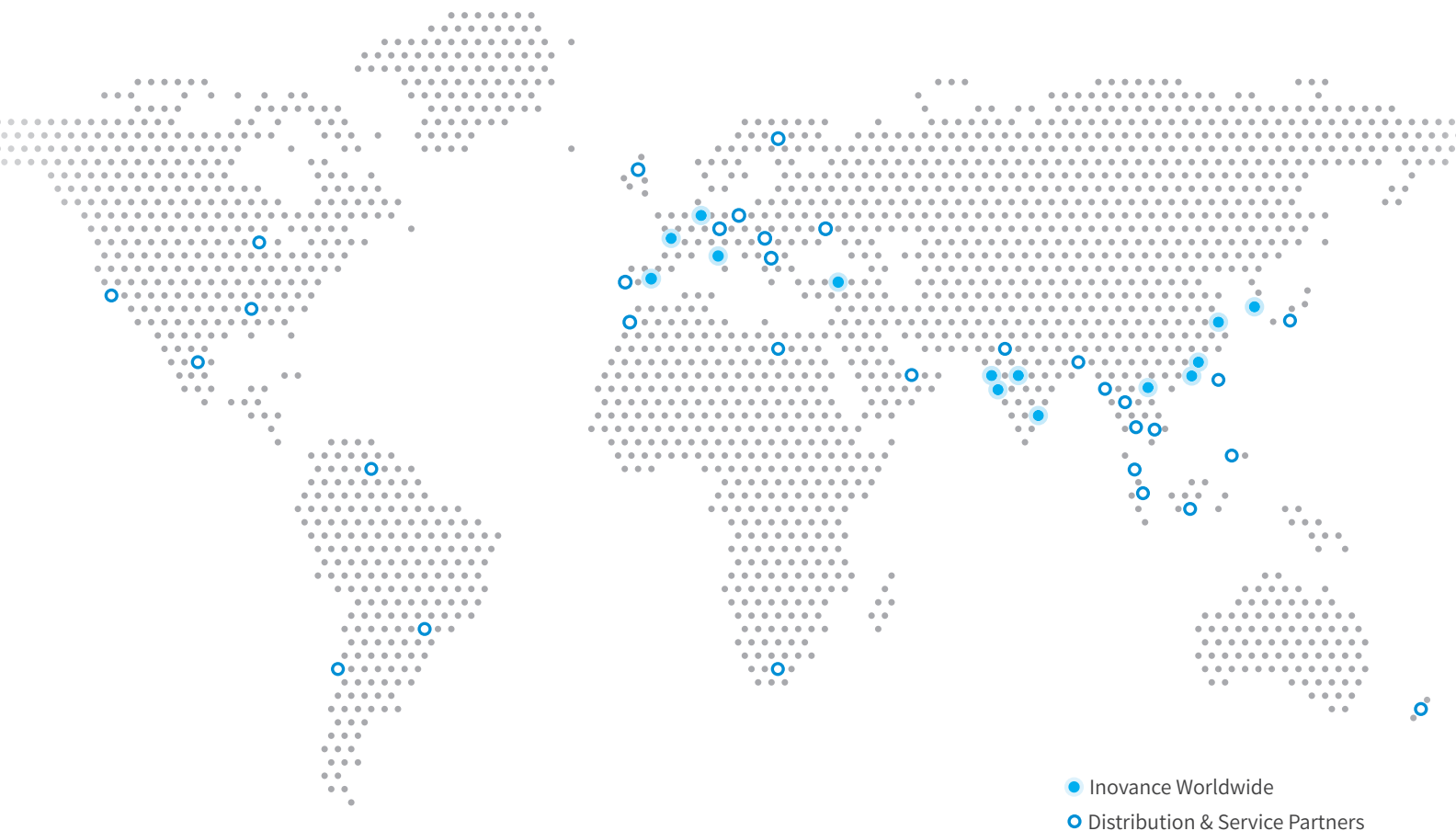




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INOVANCE

HD9XS Series Medium-voltage AC Drives

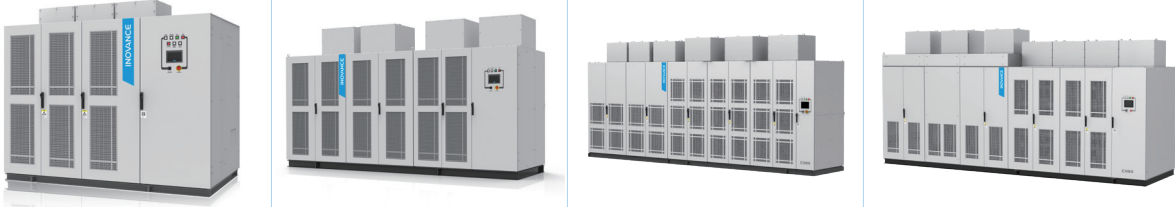


Features & functions

- **Grid Compatibility:**
Lower/higher voltage ride through
- **Drives Protection:**
Secondary-side short-circuit protection for transformers
- **Motor Adaptability:**
Flexible motor compatibility supported by multiple algorithms



HD9XS Series Medium-voltage AC Drive

HD9XS series Medium-voltage power cells cascaded compact AC Drive				
Appearance				
Power Class	3.3kV: 315kVA~1400kVA 4.2kV: 315kVA~1800kVA 6kV: 315kVA~2800kVA	3.3kV: 1600kVA~2250kVA 4.2kV: 2000kVA~2800kVA 6kV: 3150kVA~4000kVA	3.3kV: 2500kVA~4500kVA 4.2kV: 3150kVA~5600kVA 6kV: 4500kVA~8000kVA	
Appearance				
Power Class	6.6 kV: 315kVA~1600 kVA 10 kV: 315kVA~2500 kVA 11 kV: 315kVA~2500 kVA	6.6 kV: 1800kVA~3000 kVA 10 kV: 2800kVA~4500 kVA 11 kV: 2800kVA~4500 kVA	6.6kV: 3500kVA~4000kVA 10kV: 5000kVA~7000kVA 11kV: 5000kVA~7000kVA	6.6kV: 4500kVA~9000kVA 10kV: 8000kVA~13750kVA 11kV: 8000kVA~13750kVA
Cooling	Forced air cooling			
Basic Features	The HD9XS was designed based on a two-quadrant synchronous or asynchronous motor control platform, featuring power cells connected in series and bypass supporting architecture			
Application Scope	Energy-saving applications of fans and water pumps in the petrochemical, electric power, chemical, metallurgical, building materials, municipal and other fields Process-oriented applications, such as compressors, belt conveyors, hoists, crushers, ball mills, and AC drive soft start			
Competitive Advantage	High efficiency, high power factor, and low harmonics High-performance vector technology and accurate speed regulation Brushless synchronous motor control technology			

Note: The above voltage classes and power are specifications of standard products. Other voltage classes and special processoriented applications can be customized as needed.

HD90S
General-purpose medium-voltage vector AC drive (asynchronous motor)

Basic features:
Medium-voltage vector AC drive designed based on a two-quadrant asynchronous motor control platform, featuring a general-purpose vector algorithm and power cells connected in series



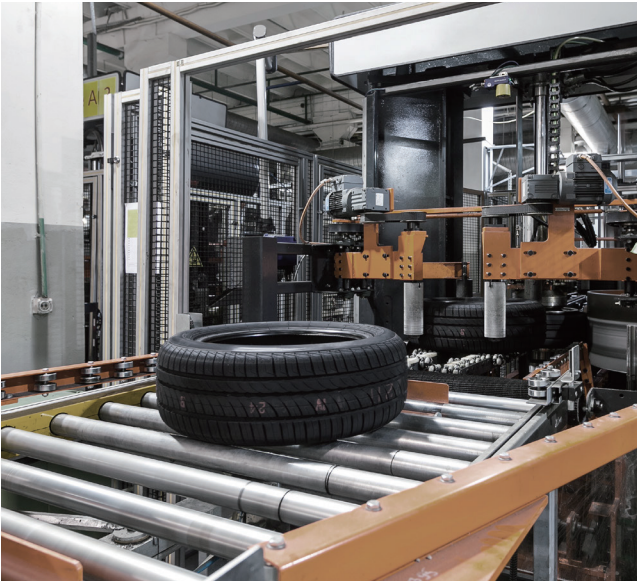
HD93S
High-performance medium-voltage vector AC drive (synchronous motor)

Basic features:
Designed based on a two-quadrant synchronous motor control platform, featuring a sensorless field oriented control algorithm, and compatible with electric exciting synchronous motors and permanent exciting synchronous motors



Inovance Boosts the Upgrade of the Heavy Industry

The global heavy industry faces severe challenges of transformation and upgrade while coping with huge pressure from slow growth, overcapacity, energy conservation, and emission reduction. To help optimize the industrial structure, promote low-carbon cycle development, and improve the quality of heavy industry products, Inovance boosts the upgrade of the global heavy industry by providing efficient and durable solutions for metallurgy, electricity, building materials, petrochemical, paper making, municipal, shipbuilding, rubber, mining, and other industries.



HD9XS Series Power Cells Cascaded MV AC Drive

Air cooling

- The uses top quality fans, featuring a large air volume, sufficient allowance, long service life, and high stability. This meets the heat dissipation requirement of the AC drive and improves its stability.

Transformer cabinet

- The input side adopts a multi-pulse rectification architecture formed by a phase shift transformer. This greatly improves the current waveform on the network side, increases the input power factor, and reduces the harmonic pollution of equipment to the mains.



6.6 kV: 1800kVA~3000kVA
10 kV: 2800kVA~4500kVA
11 kV: 2800kVA~4500kVA

Power cell cabinet and power cell

- Each phase consists of 3 to 9 power cells to form a 4N +1 level PWM waveform. Three-phase Y connection is used to directly output 3 to 11 kV power.



Power cell

Control system

- The AC drive uses an intelligent controller based on high-speed ARM, DSP, and FPGA. The AC drive employs the sensorless field oriented control technology and optimized ripple PWM control technology for high-quality sinusoidal voltage and current output.

Human-Machine Interface

- The AC drive uses the novel InoTouch series touchscreen independently developed and produced by Inovance, which provides friendly interfaces and it is convenient for user system connection.



Back-to-back Structure Design, More Compact Size



3.3kV: 315kVA~1400kVA
4.2kV: 315kVA~1800kVA
6kV: 315kVA~2800kVA



Power cell cabinet



The HD9XS adopts a new power cell design and thus is lighter and more aesthetic than the HD9X series. Its innovative semi-sealed structure makes it more adaptable to the environment and more reliable.

Control cabinet

The HD9XS use a new-generation control cabinet architecture that is consistent with the main control system of the HD9XS. This improves the uniformity of onsite spare parts. Some details in the control cabinet are optimized, making it more convenient to operate the AC drive on site.

Bypass cabinet/Wiring cabinet

The HD9XS innovatively integrate a one-to-one manual or automatic bypass cabinet, without changing the installation size of the AC drive.

Transformer cabinet

The HD9XS adopts front-and-back arrangement of the transformer cabinet and power cell cabinet. Its advanced thermal design not only ensures heat dissipation but also saves the onsite installation space and reduces the cost of infrastructure construction for customers.



6.6kV: 315kVA~1600kVA
10kV: 315kVA~2500kVA
11kV: 315kVA~2500kVA



Note: Only 6.6 kV (≤ 1600kVA) / 10 kV (≤ 2500kVA) / 11 kV (≤ 2500kVA) built-in bypass cabinet

Continuous Production Guaranteed by Reliability and Durability

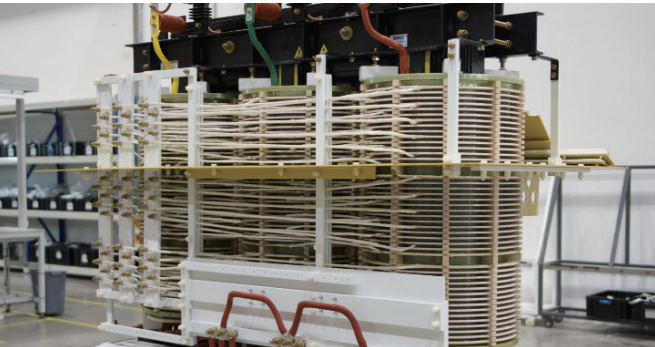


Reliability and a long service life guaranteed by strict component selection and the most comprehensive test

Each product is guaranteed to meet the design requirements and customers' onsite process-oriented application requirements from product design to production.

Strict component selection and design: All core components are strictly tested and screened. The selected products are of high quality and a long service life and come from top-notch brands worldwide.

Advanced test conditions and test items: The leading multifunctional full-voltage and full-load test platform dedicated to medium-voltage AC drives has a maximum load of 4 MW. Each product undergoes dielectric testing, functional testing, aging testing, mechanical back-to-back testing, and fullload current testing before delivery.



Product safety improved by reliable short-circuit protection for the secondary side of the phase shifting transformer

Inovance independently develops the short-circuit protection technology for the secondary side of the phase shifting transformer to avoid accidents such as fire and equipment damage caused by transformer secondary side shortcircuit.

This reduces customer losses and prevents fault escalation.

Timely: The short-circuit protection technology detects short-circuit information before the transformer may malfunction and takes protective measures to ensure equipment safety.

Omni-directional: The short-circuit protection technology gives comprehensive consideration to the number of short-circuit phases and short-circuit positions, and provides effective protection under various working conditions.

Flexible: No additional equipment is needed, making operation flexible and reliable.



Stable operation in various industry and environments, strong environmental adaptability

Inovance HD9XS series medium-voltage AC drive is designed to meet different application requirements in various use environments, such as sea, land, plains, plateaus, and corrosive or dusty environments.

Application at the highest altitude: HD9XS is used at an altitude of 4650 m over sea level in Naqu, Tibet, which is the highest-altitude application in the industry.

Application in extremely cold and dusty environments: The HD9X series medium-voltage AC drive is successfully used at a copper mine in Karabas, Russia.

Application in environments with high humidity and salt fog: The HD9X series medium-voltage AC drive is widely used in port shore power, port conveyors, and offshore platforms.



Continuous production even with abnormal power grid, backed by strong mains adaptability

HD9XS supports low and highvoltage ride through. Inovance is one of the drafters of the DL/T1648-2016 standard of the State Grid Corporation of China (SGCC). The AC drive has passed the test by the China Electric Power Research Institute (CEPRI) affiliated to the SGCC and is suitable for applications with poor mains and those with high reliability requirements.

Easy Commissioning and Troubleshooting



Local multi-language touchscreen

The HD9X series medium-voltage AC drive provides the simple, sensitive, and standard 7-inch full-color touchscreen, which is easy to use even for ordinary operators. The touchscreen supports a series of functions, such as setting parameters, viewing the detailed status of power cells, viewing fault records and logs, and 4-channel oscilloscope function.

Support for English and Russian

The touchscreen supports online switching among multiple languages.

Text library files in multiple languages can be imported and exported in the Excel format.



Troubleshooting guide

Accurate guidance: Each fault can be located accurately when HD9XS is used.

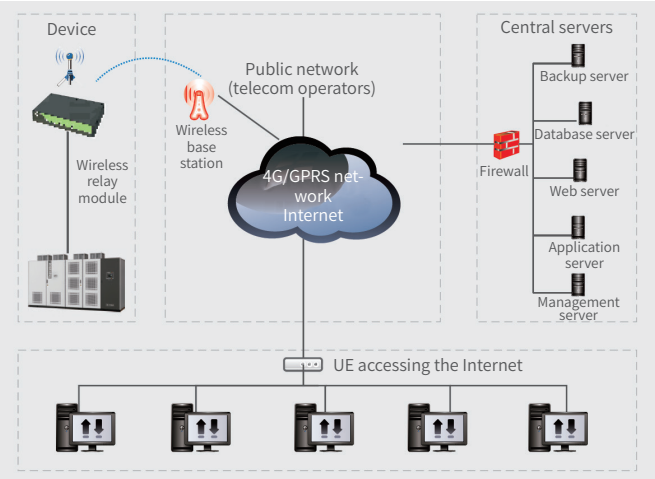
Troubleshooting: Users can quickly identify the cause of a fault and find the troubleshooting steps based on the fault code by touching a few buttons, without having to look up the user guide. This enables quick fault solving and reduces the downtime.

Black box function: There are 700 points data will be stored before and after a fault are recoded for accurate analysis of complex faults.



Guided commissioning

The HD9X series medium-voltage AC drive is as easy to use as mobile phones. Pre-commissioning can be completed simply by setting parameters based on predefined steps.



Guided commissioning

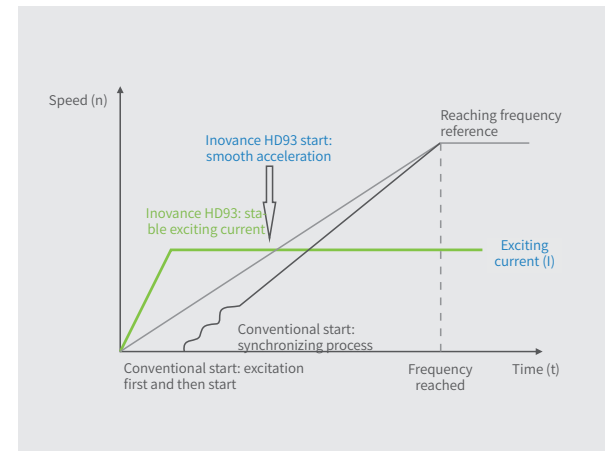
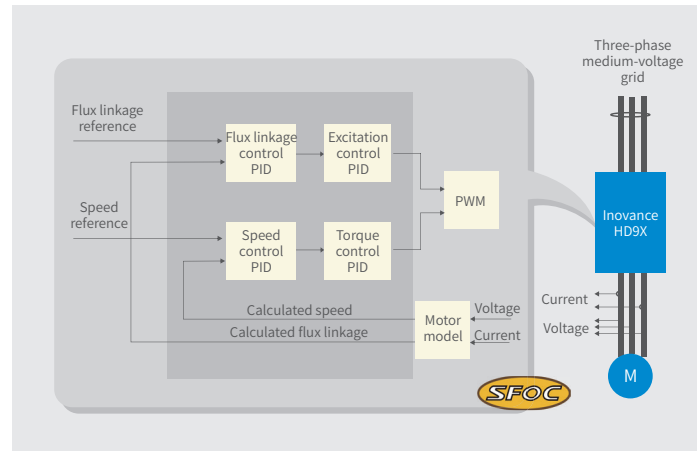
HD9XS supports remote fault diagnosis and commissioning based on Inovance's IoT platform. More responsive after-sales service is provided through real-time information capture.

Real-time information about product performance is analyzed. The operation efficiency, accuracy, and flexibility are improved.

Excellent Technologies and Efficient Applications

Provide strong power for your equipments

to meet all kinds of complex and high-performance process-oriented applications



Most suitable application algorithm for medium-voltage and high-power motors

Based on stator magnetic field orientation, the sensorless field oriented control algorithm is the most suitable vector algorithm for medium-voltage and high-power applications. On the basis of achieving high performance, the algorithm overcomes the sensitivity to rotor parameters and is suitable for both energy-saving applications with square torque loads and process-oriented applications with constant torque loads.

The sensorless field oriented control algorithm eliminates parameter dependence and makes operation more stable after the motor has been running for a long time.

The algorithm ensures efficient motor operation and greatly improves system efficiency.

Synchronous motor control expert:
mastering the core control algorithms of
all types of synchronous motors

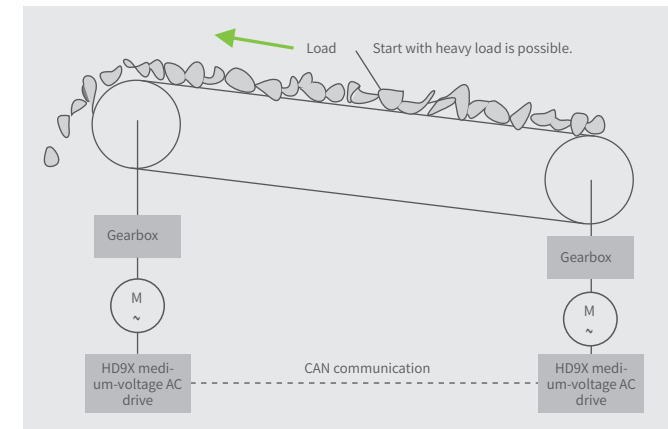
The HD93S series synchronous motor-dedicated medium-voltage AC drive is applicable to brushed and brushless electrically excited synchronous motors, low-speed permanent magnet synchronous motor, and high-speed permanent magnet synchronous motor. It supports flux vector control (FVC) and speed sensorless vector control (SVC).

The AC drive features a 100% success rate of one-time startup, leading in the industry, SVC-controlled inversion-free startup, a large driving torque, and smooth operation.

Application to high-power electrically excited synchronous motors:
8000 kW sintering main exhaust fan of a steel plant in Hebei.

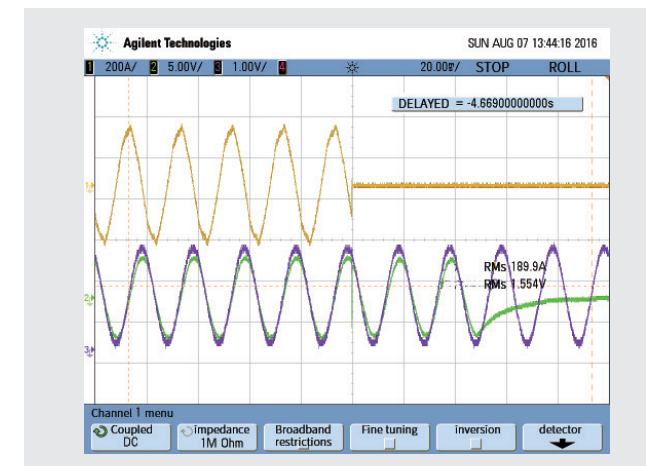
Application to low-speed permanent magnet synchronous motor: ball mill in a cement factory in Zhejiang, belt conveyor in a port in Hebei, and compact mill in a rubber factory in Tianjin.

Application to high-speed permanent magnet synchronous motor with maximum frequency: 720 Hz application of a motor test bed.



Advanced master-slave control load distribution technology

HD9XS adopts the advanced master-slave control technology, which is widely used in multi-motor driven belt conveyors and other multi-motor parallel applications and is able to control the load imbalance to within 2%.

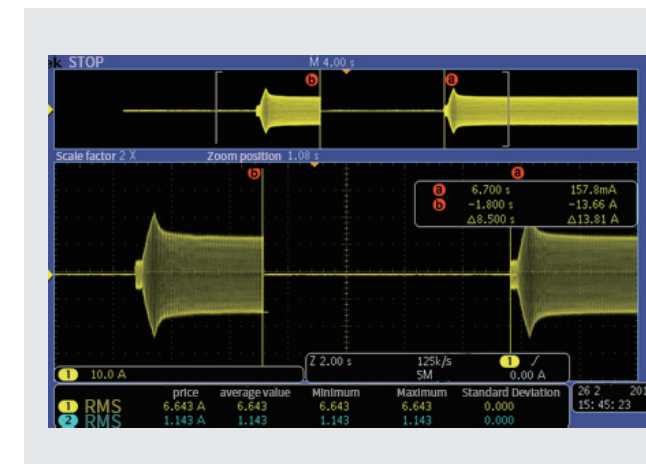


Advanced syn-transfer technology

HD9XS implements synchronous switching for smooth load transfer with or without reactors. The switching current is less than 1.5 times the rated motor current.

The reactorless startup technology helps save more than 10% of the use cost and a lot of cabinet space.

A syn-transfer system can work with a third-party AC drive to implement soft startup and reduce repeated investment for customers.



Fast Catching spinning motor technology reducing unnecessary stop time on site

HD9XS quickly identifies the motor speed and drives the motor to the target frequency regardless of whether the motor is in the reverse running, forward running, or static state. It is especially suitable for applications such as water pumps and herringbone air ducts. The AC drive implements flying start within 250 ms at a speed 80% to 90% faster than the common system, and provides better protection against misoperation.

Strong R&D Team

Scientific and full-process management of R&D projects

Scientific product design guaranteed by advanced test platforms



Complete analysis and test facilities

- Power device test platform
- Analysis of extreme working conditions (stray inductance and temperature simulation) of power electronic devices
- Analysis of large-capacity drive pre-research
- Electrical finite element analysis platform
- Simulation analysis of topological structures
- Simulation analysis of bus current
- Advanced algorithm simulation and comparative verification
- Thermal simulation analysis



Investment guaranteed for innovation

- 3 R&D centers: Shenzhen, Suzhou, and Milan, Italy
- 10% of the sales revenue invested in R&D
- 1697 R&D engineers
- 746 patents, including 229 invention patents, 413 utility model patents, and 104 design patents
- Inovance won TÜV ETL certification in 2013. Its EMC and safety laboratory won the ACT qualification certificate of TÜV SÜD and CNAS certificate.

Ordering code

HD 9X S - J 100 / 2500 - D N

① Product series HD: Inovance power cells cascaded compact AC drive	③ S: New-generation medium-voltage compact AC drive with power cells connected in series	⑤ Output voltage: in the unit of kV (For example, 060 indicates 6 kV.)
② SN.: 90: General-purpose and vector-type (for asynchronous motor) 93: High-performance and vector-type (for synchronous motor)	④ Input voltage class A: 1 kV B: 2.3 kV C: 3 kV D: 3.3 kV E: 4.2 kV F: 6 kV G: 6.6 kV H: 7.2 kV J: 10 kV K: 11 kV L: 13.8 kV	⑥ Rated capacity of the AC drive: in the unit of kVA
		⑦ D: Indicates that the AC drive does not have energy feedback.
		⑧ B: Indicates that the power cell is configured with bypass. N: Without bypass

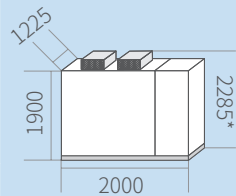
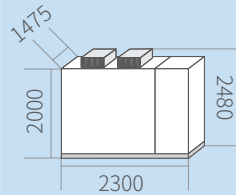
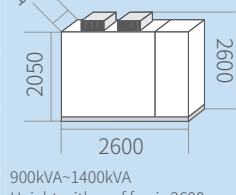
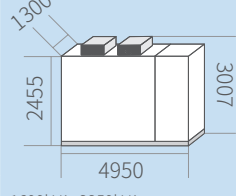
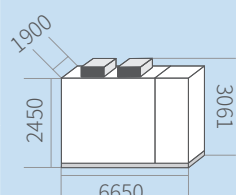
HD9XS electrical specifications

Item	Voltage	3.3kV~13.8kV
Input	Rated input voltage	Three-phase 50Hz/60Hz, 3.3kV/4.2kV/6kV/6.6kV/10kV/11kV/13.8kV ^[1]
	Voltage fluctuation	Full-load running at U _N ±10%; long-term running at -35% to -10% by applying derating
	Frequency range	50Hz/60Hz±10%
	Input voltage of power cells	690V
	Input power factor	≥ 0.95 (with load more than 20%)
	Input current harmonics	≤ 4%, compliant with the IEEE519-2014 and GBT14549-93 standards
Output	Output voltage range	0kV~U _N
	Output voltage of power cells	690V
	Output frequency range	0Hz~50Hz/60Hz; max. 120Hz; above 120Hz as customized product
	Speed regulation ratio	40:1 (universal vector); 100:1 (SVC); 200:1 (FVC)
	Rotational speed accuracy	±0.5 % (SVC); ± 0.2 % (FVC)
Startup torque		0.5Hz/150% (SVC); 0 Hz/180% (FVC)
Technical solution		Power cells connected in series, AC-DC-AC, and high voltage input and output
Control mode		Universal vector and SVC or FVC
Rectification		Diode three-phase full bridge
Inversion		IGBT inverter bridge
Acceleration and deceleration time		0.1s~6500s; > 6500s customizable
Start/Stop control		Local or remote
Control system		ARM, DSP, FPGA, and HMI
Panel display		Touchscreen, Support for English and Russian
Overload capacity		120% of rated current, 1 minute (> 462A, 110% of rated current, 1 minute)
Efficiency		≥ 96%
Fuse equipped for the AC drive		A fuse on the input side of power cells
Optical fiber adopted for the electrical isolation part		Yes
Input filter required		No
Output filter required		No
Power factor compensation required		No
Power cell protection		Overvoltage, undervoltage, input phase loss, overcurrent, overtemperature, and communication
System protection		Motor overload, output overload, output short circuit, output grounding, input overcurrent, input overvoltage, input imbalance, input grounding, cooling fan fault alarm, door switch interlock protection, transformer overheat alarm, transformer overheat trip, and transformer secondary short circuit protection
Mean time between failures (MTBF)		50,000 hours
Communication interface		Modbus-RTU, Modbus-TCP/IP, CANlink, Profibus-DP, Profinet,
Digital input		10 inputs, relay dry contact
Digital output		16 outputs, relay dry contact
Analog input		4 inputs, 4mA~20mA or 0V~10V
Analog output		5 outputs, 4mA~20mA or 0V~10V
Service environment		Indoor
Ambient temperature		-10° C to +40° C; derating at 40° C to 50° C; preheating before startup below -10° C
Ambient humidity		5%~95%, non-condensing
Altitude		≤ 1000m; derating at more than 1000m. Specify the altitude when ordering.
Total noise of equipment		≤ 85dB
Cooling		Forced air cooling
IP rating		IP30, options IP31/IP41/IP42 ^[1]
Cable entry and exit method		Lower cable entry and exit, or customized configuration
Control power supply		380 V±10% AC, three-phase and four-wire ^[1]

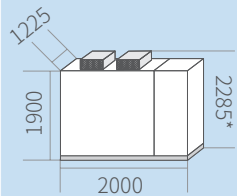
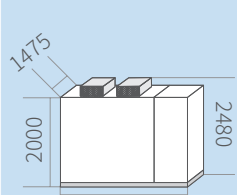
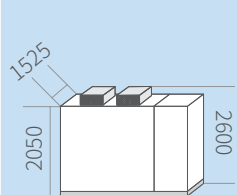
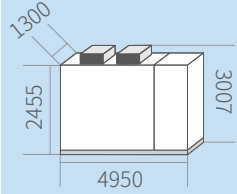
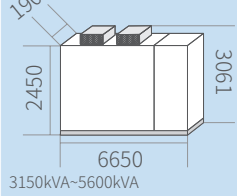
[1]: If you have any other requirements, please consult the manufacturer

Dimensions

3.3 kV Series Installation Specifications

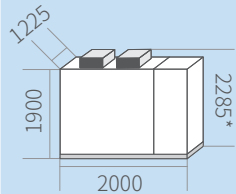
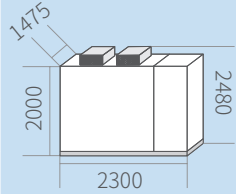
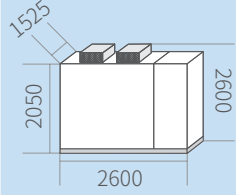
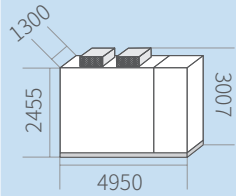
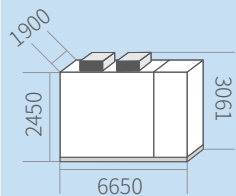
Size	Applicable motor (kW)	MVD model	Capacity (kVA) 40° C	Dimensions (W×D×H) (mm) without roof fan	Net weight excluding bypass cabinet (kg)
 315kVA Height with roof fan is 2285mm 355kVA~400kVA Height with roof fan is 2385mm	250	HD9XS-D033/315-DN(B)	315	2000×1225×1900	1846
	280	HD9XS-D033/355-DN(B)	355	2000×1225×1900	1896
	315	HD9XS-D033/400-DN(B)	400	2000×1225×1900	1946
 450kVA~800kVA Height with roof fan is 2485mm	355	HD9XS-D033/450-DN(B)	450	2300×1475×2000	2046
	400	HD9XS-D033/500-DN(B)	500	2300×1475×2000	2146
	450	HD9XS-D033/560-DN(B)	560	2300×1475×2000	2246
	500	HD9XS-D033/630-DN(B)	630	2300×1475×2000	2346
	560	HD9XS-D033/710-DN(B)	710	2300×1475×2000	2446
	630	HD9XS-D033/800-DN(B)	800	2300×1475×2000	2531
 900kVA~1400kVA Height with roof fan is 2600mm	710	HD9XS-D033/900-DN(B)	900	2600×1525×2050	2631
	800	HD9XS-D033/1000-DN(B)	1000	2600×1525×2050	2731
	900	HD9XS-D033/1120-DN(B)	1120	2600×1525×2050	2885
	1000	HD9XS-D033/1250-DN(B)	1250	2600×1525×2050	3192
 1600kVA~2250kVA Height with roof fan is 3007mm	1120	HD9XS-D033/1400-DN(B)	1400	2600×1525×2050	3346
	1250	HD9XS-D033/1600-DN(B)	1600	4950×1300×2455	4515
	1400	HD9XS-D033/1800-DN(B)	1800	4950×1300×2455	4835
	1600	HD9XS-D033/2000-DN(B)	2000	4950×1300×2455	5135
 2500kVA~4500kVA Height with roof fan is 3061mm	1800	HD9XS-D033/2250-DN(B)	2250	4950×1300×2455	5500
	2000	HD9XS-D033/2500-DN(B)	2500	6650×1900×2450	8955
	2240	HD9XS-D033/2800-DN(B)	2800	6650×1900×2450	9460
	2500	HD9XS-D033/3150-DN(B)	3150	6650×1900×2450	9930
	2800	HD9XS-D033/3550-DN(B)	3550	6650×1900×2450	10900
	3150	HD9XS-D033/4000-DN(B)	4000	6650×1900×2450	11350
	3550	HD9XS-D033/4500-DN(B)	4500	6650×1900×2450	12060

4.2kV Series Installation Specifications

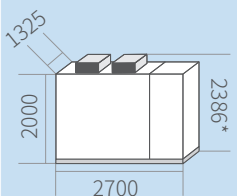
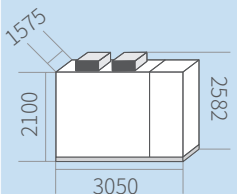
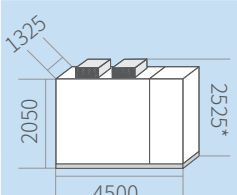
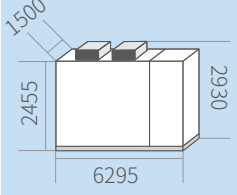
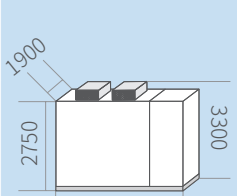
Size	Applicable motor (kW)	MVD model	Capacity (kVA) 40° C	Dimensions (W×D×H) (mm) without roof fan	Net weight excluding bypass cabinet (kg)
 315kVA~400kVA Height with roof fan is 2285mm 400kVA~450kVA Height with roof fan is 2385mm	250	HD9XS-E042/315-DN(B)	315	2000×1225×1900	2100
	280	HD9XS-E042/355-DN(B)	355	2000×1225×1900	2150
	315	HD9XS-E042/400-DN(B)	400	2000×1225×1900	2200
	355	HD9XS-E042/450-DN(B)	450	2000×1225×1900	2250
 560kVA~1000kVA Height with roof fan is 2480mm	400	HD9XS-E042/500-DN(B)	500	2000×1225×1900	2300
	450	HD9XS-E042/560-DN(B)	560	2300×1475×2000	2400
	500	HD9XS-E042/630-DN(B)	630	2300×1475×2000	2500
	560	HD9XS-E042/710-DN(B)	710	2300×1475×2000	2600
	630	HD9XS-E042/800-DN(B)	800	2300×1475×2000	2700
	710	HD9XS-E042/900-DN(B)	900	2300×1475×2000	2800
 1120kVA~1800kVA Height with roof fan is 2600mm	800	HD9XS-E042/1000-DN(B)	1000	2300×1475×2000	2900
	900	HD9XS-E042/1120-DN(B)	1120	2600×1525×2050	3100
	1000	HD9XS-E042/1250-DN(B)	1250	2600×1525×2050	3300
	1120	HD9XS-E042/1400-DN(B)	1400	2600×1525×2050	3500
 2000kVA~2800kVA Height with roof fan is 2600mm	1250	HD9XS-E042/1600-DN(B)	1600	2600×1525×2050	3700
	1400	HD9XS-E042/1800-DN(B)	1800	2600×1525×2050	3945
	1600	HD9XS-E042/2000-DN(B)	2000	4950×1300×2455	5515
	1800	HD9XS-E042/2250-DN(B)	2250	4950×1300×2455	5835
 3150kVA~5600kVA Height with roof fan is 3061mm	2000	HD9XS-E042/2500-DN(B)	2500	4950×1300×2455	6135
	2240	HD9XS-E042/2800-DN(B)	2800	4950×1300×2455	6500
	2500	HD9XS-E042/3150-DN(B)	3150	6650×1900×2450	9455
	2800	HD9XS-E042/3550-DN(B)	3550	6650×1900×2450	9960
	3150	HD9XS-E042/4000-DN(B)	4000	6650×1900×2450	10430
	3550	HD9XS-E042/4500-DN(B)	4500	6650×1900×2450	12200
	4000	HD9XS-E042/5000-DN(B)	5000	6650×1900×2450	12750
	4500	HD9XS-E042/5600-DN(B)	5600	6650×1900×2450	13460

Dimensions

6 kV Series Installation Specifications

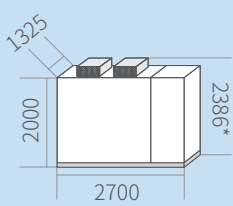
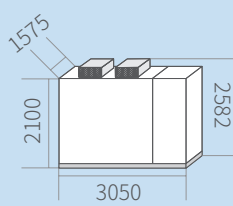
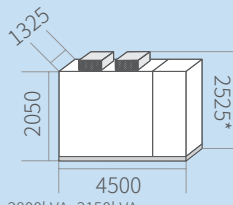
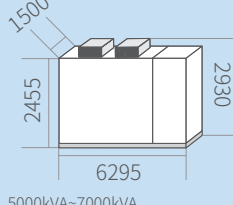
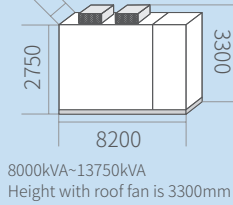
Size	Applicable motor (kW)	MVD model	Capacity (kVA) 40° C	Dimensions (W×D×H) (mm) without roof fan	Net weight excluding bypass cabinet (kg)
 315kVA~630kVA Height with roof fan is 2285mm 710kVA Height with roof fan is 2385mm	250	HD9XS-F060/315-DN(B)	315	2000×1225×1900	1730
	280	HD9XS-F060/355-DN(B)	355	2000×1225×1900	1860
	315	HD9XS-F060/400-DN(B)	400	2000×1225×1900	1890
	355	HD9XS-F060/450-DN(B)	450	2000×1225×1900	1920
	400	HD9XS-F060/500-DN(B)	500	2000×1225×1900	2050
	450	HD9XS-F060/560-DN(B)	560	2000×1225×1900	2180
	500	HD9XS-F060/630-DN(B)	630	2000×1225×1900	2210
 800kVA~1600kVA Height with roof fan is 2480mm	560	HD9XS-F060/710-DN(B)	710	2000×1225×1900	2340
	630	HD9XS-F060/800-DN(B)	800	2300×1475×2000	2500
	710	HD9XS-F060/900-DN(B)	900	2300×1475×2000	2700
	800	HD9XS-F060/1000-DN(B)	1000	2300×1475×2000	2900
	900	HD9XS-F060/1120-DN(B)	1120	2300×1475×2000	3100
	1000	HD9XS-F060/1250-DN(B)	1250	2300×1475×2000	3300
	1120	HD9XS-F060/1400-DN(B)	1400	2300×1475×2000	3500
 1800kVA~2800kVA Height with roof fan is 2600mm	1250	HD9XS-F060/1600-DN(B)	1600	2300×1475×2000	3700
	1400	HD9XS-F060/1800-DN(B)	1800	2600×1525×2050	3945
	1600	HD9XS-F060/2000-DN(B)	2000	2600×1525×2050	4515
	1800	HD9XS-F060/2250-DN(B)	2250	2600×1525×2050	4835
	2000	HD9XS-F060/2500-DN(B)	2500	2600×1525×2050	5135
	2240	HD9XS-F060/2800-DN(B)	2800	2600×1525×2050	5500
	2500	HD9XS-F060/3150-DN(B)	3150	4950×1300×2455	7655
 3150kVA~4000kVA Height with roof fan is 3007mm	2800	HD9XS-F060/3550-DN(B)	3550	4950×1300×2455	8260
	3150	HD9XS-F060/4000-DN(B)	4000	4950×1300×2455	8730
	3550	HD9XS-F060/4500-DN(B)	4500	6650×1900×2450	13420
 4500kVA~8000kVA Height with roof fan is 3061mm	4000	HD9XS-F060/5000-DN(B)	5000	6650×1900×2450	14040
	4500	HD9XS-F060/5600-DN(B)	5600	6650×1900×2450	14820
	5000	HD9XS-F060/6300-DN(B)	6300	6650×1900×2450	15680
	5600	HD9XS-F060/7000-DN(B)	7000	6650×1900×2450	16630
	6300	HD9XS-F060/8000-DN(B)	8000	6650×1900×2450	17780

6.6 kV Series Installation Specifications

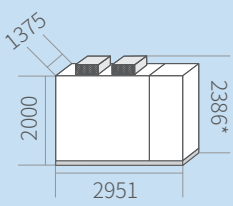
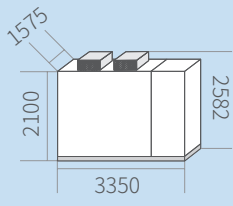
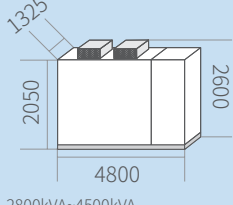
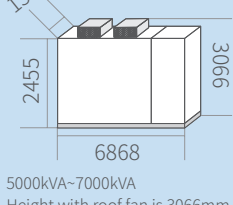
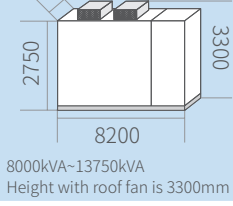
Size	Applicable motor (kW)	MVD model	Capacity (kVA) 40° C	Dimensions (W×D×H) (mm) without roof fan	Net weight excluding bypass cabinet (kg)
 315kVA~450kVA Height with roof fan is 2385mm 500kVA~800kVA Height with roof fan is 2482mm	250	HD9XS-G066/315-DN(B)	315	2700×1325×2000	2381
	280	HD9XS-G066/355-DN(B)	355	2700×1325×2000	2400
	315	HD9XS-G066/400-DN(B)	400	2700×1325×2000	2520
	355	HD9XS-G066/450-DN(B)	450	2700×1325×2000	2619
	400	HD9XS-G066/500-DN(B)	500	2700×1325×2000	2719
	450	HD9XS-G066/560-DN(B)	560	2700×1325×2000	2828
	500	HD9XS-G066/630-DN(B)	630	2700×1325×2000	2928
 900kVA~1600kVA Height with roof fan is 2582mm	560	HD9XS-G066/710-DN(B)	710	2700×1325×2000	3026
	630	HD9XS-G066/800-DN(B)	800	2700×1325×2000	3126
	710	HD9XS-G066/900-DN(B)	900	3050×1575×2100	3902
	800	HD9XS-G066/1000-DN(B)	1000	3050×1575×2100	4099
	900	HD9XS-G066/1120-DN(B)	1120	3050×1575×2100	4296
	1000	HD9XS-G066/1250-DN(B)	1250	3050×1575×2100	4496
	1120	HD9XS-G066/1400-DN(B)	1400	3050×1575×2100	4690
 1800kVA~2000kVA Height with roof fan is 2525mm 2250kVA~3000kVA Height with roof fan is 2600mm	1250	HD9XS-G066/1600-DN(B)	1600	3050×1575×2100	4884
	1400	HD9XS-G066/1800-DN(B)	1800	4500×1325×2050	6544
	1600	HD9XS-G066/2000-DN(B)	2000	4500×1325×2050	6834
	1800	HD9XS-G066/2250-DN(B)	2250	4500×1325×2050	6972
	2000	HD9XS-G066/2500-DN(B)	2500	4500×1325×2050	7348
	2240	HD9XS-G066/2800-DN(B)	2800	4500×1325×2050	7566
	2500	HD9XS-G066/3000-DN(B)	3000	4500×1325×2050	7566
 3500kVA~4000kVA Height with roof fan is 2930mm	2800	HD9XS-G066/3500-DN(B)	3500	6295×1500×2455	9780
	3150	HD9XS-G066/4000-DN(B)	4000	6295×1500×2455	10322
 4500kVA~9000kVA Height with roof fan is 3300mm	3550	HD9XS-G066/4500-DN(B)	4500	8200×1900×2750	13563
	4000	HD9XS-G066/5000-DN(B)	5000	8200×1900×2750	13963
	4500	HD9XS-G066/5600-DN(B)	5600	8200×1900×2750	14358
	5000	HD9XS-G066/6300-DN(B)	6300	8200×1900×2750	16063
	5600	HD9XS-G066/7000-DN(B)	7000	8200×1900×2750	17454
	6300	HD9XS-G066/8000-DN(B)	8000	8200×1900×2750	19212
	7100	HD9XS-G066/9000-DN(B)	9000	8200×1900×2750	19649

Dimensions

10 kV Series Installation Specifications

Size	Applicable motor (kW)	MVD model	Capacity (kVA) 40° C	Dimensions (W×D×H) (mm) without roof fan	Net weight excluding bypass cabinet (kg)
 315kVA~800kVA Height with roof fan is 2386mm 900kVA~1400kVA Height with roof fan is 2482mm	250	HD9XS-J100/315-DN(B)	315	2700×1325×2000	2520
	280	HD9XS-J100/355-DN(B)	355	2700×1325×2000	2520
	315	HD9XS-J100/400-DN(B)	400	2700×1325×2000	2520
	355	HD9XS-J100/450-DN(B)	450	2700×1325×2000	2520
	400	HD9XS-J100/500-DN(B)	500	2700×1325×2000	2520
	450	HD9XS-J100/560-DN(B)	560	2700×1325×2000	2640
	500	HD9XS-J100/630-DN(B)	630	2700×1325×2000	2760
	560	HD9XS-J100/710-DN(B)	710	2700×1325×2000	2860
	630	HD9XS-J100/800-DN(B)	800	2700×1325×2000	2960
	710	HD9XS-J100/900-DN(B)	900	2700×1325×2000	3170
 1400kVA~2500kVA Height with roof fan is 2582mm	800	HD9XS-J100/1000-DN(B)	1000	2700×1325×2000	3370
	900	HD9XS-J100/1120-DN(B)	1120	2700×1325×2000	3570
	1000	HD9XS-J100/1250-DN(B)	1250	2700×1325×2000	3770
	1120	HD9XS-J100/1400-DN(B)	1400	3050×1575×2100	4680
	1250	HD9XS-J100/1600-DN(B)	1600	3050×1575×2100	4880
 2800kVA~3150kVA Height with roof fan is 2525mm 3500kVA~4500kVA Height with roof fan is 2600mm	1400	HD9XS-J100/1800-DN(B)	1800	3050×1575×2100	5080
	1600	HD9XS-J100/2000-DN(B)	2000	3050×1575×2100	5280
	1800	HD9XS-J100/2250-DN(B)	2250	3050×1575×2100	5480
	2000	HD9XS-J100/2500-DN(B)	2500	3050×1575×2100	5680
	2240	HD9XS-J100/2800-DN(B)	2800	4500×1325×2050	7430
 5000kVA~7000kVA Height with roof fan is 2930mm	2400	HD9XS-J100/3000-DN(B)	3000	4500×1325×2050	7720
	2500	HD9XS-J100/3150-DN(B)	3150	4500×1325×2050	7720
	2800	HD9XS-J100/3500-DN(B)	3500	4500×1325×2050	7870
	3000	HD9XS-J100/3750-DN(B)	3750	4500×1325×2050	7950
	3150	HD9XS-J100/4000-DN(B)	4000	4500×1325×2050	8470
 8000kVA~13750kVA Height with roof fan is 3300mm	3550	HD9XS-J100/4500-DN(B)	4500	4500×1325×2050	8500
	4000	HD9XS-J100/5000-DN(B)	5000	6295×1500×2455	11260
	4500	HD9XS-J100/5600-DN(B)	5600	6295×1500×2455	12030
	5000	HD9XS-J100/6300-DN(B)	6300	6295×1500×2455	12250
	5600	HD9XS-J100/7000-DN(B)	7000	6295×1500×2455	12590
	6300	HD9XS-J100/8000-DN(B)	8000	8200×1900×2750	18133
	7100	HD9XS-J100/9000-DN(B)	9000	8200×1900×2750	18728
	8000	HD9XS-J100/10000-DN(B)	10000	8200×1900×2750	20657
	9000	HD9XS-J100/11250-DN(B)	11250	8200×1900×2750	22472
	10000	HD9XS-J100/12500-DN(B)	12500	8200×1900×2750	24330
	11000	HD9XS-J100/13750-DN(B)	13750	8200×1900×2750	24791

11 kV Series Installation Specifications

Size	Applicable motor (kW)	MVD model	Capacity (kVA) 40° C	Dimensions (W×D×H) (mm) without roof fan	Net weight excluding bypass cabinet (kg)
 315kVA~800kVA Height with roof fan is 2386mm 900kVA~1250kVA Height with roof fan is 2481mm	250	HD9XS-K110/315-DN(B)	315	2951×1375×2000	2600
	280	HD9XS-K110/355-DN(B)	355	2951×1375×2000	2600
	315	HD9XS-K110/400-DN(B)	400	2951×1375×2000	2600
	355	HD9XS-K110/450-DN(B)	450	2951×1375×2000	2600
	400	HD9XS-K110/500-DN(B)	500	2951×1375×2000	2600
	450	HD9XS-K110/560-DN(B)	560	2951×1375×2000	2720
	500	HD9XS-K110/630-DN(B)	630	2951×1375×2000	2840
	560	HD9XS-K110/710-DN(B)	710	2951×1375×2000	2940
	630	HD9XS-K110/800-DN(B)	800	2951×1375×2000	3040
	710	HD9XS-K110/900-DN(B)	900	2951×1375×2000	3250
 1400kVA~2500kVA Height with roof fan is 2582mm	800	HD9XS-K110/1000-DN(B)	1000	2951×1375×2000	3450
	900	HD9XS-K110/1120-DN(B)	1120	2951×1375×2000	3650
	1000	HD9XS-K110/1250-DN(B)	1250	2951×1375×2000	3850
	1120	HD9XS-K110/1400-DN(B)	1400	3350×1575×2100	4800
	1250	HD9XS-K110/1600-DN(B)	1600	3350×1575×2100	5000
 2800kVA~4500kVA Height with roof fan is 2600mm	1400	HD9XS-K110/1800-DN(B)	1800	3350×1575×2100	5200
	1600	HD9XS-K110/2000-DN(B)	2000	3350×1575×2100	5400
	1800	HD9XS-K110/2250-DN(B)	2250	3350×1575×2100	5600
	2000	HD9XS-K110/2500-DN(B)	2500	3350×1575×2100	5800
	2240	HD9XS-K110/2800-DN(B)	2800	4800×1325×2050	7580
 5000kVA~7000kVA Height with roof fan is 3066mm	2400	HD9XS-K110/3000-DN(B)	3000	4800×1325×2050	7870
	2500	HD9XS-K110/3150-DN(B)	3150	4800×1325×2050	7870
	2800	HD9XS-K110/3500-DN(B)	3500	4800×1325×2050	8020
	3000	HD9XS-K110/3750-DN(B)	3750	4800×1325×2050	8100
	3150	HD9XS-K110/4000-DN(B)	4000	4800×1325×2050	8620
 8000kVA~13750kVA Height with roof fan is 3300mm	3550	HD9XS-K110/4500-DN(B)	4500	4800×1325×2050	8650
	4000	HD9XS-K110/5000-DN(B)	5000	6868×1500×2455	11720
	4500	HD9XS-K110/5600-DN(B)	5600	6868×1500×2455	12490
	5000	HD9XS-K110/6300-DN(B)	6300	6868×1500×2455	12710
	5600	HD9XS-K110/7000-DN(B)	7000	6868×1500×2455	13050
	6300	HD9XS-K110/8000-DN(B)	8000	8200×1900×2750	18533
	7100	HD9XS-K110/9000-DN(B)	9000	8200×1900×2750	19128
	8000	HD9XS-K110/10000-DN(B)	10000	8200×1900×2750	21357
	9000	HD9XS-K110/11250-DN(B)	11250	8200×1900×2750	23272
	10000	HD9XS-K110/12500-DN(B)	12500	8200×1900×2750	24730
	11000	HD9XS-K110/13750-DN(B)	13750	8200×1900×2750	25191

Note:

- The AC drive capacity can be adjusted based on user requirements and onsite requirements.
- The preceding dimensions and weights are for reference only. The specific dimensions and weights are subject to the technical agreement.
- The input voltage and output voltage are the same in the standard series.
- The height in Dimensions does not include the fan height, which ranges from 300mm to 600mm.
- The preceding dimensions and weights include the control cabinet, power cell cabinet, and transformer cabinet, but exclude the bypass cabinet.
- The distance from the front of the AC drive to the wall must be at least 1500 mm, that from the back of the AC drive to the wall must be at least 1000mm, that from the side of the AC drive to the wall must be at least 800 mm, and that from the top of the AC drive to the roof must be at least 1000mm.

Optional parts

Name	Model	Description
General Encoder Extension Card 1	PG1	Differential input PG card with frequency dividing output
General Encoder Extension Card 2	PG5	OC input PG card with 1:1 frequency dividing output
PROFIBUS-DP Extension Card	MD38DP2	PROFIBUS-DP field bus adapter card
PROFINET IO Extension Card	MD500-PN	PROFINET field bus adapter card
One-to-One Manual Bypass Cabinet	HD-MS	The manual bypass solution includes 3 isolation switches, QS1, QS2, QS3
One-to-One Automatic Bypass Cabinet	HD-AS	The automatic bypass solution includes 3 contactors, KM1, KM2, KM3
One-to-Two Manual Bypass Cabinet	HD-MS-2	The manual bypass solution includes 6 isolation switches, QS1, QS2, QS3, QS4, QS5, QS6
One-to-Two Automatic Bypass Cabinet	HD-AS-2	The automatic bypass solution includes 6 contactors, KM1, KM2, KM3, KM4, KM5, KM6
One-to-One Automatic Bypass with Isolation Switch Cabinet	HD-AS-IS	The automatic bypass with isolation switch cabinet includes 3 contactors, KM1, KM2, KM3. And 2 isolation switches, QS1, QS2
Output Isolation Cabinet	HD-OI	The cabinet includes 1 isolation switch, QS1. And 1 contactor, KM1
Pre-charge Cabinet	HD-PC	The cabinet includes 2 contactors, KM1, KM2. And 1 pre-charge resistor.
Integrated Protection Switchgear	HD-IP	The cabinet includes 1 vacuum circuit breaker
Remote Control Box	HD-CB	Remote control MVD, such as start, stop, reset, frequency set etc.
IOT Module	IOT-WL	Communicate with Inovane servers via 4G network, WiFi or Ethernet

Note: For 10kV, 315kVA~2500kVA, the one-to-one bypass can be built into the AC drive cabinet.