

Technical data

Mains connection						
Voltage and power range	1-phase, 200 to 240 V, +10%/-15%					
	1/3 to 3 Hp					
	3-phase, 200 to 240 V, +10%/-15%					
	1/2 to 15 Hp					
	3-phase, 380 to 480 V, +10%/-15%					
	1/2 to 30 Hp					
Frequency	50/60 Hz ± 5%					
Common DC connection						
DC voltage level	-1 & 2 types 270 to 325 V ±10%					
	-4 types 485 to 620 V ±10%					
Charging circuit	Internal charging circuit					
Motor connection						
Voltage	0 to U_N , 3-phase					
Frequency	0 to 599 Hz					
Motor control	Scalar control					
	Vector control					
Switching frequency	1 to 12 kHz, default 4 kHz					
Dynamic braking	Flux braking (moderate or full)					
	Resistor braking (optional)					
Motor control performance						
Speed control performance, open loop						
Static accuracy	20% of motor rated slip					
Dynamic accuracy	1% _s with 100% torque step					
Speed control performance, closed loop						
Static accuracy	0.1% of motor rated speed					
Dynamic accuracy	<1% _s with 100% torque step					
Torque control performance						
Torque step rise time	< 10 ms, rated torque step					
Non-linearity	±5% with rated torque					
Braking power connection						
Brake chopper	Built-in brake chopper as standard					
Brake resistor	External resistor connected to drive					
Free space requirements						
Frame size	Free space requirements					
	Above		Below		On the sides ¹⁾	
	in	mm	in	mm	in	mm
R0-R4	3	75	3	75	0	0

¹⁾ Drives can be mounted side by side with no clearance. If side-mounted options will be used, leave .8 inches (20 mm) of space to the right of the drive.

Functional safety	
Built-in safety features	Safe torque off (STO) acc. to EN/IEC61800-5-2: IEC61508 ed2: SIL 3, IEC 61511: SIL 3, IEC 62061: SIL CL 3, EN ISO 13849-1: PL e
Environmental limits	
Ambient temperature	
Transportation and storage	-40 to +70 °C (-40 to +158 °F)
Operation	-10 to +50 °C (14 to 122 °F), no frost with derating up to 60 °C (except R0, which has max temperature of 50 °C)
Cooling method	Air-cooled, dry clean air
Altitude	0 to 4000 m, (0 to 13000 ft) for 400 V units (see allowed power systems in HW manual)
	0 to 2000 m, (0 to 6600 ft) for 200 V units derating above 1000 m (3300 ft)
Relative humidity	5 to 95%, no condensation allowed
Degree of protection	IP20 as standard
Contamination levels	No conductive dust allowed
Storage	IEC 60721-3-1, Class 1C2 (chemical gases)
	Class 1S2 (solid particles)
Transportation	IEC 60721-3-2, Class 2C2 (chemical gases)
	Class 2S2 (solid particles)
Operation	IEC 60721-3-3, Class 3C2 (chemical gases)
	Class 3S2 (solid particles)
Product compliance	
CE	
Low Voltage Directive 2006/95/EC, EN 61800-5-1: 2007	
Machinery Directive 2006/42/EC, EN 61800-5-2: 2007	
EMC Directive 2004/108/EC, EN 61800-3: 2004 + A1: 2012	
UL, cUL certification - file E211945	
TUV Certification for functional safety	
Quality assurance system ISO 9001	
Environmental system ISO 14001	
Waste electrical and electronic equipment directive (WEEE) 2002/96/EC	
RoHS directive 2011/65/EU	
EAC	