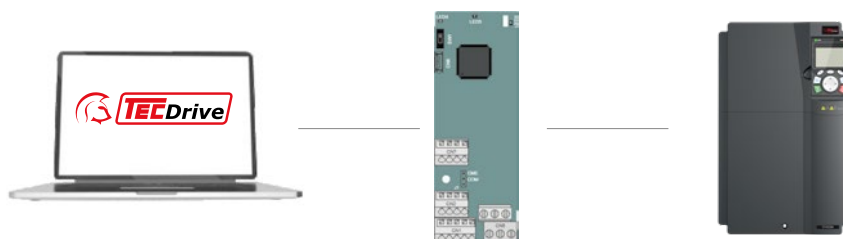
≥7.5kW



≤5.5kW

Supporting customer requirements

- (1) Meeting customization requirements, reducing costs, and improving the processes
- (2) Optional PLC card, 128 k program memory space

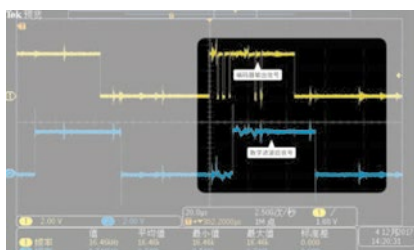


Supporting various industrial communication protocols

- (1) Standard Modbus communication, supporting the following communication modes based on extension cards



Adopting the digital filtering technology that improves EMC;
the anti-interference performance is twice that of conventional solutions



Encoder signal: near-field coupling of 100m motor wire

- (1) Supporting pulse reference and frequency-divided output;
- (2) providing the fast encoder disconnection detection function to prevent the expansion of the system fault impact

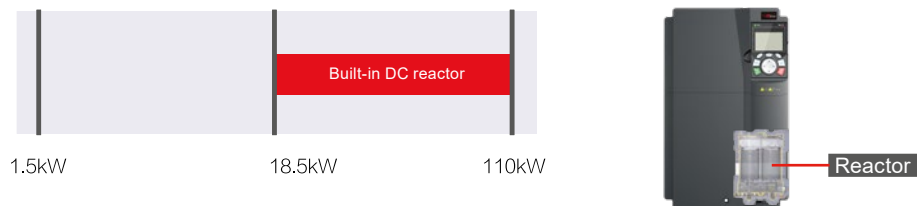
2 x HDIs that can serve as speed sources or high-speed AB pulse inputs, which can be used for simple closed-loop application



Supporting built-in braking units at a maximum of 110 kW, reducing customers' costs and installation space

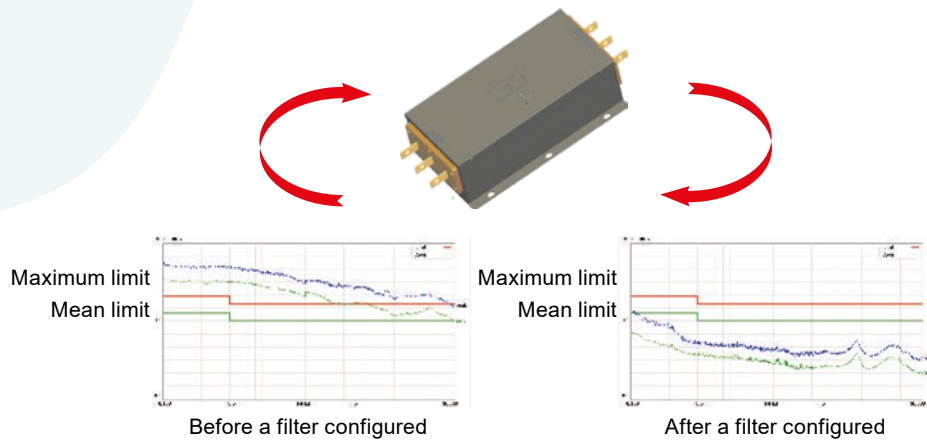


Providing built-in DC reactors for models of 18.5 kW–110 kW



Built-in C3 input filters; optional C2 filters for 380V models

Built-in C3 input filters of 380 V in factory reduce external installation space and prevents electromagnetic interference



Test for power terminal conduct disturbance

Note:

C2 filters: EMC performance meets civilian environments.

C3 filters: EMC performance meets industrial environments.

Abundant external interfaces, meeting the requirements of most application sites

Terminal type	Quantity	Feature
Digital input	4	1. Programmable multi-function terminal 2. Max. input frequency: 1 kHz 3. Compatible with both NPN and PNP inputs
High-speed pulse input	2	1. Max. input frequency: 50 kHz 2. Compatible with both NPN and PNP inputs 3. Supporting the input of quadrature encoders, and providing the speed detection function
Analog input	2	0~10V , 0~20mA , -10~10V
Digital output	1	Max. output frequency: 1 kHz
High-speed pulse output	1	Max. output frequency : 50kHz
Analog output	2	0~10V , 0~20mA
Relay output	2	3A/AC250V , 1A/DC30V ; NO+NC

Ease of use

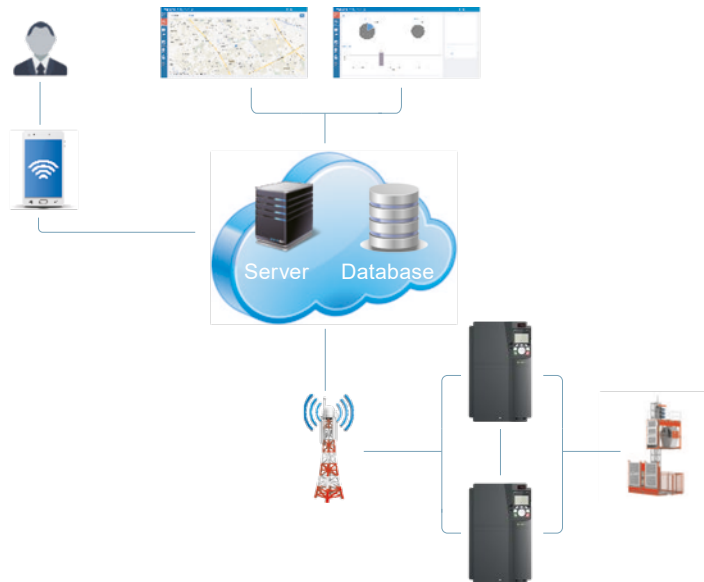
Wireless commissioning

(1) Bluetooth/WIFI connection. You can use the mobile phone application to substitute for the traditional keypad.



Connecting through the Internet of Things (IoT), remote monitoring

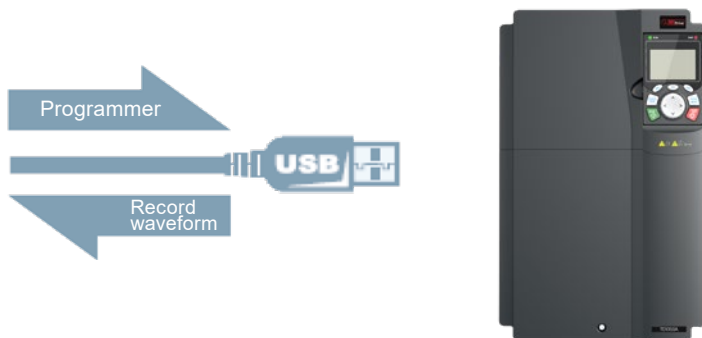
(1) Wireless access. You can easily connect to the IoT, operate the VFD through mobile phone or PC, and obtain the running state of the VFD in real time.



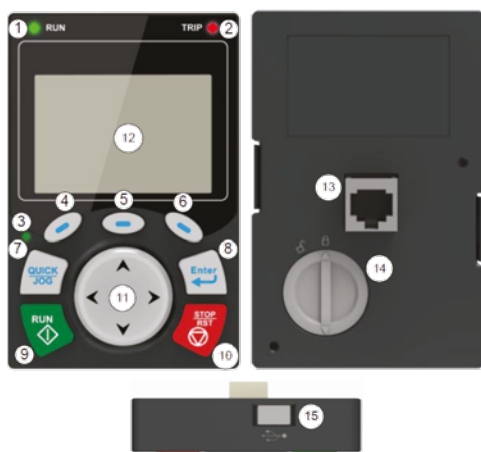
Standard USB interface

USB update

Record the operation curve and failure waveform for easy mainstream and analysis.



Providing the multi-function LCD operating panel, user-friendly design, focusing on user experience



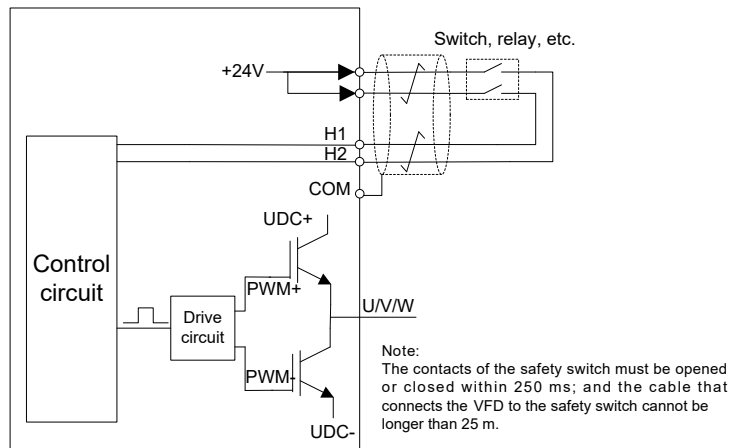
No.	name	No.	name
1	Run	9	Running key
2	Trip	10	Stop/Reset key
3	Quick/Jog	11	Direction key
4	Function key	12	Display screen
5		13	RJ45 interface
6		14	Clock battery cover
7	Short-cut key	15	Mini USB terminal
8	Confirmation key		

Safe and reliable

Optimal reliability test system, ensuring that the product meets the most complicated application environments

Providing the built-in safe torque off (STO) function, reaching the international level, ensuring more safe and reliable application

- (1) SIL2 level
- (2) Can be used to set up a safety system



Application Scenarios



Technical Specification

Function description		Specification
Power input	Input voltage (V)	AC 3PH 380V (-15%)–440V (+10%) rated voltage: 380V
	Input current (A)	Refer to Rated value
	Input frequency (Hz)	50Hz or 60Hz, allowable range: 47-63Hz
Power output	Output voltage (V)	0–input voltage
	Output current (A)	Refer to Rated value
	Output power (kW)	Refer to Rated value
	Output frequency (Hz)	0–400Hz
Technical Control performance	Control mode	SVPWM control, SVC, VC
	Motor type	Asynchronous motor, permanent magnet synchronous motor
	Speed regulation ratio	Asynchronous motor 1: 200 (SVC); Synchronous motor 120(SVC) , 1:1000 (VC)
	Speed control precision	±0.2% (SVC), ±0.02% (VC)
	Speed fluctuation	± 0.3% (SVC)
	Torque response	<20ms SVC) , <10ms (VC)
	Torque control precision	10% (SVC) , 5% (VC)
	Starting torque	Asynchronous motor: 0.25Hz/150% (SVC) Synchronous motor: 2.5 Hz/150% (SVC) 0Hz/200% (VC)
	Overload capacity	150% of rated current: 1min(G) 120% of rated current: 1min(P)
Running control performance	Frequency setup mode	Digital, analog, pulse frequency, multistep speed Simple PLC, PID, Modbus communication.
	Automatic voltage regulation function	Keep the output voltage constant when grid voltage changes
	Fault protection function	Fault protection function Provide over 30 kinds of fault protection functions: overcurrent, overvoltage, undervoltage, over-temperature, phase loss and overload, etc.
	Speed tracking restart function	Realize impact free starting of the motor in rotating Note: This function is available for 004G/5R5P and above models
Peripheral Interface	Terminal analog input	No more than 20mV
	Terminal digital input resolution	No more than 2ms
	Analog input	2 inputs, AI1: 0–10V/0–20mA; AI2: -10–10V
	Analog output	1 output, AO1: 0–10V /0–20mA
	Digital input	Four regular inputs; Max. frequency: 1kHz; Internal impedance: 3.3kΩ Two high-speed inputs; Max. frequency: 50kHz; supports quadrature encoder input; Speed measurement function
	Digital output	One high-speed pulse output; max. frequency: 50kHz One Y terminal open collector output
	Relay output	Two programmable relay outputs RO1A NO, RO1B NC, RO1C common port RO2A NO, RO2B NC, RO2C common port Contact capacity: 3A/AC250V, 1A/DC30V
	Extension interface	Three extension interfaces: SLOT1, SLOT2, SLOT3 Expandable PG card, programmable extension card, communication card I/O card, etc.

Function description		Specification
Others	Installation mode	Support wall-mounting, floor-mounting and flange-mounting
	Temperature of running environment	-10~50°C, derating is required if the ambient temperature exceeds 40°C
	Protection level	IP20
	Pollution level	Level 2
	Cooling mode	Air cooling
	Brake unit	Built-in up to 110kW
	Certification	380V models fulfill the requirements of IEC61800 3C3 Optional external filter should meet the requirements of IEC61800 3 C2

/ Type Selection

TDI350A
– 5R5G/7R5P
- 4
①
②
③

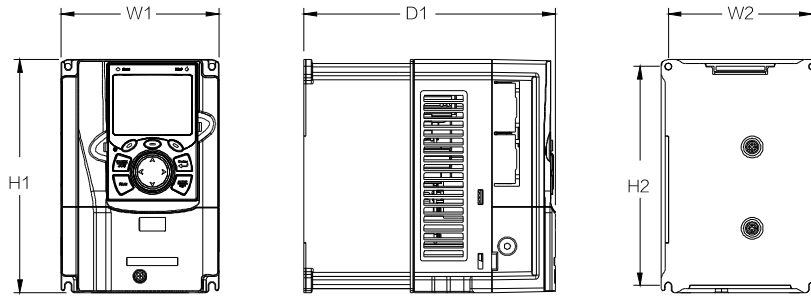
Sign	Description	Remark
①	Abbreviation of product series	TDI350A: TECDrive350A high-performance multi-function VFD
②	Power range+load type	5R5G/7R5P: 5.5kW G: Constant torque load P: Fan and water pump
③	Voltage level	4: AC 3PH 380V(-15%)~440V(+10%) Rated voltage: 380V

Power Ratings

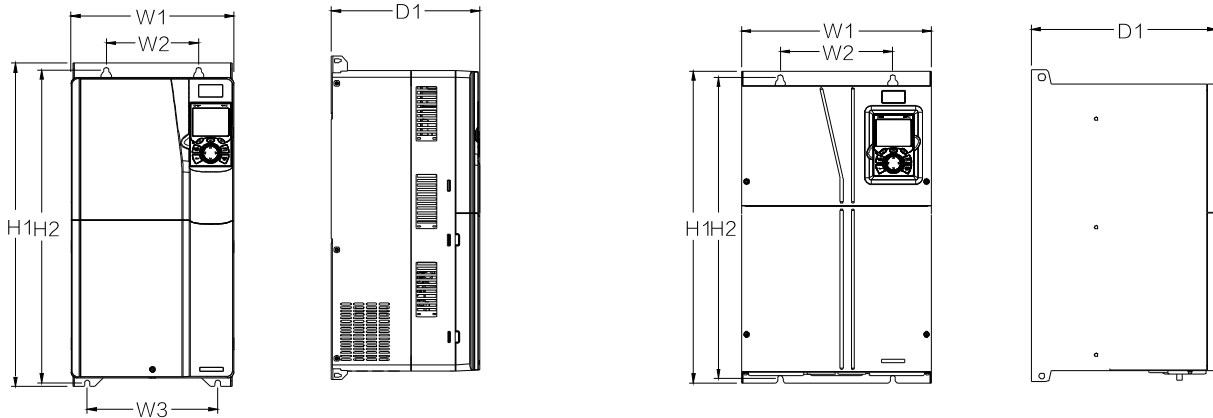
Model	Rated power (kW)	Rated input current (A)	Rated output current (A)	Dimension W*H*D(mm)		Gross weight (kg)	
				Product	Package	Net	Gross
TDI350A-1R5G/2R2P-4	1.5/2.2	5.0/5.8	3.7/5	126*186*185	290*210*265	2	3
TDI350A-2R2G/003P-4	2.2/3	5.8/11	5/7				
TDI350A-004G/5R5P-4	4/5.5	13.5/19.5	9.5/12.5	126*186*201	290*210*265	2.5	3.5
TDI350A-5R5G/7R5P-4	5.5/7.5	19.5/23	14/17				
TDI350A-7R5G/011P-4	7.5/11	25/30	18.5/23	146*256*192	343*230*270	3	4
TDI350A-011G/015P-4	11/15	32/40	25/32	170*320*220	430*275*325	6	7
TDI350A-015G/018P-4	15/18.5	40/45	32/38				
TDI350A-018G/022P-4	18.5/22	45/51	38/45	200*340.6*208	490*315*315	8.5	10.5
TDI350A-022G/030P-4	22/30	51/64	45/60				
TDI350A-030G/037P-4	30/37	64/80	60/75	250*400*223	580*395*360	16	17
TDI350A-037G/045P-4	37/45	80/98	75/92				
TDI350A-045G/055P-4	45/55	98/128	92/115	282*560*258	680*425*380	25	29
TDI350A-055G/075P-4	55/75	128/139	115/150				
TDI350A-075G/090P-4	75/90	139/168	150/170	338*554*330	675*470*575	41	52
TDI350A-090G/110P-4	90/110	168/201	180/215				
TDI350A-110G/132P-4	110/132	201/265	215/260	500*870*360	971*631*565	85	110
TDI350A-132G/160P-4	132/160	265/310	260/305				
TDI350A-160G/185P-4	160/185	310/345	305/340	680*960*380	1086*826*595	135	165
TDI350A-185G/200P-4	185/200	345/385	340/380				
TDI350A-200G/220P-4	200/220	385/430	380/425	620*1700*560	1850*840*820	350	407
TDI350A-220G/250P-4	220/250	430/460	425/480				
TDI350A-250G/280P-4	250/280	460/500	480/530	620*1700*560	1850*840*820	350	407
TDI350A-280G/315P-4	280/315	500/580	530/600				
TDI350A-315G/355P-4	315/355	580/625	600/650	620*1700*560	1850*840*820	350	407
TDI350A-355G/400P-4	355/400	625/715	650/720				
TDI350A-400G/450P-4	400/450	715/840	720/820	620*1700*560	1850*840*820	350	407
TDI350A-450G/500P-4	450/500	840/890	820/860				
TDI350A-500G-4	500	890	860				

Installation Dimension

Wall mounting installation diagram



380V, 1.5~37kW

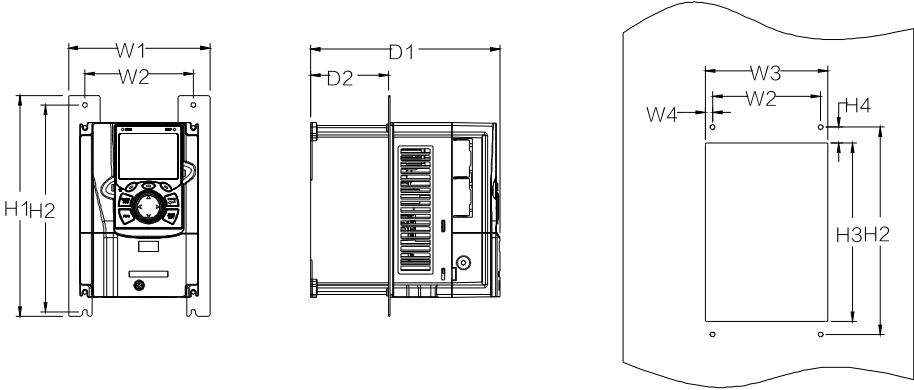


380V, 45~75kW

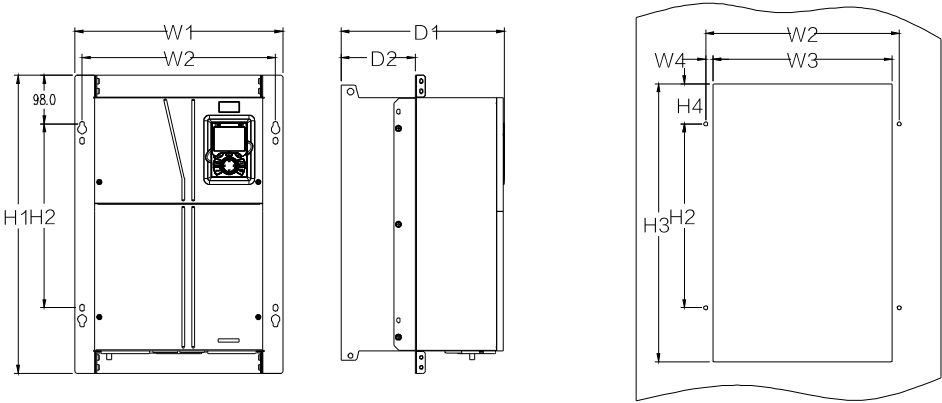
380V, 90~110kW

Model	W1	W2	W3	H1	H2	D1	Installation hole diameter	Fixing screw	
380V	1.5kW~2.2kW	126	115	-	186	175	185	5	M4
	4kW~5.5kW	126	115	-	186	175	201	5	M4
	7.5kW	146	131	-	256	243.5	192	6	M5
	11kW~15kW	170	151	-	320	303.5	220	6	M5
	18.5kW~22kW	200	185	-	340.6	328.6	208	6	M5
	30kW~37kW	250	230	-	400	380	223	6	M5
	45kW~75kW	282	160	226	560	542	258	9	M8
	90kW~110kW	338	200	-	554	535	330	10	M8
	132kW~200kW	500	180	-	870	850	360	11	M10
	220kW~315kW	680	230	-	960	926	380	13	M12

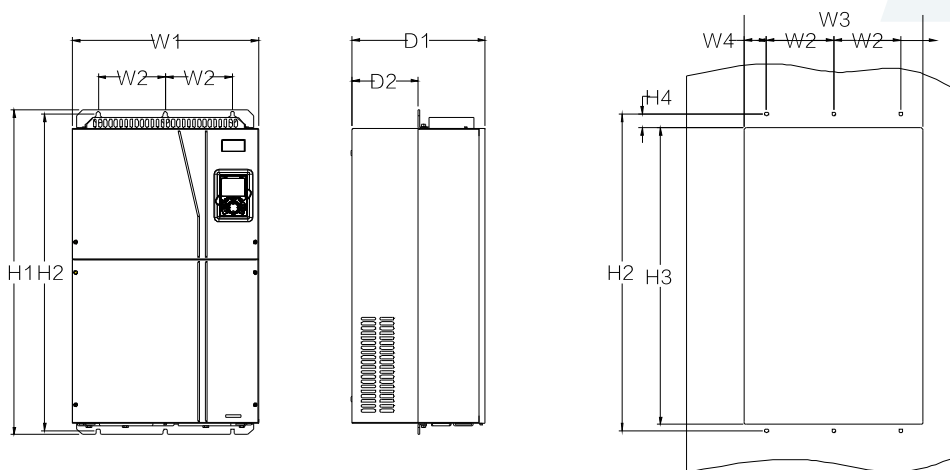
Flange mounting installation diagram



380V, 1.5~75kW



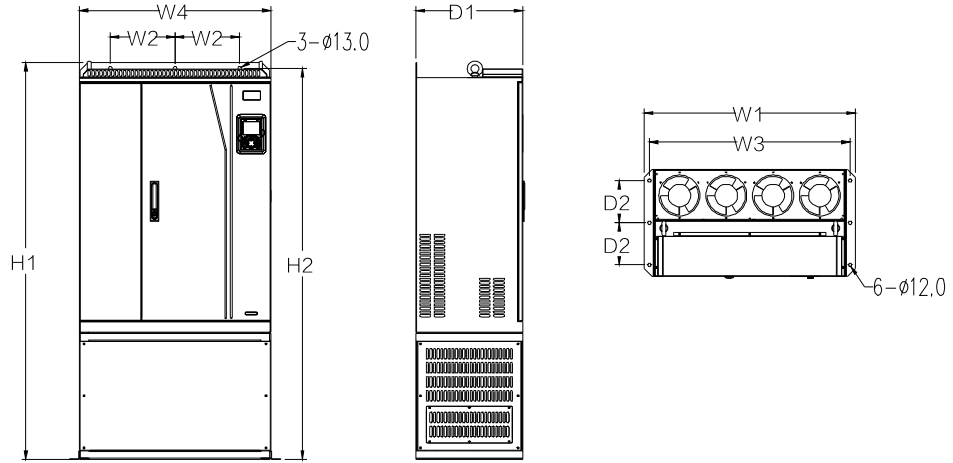
380V, 90~110kW



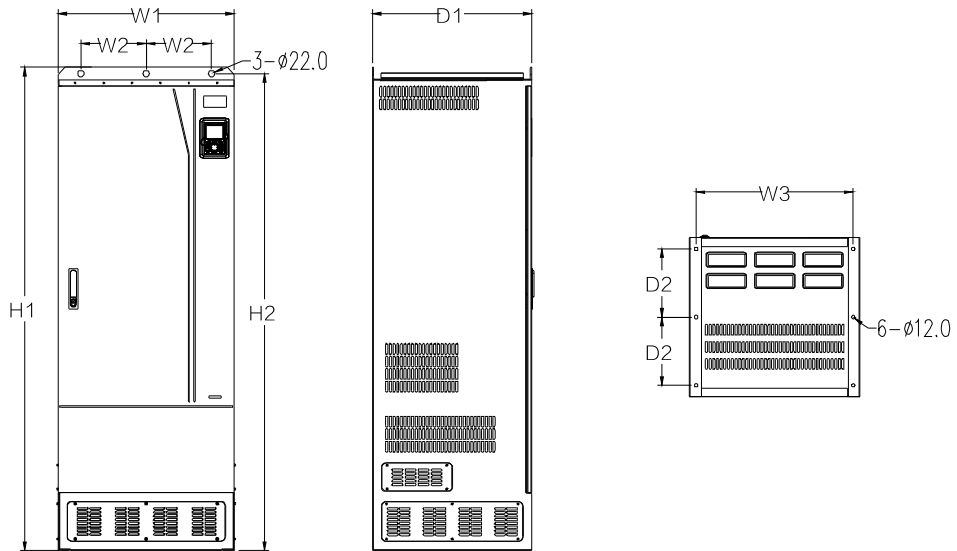
380V, 132~220kW

Model	W1	W2	W3	W4	H1	H2	H3	H4	D1	D2	Installation hole diameter	Fixing screw	
380V	1.5kW~2.2kW	150.2	115	130	7.5	234	220	190	13.5	185	65.5	5	M4
	4kW~5.5kW	150.2	115	130	7.5	234	220	190	13.5	201	83	5	M4
	7.5kW	170.2	131	150	9.5	292	276	260	6	192	84.5	6	M5
	11kW~15kW	191.2	151	174	11.5	370	351	324	12	220	113	6	M5
	18.5kW~22kW	266	250	224	13	371	250	350.6	20.3	208	104	6	M5
	30kW~37kW	316	300	274	13	430	300	410	55	223	118.3	6	M5
	45kW~75kW	352	332	306	12	580	400	570	80	258	133.8	9	M8
	90kW~110kW	418.5	389.5	361	14.2	600	370	559	108.5	330	149.5	10	M8
132kW~200kW	500	180	480	60	870	850	796	37	360	178.5	11	M10	

Floor mounting installation diagram



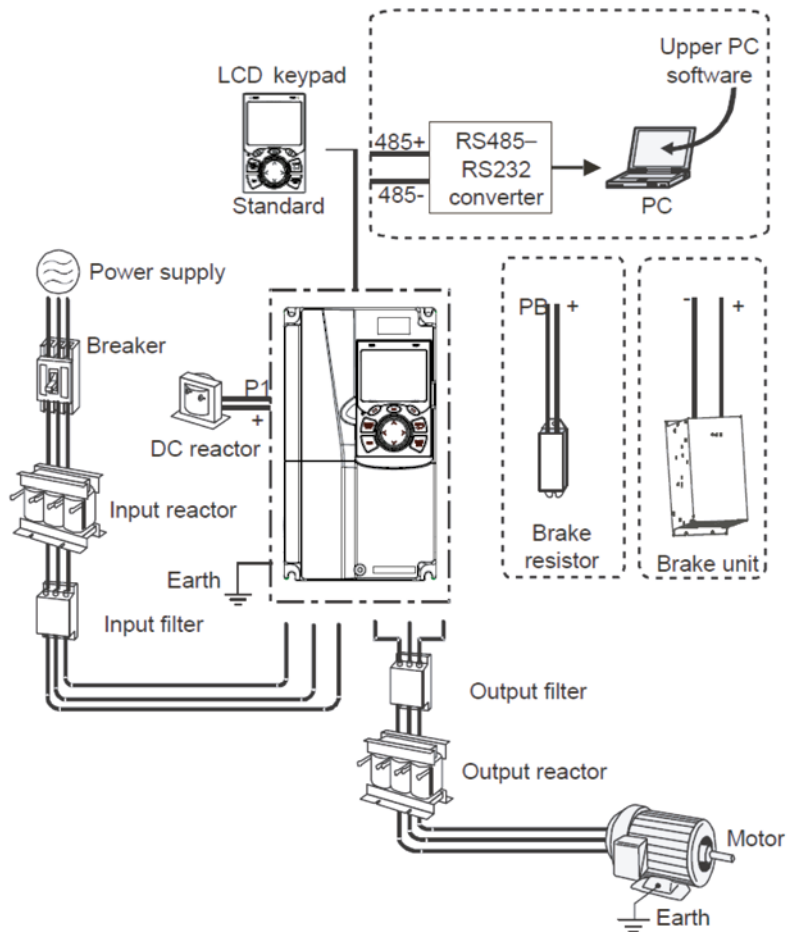
380V, 220~315kW



380V, 355~500kW

Model		W1	W2	W3	W4	H1	H2	D1	D2	Installation hole diameter	Fixing screw
380V	220kW~315kW	750	230	714	680	1410	1390	380	150	13\12	M12/M10
	355kW~500kW	620	230	572	-	1700	1678	560	240	22\12	M20/M10

Optional Parts

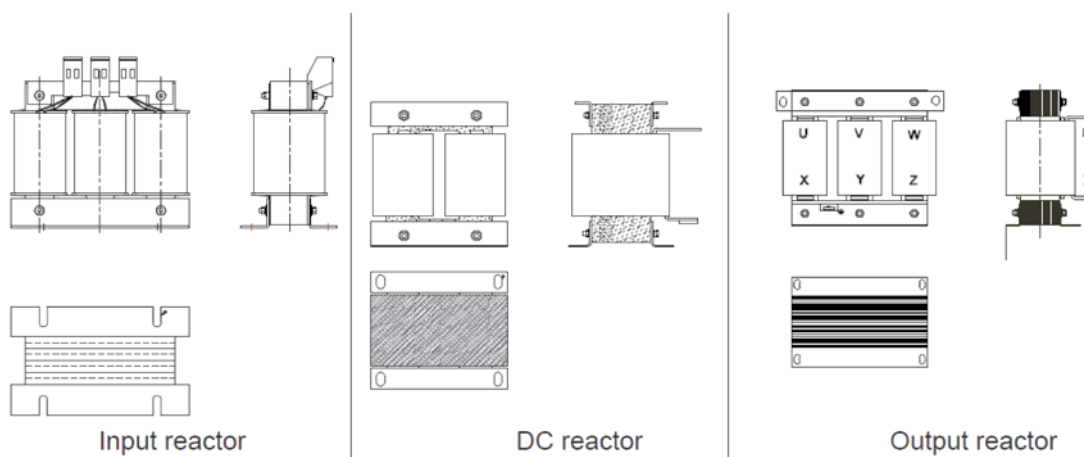


- Built-in up to 110kW
- VFDs of 380 V, 18.5 kW to 110 kW are equipped with built-in DC reactors
- P1 terminals are equipped only for VFDs of 380 V, 132 kW or higher, which enable the VFDs to be directly connected to external DC reactors
- The brake units are TEC's DBU series of braking units. For the details, please kindly check the DBU operation manual

Breakers and electromagnetic contactors

	Model	Breaker rated current (A)	Quick fuse (A)	Contactor rated current (A)
380V	TDI350A-1R5G/2R2P-4	6/10	10/10	9/9
	TDI350A-2R2G/003P-4	10/20	10/20	9/18
	TDI350A-004G/5R5P-4	20/25	20/35	18/25
	TDI350A-5R5G/7R5P-4	25/32	35/40	25/32
	TDI350A-7R5G/011P-4	32/50	40/50	32/38
	TDI350A-011G/015P-4	50/63	50/60	38/50
	TDI350A-015G/018P-4	63/63	60/70	50/65
	TDI350A-018G/022P-4	63/80	70/90	65/80
	TDI350A-022G/030P-4	80/100	90/125	80/80
	TDI350A-030G/037P-4	100/125	125/125	80/98
	TDI350A-037G/045P-4	125/140	125/150	98/115
	TDI350A-045G/055P-4	140/180	150/200	115/150
	TDI350A-055G/075P-4	180/225	200/250	150/185
	TDI350A-075G/090P4	225/250	250/300	185/225
	TDI350A-090G/110P-4	250/315	300/350	225/265
	TDI350A-110G/132P-4	315/400	350/400	265/330
	TDI350A-132G/160P-4	400/500	400/500	330/400
	TDI350A-160G/185P-4	500/500	500/600	400/400
	TDI350A-185G/200P-4	500/630	600/600	400/500
	TDI350A-200G/220P-4	630/630	600/700	500/500
	TDI350A-220G/250P-4	630/700	700/800	500/630
	TDI350A-250G/280P-4	700/800	800/1000	630/630
	TDI350A-280G/315P-4	800/1000	1000/1000	630/800
	TDI350A-315G/355P-4	1000/1000	1000/1000	800/800
TDI350A-355G/400P-4	1000/1000	1000/1200	800/1000	
TDI350A-400G/450P-4	1000/1250	1200/1200	1000/1000	
TDI350A-450G/500P-4	1250/1250	1200/1400	1000/1000	
TDI350A-500G-4	1250	1400	1000	

Reactors



Model		Input reactor		Output reactor	
		G type	P type	G type	P type
380V	TDI350A-1R5G/2R2P-4	ACL2-1R5-4	ACL2-2R2-4	OCL2-1R5-4	OCL2-1R5-4
	TDI350A-2R2G/003P-4	ACL2-2R2-4	ACL2-004-4	OCL2-2R2-4	OCL2-2R2-4
	TDI350A-004G/5R5P-4	ACL2-004-4	ACL2-5R5-4	OCL2-004-4	OCL2-5R5-4
	TDI350A-5R5G/7R5P-4	ACL2-5R5-4	ACL2-7R5-4	OCL2-5R5-4	OCL2-7R5-4
	TDI350A-7R5G/011P-4	ACL2-7R5-4	ACL2-011-4	OCL2-7R5-4	OCL2-011-4
	TDI350A-011G/015P-4	ACL2-011-4	ACL2-015-4	OCL2-011-4	OCL2-015-4
	TDI350A-015G/018P-4	ACL2-015-4	ACL2-018-4	OCL2-015-4	OCL2-015-4
	TDI350A-018G/022P-4	ACL2-018-4	ACL2-018-4	OCL2-018-4	OCL2-018-4
	TDI350A-022G/030P-4	ACL2-022-4	ACL2-037-4	OCL2-022-4	OCL2-022-4
	TDI350A-030G/037P-4	ACL2-037-4	ACL2-037-4	OCL2-037-4	OCL2-037-4
	TDI350A-037G/045P-4	ACL2-037-4	ACL2-045-4	OCL2-037-4	OCL2-037-4
	TDI350A-045G/055P-4	ACL2-045-4	ACL2-055-4	OCL2-045-4	OCL2-045-4
	TDI350A-055G/075P-4	ACL2-055-4	ACL2-055-4	OCL2-055-4	OCL2-055-4
	TDI350A-075G/090P-4	ACL2-075-4	ACL2-075-4	OCL2-075-4	OCL2-075-4
	TDI350A-090G/110P-4	ACL2-110-4	ACL2-110-4	OCL2-110-4	OCL2-110-4
	TDI350A-110G/132P-4	ACL2-110-4	ACL2-160-4	OCL2-110-4	OCL2-200-4
	TDI350A-132G/160P-4	ACL2-160-4	ACL2-160-4	OCL2-200-4	OCL2-200-4
	TDI350A-160G/185P-4	ACL2-160-4	ACL2-200-4	OCL2-200-4	OCL2-200-4
	TDI350A-185G/200P-4	ACL2-200-4	ACL2-200-4	OCL2-200-4	OCL2-200-4
	TDI350A-200G/220P-4	ACL2-200-4	ACL2-280-4	OCL2-200-4	OCL2-280-4
	TDI350A-220G/250P-4	ACL2-280-4	ACL2-280-4	OCL2-280-4	OCL2-280-4
	TDI350A-250G/280P-4	ACL2-280-4	ACL2-280-4	OCL2-280-4	OCL2-280-4
	TDI350A-280G/315P-4	ACL2-280-4	ACL2-350-4	OCL2-280-4	OCL2-350-4
	TDI350A-315G/355P-4	ACL2-350-4	ACL2-350-4	OCL2-350-4	OCL2-350-4
	TDI350A-355G/400P-4	Standard	Standard	OCL2-350-4	OCL2-400-4
	TDI350A-400G/450P-4	Standard	Standard	OCL2-400-4	OCL2-500-4
	TDI350A-450G/500P-4	Standard	Standard	OCL2-500-4	OCL2-500-4
	TDI350A-500G-4	Standard	/	OCL2-500-4	OCL2-500-4

Filters

FLT-P 04 045 L-B

A B C D E F









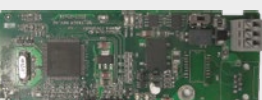











Filter identifier	Field description
A	FLT: Name of the VFD filter series
B	Filter type P: Power input filter L: Output filter
C	Voltage class 04: AC 3PH 380V (- 15%)– 440V (+10%) 06: AC 3PH 520V (- 15%)– 690V (+10%)
D	3-digit code indicating the rated current. For example, 015 indicates 15A.
E	Filter performance L: General H: High-performance
F	Filter application environment A: Environment Category I (IEC61800-3) category C1 (EN 61800-3) B: Environment Category I (IEC61800-3) category C2 (EN 61800-3) C: Environment Category II (IEC61800-3) category C3 (EN 61800-3)

VFD model	Input filter	Output filter
AC 3PH 380V (-15%)–440V (+10%)		
TDI350A-1R5G/2R2P-4	FLTP04006L-B	FLFL04006L-B
TDI350A-2R2G/003P-4		
TDI350A-004G/5R5P-4		
TDI350A-5R5G/7R5P-4	FLTP04016L-B	FLFL04016L-B
TDI350A-7R5G/011P-4		
TDI350A-011G/015P-4	FLTP04032L-B	FLFL04032L-B
TDI350A-015G/018P-4		
TDI350A-018G/022P-4		
TDI350A-022G/030P-4	FLTP04065L-B	FLFL04065L-B
TDI350A-030G/037P-4		
TDI350A-037G/045P-4	FLTP04100L-B	FLFL04100L-B
TDI350A-045G/055P-4		
TDI350A-055G/075P-4		
TDI350A-075G/090P4	FLTP04150L-B	FLFL04150L-B
TDI350A-090G/110P-4		
TDI350A-110G/132P-4	FLTP04240L-B	FLFL04240L-B
TDI350A-132G/160P-4		
TDI350A-160G/185P-4		
TDI350A-185G/200P-4	FLTP04400L-B	FLFL04400L-B
TDI350A-200G/220P-4		
TDI350A-220G/250P-4	FLTP04600L-B	FLFL04600L-B
TDI350A-250G/280P-4		
TDI350A-280G/315P-4		
TDI350A-315G/355P-4	FLTP04800L-B	FLFL04800L-B
TDI350A-355G/400P-4		
TDI350A400G/450P-4	FLTP041000L-B	FLFL041000L-B
TDI350A450G/500P-4		
TDI350A-500G-4		

Brake system

VFD model	Brake unit model	Resistance applicable for brake torque (Ω)	Dissipated power of brake resistor (kW)			Min. allowable brake resistor (Ω)	
			10% brake usage	50% brake usage	80% brake usage		
AC 3PH 380V (-15%)–440V (+10%)							
TDI350A-1R5G/2R2P-4	Built in brake unit all the way to 350-A-110G	326	0.23	1.1	1.8	170	
TDI350A-2R2G/003P-4		222	0.33	1.7	2.6	130	
TDI350A-004G/5R5P-4		122	0.6	3	4.8	80	
TDI350A-5R5G/7R5P-4		89	0.75	4.1	6.6	60	
TDI350A-7R5G/011P-4		65	1.1	5.6	9	47	
TDI350A-011G/015P-4		44	1.7	8.3	13.2	31	
TDI350A-015G/018P-4		32	2	11	18	23	
TDI350A-018G/022P-4		27	3	14	22	19	
TDI350A-022G/030P-4		22	3	17	26	17	
TDI350A-030G/037P-4		17	5	23	36	17	
TDI350A-037G/045P-4		13	6	28	44	11.7	
TDI350A-045G/055P-4		DBU100H-1 10-4	10	7	34	54	6.4
TDI350A-055G/075P-4			8	8	41	66	
TDI350A-075G-/090P4	6.5		11	56	90		
TDI350A-090G/110P-4	DBU100H-1 60-4	5.4	14	68	108	4.4	
TDI350A-110G/132P-4		4.5	17	83	132		
TDI350A-132G/160P-4	DBU100H-2 20-4	3.7	20	99	158	3.2	
TDI350A-160G/185P-4	DBU100H-3 20-4	3.1	24	120	192	2.2	
TDI350A-185G/200P-4		2.8	28	139	222		
TDI350A-200G/220P-4		2.5	30	150	240		
TDI350A-220G/250P-4	DBU100H-4 00-4	2.2	33	165	264	1.8	
TDI350A-250G/280P-4		2.0	38	188	300		
TDI350A-280G/315P-4	Two sets DBU100H-3 20-4	3.6*2	21*2	105*2	168*2	2.2*2	
TDI350A-315G/355P-4		3.2*2	24*2	118*2	189*2		
TDI350A-355G/400P-4		2.8*2	27*2	132*2	210*2		
TDI350A-400G/450P-4		2.4*2	30*2	150*2	240*2		
TDI350A-450G/500P-4	Two sets DBU100H-4 00-4	2.2*2	34*2	168*2	270*2	1.8*2	
TDI350A-500G-4		2.0*2	38*2	186*2	300*2		

Optional Cards

PG Card			
			
24V incremental PG card EC-PG505-24	UVW incremental PG card EC-PG503-05	Resolver PG card EC-PG504-00	Sin/Cos PG card EC-PG502
			
Multi-function incremental PG card EC-PG505-12	Multi-function incremental PG card EC-PG507-12		
Communication Card			
			
Bluetooth communication card EC-TX501-1 EC-TX501-2	WIFI communication card EC-TX502-1 EC-TX502-2	CANopen communication card EC-TX505	CAN master-slave control communication card EC-TX511
			
Ethernet communication card EC-TX504	Ethernet/IP communication card EC-TX510	EtherCAT communication card EC-TX508	PROFINET communication card EC-TX509
			
PROFIBUS-DP communication card EC-TX503	Modbus TCP communication card EC-TX515		
I/O & PLC Card			
			
I/O extension card EC-IO501-00 EC-O502-00	PLC card EC-PC502		
GPRS card, power card			
			
GPRS card EC-IC501-2G	24V power supply card EC-PS501-24		

TDI350-IP55 Series

TDI350-IP55 is a high protection multifunction VFD. The IP55 protection rating provides the best protection experience for most harsh outdoor applications. TDI350-IP55 also incorporates features such as ease of use, excellent performance, high scalability and wide usage. At the same time, an integrated AC switch also provides convenience and security for machine control and debugging.



Features



IP55 protection level



AC switch for safe control



Drive various motors



Strong scalability: support to insert 3 extension cards at the same time



Isolated air duct



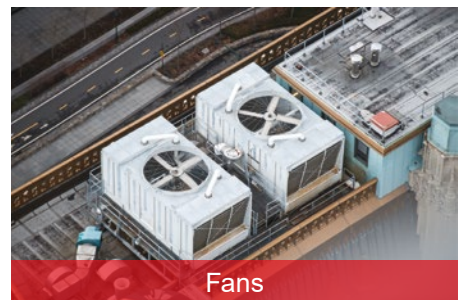
Sectional cover design makes the wiring simple



Water treatment



Sewage Treatment Plant



Fans

Type Selection

TDI350 – 004G/5R5P - 4 5 – AS

①

②

③ ④

⑤

Sign	Description	Remark
①	Abbreviation of product series	TDI350: TECDrive350 high-performance multi-function VFD
②	Power range + Load type	004G/5R5P: 4kW G: Constant torque load P: Fan and water pump
③	Voltage level	4: AC 3PH 380(-15%)~440V(+10%)
④	Protection level	5: IP55 level
⑤	Special remark	AS: AC input switch
<p>Note: Brake units are built-in up to and including 110kW.</p>		

Power Ratings

Case	Model	Constant torque				Variable torque			
		Power (kW)	Input current (A)	Output current (A)	Carrier (kHz)	Power (kW)	Input current (A)	Output current (A)	Carrier (kHz)
1	TDI350-004G/5R5P-45-AS	4	13.5	9.5	8	5.5	19.5	12.5	4
	TDI350-5R5G/7R5P-45-AS	5.5	19.5	14	8	7.5	23	17	4
2	TDI350-7R5G/011P-45-AS	7.5	25	18.5	8	11	30	23	4
	TDI350-011G/015P-45-AS	11	32	25	8	15	40	32	4
	TDI350-015G/018P-45-AS	15	40	32	4	18.5	45	38	2
3	TDI350-018G/022P-45-AS	18.5	45	38	4	22	51	45	2
	TDI350-022G/030P-45-AS	22	51	45	4	30	64	60	2
4	TDI350-030G/037P-45-AS	30	64	60	4	37	80	75	2
	TDI350-037G/045P-45-AS	37	80	75	4	45	98	92	2
5	TDI350-045G/055P-45-AS-B	45	98	92	4	55	128	115	2
	TDI350-055G/075P-45-AS-B	55	128	115	4	75	139	150	2
6	TDI350-075G/090P-45-AS-B	75	139	150	2	90	168	170	2
	TDI350-090G/110P-45-AS-B	90	168	180	2	110	201	215	2
	TDI350-110G-45-AS-B	110	201	215	2	-	-	-	-

Size & Weight table

Case	Power (kW)	Net weight (kg)	Gross weight (kg)	Product size (mm)	Carton size (mm)
1	4-5.5	7	8.5	196*403*260.5	545*285*370
2	7.5-15	13	15.4	223*475*289.4	605*355*400
3	18.5-22	21	23.6	274*522*279.5	680*390*425
4	30-37	26.5	29.5	318*587*290	770*420*440
5	45-55	48.2	52	338*800*336.7	990*480*515
6	75-110	64	82.8	370*788*380	945*480*600

Product Specification

Function description		Specification
Power input	Input voltage (V)	-4 model: 3PH 380V(-15%)–440V(+10%)
	Input current (A)	50Hz or 60Hz, allowable range: 47–63Hz
Power output	Output Voltage (V)	0~input voltage
	Output frequency (Hz)	0~400Hz
Technical control performance	Control mode	SVPWM control, SVC, VC
	Motor type	Asynchronous motor, permanent-magnet synchronous motor
	Speed regulation ratio	Asynchronous motor 1: 200 (SVC); Synchronous motor 1: 20 (SVC) , 1:1000 (VC)
	Speed control precision	±0.2%(SVC), ±0.02%(VC)
	Speed fluctuation	± 0.3%(SVC)
	Torque response	<20msSVC) , <10ms(VC)
	Torque control precision	10%(SVC) , 5%(VC)
	Starting torque	Asynchronous motor: 0.25Hz/150% (SVC) Synchronous motor: 2.5 Hz/150% (SVC) 0Hz/200% (VC)
Running control performance	Overload capacity	G type: 150%: 1min; 180%: 10s; 200%: 1s; P type: 120%: 1min;
	Frequency setup mode	Digital, analog, pulse frequency, multi-step speed running, simple PLC, PID, Modbus communication, PROFIBUS communication, etc. Realize switch-over between the set combination and the set channel
	Automatic voltage regulation function	Keep the output voltage constant when grid voltage changes
	Fault protection function	Provide over 30 kinds of fault protection functions: overcurrent, overvoltage, undervoltage, over-temperature, phase loss and overload, etc.
Peripheral interface	Speed tracking restart	Realize impact-free starting of the motor in rotating Note: This function is available for 004G/5R5P and above models
	Analog input	2
	Analog output	1
	Digital input	4 S terminal, 2 HDI
	Digital output	1 Y1, 1HDO
	Relay output	2 programmable relay output, NO/NC contact: RO1A, RO1B, RO1C RO2A, RO2B, RO2C
	Communication interface	1 RS485 (non-isolated), 1 USB
Optional cards	STO input	2 redundant input
	Expansion interface	Maximum 3 expansion interfaces:SLOT1, SLOT2, SLOT3
	Expansion I/O card	4 DI, 1 AI, 1 AO, 1 DO, 2 RO
	Communication card	Optional Profibus-DP, CANopen, Profinet, EtherCAT, Ethernet/IP, Modbus TCP etc.
	PG card	EC-PG503-05: 5V Differential Incremental (H2)
		EC-PG504-00: Resolver type PG card (D1)
		EC-PG505-12: 5V/12V Multifunctional Incremental (H1)
		EC-PG505-24: 24V Incremental PG card
EC-PG502: SIN/COS PG card		
EC-PG507-12: Multifunctional Incremental PG card		
Programmable card	PLC card, 1 AI, 6 DI, 1 AO, 2 Relay, 1 RS485	
Wireless communication	Bluetooth, WiFi, realize wireless communication	
Others	Installation mode	Wall mounting, flange mounting
	Temperature	-10~50°C (Derating is required if the ambient temperature exceeds 40°C)
	Protection level	IP55
	Cooling mode	Forced air cooling
	Braking unit	Built-in up to and including 110kW
	STO level	SIL2
EMC filter	380V models fulfill the requirements of IEC61800-3 C3, up to 30m cable length shielded.	

TEC Electric Motors Global Joint Venture Distribution Network



THE POWER OF A GLOBAL NETWORK



AUSTRALIA - Techtop Australia Pty Ltd.
CANADA - Techtop Canada Inc.
ITALY - Simotop Group SpA
SPAIN - Dimotor S.A.
THE NETHERLANDS - Simotop N.V.
U.A.E. - Global Power Engineering Co. Ltd.
UK - TEC Electric Motors Ltd.
USA - Techtop Industries, Inc.
GERMANY - Techtop ADDA MOTOR GmbH
SINGAPORE - Elektrim Techtop Motors Pte Ltd



**TECA/TA Aluminium Motors
56-200 Frame**

Multi mount and highly versatile.
IE1, IE2 and IE3 0.09kW-37kW.



**TPC and TCC 1PH Aluminium Motors
56-112 Frame (including 3.7kW!)**

TPC: Ideal for fan, pump and square law torque applications.
TCC: Ideal for applications where high starting torque is required.



**TECDrive E3
General Purpose drives IP20**

0.37KW up to 2.2KW single phase and 0.75KW to 37KW 3 phase input.



**TECDrive E3
General Purpose IP66 Switched**

Works straight from the box with built in isolator, speed pot and forward/reverse knobs 0.37KW to 4.0KW single phase and 0.75KW to 22KW 3 phase input.



**Orange1 Zone 1 Exd Motors
63-180 Frame stocked**

ATEX II 2G Exd IIC T4 Gb IP66 motors 2, 4 and 6 pole stocked. Thermistors as standard and suitable for use with any VSD.



**TEC spark and dust proof ATEX motors
63-315 Frame**

Thermistors as standard throughout the range. Multi mount to 280 frame.



TECA BM Brake Motors 71-200 Frame

TECA aluminium range with integrated brake at the none drive end fitted with hand release as standard. Multi mount and highly versatile.



ECOL Cast Iron 80-355 Frame

Multi mount and highly versatile.
IE1, IE2 and IE3 0.75kW-315kW.



**TECDrive E3
General Purpose drives IP66**

0.37KW up to 4.0KW single phase and 0.75KW to 22KW 3 phase input.



TEC DC motors

Many styles, speeds and powers available for a variety of hydraulic applications.



B48 and B56 Motors

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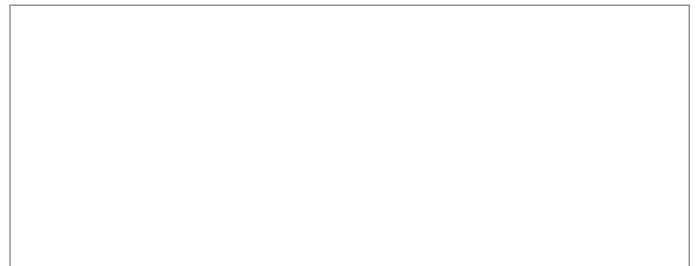
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