

ACW Series

Direct Drive Rotary Motor



- **Direct drive, brushless motor fully integrated with encoder and bearing**
- **No cogging**
- **Precise homing through index pulse**
- **Large centre hole**
- **Low profile**

ACW SPECIFICATIONS

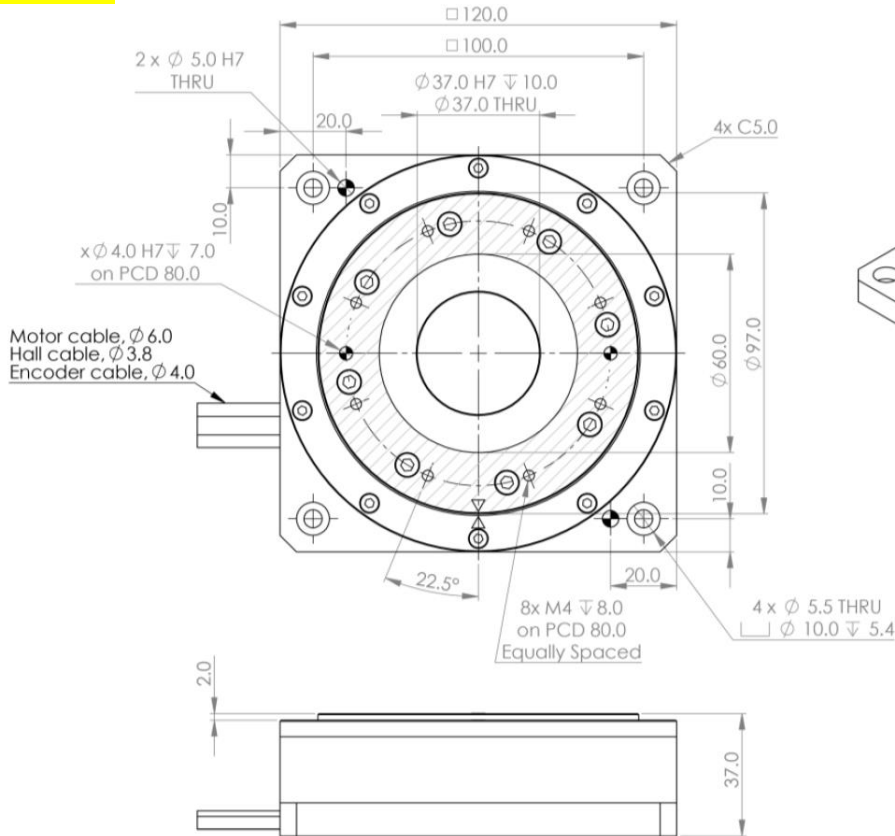
| ACW Model | | ACW 120 | ACW 170 | ACW 220 |
|---|------------------|----------------------|----------------------|----------------------|
| Specifications | Units | | | |
| Table diameter | mm | 120 | 170 | 220 |
| Table height | mm | 37 | 37 | 42 |
| Number of poles | | 16 | 16 | 16 |
| Continuous torque | Nm | 0.6 | 3.4 | 10.3 |
| Peak torque | Nm | 2.1 | 11.9 | 35.9 |
| Cogging torque | Nm | 0 | 0 | 0 |
| Torque constant | Nm/Amps | 0.12 | 0.68 | 2.05 |
| Back EMF constant | V/rpm | 0.015 | 0.082 | 0.248 |
| Continuous current | Amps | 5.0 | 5.0 | 5.0 |
| Peak current | Amps | 17.5 | 17.5 | 17.5 |
| Continuous thermal power | W | 35.8 | 69.0 | 126.5 |
| Peak thermal power | W | 437.9 | 845.3 | 1549.6 |
| Max. bus voltage | VDC | 330.0 | 330.0 | 330.0 |
| Resistance ¹⁾ | ohms | 1.43 | 2.76 | 5.06 |
| Inductance ¹⁾ | mH | 0.47 | 1.65 | 4.72 |
| Motor constant | Nm/SqRt(W) | 0.10 | 0.41 | 0.91 |
| Mass | Kg | 2.0 | 3.7 | 7.0 |
| Rotor Inertia | Kgm ² | 0.000658 | 0.002020 | 0.008354 |
| Rec. max speed ³⁾ @230V AC ³ (DIGITAL/SINCOS) | rpm | 400 | 350 | 300 |
| AB optical SINCOS encoder | Lines/rev. | 3,934 | 5,560 | 7,500 |
| DIGITAL resolution (at 64X interpolation) | Counts/rev. | 251,776 | 355,840 | 480,000 |
| SINCOS Resolution (at 512X interpolation) | Counts/rev. | 2,014,208 | 2,846,720 | 3,840,000 |
| SINCOS Resolution (at 4096X interpolation) | Counts/rev. | 16,113,664 | 22,773,760 | 30,720,000 |
| Accuracy | arc sec | +/-30 | +/-30 | +/-30 |
| Repeatability | arc sec | +/-3.0 | +/-3.0 | +/-3.0 |
| Radial runout @ max. speed | um | 15 | 18 | 18 |
| Radial runout @120rpm | um | (10,5) ²⁾ | (10,5) ²⁾ | (10,5) ²⁾ |
| Axial runout @ max. speed | um | 15 | 18 | 18 |
| Axial runout @ 120rpm | um | (10,5) ²⁾ | (10,5) ²⁾ | (10,5) ²⁾ |
| Axial load rating | N | 150.0 | 230.0 | 300.0 |
| Moment load rating | Nm | 14.7 | 31.7 | 55.2 |

Note:

- 1) *Optional.*
- 2) *Terminal to terminal, at 25°C*
- 3) *Max. speed applicable to standard radial and axial runout*

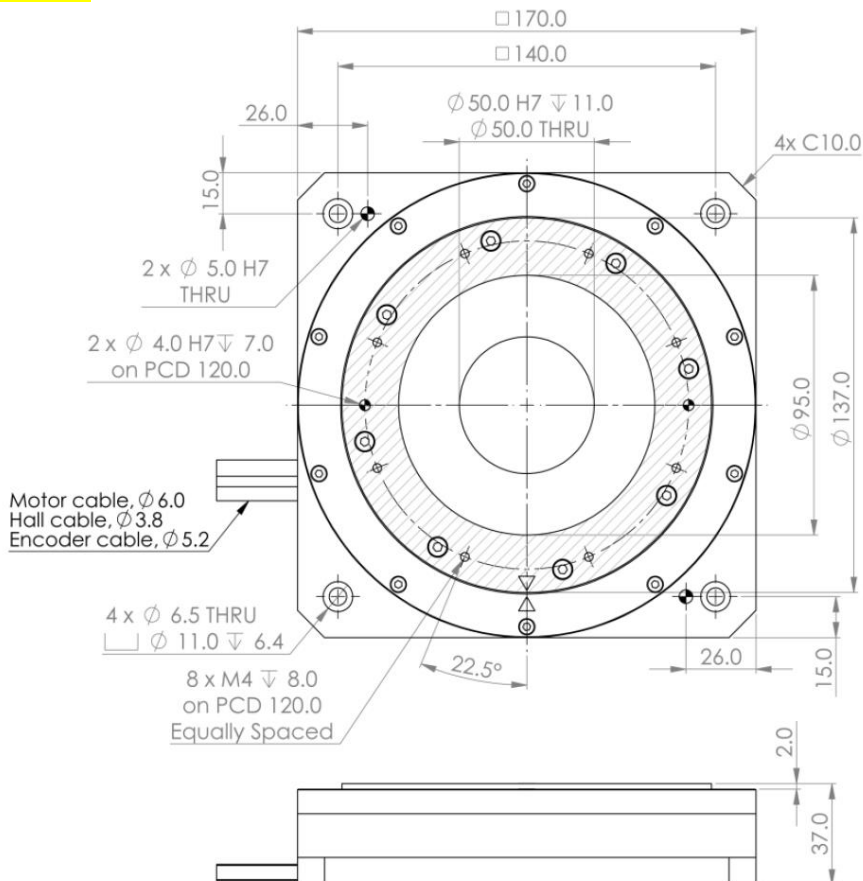
OUTLINE DIMENSIONS

ACW120



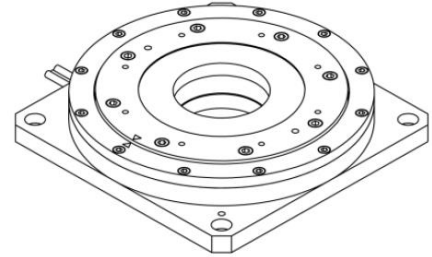
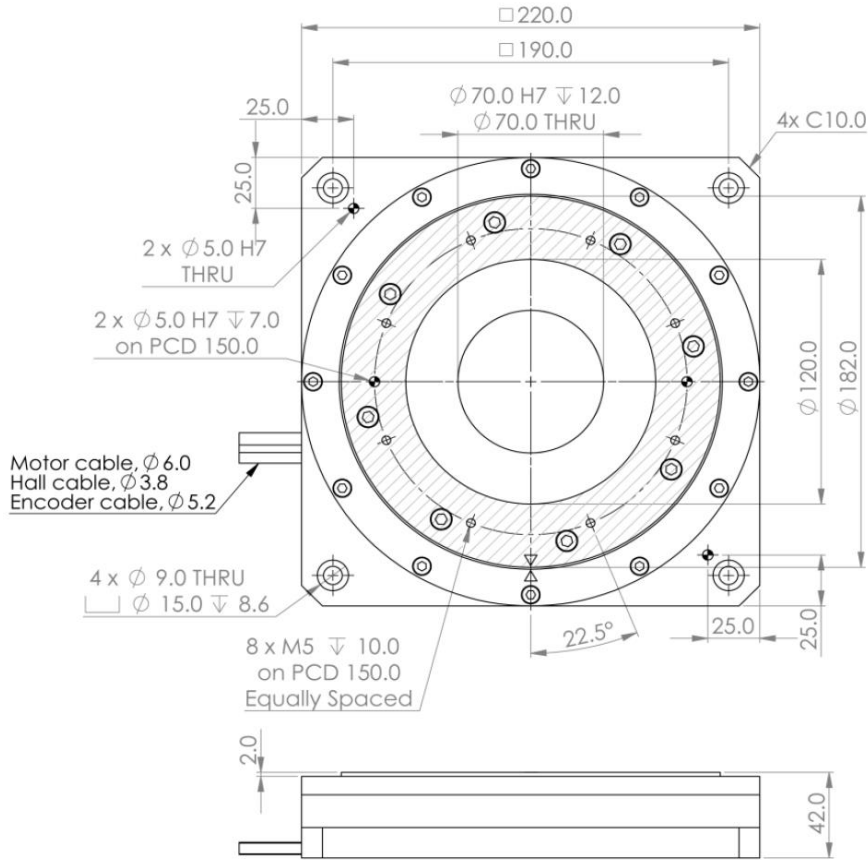
Note: 37mm diameter through hole
: Shaded area, mounting surface

ACW170



Note: 50mm diameter through hole
: Shaded area, mounting surface

ACW220



Note: 70mm diameter through hole
: Shaded area, mounting surface

PART NUMBER CONFIGURATION

| Motor | Height | Winding | Thermal Sensor | Cable Length | Encoder Option | Interpolation Option | Runout |
|---------|--------|---------|----------------|--------------|----------------|----------------------|------------|
| ACW 120 | 37 | P | K/J7 | 3.0 | AB-3934 | SINCOS / 64X | P15/P10/P5 |
| ACW 170 | 37 | | | | AB-5560 | | P18/P10/P5 |
| ACW 220 | 42 | | | | AB-7500 | | P18/P10/P5 |

K= PT100 (RTD)

J7= Thermostat

P18 = Axial Runout 18um, Radial Runout is 18um

P10 = Axial Runout 10um, Radial Runout is 10um

P5 = Axial Runout 5um, Radial Runout is 5um

Example: ACW 170-37-P-K-3.0-AB-5560-SINCOS-P18

TORQUE – SPEED CURVE

