

# Specifications

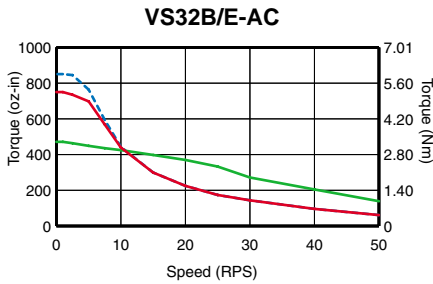
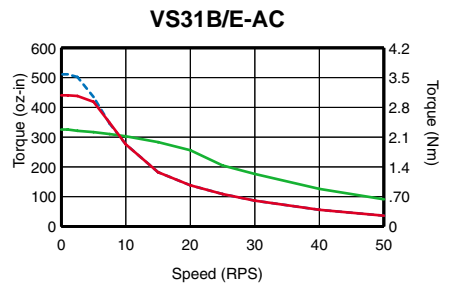
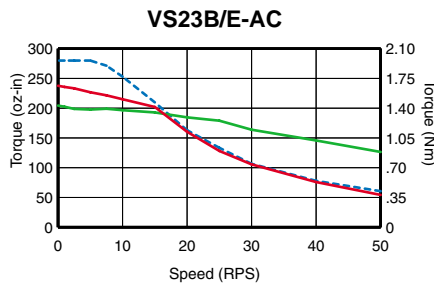
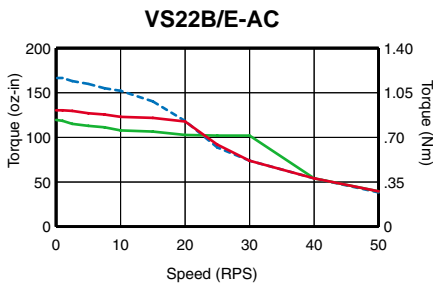
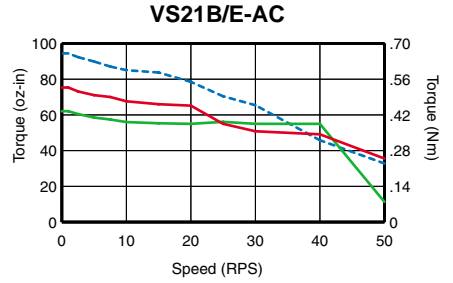
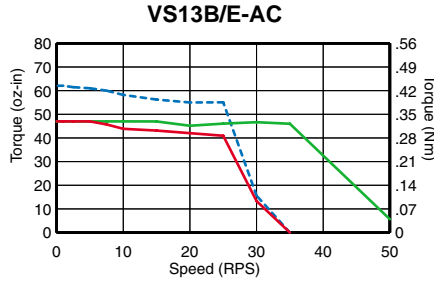
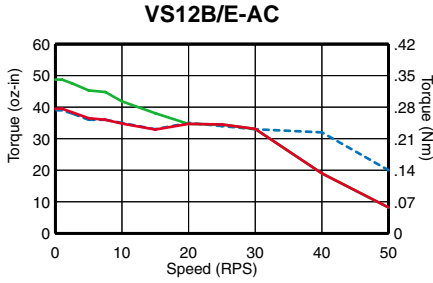
## VS Series Motor Specifications Size 17, 23 and 34 Frame

Parameters		Size 17 Frame		Size 23 Frame			Size 34 Frame	
		VS12B	VS13B	VS21B	VS22B	VS23B	VS31B	VS32B
Rated torque	oz-in	57	73	116	195	335	552	1270
	(Nm)	(0.4)	(0.5)	(0.8)	(1.4)	(2.4)	(3.9)	(9.0)
Rotor inertia	oz-in <sup>2</sup>	0.3	0.37	0.66	1.64	2.62	7.65	14.8
	(kg-cm <sup>2</sup> )	(0.054)	(0.068)	(0.12)	(0.3)	(0.48)	(1.4)	(2.7)
Phase Inductance (mH)	Series	12.8	11.2	5	12	15.4	15.8	25.0
	Parallel	(3.2)	(2.8)	(1.25)	(3.0)	(3.85)	(3.95)	(6.25)
Detent Torque	oz-in (N-m)	2.5 (0.02)	4.0 (0.03)	7.0 (0.05)	8.8 (0.06)	18.0 (0.13)	27.0 (0.19)	50 (0.35)
<b>Bearings Information</b>								
Thrust Load	lb (kg)	11.0 (5)	11.0 (5)	17.6 (8)	17.6 (8)	17.6 (8)	35.3 (16)	35.3 (16)
Radial Load	lb (kg)	7.7 (3.5)	7.7 (3.5)	15.0 (6.8)	15.0 (6.8)	15.0 (6.8)	30.9 (14)	30.9 (14)
End Play (with 2.2 lbs axial load)	in (mm)	0.003 (0.075)	0.003 (0.075)	0.003 (0.075)	0.003 (0.075)	0.003 (0.075)	0.0032 (0.080)	0.0032 (0.080)
Radial Play (with 1.1 lb radial load)	in (mm)	0.001 (0.025)	0.001 (0.025)	0.001 (0.025)	0.001 (0.025)	0.001 (0.025)	0.0008 (0.020)	0.0008 (0.020)
Motor Weight	lb (kg)	0.55 (0.25)	0.77 (0.35)	1.03 (0.47)	1.54 (0.7)	2.2 (1.0)	3.86 (1.75)	6.18 (2.8)
Motor Cable Wire Size	AWG (mm <sup>2</sup> )	22 (0.34)	22 (0.34)	22 (0.34)	22 (0.34)	22 (0.34)	22 (0.34)	22 (0.34)
Certifications	UL recognized	No	No	No	No	No	No	No
	CE	No	No	No	No	No	No	No
Drive Current E-AC	Apk (Arms) Series	1.0 (0.71)	1.01(0.71)	2.26 (1.6)	2.01 (1.42)	2.01 (1.42)	3.0 (2.12)	3.13 (2.21)
	Parallel	2.0 (1.42)	2.02 (1.43)	3.5 (2.47)	3.5 (2.47)	3.5 (2.47)	3.5 (2.47)	3.5 (2.47)
E-DC	Series	NA	NA	NA	NA	NA	NA	NA
	Parallel	3.0 (2.12)	3.0 (2.12)	4.8 (3.39)	4.0 (2.83)	4.8 (3.39)	4.8 (3.39)	4.8 (3.39)
GT	Series	NA	0.82 (0.58)	1.8 (1.3)	1.7 (1.2)	1.4 (1.0)	3.0 (2.1)	3.0 (2.1)
	Parallel	NA	1.64 (1.16))	3.6 (2.6)	3.4 (2.4)	2.8 (2.0)	6.0 (4.2)	6.0 (4.2)
OEM750	Series	1.0 (0.71)	1.01(0.71)	2.26 (1.6)	2.01 (1.42)	2.01 (1.42)	3.0 (2.12)	3.13 (2.21)
	Parallel	2.0 (1.42)	2.02 (1.43)	3.5 (2.47)	3.5 (2.47)	3.5 (2.47)	3.5 (2.47)	3.5 (2.47)
ZETA	Series	1.0 (0.7)	1.0 (0.7)	2.3 (1.6)	2.0 (1.4)	2.0 (1.4)	3.0 (2.1)	3.1 (2.2)
	Parallel	2.0 (1.4)	2.0 (1.4)	4.6 (3.2)	4.0 (2.8)	4.0 (2.8)	6.0 (4.2)	6.2 (4.4)

## Speed-Torque Curves

### Motor Speed-Torque Performance Curves

#### E-AC Drive with VS Series motors - 17, 23 and 34 frame

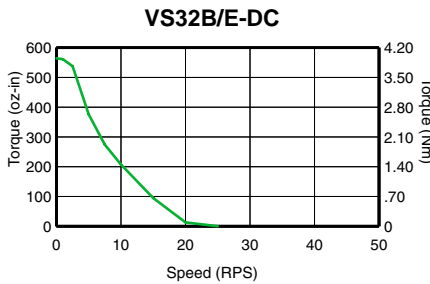
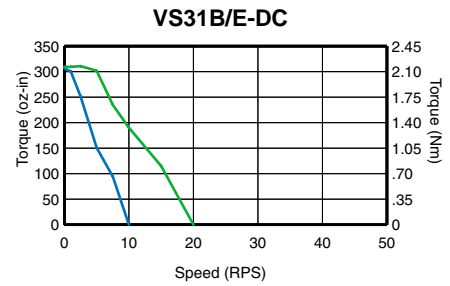
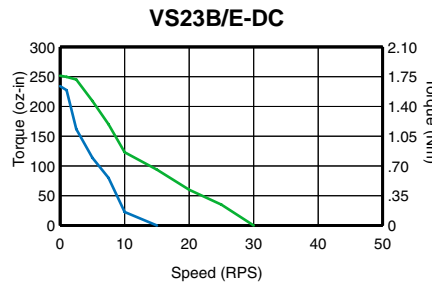
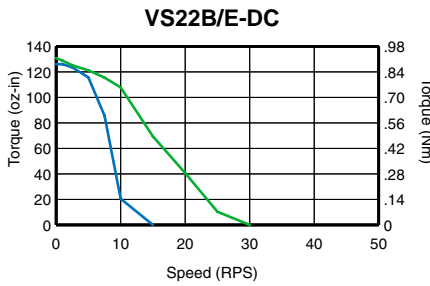
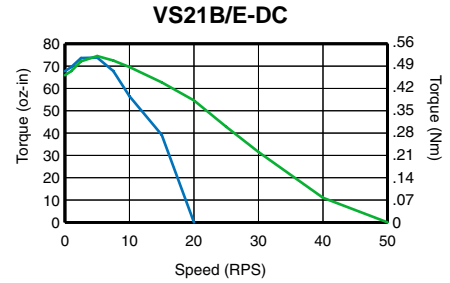
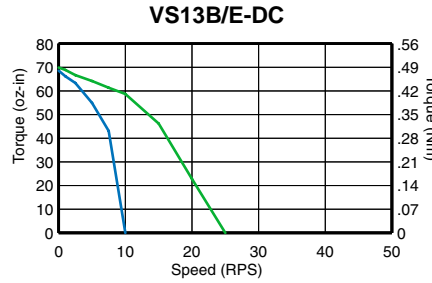
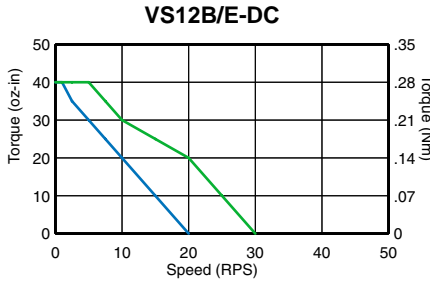


— SERIES — PARALLEL - - - FULL

## Speed-Torque Curves

### Motor Speed-Torque Performance Curves

E-DC Drive with VS Series motors – 17, 23 and 34 frame

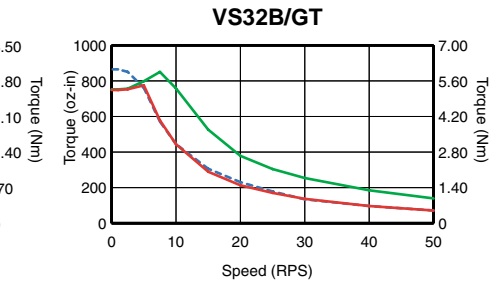
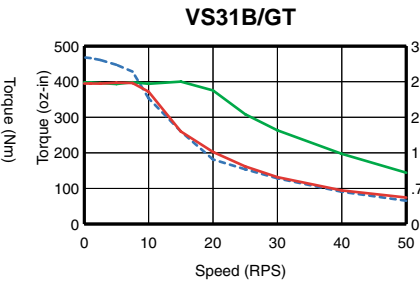
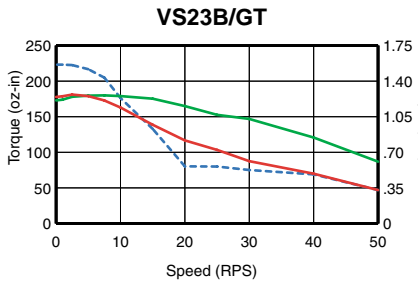
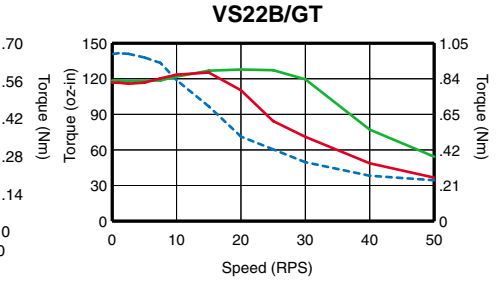
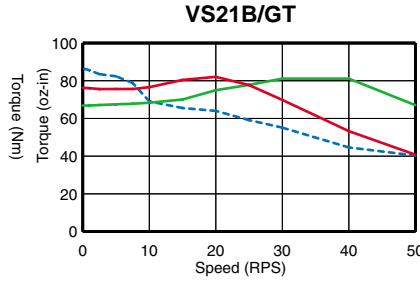
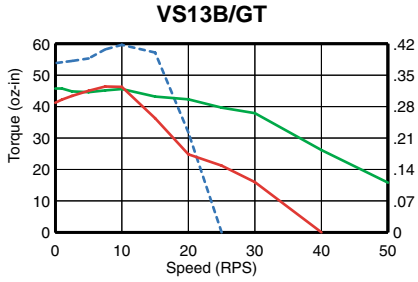


— 24V — 48V



## Speed-Torque Curves

### Motor Speed-Torque Performance Curves GT Drive with VS Series motors - 17, 23 and 34 frame



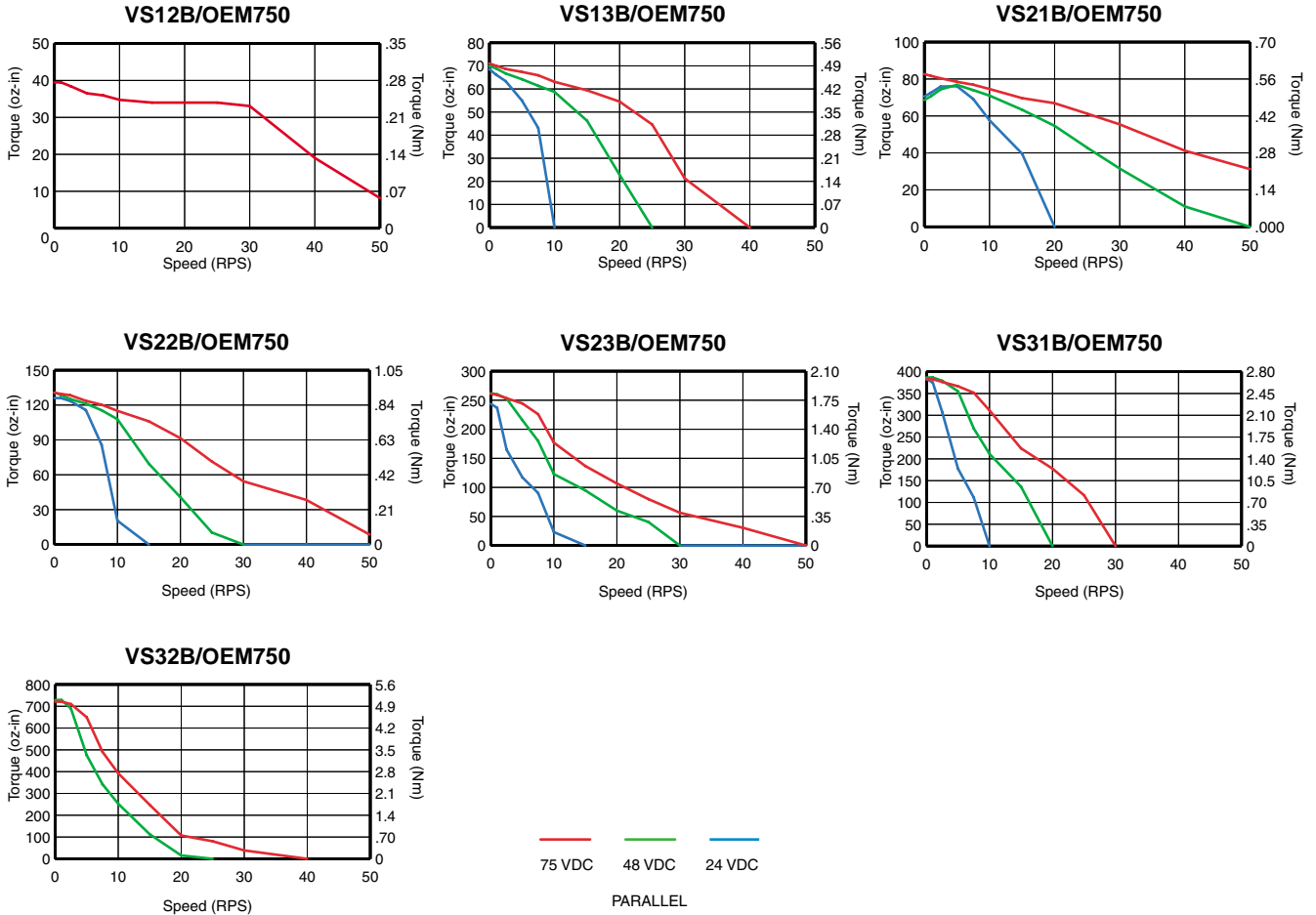
— SERIES — PARALLEL - - - FULL



# Speed-Torque Curves

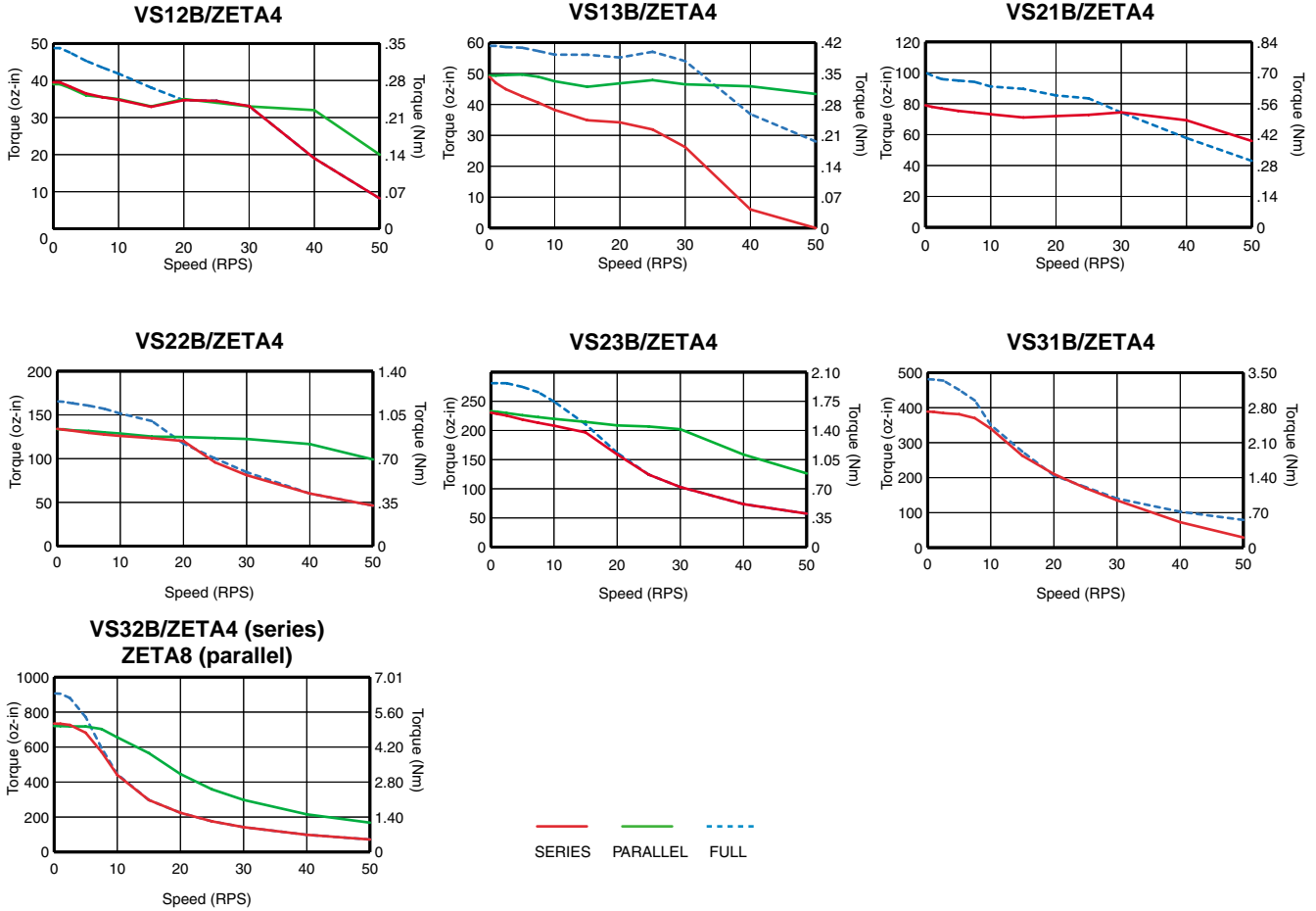
## Motor Speed-Torque Performance Curves

OEM750 Drive with VS Series Motors – 17 and 23 frame sizes, 75 VDC



# Speed-Torque Curves

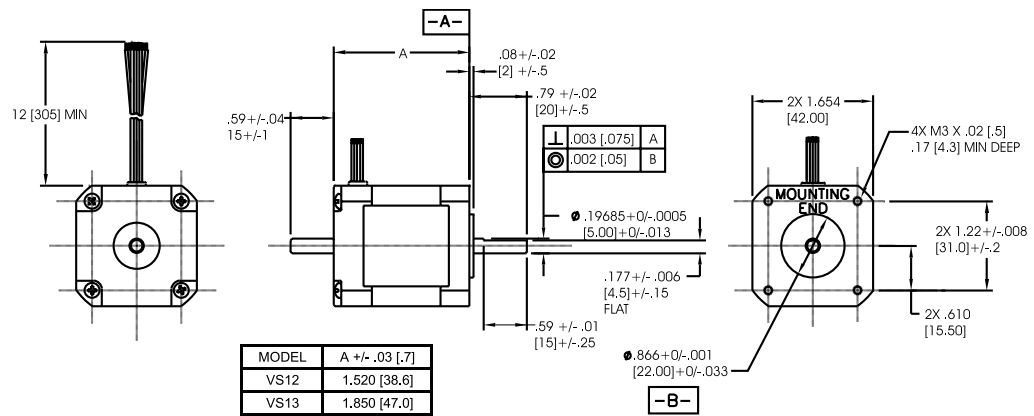
## Motor Speed-Torque Performance Curves ZETA Drive with VS Series Motors – 17, 23 and 34 frame



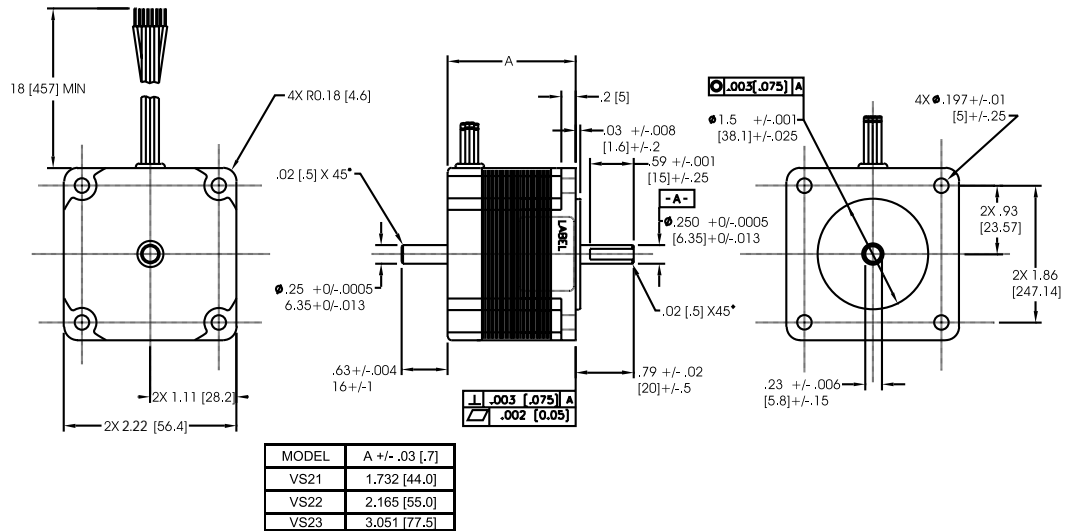
## Dimensions

### VS Dimensional Drawings

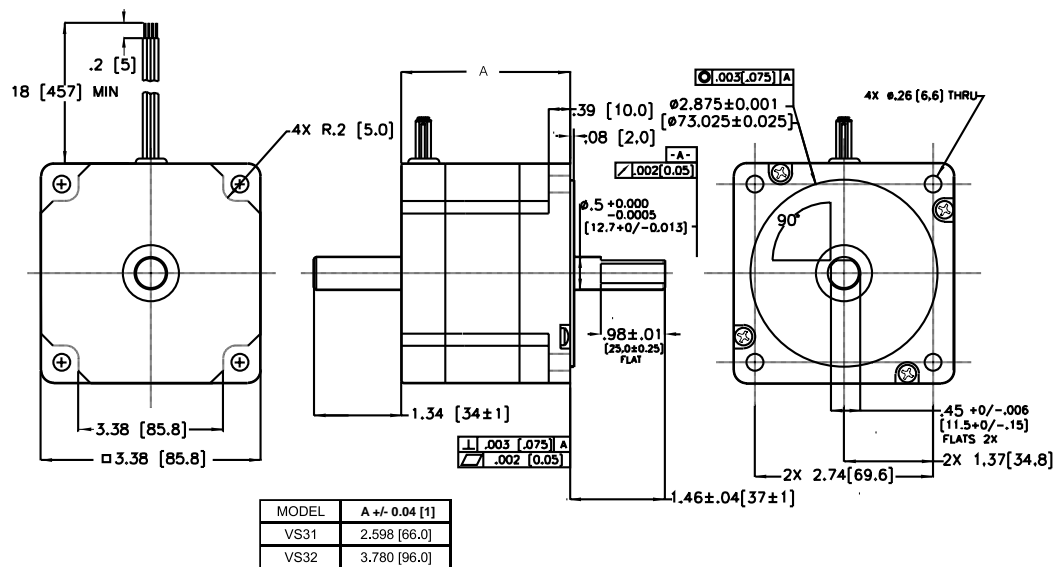
#### Size 17 Frame



#### Size 23 Frame



#### Size 34 Frame



## Ordering Information

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### VS Series

The VS Series Size 17, Size 23 and Size 34 Frame motors are available in a B Winding (170VDC). These motors are designed for use with the E-AC drive, the E-DC drive, the Gemini GT-L5, the Gemini GT-L8, the ZETA Series, the ZETA4-240 (@120VAC), the PD Series and the S Series.

<b>Series</b> V	<b>Type</b> S=Standard	<b>Frame Size</b> 1=Size 17 2=Size23 3=Size34	<b>No. of Rotor Stacks</b> 1=1 stack 2=2 stacks 3=3 stacks	<b>Winding Type</b> B=170VDC winding (black painted motors)	<b>Shaft</b> S=Single D=Double	<b>Shaft Modification</b> N=Standard (smooth) F=Flat (.02" depth) (.5" length)	<b>Motor Construction/ Hookup</b> FLY - 12" flying leads R1 ⚡ - 10' cable to flying leads
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### VS Series Part Number Example

VS \_\_ B - \_ K \_ \_ \_ - \_\_\_\_  
VS13B-DFR1Ø