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**20 Years' Innovation
for a Century of Automatic**
2003 - 2023

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INOVANCE



20 Years' Innovation for a Century of Automation
2003 - 2023

HD9XT Series

High Reliability General-Purpose Medium-Voltage AC Drive



FORWARD, ALWAYS PROGRESSING

HD9XT Series

High Reliability General-Purpose Medium-Voltage AC Drive

All for reliable operation

and outstanding user experience



Voltage class: 10 kV Power: 280 kVA to 1000 kVA

Application scenario: Widely applied in general loads such as **Fans and Pumps**

Product Overview



Applicable capacity range: 10 kV: 280 kVA to 1000 kVA

① Unit cabinet

- Patented power unit developed by Inovance
- Patented heat dissipation design that integrates the air ducts of power unit and transformer
- Unit bypass supported by the power unit

② Operation display

- Simple and friendly HMI
- Convex-concave structure which is collision-proof, dust-proof, and mistouch-proof

③ Control cabinet

- One-to-one control via optical fibers to deliver optimal synchronization, instantaneity, and stability
- Optimal control performance (DSP+ARM+FPGA) with powerful computing power
- Abundant communication interfaces
- Convenient local and remote control

④ Transformer cabinet

- Built-in phase-shift transformer to eliminate power supply harmonics on the power grid side through multi-pulse rectification technology
- Patented technology for secondary short-circuit protection of the transformer to guarantee a safe and reliable operation

Small footprint



Size saved by **↓40%**

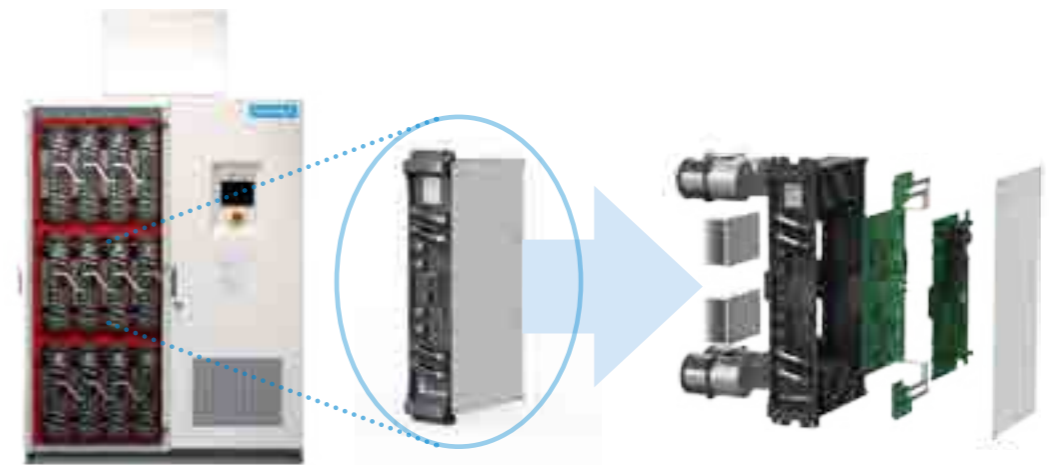
Width narrowed by **↓1100 mm**

Optional bypass cabinet



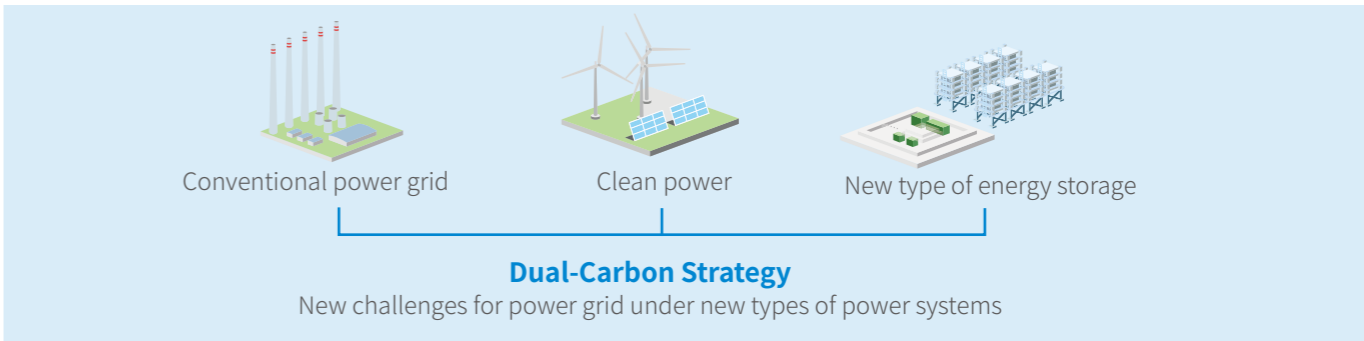
- Flexible configuration

High reliability design

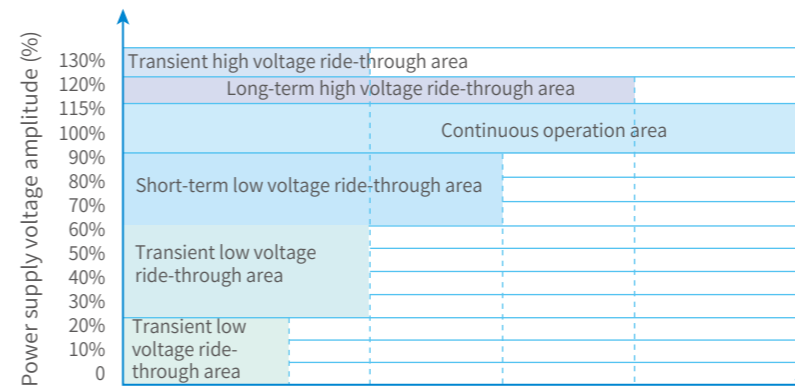


- Ultra-long service life: service life of core components increased by 100%
- High IP rating: IP50
- Integrated design: Econodual encapsulation, All-in-one module, Two-in-one unit, and Integrated-PCBA design
- Comprehensive protections: Automatic fault reset and overtemperature, overvoltage, and overcurrent protections

High adaptability to power grid



Fluctuation range of power grid: **0% to 130%**



- Drafting party of *Electric power industry standards of the People's Republic of China DL/T1648-2016 (high and low voltage ride through)*
- Providing solutions for voltage dip and voltage sag of the power grid

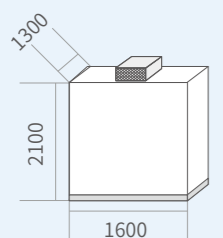
Naming Rules

HD 9X T-J 100 / 1000 - DB

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Product family: HD: Inovance high power energy conversion product	④ Voltage input class: C- 3 kV D- 3.3 kV E- 4.2 kV F- 6 kV G- 6.6 kV H- 7.2 kV I - No meaning J- 10 kV	⑥ Rated capacity: 280: 280 kVA 560: 560 kVA 1000: 1000 kVA
② Series Number: 90- General type (for asynchronous motor) 92- Vector type (for asynchronous motor)		⑦ D: Energy recuperation not available
③ Upgrade information: T: 3rd generation S: 2nd generation _: 1st generation	⑤ Output voltage: 100: 10 kV	⑧ B: Bypass configured N: Bypass not configured

Dimensions

Dimensions	Applicable Motor Power (kW)	Model	Normal Capacity (kV A)	Overall Dimensions (Width x Depth x Height in mm)	Overall Weight (kg)
 <p>280-1000 kVA</p>	220	HD9XT-J100/280-DN	280	1600X1300X2100	1880
	250	HD9XT-J100/315-DN	315		1890
	280	HD9XT-J100/355-DN	355		1900
	315	HD9XT-J100/400-DN	400		1930
	355	HD9XT-J100/450-DN	450		1950
	400	HD9XT-J100/500-DN	500		1990
	450	HD9XT-J100/560-DN	560		2000
	500	HD9XT-J100/630-DN	630		2100
	560	HD9XT-J100/710-DN	710		2200
	630	HD9XT-J100/800-DN	800		2300
	710	HD9XT-J100/900-DN	900		2500
	800	HD9XT-J100/1000-DN	1000		2700

Note:

- The capacity of the transformer can be adjusted based on user requirements and field conditions.
- The input voltage and output voltage are consistent for standard drives.
- The height in overall dimensions does not contain the height of the fan. The height of the fan for models of 800 kVA to 1000 kVA is about 552 mm. The height of the fan for models of 710 kVA and below is about 473 mm.
- Dimensions in the preceding table are for reference only. The actual dimensions may vary.

Technical Data

Item	10 kV Series
Input	
Rated input voltage	Three-phase 50/60 Hz, 10 kV
Voltage fluctuation range	Derating is not needed for operations at 10 kV±10%. Long-term derated operation is allowed at 65% to 90% of 10 kV.
Frequency range	50 Hz/60 Hz±5%
Unit input voltage	690 V
Input power factor	> 0.95 (Load 20% to 100%)
Input current harmonics	Compliant with standards IEEE519-2014 and GBT14549-93
Output	
Output voltage range	0 kV to 10 kV
Output capacity range ^[1]	280 kVA to 1000 kVA
Output frequency range ^[2]	0-50/60 Hz, 120 Hz max. (customizable from 120 Hz to 700Hz)
Control mode	FVC/SVC (open-loop/closed-loop vector); voltage-type open-loop vector control
Speed regulation ratio	100:1 (without encoder); 1000:1 (with encoder)
Speed precision	±0.5% (open-loop vector); ±0.02% (closed-loop vector)
Acceleration/Deceleration time	0.1s to 6500.0s
Start/Stop control	Local or remote
Control system	ARM, DSP, FPGA, HMI
Panel display	Touchscreen (CN/EN)
Overload capacity	10 kV 280 kVA to 1000 kVA; overload capacity: 110%/1 min
System protection	Providing protections against motor overload, output overload, output short circuit, output grounding, output overcurrent, input overvoltage, fan warning, door switch interlock, transformer overtemperature, and tripping due to transformer overtemperature
Mean-time to failure	100,000 hours
Communication interface	Modbus-RTU or Modbus-TCP (optional), PROFIBUS-DP (optional), ProfiNet IO (optional)
Digital input	7 DIs, relay dry contact (standard configuration)
Digital output	8 DOs, relay dry contact (standard configuration)
Analog input	4 AIs, 4 mA to 20 mA (standard configuration)
Analog output	5 AOs, 4 mA to 20 mA
Operating environment	Indoors
Ambient temperature	-10°C to +40°C . Pre-heating may be needed before start for temperatures below 0°C . Derated operation is needed for temperatures above 40°C .
Ambient humidity	5% to 95%, without condensation
Altitude	≤ 1000 m (Derating is needed for altitudes higher than 1000 m.)
Total noise	< 85 dB
Cooling mode	Forced air cooling (standard configuration)
IP rating	IP30 (standard configuration)
Cable inlet/outlet mode ^[3]	Bottom in and bottom out by default (compatible with multiple cabinet inlet/outlet modes)
Control power supply	380 VAC±10% (three-phase 4-wire power grid)
Encoder types ^[4]	15 VDC OC and 5 VDC differential encoders (optional)

^[1-4]Note: Contact Inovance for special needs.