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INOVANCE

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**www.inovance.com**

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Data code: L6210190 V0.0

INOVANCE

## HD9XS Series

## Medium-voltage AC Drive

# HD9XS Series Medium-voltage AC Drive

| | HD9XS series<br>Medium-voltage power cells cascaded compact AC Drive | | |
|---|---|---|---|
| Appearance |  |  |  |
| Power Class | 3.3 kV: 100–1500 kVA<br>6 kV: 250–3000 kVA | 6.6 kV: 250–1600 kVA<br>10 kV: 250–2500 kVA<br>11 kV: 250–2800 kVA | 6.6 kV: 1800–3000 kVA<br>10 kV: 2800–4500 kVA<br>11 kV: 3000–5000 kVA |
| Cooling | Forced air cooling | | |
| Basic Features | Medium-voltage vector AC drive designed based on a two- or four-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<br>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<br>High-performance vector technology and accurate speed regulation<br>Brushless synchronous motor control technology | | |

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

# HD9XS Series Medium-voltage AC Drive

| Appearance | HD90S<br>General-purpose medium-voltage vector AC drive (asynchronous motor) | HD92S<br>High-performance medium-voltage vector AC drive (asynchronous motor) | HD93S<br>High-performance medium-voltage vector AC drive (synchronous motor) |
|---|---|---|---|
|  | Basic features:<br>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<br>Voltage range:<br>3–11 kV<br>Application :<br>Square torque loads, such as fans and water pumps | Basic features:<br>High-performance and medium-voltage vector AC drive with power cells connected in series, designed based on a two- or four-quadrant asynchronous motor control platform, featuring a sensorless field oriented control algorithm<br>Voltage range:<br>3–11 kV<br>Application :<br>High-performance and high-dynamic response applications, such as hoists, belt conveyors, and test beds | Basic features:<br>Designed based on a two- or four-quadrant synchronous motor control platform, featuring a sensorless field oriented control algorithm, and compatible with electric exciting synchronous motors and permanent exciting synchronous motors<br>Voltage range:<br>3–11 kV<br>Application :<br>Hoists, main exhaust fans, blast furnace blowers, compressors, and other applications |

# 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.

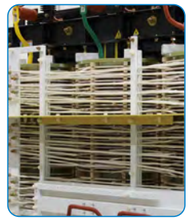
# HD9XS Series Power Cells Cascaded MV AC Drive

## Air cooling

- The medium-voltage AC drive 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

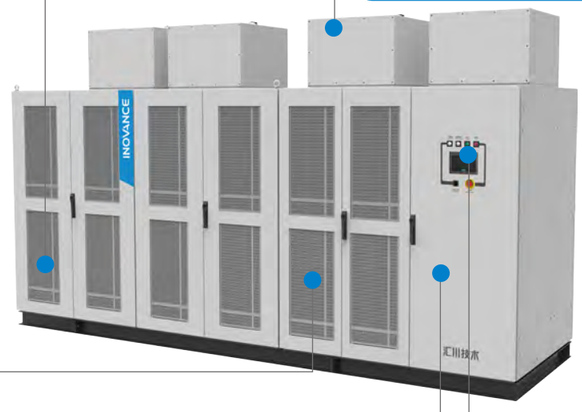
- The input side adopts a multi-pulse rectification architecture formed by a phase shift transformer. This greatly improves the current waveform on the network side, increases the input power factor, and reduces the harmonic pollution of equipment to the mains.



## 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




6.6 kV: 1800–3000 kVA
10 kV: 2800–4500 kVA
11 kV: 3000–5000 kVA

## 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.

## Man-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


3.3 kV: 100–1500 kVA
6 kV: 250–3000 kVA

## Power cell cabinet

- The HD9XS series medium-voltage AC drive 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 series medium-voltage AC drive uses a new-generation control cabinet architecture that is consistent with the main control system of the HD9X series. 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 and wiring cabinet

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

## Transformer cabinet

- The HD9XS series medium-voltage AC drive 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.


6.6 kV: 250–1600 kVA
10 kV: 250–2500 kVA
11 kV: 250–2800 kVA

- Note: Only 6.6 kV/10 kV/11 kV built-in bypass cabinet

# Continuous Production Guaranteed by Reliability and Durability

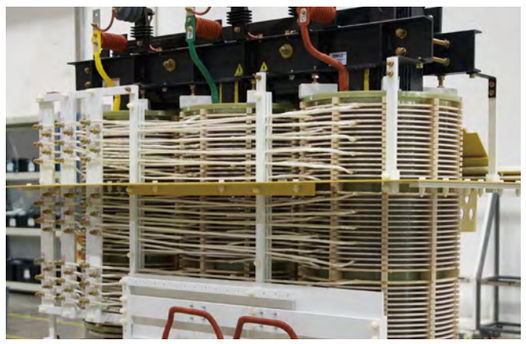
## Reliability and a long service life guaranteed by strict component selection and the most comprehensive test

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 full-load current testing before delivery.



## 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: The HD9XS series medium-voltage AC drive 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.



## 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 short-circuit. 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.

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

The HD9XS series medium-voltage AC drive supports low- and high-voltage 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.

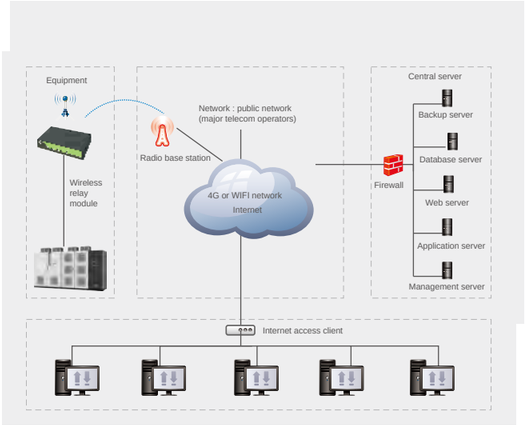
Support for multiple languages
The touchscreen supports online switching among multiple languages.
Text library files in multiple languages can be imported and exported in the Excel format.


## 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.


## Troubleshooting guide

Accurate guidance: Each fault can be located accurately when the HD9XS series medium-voltage AC drive 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: The data at 700 points before and after a fault are recoded for accurate analysis of complex faults.




## IoT-based operation

The HD9XS series medium-voltage AC drive 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.

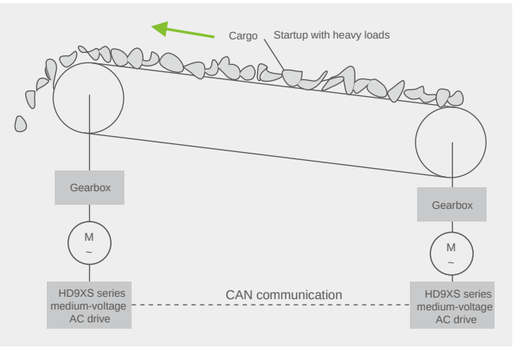
# Excellent Technologies and Efficient Applications

## Provide strong power for your equipment

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

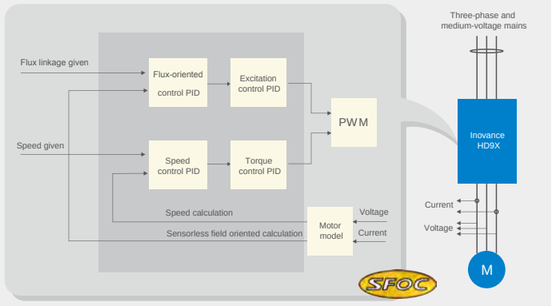
### Fast Cut Back technology in the power industry

The advanced fast hybrid braking technology quickly reduces the load speed from 100% to the target rotational speed in a short time. Application to the largest self-contained power plant (350 MW units) in the metallurgical industry: 6 sets of 2900 kW induced draft fans




### Advanced master-slave control load distribution technology

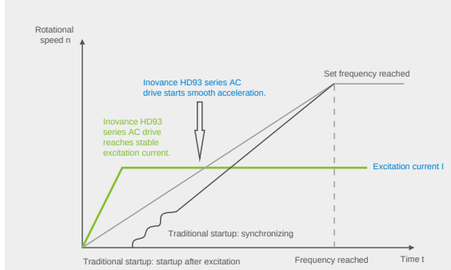
The HD9XS series medium-voltage AC drive adopts the advanced master-slave control technology, which is widely used in multi-motor driven belt conveyors and other multi-motor parallel applications and is able to control the load imbalance to within 2%.




### 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.

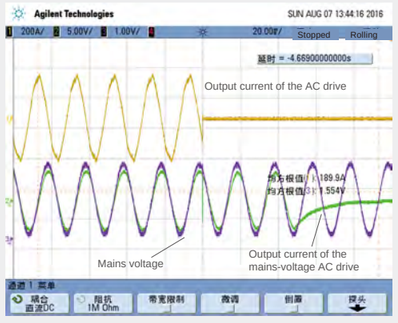
The sensorless field oriented control algorithm eliminates parameter dependance and makes operation more stable after the motor has been running for a long time.
The algorithm ensures efficient motor operation and greatly improves system efficiency.




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

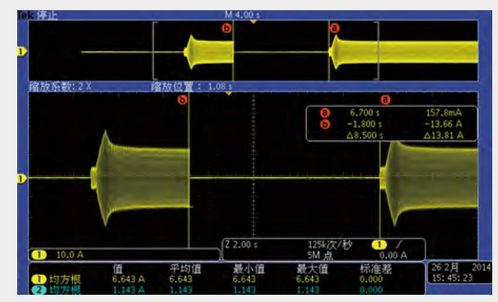
The HD93S series synchronous motor-dedicated medium-voltage AC drive is applicable to brushed and brushless electrically excited synchronous motors, low-speed permanent magnet synchronous motor, and high-speed permanent magnet synchronous motor. It supports flux vector control (FVC) and speed sensorless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

The HD9XS series medium-voltage AC drive 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

The HD9XS series medium-voltage AC drive 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 in Germany in 2016 and won CNAS certificate this year.

# Inovance HD9XS Series

## Product Code

HD9X S-J100/2500-DN
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

| | | |
|---|---|---|
| ① Product categories:<br>HD: Inovance power cells cascaded compact AC drive | ④ Input voltage class:<br>A- 1 kV<br>B- 2.3 kV<br>C- 3 kV<br>D- 3.3 kV<br>E- 4.2 kV<br>F- 6 kV<br>G- 6.6 kV<br>H- 7.2 kV<br>J- 10 kV<br>K- 11 kV<br>L- 13.8 kV | ⑤ Output voltage: in the unit of kV<br>For example, 060 indicates 6 kV. |
| ② SN.:<br>90: general-purpose and vector-type (for asynchronous motor)<br>92: high-performance and vector-type (for asynchronous motor)<br>93: high-performance and vector-type (for synchronous motor) | | ⑥ Rated capacity of the AC drive:<br>in the unit of kVA |
| ③ S: new-generation medium-voltage compact AC drive with power cells connected in series | | ⑦ R: indicates that the AC drive has energy feedback.<br>D: indicates that the AC drive does not have energy feedback. |
| | | ⑧ B: indicates that the power cell is configured with bypass.<br>N: Without bypass |

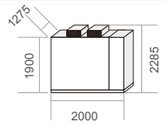
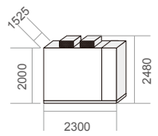
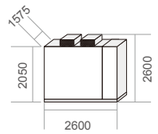
# HD9XS Electrical Specifications

## Two-quadrant Electrical Specifications

| Item | | 3.3–11 kV | |
|---|---|---|---|
| Input | Rated input voltage | Three-phase 50/60 Hz, 6 kV | Three-phase 50/60 Hz, 11 kV |
| | Voltage fluctuation | Full-load running at 6 kV/10 kV±10%; long-term running at –35% to –10% by applying derating | |
| | Frequency range | 50 Hz±10% | |
| | Input voltage of power cells | 690 V | |
| | Input power factor | ≥ 0.95 (with load more than 20%) | |
| | Input current harmonics | ≤ 4%, compliant with the IEEE519-1992 and GBT14549-93 standards | |
| Output | Output voltage range | 0–11 kV | |
| | Output voltage of power cells | 690 V | |
| | Output frequency range | 0–50 Hz; max. 720 Hz; above 120 Hz 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 | 0.5 Hz/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 | | 0.1–6500s; > 6500s customizable | |
| Start/Stop control | | Local or remote | |
| Control system | | ARM, DSP, FPGA, and HMI | |
| Panel display | | Touchscreen, English | |
| Overload capacity | | 120% 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, CANlink, Profibus-DP | |
| Digital input | | 10 inputs, relay dry contact | |
| Digital output | | 16 outputs, relay dry contact | |
| Analog input | | 4 inputs, 4–20 mA or 0–10 V | |
| Analog output | | 5 outputs, 4–20 mA or 0–10 V | |
| 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 | | ≤ 1000 m; derating at more than 1000 m. Specify the altitude when ordering. | |
| Total noise of equipment | | ≤ 80dB | |
| Cooling | | Forced air cooling | |
| IP rating | | IP30 | |
| Cabinet type | | GGD combined type | |
| 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 | |

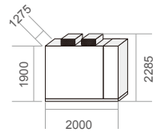
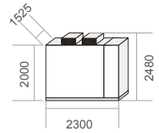
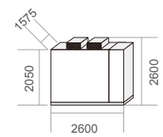
# HD9XS Dimensions

## Two-quadrant Dimensions | 3.3 kV Series Installation Specifications

| Dimension Reference | Motor Power (kW) | Model | Nominal Capacity (kVA) | Dimensions (Width x Depth x Height, in mm) | Weight (kg) |
|---|---|---|---|---|---|
|  | 250 | HD9XS-D033/315 | 315 | 2000 x 1275 x 1900 | 946 |
| | 280 | HD9XS-D033/355 | 355 | 2000 x 1275 x 1900 | 1046 |
| | 315 | HD9XS-D033/400 | 400 | 2000 x 1275 x 1900 | 1146 |
|  | 355 | HD9XS-D033/450 | 450 | 2300 x 1525 x 2000 | 1246 |
| | 400 | HD9XS-D033/500 | 500 | 2300 x 1525 x 2000 | 1346 |
| | 450 | HD9XS-D033/560 | 560 | 2300 x 1525 x 2000 | 1446 |
| | 500 | HD9XS-D033/630 | 630 | 2300 x 1525 x 2000 | 1546 |
| | 560 | HD9XS-D033/710 | 710 | 2300 x 1525 x 2000 | 1646 |
| | 630 | HD9XS-D033/800 | 800 | 2300 x 1525 x 2000 | 1923 |
| | 710 | HD9XS-D033/900 | 900 | 2300 x 1525 x 2000 | 2077 |
|  | 800 | HD9XS-D033/1000 | 1000 | 2600 x 1575 x 2050 | 2231 |
| | 900 | HD9XS-D033/1120 | 1120 | 2600 x 1575 x 2050 | 2385 |
| | 1000 | HD9XS-D033/1250 | 1250 | 2600 x 1575 x 2050 | 2538 |
| | 1120 | HD9XS-D033/1400 | 1400 | 2600 x 1575 x 2050 | 2692 |
| | 1250 | HD9XS-D033/1600 | 1600 | 2600 x 1575 x 2050 | 2846 |

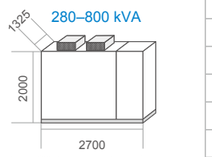
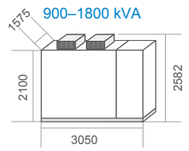
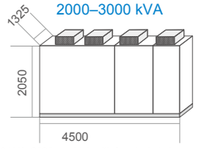
# HD9XS Dimensions

## Two-quadrant Dimensions | 6 kV Series Installation Specifications

| Dimension Reference | Motor Power (kW) | Model | Nominal Capacity (kVA) | Dimensions (Width x Depth x Height, in mm) | Weight (kg) |
|---|---|---|---|---|---|
|  | 250 | HD9XS-F060/315 | 315 | 2000 x 1275 x 1900 | 1230 |
| | 280 | HD9XS-F060/355 | 355 | 2000 x 1275 x 1900 | 1360 |
| | 315 | HD9XS-F060/400 | 400 | 2000 x 1275 x 1900 | 1490 |
| | 355 | HD9XS-F060/450 | 450 | 2000 x 1275 x 1900 | 1620 |
| | 400 | HD9XS-F060/500 | 500 | 2000 x 1275 x 1900 | 1750 |
| | 450 | HD9XS-F060/560 | 560 | 2000 x 1275 x 1900 | 1880 |
| | 500 | HD9XS-F060/630 | 630 | 2000 x 1275 x 1900 | 2010 |
| | 560 | HD9XS-F060/710 | 710 | 2000 x 1275 x 1900 | 2140 |
|  | 630 | HD9XS-F060/800 | 800 | 2300 x 1525 x 2000 | 2500 |
| | 710 | HD9XS-F060/900 | 900 | 2300 x 1525 x 2000 | 2700 |
| | 800 | HD9XS-F060/1000 | 1000 | 2300 x 1525 x 2000 | 2900 |
| | 900 | HD9XS-F060/1120 | 1120 | 2300 x 1525 x 2000 | 3100 |
| | 1000 | HD9XS-F060/1250 | 1250 | 2300 x 1525 x 2000 | 3300 |
| | 1120 | HD9XS-F060/1400 | 1400 | 2300 x 1525 x 2000 | 3500 |
| | 1250 | HD9XS-F060/1600 | 1600 | 2300 x 1525 x 2000 | 3700 |
|  | 1400 | HD9XS-F060/1800 | 1800 | 2600 x 1575 x 2050 | 3945 |
| | 1600 | HD9XS-F060/2000 | 2000 | 2600 x 1575 x 2050 | 4515 |
| | 1800 | HD9XS-F060/2250 | 2250 | 2600 x 1575 x 2050 | 4835 |
| | 2000 | HD9XS-F060/2500 | 2500 | 2600 x 1575 x 2050 | 5135 |
| | 2250 | HD9XS-F060/2800 | 2800 | 2600 x 1575 x 2050 | 5500 |

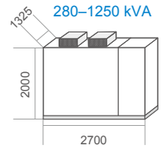
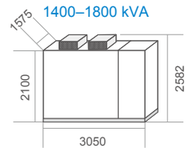
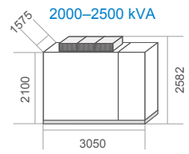
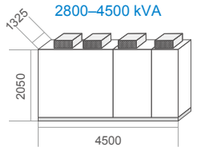
# HD9XS Dimensions

## Two-quadrant Dimensions | 6.6 kV Series Installation Specifications

| Dimension Reference | Motor Power (kW) | Model | Nominal Capacity (kVA) | Dimensions (Width x Depth x Height, in mm) | Weight (kg) |
|---|---|---|---|---|---|
|  280–450 kVA: 2386 mm high with two fans included<br>500–560 kVA: 2386 mm high with three fans included<br>630–800 kVA: 2482 mm high with two fans included | 220 | HD9XS-G066/280 | 280 | 2700 x 1325 x 2000 | 1800 |
| | 250 | HD9XS-G066/315 | 315 | 2700 x 1325 x 2000 | 1814 |
| | 280 | HD9XS-G066/355 | 355 | 2700 x 1325 x 2000 | 1829 |
| | 315 | HD9XS-G066/400 | 400 | 2700 x 1325 x 2000 | 1843 |
| | 355 | HD9XS-G066/450 | 450 | 2700 x 1325 x 2000 | 1857 |
| | 400 | HD9XS-G066/500 | 500 | 2700 x 1325 x 2000 | 1871 |
| | 450 | HD9XS-G066/560 | 560 | 2700 x 1325 x 2000 | 1886 |
| | 500 | HD9XS-G066/630 | 630 | 2700 x 1325 x 2000 | 1971 |
|  900–1800 kVA: 2582 mm high with two fans included<br>1400–1800 kVA: 2582 mm high with three fans included | 560 | HD9XS-G066/710 | 710 | 2700 x 1325 x 2000 | 2043 |
| | 630 | HD9XS-G066/800 | 800 | 2700 x 1325 x 2000 | 2114 |
| | 710 | HD9XS-G066/900 | 900 | 3050 x 1575 x 2100 | 2264 |
| | 800 | HD9XS-G066/1000 | 1000 | 3050 x 1575 x 2100 | 2407 |
| | 900 | HD9XS-G066/1120 | 1120 | 3050 x 1575 x 2100 | 2550 |
| | 1000 | HD9XS-G066/1250 | 1250 | 3050 x 1575 x 2100 | 2693 |
| | 1120 | HD9XS-G066/1400 | 1400 | 3050 x 1575 x 2100 | 3343 |
| | 1250 | HD9XS-G066/1600 | 1600 | 3050 x 1575 x 2100 | 3486 |
|  2000 kVA: 2525 mm high with fans included<br>2250–3000 kVA: 2600 mm high with fans included | 1400 | HD9XS-G066/1800 | 1800 | 3050 x 1575 x 2100 | 3629 |
| | 1600 | HD9XS-G066/2000 | 2000 | 4500 x 1325 x 2050 | 3771 |
| | 1800 | HD9XS-G066/2250 | 2250 | 4500 x 1325 x 2050 | 3914 |
| | 2000 | HD9XS-G066/2500 | 2500 | 4500 x 1325 x 2050 | 4057 |
| | 2240 | HD9XS-G066/2800 | 2800 | 4500 x 1325 x 2050 | 5307 |
| | 2400 | HD9XS-G066/3000 | 3000 | 4500 x 1325 x 2050 | 5514 |

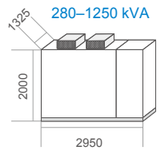
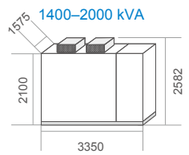
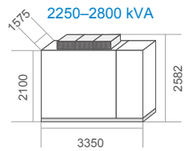
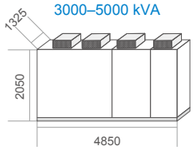
# HD9XS Dimensions

## Two-quadrant Dimensions | 10 kV Series Installation Specifications

| Dimension Reference | Motor Power (kW) | Model | Nominal Capacity (kVA) | Dimensions (Width x Depth x Height, in mm) | Weight (kg) |
|---|---|---|---|---|---|
|  280–560 kVA: 2386 mm high with two fans included<br>630–800 kVA: 2386 mm high with three fans included<br>900–1250 kVA: 2482 mm high with two fans included | 220 | HD9XS-J100/280 | 280 | 2700 x 1325 x 2000 | 2520 |
| | 250 | HD9XS-J100/315 | 315 | 2700 x 1325 x 2000 | 2540 |
| | 280 | HD9XS-J100/355 | 355 | 2700 x 1325 x 2000 | 2560 |
| | 315 | HD9XS-J100/400 | 400 | 2700 x 1325 x 2000 | 2580 |
| | 355 | HD9XS-J100/450 | 450 | 2700 x 1325 x 2000 | 2600 |
| | 400 | HD9XS-J100/500 | 500 | 2700 x 1325 x 2000 | 2620 |
| | 450 | HD9XS-J100/560 | 560 | 2700 x 1325 x 2000 | 2640 |
| | 500 | HD9XS-J100/630 | 630 | 2700 x 1325 x 2000 | 2760 |
|  | 560 | HD9XS-J100/710 | 710 | 2700 x 1325 x 2000 | 2860 |
| | 630 | HD9XS-J100/800 | 800 | 2700 x 1325 x 2000 | 2960 |
| | 710 | HD9XS-J100/900 | 900 | 2700 x 1325 x 2000 | 3170 |
| | 800 | HD9XS-J100/1000 | 1000 | 2700 x 1325 x 2000 | 3370 |
| | 900 | HD9XS-J100/1120 | 1120 | 2700 x 1325 x 2000 | 3570 |
| | 1000 | HD9XS-J100/1250 | 1250 | 2700 x 1325 x 2000 | 3770 |
|  | 1120 | HD9XS-J100/1400 | 1400 | 3050 x 1575 x 2100 | 4680 |
| | 1250 | HD9XS-J100/1600 | 1600 | 3050 x 1575 x 2100 | 4880 |
| | 1400 | HD9XS-J100/1800 | 1800 | 3050 x 1575 x 2100 | 5080 |
| | 1600 | HD9XS-J100/2000 | 2000 | 3050 x 1575 x 2100 | 5280 |
| | 1800 | HD9XS-J100/2250 | 2250 | 3050 x 1575 x 2100 | 5480 |
| | 2000 | HD9XS-J100/2500 | 2500 | 3050 x 1575 x 2100 | 5680 |
|  2800–3150 kVA: 2525 mm high with fans included<br>3500–4500 kVA: 2600 mm high with fans included | 2240 | HD9XS-J100/2800 | 2800 | 4500 x 1325 x 2050 | 7430 |
| | 2400 | HD9XS-J100/3000 | 3000 | 4500 x 1325 x 2050 | 7720 |
| | 2500 | HD9XS-J100/3150 | 3150 | 4500 x 1325 x 2050 | 7760 |
| | 2800 | HD9XS-J100/3500 | 3500 | 4500 x 1325 x 2050 | 7870 |
| | 3000 | HD9XS-J100/3750 | 3750 | 4500 x 1325 x 2050 | 7950 |
| | 3150 | HD9XS-J100/4000 | 4000 | 4500 x 1325 x 2050 | 8470 |
| | 3550 | HD9XS-J100/4500 | 4500 | 4500 x 1325 x 2050 | 8500 |

# HD9XS Dimensions

## Two-quadrant Dimensions | 11 kV Series Installation Specifications

| Dimension Reference | Motor Power (kW) | Model | Nominal Capacity (kVA) | Dimensions (Width x Depth x Height, in mm) | Weight (kg) |
|---|---|---|---|---|---|
| 280–1250 kVA<br>  <br><br>280–560 kVA: 2386 mm high with two fans included<br>630–800 kVA: 2386 mm high with three fans included<br>900–1250 kVA: 2482 mm high with two fans included | 220 | HD9xS-K110/280 | 280 | 2950 x 1375 x 2000 | 2650 |
| | 250 | HD9xS-K110/315 | 315 | 2950 x 1375 x 2000 | 2670 |
| | 280 | HD9xS-K110/355 | 355 | 2950 x 1375 x 2000 | 2690 |
| | 315 | HD9xS-K110/400 | 400 | 2950 x 1375 x 2000 | 2680 |
| | 355 | HD9xS-K110/450 | 450 | 2950 x 1375 x 2000 | 2730 |
| | 400 | HD9xS-K110/500 | 500 | 2950 x 1375 x 2000 | 2750 |
| | 450 | HD9xS-K110/560 | 560 | 2950 x 1375 x 2000 | 2770 |
| | 500 | HD9xS-K110/630 | 630 | 2950 x 1375 x 2000 | 2840 |
| | 560 | HD9xS-K110/710 | 710 | 2950 x 1375 x 2000 | 3000 |
| | 630 | HD9xS-K110/800 | 800 | 2950 x 1375 x 2000 | 3110 |
| | 710 | HD9xS-K110/900 | 900 | 2950 x 1375 x 2000 | 3330 |
| 1400–2000 kVA<br>  <br> | 800 | HD9xS-K110/1000 | 1000 | 2950 x 1375 x 2000 | 3540 |
| | 900 | HD9xS-K110/1120 | 1120 | 2950 x 1375 x 2000 | 3750 |
| | 1000 | HD9xS-K110/1250 | 1250 | 2950 x 1375 x 2000 | 3960 |
| 2250–2800 kVA<br>  <br> | 1120 | HD9xS-K110/1400 | 1400 | 3350 x 1575 x 2100 | 4910 |
| | 1250 | HD9xS-K110/1600 | 1600 | 3350 x 1575 x 2100 | 5120 |
| | 1400 | HD9xS-K110/1800 | 1800 | 3350 x 1575 x 2100 | 5330 |
| | 1600 | HD9xS-K110/2000 | 2000 | 3350 x 1575 x 2100 | 5540 |
| | 1800 | HD9xS-K110/2250 | 2250 | 3350 x 1575 x 2100 | 5660 |
| | 2000 | HD9xS-K110/2500 | 2500 | 3350 x 1575 x 2100 | 5870 |
| | 2240 | HD9XS-K110/2800 | 2800 | 3350 x 1575 x 2101 | 7010 |
| 3000–5000 kVA<br>  <br><br>3000–3500 kVA: 2532 mm high with fans included<br>3750–4500 kVA: 2600 mm high with fans included | 2400 | HD9XS-K110/3000 | 3000 | 4850 x 1325 x 2050 | 8110 |
| | 2500 | HD9XS-K110/3150 | 3150 | 4850 x 1325 x 2050 | 8150 |
| | 2800 | HD9XS-K110/3500 | 3500 | 4850 x 1325 x 2050 | 8260 |
| | 3000 | HD9XS-K110/3750 | 3750 | 4850 x 1325 x 2050 | 8310 |
| | 3150 | HD9XS-K110/4000 | 4000 | 4850 x 1325 x 2050 | 8660 |
| | 3550 | HD9XS-K110/4500 | 4500 | 4850 x 1325 x 2050 | 8910 |
| | 4000 | HD9XS-K110/5000 | 5000 | 4850 x 1325 x 2050 | 9180 |

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 300 mm to 600 mm.
- 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 1000 mm, 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 1000 mm.