



# ACCU-Torq® Vector Duty 3-Phase AC Motors

## 56C – 256TC Frame – 1/4hp to 20hp

### Available with or without encoder installed

U.S. MOTORS® ACCU-Torq® series AC motors offer a solution to applications requiring accurate positioning or precise speed control without the rapid acceleration dynamics of a servomotor. ACCU-Torq motors are designed to be used with AC drives, including full closed-loop vector drives, in applications requiring up to a 5000:1 constant torque speed range.

### Standard Features

- 230/460 VAC
- Rated output: 1/4 - 20hp
- 1800 rpm, with or without encoder
- 1200 rpm up to 10hp
- Encoder Motors are pre-built with Avtron HS35A encoders. Complete encoder kit is also available for separate purchase.
- Standard motors have dual shaft for encoder mounting.
- Class F insulation (155° C), inverter duty NEMA MG1 Part 31
- Constant torque operation; zero to base speed on vector drives
- Constant horsepower operation to twice base speed
- Optimized for operation with IGBT and intelligent power module drives (NEMA®+ Design A)
- F-1 Standard, field convertible to F-2 for 180 frame and above
- Normally closed thermostats standard
- Horizontal or Vertical mounting
- Continuous duty at 40°C ambient

### Applications

- Packaging machinery
- Extruders
- Material handling
- Indexing and positioning
- Positive displacement pumps
- DC Motor Replacements



**UN5T2BC**



**UN5T2BC-HS35A**



Cover can be removed to reveal second shaft



**HS35AY1CDU1EA000**



# ACCU-Torq® Vector Duty 3-Phase AC Motors

Motor Specifications – 3-phase													
Part Number	Price	HP*	Base RPM	Volts	Enclosure	Encoder Included	NEMA Frame	Service Factor	NEMA Design	Weight (lb)	Data Pack Links*	Drawing Links	
Rigid Base With C-face - 1800 RPM													
UN14T2BC	\$370.00	1/4	1800	230/460 VAC	TENV	No	56C	1.0	A	35	<a href="#">PDF</a>	<a href="#">PDF</a>	
UN14T2BC-HS35A	\$1,199.00					Yes				30	<a href="#">PDF</a>	<a href="#">PDF</a>	
UN12T2BC	\$448.00	1/2				No				56C	42	<a href="#">PDF</a>	<a href="#">PDF</a>
UN12T2BC-HS35A	\$1,298.00					Yes					30	<a href="#">PDF</a>	<a href="#">PDF</a>
UN1T2BFC	\$530.00	1				No	56C			43	<a href="#">PDF</a>	<a href="#">PDF</a>	
UN1T2BFC-HS35A	\$1,379.00					Yes				30	<a href="#">PDF</a>	<a href="#">PDF</a>	
UN1T2BC	\$530.00					No	143TC			43	<a href="#">PDF</a>	<a href="#">PDF</a>	
UN1T2BC-HS35A	\$1,379.00					Yes				30	<a href="#">PDF</a>	<a href="#">PDF</a>	
UN32T2BC	\$651.00	1 1/2				No	145TC			50	<a href="#">PDF</a>	<a href="#">PDF</a>	
UN32T2BC-HS35A	\$1,498.00					Yes				35	<a href="#">PDF</a>	<a href="#">PDF</a>	
UN2T2BC	\$697.00	2				No				145TC	57	<a href="#">PDF</a>	<a href="#">PDF</a>
UN2T2BC-HS35A	\$1,538.00					Yes					60	<a href="#">PDF</a>	<a href="#">PDF</a>
UN3T2BC	\$781.00	3				No	182TC			65	<a href="#">PDF</a>	<a href="#">PDF</a>	
UN3T2BC-HS35A	\$1,625.00					Yes				60	<a href="#">PDF</a>	<a href="#">PDF</a>	
UN5T2BC	\$908.00	5				No	184TC			85	<a href="#">PDF</a>	<a href="#">PDF</a>	
UN5T2BC-HS35A	\$1,738.00					Yes				60	<a href="#">PDF</a>	<a href="#">PDF</a>	
UN7T2BC	\$1,241.00	7 1/2				No	213TC			135	<a href="#">PDF</a>	<a href="#">PDF</a>	
UN7T2BC-HS35A	\$2,071.00					Yes				105	<a href="#">PDF</a>	<a href="#">PDF</a>	
UN10T2BC	\$1,499.00	10				No	215TC			178	<a href="#">PDF</a>	<a href="#">PDF</a>	
UN10T2BC-HS35A	\$2,329.00					Yes				120	<a href="#">PDF</a>	<a href="#">PDF</a>	
UN15T2BC	\$2,070.00	15				No	254TC			255	<a href="#">PDF</a>	<a href="#">PDF</a>	
UN15T2BC-HS35A	\$2,900.00					Yes				120	<a href="#">PDF</a>	<a href="#">PDF</a>	
UN20T2BC	\$2,551.00	20				No	256TC			266	<a href="#">PDF</a>	<a href="#">PDF</a>	
UN20T2BC-HS35A	\$3,381.00					Yes				230	<a href="#">PDF</a>	<a href="#">PDF</a>	
Rigid Base With C-face - 1200 RPM													
UN1T3BC	\$578.00	1	1200	230/460 VAC	TENV	No	145TC	1.0	A	35	<a href="#">PDF</a>	<a href="#">PDF</a>	
UN2T3BC	\$963.00	2					184TC			75	<a href="#">PDF</a>	<a href="#">PDF</a>	
UN5T3BC	\$1,707.00	5					215TC			60	<a href="#">PDF</a>	<a href="#">PDF</a>	
UN7T3BC	\$2,279.00	7 1/2					254TC			211	<a href="#">PDF</a>	<a href="#">PDF</a>	
UN10T3BC	\$2,752.00	10					256TC			266	<a href="#">PDF</a>	<a href="#">PDF</a>	

\*See Motor Data Pack for additional specifications



# ACCU-Torq® Vector Duty 3-Phase AC Motors

Performance Data – 3-phase																
Part Number	HP*	Full Load RPM*	Volts*	Current (230V/460V)			Torque			Resistance Main		Torque Speed Rating		Full Load Effic. %	Full Load Power Factor	Moment of Inertia (lb-ft <sup>2</sup> )
				No Load Current	Full Load Amps	Locked Rotor Amps	Full Load (lb-ft)	Locked Rotor	Break-down			Constant	Variable			
										% of Full Load Torque	230V					
Rigid Base With C-face - 1800 RPM																
UN14T2BC	1/4	1765	230/460 VAC	0.8 / 0.4	1 / 0.5	8.2 / 4.1	0.70	419	586	12.42	49.69	5000:1	5000:1	77.0	61.1	0.070
UN14T2BC-HS35A					1 / 0.5						49.69					
UN12T2BC	1/2	1750		1 / 0.5	1.5 / 0.8	12.1 / 6	1.50	335	457	6.47	25.87			84.0	74.2	0.105
UN12T2BC-HS35A					1.5 / 0.8						25.87					
UN1T2BC	1	1755		2.2 / 1.1	3.2 / 1.6	32 / 15.8	3.00	480	606	2.72	10.88			84.0	69.5	0.107
UN1T2BC-HS35A					3.2 / 1.6						10.88					
UN1T2BFC					3.2 / 1.6	31 / 15.6		476	600	2.66	10.64				69.3	
UN1T2BFC-HS35A					3.2 / 1.6						10.64					
UN32T2BC	1 1/2	1760		3.2 / 1.6	4.6 / 2.3	52 / 25.9	4.50	518	665	1.55	6.18			86.5	69.7	0.14
UN32T2BC-HS35A					4.6 / 2.3						6.18					
UN2T2BC	2	1750		3.3 / 1.7	5.6 / 2.8	56 / 28	6.00	425	543	1.37	5.46			86.5	76.8	0.174
UN2T2BC-HS35A					5.6 / 2.8						5.46					
UN3T2BC	3	1770		7.9 / 4	10.1 / 5	92 / 46	8.90	400	573	0.77	3.08			87.5	63.6	0.314
UN3T2BC-HS35A					10.1 / 5						3.08					
UN5T2BC	5	1770		8 / 4	14.2 / 7.1	139 / 70	14.80	363	522	0.46	1.84			90.2	74.5	0.472
UN5T2BC-HS35A					14.2 / 7.1						1.84					
UN7T2BC	7 1/2	1775		9 / 4.5	18.8 / 9.4	178 / 89	22.20	349	445	0.21	0.84			92.4	80.7	0.964
UN7T2BC-HS35A					18.8 / 9.4						0.84					
UN10T2BC	10	1775		12.9 / 6.4	25.3 / 12.7	275 / 138	29.60	416	519	0.13	0.53			93.0	79.6	1.33
UN10T2BC-HS35A					25 / 12.7						0.53					
UN15T2BC	15	1785		14.3 / 7.2	36 / 17.8	345 / 172	44.20	394	381	0.08	0.33			94.5	83.4	3.43
UN15T2BC-HS35A					36 / 17.8						0.33					
UN20T2BC	20	1780		22.9 / 11.5	50 / 24.8	486 / 243	58.90	419	403	0.06	0.24			94.1	80.3	3.56
UN20T2BC-HS35A					50 / 24.8						0.24					
Rigid Base With C-face - 1200 RPM																
UN1T3BC	1	1150	230/460 VAC	7.1	3.7 / 1.8	21.1 / 10.5	4.60	298	390	3.59	14.35	5000:1	5000:1	80.0	63.8	0.122
UN2T3BC	2	1170		2.1 / 4.3	6.2 / 3.1	47.3 / 23.5	9.00	228	386	1.79	7.17			86.5	69.4	0.361
UN5T3BC	5	1175		10.9 / 5.5	15.9 / 7.9	127.7 / 63.9	22.30	383	445	0.35	1.42			89.5	65.9	0.928
UN7T3BC	7 1/2	1185		10.5 / 5.3	19.8 / 9.9	162.7 / 81.4	33.20	285	393	0.27	1.08			91.7	77.4	3.21
UN10T3BC	10			11.9 / 6	25 / 12.7	199.8 / 99.9	45.00	269	366	0.20	0.79			92.4	80.1	4.05

\*See Motor Data Pack for additional specifications linked in specification table above



# Avtron Encoder Kit

## HS35A Encoder Kit Overview

Avtron™ HS35A Encoder kits come standard on US MOTORS ACCU-Torq® series encoder motors or can be purchased separately for installation on existing dual shaft motors such as Marathon Black Max. The HS35A encoders fit shafts from 1/2" to 1" easily, using durable shaft inserts. The encoders can be adapted to different shaft sizes by replacing or removing the included inserts, enabling customer stockrooms to swiftly meet any need. The shaft inserts and insulated bearings also provide isolation from motor shaft currents, while permitting case grounding to meet NEC requirements. Avtron encoders have superior shaft seals and bearings that stay sealed to keep out contamination caused by temperature cycling and liquid sprays. Encoder seals are protected by mechanical barriers to prevent flexing or failure, and Avtron's rugged bearings feature synthetic lubricants for even longer life. Avtron uses only unbreakable disks and a sensor-to-disk gap over eight times larger than the competition. The optical HS35A encoders use superior sensor, disk, bearing, and seal technology to give top performance in industrial conditions.



**HS35AY1CDU1EA000**

## HS35A Features

- All digital, fully integrated design
- Easily mountable on US MOTORS ACCU-Torq series or Marathon Black Max Series vector duty motors
- No mechanical adjustments or trim potentiometers
- Innovative shaft ring retains collar during installation
- Advanced sensor technology
- Superior bearings with synthetic lubricant for longer life
- Encoder provides signal complements and marker pulse (A,A-, B,B-, Z,Z-)
- Insulated from motor shaft currents
- Models can be resized by interchanging inserts
- Included basket guard adds even more protection

### HS35A Encoder Specifications

<b>Part Number</b>	HS35AY1CDU1EA000
<b>Price</b>	\$839.00
<b>Operating Power</b>	Volts: 5-28 VDC Current: 50 mA, no load
<b>Output Format</b>	A Quad B with marker (A,/A, B,/B, Z,/Z)
<b>Frequency Range</b>	0 to 125 kHz
<b>PPR</b>	1024
<b>Max Speed</b>	6000 RPM
<b>Temperature</b>	-20° to 100°C*
<b>Environmental</b>	IP65
<b>Vibration</b>	5-2000 Hz
<b>Shock</b>	50G, 11ms duration
<b>Weight</b>	1.6 lbs [730g]
<b>Drawing Link</b>	<a href="#">PDF</a>

\*Consult Avtron for temperature/speed derating:  
<https://www.nidec-avtronencoders.com/contact>



Click image above for Encoder Installation:

<https://www.youtube.com/watch?v=ZhX63xp7kOw>