# ML23HS / PL23HS Series: 1.8° - Size 23

- Phases 2
- Steps / Revolution 200
- Step Accuracy ±5%
- Shaft Load (20,000 Hours at 1000 RPM)
  - Axial: 40 N (9 Lbs.) Push; 130 N (30 Lbs.) Pull
  - Radial: 70 N (15.5 Lbs.) At Flat Center
- IP Rating 40
- Approvals UL Recognized File E465363, RoHS
- Operating Temp. -20°C to +50°C
- Insulation Class B, 130°C
- Insulation Resistance 100 MegOhms

**M L23HS 0 P 4 100 -E**

**Motor Technology**

| | |
|---|---|
| M | High Torque Step Motor |
| P | PowerPlus Step Motor |

**Basic Motor Length (Max)**

| | | |
|---|---|---|
| 0 | 39mm ( 1.54 in. ) | |
| 4 | 45mm (1.77 in. ) | |
| 8 | 55mm ( 2.17 in. ) | 1 Stack |
| A | 77mm ( 3.03 in. ) | 2 Stack |
| C | 112mm (4.41 in. ) | 3 Stack |

**Electrical Connection**

| | |
|---|---|
| L | Leads |
| P | Plug-in Connector |

**Number of Connections**

| | |
|---|---|
| 4 | 4 Lead-Bipolar |
| 6 | 6 Lead-Unipolar(or Bipolar) |

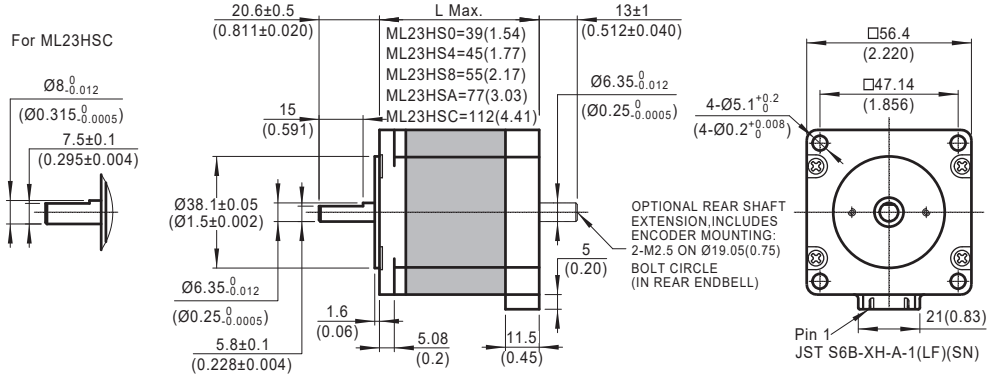
**Winding**

| | |
|---|---|
| ### | Current rating x 100 |

**Options**

| | |
|---|---|
| Omit | No Options |
| -E | 0.25 inch Diameter Rear Shaft with Encoder Mounting Holes |

## Dimensions: mm (in)



## ML23HS - 4 Lead Bi-Polar

| Length | Model Number | Connect | Rated Current | Holding Torque | | Winding Ohms mH | | Detent Torque | | Rotor Inertia | | Motor Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Single Shaft | P=Plug L=Leads | Amps (mounted) | Nm Typ. | oz-in TYP. | @20˚C | Typ. | mNm | oz-in | g cm² | oz-in² | kg | Lbs |
| 39 mm (1.54 in.) | ^ ML23HS0P4100 | P | 1 | 0.82 | 120 | 6.3 | 15.9 | 24 | 3.4 | 105 | 0.66 | 0.42 | 0.93 |
| | ^ ML23HS0P4160 | P | 1.6 | 0.83 | 120 | 2.6 | 6.5 | | | | | | |
| | ^ ML23HS0P4220 | P | 2.2 | 0.84 | 120 | 1.39 | 3.5 | | | | | | |
| | ^ ML23HS0L4350 | L | 3.5 | 0.82 | 120 | 0.56 | 1.3 | | | | | | |
| 45 mm (1.77 in.) | ^ ML23HS4P4100 | P | 1 | 1.20 | 170 | 7.3 | 22 | 28 | 4 | 135 | 0.85 | 0.48 | 1.1 |
| | ^ ML23HS4P4150 | P | 1.5 | 1.20 | 170 | 3.1 | 9.2 | | | | | | |
| | ^ ML23HS4P4210 | P | 2.1 | 1.20 | 170 | 1.62 | 4.8 | | | | | | |
| | ^ ML23HS4L4340 | L | 3.4 | 1.20 | 170 | 0.65 | 1.8 | | | | | | |
| 55 mm (2.17 in.) 1 Stack | ^ ML23HS8P4100 | P | 1 | 1.50 | 210 | 7.6 | 33 | 45 | 6.4 | 215 | 1.2 | 0.6 | 1.3 |
| | ^ ML23HS8P4150 | P | 1.5 | 1.50 | 210 | 3.1 | 13.6 | | | | | | |
| | ^ ML23HS8P4220 | P | 2.2 | 1.50 | 210 | 1.6 | 6.9 | | | | | | |
| | ^ ML23HS8L4360 | L | 3.6 | 1.50 | 210 | 0.63 | 2.6 | | | | | | |
| | ^ ML23HS8L4550 | L | 5.5 | 1.50 | 210 | 0.28 | 1.03 | | | | | | |
| 77 mm (3.03 in.) 2 Stack | ^ ML23HSAP4100 | P | 1 | 2.30 | 330 | 8.8 | 39 | 75 | 11 | 365 | 2.1 | 1 | 2.2 |
| | ^ ML23HSAP4150 | P | 1.5 | 2.30 | 330 | 4.3 | 18.5 | | | | | | |
| | ^ ML23HSAP4200 | P | 2 | 2.30 | 330 | 2.3 | 9.8 | | | | | | |
| | ^ ML23HSAP4300 | P | 3 | 2.30 | 330 | 1.1 | 4.5 | | | | | | |
| | ^ ML23HSAL4500 | L | 5 | 2.30 | 330 | 0.39 | 1.53 | | | | | | |
| 112 mm (4.41 in.) 3 Stack | ^ ML23HSCP4150 | P | 1.5 | 3.20 | 450 | 5.1 | 23 | 120 | 17 | 750 | 3.3 | 1.5 | 3.3 |
| | ^ ML23HSCP4200 | P | 2 | 3.20 | 450 | 2.7 | 13 | | | | | | |
| | ^ ML23HSCP4300 | P | 3 | 3.20 | 450 | 1.29 | 5.5 | | | | | | |
| | ^ ML23HSCL4500 | L | 5 | 3.20 | 450 | 0.51 | 2.2 | | | | | | |

^ Preferred model

## PL23HS - PowerPlus - 4 Lead Bi-Polar

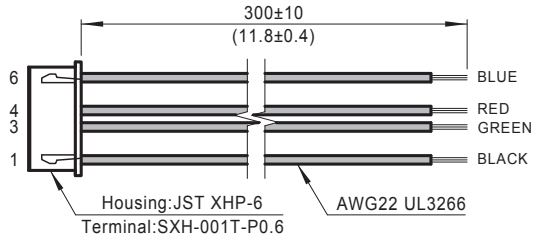
| Length | Model Number | Connect | Rated Current | Holding Torque | | Winding Ohms mH | | Detent Torque | | Rotor Inertia | | Motor Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Single Shaft | P=Plug L=Leads | Amps (mounted) | Nm Typ. | oz-in TYP. | @20˚C | Typ. | mNm | oz-in | g cm² | oz-in² | kg | Lbs |
| 55 mm (2.17 in.) 1 Stack | ^ PL23HS8P4100 | P | 1 | 2.30 | 330 | 7.6 | 26 | 100 | 14 | 215 | 1.4 | 0.65 | 1.4 |
| | ^ PL23HS8P4150 | P | 1.5 | 2.20 | 310 | 3.1 | 10.7 | | | | | | |
| | ^ PL23HS8P4220 | P | 2.2 | 2.30 | 330 | 1.6 | 5.4 | | | | | | |
| | ^ PL23HS8L4360 | L | 3.6 | 2.30 | 330 | 0.63 | 2 | | | | | | |
| | ^ PL23HS8L4550 | L | 5.5 | 2.20 | 310 | 0.28 | 0.8 | | | | | | |
| 77 mm (3.03 in.) 2 Stack | ^ PL23HSAP4100 | P | 1 | 3.30 | 470 | 8.8 | 32 | 150 | 21 | 365 | 2.5 | 1.1 | 2.4 |
| | ^ PL23HSAP4150 | P | 1.5 | 3.40 | 480 | 4.3 | 15.2 | | | | | | |
| | ^ PL23HSAP4200 | P | 2 | 3.30 | 470 | 2.3 | 8.1 | | | | | | |
| | ^ PL23HSAP4300 | P | 3 | 3.30 | 470 | 1.1 | 3.7 | | | | | | |
| | ^ PL23HSAL4500 | L | 5 | 3.30 | 470 | 0.39 | 1.27 | | | | | | |

^ Preferred model

### Mating Connector With Leads (order separately)

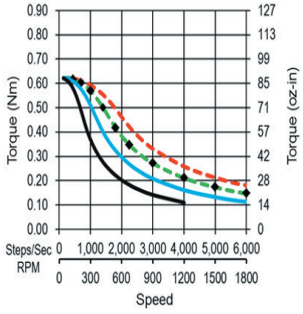
Dimensions: mm (in)

4 Lead Part Number 4634 1402 01891



| ML23HS0 | ML23HS4 | ML23HS8 | ML23HSA |
|---|---|---|---|

**ML23HS0P4100**

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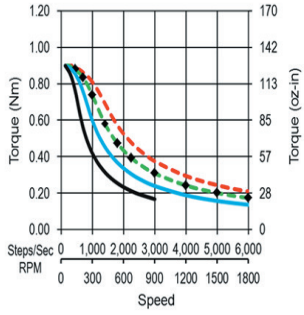


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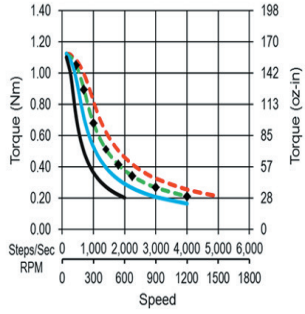


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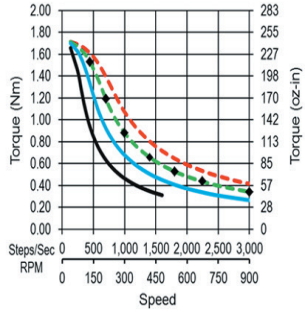


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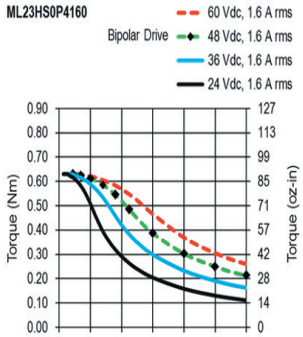


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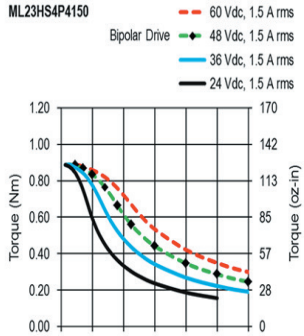


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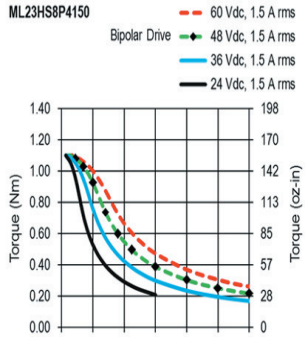


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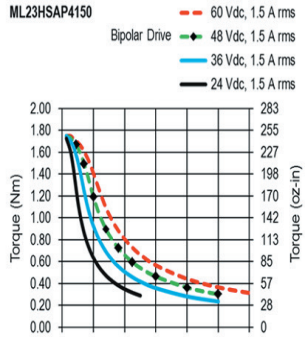


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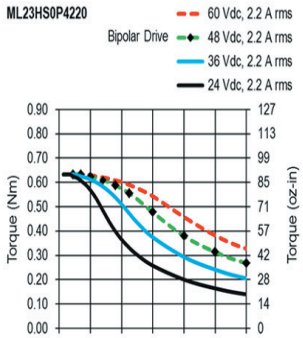


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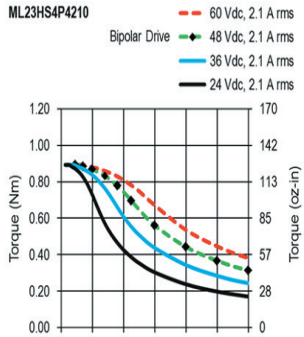


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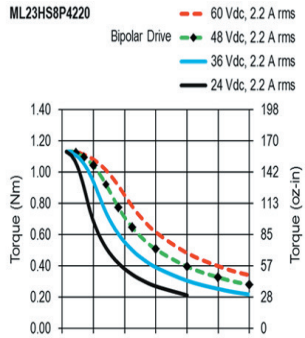


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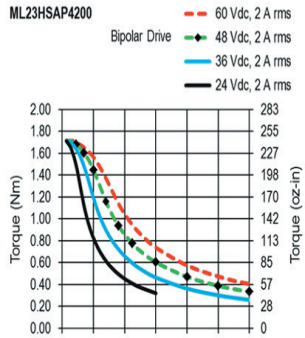


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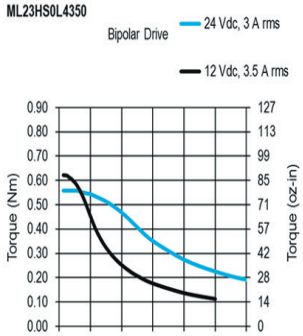


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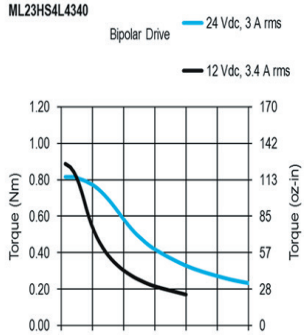
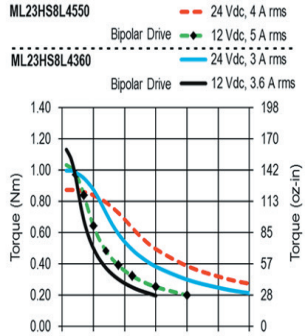


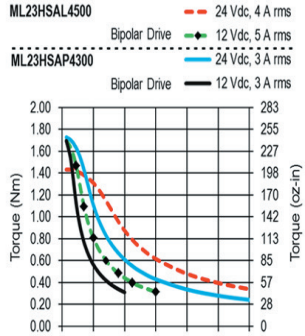

**ML23HS8L4550**

**ML23HS8L4360**

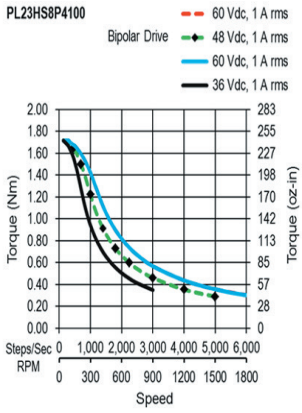
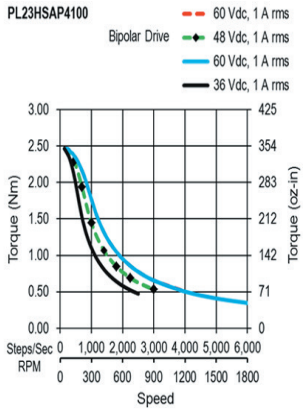
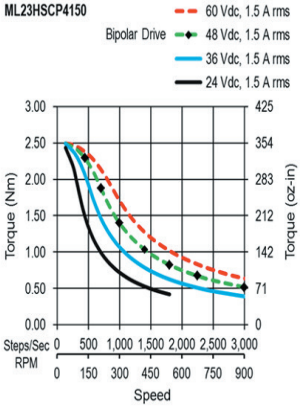
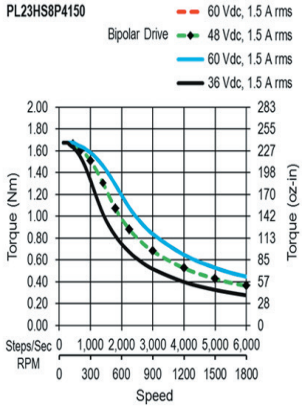
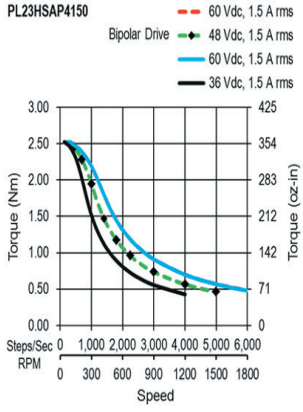
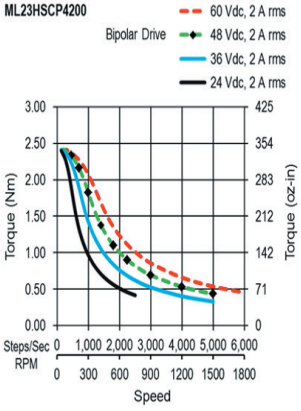
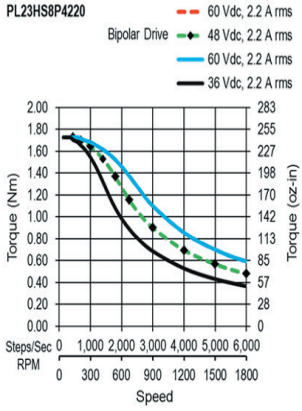
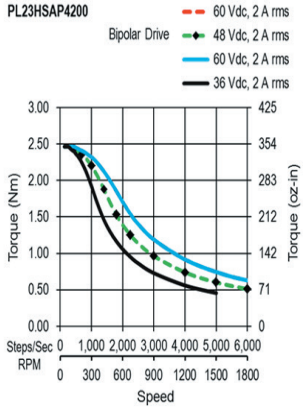
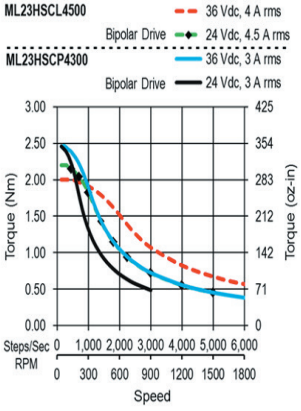
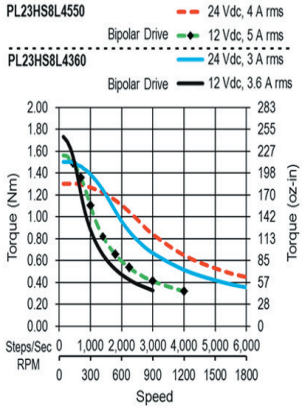
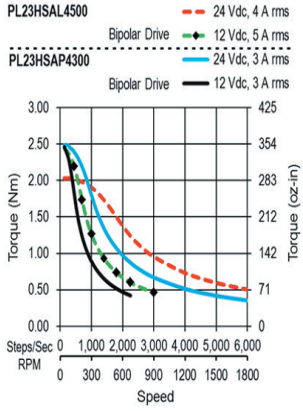



**ML23HSAL4500**

**ML23HSAP4300**



## ML23HSC

## PowerPlus PL23HS8

## PowerPlus PL23HSA