MX2

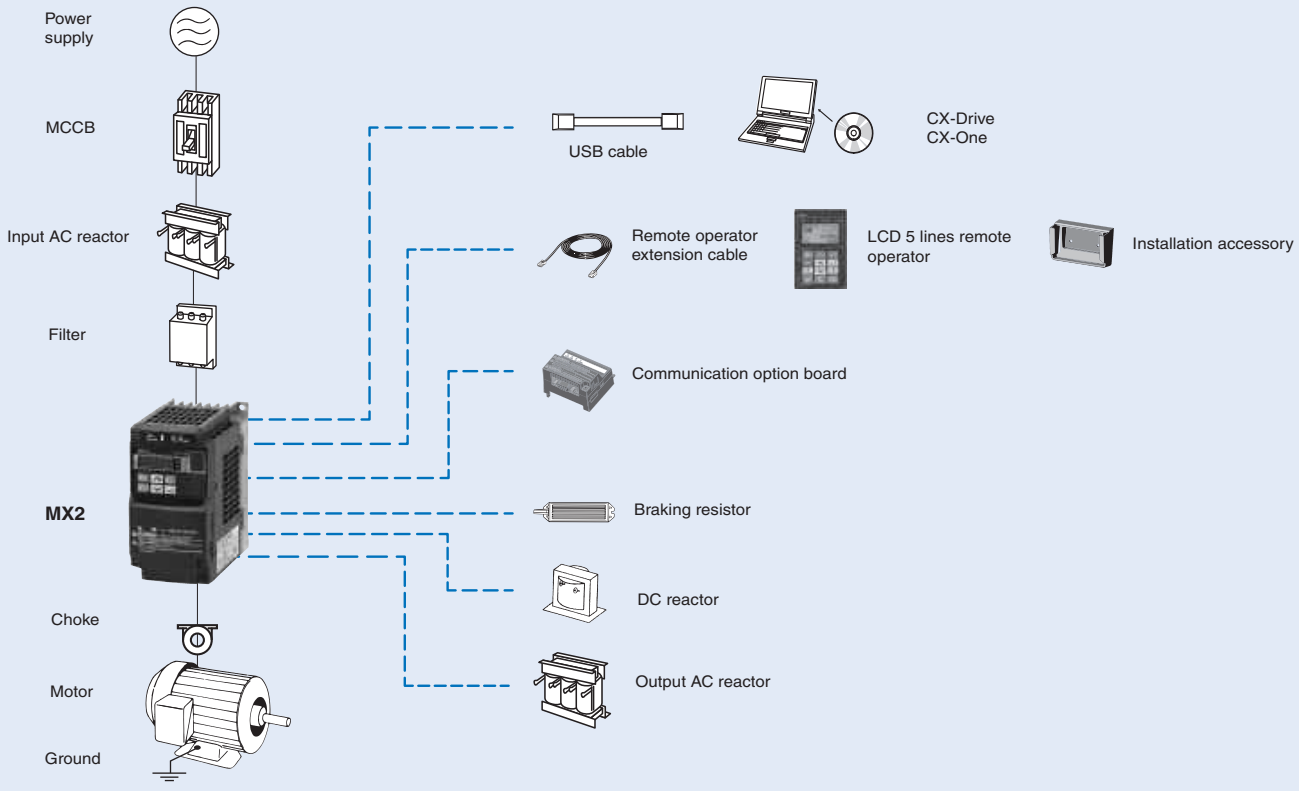
Born to drive machines

- Current vector control
- High starting torque: 200% at 0.5 Hz
- Double rating VT 120%/1 min and CT 150%/1 min
- IM & PM motor control
- Torque control in open loop vector
- Positioning functionality
- Built-in application functionality (i.e. Brake control)
- Built-in logic programing
- Safety embedded compliant with ISO13849-1 (double input circuit and external device monitor EDM)
- USB port for PC programming
- 24 VDC backup supply for control board
- Fieldbus communications: Modbus, DeviceNet, Profibus, CompoNet, EtherCAT, ML-II and EtherNet/IP
- PC configuration tool: CX-Drive
- RoHS, CE, cULus

Ratings

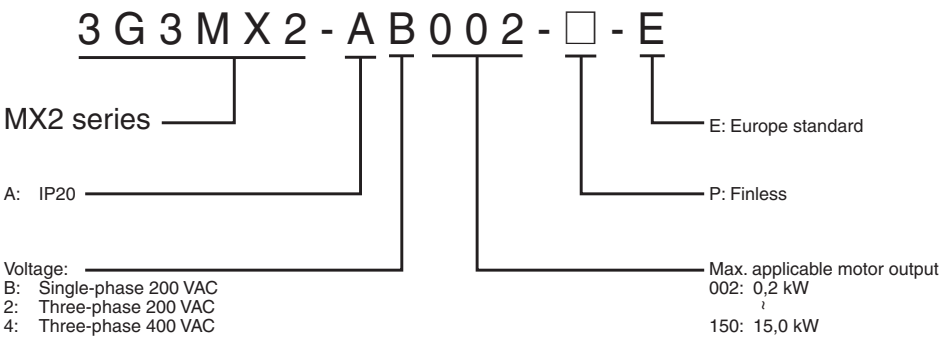
- 200 V Class single-phase 0.1 to 2.2 kW
- 200 V Class three-phase 0.1 to 15.0 kW
- 400 V Class three-phase 0.4 to 15.0 kW

System configuration



Specifications

Type designation



200 V class

Single-phase: 3G3MX2-□			B001	B002	B004	B007[1]	B015	B022	-	-	-	-	-
Three-phase: 3G3MX2-□			2001	2002	2004	2007	2015	2022	2037	2055	2075	2110	2150
Motor kW[2]	For VT setting		0.2	0.4	0.55	1.1	2.2	3.0	5.5	7.5	11	15	18.5
	For CT setting		0.1	0.2	0.4	0.75	1.5	2.2	3.7	5.5	7.5	11	15
Output characteristics	Inverter capacity kVA	200 VT	0.4	0.6	1.2	2.0	3.3	4.1	6.7	10.3	13.8	19.3	23.9
		200 CT	0.2	0.5	1.0	1.7	2.7	3.8	6.0	8.6	11.4	16.2	20.7
		240 VT	0.4	0.7	1.4	2.4	3.9	4.9	8.1	12.4	16.6	23.2	28.6
		240 CT	0.3	0.6	1.2	2.0	3.3	4.5	7.2	10.3	13.7	19.5	24.9
	Rated output current (A) at VT		1.2	1.9	3.5	6.0	9.6	12.0	19.6	30.0	40.0	56.0	69.0
	Rated output current (A) at CT		1.0	1.6	3.0	5.0	8.0	11.0	17.5	25.0	33.0	47.0	60.0
	Max. output voltage		Proportional to input voltage: 0..240 V										
	Max. output frequency		400 Hz										
Power supply	Rated input voltage and frequency		Single-phase 200..240 V 50/60 Hz 3-phase 200..240 V 50/60 Hz										
	Allowable voltage fluctuation		-15%..+10%										
	Allowable frequency fluctuation		5%										
Braking torque		At short-time deceleration At capacitor feedback	100%: <50Hz 50%: <60Hz				70%: <50Hz 50%: <60Hz	Approx 20%	-				
Cooling method			Self cooling				Forced-air-cooling						

1. Three phase model use forced-air-cooling but single phase model is self cooling.
2. Based on a standard 3-Phase standard motor.

400 V class

Three-phase: 3G3MX2-□			4004	4007	4015	4022	4030	4040	4055	4075	4110	4150
Motor kW[1]	For VT setting		0.75	1.5	2.2	3.0	4.0	5.5	7.5	11	15	18.5
	For CT setting		0.4	0.75	1.5	2.2	3.0	4.0	5.5	7.5	11	15
Output characteristics	Inverter capacity kVA	380 VT	1.3	2.6	3.5	4.5	5.7	7.3	11.5	15.1	20.4	25.0
		380 CT	1.1	2.2	3.1	3.6	4.7	6.0	9.7	11.8	15.7	20.4
		480 VT	1.7	3.4	4.4	5.7	7.3	9.2	14.5	19.1	25.7	31.5
		480 CT	1.4	2.8	3.9	4.5	5.9	7.6	12.3	14.9	19.9	25.7
	Rated output current (A) at VT		2.1	4.1	5.4	6.9	8.8	11.1	17.5	23.0	31.0	38.0
	Rated output current (A) at CT		1.8	3.4	4.8	5.5	7.2	9.2	14.8	18.0	24.0	31.0
	Max. output voltage		Proportional to input voltage: 0..480 V									
	Max. output frequency		400 Hz									
Power supply	Rated input voltage and frequency		3-phase 380..480 V 50/60 Hz									
	Allowable voltage fluctuation		-15%..+10%									
	Allowable frequency fluctuation		5%									
Braking torque		At short-time deceleration At capacitor feedback	100%: <50Hz 50%: <60Hz				70%: <50Hz 50%: <60Hz	-				
Cooling method			Self cooling		Forced-air-cooling							

1. Based on a standard 3-Phase standard motor.

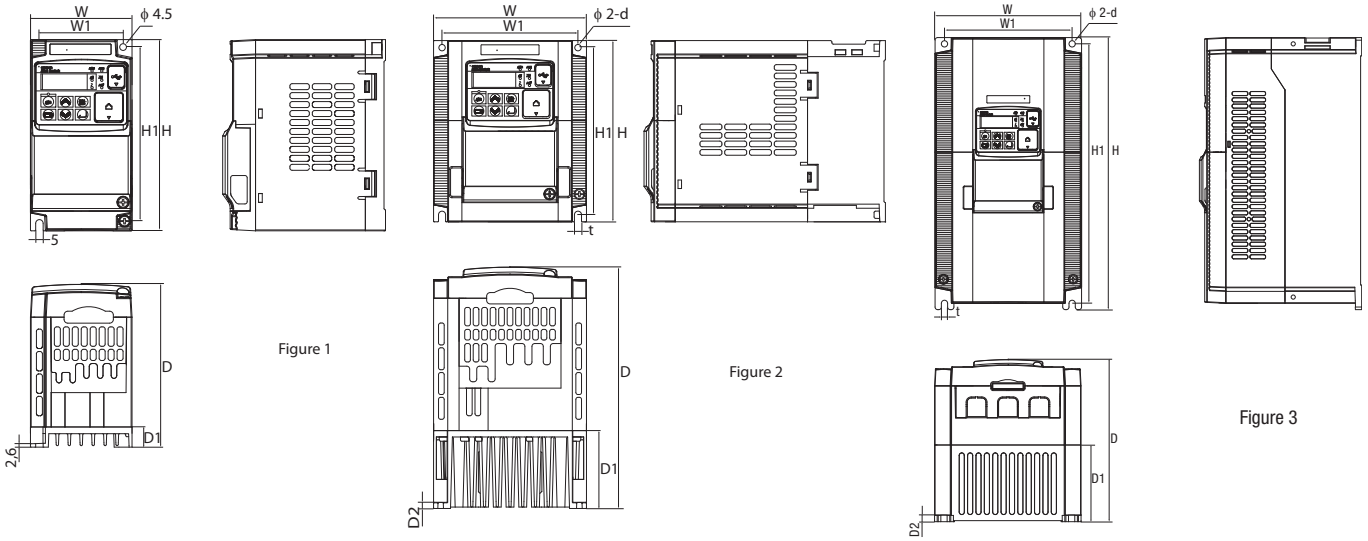
Specifications

Common specifications

Model number 3G3MX2		Specifications
Control functions	Control methods	Phase-to-phase sinusoidal pulse with modulation PWM (Sensorless vector control, V/F)
	Output frequency range	0.10..400.00 Hz
	Frequency precision	Digital set value: ±0.01% of the max. frequency
		Analogue set value: ±0.2% of the max. frequency (25 ±10ºC)
	Resolution of frequency set value	Digital set value: 0.01 Hz
		Analogue set value: 1/1000 of maximum frequency
	Resolution of output frequency	0.01Hz
	Starting torque	200% / 0.5 Hz
	Overload capability	Dual rating: Heavy duty (CT): 150% for 1 minute Normal Duty (VT): 120% for 1 minute
	Frequency set value	0 to 10 VDC (10 KΩ), 4 to 20 mA (100 Ω), RS485 Modbus, Network options
	V/f Characteristics	Constant/ reduced torque, free V/f
Functionality	Inputs signals	FW (forward run command), RV (reverse run command), CF1~CF4 (multi-stage speed setting), JG (jog command), DB (external braking), SET (set second motor), 2CH (2-stage accel./decel. command), FRS (free run stop command), EXT (external trip), USP (startup function), CS (commercial power switchover), SFT (soft lock), AT (analog input selection), RS (reset), PTC (thermistor thermal protection), STA (start), STP (stop), F/R (forward/reverse), PID (PID disable), PIDC (PID reset), UP (remote control up function), DWN (remote control down function), UDC (remote control data clear), OPE (operator control), SF1~SF7 (multi-stage speed setting; bit operation), OLR (overload restriction), TL (torque limit enable), TRQ1 (torque limit changeover1), TRQ2 (torque limit changeover2), BOK (Braking confirmation), LAC (LAD cancellation), PCLR (position deviation clear), ADD (add frequency enable), F-TM (force terminal mode), ATR (permission of torque command input), KHC (Cumulative power clear), MI1~MI7 (general purpose inputs for Drive Programming), AHD (analog command hold), CP1~CP3 (multistage-position switches), ORL (limit signal of zero-return), ORC (trigger signal of zero-return), SPD (speed/position changeover), GS1~GS2 (STO inputs, safety related signals), 485 (Starting communication signal), PRG (executing Drive Programming), HLD (retain output frequency), ROK (permission of run command), EB (rotation direction detection of B-phase), DISP (display limitation), OP (option control signal), NO (no function), PSET (preset position)
	Output signals	RUN (run signal), FA1~FA5 (frequency arrival signal), OL,OL2 (overload advance notice signal), OD (PID deviation error signal), AL (alarm signal), OTQ (over/under torque threshold), UV (under-voltage), TRQ (torque limit signal), RNT (run time expired), ONT (power ON time expired), THM (thermal warning), BRK (brake release), BER (brake error), ZS (0Hz detection), DSE (speed deviation excessive), POK (positioning completion), ODc (analog voltage input disconnection), OIDc (analog current input disconnection), FBV (PID second stage output), NDc (network disconnect detection), LOG1~LOG3 (Logic output signals), WAC (capacitor life warning), WAF (cooling fan warning), FR (starting contact), OHF (heat sink overheat warning), LOC (Low load), MO1~MO3 (general outputs for Drive Programming), IRDY (inverter ready), FWR (forward operation), RVR (reverse operation), MJA (major failure), WCO (window comparator O), WCOI (window comparator OI), FREF (frequency command source), REF (run command source), SETM (second motor in operation), EDM (STO (safe torque off) performance monitor), OP (option control signal), NO (no function)
	Standard functions	Free-V/f, manual/automatic torque boost, output voltage gain adjustment, AVR function, reduced voltage start, motor data selection, auto-tuning, motor stabilization control, reverse running protection, simple position control, simple torque control, torque limiting, automatic carrier frequency reduction, energy saving operation, PID function, non-stop operation at instantaneous power failure, brake control, DC injection braking, dynamic braking (BRD), frequency upper and lower limiters, jump frequencies, curve accel and decel (S, U, inversed U,EL-S), 16-stage speed profile, fine adjustment of start frequency, accel and decel stop, process jogging, frequency calculation, frequency addition, 2-stage accel/decel, stop mode selection, start/end freq., analog input filter, window comparators, input terminal response time, output signal delay/hold function, rotation direction restriction, stop key selection, software lock, safe stop function, scaling function, display restriction, password function, user parameter, initialization, initial display selection, cooling fan control, warning, trip retry, frequency pull-in restart, frequency matching, overload restriction, over current restriction, DC bus voltage AVR
	Analogue inputs	2 analogue inputs 0 to 10 V (10 KΩ), 4 to 20 mA (100 Ω)
	Pulse train input terminal	0 to 24 V, up to 32 kHz
	Accel/Decel times	0.01 to 3600.0 s (line/curve selection), 2nd accel/decel setting available
	Display	Status indicator LED's Run, Program, Alarm, Power, Hz, Amps
		Digital operator: Available to monitor 32 items: frequency reference, output current, output frequency...
Protection functions	Motor overload protection	Electronic Thermal overload relay and PTC thermistor input
	Instantaneous overcurrent	200% of rated current
	Overload	Dual rating: Heavy duty (CT): 150% for 1 minute Normal Duty (VT): 120% for 1 minute
	Overvoltage	800 V for 400 V type and 400 V for 200 V type
	Undervoltage	345 V for 400 V type and 172.5 V for 200 V type
	Momentary power loss	Following items are selectable: Alarm, decelerates to stop, decelerates to stop with DC bus controlled, restart
	Cooling fin overheat	Temperature monitor and error detection
	Stall prevention level	Stall prevention during acceleration/deceleration and constant speed
	Ground fault	Detection at power-on
	Power charge indication	On when power is supplied to the control part
Ambient conditions	Degree of protection	IP20
	Ambient humidity	90% RH or less (without condensation)
	Storage temperature	-20ºC..+65ºC (short-term temperature during transportation)
	Ambient temperature	–10°C to 50ºC (Both the carrier frequency and output current need to be reduced over 40ºC)
	Installation	Indoor (no corrosive gas, dust, etc.)
	Installation height	Max. 1000 m
	Vibration	5.9 m/s^2 (0.6G), 10 to 55 Hz

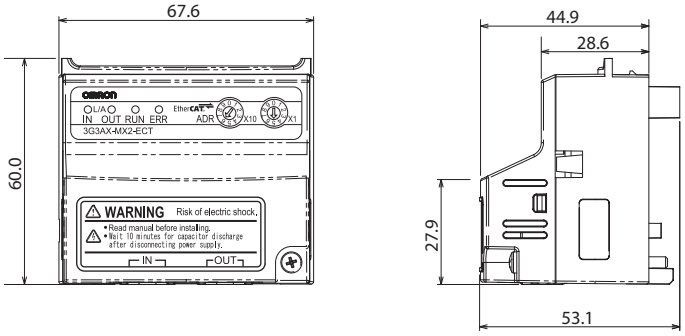
Dimensions

Standard models



Voltage class	Inverter model 3G3MX2-A□	Figure	Dimensions in mm									Weight (kg)
			W	W1	H	H1	t	D	D1	D2	d	
Single-phase 200 V	B001-E	1	68	56	128	118	-	109	13.5	-	-	1.0
	B002-E											1.0
	B004-E							122.5	27			1.1
	B007-E	2	108	96	128	118		170.5	55	4.4	4.5	1.4
	B015-E											1.8
	B022-E											1.8
Three-phase 200 V	2001-E	1	68	56	128	118	-	109	13.5	-	-	1.0
	2002-E											1.0
	2004-E							122.5	27			1.1
	2007-E							145.5	50			1.2
	2015-E	2	108	96	128	118		170.5	55	4.4	4.5	1.6
	2022-E											1.8
	2037-E	3	140	128	128	118	5	170.5	55	4.4		2.0
	2055-E		140	122	260	248	6	155	73.3	6	6	3.0
	2075-E											3.4
	2110-E		180	160	296	284	7	175	97	5	7	5.1
	2150-E		220	192	350	336			84			7.4
Three-phase 400 V	4004-E	2	108	96	128	118	-	143.5	28	-	-	1.5
	4007-E							170.5	55			1.6
	4015-E											1.8
	4022-E											1.9
	4030-E											1.9
	4040-E	3	140	128	128	118	5	170.5	55	4.4	4.5	2.1
	4055-E			122	260	248	6	155	73.3	6	6	3.5
	4075-E											3.5
	4110-E		180	160	296	284	7	175	97	5	7	4.7
	4150-E											5.2

Option board



Finless models

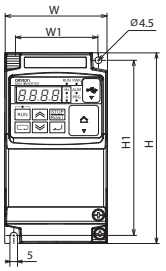


Figure 1

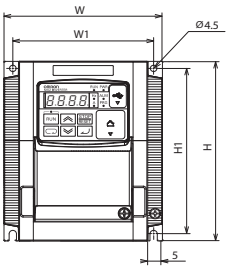


Figure 2

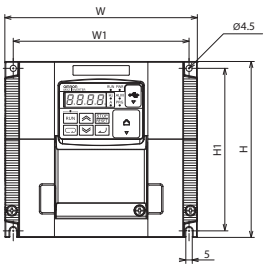
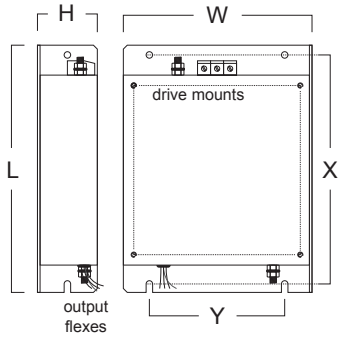


Figure 3

Voltage class	Inverter model 3G3MX2-A□	Figure	Dimensions in mm						
			W	W1	H	H1	D	D1	Weight (kg)
Single-phase 200 V	B001-P-E	1	68	56	128	118	103	7.5	1.1
	B002-P-E								
	B004-P-E								
	B007-P-E	2	108	96	128	118	123	7.5	1.8
	B015-P-E								
	B022-P-E								
Three-phase 200 V	2001-P-E	1	68	56	128	118	103	7.5	1.1
	2002-P-E								
	2004-P-E								
	2007-P-E								
	2015-P-E	2	108	96	128	118	123	7.5	1.8
	2022-P-E								
	2037-P-E	3	140	128	128	118	123	7.5	2.1
Three-phase 400 V	4004-P-E	2	108	96	128	118	123	7.5	1.8
	4007-P-E								
	4015-P-E								
	4022-P-E								
	4030-P-E								
	4040-P-E	3	140	128	128	118	123	7.5	2.1

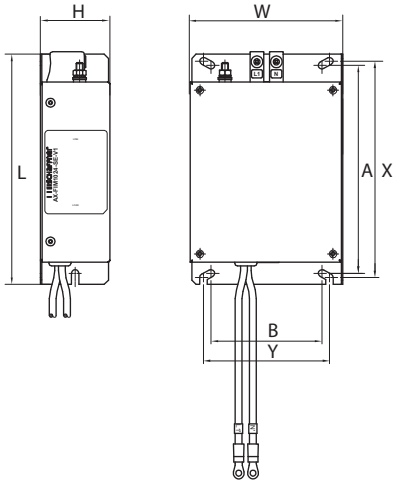
Rasmi footprint filters

Rasmi model		Dimensions					
		W	H	L	X	Y	M
1x200 V	AX-FIM1010-RE□	71	45	169	156	51	M4
	AX-FIM1014-RE□	111	50	169	156	91	M4
	AX-FIM1024-RE□	111	50	169	156	91	M4
3x200 V	AX-FIM2010-RE□	82	50	194	181	62	M4
	AX-FIM2020-RE□	111	50	169	156	91	M4
	AX-FIM2030-RE□	144	50	174	161	120	M4
	AX-FIM2060-RE□	150	52	320	290	122	M5
	AX-FIM2080-RE□	188	62	362	330	160	M5
	AX-FIM2100-RE□	220	62	415	380	192	M6
3x400 V	AX-FIM3005-RE□	114	46	169	156	91	M4
	AX-FIM3010-RE□	114	46	169	156	91	M4
	AX-FIM3014-RE□	144	50	174	161	120	M4
	AX-FIM3030-RE□	150	52	306	290	122	M5
	AX-FIM3050-RE□	182	62	357	330	160	M5



Schaffner footprint filters

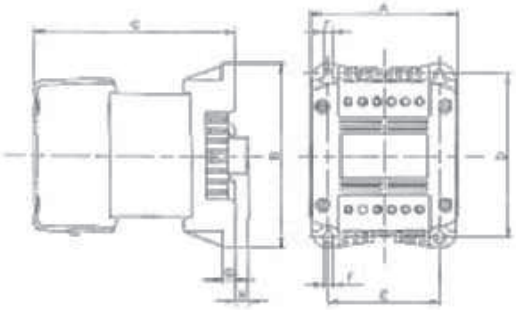
Schaffner model		Dimensions							
		W	H	L	X	Y	A	B	M
1x200 V	AX-FIM1010-SE□	70	40	166	156	51	150	50	M5
	AX-FIM1014-SE□	110	45	166	156	91	150	80	M5
	AX-FIM1024-SE□	110	50	166	156	91	150	80	M5
3x200 V	AX-FIM2010-SE□	80	40	191	181	62	150	50	M5
	AX-FIM2020-SE□	110	50	166	156	91	150	80	M5
	AX-FIM2030-SE□	142	50	171	161	120	150	112	M5
	AX-FIM2060-SE□	140	55	304	290	122	286	112	M5
	AX-FIM2080-SE□	180	55	344	330	160	323	140	M5
	AX-FIM2100-SE□	220	65	394	380	192	376	180	M5
3x400 V	AX-FIM3005-SE□	110	50	166	156	91	150	80	M5
	AX-FIM3010-SE□	110	50	166	156	91	150	80	M5
	AX-FIM3014-SE□	142	50	171	161	120	150	112	M5
	AX-FIM3030-SE□	140	55	304	290	122	286	112	M5
	AX-FIM3050-SE□	180	55	344	330	160	323	140	M5



Input AC Reactor

Single-phase

Voltage	Reference	Dimensions								Weight kg
		A	B	C	D	E	F	G	H	
200 V	AX-RAI02000070-DE	84	113	96	101	66	5	7.5	2	1.22
	AX-RAI01700140-DE	84	113	116	101	66	5	7.5	2	1.95
	AX-RAI01200200-DE	84	113	131	101	66	5	7.5	2	2.55
	AX-RAI00630240-DE	84	113	116	101	66	5	7.5	2	1.95



Three-phase

Voltage	Reference	Dimensions						Weight kg
		A	B2	C2	D	E	F	
200 V	AX-RAI02800080-DE	120	70	120	80	52	5.5	1.78
	AX-RAI00880200-DE	120	80	120	80	62	5.5	2.35
	AX-RAI00350335-DE	180	85	190	140	55	6	5.5
	AX-RAI00180670-DE	180	85	190	140	55	6	5.5
400 V	AX-RAI07700050-DE	120	70	120	80	52	5.5	1.78
	AX-RAI03500100-DE	120	80	120	80	62	5.5	2.35
	AX-RAI01300170-DE	120	80	120	80	62	5.5	2.50
	AX-RAI00740335-DE	180	85	190	140	55	6	5.5