

STORED ASSORTMENT



TECHVITAS

— Industrial Supply. Service. Consulting. —

Frequency converters EFC5610 assortment



Frequency converters EFC5610



Bosch Rexroth is one of the most prominent companies in the world that manufactures equipment for the industry. One of the product group branches is frequency converters. We are the only representatives of Bosch Rexroth frequency converters in Lithuania.

Techvitas is representing the Bosch Rexroth company in the field of frequency converters, offers assistance in the selection, installation and maintenance of three-phase frequency inverters.

Converters from 0.4 kW to 90 kW are available in Lithuanian warehouses. Delivery within several working days throughout Lithuania.

EFC5610 is a universal, low-cost frequency converter for reliable speed control and demand-oriented energy supply. V/f control, SVC and FOC control, easy installation and commissioning as well as an increased power range enable a wide range of applications.

- Power range from 0.4 kW to 90 kW;
- Built-in brake chopper (up to 22 kW) and mains filter;
- Control technology: V/f, SVC, FOC;
- STO function (Safe Torque Off);
- Expandability thanks to I/O and fieldbus modules (CANopen, Multi-Ethernet, PROFIBUS);
- Suited and for synchronous motors;
- IP20.



Production lines



Fans



Drilling machines



Processing systems



Water supply systems /
pump control

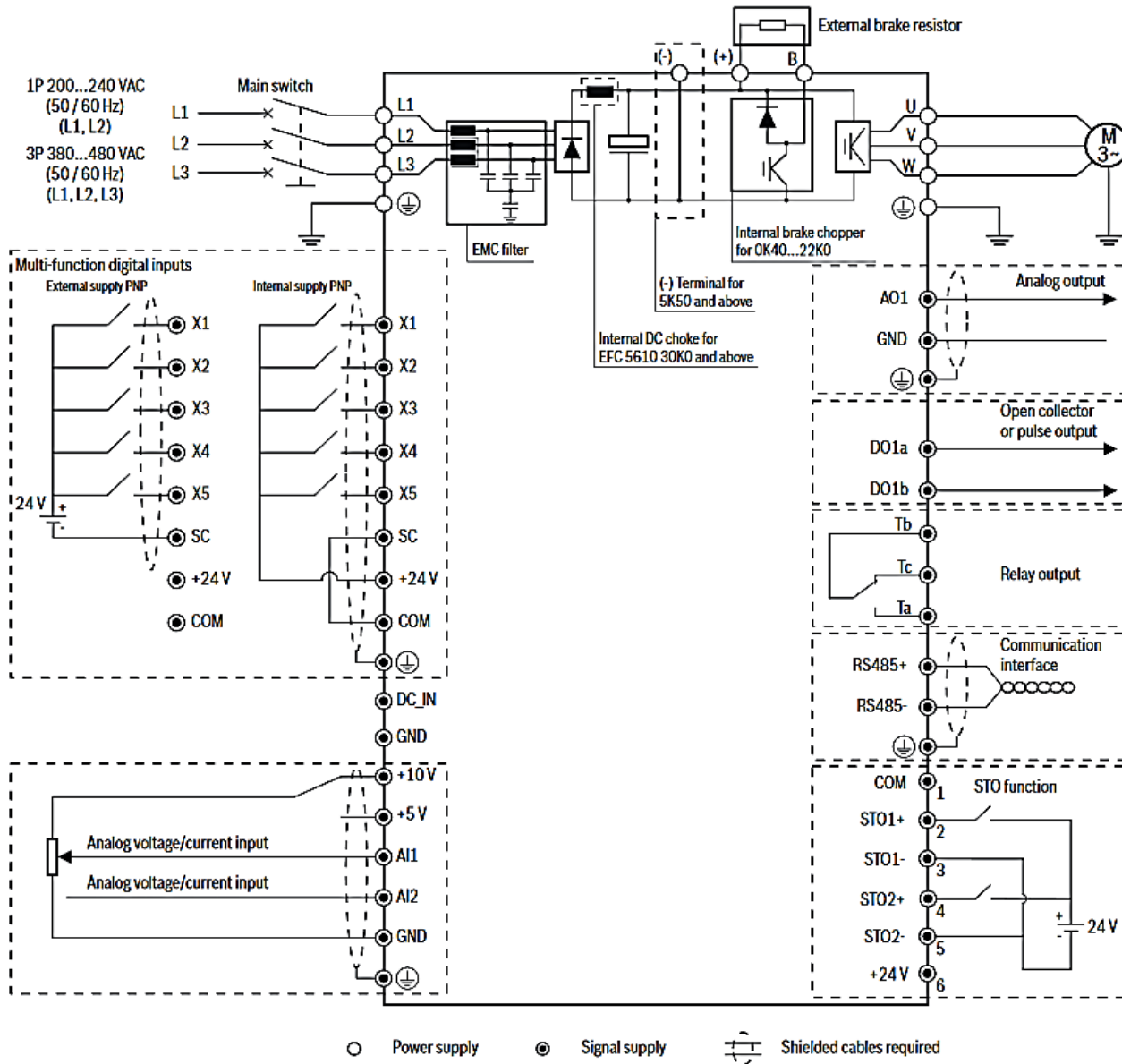
EFC5610 performance data

Type	EFC 5610	
Mains voltage V	1 AC 200 ... 240 V (-10%/+10%)/3 AC 380 ... 480 (-15%/+10%)	
Mains frequency Hz	50 ... 60 (± 5%)	
Rated motor voltage V	3-phase, 0 ... mains voltage	
Output voltage V	0 ... mains voltage	
Output frequency Hz	0 ... 400	
Overload capacity	HD mode: 150% for 60 sec, 200% for 1 sec; ND mode: 120% for 60 sec	
Functions		
Control technology	V/f, FOC or SVC (sensorless vector control)	
Pulse width modulation (PWM) for converters with 0.4 ... 18.5 kW (0.5 ... 30 hp)	1 ... 15 kHz, adjustable in 1 kHz increments	
Speed control range	1:200	
Start-up torque	V/f	100% at 1.5 Hz; 150% at 3 Hz
	SVC	200% at 0.5 Hz
Frequency resolution	Analog	1/1000 of output frequency
	Digital	0.01 Hz
Frequency setting tolerance	Analog	0.4%
	Digital	0.04%
V/f curve	Linear, quadratic, can be set as desired	
Ramps for acceleration and braking	Linear, S curve	
DC disc brake	Start frequency	0 ... 50 Hz
	Braking time	0 ... 10 sec
Automatic PWM frequency adjustment	Load-dependent PWM frequency adjustment	
Integrated control	Integrated sequential circuit	
Controller	PID	
Bus systems	On-board: Modbus	
	Ext. options: PROFIBUS, CANopen, Multi-Ethernet	
No. 24 V DC digital inputs	5 (one 50 kHz pulse train)	
No. 24 V DC/50 mA digital outputs	1 (32 kHz pulse train)	
No. 230 V AC/30 V DC/3 A relay outputs	1	
No. 0 ... 10 V or 0 ... 20 mA analog inputs	2	
No. 0 ... 10 V or 0 ... 20 mA analog outputs	1	
STO	SIL3 Cat. 4/PL e (0.4 ... 22 kW option)	
Display	Dust cover with 5 diagnostic LEDs; 5-digit LED (optional); LCD (optional)	
Status LED	Rotational direction and operating state	
Brake		
Brake chopper	Internal up to 22 kW (30 hp)	
Brake resistor	External	
Motor cable length		
Internal C3 filter	0.4 ... 4 kW (0.5 ... 5 hp) m	15
	5.5 ... 22 kW (7.5 ... 30 hp) m	30
	30 ... 90 kW (40 ... 125 hp) m	50
External C3 filter	0.4 ... 4 kW (0.5 ... 5 hp) m	30
	5.5 ... 22 kW (7.5 ... 30 hp) m	50
	30 ... 90 kW (40 ... 125 hp) m	100
Ambient conditions		
Ambient temperature (in operation)	-10 °C ... 45 °C (1.5% output power derating per 1° from 45 °C ... 55 °C)	
Max. operating elevation	Derating at 1,000 m or higher (1% of output power per 100 m)	
Relative humidity	< 90% (no condensation)	
IP rating	IP20	
Certifications	CE, UL, cUL, EAC, C-Tick (RCM) , RoHS, TUV (with STO devices)	

EFC5610 ordering information

Description	Code	Ordering no.
1 phase		
EFC 5610 0.4 kW , 1 AC 200 ... 240 V, 50/60 Hz, 2.4 A, LED display, STO	EFC5610-0K40-1P2-MDA-7P-NNNNN-L1NN	R912007268
EFC 5610 0.75 kW , 1 AC 200 ... 240 V, 50/60 Hz, 4.1 A, LED display, STO	EFC5610-0K75-1P2-MDA-7P-NNNNN-L1NN	R912007269
EFC 5610 1.5 kW , 1 AC 200 ... 240 V, 50/60 Hz, 7.3 A, LED display, STO	EFC5610-1K50-1P2-MDA-7P-NNNNN-L1NN	R912007270
EFC 5610 2.2 kW , 1 AC 200 ... 240 V, 50/60 Hz, 10.1 A, LED display, STO	EFC5610-2K20-1P2-MDA-7P-NNNNN-L1NN	R912007271
3 phase		
EFC 5610 0.4 kW , 3 AC 380 ... 480 V, 50/60 Hz, 1.3 A, LED display, STO	EFC5610-0K40-3P4-MDA-7P-NNNNN-L1NN	R912007272
EFC 5610 0.75 kW , 3 AC 380 ... 480 V, 50/60 Hz, 2.3 A, LED display, STO	EFC5610-0K75-3P4-MDA-7P-NNNNN-L1NN	R912007273
EFC 5610 1.5 kW , 3 AC 380 ... 480 V, 50/60 Hz, 4.0 A, LED display, STO	EFC5610-1K50-3P4-MDA-7P-NNNNN-L1NN	R912007274
EFC 5610 2.2 kW , 3 AC 380 ... 480 V, 50/60 Hz, 5.6 A, LED display, STO	EFC5610-2K20-3P4-MDA-7P-NNNNN-L1NN	R912007275
EFC 5610 3.0 kW , 3 AC 380 ... 480 V, 50/60 Hz, 7.4 A, LED display, STO	EFC5610-3K00-3P4-MDA-7P-NNNNN-L1NN	R912007276
EFC 5610 4.0 kW , 3 AC 380 ... 480 V, 50/60 Hz, 9.7 A, LED display, STO	EFC5610-4K00-3P4-MDA-7P-NNNNN-L1NN	R912007277
EFC 5610 5.5 kW , 3 AC 380 ... 480 V, 50/60 Hz, 12.7 A, LED display, STO	EFC5610-5K50-3P4-MDA-7P-NNNNN-L1NN	R912007278
EFC 5610 7.5 kW , 3 AC 380 ... 480 V, 50/60 Hz, 16.8 A, LED display, STO	EFC5610-7K50-3P4-MDA-7P-NNNNN-L1NN	R912007279
EFC 5610 11 kW , 3 AC 380 ... 480 V, 50/60 Hz, 24.3 A, LED display, STO	EFC5610-11K0-3P4-MDA-7P-NNNNN-L1NN	R912007280
EFC 5610 15 kW , 3 AC 380 ... 480 V, 50/60 Hz, 32.4 A, LED display, STO	EFC5610-15K0-3P4-MDA-7P-NNNNN-L1NN	R912007281
EFC 5610 18.5 kW , 3 AC 380 ... 480 V, 50/60 Hz, 39.2 A, LED display, STO	EFC5610-18K5-3P4-MDA-7P-NNNNN-L1NN	R912007282
EFC 5610 22 kW , 3 AC 380 ... 480 V, 50/60 Hz, 45.2 A, LED display, STO	EFC5610-22K0-3P4-MDA-7P-NNNNN-L1NN	R912007283
EFC 5610 30 kW , 3 AC 380 ... 480 V, 50/60 Hz, 60.8 A, LED display, STO	EFC5610-30K0-3P4-MDA-7P-NNNNN-L1NN	R912005981
EFC 5610 37 kW , 3 AC 380 ... 480 V, 50/60 Hz, 73.7 A, LED display, STO	EFC5610-37K0-3P4-MDA-7P-NNNNN-L1NN	R912005982
EFC 5610 45 kW , 3 AC 380 ... 480 V, 50/60 Hz, 89.0 A, LED display, STO	EFC5610-45K0-3P4-MDA-7P-NNNNN-L1NN	R912005983
EFC 5610 55 kW , 3 AC 380 ... 480 V, 50/60 Hz, 108 A, LED display, STO	EFC5610-55K0-3P4-MDA-7P-NNNNN-L1NN	R912005984
EFC 5610 75 kW , 3 AC 380 ... 480 V, 50/60 Hz, 147 A, LED display, STO	EFC5610-75K0-3P4-MDA-7P-NNNNN-L1NN	R912005985
EFC 5610 90 kW , 3 AC 380 ... 480 V, 50/60 Hz, 176 A, LED display, STO	EFC5610-90K0-3P4-MDA-7P-NNNNN-L1NN	R912005986

Block diagram



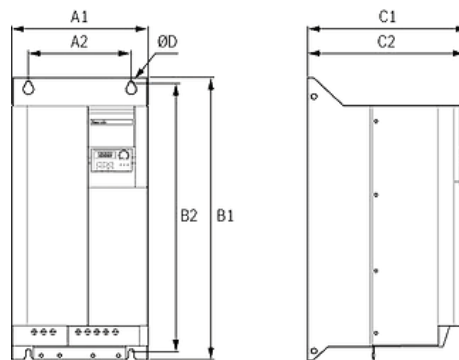
Accessories

Description	Code	Ordering no.
Brake resistors		
Brake resistor 60W 400Ω xFC 230V 400W 10%ED	FCAR01.1W0060-N400R0-B-03-NNNN	R911370664
Brake resistor 100W 400Ω xFC 230V 400W 20%ED	FCAR01.1W0100-N400R0-B-03-NNNN	R911370667
Brake resistor 100W 190Ω xFC 230V 750W 10%ED	FCAR01.1W0100-N190R0-B-03-NNNN	R911370666
Brake resistor 200W 190Ω xFC 230V 750W 20%ED	FCAR01.1W0200-N190R0-B-03-NNNN	R911370670
Brake resistor 200W 95Ω xFC 230V 1,5kW 10%ED	FCAR01.1W0200-N095R0-B-03-NNNN	R911370669
Brake resistor 400W 95Ω xFC 230V 1,5kW 20%ED	FCAR01.1W0400-N095R0-B-03-NNNN	R911370676
Brake resistor 300W 65Ω xFC 230V 2,2kW 10%ED	FCAR01.1W0300-N065R0-B-03-NNNN	R911370674
Brake resistor 500W 65Ω xFC 230V 2,2kW 20%ED	FCAR01.1W0500-N065R0-B-03-NNNN	R911370677
Brake resistor 80W 750Ω xFC 400V 400W & 750W 10%ED	FCAR01.1W0080-N750R0-B-05-NNNN	R911370665
Brake resistor 150W 750Ω xFC 400V 400W & 750W 20%ED	FCAR01.1W0150-N750R0-B-05-NNNN	R911370668
Brake resistor 260W 400Ω xFC 400V 1,5kW 10%ED	FCAR01.1W0260-N400R0-B-05-NNNN	R911370671
Brake resistor 520W 350Ω xFC 400V 1,5kW 20%ED	FCAR01.1W0520-N350R0-A-05-NNNN	R911370678
Brake resistor 260W 250Ω xFC 400V 2,2kW 10%ED	FCAR01.1W0260-N250R0-B-05-NNNN	R911370673
Brake resistor 520W 230Ω xFC 400V 2,2kW 20%ED	FCAR01.1W0520-N230R0-A-05-NNNN	R911370679
Brake resistor 390W 150Ω xFC 400V 3,0kW & 4,0kW 10%ED	FCAR01.1W0390-N150R0-B-05-NNNN	R911370675
Brake resistor 780W 140Ω xFC 400V 3,0kW & 4,0kW 20%ED	FCAR01.1W0780-N140R0-A-05-NNNN	R911370681
Brake resistor 780W 75Ω xFC 400V 5,5kW & 7,5kW 10%ED	FCAR01.1W0780-N075R0-A-05-NNNN	R911370680
Brake resistor 1560W 70Ω xFC 400V 5,5kW & 7,5kW 20%ED	FCAR01.1W1K56-N070R0-A-05-NNNN	R911370683
Brake resistor 1560W 40Ω xFC 400V 11kW & 15kW 10%ED	FCAR01.1W1K56-N040R0-A-05-NNNN	R911370682
Brake resistor 2000W 47Ω xFC 400V 11kW 20%ED	FCAR01.1W02K0-N047R0-A-05-NNNN	R911370684
Brake resistor 3000W 34Ω xFC 400V 15kW 20%ED	FCAR01.1W03K0-N034R0-A-05-NNNN	R911370685
Brake resistor 4800W 32Ω xFC 400V 18,5kW 10%ED	FCAR01.1W04K8-N032R0-A-05-NNNN	R911370686
Brake resistor 10000W 28Ω xFC 400V 18,5kW 20%ED	FCAR01.1W10K0-N028R0-A-05-NNNN	R911370687
Brake resistor 3500W 18,9Ω xFC 400V 18,5 & 22kW 10%ED	FCAR01.1W3K50-N018R9-A-05-NNNN	R911378270
Brake resistor 4000W 16Ω xFC 400V 30 & 37kW 10%ED	FCAR01.1W4K00-N016R0-A-05-NNNN	R911378271
Brake resistor 6500W 10Ω xFC 400V 45 & 55kW 10%ED	FCAR01.1W6K50-N010R0-A-05-NNNN	R911378272
Brake resistor 10000W 6Ω xFC 400V 75 & 90kW 10%ED	FCAR01.1W10K0-N006R0-A-05-NNNN	R911378273

Accessories

Description	Code	Ordering no.
Mains filters		
Line filter EFC x610 230V 0.4kW - 0,75kW	FCAF01.1A-A050-E-0010-N-03-NNNN	R911370804
Line filter EFC x610 230V 1.5kW	FCAF01.1A-A050-E-0020-N-03-NNNN	R911370805
Line filter EFC x610 230V 2.2kW	FCAF01.1A-A050-E-0025-N-03-NNNN	R911370806
Line filter EFC x610 400V 0.4kW - 4.0kW	FCAF01.1A-A050-E-0025-A-05-NNNN	R911370807
Line filter EFC x610 400V 5.5kW - 7.5kW	FCAF01.1A-A050-E-0036-A-05-NNNN	R911370811
Line filter EFC x610 400V 11kW - 15kW	FCAF01.1A-A050-E-0050-A-05-NNNN	R911370813
Line filter EFC x610 400V 18.5kW	FCAF01.1A-A050-E-0066-A-05-NNNN	R911371977
Line filter EFC x610 400V 22kW	FCAF01.1A-A050-E-0090-A-05-NNNN	R911370814
Line filter EFC 5610 400V 30kW - 37kW	FCAF01.1A-A100-E-0120-A-05-NNNN	R911370815
Line filter EFC 5610 400V 45kW - 55kW	FCAF01.1A-A100-E-0250-N-05-NNNN	R911370817
Line filter EFC 5610 400V 75kW - 90kW	FCAF01.1A-A100-E-0320-N-05-NNNN	R911370818
Line filter EFC 5610 400V 110kW - 160kW	FCAF01.1A-A100-E-0400-A-05-NNNN	R911384338
Option cards		
Option Card module EFC	FEAE02.1-EA-NNNN	R912006052
IO extension card	FEAE04.1-IO1-NNNN	R912006050
Relay card	FEAE04.1-IO2-NNNN	R912006051
IO Plus extension Card	FEAE04.1-IO3-NNNN	R912007257
Encoder Card: HTL & TTL	FEAE04.1-EN1-NNNN	R912006414
Encoder Card: Resolver	FEAE04.1-EN2-NNNN	R912006415
CANopen card	FEAE03.1-CO-NNNN	R912006133
Profibus card	FEAE03.1-PB-NNNN	R912006132
Multi-Ethernet card	FEAE03.1-ET-NNNN	R912006134
Accessories		
EFC x610 dust cover	FPCC02.1-EANN-NN-NNNN	R912005785
EFC x610 LED Panel	FPCC02.1-EANN-7P-NNNN	R912005783
EFC x610 LCD Panel	FPCC02.1-EANN-LP-NNNN	R912006375
EFC x610 mounting plate	FEAM02.1-EANN-NN-NNNN	R912005787
Panel extension cable 2m	FRKS0006/002,0	R912004657
Panel extension cable 3m	FRKS0004/003,0	R912004410
Panel extension cable 2m with buckle	FRKS0002/002,0	R912007623
Panel extension cable 3m with buckle	FRKS0002/003,0	R912007624
Panel extension cable 5m with buckle	FRKS0002/005,0	R912007625
Shield Connector for B,C,D housing	FEAM03.1-001-NN-NNNN	R912006012
Shield Connector for E,F,G housing	FEAM03.1-002-NN-NNNN	R912006013
Shield Connector for H housing	FEAM03.1-003-NN-NNNN	R912006460
Shield Connector I,J housing	FEAM03.1-004-NN-NNNN	R912006461
Shield Connector for B,C,D housing Version 2	FEAM03.2-001-NN-NNNN	R912007672
Shield Connector for E,F,G housing Version 2	FEAM03.2-002-NN-NNNN	R912007673
Shield Connector for H housing Version 2	FEAM03.2-003-NN-NNNN	R912007674
Shield Connector I,J housing Version 2	FEAM03.2-004-NN-NNNN	R912007675
Shield Connector for K housing Version 2	FEAM03.2-005-NN-NNNN	R912007808
Shield Connector for L housing Version 2	FEAM03.2-006-NN-NNNN	R912007892
Spare Connector Set I/O Terminal xFC x610	FEAE05.1-B2-NNNN	R912006054
Spare Connector STO EFC 5610	FEAE05.1-E3-NNNN	R912007806
Brake Chopper EFC 30...55kW	FEAE07.1-EA1-NNNN	R912007181
Brake Chopper EFC 75 ... 160kW	FEAE07.1-EA2-NNNN	R912007182

EFC5610 dimensions



Type	A1	A2	B1	B2	C1	C2	ØD	Weight
	mm	mm	mm	mm	mm	mm	mm	kg
EFC5610-0K40-1P2	95	66	166	156	167	159	4.5	1.5
EFC5610-0K75-1P2	95	66	166	156	167	159	4.5	1.5
EFC5610-1K50-1P2	95	66	206	196	170	162	4.5	1.9
EFC5610-2K20-1P2	120	80	231	221	175	167	4.5	2.6
EFC5610-0K40-3P2	95	66	166	156	167	159	4.5	1.5
EFC5610-0K75-3P2	95	66	206	196	170	162	4.5	1.9
EFC5610-1K50-3P2	120	80	231	221	175	167	4.5	2.6
EFC5610-2K20-3P2	120	80	231	221	175	167	4.5	2.6
EFC5610-3K00-3P2	130	106	243	228	233	225	6.5	3.9
EFC5610-4K00-3P2	130	106	243	228	233	225	6.5	4.3
EFC5610-5K50-3P2	150	125	283	265	233	225	6.5	5.7
EFC5610-7K50-3P2	150	125	283	265	233	225	6.5	6.4
EFC5610-11K0-3P2	165	140	315	300	241	233	6.5	8.5
EFC5610-0K40-3P4	95	66	166	156	167	159	4.5	1.5
EFC5610-0K75-3P4	95	66	166	156	167	159	4.5	1.5
EFC5610-1K50-3P4	95	66	206	196	170	162	4.5	1.9
EFC5610-2K20-3P4	95	66	206	196	170	162	4.5	1.9
EFC5610-3K00-3P4	120	80	231	221	175	167	4.5	2.6
EFC5610-4K00-3P4	120	80	231	221	175	167	4.5	2.6
EFC5610-5K50-3P4	130	106	243	228	233	225	6.5	3.9
EFC5610-7K50-3P4	130	106	243	228	233	225	6.5	4.3
EFC5610-11K0-3P4	150	125	283	265	233	225	6.5	5.7
EFC5610-15K0-3P4	150	125	283	265	233	225	6.5	6.4
EFC5610-18K5-3P4	165	140	315	300	241	233	6.5	8
EFC5610-22K0-3P4	165	140	315	300	241	233	6.5	8.5
EFC5610-30K0-3P4	250	200	510	492	272	264	7	27.5
EFC5610-37K0-3P4	250	200	510	492	272	264	7	29.5
EFC5610-45K0-3P4	265	200	585	555	325	317	11	39
EFC5610-55K0-3P4	265	200	585	555	325	317	11	42
EFC5610-75K0-3P4	325	200	760	727	342	334	11	54
EFC5610-90K0-3P4	325	200	760	727	342	334	11	61
EFC5610-110K-3P4	385	250	923	893	350	342	11	71.7
EFC5610-132K-3P4	385	250	923	893	350	342	11	76.6
EFC5610-160K-3P4	480	400	1030	995	360	352	13	108

Software

Using the freely available ConverterWorks PC software, Rexroth frequency converters EFC 3610 and EFC 5610 can be commissioned and remotely controlled. The connection with the PC is established via a standard USB interface.

The software is available in the download section of the online catalog:

www.boschrexroth.com/EFCx610



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