High Torque Hybrid Stepper Motors (PJB Series)

The PJB series motors are high torque motors with superior response characteristics. The motors are 1.8° step angle hybrid motors. The PJB Series is available in 42mm (NEMA size 17) and 56mm (NEMA size 23). Each model has four different stack lengths, a choice of windings, and mechanical options that enable the design engineer to choose the most cost-effective motor to match the application's exact requirements. Applications for the PJB series include medical and scientific instruments, printers, valves and pumps, and a variety of automatic equipment.

PJB42S

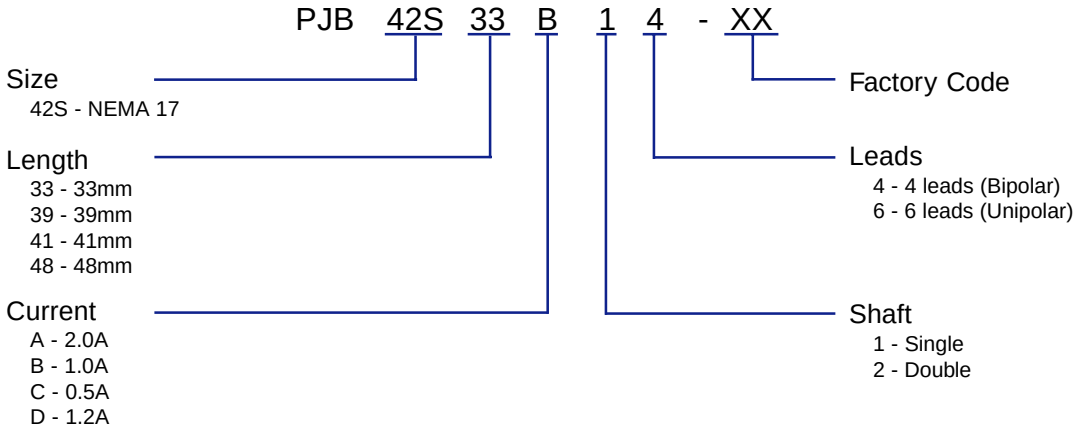
Electrical Specs — Unipolar

Specifications	Unit	PJB42S33D16	PJB42S39D16	PJB42S41D16	PJB42S48D16
Step Angle	°	1.8	1.8	1.8	1.8
Rated Voltage	V	2.88	3.48	3.6	3.96
Rated Current	A/Ø	1.2	1.2	1.2	1.2
Resistance	Ω	2.4	2.9	3.0	3.3
Inductance	mH	2.3	3.4	3.9	3.4
Holding Torque	N•m	0.265	0.39	0.425	0.51
Rotor Inertia	$x10^{-4}Kg•m^2$	0.036	0.056	0.062	0.074
Temperature Rise	K	80	80	80	80
Insulation Class		B	B	B	B
Insulation Resistance	MΩ	100 (500VDC)	100 (500VDC)	100 (500VDC)	100 (500VDC)
Dielectric Strength	V	500AC (60sec)	500AC (60sec)	500AC (60sec)	500AC (60sec)
Mass	Kg	0.23	0.29	0.31	0.37

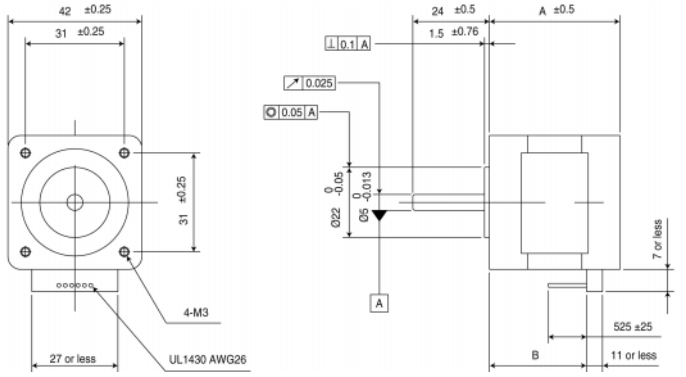
Electrical Specs — Bipolar

Specifications	Unit	PJB42S33B14	PJB42S39B14	PJB42S41B14	PJB42S48B14
Step Angle	°	1.8	1.8	1.8	1.8
Rated Voltage	V	3.4	4.2	4.4	4.8
Rated Current	A/Ø	1.0	1.0	1.0	1.0
Resistance	Ω	3.4	4.2	4.4	4.8
Inductance	mH	6.5	9.5	11.0	9.7
Holding Torque	N•m	0.2	0.3	0.32	0.37
Rotor Inertia	$x10^{-4}Kg•m^2$	0.036	0.056	0.062	0.074
Temperature Rise	K	80	80	80	80
Insulation Class		B	B	B	B
Insulation Resistance	MΩ	100 (500VDC)	100 (500VDC)	100 (500VDC)	100 (500VDC)
Dielectric Strength	V	500AC (60sec)	500AC (60sec)	500AC (60sec)	500AC (60sec)
Mass	Kg	0.23	0.29	0.31	0.37

PJB42S Model Number



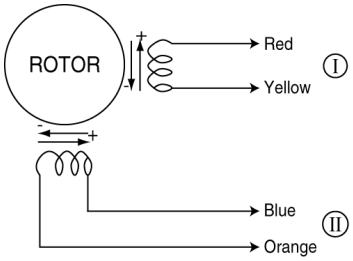
Outline Dimension



	A	B
PJB42S33XXX	33	20
PJB42S39XXX	39	26
PJB42S41XXX	41	28
PJB42S48XXX	48	35

Dimensions in MM. Inches = MM*0.04

Inner Connections and Rotation Direction (Bipolar)



NO	Ⅰ	Ⅱ	NO
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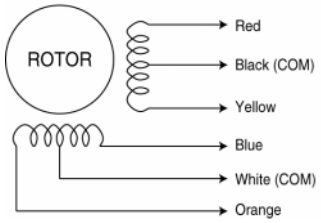
3	-	-	2
4	+	-	1

CW ↓ / ↑ CCW

Inner Connections and Rotation Direction (Unipolar)



NO	RED	YELLOW	BLUE	ORANGE	NO
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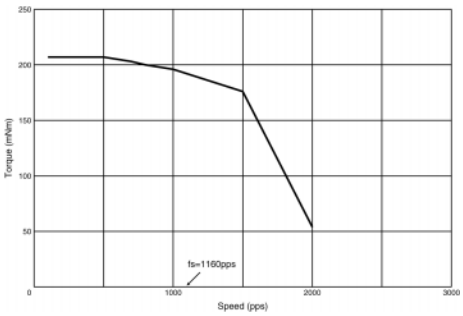
3	OFF	ON	OFF	ON	2
4	ON	OFF	OFF	ON	1

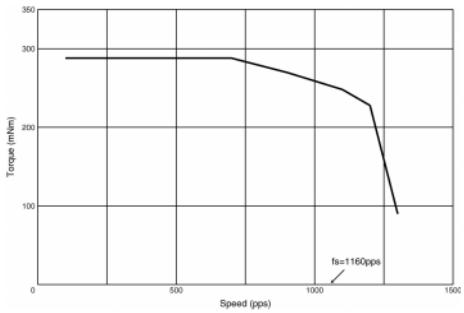
CW ↓ / ↑ CCW

PJB42S33B14 Full-Step Curve



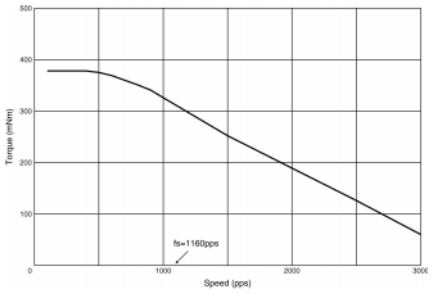
Driver:	BCD4010B/ES
Input:	DC24V
Current:	1.0A
Excitation:	2-2Ø (Full-Step)

PJB42S41B14 Full-Step Curve



Driver:	BCD4010B/ES
Input:	DC24V
Current:	1.0A
Excitation:	2-2Ø (Full-Step)

PJB42S48B14 Full-Step Curve



Driver:	BCD4010B/ES
Input:	DC24V
Current:	1.0A
Excitation:	2-2Ø (Full-Step)

PJB56H

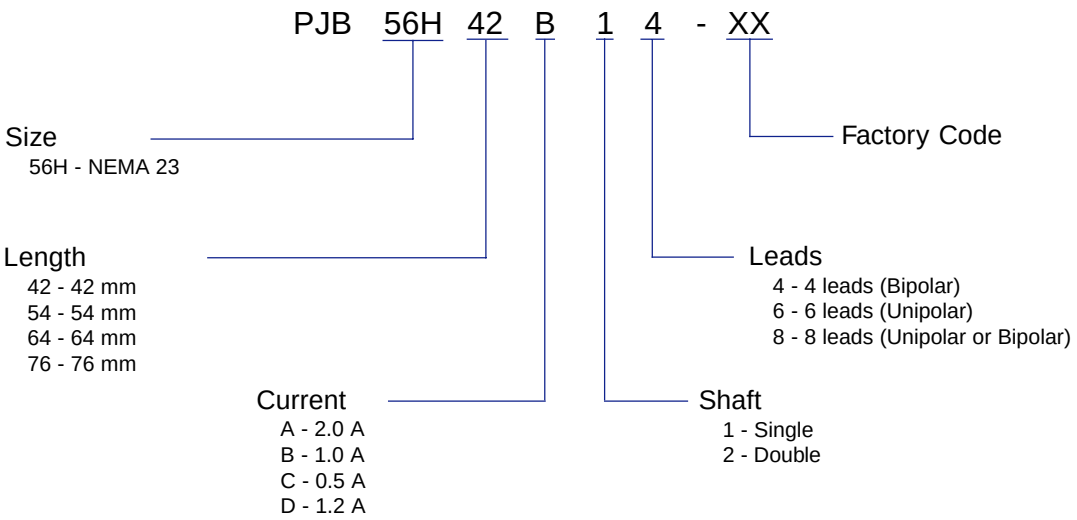
Electrical Specs — PJB56H42

Specifications	Unit	PJB56H42A18			PJB56H42B18		
Leads Connection		Unipolar	Bipolar		Unipolar	Bipolar	
			Series	Parallel		Series	Parallel
Step Angle	°	1.8	1.8	1.8	1.8	1.8	1.8
Rated Voltage	V	2.5	3.5	1.8	4.8	6.8	3.4
Rated Current	A/Ø	2.0	1.4	2.8	1.0	0.7	1.4
Resistance	Ω	1.25	2.5	0.63	4.8	9.6	2.4
Inductance	mH	1.9	7.6	1.9	9.3	37.2	9.3
Holding Torque	N•m	0.41	0.52	0.51	0.42	0.51	0.59
Rotor Inertia	$x10^{-4}Kg•m^2$	0.1	0.1	0.1	0.1	0.1	0.1
Temperature Rise	K	80	80	80	80	80	80
Insulation Class		B	B	B	B	B	B
Insulation Resistance	MΩ	100 (500VDC)	100 (500VDC)	100 (500VDC)	100 (500VDC)	100 (500VDC)	100 (500VDC)
Dielectric Strength	V	500AC (60sec)	500AC (60sec)	500AC (60sec)	500AC (60sec)	500AC (60sec)	500AC (60sec)
Mass	Kg	0.47	0.47	0.47	0.47	0.47	0.47

Electrical Specs — PJB56H54

Specifications	Unit	PJB56H54A18			PJB56H54B18		
Leads Connection		Unipolar	Bipolar		Unipolar	Bipolar	
			Series	Parallel		Series	Parallel
Step Angle	°	1.8	1.8	1.8	1.8	1.8	1.8
Rated Voltage	V	3.2	4.5	2.3	6.7	9.5	4.7
Rated Current	A/Ø	2.0	1.4	2.8	1.0	0.7	1.4
Resistance	Ω	1.6	3.2	0.8	6.7	13.4	3.35
Inductance	mH	3.8	15.2	3.8	15	60	15
Holding Torque	N•m	0.80	1.07	1.04	0.79	0.99	1.09
Rotor Inertia	$x10^{-4}Kg•m^2$	0.21	0.21	0.21	0.21	0.21	0.21
Temperature Rise	K	80	80	80	80	80	80
Insulation Class		B	B	B	B	B	B
Insulation Resistance	MΩ	100 (500VDC)	100 (500VDC)	100 (500VDC)	100 (500VDC)	100 (500VDC)	100 (500VDC)
Dielectric Strength	V	500AC (60sec)	500AC (60sec)	500AC (60sec)	500AC (60sec)	500AC (60sec)	500AC (60sec)
Mass	Kg	0.65	0.65	0.65	0.65	0.65	0.65

Model Number



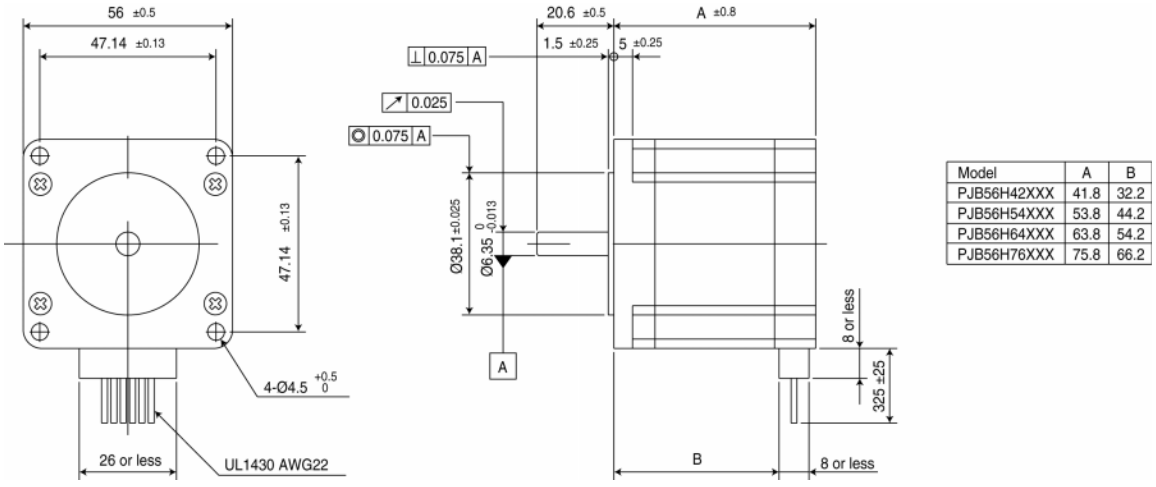
Electrical Specs — PJB56H64

Specifications	Unit	PJB56H64A18			PJB56H64B18		
Leads Connection		Unipolar	Bipolar		Unipolar	Bipolar	
			Series	Parallel		Series	Parallel
Step Angle	°	1.8	1.8	1.8	1.8	1.8	1.8
Rated Voltage	V	3.4	4.8	2.4	7.0	9.9	4.9
Rated Current	A/Ø	2.0	1.4	2.8	1.0	0.7	1.4
Resistance	Ω	1.7	3.4	0.85	7.0	14	3.5
Inductance	mH	3.1	12.4	3.1	12.5	50	12.5
Holding Torque	N•m	1.01	1.36	1.32	1.02	1.25	1.34
Rotor Inertia	$x10^{-4}Kg•m^2$	0.245	0.245	0.245	0.245	0.245	0.245
Temperature Rise	K	80	80	80	80	80	80
Insulation Class		B	B	B	B	B	B
Insulation Resistance	MΩ	100 (500VDC)	100 (500VDC)	100 (500VDC)	100 (500VDC)	100 (500VDC)	100 (500VDC)
Dielectric Strength	V	500AC (60sec)	500AC (60sec)	500AC (60sec)	500AC (60sec)	500AC (60sec)	500AC (60sec)
Mass	Kg	0.8	0.8	0.8	0.8	0.8	0.8

Electrical Specs — PJB56H76

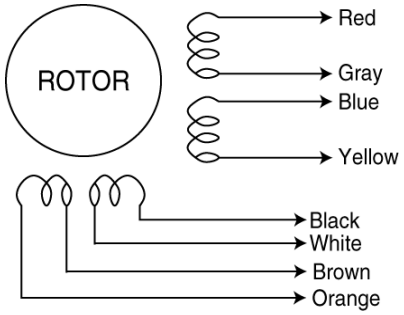
Specifications	Unit	PJB56H76A18			PJB56H76B18		
Leads Connection		Unipolar	Bipolar		Unipolar	Bipolar	
			Series	Parallel		Series	Parallel
Step Angle	°	1.8	1.8	1.8	1.8	1.8	1.8
Rated Voltage	V	4.0	5.7	2.8	8.6	12.2	6.1
Rated Current	A/Ø	2.0	1.4	2.8	1.0	0.7	1.4
Resistance	Ω	2.0	4.0	1.0	8.6	17.2	4.3
Inductance	mH	4.5	18	4.5	19	76	19
Holding Torque	N•m	1.15	1.72	1.91	1.19	1.57	1.83
Rotor Inertia	$x10^{-4}Kg•m^2$	0.36	0.36	0.36	0.36	0.36	0.36
Temperature Rise	K	80	80	80	80	80	80
Insulation Class		B	B	B	B	B	B
Insulation Resistance	MW	100 (500VDC)	100 (500VDC)	100 (500VDC)	100 (500VDC)	100 (500VDC)	100 (500VDC)
Dielectric Strength	V	500AC (60sec)	500AC (60sec)	500AC (60sec)	500AC (60sec)	500AC (60sec)	500AC (60sec)
Mass	Kg	0.98	0.98	0.98	0.98	0.98	0.98

Outline Dimension

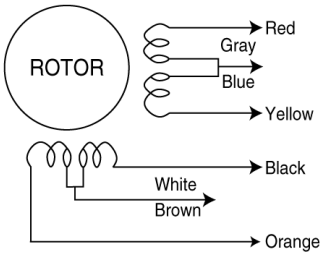


Model	A	B
PJB56H42XXX	41.8	32.2
PJB56H54XXX	53.8	44.2
PJB56H64XXX	63.8	54.2
PJB56H76XXX	75.8	66.2

Inner Connections and Rotation Direction



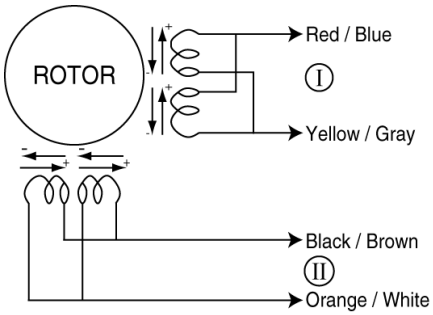
Inner Connections and Rotation Direction (Unipolar Drive)



NO	RED	YELLOW	BLACK	ORANGE	NO
1	ON	OFF	ON	OFF	4
2	OFF	ON	ON	OFF	3
3	OFF	ON	OFF	ON	2
4	ON	OFF	OFF	ON	1

CW ↓ / ↑ CCW

Inner Connections and Rotation Direction Bipolar (Parallel)



NO	Ⅰ	Ⅱ	NO
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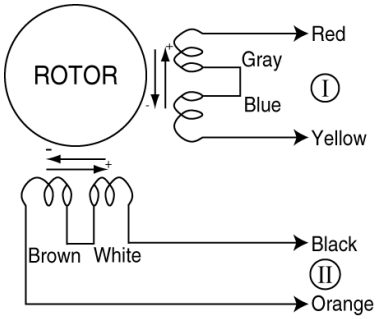
2	-	+	3
3	-	-	2
4	+	-	1

CCW ↓ / ↑ CW

Inner Connections and Rotation Direction Bipolar (Series)



NO	Ⅰ	Ⅱ	NO
1	+	+	4
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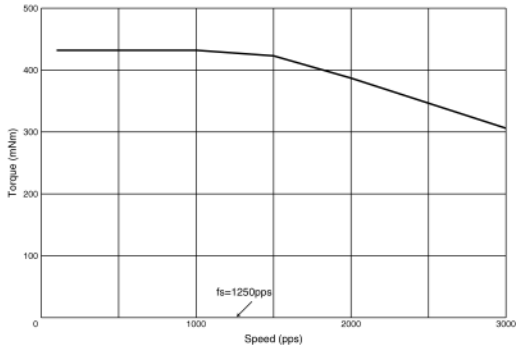
3	-	-	2
4	+	-	1

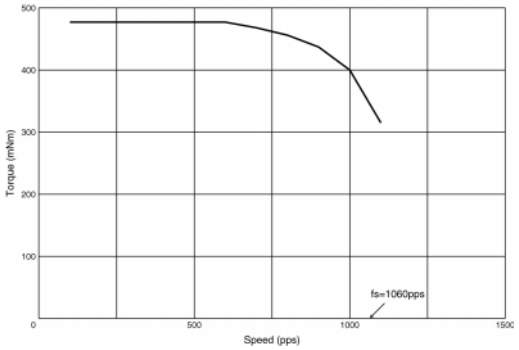
CCW ↓ / ↑ CW

PJB56H42A18 Full-Step Curve (Bipolar - Parallel Connected)



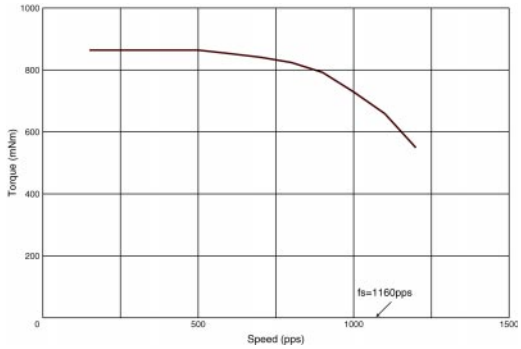
Driver:	SMC-151
Input:	DC24V
Current:	2.8A
Excitation:	2-2Ø (Full-Step)

PJB56H42BA18 Full-Step Curve (Bipolar - Parallel Connected)



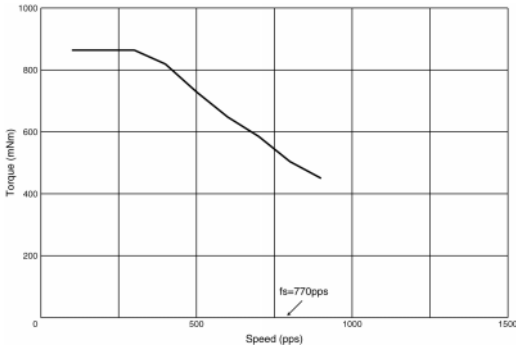
Driver:	SMC-151
Input:	DC24V
Current:	1.4A
Excitation:	2-2Ø (Full-Step)

PJB56H54A18 Full-Step Curve (Bipolar - Parallel Connected)



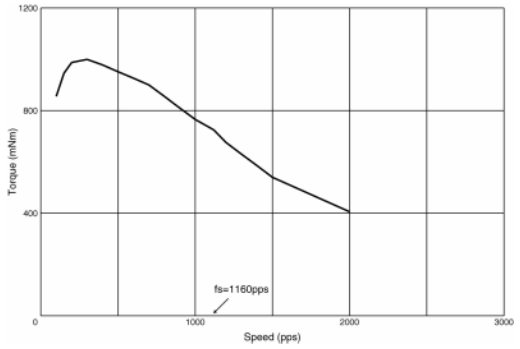
Driver:	SMC-151
Input:	DC24V
Current:	2.8A
Excitation:	2-2Ø (Full-Step)

PJB56H54B18 Full-Step Curve (Bipolar - Parallel Connected)



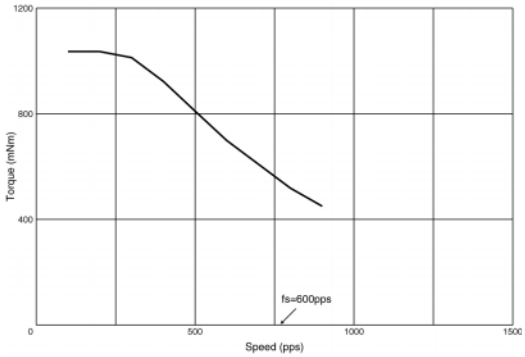
Driver:	SMC-151
Input:	DC24V
Current:	1.4A
Excitation:	2-2Ø (Full-Step)

PJB56H64A18 Full-Step Curve (Bipolar - Parallel Connected)



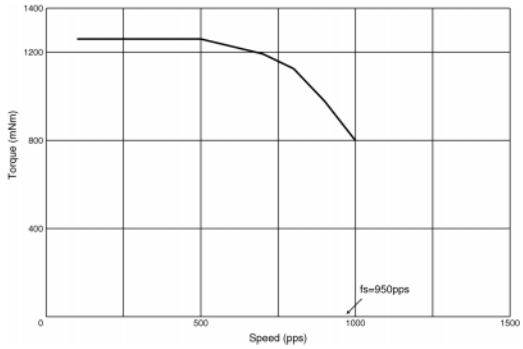
Driver:	SMC-151
Input:	DC24V
Current:	2.8A
Excitation:	2-2Ø (Full-Step)

PJB56H64B18 Full-Step Curve (Bipolar - Parallel Connected)



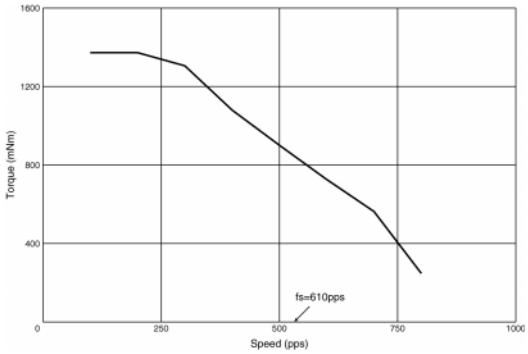
Driver:	SMC-151
Input:	DC24V
Current:	1.4A
Excitation:	2-2Ø (Full-Step)

PJB56H76A18 Full-Step Curve (Bipolar - Parallel Connected)



Driver:	SMC-151
Input:	DC24V
Current:	2.8A
Excitation:	2-2Ø (Full-Step)

PJB56H76B18 Full-Step Curve (Bipolar - Parallel Connected)



Driver:	SMC-151
Input:	DC24V
Current:	1.4A
Excitation:	2-2Ø (Full-Step)