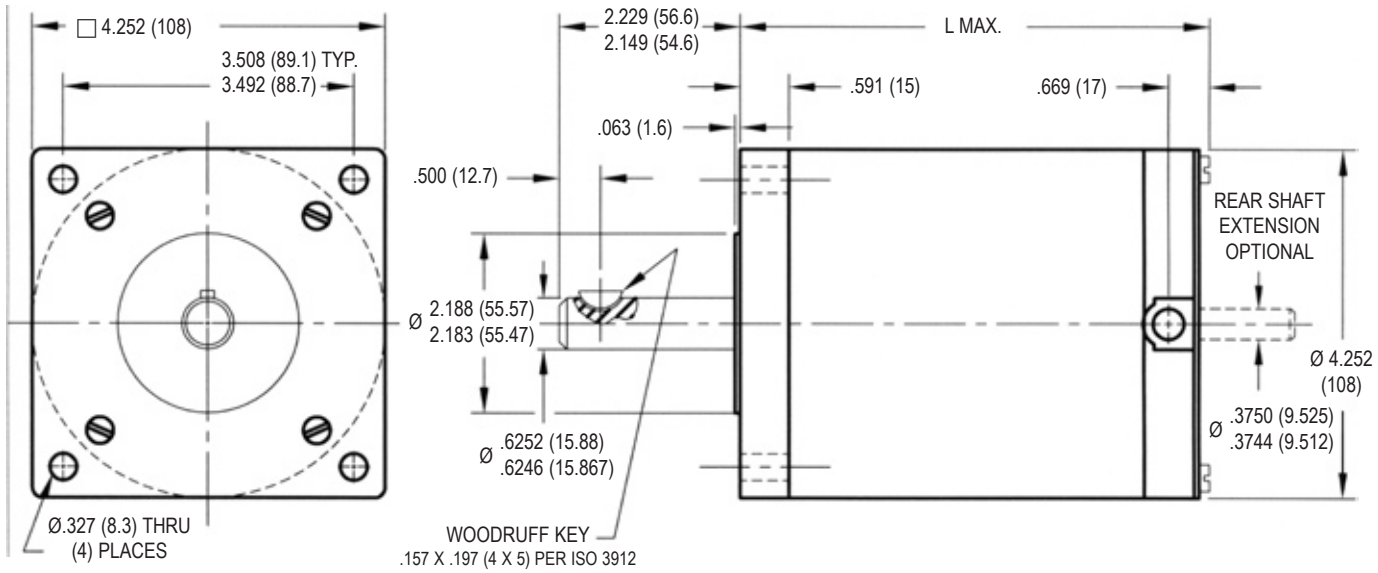
SIZE 42 STEPPER MOTOR DATA

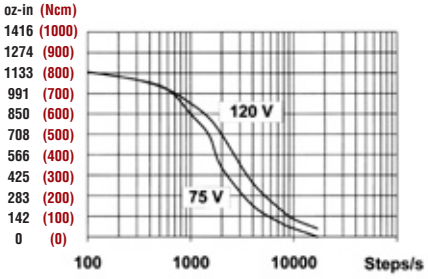
- **Step angle: 1.8˚**
- **NEMA 42 mounting configuration**
- **AlNiCo magnets for high speed operation**
- **Additional windings and customization options available**
- **CE approved**

Specification	Units	Y 20 4270		Y 20 4288	
		0340	0710	0900	0890 ✓
Rated Phase Current(1)	A	3.40	7.10	9.00	8.90
Phase Resistance(1)	Ω	1.1	0.30	0.34	0.31
Phase Inductance(1)	mH	6.3	2.0	2.7	2.3
Holding Torque Unipolar	oz-in	1130	1175	1450	1614
	Ncm	798	830	1024	1140
Holding Torque Bipolar	oz-in	1402	1459	1798	2018
	Ncm	990	1030	1270	1425
Detent Torque	oz-in	99	99	99	92
	Ncm	70	70	70	65
Rotor Inertia	oz-in-s^{2}x10^{-4}	779	779	779	1175
	g-cm^2	5500	5500	5500	8300
Motor Weight (Mass)	lb	16	16	16	23
	kg	7.3	7.3	7.3	10.5
Maximum Voltage	V	140	140	140	140
Motor Length (Max)	in	7.05	7.05	8.90	8.90
	mm	179	179	226	226
Std. Leadwire Config.(2)	——	5	5	5	5
Std. No. of Leads	——	8	8	8	8

✓ Available through the MotionExpress program.
(1) Current, resistance, and inductance shown for 8 lead motors are characteristics of a unipolar connection from center tap to end. See standard leadwire configuration for conversion factors to determine bipolar connection characteristics.
(2) See standard leadwire configuration.

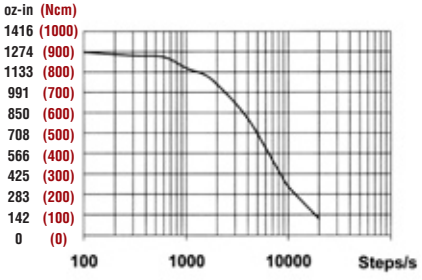


Y 20 4270 0340



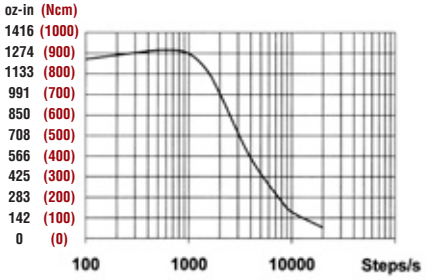
Drive: Bipolar chopper, Parallel, 4.8A/Phase

Y 20 4270 0710



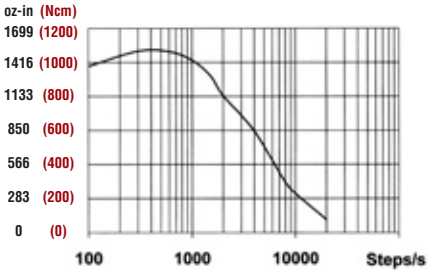
Drive: Bipolar chopper, Parallel, 140V, 10A/Phase

Y 20 4270 0900



Drive: Bipolar chopper, Parallel, 140V, 12A/Phase

Y 20 4288 0890



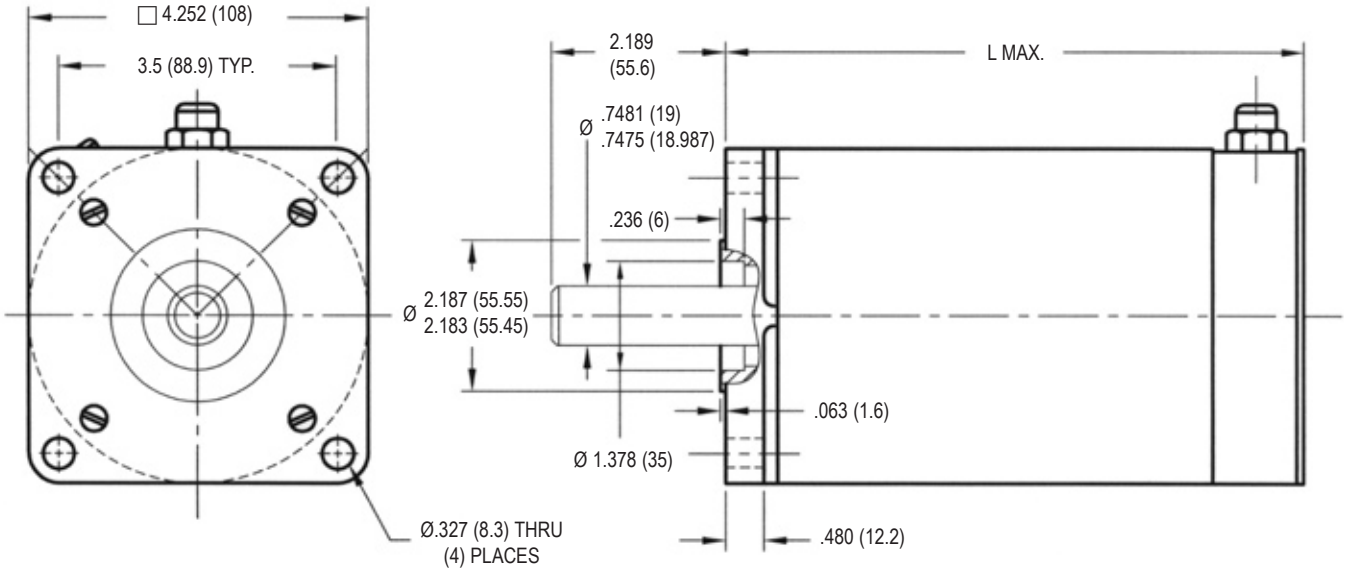
Drive: Bipolar chopper, Parallel, 140V, 12A/Phase

SIZE 42 HIGH PERFORMANCE STEPPER MOTOR DATA

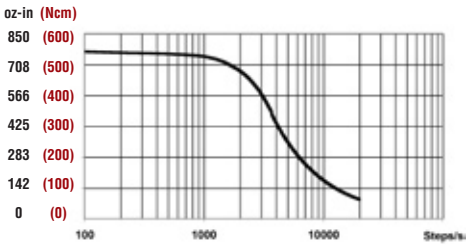
- **Step angle: 1.8˚**
- **NEMA 42 mounting configuration**
- **Neodymium magnets for maximum torque**
- **Optimized for microstep operation**
- **Additional windings and customization options available**
- **CE approved**

Specification	Units	N 20 4255	N 20 4277	N 20 4297
		0700	1200 ✓	1400 ✓
Rated Phase Current	A	7.00	12.00	14.00
Phase Resistance	Ω	0.34	0.48	0.65
Phase Inductance	mH	5.5	9.0	12
Holding Torque Unipolar	oz-in	—	—	—
	Ncm	—	—	—
Holding Torque Bipolar	oz-in	1204	2407	3186
	Ncm	850	1700	2250
Detent Torque	oz-in	85	127	170
	Ncm	60	90	120
Rotor Inertia	oz-in-s^{2}x10^{-4}	736	1402	2124
	g-cm^2	5200	9900	15000
Motor Weight (Mass)	lb	13	20	25
	kg	6.1	9.2	11.5
Maximum Voltage	V	140	140	140
Motor Length (Max)	in	5.51	7.68	9.76
	mm	140	195	248
Std. Leadwire Config.(1)	——	2	2	2
Std. No. of Leads	——	4	4	4

✓ Available through the MotionExpress program.
(1) For standard leadwire configuration.

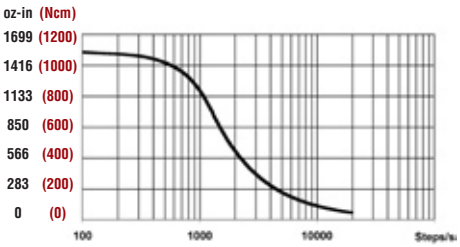


N 20 4255 0700



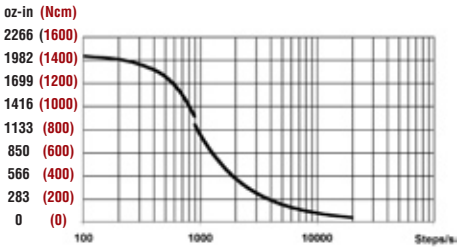
Drive: Bipolar chopper, 140V, 7A/Phase

N 20 4277 1200



Drive: Bipolar chopper, 140V, 12A/Phase

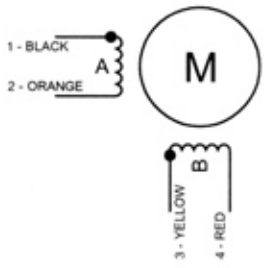
N 20 4297 1400



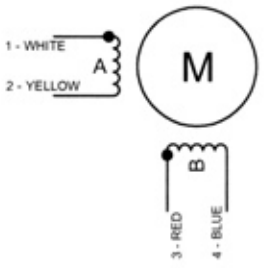
Drive: Bipolar chopper, 140V, 14A/Phase

STANDARD LEADWIRE CONFIGURATION

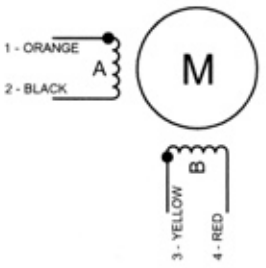
CONFIGURATION #1



CONFIGURATION #2



CONFIGURATION #3



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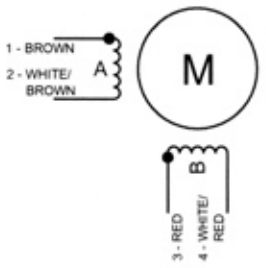

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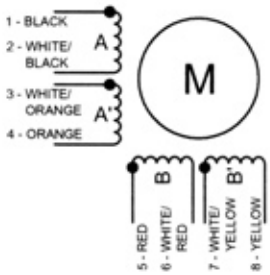
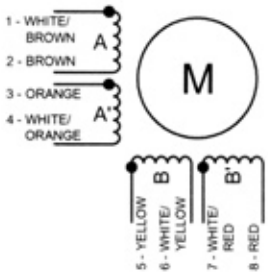
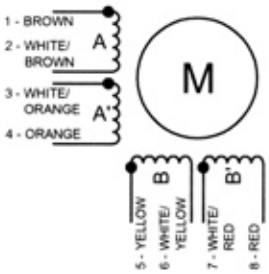


CONFIGURATION #6



CONFIGURATION #7



CONNECTION-DEPENDENT RATINGS FOR 8 LEAD MOTORS

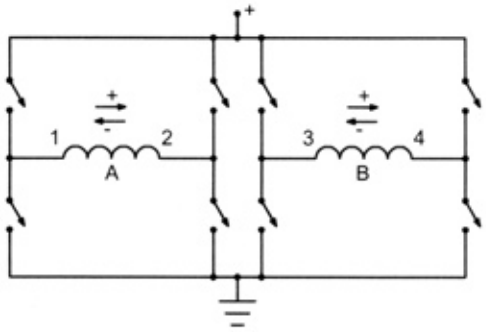
Stepper motors supplied with 8 leads provide maximum flexibility and allow the user to decide what connection method is most suitable for their application. Some of the motor phase characteristics are dependent on the connection method chosen for the windings.

The values for current, resistance, and inductance shown in the data tables for 8 lead motors assume a unipolar connection and measure from the center tap to the end of one winding. To determine the phase characteristics for other connection methods, multiply the given unipolar ratings by the conversion factors listed in the chart below that correspond to the chosen connection method.

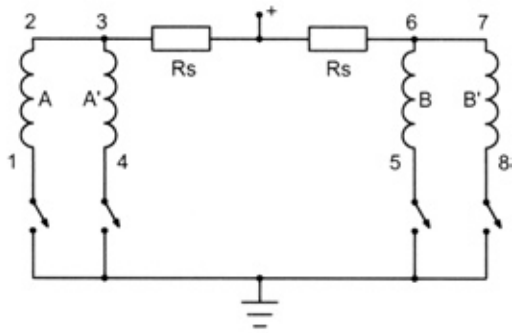
	Unipolar Connection	Bipolar Series Connnection	Bipolar Parallel Connection
Rated Phase Current	1	0.7	1.4
Phase Resistance	1	2	0.5
Phase Inductance	1	4	1

CONNECTION DIAGRAMS

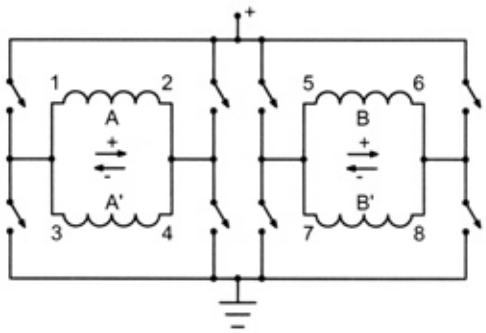
BIPOLAR



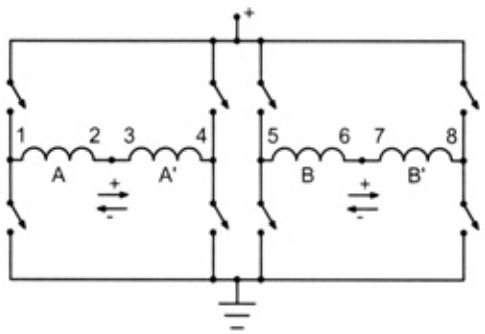
UNIPOLAR



BIPOLAR (PARALLEL)



BIPOLAR (SERIES)



STEP SEQUENCES

FULL STEP OPERATION

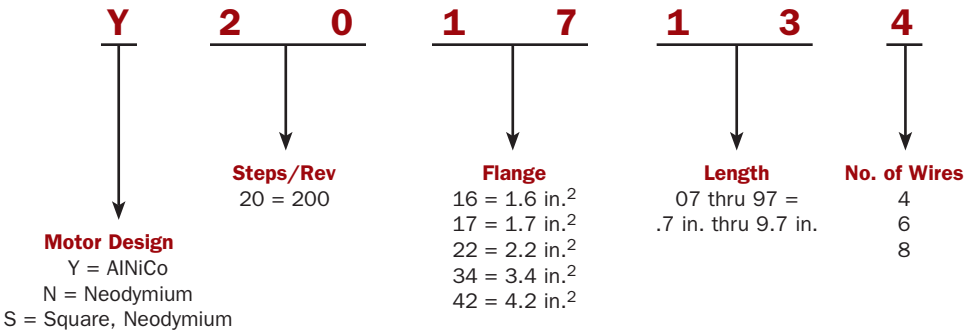
One Phase On							
	Unipolar					*Bipolar*	
	A	A'	B	B'		A	B
1	+	0	0	0	1	0	+
2	0	0	+	0	2	–	0
3	0	+	0	0	3	0	–
4	0	0	0	+	4	+	0
1	+	0	0	0	1	0	+

Two Phases On							
	Unipolar					*Bipolar*	
	A	A'	B	B'		A	B
1	+	0	0	+	1	+	–
2	+	0	+	0	2	+	+
3	0	+	+	0	3	–	+
4	0	+	0	+	4	–	–
1	+	0	0	+	1	+	–

HALF STEP OPERATION

	Unipolar					*Bipolar*	
	A	A'	B	B'		A	B
1	+	0	0	+	1	+	+
2	+	0	0	0	2	0	+
3	+	0	+	0	3	–	+
4	0	0	+	0	4	–	0
5	0	+	+	0	5	–	–
6	0	+	0	0	6	0	–
7	0	+	0	+	7	+	–
8	0	0	0	+	8	+	0
1	+	0	0	+	1	+	+

PART NUMBER DESCRIPTION



The part number description above may also contain a factory assigned suffix of up to seven additional characters. When ordering, please specify the part number according to the system. For first time orders, omit the factory assigned suffix, but specify the winding designation and any additional customization requests.

Specifications subject to change without notice.

PennEngineering®
PITTMAN® Motion Technologies MAE™
343 Godshall Drive, Harleysville, Pennsylvania 19438 USA • Tel: +1-215-256-6601 • Fax: +1-215-256-1338
Via Circonvallazione sud, 5 • 26010 Offanengo (CR) Italy • Tel: +39 0373 247431/7 • Fax: +39 0373 247439
E-mail: info@pennmotion.com • Web Site: www.pennmotion.com