



US Drives Inc.  
2221 Niagara Falls Boulevard  
P.O. Box 281  
Niagara Falls, NY 14304-0281  
Tel: (716) 731-1606 Fax: (716) 731-1524  
Visit us at [www.usdrivesinc.com](http://www.usdrivesinc.com)

## Phoenix DX Sensorless AC Vector Drive



### “Size 0” - 3 HP to 40 HP

#### Standard Features:

- \* *PRECISE CONTROL OF MOTOR SPEED AND TORQUE*
- \* *EASY TO USE, SIMPLE SETUP*
- \* *ENGLISH LANGUAGE DISPLAY - 2 LINE, 32 CHARACTER*
- \* *50°C AMBIENT TEMPERATURE RATING*
- \* *SHORT CIRCUIT AND GROUND FAULT PROTECTION*
- \* *TOLERATES HIGH INPUT AC LINE VOLTAGES*
- \* *BUILT IN LINE VOLTAGE SURGE PROTECTION*
- \* *SPEED SENSITIVE MOTOR OVERLOAD PROTECTION, MEETS NEC 430*
- \* *BUILT IN RFI NOISE FILTER*
- \* *HIGH PERFORMANCE PID CONTROL*
- \* *8 PRESET SPEEDS W/ ACCEL / DECEL CONTROL*
- \* *BI-DIRECTIONAL FLYCATCHER (CATCH SPINNING MOTOR)*
- \* *2 SECOND POWER DIP RIDE THROUGH*
- \* *KW / KWH METERING*
- \* *S CURVE ACCEL/DECEL CONTROL*
- \* *PROGRAMMABLE THRESHOLD DETECTORS*
- \* *MULTI FUNCTION I / O*
- \* *CUSTOM V/Hz PROGRAMMING*
- \* *AUTOLOGGING FAULT HISTORY*
- \* *FIXED OR VARIABLE CARRIER FREQUENCY*
- \* *AUTO RESTART*
- \* *MUCH, MUCH, MORE*

**THREE YEAR WARRANTY**

**MADE IN USA**



US Drives Inc.  
 2221 Niagara Falls Boulevard  
 P.O. Box 281  
 Niagara Falls, NY 14304-0281  
 Tel: (716) 731-1606 Fax: (716) 731-1524  
 Visit us at www.usdrivesinc.com

# ENGINEERING SPECIFICATIONS

## CONTROL

**Control Method:** Sine coded PWM with programmable carrier.  
 Space Vector control.

**Output Voltage:** 0 to rated 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 3200 sec.

**Drive Overload:** High Overload Capacity Drives:  
 150% of drive rated output for one (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 with speed sensitive protection to comply with N.E.C. Article 430.

**Current limit:** Proactive current limit programmable in % of motor rated current.  
 Approximately 20%.

**Braking torque:** Custom curve programming plus nine (9) preprogrammed standard patterns.

**V/Hz curves:** Custom curve programming plus nine (9) preprogrammed standard patterns.

**Control power ride-thru:** Two (2) seconds or greater, depending on load.

## 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

## 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

**Noise Immunity:** Showering Arc - 2000V Peak  
 EN50082 - 1, 2

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

## PHYSICAL ATTRIBUTES

**Mounting:** Free Standing Enclosure

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

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

Phoenix DX Product Data									
Input Voltage	Part Number	Motor HP		Output Current		Input Current		Approximate Dimensions	Approximate Weight
		High Overload Capacity (CT)	Normal Overload Capacity (VT)	High Overload Capacity (CT)	Normal Overload Capacity (VT)	High Overload Capacity (CT)	Normal Overload Capacity (VT)		
200 - 250 VAC (208/230/240)	D2-0005-N1	3	5	10	16	12	19	13.05" x 9.0" x 10.9"	30 Lbs.
	D2-0007-N1	5	7.5	16	22	19	26	13.05" x 9.0" x 10.9"	30 Lbs.
	D2-0010-N1	7.5	10	22	28	26	33	13.05" x 9.0" x 10.9"	30 Lbs.
	D2-0015-N1	10	15	28	42	33	50	13.05" x 9.0" x 10.9"	30 Lbs.
	D2-0020-N1	15	20	42	54	50	64	13.05" x 9.0" x 10.9"	30 Lbs.
	D2-0020CT-N1	20	-	54	-	64	-	13.05" x 9.0" x 10.9"	30 Lbs.
380 - 500 VAC (380/400/415/480)	D4-0007-N1	5	7.5	8	11	10	13	13.05" x 9.0" x 10.9"	30 Lbs.
	D4-0010-N1	7.5	10	11	14	13	17	13.05" x 9.0" x 10.9"	30 Lbs.
	D4-0015-N1	10	15	14	21	17	26	13.05" x 9.0" x 10.9"	30 Lbs.
	D4-0020-N1	15	20	21	27	26	33	13.05" x 9.0" x 10.9"	30 Lbs.
	D4-0025-N1	20	25	27	34	33	40	13.05" x 9.0" x 10.9"	30 Lbs.
	D4-0030-N1	20	30	34	43	40	46	13.05" x 9.0" x 10.9"	30 Lbs.
	D4-0040-N1	30	40	40	52	43	58	13.05" x 9.0" x 10.9"	30 Lbs.
	D4-0040CT-N1	40	-	52	-	58	-	13.05" x 9.0" x 10.9"	30 Lbs.
500 - 600 VAC (525/575/600)	D5-0007-N1	5	7.5	7	9	9	11	13.05" x 9.0" x 10.9"	30 Lbs.
	D5-0010-N1	7.5	10	9	12	11	13	13.05" x 9.0" x 10.9"	30 Lbs.
	D5-0015-N1	10	15	11	17	13	20	13.05" x 9.0" x 10.9"	30 Lbs.
	D5-0020-N1	15	20	17	22	20	26	13.05" x 9.0" x 10.9"	30 Lbs.
	D5-0025-N1	20	25	22	28	26	34	13.05" x 9.0" x 10.9"	30 Lbs.
	D5-0030-N1	20	30	27	34	33	41	13.05" x 9.0" x 10.9"	30 Lbs.
	D5-0040-N1	30	40	32	41	39	49	13.05" x 9.0" x 10.9"	30 Lbs.
	D5-0040CT-N1	40	-	41	-	49	-	13.05" x 9.0" x 10.9"	30 Lbs.

(1) All Dimensions in Inches (HxWxD)

(2) High Overload Capacity Drives produce 150% of Rated Drive Output Current for 2 minutes.

(3) Normal Overload Capacity Drives produce 120% of Rated Drive Output Current for 2 minutes.