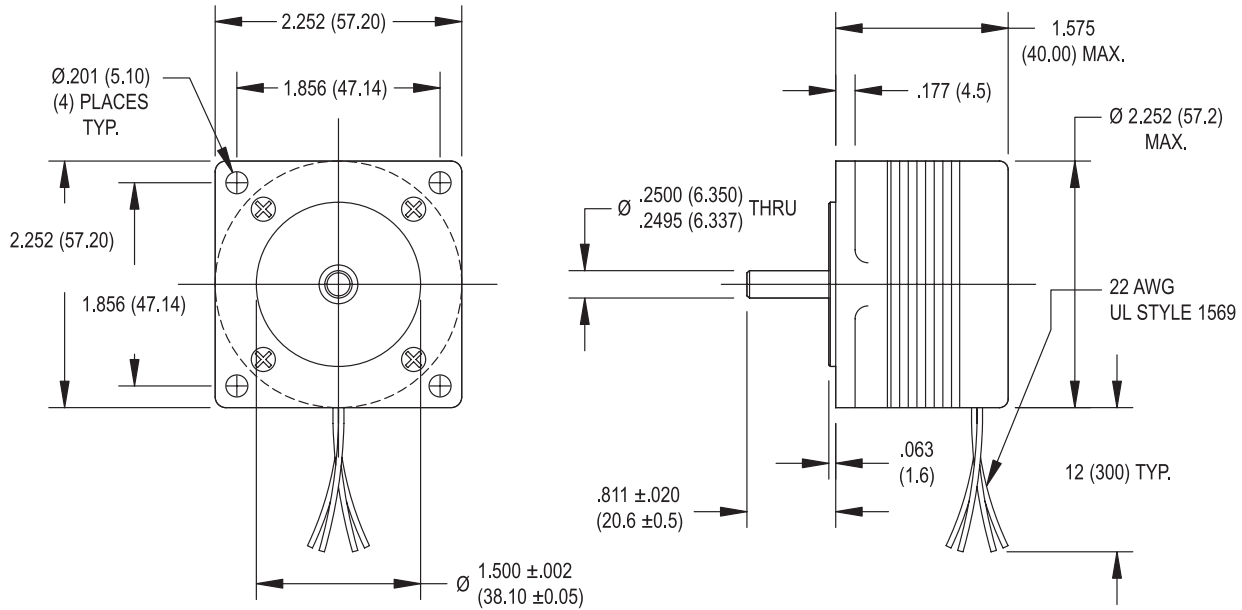
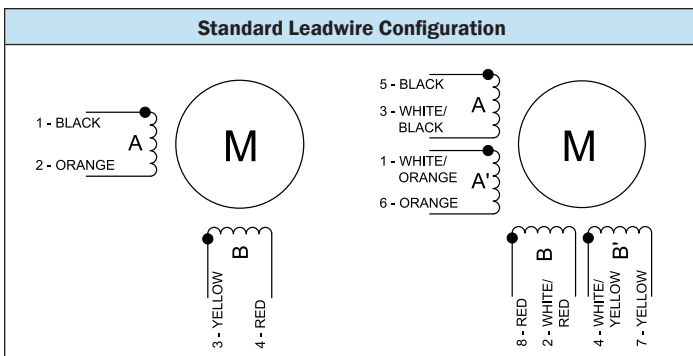
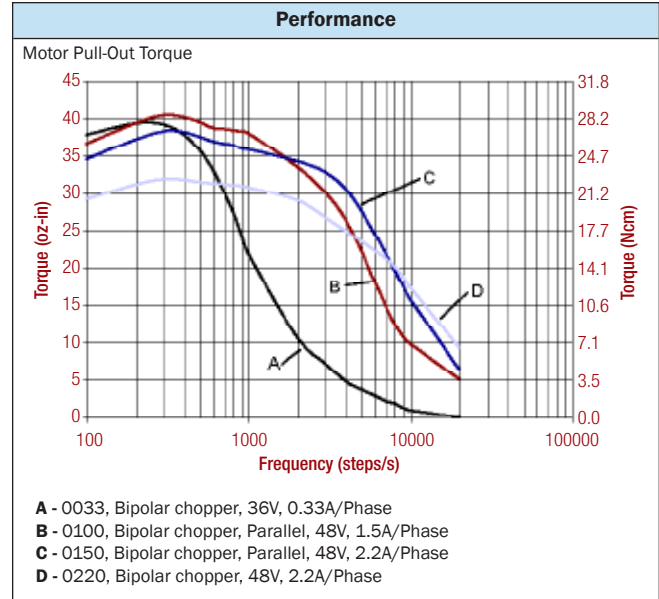


SIZE 23 STEPPER MOTOR DATA



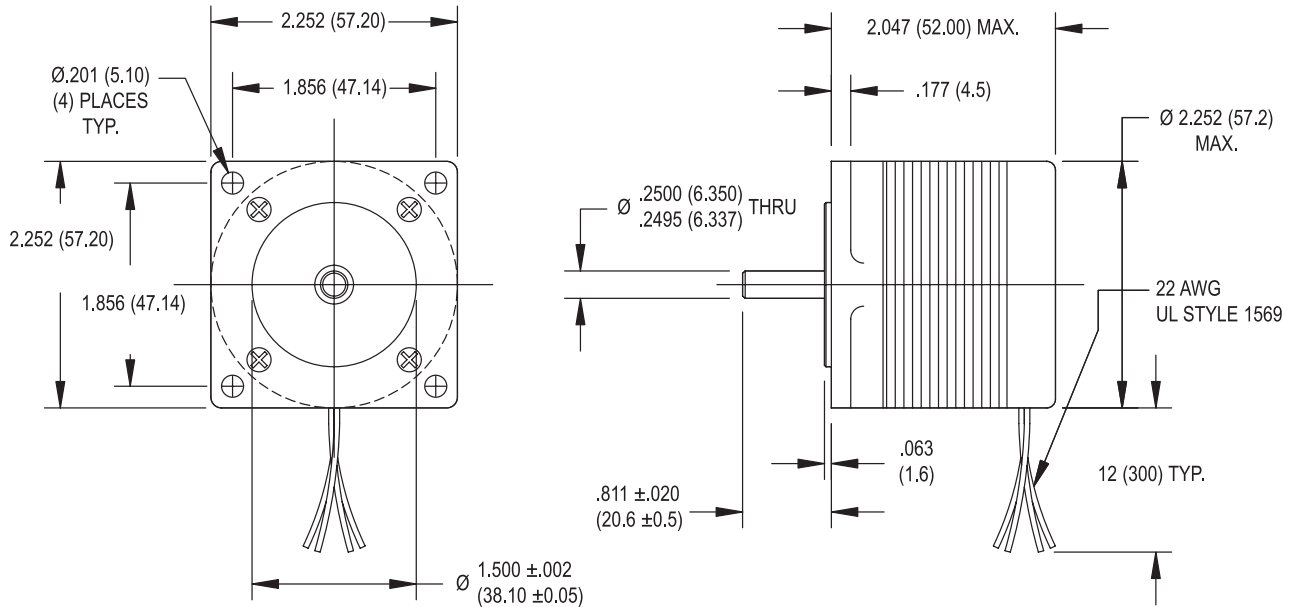
Specification	Units	HY 200 2215			
		0033	0100	0150	0220
Rated Phase Current	A	0.33	1.00	1.50	2.20
Phase Resistance	Ω	33.8	3.4	1.5	0.7
Phase Inductance	mH	54.6	3.8	1.5	1.2
Holding Torque Unipolar	oz-in Ncm	—	38 27	35 25	—
Holding Torque Bipolar	oz-in Ncm	45 32	48 34	47 33	44 31
Detent Torque	oz-in Ncm	4.8 3.4	4.8 3.4	4.8 3.4	4.8 3.4
Rotor Inertia	oz-in-s ² x10 ⁻⁴ g-cm ²	7.9 56	7.9 56	7.9 56	7.9 56
Motor Weight (Mass)	lb kg	0.75 0.34	0.75 0.34	0.75 0.34	0.75 0.34
Maximum Voltage	V	75	75	75	75
Std. No. of Leads	—	4	8	8	4



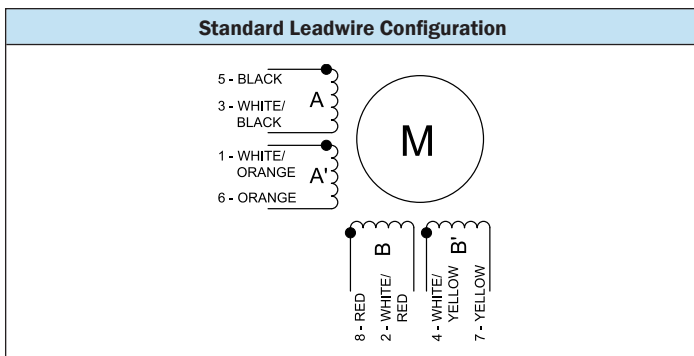
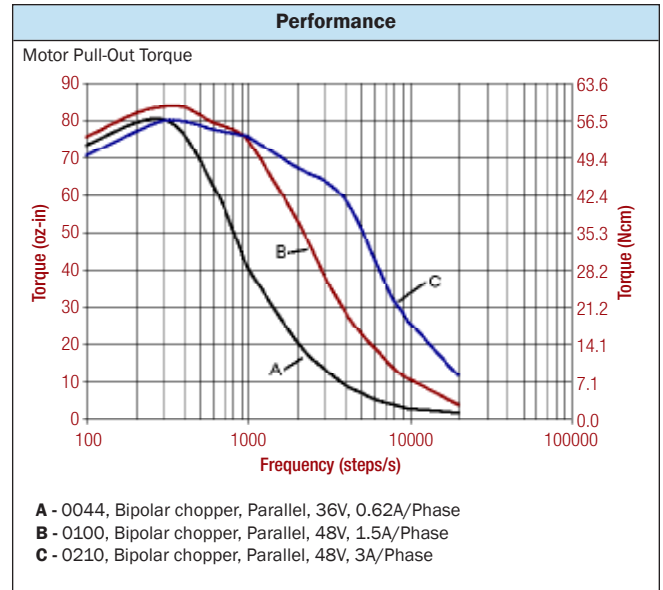
- ### Standard Features
- Step angle: 1.8°
 - Step angle accuracy: 5%
 - Insulation class: B (130 °C)
 - NEMA 23 mounting configuration
 - Additional windings and customization options available
 - CE approved

- ### Complementary Products
- Gearboxes
 - Encoders

SIZE 23 STEPPER MOTOR DATA



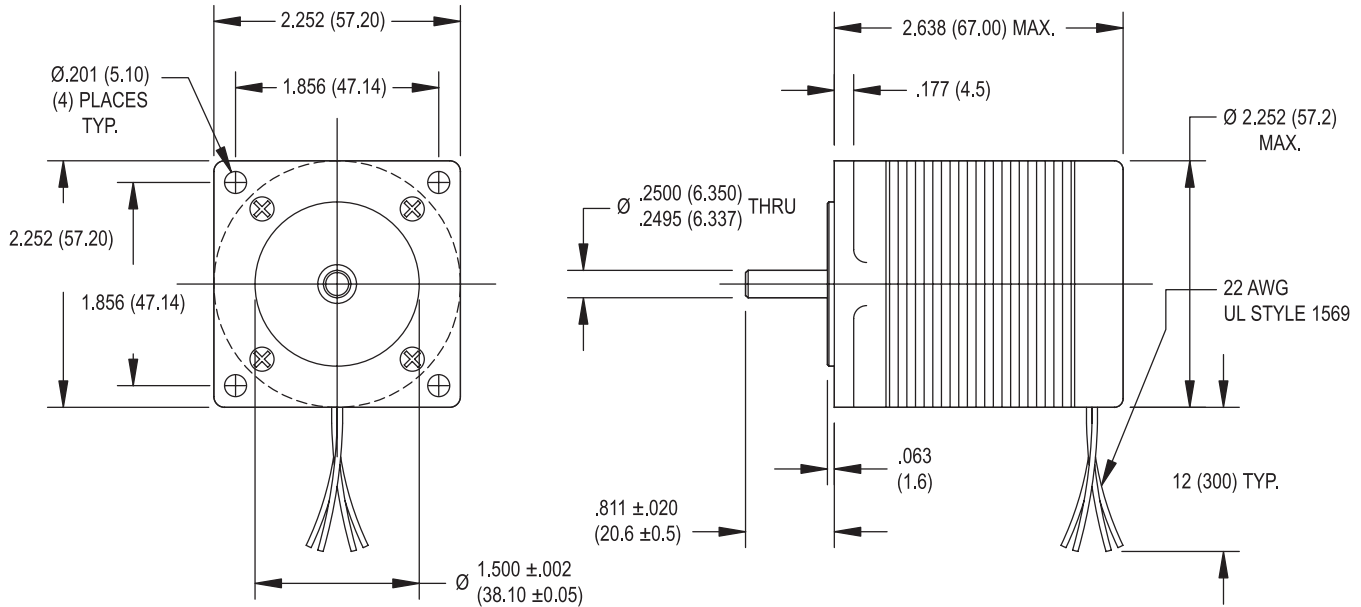
Specification	Units	HY 200 2220		
		0044	0100	0210
Rated Phase Current	A	0.44	1.00	2.10
Phase Resistance	Ω	23.0	5.0	1.1
Phase Inductance	mH	39.2	8.0	1.7
Holding Torque Unipolar	oz-in	74	75	74
	Ncm	52	53	52
Holding Torque Bipolar	oz-in	92	98	91
	Ncm	65	69	64
Detent Torque	oz-in	7.5	7.5	7.5
	Ncm	5.3	5.3	5.3
Rotor Inertia	oz-in-s ² x10 ⁻⁴	17.6	17.6	17.6
	g-cm ²	124	124	124
Motor Weight (Mass)	lb	1.1	1.1	1.1
	kg	0.50	0.50	0.50
Maximum Voltage	V	75	75	75
Std. No. of Leads	—	8	8	8



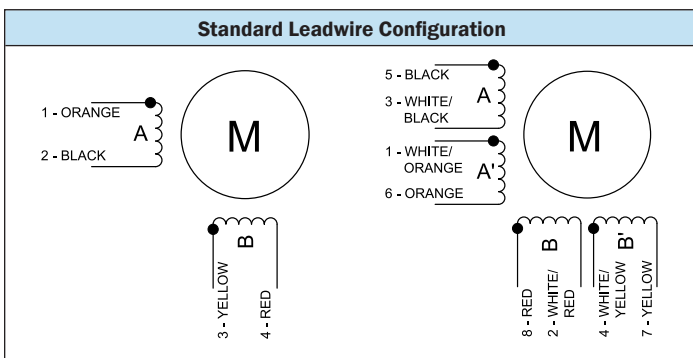
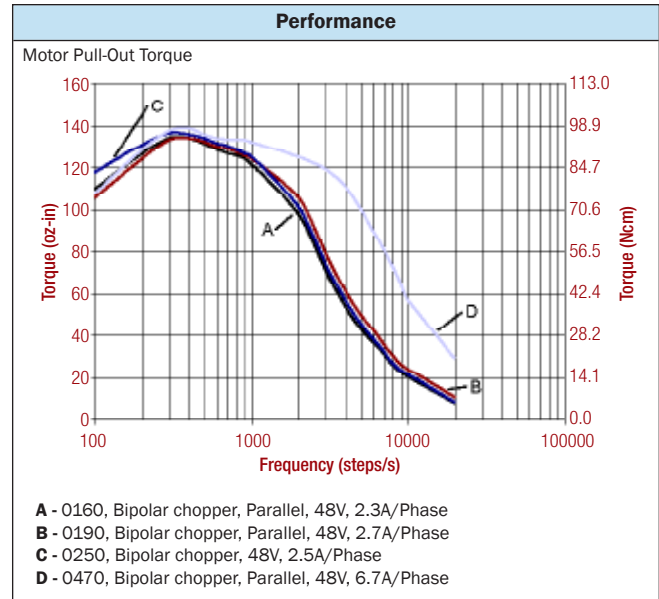
- Standard Features**
- Step angle: 1.8°
 - Step angle accuracy: 5%
 - Insulation class: B (130 °C)
 - NEMA 23 mounting configuration
 - Additional windings and customization options available
 - CE approved

- Complementary Products**
- Gearboxes
 - Encoders

SIZE 23 STEPPER MOTOR DATA



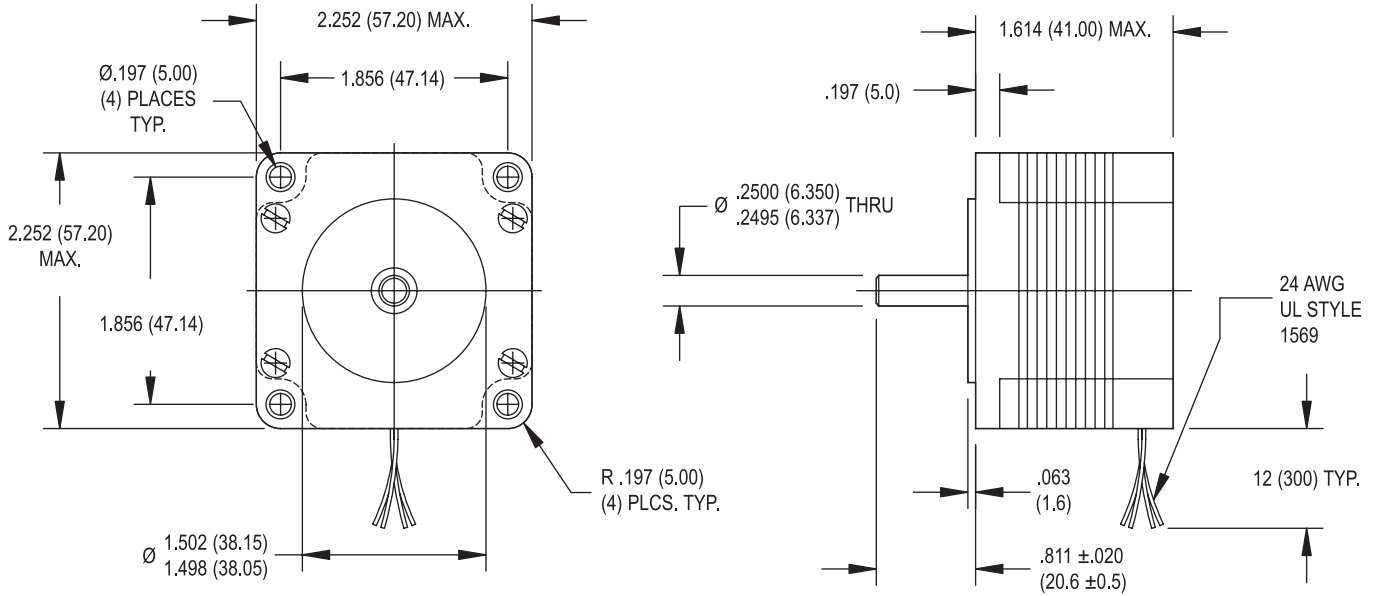
Specification	Units	HY 200 2226			
		0160	0190	0250	0470
Rated Phase Current	A	1.60	1.90	2.50	4.70
Phase Resistance	Ω	2.6	1.8	1.1	0.33
Phase Inductance	mH	4.7	3.3	4.0	0.5
Holding Torque Unipolar	oz-in	123	126	—	123
	Ncm	87	89	—	87
Holding Torque Bipolar	oz-in	154	160	161	154
	Ncm	109	113	114	109
Detent Torque	oz-in	12.0	12.0	12.0	12.0
	Ncm	8.5	8.5	8.5	8.5
Rotor Inertia	oz-in-s ² x10 ⁻⁴	28	28	28	28
	g-cm ²	200	200	200	200
Motor Weight (Mass)	lb	1.5	1.5	1.5	1.5
	kg	0.70	0.70	0.70	0.70
Maximum Voltage	V	75	75	75	75
Std. No. of Leads	—	8	8	4	8



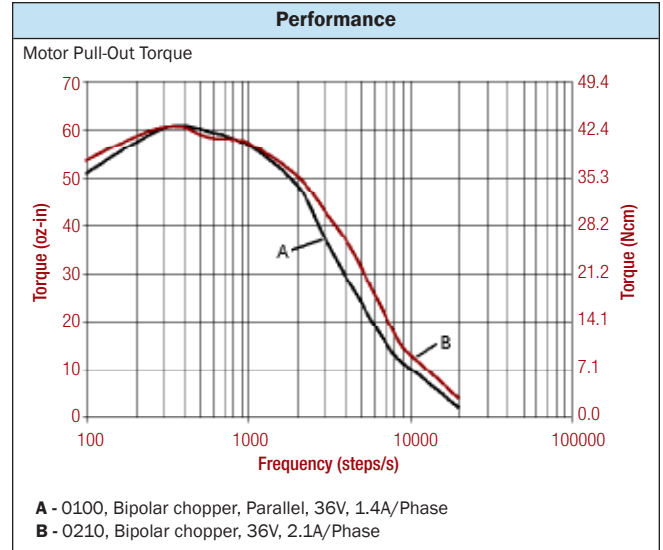
- ### Standard Features
- Step angle: 1.8°
 - Step angle accuracy: 5%
 - Insulation class: B (130 °C)
 - NEMA 23 mounting configuration
 - Additional windings and customization options available
 - CE approved

- ### Complementary Products
- Gearboxes
 - Encoders

SIZE 23 HIGH PERFORMANCE STEPPER MOTOR DATA

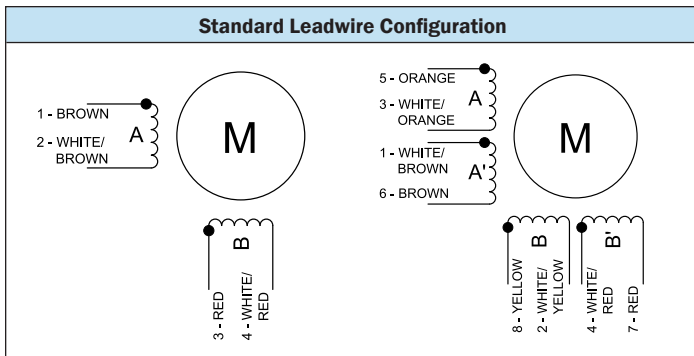


Specification	Units	HS 200 2216	
		0100	0210
Rated Phase Current	A	1.00	2.10
Phase Resistance	Ω	4.6	1.0
Phase Inductance	mH	4.6	2.1
Holding Torque Unipolar	oz-in Ncm	52 37	—
Holding Torque Bipolar	oz-in Ncm	67 47	67 47
Detent Torque	oz-in Ncm	3.0 2.1	3.0 2.1
Rotor Inertia	oz-in-s ² x10 ⁻⁴ g-cm ²	11 77	11 77
Motor Weight (Mass)	lb kg	1.1 0.50	1.1 0.50
Maximum Voltage	V	75	75
Std. No. of Leads	—	8	4

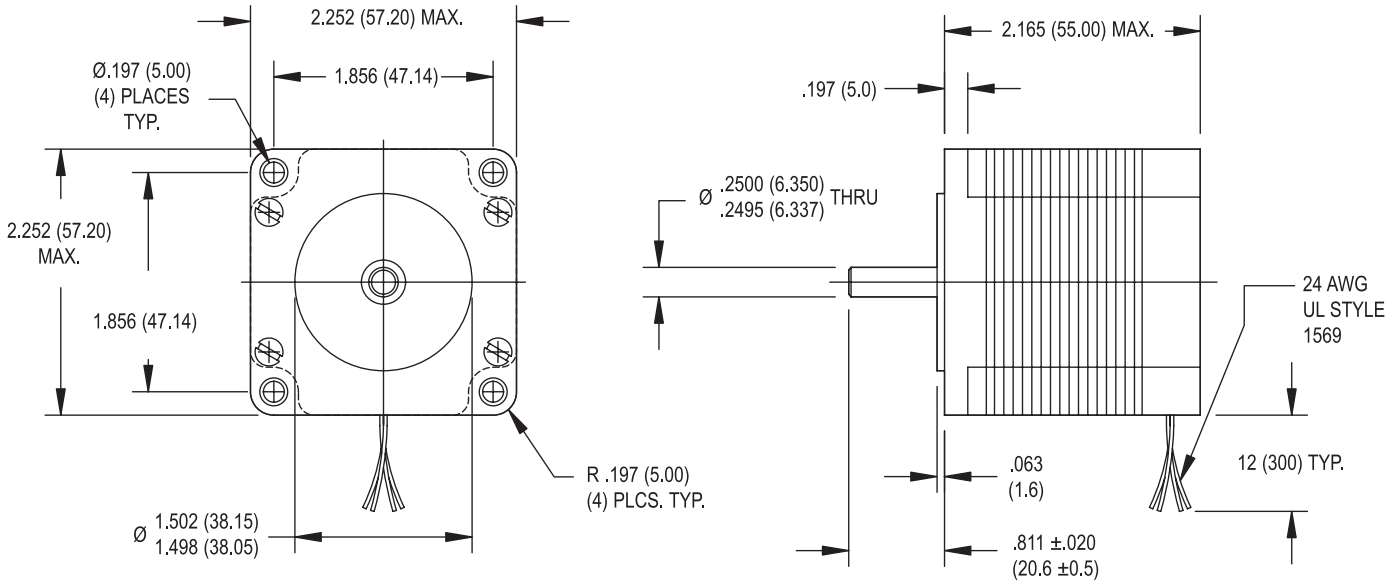


- Standard Features**
- Step angle: 1.8°
 - Step angle accuracy: 5%
 - Insulation class: B (130 °C)
 - Optimized for microstep operation
 - NEMA 23 mounting configuration
- Additional windings and customization options available
 • CE approved

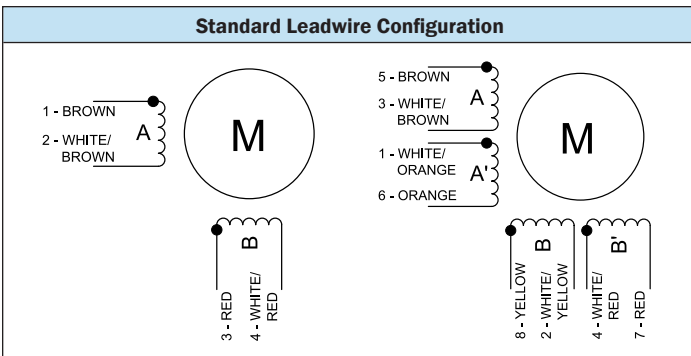
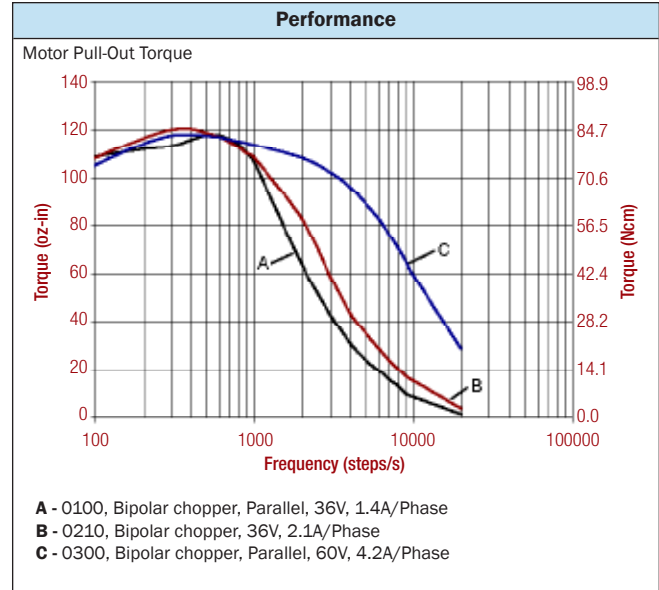
- Complementary Products**
- Gearboxes
 - Encoders



SIZE 23 HIGH PERFORMANCE STEPPER MOTOR DATA



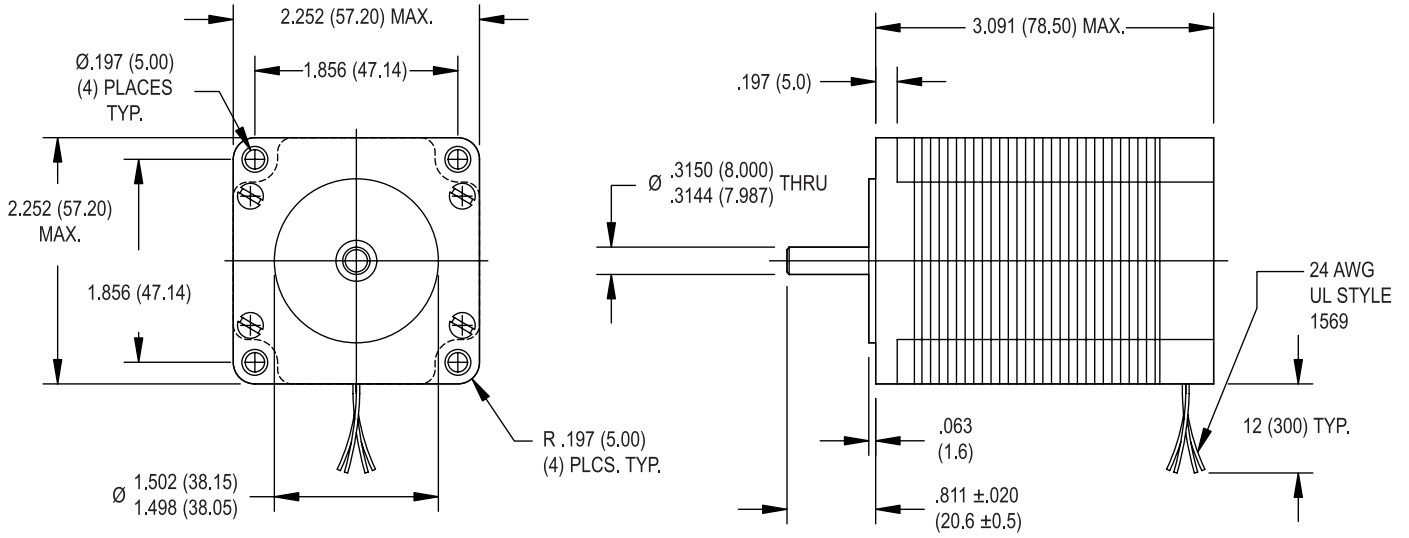
Specification	Units	HS 200 2221		
		0100	0210	0300
Rated Phase Current	A	1.00	2.10	3.00
Phase Resistance	Ω	6.2	1.4	0.7
Phase Inductance	mH	8.8	3.9	0.9
Holding Torque Unipolar	oz-in	106	—	106
	Ncm	75	—	75
Holding Torque Bipolar	oz-in	139	139	139
	Ncm	98	98	98
Detent Torque	oz-in	5.7	5.7	5.7
	Ncm	4.0	4.0	4.0
Rotor Inertia	oz-in-s ² x10 ⁻⁴	31	31	31
	g-cm ²	220	220	220
Motor Weight (Mass)	lb	1.5	1.5	1.5
	kg	0.70	0.70	0.70
Maximum Voltage	V	75	75	75
Std. No. of Leads	—	8	4	8



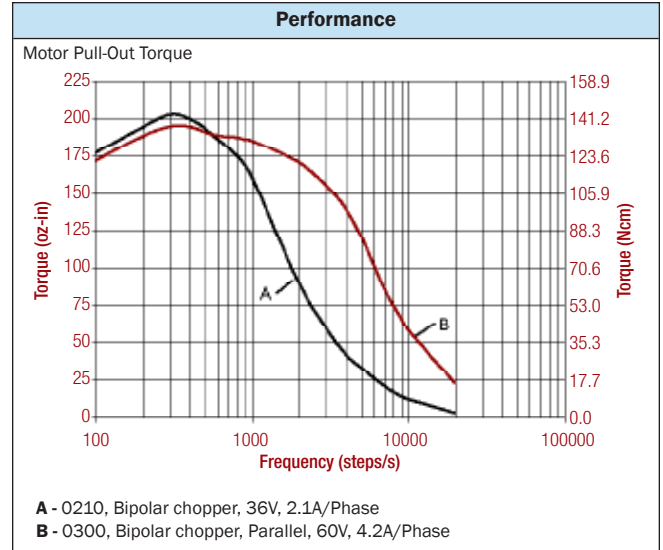
- Standard Features**
- Step angle: 1.8°
 - Step angle accuracy: 5%
 - Insulation class: B (130 °C)
 - Optimized for microstep operation
 - NEMA 23 mounting configuration
 - Additional windings and customization options available
 - CE approved

- Complementary Products**
- Gearboxes
 - Encoders

SIZE 23 HIGH PERFORMANCE STEPPER MOTOR DATA

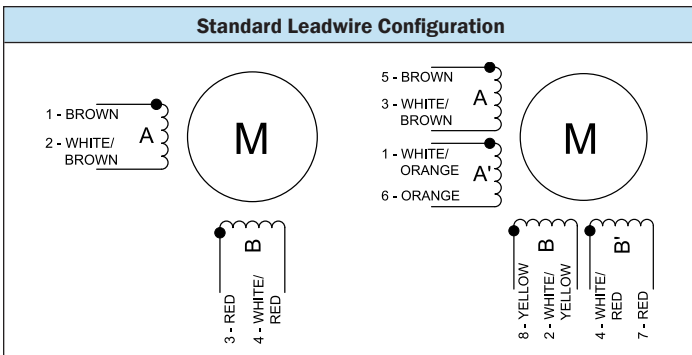


Specification	Units	HS 200 2231	
		0210	0300
Rated Phase Current	A	2.10	3.00
Phase Resistance	Ω	2.0	1.1
Phase Inductance	mH	6.5	1.7
Holding Torque Unipolar	oz-in Ncm	—	177 125
Holding Torque Bipolar	oz-in Ncm	228 161	231 163
Detent Torque	oz-in Ncm	9.6 6.8	9.6 6.8
Rotor Inertia	oz-in-s ² x10 ⁻⁴ g-cm ²	48 340	48 340
Motor Weight (Mass)	lb kg	2.2 1.0	2.2 1.0
Maximum Voltage	V	75	75
Std. No. of Leads	—	4	8

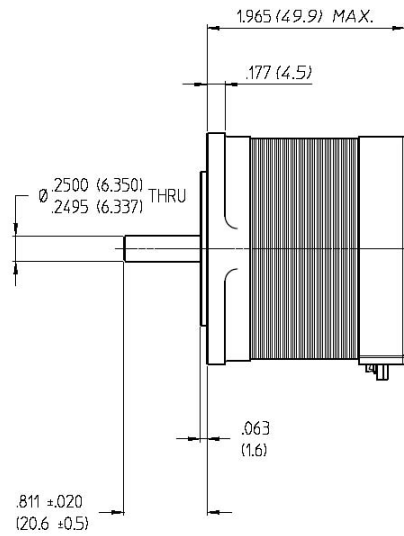
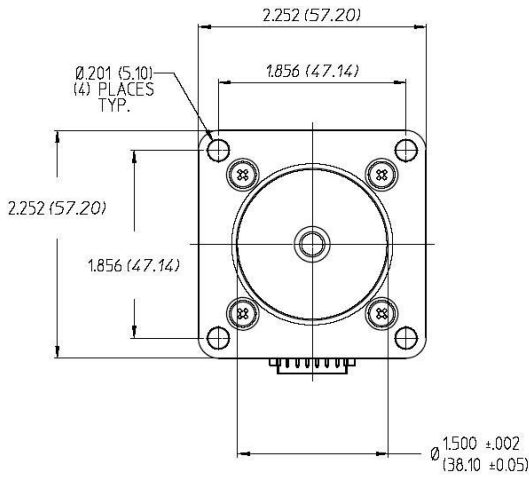


- Standard Features**
- Step angle: 1.8°
 - Step angle accuracy: 5%
 - Insulation class: B (130 °C)
 - Optimized for microstep operation
 - NEMA 23 mounting configuration
- Additional windings and customization options available
 • CE approved

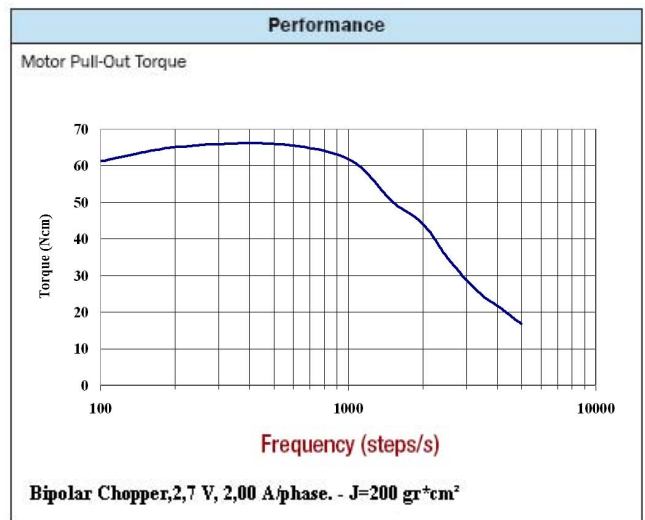
- Complementary Products**
- Gearboxes
 - Encoders



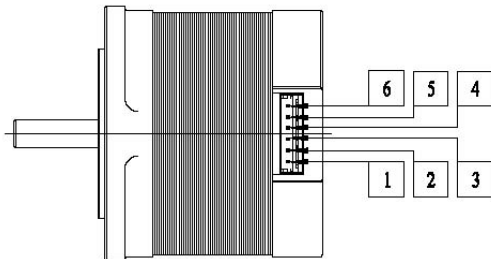
SIZE 23 HIGH PERFORMANCE STEPPER MOTOR DATA



Specification	Symbol	HT200 2220	
		Units	Value
Rated Phase Current	I	A	2.00
Phase Resistance	R _{res}	Ω	1.20
Phase Inductance	L	mH	3.40
Holding Torque Bipolar	T _{Holding}	oz-in	113
		Ncm	80
Detent Torque	T _{detent}	oz-in	8.5
		Ncm	6
Rotor Inertia	J	oz-in sec ² × 10 ⁻⁴	18.7
		g-cm ²	132
Motor Weight (Mass)	w _{tot}	lb	1.1
		kg	0.5
Maximum Voltage	V _{max}	V	75
Connector	S6B-EH "JST"		



- Standard Features**
- Step angle: 1.8°
 - Step angle accuracy: 5%
 - Insulation class: B (130°C)
 - NEMA 23 mounting configuration
 - Additional windings and customization options available



Step #	Coil excitation: The current is flowing in direction of:
1	A : D
1	A : C
1	B : C
1	B : D

CCW rotation from front side using commutation sequence as table above