

FREQUENCY INVERTERS

■
Product Range
and
Technical Specification



MULTI - PURPOSE VECTOR CONTROLLED FREQUENCY INVERTER WITH TWO DRIVE MODES

Product Range

Model	Input voltage (V)	Rated output power (kW)*	Output current (A)	Input current (A)	Overload capacity (60 sec) (A)	Applicable motor (kW)
ADV 1.50 M420-M	3 phase 380V (-15...+20 %)	1.5/0.75	3.8/2.1	5/3.4	4.94/3.78	1.5/0.75
ADV 2.20 M420-M		2.2/1.5	5.1/3.8	5.8/5	6.63/6.84	2.2/1.5
ADV 4.00 M420-M		4/2.2	9/5.1	10.5/5.8	11.7/9.18	4/2.2
ADV 5.50 M420-M		5.5/4	13/9	14.6/10.5	16.9/16.2	5.5/4
ADV 7.50 M420-M		7.5/5.5	17/13	20.5/14.6	22.1/23.4	7.5/5.5
ADV 11.0 M420-M		11/7.5	25/20	26/22	32.5/36	11/7.5
ADV 15.0 M420-M		15/11	32/25	35/26	41.6/45	15/11
ADV 18.5 M420-M		18.5/15	37/32	38.5/35	48.1/57.6	18.5/15
ADV 22.0 M420-M		22/18.5	45/37	46.5/38.5	58.5/66.6	22/18.5
ADV 30.0 M420-M		30/22	60/45	62/46.5	78/81	30/22
ADV 37.0 M420-M		37/30	75/60	76/62	97.5/108	37/30
ADV 45.0 M420-M		45/37	90/75	92/76	117/135	45/37
ADV 55.0 M420-M		55/45	110/90	113/92	143/162	55/45
ADV 75.0 M420-M		75/55	152/110	157/113	197.6/198	75/55
ADV 90.0 M420-M		90/75	176/152	180/157	228.8/273.6	90/75
ADV 110 M420-M		110/90	210/176	214/180	273/316.8	110/90
ADV 132 M420-M		132/110	253/210	256/214	328.9/378	132/90
ADV 160 M420-M		160/132	304/253	307/256	395.2/455.4	160/132
ADV 185 M420-M		185/160	340/304	345/307	442/547.2	185/160
ADV 200 M420-M		200/185	380/340	385/345	494/612	200/185
ADV 220 M420-M		220/200	426/380	430/385	553.8/684	220/200
ADV 250 M420-M		250/220	465/426	468/430	604.5/766.8	250/220
ADV 280 M420-M		280/250	520/465	525/468	676/837	280/250
ADV 315 M420-M		315/280	585/520	590/525	760.5/936	315/280
ADV 355 M420-M		355/315	650/585	665/590	845/1053	355/315
ADV 400 M420-M		400/355	725/650	785/665	942.5/1170	400/355
ADV 450 M420-M		450/400	820/725	883/785	1066/1305	450/400
ADV 500 M420-M		500/450	900/820	920/883	1170/1476	500/450
ADV 550 M420-M	550/500	1000/900	1020/920	1300/1620	550/500	
ADV 630 M420-M	630/550	1100/1000	1120/1020	1430/1800	630/550	

Enhanced Control and Performance

*normal duty/heavy duty

- Starting torque: 180% at 0.5Hz (heavy duty mode); 120% at 0.5Hz (normal duty mode)
- Two methods of control: V/F curve control and vector control with open loop
- Precise speed control stability: open loop magnetic flux vector control $\leq \pm 0.5\%$ (rated sync-speed)
- Improved speed control stability: open loop magnetic flux vector control $\leq \pm 0.3$ (rated sync-speed)

Switchable Dual Rating Operation Mode: Normal Duty / Heavy Duty

This option allows user to selected and appropriate operating mode of frequency inverter that corresponds to load of induction motor. "Normal Duty" is an operation mode optimized for lighter type of loads such as pumping and ventilation applications. Overload capacity in "Normal Duty" mode is 150% for 3 sec and 130% for 60 sec. Capacity on continuous operation corresponds to inverter rated capacity. "Heavy Duty" mode is designed for heavy work applications. Capacity on continuous operation is one step down from inverter rated capacity. For this mode overload capacity is 180% for 3 sec and 150% for 60 sec.



Various functions

- Built-in Programmable Logic Controller
- PID Control Option
- Multi speed control with 16 step frequency selection

Protection of environment

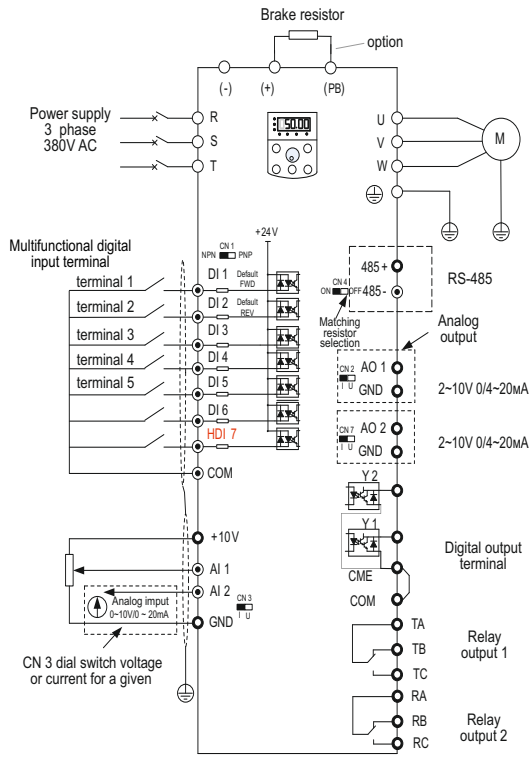
- Environmentally oriented design
- Improved ecological characteristics

Specification

	Items	M420 Series
	Power range	M420: 1.50 kW ~ 630 kW (normal duty) 0.75 kW ~ 550 kW (heavy duty)
Power supply	Rated voltage, frequency	380 V (3 phase) 50/60 Hz
	Voltage range	-15%...+20% of rated voltage
Control method		V/f control, Vector flux control
Basic function	Maximum frequency	600.00 Hz
	Input frequency resolution	Digital setting: 0.01 Hz, Analog setting: 0.1% of max output frequency
	Carrier frequency	1-15 kHz; the carrier frequency will be automatically adjusted according to the load characteristics
	Startup torque	0.5 Hz/120% (normal duty) 0.5 Hz/180% (heavy duty)
	Torque hoist	Automatic torque hoist, Manual torque hoist 0.1~30.0%
	Speed adjustment range	1:200 (open loop vector flux control)
	Torque response	≤40 ms (open magnetic flux vector control)
	Multi speed	16 segments speed (running via the simple PLC or control terminal)
	V/f curve	Linear V/f, Square V/f, Multi-point V/f
	Speed-up and Speed-down curve	Straight line or S curve speed-up and speed-down mode; two kinds of speed-up and speed-down time
	Acceleration/deceleration time	0.0~3000 sec
	DC brake	DC brake frequency: 0.00~400.00 Hz, Brake time: 0.0~36.0 sec, Brake current value: 0.0~100.0%
	Jog control	Jog frequency range: 0.00~50.00 Hz, Jog speed-up/speed-down time: 0.0~3000.0 sec
	PID control	Built-in
	RS-485 Interface	Standard RS-485 communication function (MODBUS)
Auto voltage regulation (AVR)	It can keep constant output voltage automatically in case of change of mains voltage	
Input	Analog	2
	Digital	5
Output	Analog	1
	Digital	1
	Relay	2
Protection/ Warning function	Overload	150%, 3 sec (normal duty), 180%, 3 sec (heavy duty)
	Over voltage	Yes
	Under voltage	Yes
	Other protections	Overheat, Short circuit, Over current, Phase loss protection (input/output), etc.
	Ambient temperature	10 °C ... +40 °C (derated when used in ambient temperature of +40 °C...+50 °C)
	Ambient humidity	Max. 95 % (non-condensing)
	Altitude	Lower than 1000 m
	Vibration	Max. 0.6 G
	Protective	IP20

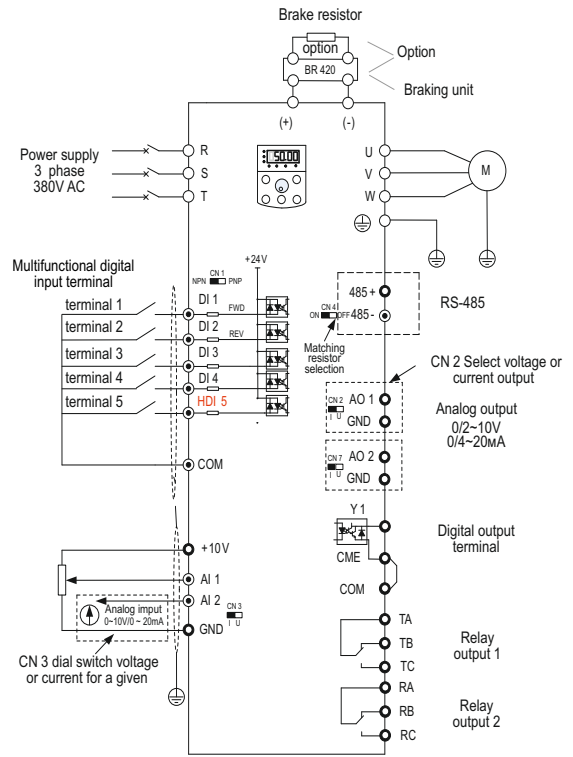
Basis Wiring Diagram

ADV 1.5 M420-M - ADV 18.5 M420-M



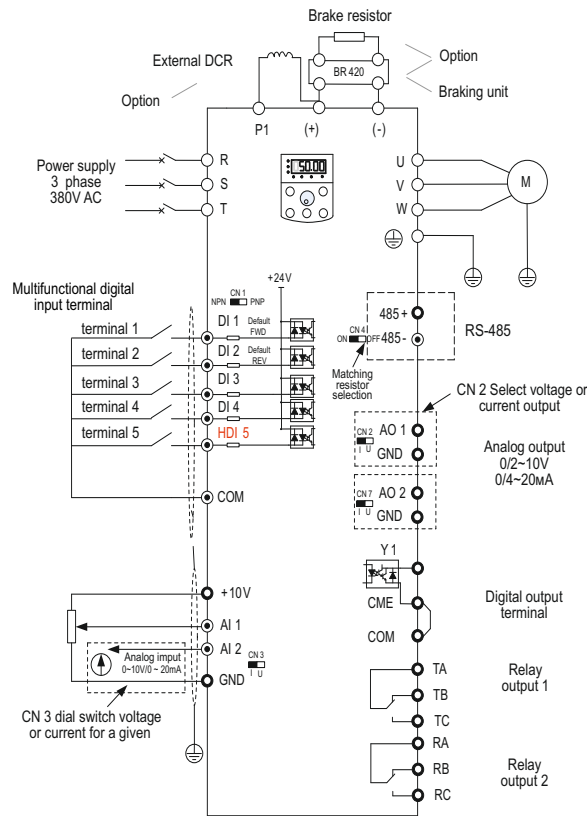
1.5kW - 18.5kW, 380V (3 phase)

ADV 22 M420-M - ADV 75 M420-M



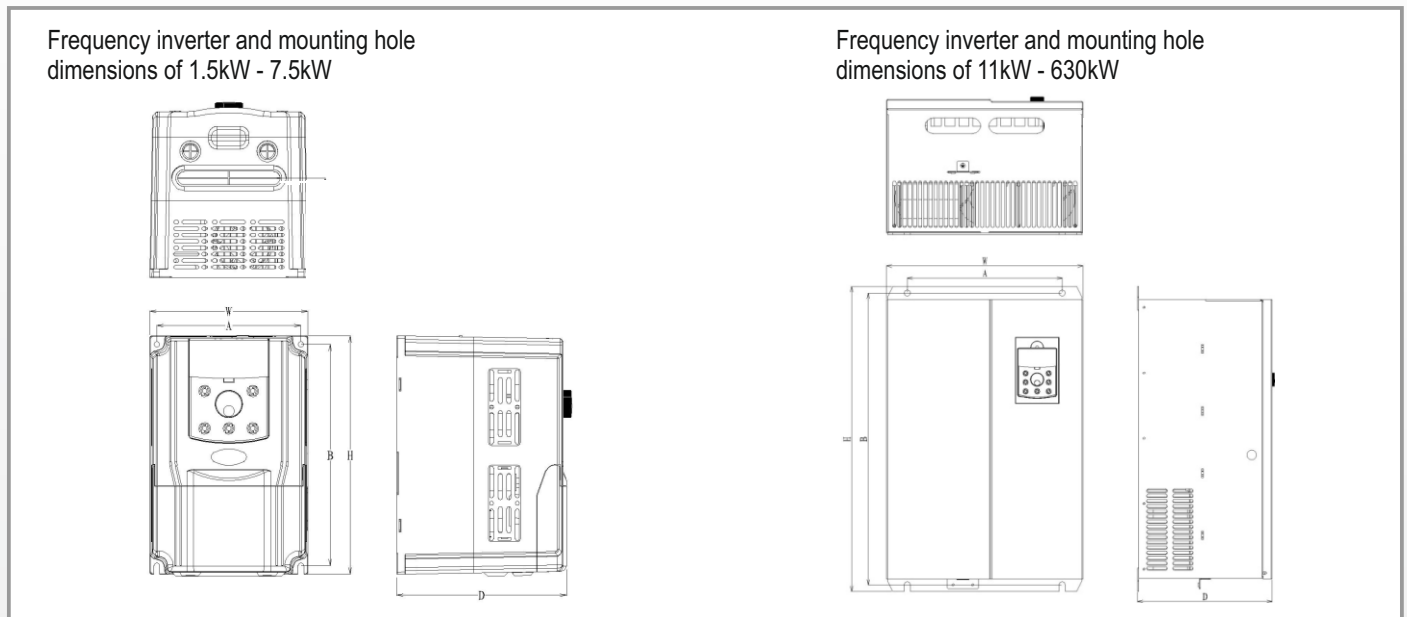
22kW - 75kW, 380V (3 phase)

ADV 90 M420-M - ADV 630 M420-M



90kW - 630kW, 380V (3 phase)

M420 series frequency inverter dimensions and mounting hole dimensions



M420 series frequency inverter dimensions and mounting hole dimensions (mm)

Model	Mounting hole		Frequency inverter dimensions			Diameter of mounting hole (mm)
	A (mm)	B (mm)	H (mm)	W (mm)	D(mm)	
ADV 1.50 M420-M	135	207	223	148	159	5.4
ADV 2.20 M420-M						
ADV 4.00 M420-M						
ADV 5.50 M420-M						
ADV 7.50 M420-M	150	226	238	162	165	5.4
ADV 11.0 M420-M	160	326	340	222	194	7
ADV 15.0 M420-M						
ADV 18.5 M420-M						
ADV 22.0 M420-M	200	460	485	260	230	10
ADV 30.0 M420-M						
ADV 37.0 M420-M						
ADV 45.0 M420-M						
ADV 55.0 M420-M	220	545	565	330	252	10
ADV 75.0 M420-M	300	563	588	380	266	12
ADV 90.0 M420-M	320	635	660	460	290	12
ADV 110 M420-M						
ADV 132 M420-M	340	845	875	475	305	12
ADV 160 M420-M						
ADV 185 M420-M						
ADV 200 M420-M	380	1066	1100	520	355	12
ADV 185 M420-M	370	855	890	520	355	12
ADV 200 M420-M						
ADV 220 M420-M	500	1320	1360	700	380	14
ADV 250 M420-M	500	1320	1360	700	380	14
ADV 280 M420-M						
ADV 315 M420-M						
ADV 355 M420-M						
ADV 400 M420-M	750	1300	1350	900	455	16
ADV 450 M420-M						
ADV 500 M420-M	-	-	1800	1060	500	-
ADV 550 M420-M						
ADV 630 M420-M						



Advanced Control[®], Advanced Systems Baltic OÜ

Punane 73, 13619 Tallinn, Estonia
Phone: +372 622 82 20, Fax: +372 622 82 21
Web: www.advcontrol.eu, e-mail: info@advcontrol.eu



Your regional representative



Subject to change without prior notice