The Drive & Control Company

Rexroth
Bosch Group

VFC 5610
High Performance Machinery Drive

VFC 5610 - accurate and dynamic performance

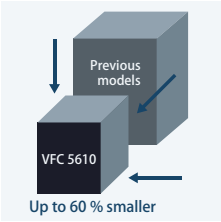
The VFC 5610 is a high performance vector control drive, especially developed to meet the requirements of emerging markets.
It's modularity makes it adaptable to specific customer's needs, extra robust design helps it to withstand harsh environments and regional production ensures shortest delivery times.
High control accuracy in combination with a highly dynamic response makes it suitable for a broad range of industries. From metal processing, food and packaging machines, printing and paper production to air compressors and plastic extrusion.

VFC 5610

Designed to meet emerging market requirements:

- ►The modular design makes it adaptable to specific customer's requirements
- ►Regional production ensures shortest delivery times
- ►Robust design to withstand harsh environments

Product features



LED dust cover | 5 digit LED panel | Multi-language LCD panel

Reliable quality

- ▶ No capacitors in the cooling channel
- ▶ Coated circuit boards
- ▶ Multiple protection functions
- ▶ CE certification

Compact design

- ▶ Significantly reduced housing size.
- ▶ Side by side mounting capability.
- ▶ DIN rail mounting (up to 7.5 kW).

Smart cooling concept

- ▶ Fanless cooling up to 0.75 kW.
- ▶ Above 0.75 kW the fan can be changed without tools.
- ▶ Temperature dependent fan control.
- ▶ Separate cooling channel, free of capacitors, allows for flexible cooling arrangements.
- ▶ Through wall mounting.

Easy to use

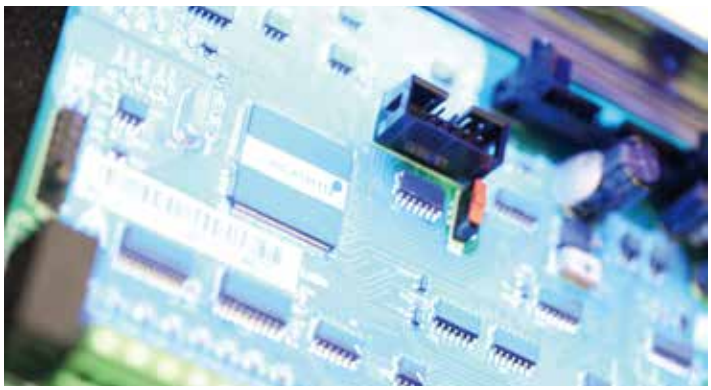
- ▶ Quick start parameter set.
- ▶ Removable panel, supports remote operation and parameter copy.
- ▶ LED dust cover, 5 digit LED panel, multi-language LCD panel.
- ▶ Quick connectors for the I/O terminals, support convenient installation and maintenance.
- ▶ Communication and I/O extension cards.
- ▶ Integrated brake chopper.

Powerful

- ▶ Torque control without external encoder, in SVC control mode.
- ▶ Power loss ride through.
- ▶ Low frequency oscillation suppression.
- ▶ Speed tracing, for smooth catching and restarting of a running fan.

Versatile

- ▶ Counter function.
- ▶ Energy savings calculator.
- ▶ Pulse input (50 kHz) and pulse output (32 kHz).
- ▶ Over excitation braking, to reduce braking times up to 50 %.
- ▶ 24 V auxiliary power output for external devices.
- ▶ Build in Modbus RTU, option cards for PROFIBUS DP and CANopen.
- ▶ Pc software and firmware updates (simple connection via Mini-USB port).



Metal processing machinery

Lathe, grinder, drill, planer, boring, cold forging

Compact design
►DIN rail mounting and side by side mounting capability saves cabinet space.

High start torque
►Improved process control for demanding applications.

Quick and dynamic response
►Accurate speed control for highly dynamic applications.

Integrated brake chopper
►No need to purchase an external brake chopper.

Food and packaging

Conveyor, blow molding, blender, cutter, labeling machines

Quick connectors and DIN rail mounting
►Quick and easy installation and maintenance.

Counter function
►Improved process control without additional equipment.

Removable control panel
►Parameter copy function for efficient commissioning of multiple drives.
►Remote panel support for convenient and safe monitoring and operation.

Multi-speed control
►Multi-stage speed control without an additional PLC.

Printing industry

Screen printing, laminating, corrugated card board, mixer

Support for multiple communication protocols
►Integrated Modbus RTU, option cards for PROFIBUS DP, CANopen and Multi Ethernet.

Torque control
►Torque control without external encoder in SVC control mode.
►Torque limitation in speed control mode.

High speed accuracy
►For smooth paper processing and exact printing results.

Air compressor

Chemical industry, food and beverage industry

High starting torque
- ► Improved process control for demanding applications.

Integrated Modbus RTU
- ► Quick and easy integration into the communication network.

Energy savings calculator
- ► Keeps track of the achieved energy savings.

Sleep/wake-up function
- ► Allows additional energy savings.

Industrial mixer

Chemical, pharmaceutical, food and beverage

High starting torque
- ► Improved process control for demanding applications.

Multi-speed control
- ► Multi-stage speed control without an additional PLC.

Adjustable carrier frequency
- ► Effectively reduces the motor noise.

Direction lock control
- ► Protects the equipment by preventing reverse rotation of the motor.

Extruder

Plastic pipes, cables, thin foil extrusion

High control accuracy and dynamic response
- ► Smooth switching between speed mode and torque mode.
- ► Advanced PID control functions.

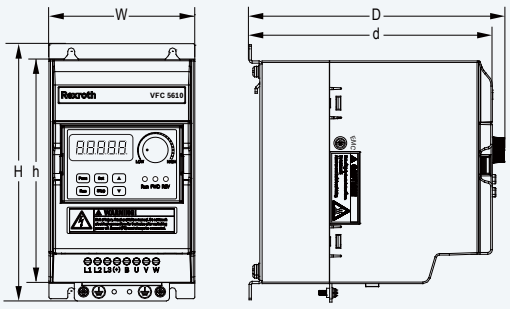
Torque limitation and slip compensation
- ► Keeping the output torque stable during all process steps.

Static/dynamic auto tuning
- ► Retrieving the motor parameters without disconnecting the equipment.

Technical data		
Input	Power supply voltage	1P 200 VAC: 200...240 V (-10 %/+10 %)
		3P 400 VAC: 380...480 V (-15 %/+10 %)
	Power supply frequency	50/60 Hz (±5 %)
Output	Rated motor power	1P 200 VAC 0.4...2.2 kW; 3P 400 VAC 0.4...18.5 kW
	Output frequency	0...400 Hz
I/O terminals	2 analog input channels	0(2)...10 V/0(4)...20 mA (switchable)
	1 analog output channel	0(2)...10 V/0(4)...20 mA (switchable)
	5 multi-function digital inputs	Programmable digital input terminal, X5 can be used for pulse train input, max. 50 kHz
	1 relay output	AC 250 V/3 A; DC 30 V/3 A
	1 open collector output	DC 30 V/50 mA, can be used for pulse train output, max. 32 kHz
	1 DC 24 V power input	DC 24 V/200 mA
Functions	Control modes	V/f, SVC
	Overload capability	1.5 x I_N for 60 sec
	Speed regulation range	1:50
	Start-up torque	0.5 Hz, 200 %
	Multi-speed control	Via simple PLC or control terminals
	Brake chopper	Integrated
	Brake resistor	External
	Frequency setting accuracy	Analog setting: Max. frequency x 0.1 %
		Digital setting: 0.01 Hz
	Acceleration/deceleration curve	Linear, S-curve
	Carrier frequency (PWM)	1...15 kHz, minimum unit 1 kHz
	Functions	PID control, automatic current limitation, stall prevention, multi-speed control, heavy load stabilization, manual/automatic torque boost, slip compensation, first and second frequency setting source, DC-braking, 2-wire/3-wire running control, light load oscillation damping, start with speed capture, direction lock control, power loss ride through, counter function, energy savings calculator, PID sleep/wake, start/stop delay, overexcitation braking
	Communication protocols	Modbus RTU, PROFIBUS DP (option), CANopen (option)
Ambient conditions	Ambient temperature	-10 °C to +50 °C (above 40 °C derating of 1 % per 1 °C)
	Max. installation height	4000 m (above 4000 m derating of 1 % per 100 m)
	Relative humidity	< 90 %, non condensating
	Protection category	IP20

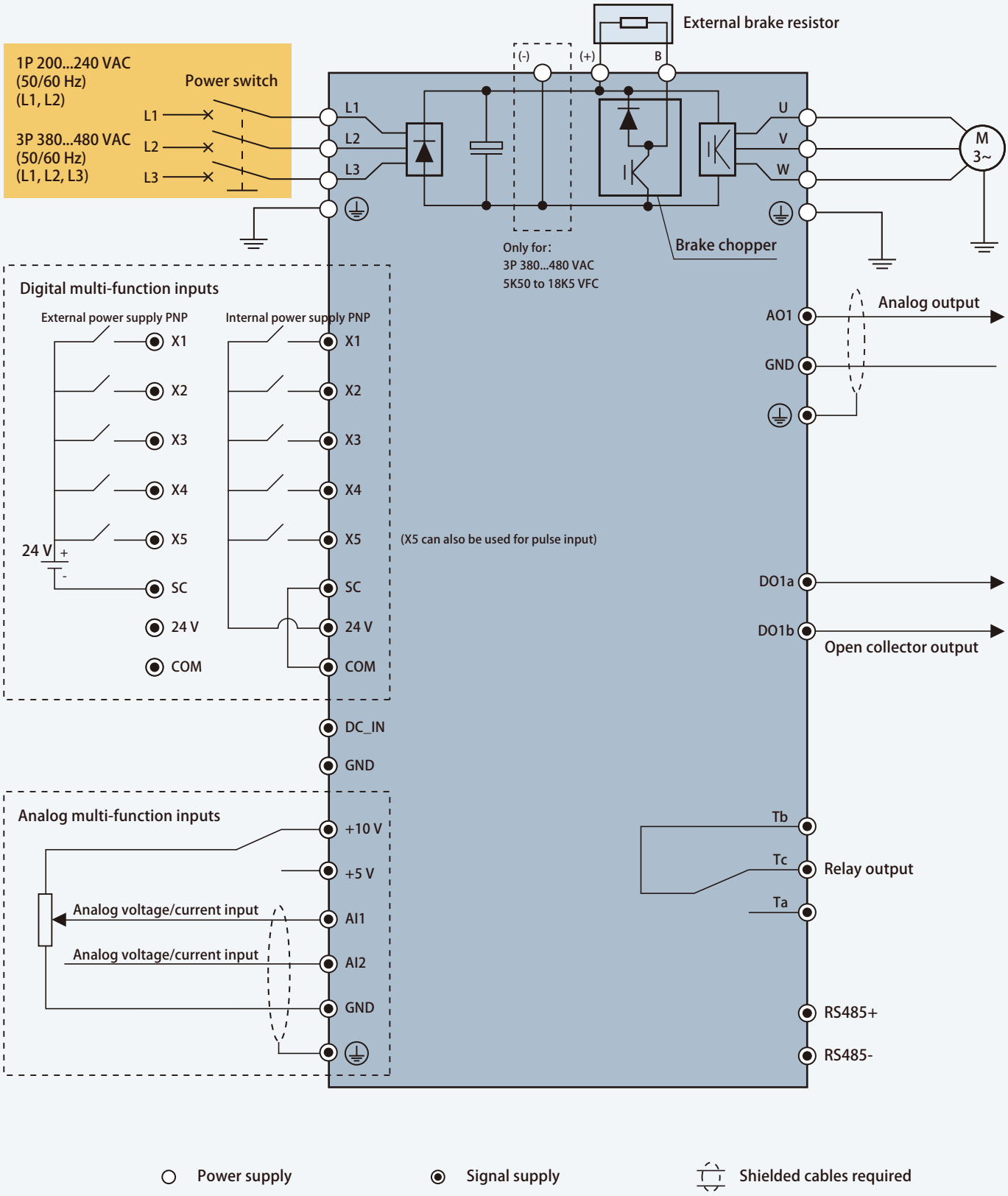
Mechanical data

	Type VFC 5610	Rated motor power [kW]	Rated continuous current [A]	W [mm]	H [mm]	h [mm]	D [mm]	d [mm]
1P 200 VAC	0K40-1P2-MNA-xx	0.4	2.3	95	166	145	167	159
	0K75-1P2-MNA-xx	0.75	3.9					
	1K50-1P2-MNA-xx	1.5	7.0	95	206	185	170	162
	2K20-1P2-MNA-xx	2.2	9.7	120	231	210	175	167
3P 400 VAC	0K40-3P4-MNA-xx	0.4	1.2	95	166	145	167	159
	0K75-3P4-MNA-xx	0.75	2.1					
	1K50-3P4-MNA-xx	1.5	3.7	95	206	185	170	162
	2K20-3P4-MNA-xx	2.2	5.1					
	4K00-3P4-MNA-xx	4.0	8.8	120	231	210	175	167
	5K50-3P4-MNA-xx	5.5	12.7	130	243	-	232	225
	7K50-3P4-MNA-xx	7.5	16.8					
	11K0-3P4-MNA-xx	11	24.3	150	283	-	232	225
	15K0-3P4-MNA-xx	15	32.4					
	18K5-3P4-MNA-xx	18.5	39.2	165	315	-	242	235



xx: 7P = 5 digit LED panel NN = LED dust cover

Block diagram



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