NEMA 34 Stepper Motor Specifications:

- 2 phase, NEMA 34 frame size
- Phase Current (Maximum Current) = 6A
- Current for two Phase (Maximum Current) = 12A
- Step Angle: 1.8°
- Inductance: 4 mH

Driver Specifications:

- Supply voltage of 20-80 VAC or 30-100 VDC
- maximum output current of 8.0A
- Powering 2-phase stepper motor of NEMA 23, 24, 34, or 42 with 1000-line encoder

Calculate the Current and the Voltage Required for the Power Supply:

In the circuit three drivers were used and they are connected in parallel so the current of the voltage supply will be divided almost evenly between them.

Each Motor can handle maximum current equal to 12A. But the motor will 2/3 of the motor's rated current which is equal to $(2/3) \times 6 = 4A$ per phase, for the two phases = 8A

Also, for the driver the maximum current for each one should be 8A. Thus,

$$\text{Total Current Required for the Power Supply } = 8 \times 3 = 24A$$

For the voltage required the driver can handle supply voltage between 30 – 100 VDC, and 20 – 80 VAC. Also, for the motor to figure out what the maximum power supply voltage should be the following formula will be used:

$$V_{max} = 32 \times \sqrt{L}$$

$$\text{Maximum Voltage Required for the Power Supply} = 32 \times \sqrt{4} = 64v$$

Example for Power Supplies Can be Used for the Circuit:

- Switching Power Supply 400W DC12V/24V/36V/48V/60V 8.3A-33.3A Support Monitoring Transformer LED Lighting
- 30V 24A 720W LED Driver Switching Power Supply （SMPS） 110VAC-DC30V CCTV Monitoring power supply Industrial Power Transformer