

# HYBRID STEPPER MOTOR ES-MH342120 WITH ENCODER



## FEATURES:

- 3-phase hybrid stepper motor
- 1000-lines/Rev. encoder
- Standard NEMA 42 dimensions
- High torque design

The ES-MH342120 three-phase stepper motor with encoder feedback is designed to work with the Leadshine Hybrid Servo Drives ES-DH-series to build a hybrid servo closed loop system (no loss of steps anymore).

## GENERAL SPECIFICATIONS:

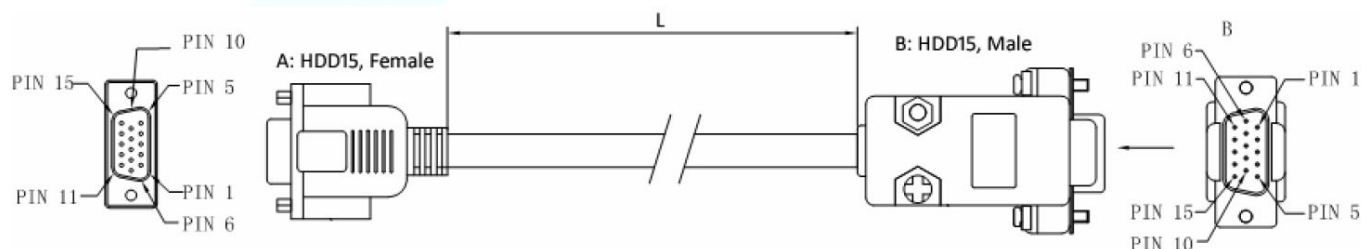
|                               | ES-MH342120 |  |
|-------------------------------|-------------|--|
| Step Angle (Degree)           | 1.2         |  |
| Holding Torque (Nm)           | 12.0        |  |
| Phase Current (A)             | 4.2         |  |
| Phase Resistance (Ohm)        | 1.2         |  |
| Phase Inductance (mH)         | 13          |  |
| Inertia (kg.cm <sup>2</sup> ) | 11          |  |
| Weight (kg)                   | 8.6         |  |
| Encoder (lines / Rev.)        | 1000        |  |

## Encoder Specifications:

| Parameter                  | Min | Typical | Max | Unit |
|----------------------------|-----|---------|-----|------|
| Operating Temperature      | -40 | -       | 100 | °C   |
| Supply Voltage             | 4.5 | 5       | 5.5 | VDC  |
| Output Current per Channel | -1  | -       | 5   | mA   |
| Low Level Output Voltage   | -   | -       | 0.4 | VDC  |
| High Level Output Voltage  | 2.4 | -       | -   | VDC  |
| Count Frequency            | -   | -       | 100 | KHz  |

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## Encoder Extension Cable:



| Pin (female) | Name | Color  | Pin (male) | Description              |
|--------------|------|--------|------------|--------------------------|
| 1            | EA+  | Black  | 1          | Encoder channel A+       |
| 2            | VCC  | Red    | 13         | +5V power input          |
| 3            | GND  | White  | 3          | Ground (for power input) |
| 4            | NC   | -      | -          | Not connected            |
| 5            | NC   | -      | -          | Not connected            |
| 6            | NC   | -      | -          | Not connected            |
| 7            | NC   | -      | -          | Not connected            |
| 8            | NC   | -      | -          | Not connected            |
| 9            | NC   | -      | -          | Not connected            |
| 10           | NC   | -      | -          | Not connected            |
| 11           | EB+  | Yellow | 2          | Encoder channel B+       |
| 12           | EB-  | Green  | 12         | Encoder channel B-       |
| 13           | EA-  | Blue   | 11         | Encoder channel A-       |
| 14           | NC   | -      | -          | Not connected            |
| 15           | NC   | -      | -          | Not connected            |

**Note:** The encoder extension cable must be connected between ES-MH342120 motor and the ES-DHXXXX. You cannot connect the motors encoder cable to the ES-DHXXXX directly.

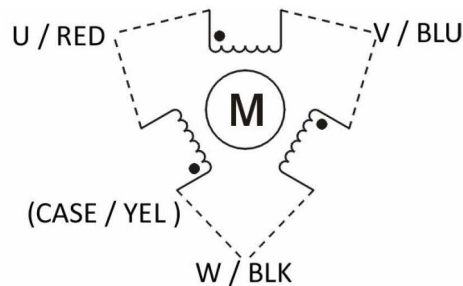
## Motor Extension Cable:



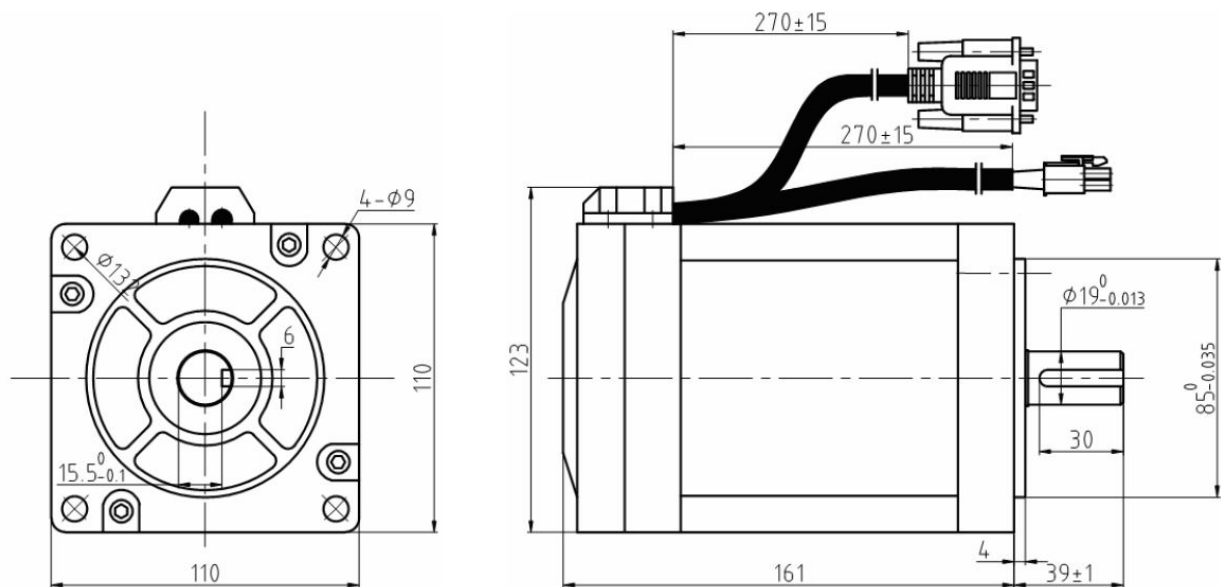
| Pin | Name | Color          | Description   |
|-----|------|----------------|---------------|
| 1   | V    | Blue           | Phase V       |
| 2   | U    | Red            | Phase U       |
| 3   | W    | Black          | Phase W       |
| 4   | -    | Yellow / Green | Not connected |

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## MOTOR WIRING DIAGRAM:



## MECHANICAL DIMENSIONS:



## TORQUE CURVE:

Input: 220VAC

Current: Rated Current

Drive: **ES-DH2306**

