

Application of **EcoDriveCN** variable speed drives (variable frequency drives, VSD, VFD, frequency inverters, AC drives) on machine tools

Source: V&T Technologies Co., Ltd. <http://www.EcoDriveCN.com>



Figure 1 Factory of machine tools in Guangzhou, China



Figure 2 Workshop



Leading manufacturer in China of vector control variable speed drives (AC inverter drives, VFD), servo on CNC, machine tools for speed adjustment, position control, angle control, length control...

Figure 3 Workshop



Figure 4 Operation control area



Figure 5 AC motor: 7.5KW

Introduction of machine tool industry technology and industrial environment

1. low speed heavy cut is needed for rough processing
2. high efficiency of braking is needed for fabrication of small accessories
3. speed fluctuation is within a narrow range for shock load
4. different kinds of signals from frequency source of different numerical control systems (some is -10V ~ +10V)
5. voltage fluctuations in the electric supply system is wide
6. oil fouling on site is large

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Advantages:

1. Unique coating thickness measurement, with strong adaptability to harsh environment, such as metal dust, corrosive gases and moist.
2. Unique design for switching power supply, wide adaptability of grid voltage
3. Wide speed range, adaptable to different technologies
4. Optimized sensorless vector control algorithm, strong torque at low frequency, excellent linear performance at speed setting, high accuracy for steady speed
5. Advanced flux weakening control technology: commonly used low frequency and large torque motor (basic frequency: 33.3Hz), can run at 0 ~ 200 Hz.
6. FCC control algorithm, higher efficiency at braking
7. Adapt to all kinds of signal source (0 ~ 10V, 0 ~ 20mA, 4 ~ 20MA or -10V ~ +10V)



Figure 6 retrofits on machine tools with VSD drives on site

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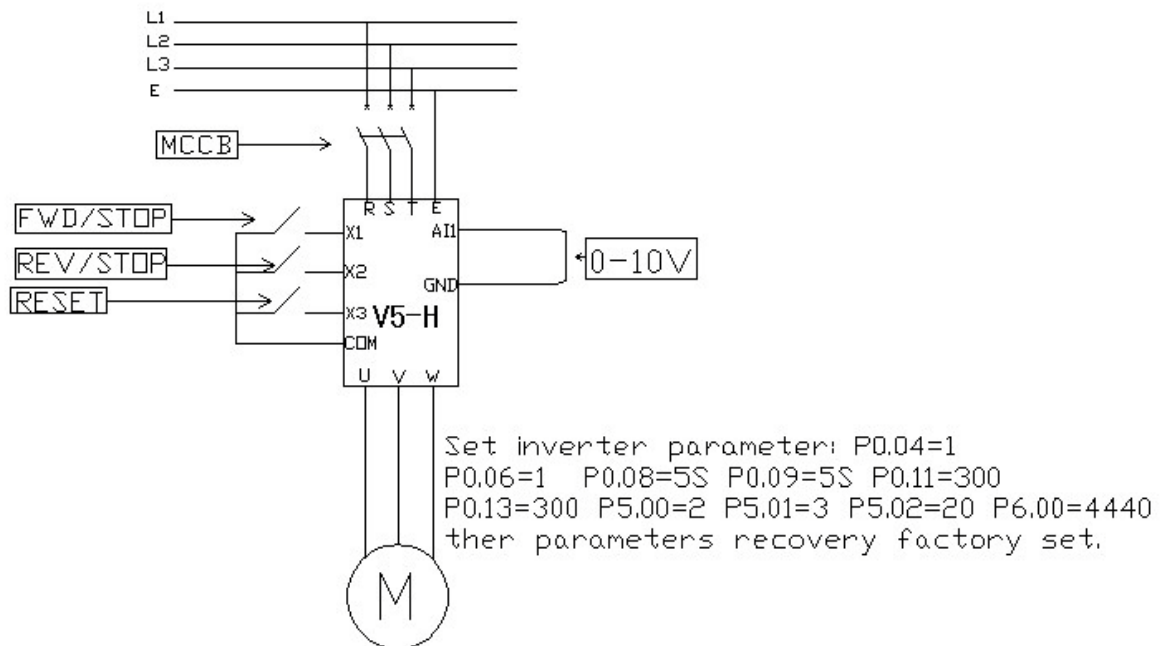


Figure 7 Circuit control diagram

Parameter setting of **EcoDriveCN** variable speed drives (AC inverter drives) on machine tools:

P0.04=1 (frequency setting via AI1 analog port)

P0.06=1 (terminal mode: operation through multi-functional X1 ~ X7)

P0.08=5 (acceleration time: 5 second)

P0.09=5 (deceleration time: 5 second)

P0.11=300 (max output frequency: 300 Hz)

P0.13=300 (frequency upper limit: 300 Hz)

P5.00=2 (X1 terminal input function: Forward/FWD)

P5.01=3 (X2 terminal input function: Reverse/REV)

P5.02=20 (X3 terminal input function: terminal failure reset input)

P6.00=4440 (AI1 to AI3 and DI analog value input curve selection: AI1: determine the reference frequency by Curve 1; AI2: calibration by curve is not necessary; AI3: calibration by curve is not necessary; DI: calibration by curve is not necessary)

Other parameters recovery: factory set (default).

Company profile:

V&T Technologies Co., Ltd. is manufacturing & supplying [variable speed drives \(frequency inverters\)](#), [servo drives](#), [motor soft starters](#), [AC/DC chokes \(reactors\)](#), [brake resistors](#), [brake units \(choppers\)](#), and [other power electronics](#).

The drives are used for motor control, motion control, industrial automation, energy saving and

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process control, in plastic injection molding machine, machine tools, air compressor, water supply, civil engineering, conveyor belt, sewage disposal (wastewater treatment), extruder machines, extruder, fan and pump, HVAC, food and beverage industry, mining industry.

As the leading factory in China, we are competing with ABB, Siemens. From 200VAC to 1140VAC, power rating is from 0.4KW to 3MW (1/2hp to 4000hp).

Favorable advantages:

1. [Failure rate < 1%, similar as Siemens, Emerson Control Techniques, ABB, Danfoss, Eaton, Schneider, Allen Bradley, Lenze, Yaskawa](#)
2. [Authorized CE by ECMG. Under the audit of NVLAP. NVLAP Lab code: 200068-0. ISO/IEC 07025:1999, ISO 9002:1994](#)
3. [18-month warranty period](#)
4. Prompt delivery lead time: 1-4 days
5. [Supply to REGAL, Ingersoll Rand, Foxconn, Tata Group...](#)

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