

## ROTARY CONVERTERS RT and MT



In a home workshop, farm, garage or small business environment there is often a requirement for the operation of machinery driven by three phase induction motors where only a single phase electricity supply is available.

The TRANSWAVE Converter provides an artificial means by which a three-phase motor can be operated from a single-phase supply thereby offering a cost-effective solution to this dilemma. In most instances, no modification to the machine is necessary.

The Rotary Converter is particularly suited to the multi-motor, multi-operator environment. Multi-motor applications can be accommodated up to the maximum loading of the converter provided that the specified maximum single motor load is not exceeded.

The Rotary Converter is often operated in conjunction with machine tools, however it is also suitable for applications where equipment has a heavy starting load or is subjected to an abnormal surge current. Vehicle Hoists, Compressors, Pumps and Extractor Fans fall into this latter category. It should be noted that converters are designed for applications with a cyclic duty. Please seek advice for continuous duty applications.

Currently, eleven sizes of Rotary Converter are available designed to operate single motor loads up to 18.5kW (25hp) and multi-motor loads up to 22.0kW (30hp). For applications with single motors in excess of 18.5kW (25hp) or combinations of motors in excess of 22kW (30hp) please seek further advice.

A Static Converter can also be considered for single motor applications. This style of converter is typically used in a single operator environment where only one machine is used at a time. Please consult the Static Converter sales leaflet.

All TRANSWAVE Converters automatically control the motor starting surge, maintaining the surge until the motor has attained its full running speed irrespective of time taken. The Rotary Converter establishes an artificial three-phase supply independently of the driven machine/load. The converter has no minimum load, however there is a maximum single motor load that should not be exceeded for starting reasons.

The RT and MT converter outputs take the form of an industrial-style socket/plug (three-phase, neutral and earth). The output neutral facilitates the use of 240-volt control circuits and small auxiliary loads. The use of a three-phase distribution board or similar is recommended for multi-motor applications requiring more than one output from the converter.

Any number of motors can be operated simultaneously from the Rotary Converter provided the converter rating is not exceeded, either on a single motor or multi-motor basis. Regulation of output power is automatic. The operator does not have to regulate the power level to suit the particular motor in circuit as would be necessary with a Static Converter. Anomalies associated with the use of a Static Converter relating to fractional horsepower motors, multi-speed motors and sequential starting do not apply to the Rotary Converter.

#### TECHNICAL DATA

**The converter offers no inherent overload protection to either the circuit cable or the driven machinery. Adequate overload protection for both the motors in the driven machinery and the supply circuit to the converter is the responsibility of the customer. The customer should also ensure that the electricity system and cable supplying the converter is of sufficient capacity to allow the motor to start without causing undue supply disturbances as a consequence of voltage drop.**

ROTARY CONVERTER Part Number	ROTARY CONVERTER Minimum Load Single Motor	ROTARY CONVERTER Maximum Load Single Motor	ROTARY CONVERTER Maximum Load Multi Motor	SINGLE PHASE SUPPLY 220/240V Fuse or Circuit Breaker	SINGLE PHASE SUPPLY 220/240V Cable*
MT-1.1KW	No Minimum	0.75kW/1hp	1.1kW/1.5hp	13A	2.5mm
MT-1.5KW	No Minimum	1.1kW/1.5hp	1.5kW/2.0hp	13A	2.5mm
MT-2.2KW	No Minimum	1.5kW/2.0hp	2.2kW/3.0hp	20A	2.5mm
RT-3.0KW	No Minimum	2.2kW/3.0hp	3.0kW/4.0hp	25A	4.0mm
RT-4.0KW	No Minimum	3.0kW/4.0hp	4.0kW/5.5hp	25A	4.0mm
RT-5.5KW	No Minimum	4.0kW/5.5hp	5.5kW/7.5hp	32A	4.0mm
RT-7.5KW	No Minimum	5.5kW/7.5hp	7.5kW/10.0hp	40A	6.0mm
RT-11KW	No Minimum	7.5kW/10.0hp	11.0kW/15.0hp	60A	10.0mm
RT-15KW	No Minimum	11.0kW/15.0hp	15.0kW/20.0hp	80A	16.0mm
RT-18.5KW	No Minimum	15.0kW/20.0hp	18.5kW/25.0hp	100A	25.0mm
RT-22KW	No Minimum	15.0Kw/20.0hp	22.0kW/30.0hp	120A	25.0mm

\*Minimum cable size for run of up to 20 metres. For longer cable runs consult current edition of BS7671/AS300 amendment 2.

The full load running current (flc) of an induction motor operating on a single-phase supply is approximately 4 amps per hp. When operated in conjunction with a TRANSWAVE Converter, the starting current of a three-phase motor is limited to approximately 3 times its flc. This is significantly lower than the motor starting current of an equivalent sized single-phase motor, which would typically draw between 6-8 times its flc.

As the starting characteristics of a three-phase motor supplied by a converter are similar in nature to Star/Delta starting on a three-phase supply, significant reductions in starting torque are experienced when compared with direct on line starting on a three-phase supply.

Generally, when machinery is operated in conjunction with a TRANSWAVE Converter direct on line starting is recommend. For machinery fitted with a Star/Delta starter, the period in the star connection should be set as short as possible to ensure a successful start. This is not the case when machinery is operated on a mains three-phase supply.

## WARRANTY

Power Capacitors Limited (PCL) is prepared to offer a 21 day no obligation money back guarantee (carriage excluded) on condition that the converter is returned to PCL in a state fit for resale. The TRANSWAVE converter is covered by a **36-month parts warranty** against failure due to faulty manufacture, further details of which are available on request.

## DIMENSIONS

Rotary Converter Style	Rotary Converter Rating	Height mm	Width Mm	Depth mm	Weight kg
MT	1.1kW/01.5hp	350	510	350	45
MT	1.5kW/02.0hp	350	510	350	45
MT	2.2kW/03.0hp	350	510	350	50
RT	3.0kW/04.0hp	430	380	510	70
RT	4.0kW/05.5hp	430	380	510	70
RT	5.5kW/07.5hp	430	380	510	75
RT	7.5kW/10.0hp	460	405	585	90
RT	11.0kW/15.0hp	460	405	585	90
RT	15.0kW/20.0hp	460	530	635	120
RT	18.5kW/25.0hp	460	530	635	125
RT	22.0kW/30.0hp	460	530	635	130

## PROVEN EXAMPLES OF EQUIPMENT OPERATED IN CONJUNCTION WITH TRANSWAVE ROTARY CONVERTERS

### WOODWORKING MACHINERY

Saws: Circular; Band; Re-saws; Rip; Cross-Cut; Panel; Wall; Radial-Arm; Surface Planers; Planer/Moulders; Feed Units; Planer/Thicknessers; Four-Sided Planers; Spindle Moulders; Single-End Tenoners; Chisel Mortisers; Chain Mortisers; Woodturning Lathes; Copy Lathes (Electronic); Copy Lathes (Hydraulic); Sanders: Single-Belt; Wide-Belt; Speed; Pad; Disc; Edge & Profile; Routers; Borers; Multi-Borers; Edgbanders\*.

### METALWORKING MACHINERY

Lathes; Milling Machines; Pedestal Drills; Surface Grinders; Band Saws; Power Hacksaws; Polishers; Shapers; Deburring Machines; Guillotines; Metalworkers; Power Presses.

### AGRICULTURAL & HORTICULTURAL MACHINERY

Produce Conveyors; Grading Equipment; Rolling Mill/Mixing Equipment; Potting/Compost Machinery.

### GARAGE EQUIPMENT & MISCELLANEOUS APPLICATIONS

Compressors; Vehicle Hoists (Electro-Mechanical & Hydraulic); Brake Testing Equipment; Spray Booths; Printing Presses; Guillotines; Cutting Presses; Wine Presses; Looms & Weaving Machinery; Pugmills; Shoe Repair Machinery; Window Making Machinery; Glass & uPVC Cutting Machinery; Masonry Saws; Food Processing Equipment; Welding Equipment \*. (\* Modification necessary to converter or machine)

TRANSWAVE Converters are manufactured by Power Capacitors Limited, 30 Redfern Road, Tyseley, Birmingham B11 2BH

© Power Capacitors Limited 01/2011