

Energy efficient, Beautiful environment



ATS700 PRODUCT CATALOG

ATS700

BOOKSTYLESERIES

VECTORVFD

ATS700

ACRIVERM11100



ATS700

Book type high-performance vector inverter



The ATS700 inverter is a brand-new masterpiece launched by us based on over ten years of professional research and development experience. Its regular configuration includes a dual-display LED panel with the function of duplicating parameters, as well as an LCD liquid crystal panel that supports duplicating parameters in multiple languages. This innovative design enables rapid switching of parameters between different dedicated software, and can be widely adapted to various application scenarios such as photovoltaic water pumps, synchronous motors, asynchronous motors, elevators, and cranes. This core advantage not only greatly optimizes the operational experience of customers, but also significantly reduces their inventory pressure, eliminating the need to reserve multiple devices for different functional requirements.

In terms of hardware configuration, the ATS700 is meticulously designed with 7 multi-functional terminals, 2 sets of AI input, 2 sets of relay output and AO output, and integrates STO safety function into it. Even without the additional configuration of IO expansion cards, these rich interfaces and functions can already meet 99% of the regular working condition requirements, ensuring the high applicability and convenience of the equipment.

Structurally, the ATS700 modularizes the control board and power board, greatly facilitating customer maintenance and the free replacement of different accessories

In terms of communication and expansion capabilities, the ATS700 demonstrates outstanding compatibility, fully supporting various mainstream communication cards on the market, such as PROFIBUS, PROFINET, CANOPEN, ETHERCAT, MODBUS TCP, etc., and is also compatible with multiple types of PG cards. It provides a high degree of flexibility for the integration of industrial automation systems.

In conclusion, the ATS700 frequency converter, with its affordable price, delivers a high-end and comprehensive functional experience to users. It is undoubtedly a highly efficient, intelligent, and economical drive control solution, truly an ideal machine for customers.

POWER RATINGS

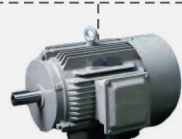
1× 220 - 240V : 0.4 - 7.5kW

3 220 - 240V 0.4 - 220kW :

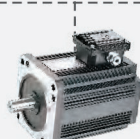
3× 380 - 480V : 0.75 - 1000kW

COMPATIBILITY

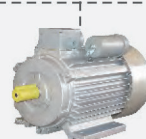
OneVfdForAll software applicable to **Asynchronous Motor, Synchronous Motor, Single Motor, Elevator Motor** and **Solar Pump.**



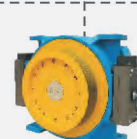
Asynchronous Motor



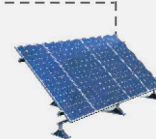
Synchronous Motor



Single Motor

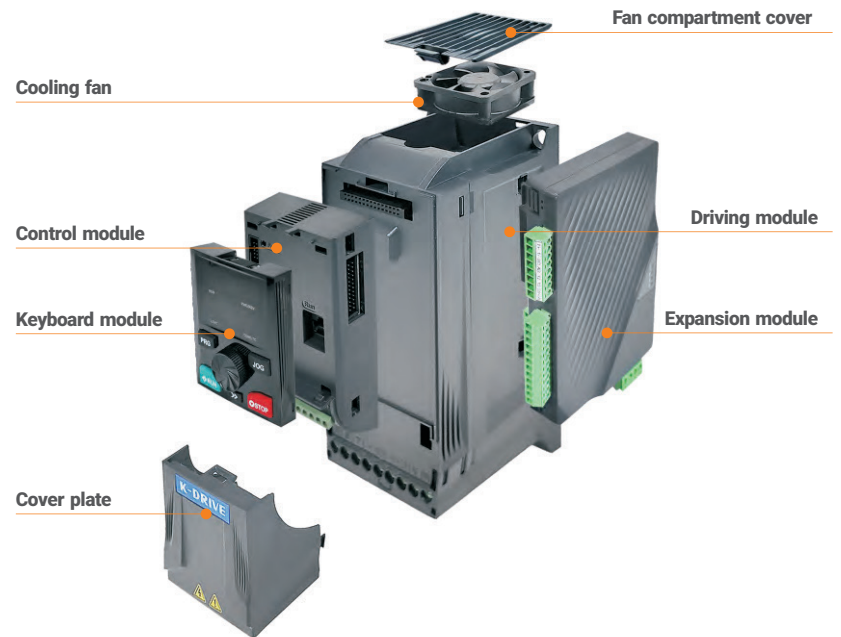
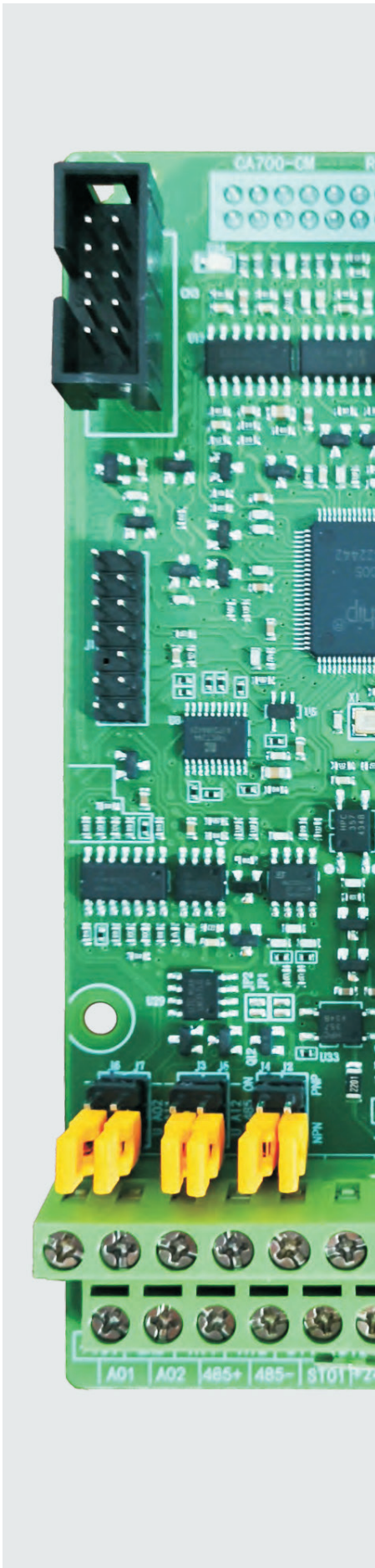


Elevator Motor



Solar Pump

STRUCTURAL HARDWARE FEATURES



MODULARIZATION

Modular expansion house, supporting multiple forms of expansion simultaneously.

Increase business flexibility and control inventory

free combination	<p>Drive + Control + LED/LCD keyboard + Extension module</p>
The same control applies to all power drives	<p>Control → Drive Drive</p>
The same keyboard is suitable for controlling all models	<p>LED/LCD keyboard → Control → Drive Drive</p>
Drive+Control Can work independently	<p>Drive + Control → Motor</p>
Free customization	<p>LED keyboard LCD keyboard Extension module</p>

Reliable overcurrent ground protection

Output: Adopting three-phase current sampling and comprehensive overcurrent to ground short circuit protection;

Input: Equipped with buffer resistor charging circuit abnormal protection, the entire series is equipped with input phase loss hardware protection.

≤ 37G comes standard with a built-in brake unit, while 45G~160G can be optionally equipped with a built-in brake unit

>37G~110G can be optionally equipped with DC reactors,

≥ 132G comes standard with built-in DC reactance.



SUPPORTS LED AND LCD DISPLAY KEYPAD.

Both keypads support user-defined parameter copying between multiple machines by default. Parameter files can be copied to the PC and sent remotely to other debugging sites, which is convenient for remote management and remote debugging. (Can choose different language directly in the LCD keypad, such as Chinese, English, Polish, And Spain etc)



LED keyboard



LCD keyboard



The keypad supports 300 meter remote Ethernet connection.



MAX 300m



PERFORMANCE CHARACTERISTICS



Multi speed operation

Supporting 16 speed operation, it can achieve simple PLC cycle operation to meet flexible customer process requirements;

PID control, sleep wake function

There are various sources of input and feedback, with output compensation and sleep wake-up function, which is convenient for applications such as constant pressure water supply;

Switching between two sets of motor parameters

Support parameter switching between two sets of motors, which can be modified or switched using DI terminals to adapt to both sets of motors.



Excellent and complete brake logic

Cooperating with the application of brake type motors in construction elevators, mine hoists, civilian elevators, etc., can achieve safe, stable, and comfortable control of the operation process;

Fire control mode

Can meet the relevant control requirements of users in fire protection mode;

STO safety torque shutdown control protection

Through the coordination of software and hardware, the safe shutdown of output torque is achieved, providing timely protection.



Tension control

Functions such as roll diameter calculation, thickness accumulation calculation, linear velocity calculation, tension compensation, tension taper, automatic detection of material breakage, and automatic roll change.

Stable and reliable

Independent air duct; Three proof UV coating; Preferred components and large margin selection.



Water pump



Woodworking machinery



Printing and packaging



Ceramic machinery



Industrial and mining



Fan



Textile printing and dyeing



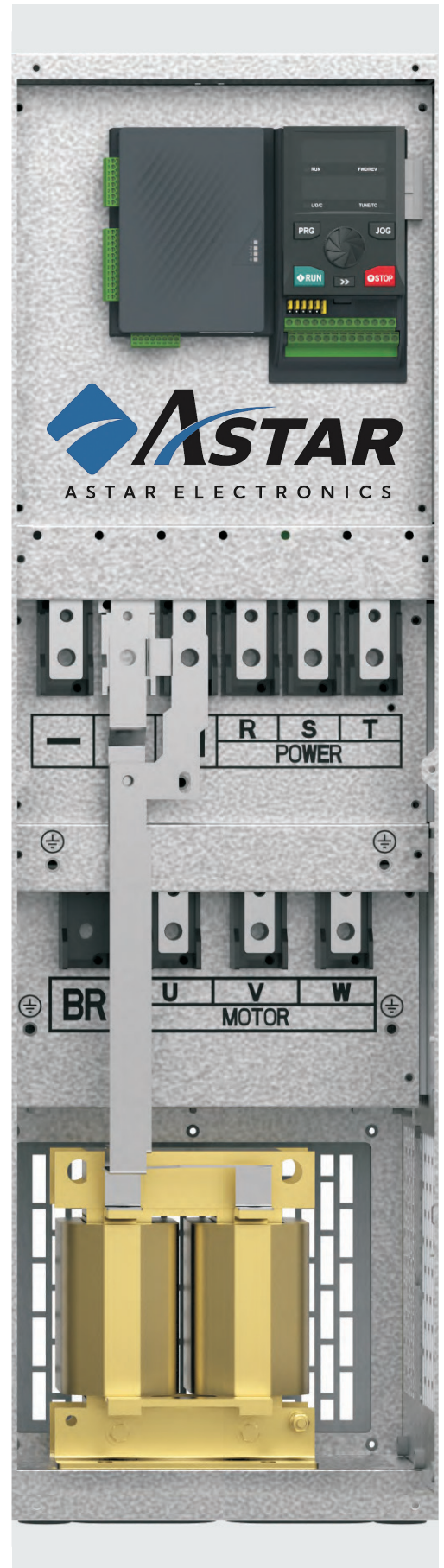
Metalworking



Injection molding



CNC



More Beyond inheritance

01

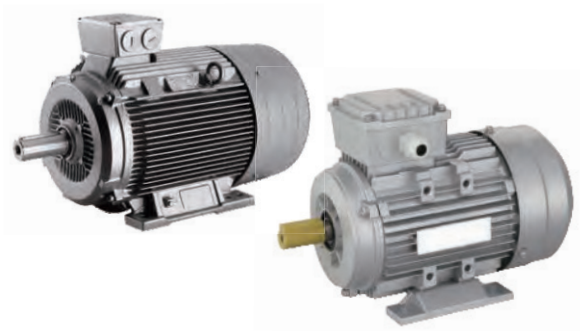
Rich Terminal Functions

Normal Controls board=other Brand VFD+IO Card. In order to improve our VFD convenience, all series vfd build in 7 × DI (one for HDI) Input, 2 × AI Input, 2 × AO Output 2 × Relays Output and NPN&PNP, and Sto terminal, which can almost match more than 95% requirement in the market.



NOTE: Only 0.4kW-400kW are listed here. Please contact Astar for more information of other power ratings.

Latest dedicated chip



02

One Parameter to choose different Software

ATS700 used with very big capacity IGBT, which can use one parameter to change different software as customer need including ASYNCHRONOUS and SYNCHRONOUS, off grid solar pump, and elevator etc.

03

Hot pluggable and detachable control panel

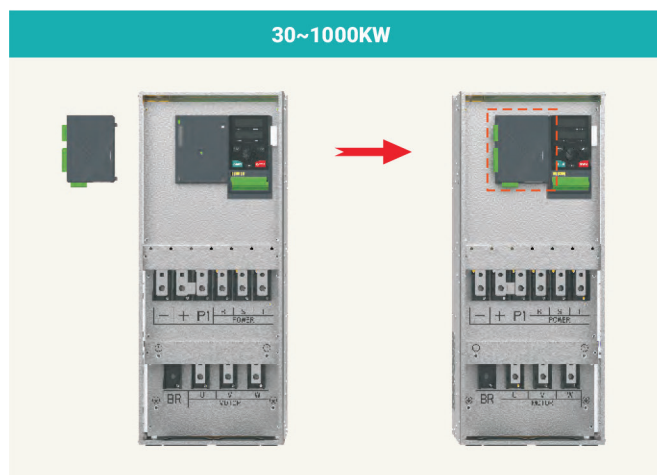
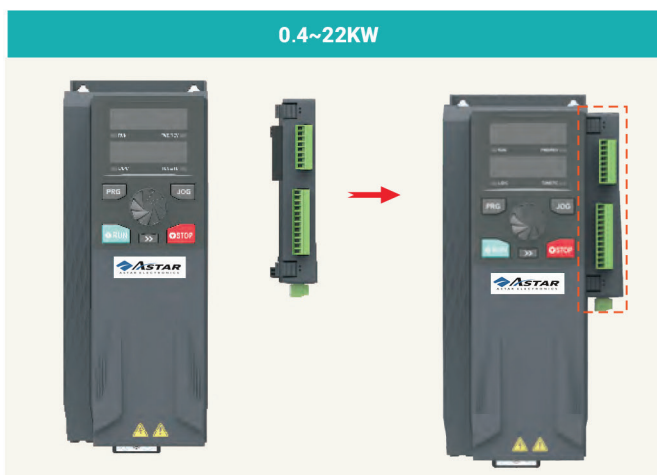
Quite convenient for users to implement remote control via a cable connection, and the settings are easily transferred via the control panel to another drive or from a PC to a drive with ASTAR Drive Monitoring Software

04

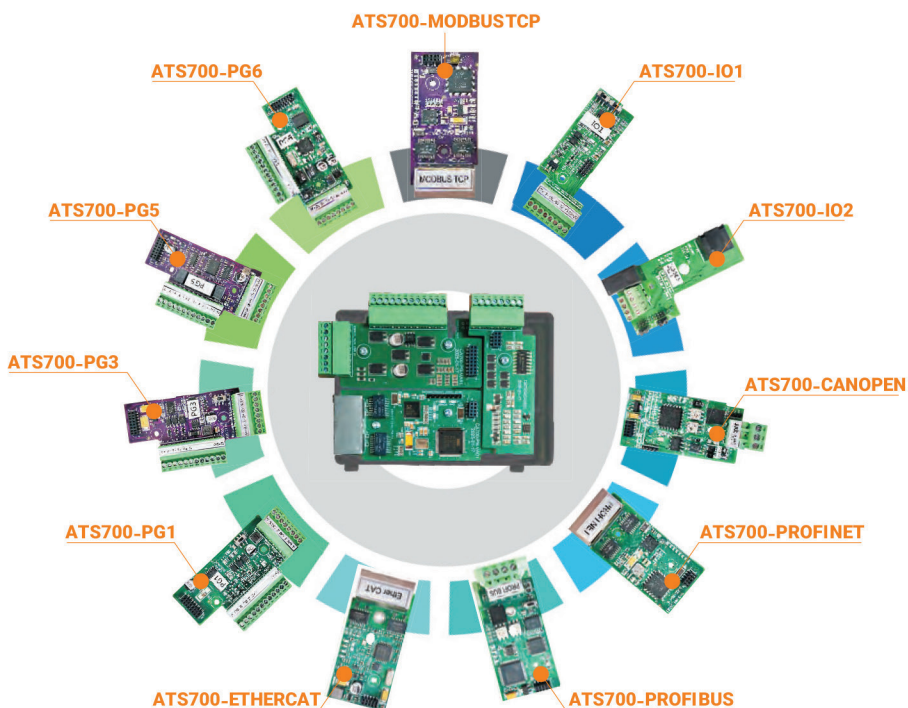
Abundant hot-plugged options

One platform millions of version is the basic design concept of ATS700. Numerous options are available and can be mounted and tested at factory or be hot-plugged in later for change-over or upgrade.





Outer Cards Install way: One models support 3 cards combination freely.
Suchas: 2IO+ 1PG Or 1PG+ 2 communication cards



05

Four control modes

ATS700 drives are equipped with four kinds of control modes, V/Hz, SVC1, SVC2, VC, fulfilling a wide variety of demanding industrial applications.

Control mode	V/Hz	SVC1	SVC2	VC
Speed adjustable range	1:100	1:100	1:200	1:1000
Speed accuracy	±0.5%	±0.2%	±0.2%	±0.02%
Speed ripple	/	±0.3%	±0.3%	±0.1%

06

Supreme start torque

The drives of ATS700 series can output 200% of the rated output torque at 0Hz under VC control mode.

200%

07

Torque control programmable

Speed control and torque control are programmable via parameter or can be switched via terminal digital input at ATS700. Torque control accuracy reaches $\pm 5\%$, while response time is less than 5ms.

5%

08

Four kinds of position control

Under VC control mode, a ATS700 drive can undertake the task of zero-speed clamping, angular positioning*1, fixed-length control*2, and positioning via pulse input. The precision of positioning at pulse input reaches ± 1 pulse.

NOTE: *1: 4 angular positions realizable; *2: 8 fixed-length positions programmable.

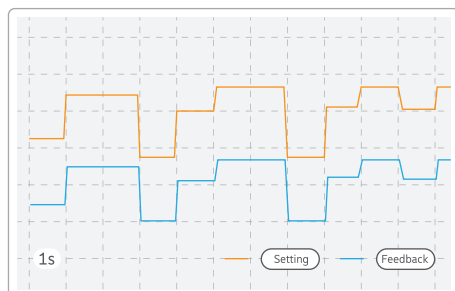
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09

Flexible electronic gear

Through the function of electronic gear at ATS700, closed-loop vector control still can be performed even the encoder is not mounted at the motor shaft, quite convenient for applications when the encoder is not easily to be mounted at the motor shaft.

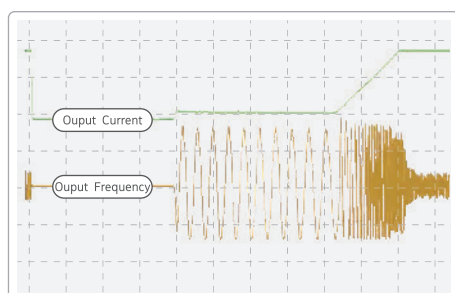
NOTE: *3: The shaft that the encoder is mounted at should have fixed speed ratio with motor shaft.



10

Quick dynamic response

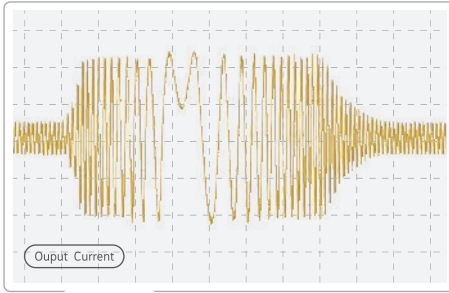
Torque response time of ATS700 drives is as short as 10ms at SVC1 or SVC2 mode.



11

Cycle-By-Cycle current limit

The ATS700 drives are equipped with the function of cycle-by-cycle current limit. The drive knows how to adjust its output frequency and current suitably to avoid trip when there is a saltation at the load.



12

Short dead time between forward and reverse

Even at the setting of deceleration and acceleration time 0.1 sec and, aATS700 drive can smoothly complete the transition between forward and reverse, popular at applications requiring frequent and fast switchover between forward and reverse.

13

Preeminent field-weakening control

Equipped with field-weakening control, ATS700 drives have the preeminent output torque and ramp character.

14

V/Hz separated control

Output voltage and output frequency can be controlled separately for the ATS700 drives, widely used at variable frequency power sources, torque motors, etc.

Multifunctional and Versatile

15

Modular, flexible and adaptable

ATS700 on the basis of modular design concept aims to provide users multifunctional control for a wide variety of general purpose applications. Functionalities, and output capability of ATS700 have been proved to meet the requirements of a vast majority of industrial control. K-DRIVE is providing ATS700 single-phase 220V, three-phase 220V to 690V input, and power ratings 0.4kW up to 1MW, which means that system designers, OEMs and end users are free to connect the drive to their chosen motor and have confidence that the system will operate to the highest possible standards.

NOTE: Only 0.4 kW-560kW are listed here. Please contact ATSAR for more information of other power ratings.

Up to 1MW



FULL-CYCLETESTING



During product development, the whole PCB board will be systematically tested. After assembly, the whole machine will be tested and the EMC environment will be tested. After passing the quality inspection, a 12-hour, 50°C high-temperature aging test will be performed to ensure the delivery quality of the entire series of products.

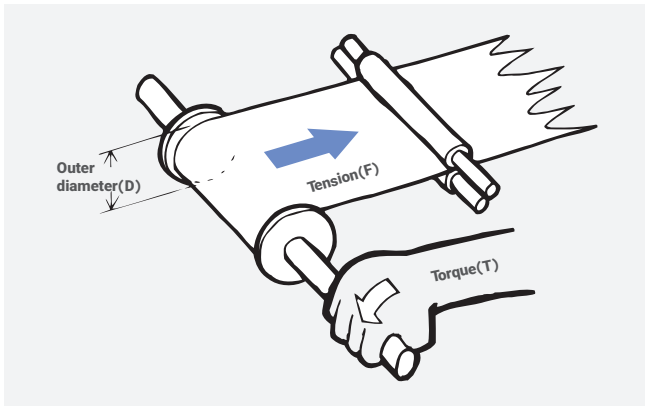
TENSIONCONTROLMETHOD

Speed control: Tension position feedback automatically adjusts the PID output speed slip to ensure constant material tension;

Open-loop tension torque control: the inverter directly controls the motor output torque and output frequency to follow the material line speed automatically without tension feedback signal;

Closed-loop tension torque control: tension feedback signal needed and is adjusted by built-in PID to form a closed-loop tension control motor output torque, so that the material surface tension is constant.

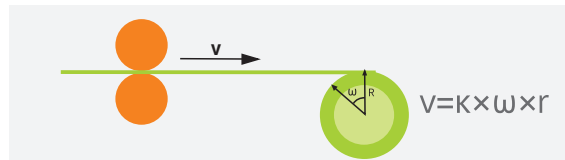
BASICPRINCIPLES



Since : $\text{Torque}(T) = \text{Tension}(F) \times \text{Radius}(D/2)$

$$\text{Therefore : tension } (F) = \frac{\text{Torque}(T)}{\text{Radius}(D/2)} = \frac{2 \times T}{D}$$

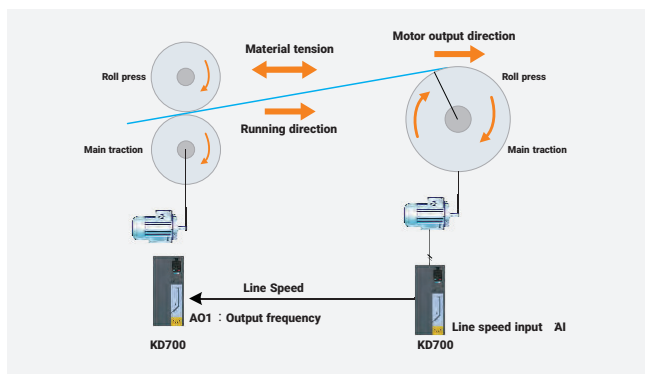
Linear Speed Method



COMMONSOLUTIONS

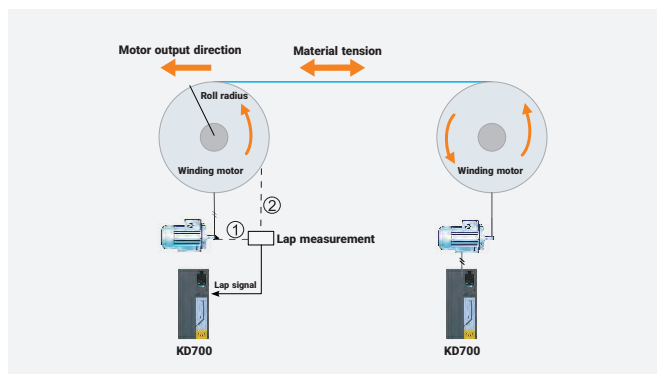
Wire speed method:

The front-end machinery provides the material traction, which determines the material line speed, and the material tension is determined by the ATS700 winding. The roll diameter can be calculated from the wire speed given by the traction.



Application of the thickness method:

The front end machinery does not provide the traction mechanism to determine the line speed, the material line speed is directly determined by the front kick motor, and the material tension is determined by the ATS700 winding.

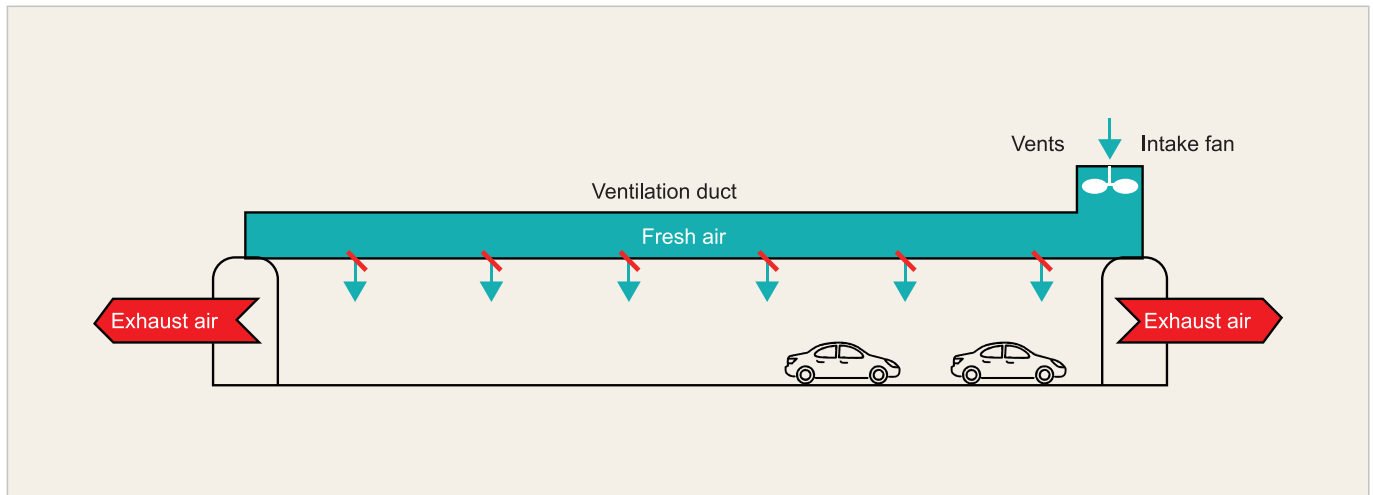


FIREMODEINURGENT SITUATIONS

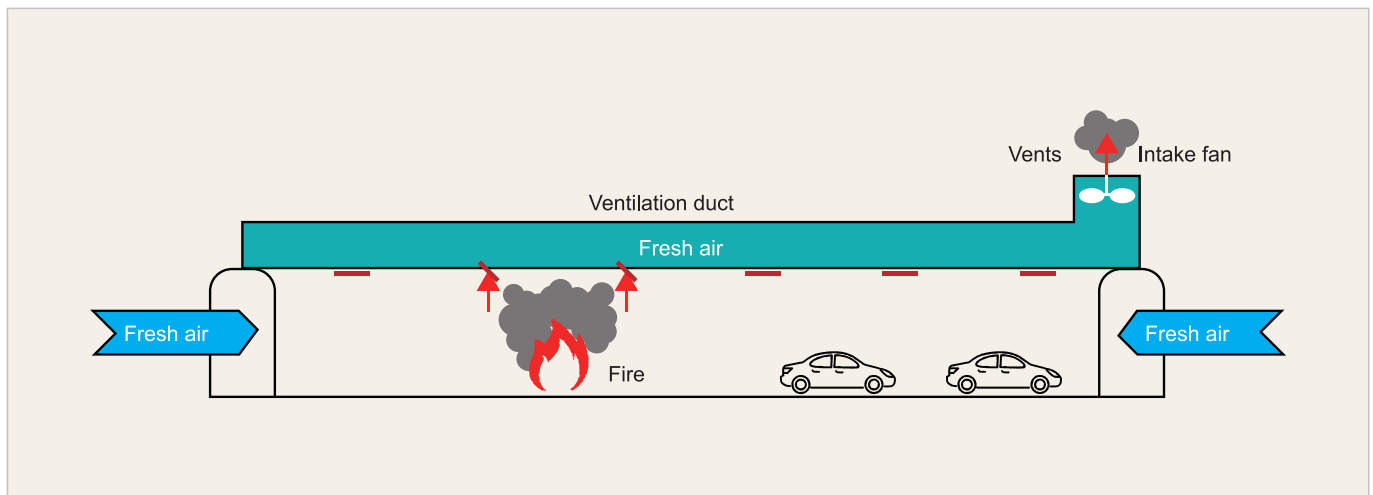
This safety feature prevents the VFD from shutting down for self-protection. Instead, the drive will continue the vital fan operation even with a control signal, warning or alarm. Fire mode are critical to ensuring safer evacuation of people from buildings in the event of a fire.

Activating the "Fire Mode" function in ASTAR drives ensures safe and continuous operation in applications such as parking lot exhaust fans, smoke extraction and essential service functions.

Semi-transverse ventilation system in normal mode



Semi-transverse ventilation system in case of fire



All Our Series Support Fire Mode, Including AS600M & ATS700 & IP65 etc.

ATS700 adopts modular design, and the control board and drive board are independent modules. There is no need for screws and cables to connect them, which can greatly simplify the after-sales workload and solve customer problems more quickly. For example, if the customer's vfd has a problem, you only need to disassemble the control board base and the entire module, without screwing or disassembling the cables, which is very convenient.



- ☑ One click parameter download and upload;
- ☑ Full color LCD keyboard with built-in multiple languages (Chinese, English, Russian);
- ☑ Support customization of monitoring pages, which can be locally plugged in or externally wired.

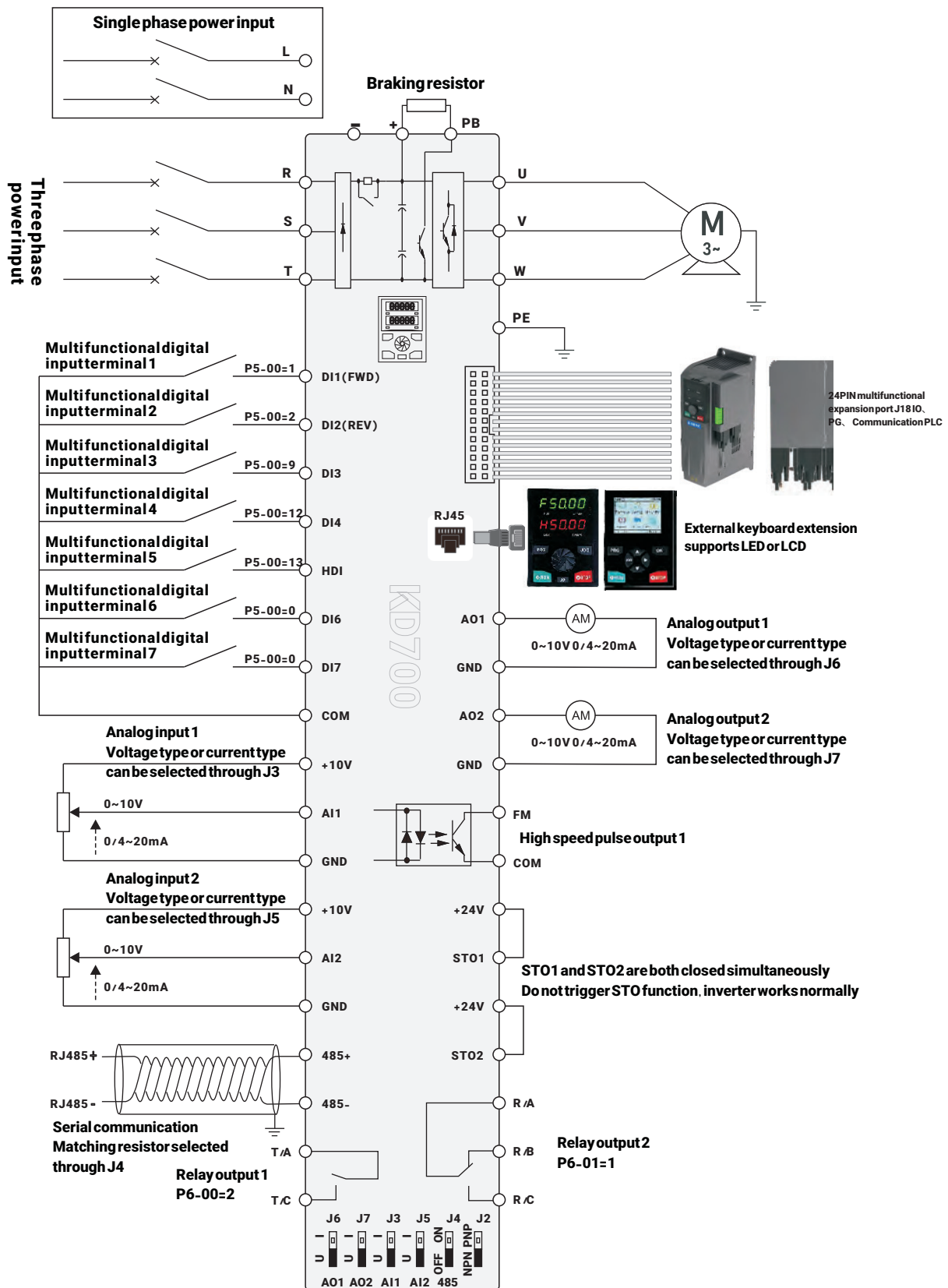
TECHNICAL SPECIFICATION

Project		Description
Control characteristics	Highest frequency	Vector control: 0~600Hz VF control: 0~1200Hz
	Carrier frequency	1K~16kHz; the carrier frequency can be adjusted automatically according to the load characteristics.
	Input frequency resolution	Digital setting: 0.01Hz Analog setting: maximum frequency × 0.1%
	Control mode	V/F control; Open loop vector control (SVC); Closed loop vector control (FVC)
	Motor type	Asynchronous motor, permanent magnet synchronous motor
	Starting torque	G type machine: 0.5Hz/180% (Open-loop/closed-loop vector control) P type machine: 0.5Hz/120% (open loop vector control)
	Speed range	1: 200 (open-loop vector control); 1: 1000 (closed-loop vector control);
	Textile swing frequency control	Multiple triangular wave frequency control functions
	Fixed length control function	Built in fixed length control module
	Quick current limiting function	Built in fast current limiting algorithm reduces the probability of overcurrent reporting in the frequency converter and improves the overall anti-interference ability of the machine
	Timed control	Timer control function: Set time range from 0h to 65535h
	Standardization of keyboard extension cords	Customers can extend the keyboard using standard Ethernet cables on their own.
	Run Command Channel	Three channels: operation panel given, control terminal given, and serial communication port given. Can be switched in multiple ways
	Frequency source	There are a total of 10 frequency sources: digital given, analog voltage given, analog current given, pulse given, and serial port given. Can be switched in multiple ways
	Auxiliary frequency source	Synchronous and asynchronous integration, combining heavy and light loads
	Functional characteristics	Synchronous and asynchronous integration, combining heavy and light loads Quick settings for application macros such as fire mode, elevator mode, tension control mode, etc

TECHNICAL SPECIFICATION

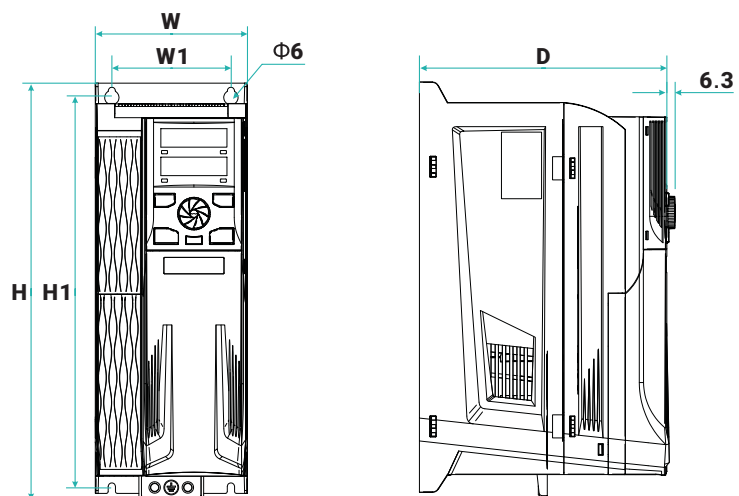
Project		Description
Input and output	External analog power supply	+ 10V, load capacity 100mA
	External digital power supply	+24V, load capacity 200mA
	Digital input	D1 - DI7 multifunctional editable digital input terminal, HDI high-speed pulse input
	Digital output	FM, Pulse output or open collector switch output can be selected
	Digital terminal power mode	NPN or PNP can be selected
	Analog input	Two analog inputs, voltage 0-10V or current 0/4-20mA selectable
	Analog output	Two analog outputs, voltage 0-10V or current 0/4-20mA selectable
	Programmable relay output	Two relay outputs, contact capacity: 250VAC/3A or 30DC/1A
	Fire fighting mode	STO1 - +24V , STO2 - +24V
	Compatible with multiple encoders	Optional collector open circuit ABZ encoder card, differential input ABZ encoder card, sine cosine encoder card, and rotary encoder card.
	Compatible with multiple communication protocols	Standard Modbus 485 communication protocol, with optional matching resistors Optional bus modules and protocols such as Profinet, Probus, Ethercat, Can, Canopen, etc
Operation and display	LED display	Dual digital display function parameter settings, status parameter viewing, and fault code viewing
	LCD display	Optional, language selection including Chinese/English/Russian
	Extended external display	Rj45 interface, LED or LCD selectable
	Parameter copying	Using LED LCD can achieve fast parameter replication
	Key locking and function selection	Implement partial or complete locking of keys, define the scope of action of some keys to prevent accidental operation
Protection function	Overpressure stall	Automatic control of bus voltage to prevent over voltage faults
	Automatic current limiting protection	Automatic output current limitation to prevent overcurrent faults
	Overload prealarm and warning	Overload early warning and protection
	Output load drop protection	Load drop alarm function
	Input and output phase loss protection	Automatic detection and alarm function for input and output phase loss
	Brake fault protection	Brake detection and alarm function
	Process PID given, feedback, loss detection	Process PID automatic identification of whether the given and feedback are lost, and loss alarm function
	Output ground short circuit protection	Effective protection function against ground short circuit output
	Output phase to phase short circuit protection	Effective protection function for output phase to phase short circuit
Environmental	Place of use	Indoor, not exposed to direct sunlight, free from dust, corrosive gases, flammable gases, oil mist, water vapor, dripping or salt, etc
	Altitude	Below 1000 meters, downgrading is required for use above 1000 meters
	Ambient temperature	-10 ℃~+ 50 ℃(ambient temperature is between 40 ℃~ 50 ℃, please reduce the rating for use)
	Humidity	Less than 95% RH, no condensation of water droplets
	Vibration	Less than 5.9 meters per second (0.6g)
	Storage temperature	-20℃~+ 60℃
	Class of pollution	Level 2 (dry, non-conductive dust pollution)
	Protection level	IP20
Standards	Product compliance with safety standards	IEC61800-5-1:2007
	The product complies with EMC standards	IEC61800-3:2005

BASIC CONNECTION

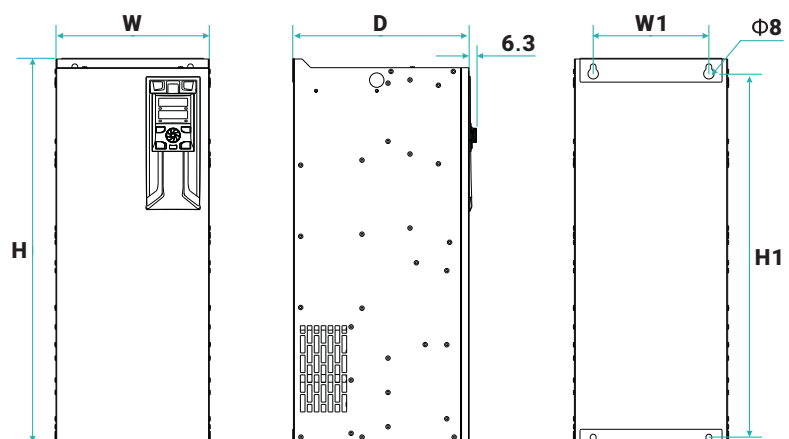


MODEL AND SIZE

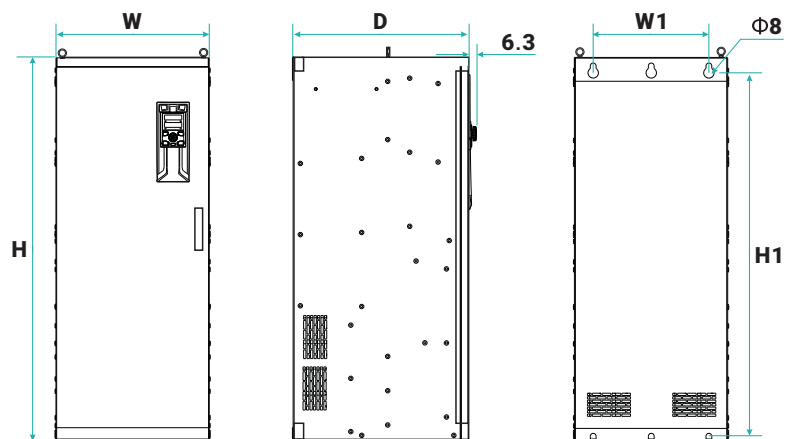
A



B



C





2S





4T



AC Drive Model	Adapter motor (KW)	Rated capacity (KVA)	Rated Input Current (A)	Rated Output Current (A)	Installation size (mm)		Dimensions (mm)			Aperture	Frame NO.
					W1	H1	W	H	D	d	
Input voltage: three-phase 380V Range: -15%~20%											
ATS700-4T-0.7GB/1.5PB	0.7	1.5/2.5	3.4/5	2.1/3.8	66	190	80	200	138	4.5	
ATS700-4T-1.5GB/2.2PB	1.5	2.5/3.4	5/5.8	3.8/5.1							
ATS700-4T-2.2GB/4.0PB	2.2	3.4/5.9	5.8/10.5	5.1/9							
ATS700-4T-4.0GB/5.5PB	4.0	5.9/8.5	10.5/14.6	9/13	80	250	98	260	170	4.5	
ATS700-4T-5.5GB/7.5PB	5.5	8.5/11	14.6/20.5	13/17							
ATS700-4T-7.5GB/11PB	7.5	11/13.5	20.5/26	17/25							
ATS700-4T-11GB/15PB	11	13.5/16	26/35	25/32	90	300	115	310	187	5.5	
ATS700-4T-15GB/18.5PB	15	16/21	35/38.5	32/37							
ATS700-4T-18.5GB/22PB	18.5	21/24	38.5/46.5	37/45							
ATS700-4T-22GB/30PB	22	24/30	46.5/62	45/60	140	384	165	395	210	6	
ATS700-4T-30GB/37PB	30	30/39	62/76	60/75	160	425	220	440	220	7	
ATS700-4T-37GB/45PB	37	39/49	76/92	75/90							
ATS700-4T-45G(B)/55R(B)	45	49/59	92/113	90/110							160
ATS700-4T-55G(B)/75R(B)	55	59/72	113/157	110/152	200	640	265	660	305	10	
ATS700-4T-75G(B)/93R(B)	75	72/100	157/180	152/176							
ATS700-4T-93G(B)/110R(B)	90	100/116	180/214	176/210							200
ATS700-4T-110G(B)/132R(B)	110	116/138	214/256	210/253	280	815	340	835	325	10	
ATS700-4T-132G(B)/160R(B)	132	138/167	256/307	253/304							
ATS700-4T-160G(B)/185R(B)	160	167/200	307/345	304/340							
ATS700-4T-185G/200P	185	200/225	345/385	340/377	300	895	410	915	370	12	
ATS700-4T-200G/220P	200	225/280	385/430	377/426							
ATS700-4T-220G/250P	220	280/309	430/468	426/465							
ATS700-4T-250G/280P	250	309/349	468/525	465/520	320	995	470	1015	385	12	
ATS700-4T-280G/315P	280	349/398	525/590	520/585							
ATS700-4T-315G/355P	315	398/434	590/665	585/650							
ATS700-4T-355G/400P	350	434/494	665/785	650/725	500	1115	640	1135	395	12	
ATS700-4T-400G/450P	400	494/560	785/883	725/820							
ATS700-4T-450G/500P	450	560/615	883/920	820/900							
ATS700-4T-500G/550P	500	615/676	920/1020	900/1000	/	/	800	1800	500	Vertical	
ATS700-4T-550G/630P	550	676/775	1020/1120	1000/1100							
ATS700-4T-630G	630	775	1200	1150							
ATS700-4T-710G	710	870	1315	1250	/	/	1100	2200	600	Vertical	
ATS700-4T-800G	800	980	1560	1450							
ATS700-4T-900G	710	1100	1760	1710							
ATS700-4T-1000G	800	1230	1960	1900	/	/	1300	2300	600	Vertical	

ATS700SeriesBoostinverter

AC Drive Model	Adapter motor (KW)	Rated capacity (KVA)	Rated Input Current (A)	Rated Output Current (A)	Installation size (mm)		Dimensions (mm)			Aperture	Frame NO.
					W1	H1	W	H	D	d	
2S/4T 220V Single phase input & 380V Three Phase output											
ATS700-2S/4T-0.75G	0.75	2.5	7.3	2.3	66	190	80	200	138	4.5	
ATS700-2S/4T-1.5G	1.5	3.4	13.3	3.8							
ATS700-2S/4T-2.2G	2.2	5.9	17.9	5.1	80	250	98	260	170	4.5	
ATS700-2S/4T-3.7G	3.7	8.5	31.5	9							
ATS700-2S/4T-5.5G	5.5	13.5	45.5	13	90	300	115	310	187	5.5	
ATS700-2S/4T-7.5G	7.5	16	59.5	17							
ATS700-2S/4T-11G	11	16	87.5	25							
ATS700-2S/4T-15G	15	21	112	32	140	384	165	395	210	6	
ATS700-2S/4T-18.5G	18.5	24	129.5	37							
ATS700-2S/4T-22G	22	30	157.5	45	160	425	220	440	220	7	
ATS700-2S/4T-30G	30	39/49	210	60							
ATS700-2S/4T-37G	37	49/59	262.5	75	160	535	145	550	255	7	

ATS700-2SSSeries

AC Drive Model	Adapter motor (KW)	Rated capacity (KVA)	Rated Input Current (A)	Rated Output Current (A)	Installation size (mm)		Dimensions (mm)			Aperture	Frame NO.
					W1	H1	W	H	D	d	
2SS 220V Single Phase Input & Single Phase Output											
ATS700-2SS-1.5G	1.5	2.5	7.6	7	66	190	80	200	138	4.5	
ATS700-2SS-2.2G	2.2	3.4	12	9.6							
ATS700-2SS-4.0G	4.0	8.5	19	17	80	250	98	260	170	4.5	
ATS700-2SS-5.5G	5.5	13.5	28	25	90	300	115	310	187	5.5	
ATS700-2SS-7.5G	7.5	16	35	32							
ATS700-2SS-11G	11	21	47	45	140	384	165	395	210	6	
ATS700-2SS-15G	15	30	65	60	160	425	220	440	220	7	