

The following table offers a comparison of the features and attributes of Rotary Converters to the use of a Variable Frequency Drive (VFD) or Inverter to supply 3 Phase Power in locations where Grid supplied 3 Phase is not available.

Feature	Differentiation	How	Impact	Trifasic Developments 3 Phase Rotary Converter	VFD with Single Phase Input and 3 Phase Output
100% Duty Cycle	Specifically designed for constant commercial class use.	Innovative design with over-rated high quality components and proven control technology	Can run 24/7/365 @ full load	Yes, standard.	VFD may need to be oversized if they are under constant heavy load.
High Reliability	>10 year MTBF	High quality components, design and build. Special power capacitor configuration to prevent failures. Efficient passive cooling thermal design. Solid state internal switching No superfluous/non-critical components in the circuit path.	Can be used in critical operations, in remote areas and in harsh/hot environments with confidence	Yes, standard.	VFD reliability can be limited by Electrolytic Capacitors used in their 240V to 415V voltage uplift stage. Active cooling by a fan can also reduce reliability if applicable
Serviceability	In-situ service restoration if required	Converter designed for service access and repair by qualified Electricians as necessary with local engineering support and guidance.	In the unlikely event of a failure, rapid service restoration without unit replacement or installation re-wiring can occur.	Yes, standard.	VFDs are typically not field serviceable. A failure would require workshop services or a replacement unit.
Multi machine use	Dedicated per-machine solution not required	Converters are sized based on the maximum demand of the location. E.g. maximum capacity and number of 3 phase machines used concurrently. Any number of loads may be connected.	Many 3 phase machines can be connected simultaneously in a workshop/factory/farm setting with capacity determined by concurrent operations.	Yes, standard.	A VFD cannot be used to operate >1 machine and must be permanently wired to that one machine's main motor.
Multi Motor Machine support	No control wiring changes needed to operate machines such as precision grinders, lathes, milling machines and woodwork combinations that often incorporate multiple 3 phase motors.	All connected loads operate identically to when connected to mains 3 phase power.	Any machine, no matter how many 3 phase motors it may incorporate, can be connected (subject to adequate kW capacity alone).	Yes, standard.	One VFD can only operate one or one set of connected motors. Independent control of multiple motors requires multiple VFDs

Simple Machine and/or Single Motor Support	Any motor or other 3 phase load can be connected and will operate safely at its rated performance.	There are viable alternatives for operating a single 3 phase induction motor from a single phase supply. However, only Trifasic Developments Rotary Converters support all load types including Resistive loads.	A customer is free to connect any existing or future 3 phase equipment.	A Rotary Converter may not be the least cost solution to operate just one 3 phase induction motor.	A VFD can be a great solution for operating a machine such as a wood lathe, table saw or centrifugal pump with just one motor and limited control circuits.
Complex control circuit support	Machines/applications involving magnetic contactors and controls for Start, Stop, Reverse, Jog, Fast/Slow Traverse, Emergency Electromagnetic Braking, etc. all operate as designed without any changes (irrespective of whether control circuits operate at 415V or 240V).	All machines along with their native control circuits operate identically to when connected to mains 3 phase power.	Any machine, no matter how complex or sophisticated (or "old school") its control circuits may be, can be supported without constraint or electrical changes.	Yes, standard.	Machines with switching control over their motor cannot be connected to a VFD without modification. Full machine control would need to be re-designed and implemented based on the control circuit inputs supported on the particular VFD unit used.
Broad Range of Capacity Options	4 Kw (5 HP) through to very high capacity Rotary Converter systems	The power capacity of units is determined based on customer need and availability of input power supply (voltage and current)	The size/capacity of a machine or equipment need no longer be constrained by access to mains 3 phase power which is often the case in outer suburban, regional and remote areas	4kW, 8kW, 12kW, 16kW.... Up to 48kW and beyond.	VFDs with electronic voltage step-up are manufactured to match 3 phase induction motor power increments from 1.5 kW to 11 kW
100% pure sine wave 3 phase power at true 120° phase angle	No synthesised AC wave forms (VFD).	Combination of innovative power electronics, heavy duty components and integral 3 phase motor/generator	Load machines operate to their specifications with no excess heat, noise or reduced service life.	Yes, standard.	3 Phase Induction motors not specifically designed for use with a VFD can produce excessive noise. Reprogramming the VFD to reduce it is possible but this results in reduced motor bearing service life.
Hard Starts	Fully capable of starting load motors under mechanical load.	3 x full load run current can be delivered for min 5 sec to start difficult loads.	Required capability for air compressors, large band saws and high head positive displacement water pumps etc.	Yes, standard.	VFDs are not well suited to hard start applications. They will typically halt with an overload fault.
Balanced Supply Voltages	Semi symmetrical to precise voltage symmetry solutions are available.	Graduated power electronics internals selectable to suit application and budget.	Simple induction motor loads such as a table saw or a centrifugal pump through to demanding loads such as	Converter type selected based on the voltage symmetry requirements	Yes, VFD output voltages are symmetrical phase to phase.

			IT equipment and precision CNC machinery.	of the customer's application(s).	
Flexible Installation	Customer driven options	Input voltage and wiring methods (Plug in or hard wired), wall mount or floor standing.	Solutions can be provided to meet specific application, constraints and preferences.	Customer driven	A VFD must be installed in a ventilated electrical enclosure on or very near the particular machine/motor it is to operate. Any and all controls including Start/Stop must be implemented direct to the VFD unit. (No magnetic contactors)
Electrical Safety	Compliant and Certified	Units equipped with mechanically interlocked isolator preventing service access while live. Supplied with test report signed off by ESV A Grade licensee.	Assured electrical safety at commissioning and on-going safe operations. (Installation and any fixed wiring by qualified electrician.)	Subject to installation practice to code.	Subject to installation practice to code.
Optional Wireless Control with bypass	Convenient and efficient day to day operations. Bypass via plugs/sockets in case of fault.	Radio interference protected 433 MHz wireless dual channel control unit with optional 3 phase power monitoring and display.	Activate 3 phase power as required from anywhere in range (100 m). Start a complementary machine remotely (E.g. Activate 3 phase power + start a dust extractor).	Available option	Bespoke development

