# XYZ 3-Axis Ball Screw Linear Stage Kit

with NEMA 23 Integrated Closed-Loop Motors

## Features

**XYZ Three-Axis Motion:**
Consists of X, Y, and Z linear sliding tables for three-axis positioning.

**Single-Arm Structure:**
Uses a single Y-axis base with horizontal X-axis and vertical Z-axis slides.

**Ball Screw Transmission:**
Equipped with SFU1605 C7 ball screws with a 16mm diameter and 5mm lead.

**Linear Guide System:**
Each sliding table uses two MGN12R linear guide rails and two MGN12C slider blocks.

**Material Construction:**
Aluminum alloy base plates with carbon steel and bearing steel transmission components.

**Motor Compatibility:**
Designed for NEMA 23 stepper motor installation.

**Integrated Motor Option:**
Supports HBT57112C closed-loop stepper motors with integrated drivers.

**Axis Configuration:**
X and Y axes have the same length.

## Linear Stage Specifications

| | |
|---|---|
| Model: SXG5080 | Guide Block Quantity: 2pcs/Axis |
| Configuration: XYZ Axes | Moving Platform Size: 50×80mm |
| Number of Axes: 3 | Total Slide Length: Effective Stroke+110mm |
| Transmission Type: Ball Screw | Repeat Positioning Accuracy: 0.02–0.03mm (Single Axis) |
| Ball Screw Model: SFU1605 | Maximum Horizontal Load: 50kg (Single Axis) |
| Ball Screw Diameter: 16mm | Maximum Vertical Load: 20kg (Single Axis) |
| Ball Screw Lead: 5mm | Base Plate Material: Aluminum Alloy |
| Ball Screw Precision Grade: C7 | Ball Screw and Rail Material: Carbon Steel and Bearing Steel |
| Linear Guide Rail: MGN12R | Compatible Motor: NEMA 23 |
| Linear Guide Block: MGN12C | Motor Mounting Hole Spacing: 47×47mm |
| Guide Rail Quantity: 2pcs/Axis | Motor Coupling Bore Diameter: 8mm |

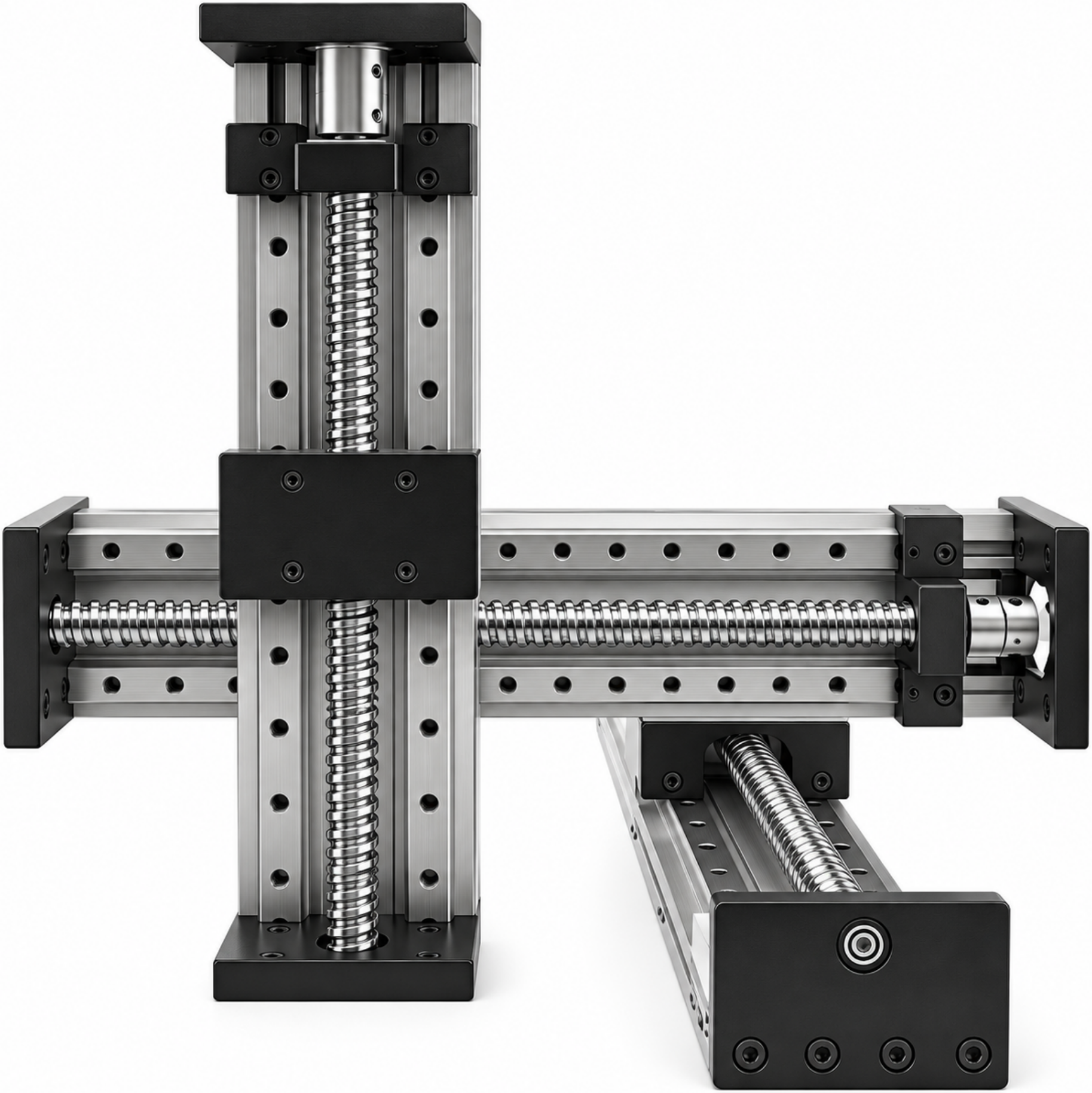
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with NEMA 23 Integrated Closed-Loop Motors

## Optional Stepper Motor Specifications

| | |
|---|---|
| **Motor Model:** | HBT57112C |
| **Motor Type:** | Integrated Closed-Loop Stepper Motor |
| **Frame Size:** | NEMA 23 (57mm) |
| **Holding Torque:** | 3.2N·m |
| **Supply Voltage:** | 24–48VDC |
| **Phase Current:** | 4.5A |
| **Phase Resistance:** | 0.78Ω |
| **Body Length:** | 132mm |
| **Shaft Diameter:** | 8mm |
| **Shaft Length:** | 21mm |
| **Rotor Inertia:** | 760g·cm² |
| **Control Signal Voltage:** | 5–24VDC |
| **Control Signals:** | Pulse/Direction/Enable |
| **Signal Output:** | Alarm |
| **Configuration Method:** | DIP Switch |
| **Status Indicator:** | Red/Green LED |
| **Motor Net Weight:** | 1.78kg |

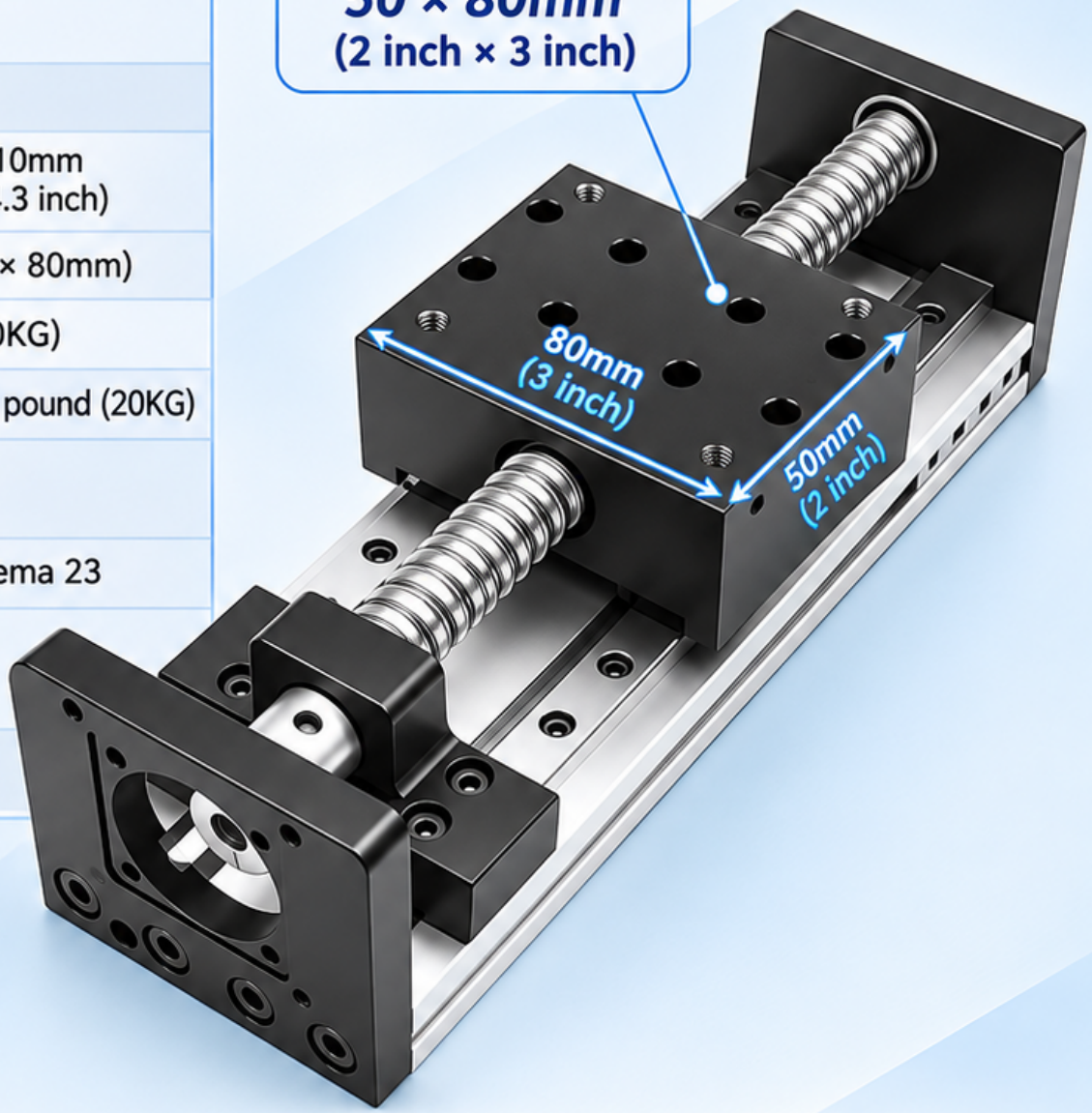
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# Sliding Table SXG5080 Series

## Parameters

| | |
|---|---|
| **Model** | SXG5080 |
| **Ballscrew type** | SFU1605 |
| **Total length** | Effective stroke + 110mm<br>(Effective stroke + 4.3 inch) |
| **Mobile panel size** | 2 inch × 3 inch (50 × 80mm) |
| **Horizontal load** | Max 110 pound (50KG) |
| **Vertical load** | Vertical load: Max 44 pound (20KG) |
| **Ballscrew Repeat positioning accuracy** | 0.02 – 0.03mm |
| **Supported motor bracket** | Compatible with Nema 23 |
| **Ballscrew and linear rail material** | Carbon steel and bearing steel |
| **Base plate material** | Aluminium alloy |




## C7 Ballscrew



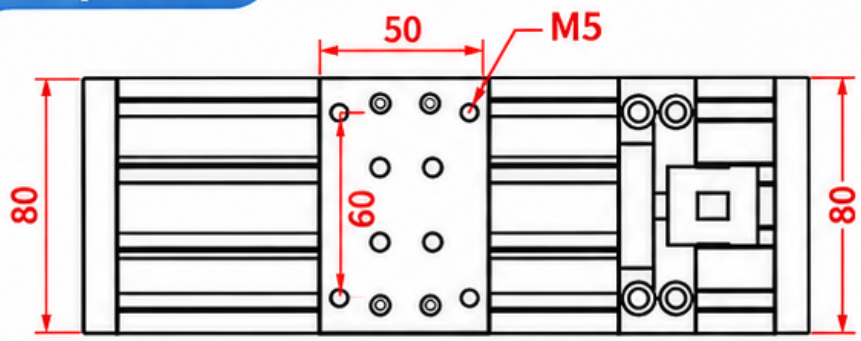
## 2 × Rail MGN12R / 2 × Slider MGN12C

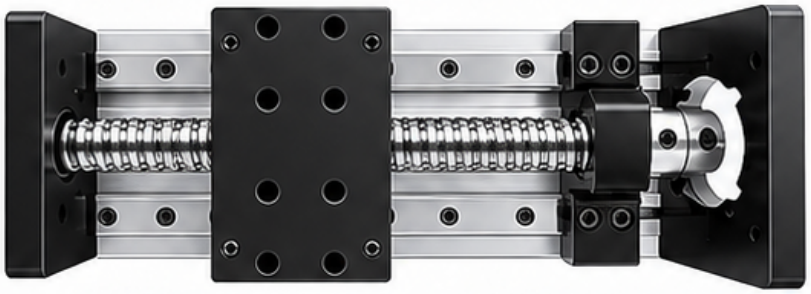


# Multi-view Product Drawings

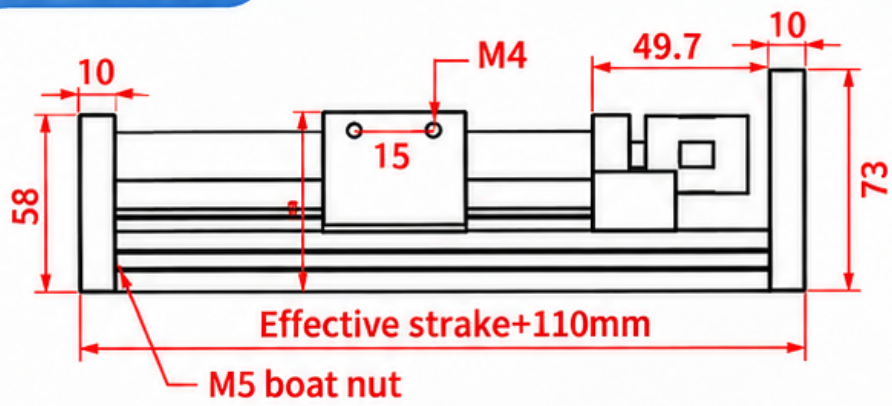
Unit: MM

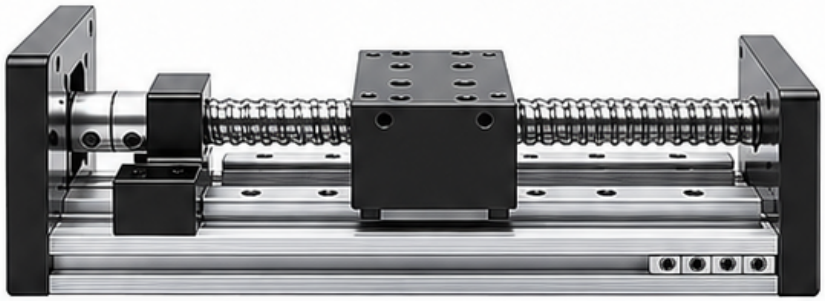
## Top View



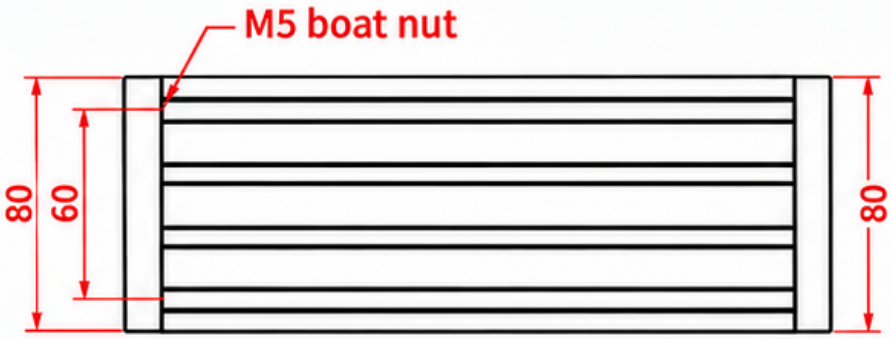



## Side View



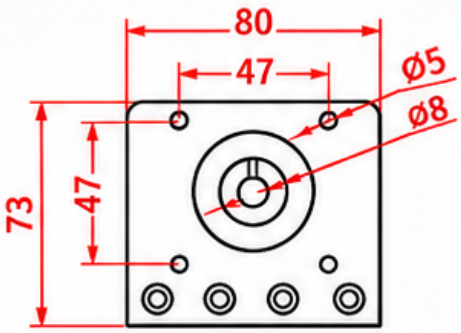



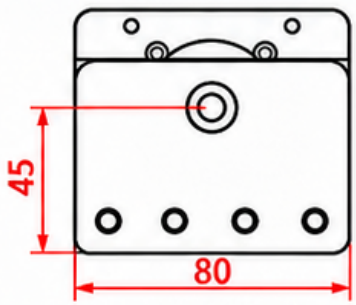
## Bottom View






## End View




## For Nema23 57mm Stepper Motor





# Integrated Closed-loop Stepper Motor Driver Parameters & Drawing

## Technical Parameters

| Model | Holding Torque (N.m) | Body Length (mm) | Flange Size (mm) | Voltage (V) | Shaft Diameter (mm) | Shaft Length (mm) | Phase Current (A) | Phase Resistance (Ω) | Moment Of inertia (g.cm²) | Weight (kg) |
|---|---|---|---|---|---|---|---|---|---|---|
| HBT57112C | 3.2 | 132 | Nema 23 57mm | 24-48DC | 8 | 21 | 4.5 | 0.78 | 760 | 1.78 |



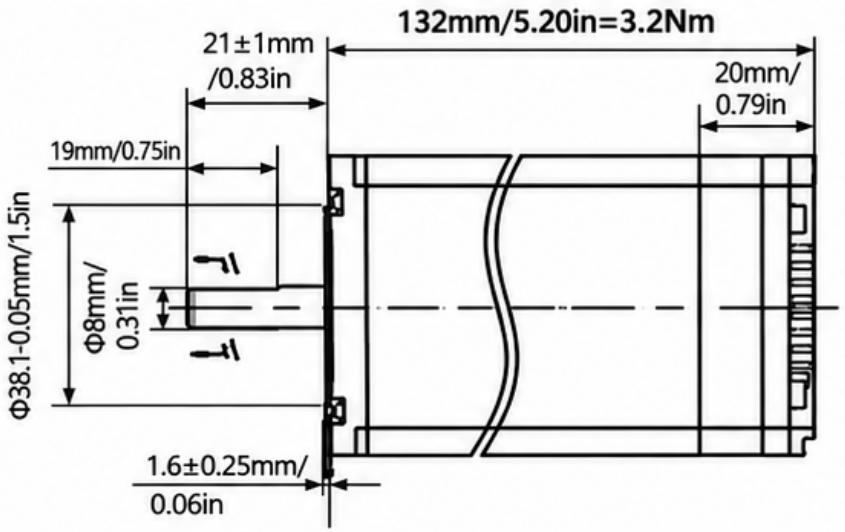




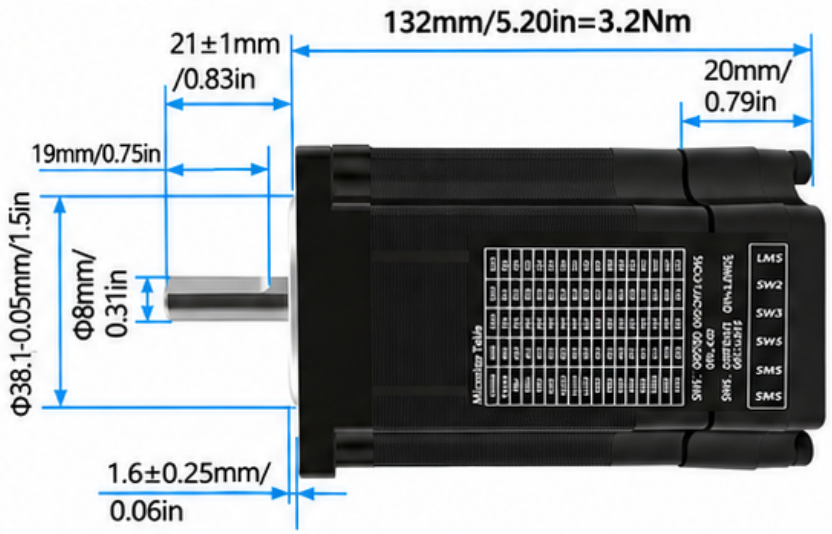


# Integrated Closed-loop Stepper Motor

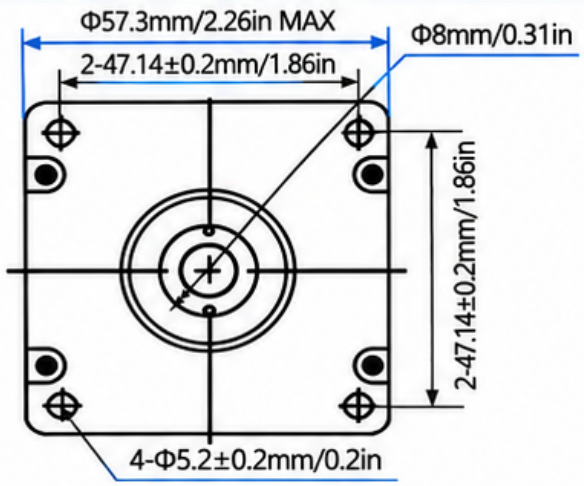
## Dimensions – Side View (Drawing)



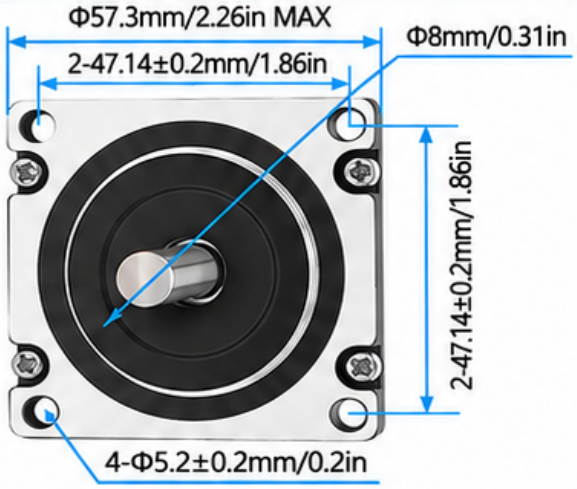

## Product View (with Dimensions)




## Front View (Mounting Face)

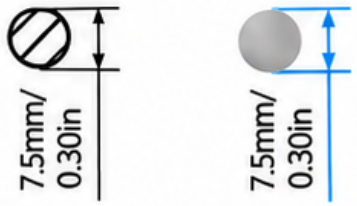



## Front View (Face with Shaft)




## Shaft Detail

### 8mm Shaft Diameter




## Wiring

