

# VFC 3610 Economic Machinery Drive



# VFC 3610 - Compact, economic and easy to use

The new VFC 3610 is an economical machinery 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.

Compact dimensions and clever features make it suitable for a broad range of industries and applications. From HVAC and conveyors to woodworking and textile machines.

VFC 3610

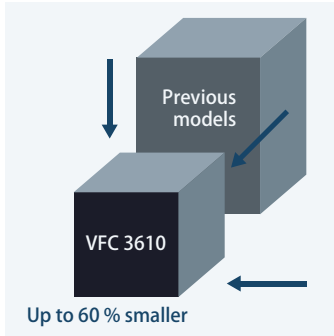


Designed to meet emerging market requirements:

- ▶ 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

## ▼ Compact design



## ▼ Smart fan design



## ▼ DIN rail mounting (up to 7.5 kW) ▼ Quick connectors



## ▼ Normal duty/heavy duty



## ▼ Through wall mounting



## ▼ Engineering software (simple connection via Mini-USB port)



## ▼ Multiple display options



## Communication and I/O extension cards ▼



## Reliable quality

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





## HVAC

Fans, pumps, air conditioning

### Fire mode

- ▶ For improved safety in buildings, subway stations or highway tunnels.

### Energy savings calculator

- ▶ Keeps track of the achieved energy savings.

### Life time tracker and reminder

- ▶ A valuable support for organizing a maintenance schedule.

### Speed tracing

- ▶ For smooth catching and restarting of a running fan.

### Power loss ride through

- ▶ The drive remains fully functional by adapting its output power.



## Textile industry

Foam laminating machine, yarn twister, circular looms

### Through wall mounting

- ▶ The heat sink can be installed outside the cabinet for more efficient cooling, while protecting the frequency converter from airborne particles.

### Smart cooling concept

- ▶ A separate cooling channel, allows for flexible cooling arrangements.
- ▶ Fanless design up to 0.75 kW.
- ▶ Above 0.75 kW the fan can be changed without tools.
- ▶ Temperature dependent fan control.

### DC bus sharing

- ▶ Direct use of regenerative energy, for improved system energy efficiency.



## Woodworking machinery

Wood and veneer cutting machines, planers, peeling machines

### Integrated brake chopper

- ▶ No need to purchase an external brake chopper.

### DIN rail mounting

- ▶ Quick and easy installation.

### Multiple display options

- ▶ 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.



## Pump and fan

Water supply, glass machines, chemical plants

### Relay extension card

- ▶ Control of multiple pumps with one frequency converter.

### Normal duty and heavy duty use

- ▶ Keeps the inventory to a minimum.

### Sleep/wake-up function

- ▶ Allows additional energy savings.

### Smart PID functions

- ▶ Several integrated PID functions, especially for pump and fan applications.

### Dry pump protection

- ▶ Automatically detects a dry running pump to protect the equipment.



## Conveyors

Ceramics industry, brick forming machines, food and beverage industry

### Very compact design

- ▶ Saves cabinet space.

### Counter function

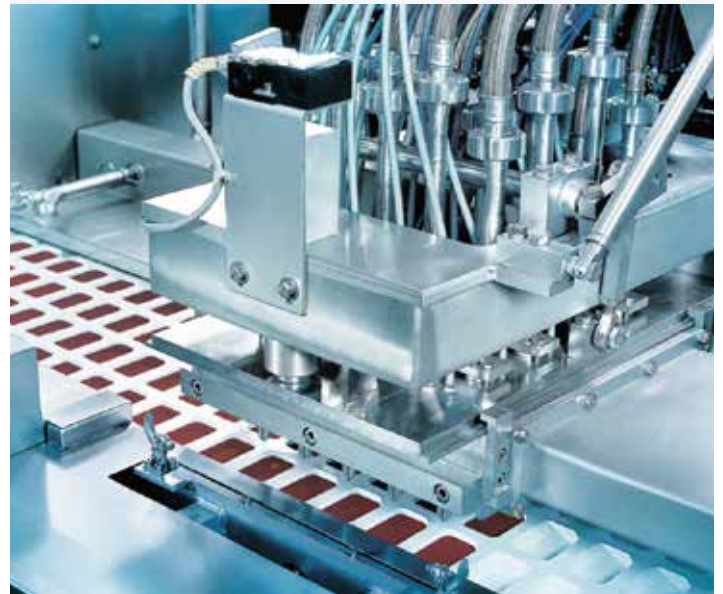
- ▶ Integrated counter function for improved process control without additional equipment.

### Support for multiple communication protocols

- ▶ Integrated Modbus RTU, option cards for PROFIBUS DP, CANopen and Multi Ethernet.

### Integrated brake chopper

- ▶ No need to purchase an external brake chopper.



## Air compressor

Chemical industry, food and beverage industry

### Soft start function

- ▶ Reduces wear and tear on the power grid.

### Integrated Modbus RTU

- ▶ Quick and easy integration into the communication network.

### Sleep/wake-up function

- ▶ Allows additional energy savings.

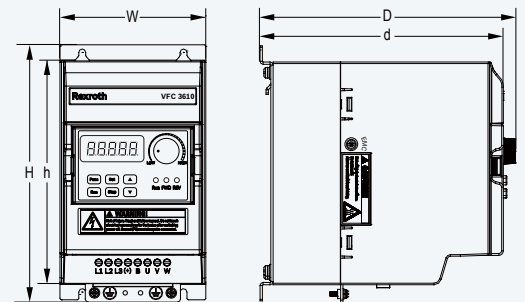
### Smart PID functions

- ▶ Quickly adjusts the compressor speed to the actual gas consumption.

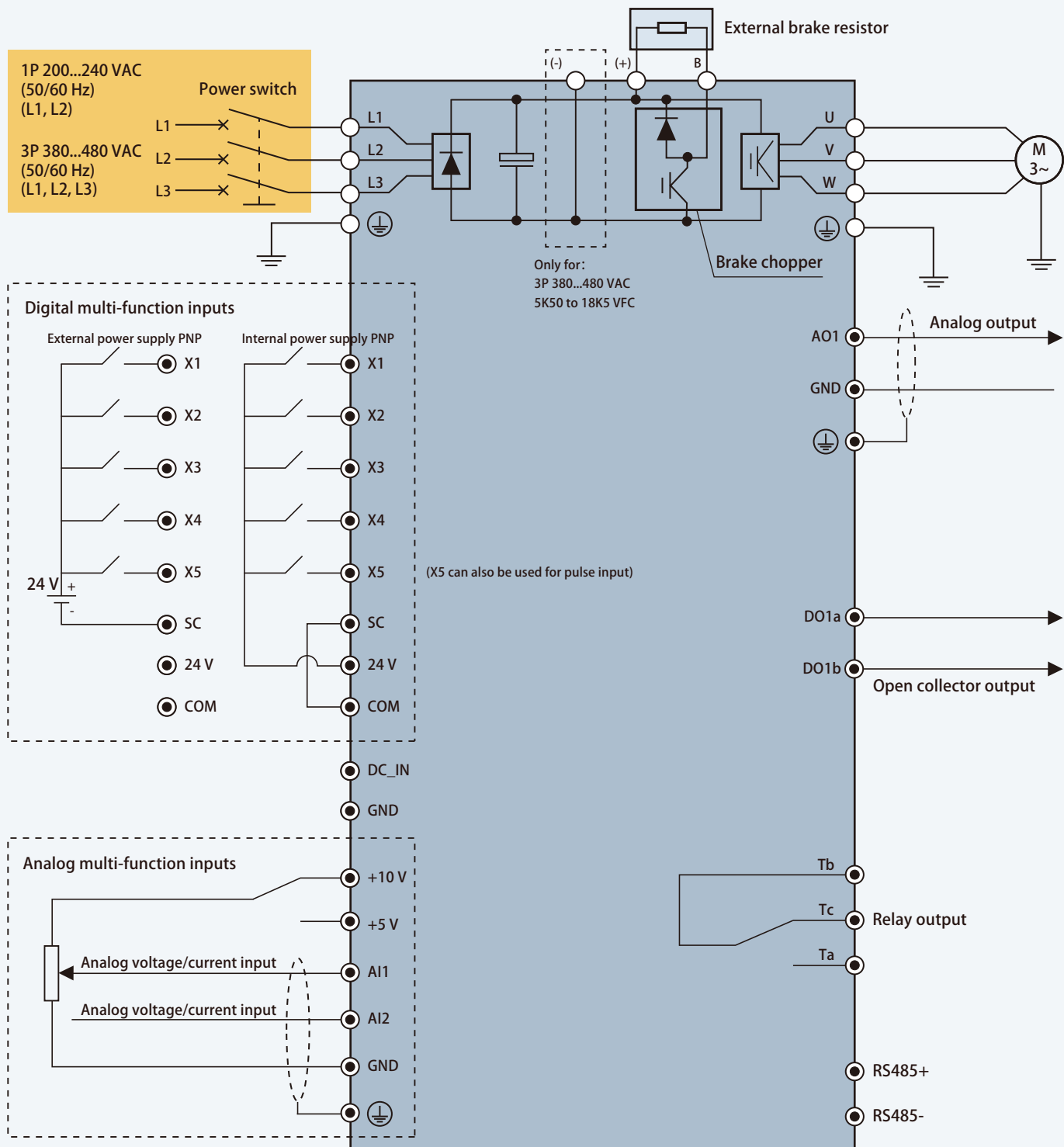


Technical data		
Input	Power supply voltage	1P 200 VAC: 200...240 V (-10 %/+10 %) 3P 400 VAC: 380...480 V (-15 %/+10 %)
	Power supply frequency	50/60 Hz (± 5 %)
Output	Rated motor power	Heavy-duty: 1P 200 VAC 0.4...2.2 kW; 3P 400 VAC 0.4...18.5 kW Normal-duty: 3P 400 VAC 7.5...22 kW
	Output frequency	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 terminals, 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
Functions	1 DC 24 V power input	DC 24 V/200 mA
	Control mode	V/f
	Overload capability	Heavy-duty: 1.5 x I <sub>N</sub> for 60 sec Normal-duty: 1.2 x I <sub>N</sub> for 60 sec
	Speed regulation range	1:50
	Start-up torque	100 % at 1.5 Hz; 150 % at 3 Hz
	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
	V/f curve	User-defined
	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 3610	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	120	231	210	175	167
	2K20-1P2-MNA-xx	2.2	9.7					
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	130	243	-	232	225
	2K20-3P4-MNA-xx	2.2	5.1					
	3K00-3P4-MNA-xx	3.0	7.6	150	283	-	232	225
	4K00-3P4-MNA-xx	4.0	8.8					
	5K50-3P4-MNA-xx	5.5	12.7	165	315	-	242	235
	7K50-3P4-MNA-xx	7.5	16.8					
	11K0-3P4-MNA-xx	11	24.3					
	15K0-3P4-MNA-xx	15	32.4					
18K5-3P4-MNA-xx	18.5	39.2						



Block diagram



○ Power supply

● Signal supply

⏏ Shielded cables required

**Bosch Rexroth (Xi'an) Electric Drives and Controls Co., Ltd.**

No. 3999 Shang Ji Road, Cao Tan Ecology Industry Park,  
Economic and Technological Development Zone, 710021,  
Xi'an, Shaanxi, P.R.C.

Phone: +86(29)86555 100

Fax: +86(29)86555 106

[www.boschrexroth.com](http://www.boschrexroth.com)

[info.fc@boschrexroth.com.cn](mailto:info.fc@boschrexroth.com.cn)