

Frequency converter

Frequency Converter Fv



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Documentation



- Brake chopper with up to 30 kW continuous braking power
- Easy to operate and service (detachable fan, LCD operating panel with copy function)
- Advanced functions and high performance
- Reliable quality
- CE marking and UL certification
- Worldwide availability and service

The Rexroth Frequency Converter Fv is the new, optimized drive solution for the automation of various applications in the power range up to 90 kW. The different operating modes voltage/frequency (V/f), sensorless vector control (SVC), or field-oriented vector control (FOC) allow a wide range of applications.

Technical data

		FVCA01.1-0K40	FVCA01.1-0K75	FVCA01.1-1K50	FVCA01.1-2K20	FVCA01.1-4K00	FVCA01.1-5K50	FVCA01.1-7K50
Performance data								
Rated output	[kW]	0.4	0.75	1.5	2.2	4	5.5	7.5
Rated continuous current	[A]	1.3	2.5	4	5.5	10	13	17
Nominal motor voltage		Three phase, 0 V ... mains voltage						
Output voltage		0 V ... mains voltage						
Output frequency		0 ... 400 Hz						
Overload capacity		200 % In for 1 s or 150 % In for 60 s						
Mains connection voltage	3 AC	3 AC 380 ... 480 V (-15 % / +10 %)						
Frequency		50 ... 60 Hz (±5 %)						
Brake chopper/resistor								
Brake resistor		External						
Brake chopper		Internal						
Ambient conditions								
Permissible temperature (operation)		-10 ... +40 °C						
Permissible relative humidity (operation)		< 90 %						
Max. installation height		Derating from 1000 m (1 % of the power output per 100 m)						
Functions								
Control technology		V/f, SVC, FOC						
Pulse width modulation (PWM), continuously adjustable	[kHz]	1 ... 15						

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Modulation type		Magnetic flux PWM-modulation: SVPWM						
Speed control range	Without pulse encoder	Vector control 1 : 100						
	With pulse encoder	Vector control 1 : 1000						
Start-up torque	V/f	Max. start-up torque 150 % at 5 Hz						
	SVC	Max. start-up torque 150 % at 0.5 Hz						
	FOC	Max. start-up torque 200 % at 0 Hz						
Frequency resolution	Digital	0.01 Hz						
	Analog	Max. frequency x 0.05 %						
V/f curve		Freely definable						
Ramps		Linear, S-curve						
DC brake	Start frequency	0 ... 10 Hz						
	Braking time	0 ... 20 s						
Automatic energy saving function		Load-dependent adaptation of V/f curve						
Automatic PWM frequency adaptation		Load-dependent adaptation of PWM frequency						
Integrated controller		Integrated step switching mechanism						
Frequency setting accuracy	Analog	0.05 %						
	Digital	0.01 %						
Frequency control accuracy	SVC	0.5 % x maximum frequency						
	FOC	0.05 % x maximum frequency						
Controller		PID						
Bus systems		Modbus						
		PROFIBUS (optional)						
Status messages via digital outputs		Mode, target value achieved, etc.						
Display		LCD: Frequency, output voltage, output current, etc.						
Status LED		Rotation direction and operating status						
Weight								
Mass	[kg]	2.7	2.7	2.7	2.8	4.8	4.9	4.9

		FVCA01.1-11K0	FVCA01.1-15K0	FVCA01.1-18K5	FVCA01.1-22K0	FVCA01.1-30K0	FVCA01.1-37K0	
Performance data								
Rated output	[kW]	11	15	18.5	22	30	37	
Rated continuous current	[A]	24	33	39	44	60	75	
Nominal motor voltage		Three phase, 0 V ... mains voltage						
Output voltage		0 V ... mains voltage						
Output frequency		0 ... 400 Hz						
Overload capacity		200 % In for 1 s or 150 % In for 60 s						
Mains connection voltage	3 AC	3 AC 380 ... 480 V (-15 % / +10 %)						
Frequency		50 ... 60 Hz (±5 %)						

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Brake chopper/resistor							
Brake resistor		External					
Brake chopper		Internal			External		
Ambient conditions							
Permissible temperature (operation)		-10 ... +40 °C					
Permissible relative humidity (operation)		< 90 %					
Max. installation height		Derating from 1000 m (1 % of the power output per 100 m)					
Functions							
Control technology		V/f, SVC, FOC					
Pulse width modulation (PWM), continuously adjustable	[kHz]	1 ... 12			1 ... 8		
	Modulation type	Magnetic flux PWM-modulation: SVPWM					
Speed control range	Without pulse encoder	Vector control 1 : 100					
	With pulse encoder	Vector control 1 : 1000					
Start-up torque	V/f	Max. start-up torque 150 % at 5 Hz					
	SVC	Max. start-up torque 150 % at 0.5 Hz					
	FOC	Max. start-up torque 200 % at 0 Hz					
Frequency resolution	Digital	0.01 Hz					
	Analog	Max. frequency x 0.05 %					
V/f curve		Freely definable					
Ramps		Linear, S-curve					
DC brake	Start frequency	0 ... 10 Hz					
	Braking time	0 ... 20 s					
Automatic energy saving function		Load-dependent adaptation of V/f curve					
Automatic PWM frequency adaptation		Load-dependent adaptation of PWM frequency					
Integrated controller		Integrated step switching mechanism					
Frequency setting accuracy	Analog	0.05 %					
	Digital	0.01 %					
Frequency control accuracy	SVC	0.5 % x maximum frequency					
	FOC	0.05 % x maximum frequency					
Controller		PID					
Bus systems		Modbus					
		PROFIBUS (optional)					
Status messages via digital outputs		Mode, target value achieved, etc.					
Display		LCD: Frequency, output voltage, output current, etc.					
Status LED		Rotation direction and operating status					
Weight							
Mass	[kg]	8.8	9	16.5	16.5	22	22

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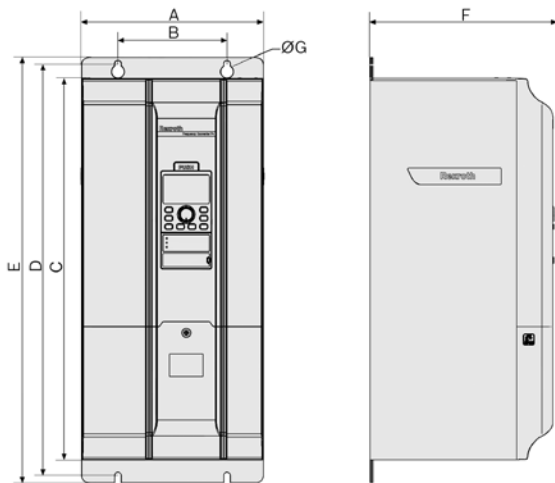
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		FVCA01.1-45K0	FVCA01.1-55K0	FVCA01.1-75K0	FVCA01.1-90K0
Performance data					
Rated output	[kW]	45	55	75	90
Rated continuous current	[A]	95	110	152	183
Nominal motor voltage		Three phase, 0 V ... mains voltage			
Output voltage		0 V ... mains voltage			
Output frequency		0 ... 400 Hz			
Overload capacity		200 % In for 1 s or 150 % In for 60 s			
Mains connection voltage	3 AC	3 AC 380 ... 480 V (-15 % / +10 %)			
Frequency		50 ... 60 Hz (±5 %)			
DC bus					
DC bus voltage	[V] DC	Mains voltage x 1.41			
Brake chopper/resistor					
Brake resistor		External			
Brake chopper		External			
Ambient conditions					
Permissible temperature (operation)		-10 ... +40 °C			
Permissible relative humidity (operation)		< 90 %			
Max. installation height		Derating from 1000 m (1 % of the power output per 100 m)			
Functions					
Control technology		V/f, SVC, FOC			
Pulse width modulation (PWM), continuously adjustable	[kHz]	1 ... 4			
Modulation type		Magnetic flux PWM-modulation: SVPWM			
Speed control range	Without pulse encoder	Vector control 1 : 100			
	With pulse encoder	Vector control 1 : 1000			
Start-up torque	V/f	Max. start-up torque 150 % at 5 Hz			
	SVC	Max. start-up torque 150 % at 0.5 Hz			
	FOC	Max. start-up torque 200 % at 0 Hz			
Frequency resolution	Digital	0.01 Hz			
	Analog	Max. frequency x 0.05 %			
V/f curve		Freely definable			
Ramps		Linear, S-curve			
DC brake	Start frequency	0 ... 10 Hz			
	Braking time	0 ... 20 s			
Automatic energy saving function		Load-dependent adaptation of V/f curve			
Automatic PWM frequency adaptation		Load-dependent adaptation of PWM frequency			

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Integrated controller		Integrated step switching mechanism			
Frequency setting accuracy	Analog	0.05 %			
	Digital	0.01 %			
Frequency control accuracy	SVC	0.5 % x maximum frequency			
	FOC	0.05 % x maximum frequency			
Controller		PID			
Bus systems		Modbus			
		PROFIBUS (optional)			
Status messages via digital outputs		Mode, target value achieved, etc.			
Display		LCD: Frequency, output voltage, output current, etc.			
Status LED		Rotation direction and operating status			
Weight					
Mass	[kg]	37	39	56.7	58

Dimensions**Dimensions**

Type	A [mm]	E [mm]	F [mm]
FVCA01.1-0K40	125	315	127
FVCA01.1-0K75			
FVCA01.1-1K50			
FVCA01.1-2K20			
FVCA01.1-4K00	150	380	162
FVCA01.1-5K50			
FVCA01.1-7K50			

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Frequency Converter Fv**Dimensions**

Type	A [mm]	E [mm]	F [mm]
FVCA01.1-11K0	175	448	204
FVCA01.1-15K0			
FVCA01.1-18K5	225	500	232
FVCA01.1-22K0			
FVCA01.1-30K0	250	585	256.5
FVCA01.1-37K0			
FVCA01.1-45K0	325	712.5	270
FVCA01.1-55K0			
FVCA01.1-75K0	450	779	307
FVCA01.1-90K0			

Accessories

Type code	Description	Part number:
FVAM01.1-A-Mounting Plate	Mounting plates to install the Fv operating panel in the control cabinet section	R912002621
FVAA01.1-M-NNNN-01V01	Communication adapter to connect a Rexroth Fv frequency converter to a Modbus master	R912002622
FVAA01.1-P-NNNN-01V01	Communication adapter to connect a Rexroth Fv frequency converter to a PRO-FIBUS master	R912002623

Type code	Description	Part number:
FELR01.1N-04K5-N055R-A-560-NNNN	Brake resistor 4.5 kW, 55 Ω	R912001628
FELR01.1N-04K8-N032R-A-560-NNNN	Brake resistor 4.8 kW, 27.2 Ω	R912001629
FELR01.1N-04K8-N27R2-A-560-NNNN	Brake resistor 4.8 kW, 27.2 Ω	R912001630
FELR01.1N-06K0-N020R-A-560-NNNN	Brake resistor 6 kW, 20 Ω	R912001635
FELR01.1N-06K0-N040R-A-560-NNNN	Brake resistor 6 kW, 40 Ω	R912001636
FELR01.1N-08K0-N027R-A-560-NNNN	Brake resistor 6 kW, 40 Ω	R912001640
FELR01.1N-09K6-N016R-A-560-NNNN	Brake resistor 9.6 kW, 16 Ω	R912001641
FELR01.1N-09K6-N016R-A-560-NNNN	Brake resistor 9.6 kW, 13.6 Ω	R912001642
FELR01.1N-10K0-N022R-A-560-NNNN	Brake resistor 10 kW, 22 Ω	R912001643
FELR01.1N-10K0-N024R-A-560-NNNN	Brake resistor 10 kW, 24 Ω	R912001644
FELR01.1N-10K0-N028R-A-560-NNNN	Brake resistor 10 kW, 28 Ω	R912001645
FELR01.1N-10K0-N032R-A-560-NNNN	Brake resistor 10 kW, 32 Ω	R912001646
FELR01.1N-10K0-N27R2-A-560-NNNN	Brake resistor 10 kW, 27.2 Ω	R912001647
FELR01.1N-12K5-N017R-A-560-NNNN	Brake resistor 12.5 kW, 17 Ω	R912001648
FELR01.1N-12K5-N018R-A-560-NNNN	Brake resistor 12.5 kW, 18 Ω	R912001649
FELR01.1N-12K5-N020R-A-560-NNNN	Brake resistor 12.5 kW, 20 Ω	R912001650
FELR01.1N-12K5-N022R-A-560-NNNN	Brake resistor 12.5 kW, 22 Ω	R912001651

Type code	Description	Part number:
FELR01.1N-0080-N750R-D-560-NNNN	Brake resistor, 0.08 kW, 750 Ω	R912001618

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Type code	Description	Part number:
FELR01.1N-0150-N700R-D-560-NNNN	Brake resistor 0.15 kW, 700 Ω	R912001619
FELR01.1N-0150-N700R-D-560-NNNN	Brake resistor 1.2 kW, 180 Ω	R912001620
FELR01.1N-01K5-N068R-D-560-NNNN	Brake resistor 1.5 kW, 68 Ω	R912001621
FELR01.1N-01K5-N150R-D-560-NNNN	Brake resistor 1.5 kW, 150 Ω	R912001622
FELR01.1N-0260-N250R-D-560-NNNN	Brake resistor 0.26 kW, 250 Ω	R912001623
FELR01.1N-0260-N400R-D-560-NNNN	Brake resistor 0.26 kW, 400 Ω	R912001624
FELR01.1N-02K0-N047R-D-560-NNNN	Brake resistor 2 kW, 47 Ω	R912001625
FELR01.1N-02K0-N110R-D-560-NNNN	Brake resistor 2 kW, 110 Ω	R912001626
FELR01.1N-0390-N150R-D-560-NNNN	Brake resistor 0.39 kW, 150 Ω	R912001627
FELR01.1N-0500-N550R-D-560-NNNN	Brake resistor, 0.5 kW, 550 Ω	R912001631
FELR01.1N-0520-N100R-D-560-NNNN	Brake resistor 0.52 kW, 100 Ω	R912001632
FELR01.1N-0520-N230R-D-560-NNNN	Brake resistor 0.52 kW, 230 Ω	R912001633
FELR01.1N-0520-N350R-D-560-NNNN	Brake resistor 0.52 kW, 350 Ω	R912001634
FELR01.1N-0780-N075R-D-560-NNNN	Brake resistor 0.78 kW, 75 Ω	R912001637
FELR01.1N-0780-N140R-D-560-NNNN	Brake resistor 0.78 kW, 140 Ω	R912001638
FELR01.1N-0800-N275R-D-560-NNNN	Brake resistor 0.8 kW, 275 Ω	R912001639
FELR01.1N-0800-N275R-D-560-NNNN	Brake resistor 1.04 kW, 50 Ω	R912001652
FELR01.1N-1K04-N090R-D-560-NNNN	Brake resistor 1.04 kW, 90 Ω	R912001653
FELR01.1N-1K56-N040R-D-560-NNNN	Brake resistor 1.56 kW, 40 Ω	R912001654
FELR01.1N-1K56-N070R-D-560-NNNN	Brake resistor 1.56 kW, 70 Ω	R912001655

EMC filter selection guide for Frequency Converter Fv

Frequency converter	EMC filter type code	Part number:	Purchase
FVCA01.1-0K40-3P4-MDA-LP-NNNN-01V01 FVCA01.1-0K75-3P4-MDA-LP-NNNN-01V01 FVCA01.1-1K50-3P4-MDA-LP-NNNN-01V01 FVCA01.1-2K20-3P4-MDA-LP-NNNN-01V01	FENF01.1A-A075-E0008-A-480-NNNN	R912003315	1
FVCA01.1-4K00-3P4-MDA-LP-NNNN-01V01 FVCA01.1-5K50-3P4-MDA-LP-NNNN-01V01 FVCA01.1-7K50-3P4-MDA-LP-NNNN-01V01	FENF01.1A-A075-E0022-A-480-NNNN	R912003316	1
FVCA01.1-11K0-3P4-MDA-LP-NNNN-01V01	FENF01.1A-A075-E0030-A-480-NNNN	R912003317	1
FVCA01.1-15K0-3P4-MDA-LP-NNNN-01V01 FVCA01.1-18K5-3P4-MDA-LP-NNNN-01V01 FVCA01.1-22K0-3P4-MDA-LP-NNNN-01V01	FENF01.1A-A075-E0051-A-480-NNNN	R912003318	1
FVCA01.1-30K0-3P4-MDA-LP-NNNN-01V01 FVCA01.1-37K0-3P4-MDA-LP-NNNN-01V01	FENF01.1A-A075-E0090-A-480-NNNN	R912003319	1

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Frequency Converter Fv**EMC filter selection guide for Frequency Converter Fv**

Frequency converter	EMC filter type code	Part number:	Purchase
FVCA01.1-45K0-3P4-MDA-LP-NNNN-01V01 FVCA01.1-55K0-3P4-MDA-LP-NNNN-01V01	FENF01.1A-A075-E0120-A-480-NNNN	R912003320	1
FVCA01.1-75K0-3P4-MDA-LP-NNNN-01V01 FVCA01.1-90K0-3P4-MDA-LP-NNNN-01V01	FENF01.1A-A075-E0250-A-480-NNNN	R912003329	1

Ordering information

Type code	Description	Part number:
FVCA01.1-0K40-3P4-MDA-LP-NNNN-01V01	0.4 kW, 3 AC 380 ... 480 V, 50/60 Hz, 1.3 A	R912002607
FVCA01.1-0K75-3P4-MDA-LP-NNNN-01V01	0.75 kW, 3 AC 380 ... 480 V, 50/60 Hz, 2.5 A	R912002608
FVCA01.1-1K50-3P4-MDA-LP-NNNN-01V01	1.5 kW, 3 AC 380 ... 480 V, 50/60 Hz, 4 A	R912002609
FVCA01.1-2K20-3P4-MDA-LP-NNNN-01V01	2.2 kW, 3 AC 380 ... 480 V, 50/60 Hz, 5.5 A	R912002610
FVCA01.1-4K00-3P4-MDA-LP-NNNN-01V01	4 kW, 3 AC 380 ... 480 V, 50/60 Hz, 10 A	R912002611
FVCA01.1-5K50-3P4-MDA-LP-NNNN-01V01	5.5 kW, 3 AC 380 ... 480 V, 50/60 Hz, 13 A	R912002612
FVCA01.1-7K50-3P4-MDA-LP-NNNN-01V01	7.5 kW, 3 AC 380 ... 480 V, 50/60 Hz, 17 A	R912002613
FVCA01.1-11K0-3P4-MDA-LP-NNNN-01V01	11 kW, 3 AC 380 ... 480 V, 50/60 Hz, 24 A	R912002614
FVCA01.1-15K0-3P4-MDA-LP-NNNN-01V01	15 kW, 3 AC 380 ... 480 V, 50/60 Hz, 33 A	R912002615
FVCA01.1-18K5-3P4-MDA-LP-NNNN-01V01	18.5 kW, 3 AC 380 ... 480 V, 50/60 Hz, 39 A	R912002616
FVCA01.1-22K0-3P4-MDA-LP-NNNN-01V01	22 kW, 3 AC 380 ... 480 V, 50/60 Hz, 44 A	R912002617
FVCA01.1-30K0-3P4-MDA-LP-NNNN-01V01	30 kW, 3 AC 380 ... 480 V, 50/60 Hz, 60 A	R912002618
FVCA01.1-37K0-3P4-MDA-LP-NNNN-01V01	37 kW, 3 AC 380 ... 480 V, 50/60 Hz, 75 A	R912002619
FVCA01.1-45K0-3P4-MDA-LP-NNNN-01V01	45 kW, 3 AC 380 ... 480 V, 50/60 Hz, 95 A	R912002669
FVCA01.1-55K0-3P4-MDA-LP-NNNN-01V01	55 kW, 3 AC 380 ... 480 V, 50/60 Hz, 110 A	R912002670
FVCA01.1-75K0-3P4-MDA-LP-NNNN-01V01	75 kW, 3 AC 380 ... 480 V, 50/60 Hz, 152 A	R912002671
FVCA01.1-90K0-3P4-MDA-LP-NNNN-01V01	90 kW, 3 AC 380 ... 480 V, 50/60 Hz, 183 A	R912002672

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The data specified above only serve to describe the product. As our products are constantly being further developed, no statements concerning a certain condition or suitability for a certain application can be derived from our information. The information given does not release the user from the obligation of own judgment and verification.

It must be remembered that our products are subject to a natural process of wear and aging.