

Chapter 7 SPECIFICATIONS

7.1 Standard Model

Three-phase 400 V class series

Item		Specifications												
Type (FRN_ _ _AR1■-4□)	*1	0.75	1.5	2.2	3.7 (4.0)*6	5.5	7.5	11	15	18.5	22	30	37	
Nominal applied motor (kW)	*2	0.75	1.5	2.2	3.7 (4.0)*6	5.5	7.5	11	15	18.5	22	30	37	
Output ratings	Rated capacity (kVA)	1.9	3.1	4.1	6.8	10	14	18	24	29	34	45	57	
	Rated capacity (kW)	0.75	1.5	2.2	4.0	5.5	7.5	11	15	18.5	22	30	37	
	Rated current (A)	*3	2.5	4.1	5.5	9.0	13.5	18.5	24.5	32	39	45	60	75
	Overload capability	110%-1 min (Overload interval: Compliant with IEC/EN 61800-2)												
Input power	Allowable voltage/frequency	Voltage: +10 to -15% (Interphase voltage unbalance: 2% or less) *7, Frequency: +5 to -5%												
	Rated current (A)	*4	1.6	3.0	4.3	7.4	10.3	13.9	20.7	27.9	34.5	41.1	55.7	69.4
	Required capacity (kVA)		1.2	2.1	3.0	5.2	7.2	9.7	15	20	24	29	39	49
EMC filter (IEC/EN 61800-3: 2004)		Compliant with EMC Directives, Emission and Immunity: Category C2 (2nd Env.)												
DC reactor (DCR)	*5	Built-in (IEC/EN 61000-3-2, IEC/EN 61000-3-12)												
Power factor (at the rated load)	Fundamental wave power factor	> 0.98												
	Total power factor	≥ 0.90												
Efficiency (at the rated load) (%)		95	96	96	96	97	96	97	97	97	97	97	97	
Cooling method		Fan cooling												
Weight / Mass (kg)	IP21	10	10	10	10	10	10	18	18	18	18	23	23	
	IP55	10	10	10	10	10	10	18	18	18	18	23	23	
Environmental Requirements	Site location	Indoors												
	Surrounding temperature	IP00/ IP21	-10 to +50°C											
		IP55	-10 to +40°C											
	Relative humidity	5 to 95% (No condensation)												
	Atmosphere	The inverter must not be exposed to dust, direct sunlight, corrosive gases, flammable gases, oil mist, vapor or water drops. Pollution degree 2 (IEC/EN 60664-1) *8 The atmosphere can contain a small amount of salt. (0.01 mg/cm ² or less per year) The inverter must not be subjected to sudden changes in temperature that will cause condensation to form.												
	Altitude	1,000 m max. *9												
	Atmospheric pressure	86 to 106 kPa												
Vibration	3 mm 2 to less than 9 Hz 10 m/s ² 9 to less than 200 Hz													

*1 A box (■) replaces an alphabetic letter depending on the enclosure. A box (□) replaces an alphabetic letter depending on the shipping destination.

*2 Fuji 4-pole standard motor

*3 When running the inverter at the carrier frequency 4 kHz or above, it is necessary to derate the current rating.

*4 When the inverter is connected to the power supply of 400 V, 50 Hz, R_{sce} = 120.

*5 A DC reactor (DCR) is built in the inverter. No external DCR can be attached.

*6 4.0 kW for the EU.

*7 Voltage unbalance (%) = $\frac{\text{Max. voltage (V)} - \text{Min. voltage (V)}}{\text{Three - phase average voltage (V)}} \times 67$ (IEC/EN 61800 - 3)

If this value is 2 to 3%, use an optional AC reactor (ACR). Even if the voltage drops down to -20%, the inverter can run (operation guaranteed) provided that the load current is within the inverter rated current range.

*8 Do not install the inverter in an environment where it may be exposed to lint, cotton waste or moist dust or dirt which will clog the heat sink of the inverter. If the inverter is to be used in such an environment, install it in a dustproof panel of your system.

*9 If you use the inverter in an altitude above 1000 m, you should apply an output current derating factor as listed in the table below.

Altitude	1000 m or lower	1000 to 1500 m	1500 to 2000 m	2000 to 2500 m	2500 to 3000 m
Output current derating factor	1.00	0.97	0.95	0.91	0.88

7.2 External Dimensions

Rated voltage	Inverter type	Dimensions (mm)							
		Figure A			Figure B				
		W	H	D	W1	H1	H2	φA	W2
Three-phase 400V	FRN0.75AR1■-4□	150	465	262	115	451	7	8	8
	FRN1.5AR1■-4□								
	FRN2.2AR1■-4□								
	FRN3.7AR1■-4□								
	FRN4.0AR1■-4E*								
	FRN5.5AR1■-4□								
	FRN7.5AR1■-4□								
	FRN11AR1■-4□	203	585	262	158	571			
	FRN15AR1■-4□								
	FRN18.5AR1■-4□								
	FRN22AR1■-4□								
	FRN30AR1■-4□								
FRN37AR1■-4□	645						631		

* 4.0 kW for the EU. The inverter type is FRN4.0AR1■-4E.

Note A box (■) replaces an alphabetic letter depending on the enclosure.
A box (□) replaces an alphabetic letter depending on the shipping destination.

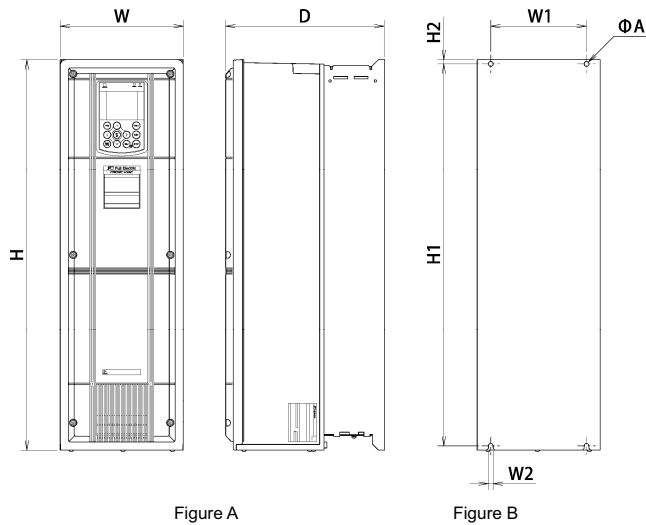


Figure A Figure B
External Dimensions of the Inverter (Typical)