E3D Hermes Datasheet
E3D Hermes Specification

Summary
- Drive type: dual drive with adjustable tension idler
- Max printing temperature: 285°C (upgradable to 500°C)
- Max: 388g (including V6 hotside)
- Max pushing force: ~10kg*
  - Dependent on filament
- Flow rate (based on V6): 600mm³/min*
  - Dependent on filament
- Nominal steps per mm (16x): 409 steps per mm
- Motor current: 1.33A
- Filament diameter and tolerances: 1.75±0.05mm
- *Not compatible with Nema17 but based upon its design*

Volume & Dimensions
- XYZ dimensions
  - 77 × 44 × 83mm (Direct)
  - 67 × 44 × 76mm (Bowden)
**Mass**
- 388g Direct (including hotside)
- 327g Bowden

**Performance Characteristics**
- Max pushing force: ~10kg*
  - Dependent on filament
- Maximum nominal volumetric throughput (PLA print test at 220°C)
  - 600mm³/min*
  - *Results may vary depending on your set-up, higher volumetric throughputs are achievable with Volcano and SuperVolcano
  - https://e3d-online.com/blog/2019/02/28/supervolcano/
- Maximum printing temperature:
  - 285°C
  - Upgradable to 500°C (with copper block, copper nozzle, PT100)
Mounting Guidance

- Hermes is mounted to a flat surface via the T-slots in the left or right sides of the motor
- Typically Hermes is mounted on to the left side, as the air from the heatsink cooling fan exits on the right, if mounting on the right ensure that sufficient space is left for airflow
- The screws should protrude 3mm±0.25mm from the mounting surface to go into the T-slots
  - The supplied M3×8 mounting screws are suitable for a nominal 5mm mounting plate thickness
- Hermes must be mounted on a minimum of 2 mounting points, if using 2 mounting points, diagonally opposing points should be used, in order to ensure rigidity

Service Temperatures

- Note, these are max ambient service temperatures of the components used, and not a guaranteed operating temperature of the system
  - Fan: 50°C
  - Motor: 85°C
  - Polymer bushing: 90°C
  - Bearings: 100°C
  - Acetal idler components: 120°C
Gearing Train Specification

- Single stage spur reduction: 3.32:1
  - Motor pinion: 22T MOD 0.25
  - Large gear: 73T MOD 0.25
  - Hobb gears: 20T MOD 0.5
  - Hobb effective diameter: 8.27mm* (Effective diameter will vary with filament type and tension).

Electrical Specification

- Nominal heater power: 30W (can be upgraded)

<table>
<thead>
<tr>
<th>Fan Specification</th>
<th>12v</th>
<th>24v</th>
</tr>
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<tbody>
<tr>
<td>Width</td>
<td>40mm</td>
<td>40mm</td>
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<tr>
<td>Depth</td>
<td>10mm</td>
<td>10mm</td>
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<tr>
<td>Cable</td>
<td>1000mm</td>
<td>1000mm</td>
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<tr>
<td>Voltage</td>
<td>12v</td>
<td>24v</td>
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<tr>
<td>Current</td>
<td>0.08A</td>
<td>0.04A</td>
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<tr>
<td>RPMS</td>
<td>7500±10%</td>
<td>6900±10%</td>
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<tr>
<td>Connector*</td>
<td>Dupont 0.1”</td>
<td>Dupont 0.1”</td>
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*Typical connector used on most microcontroller headers

Motor Specification

<table>
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<tr>
<th>Items</th>
<th>Specs</th>
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<tbody>
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<td>Motor cable length</td>
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<td>Phase no</td>
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<tr>
<td>Rated voltage</td>
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<tr>
<td>Current</td>
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<tr>
<td>Resistance</td>
<td>2.10Ω per phase</td>
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<td>Inductance</td>
<td>2.5 mH</td>
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<tr>
<td>Holding torque</td>
<td>3.2 kgcm</td>
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<td>Detent torque</td>
<td>0.12 kgcm</td>
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<td>Rotate direction</td>
<td>ABAB CW</td>
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<td>Max starting PPS</td>
<td>2800 PPS</td>
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<tr>
<td>Max slewing PPS</td>
<td>3500 PPS</td>
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<tr>
<td>Insulation</td>
<td>≥100MΩ (DC 500V)</td>
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<td>HI POT</td>
<td>AC 600V/1mA/1S</td>
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<td>Class B</td>
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<tr>
<td>Rotor inertia</td>
<td>35gcm²</td>
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<tr>
<td>Connector</td>
<td>JST - 56B - PH</td>
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</table>
Winding Arrangement

Connector Pinout

Materials

- Block: aluminium (can be upgraded)
- Nozzle: brass (can be upgraded)
- Heatsink: die cast aluminium
- Heatbreak: stainless steel
- Gear/Hobb materials: stainless steel
- Fixings: steel
- Idler materials: acetal
- Bearing elements:
  - 2x shielded 623 bearings (drive shaft)
  - Igus bushing
1. Hermes Motor
2. Hermes 1.75 Sink Assembly
3. Hermes 1.75 Break
4. Hermes Drive Hobb assembly
5. Hermes Idler Hobb Assembly
6. Hermes 1.75 Idler
7. Hermes 1.75 Idler Shaft
8. Hermes Idler Slide block
9. Hermes Idler Spring block
10. Hermes Thumbwheel
11. V6 Heater Block
12. V6 Brass Nozzle 1.75mm x 0.4mm
13. V6 Sock
14. 40 × 40 × 10 Fan
15. Heater Cartridge
16. Thermistor Cartridge
17. 1.75mm Bowden Collet
18. 623 Bearing (x2)
19. 4mm x 24mm Dowel
20. Spring
21. 2.9 × 13 Self-tapping Screw (x2)
22. M3 Square Nut (x5)
23. M3 × 22 Socket Head Cap Screw (x2)
24. M3 × 4 Grub Screw
25. M3 × 10 Button Head Cap Screw

Direct Setup

Note, these are max ambient service temperatures of the components used, and not a guaranteed operating temperature of the system.

- Fan: 50°C
- Motor: 85°C
- Polymer bushing: 90°C
- Bearings: 100°C
- Acetal idler components: 120°C
1. Hermes Motor
2. Hermes 1.75 Sink Assembly
3. Hermes 1.75 Bowdaptor
4. Hermes Drive Hobb Assembly
5. Hermes Idler Hobb Assembly
6. Hermes 1.75 Idler
7. Hermes 1.75 Idler Shaft
8. Hermes Idler Slide Block
9. Hermes Idler Spring Block
10. Hermes Thumbwheel
11. 1.75mm Bowden Collet (x2)
12. 1.75mm Bowden Clip
13. 623 Bearing (x2)
14. 4mm x 24mm Dowel
15. Spring
16. M3 Square Nut (x5)
17. M3×22 Socket Head Cap Screw (x2)