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# Phoenix Regenerative AC Drive 25 HP to 1000 HP

The Phoenix Regenerative AC Drive is the perfect choice for those applications that require both motoring torque and braking torque (regeneration). Typical applications that require regeneration include:

- High Inertia Loads that must be stopped or slowed down quickly - Saws, Fans, Flywheels and Centrifuges.
- Unwind Stands of all types - Uncoilers, Payoffs
- Overhauling Loads - Hoists, Cranes, Downhill Conveyors and Holdback Rolls in Process Line Applications.
- Machine applications with fast cycle times that require rapid deceleration.

## **Standard Features:**

- \* OPEN OR CLOSED LOOP VECTOR CONTROL
- \* EASY TO USE, SIMPLE SETUP
- \* PRECISE CONTROL OF MOTOR SPEED AND TORQUE
- \* BACKLIT ENGLISH LANGUAGE DISPLAY
- \* 50°C AMBIENT TEMPERATURE RATING
- \* SHORT CIRCUIT AND GROUND FAULT PROTECTION
- \* BUILT IN LINE VOLTAGE SURGE PROTECTION
- \* TOLERATES HIGH INPUT AC LINE VOLTAGES
- \* MOTOR OVERLOAD PROTECTION, MEETS NEC 430
- \* BUILT IN RFI NOISE FILTER
- \* POWER DIP RIDE THROUGH
- \* AUTO RESTART
- \* HIGH PERFORMANCE PID CONTROL
- \* 8 PRESET SPEEDS WITH ACCEL/DECEL CONTROL
- \* S CURVE ACCEL/DECEL CONTROL
- \* MULTI FUNCTION I / O
- \* PROGRAMMABLE THRESHOLD DETECTORS
- \* KW / KWH METERING
- \* BI-DIRECTIONAL FLYCATCHER (CATCH SPINNING MOTOR)
- \* CUSTOM V/Hz PROGRAMMING
- \* AUTOLOGGING FAULT HISTORY
- \* FIXED OR VARIABLE CARRIER FREQUENCY
- \* MUCH, MUCH, MORE



**THREE YEAR WARRANTY**

**MADE IN USA**



# ENGINEERING SPECIFICATIONS

## **ELECTRICAL**

**Rated Input Voltage:** 200-250Vac, 380-500Vac, 500-600Vac  
-10% of minimum, + 10% of maximum.

**Rated Input Frequency:** 48 to 63Hz.

**Number of Phases:** 3

**Displacement Power Factor:** .95 or greater.

**Efficiency:** 97% or greater at rated current.

## **CONTROL**

**Speed Range:** Open Loop: 100:1  
Closed Loop: 1000:1

**Control Modes:** Speed Control  
Torque Control  
Speed Control with Torque Limit  
Torque Control with Speed Limit

**Control Method:** Sine coded PWM with programmable carrier.  
Open Loop/Closed Loop Vector Control.

**Output Voltage:** 0 to input voltage.

**Output Frequency Range:** 0 to 600 Hz.

**Frequency Accuracy:** Analog reference: 0.1% of max frequency.  
Digital reference: 0.01% of max frequency.

**Frequency Resolution:** Analog reference: 0.06Hz at 60Hz.  
Digital reference: 0.0005Hz at 60Hz.

**Accel / Decel:** Adjustable 0.1 to 3276 sec.

**Drive Overload:** High Overload Capacity Drives:  
150% of drive rated output for 1 (1) minute.  
Normal Overload Capacity Drives:  
120% of drive rated output for one (1) minute.

**Inverse Time Overload:** Programmable for class 10, 20, and 30 protection to comply with N.E.C. Article 430.

**Current Limit:** Proactive current limit programmable in % of motor rated current.

**Braking Torque:** 5 to 20% without modification. Braking modules available for added braking to 150%.

**Control Power Ride-Thru:** Two (2) seconds (typical) depending on load.

## **ENVIRONMENTAL**

**Ambient Temperature:** -10°C to 50°C (14°F to 122°F)  
Without derating.

**Storage Temperature:** -40°C to 70°C (-40°F to 158°F)

**Altitude:** Sea level to 3300 Feet [1000m]  
Without derating.

**Humidity:** 95% relative humidity non-condensing.

**Vibration:** 9.8m/sec<sup>2</sup> (1.0G) peak.

**Surge Protection:** Line Transients to 6000V  
IEEE C62.41-1991 Category B.  
Showering Arc - 2000V Peak  
EN50082 - 1, 2.

**Noise Immunity:**

**Input R.F.I. Filter:** Standard on all models.

## **PHYSICAL ATTRIBUTES**

**Mounting:** Wall Mount: Through hole or panel mount.

**Nema Rating:** Type 1 (IP20) as Standard.  
Type 12 (IP54) Optional.  
Type 4 (IP65) Optional.

**Construction:** Steel Enclosure (Reduces E.M.I.).

## **AVAILABLE OPTIONS**

- Signal Conditioners/Isolators
- Communications Cards: RS-232/422/485, Modbus RTU, Metasys N2, Others Available
- Analog Signal Conditioner/Isolation Cards
- Digital Input/Output Expansion/Conditioning Cards
- Hand/Off/Auto, Local/Remote, Auto/Manual Selection
- Many Additional Modifications Available

Phoenix Regenerative AC Drive Dimensions								
Input Voltage	Motor HP		Nema 1 Enclosed VFD			Nema 12 Enclosed VFD		
	High Overload Capacity (HT) <sup>2</sup>	Normal Overload Capacity (NT) <sup>3</sup>	Approximate Dimensions (HxWxD) <sup>1</sup>	Mounting	Approximate Weight	Approximate Dimensions (HxWxD) <sup>1</sup>	Mounting	Approximate Weight
200-250 VAC (208/230/240)	25-30	25-30	30"x30"x12"	Wall	250 Lbs.	30"x30"x12"	Wall	250 Lbs.
	40-75	40-75	65"x20.1"x13.5"	Wall	360 Lbs.	65"x20.1"x13.5"	Wall	360 Lbs.
	100	100	90"x30"x22.9"	Floor	975 Lbs.	90"x30"x22.9"	Floor	975 Lbs.
	125-250	125-250	72"x72"x23.5"	Floor	2000 Lbs.	72"x72"x23.5"	Floor	2000 Lbs.
	300-500	300-500	86"x112"x25.5"	Floor	3700 Lbs.	86"x112"x25.5"	Floor	3700 Lbs.
380-500 VAC (380/400/415/480)	50-60	50-60	30"x30"x12"	Wall	250 Lbs.	30"x30"x12"	Wall	250 Lbs.
	75-150	75-150	65"x20.1"x13.5"	Wall	360 Lbs.	65"x20.1"x13.5"	Wall	360 Lbs.
	200	200	90"x30"x22.9"	Floor	975 Lbs.	90"x30"x22.9"	Floor	975 Lbs.
	250-500	250-500	72"x72"x23.5"	Floor	2000 Lbs.	72"x72"x23.5"	Floor	2000 Lbs.
	600-1000	600-1000	86"x112"x25.5"	Floor	3700 Lbs.	86"x112"x25.5"	Floor	3700 Lbs.
525-600 VAC (525/575/600)	50-75	50-75	30"x30"x12"	Wall	250 Lbs.	30"x30"x12"	Wall	250 Lbs.
	100-200	100-200	65"x20.1"x13.5"	Wall	360 Lbs.	65"x20.1"x13.5"	Wall	360 Lbs.
	250-600	250-600	72"x72"x23.5"	Floor	2000 Lbs.	72"x72"x23.5"	Floor	2000 Lbs.
	700-1250	700-1250	86"x112"x25.5"	Floor	3700 Lbs.	86"x112"x25.5"	Floor	3700 Lbs.

- (1) All Dimensions in Inches (H x W x D).
- (2) Drive Horsepower Rating is Based on the NEC Rated Full Load Current for 230, 460, and 575 VAC Motors.
- (3) High Overload Capacity Drives (HT) will produce 150% of rated Drive Output Current for 1 Minute.
- (4) Normal Overload Capacity Drive (NT) will produce 120% of Rated Drive Output Current for 1 Minute.
- (5) Consult Factory for Higher HP Drive Dimensions.