

**Drilling and Thread Tapping** is an important operation in every workshop. For mass production operator gets tired doing repetitive up down z-axis motion with force. Due to operator fatigue the production suffers.

**Bholanath** Precision has overcome this with simple Z-Axis automation.

**BH-DM-04-M** is an **32mm** standard new drill machine on which helical helical geared stepper motor is mounted on the Z axis, due to which the up down motion becomes automatic.

To watch videos kindly click on below you tube links.

**Youtube link-**

<https://www.youtube.com/watch?v=9N0ilWz6ADg&feature=youtu.be>

[https://www.youtube.com/watch?v=NiRaVS\\_ygz0&feature=youtu.be](https://www.youtube.com/watch?v=NiRaVS_ygz0&feature=youtu.be)

<https://www.youtube.com/watch?v=TOCJEUW6g2k&feature=youtu.be>

**BH-DMA-04-M** comes with state of art control panel which consists of stepper driver controller **BH-SDC-01**, stepper driver **BH-SMART-6A**, power supply and necessary wiring and switches.

The controller **BH-SDC-01-N** is simple controller manufactured by Bholanath, the controller language is simple English and very easy to learn and operate.

To watch the controller operating videos kindly click on below you tube links.

**Youtube link-**

<https://www.youtube.com/watch?v=mA7aqmB9eCo&feature=youtu.be> Part 1

<https://www.youtube.com/watch?v=wizLndJLTeA&feature=youtu.be> Part 2

<https://www.youtube.com/watch?v=dXrevwVmH50&feature=youtu.be> Part 3

A Foot switch is connected to the controller for easy operation so that operators hands remains free and and homing limit switch is provided.

**Features of the machine -**

1. Drilling size and depth as per data sheet
2. Peck drilling is very simple by programming
3. Drilling Feed speeds settable by programming
4. High speed Reaming
5. Limit switch for homing
6. Direct Tapping with controller ( No attachment needed)
7. Coolant tank optional available at extra cost
8. Siddhapra Engg. Work (SEW) Machine is used in this model.



**Tapping Calculation :- to tapping kindly see below calculation**

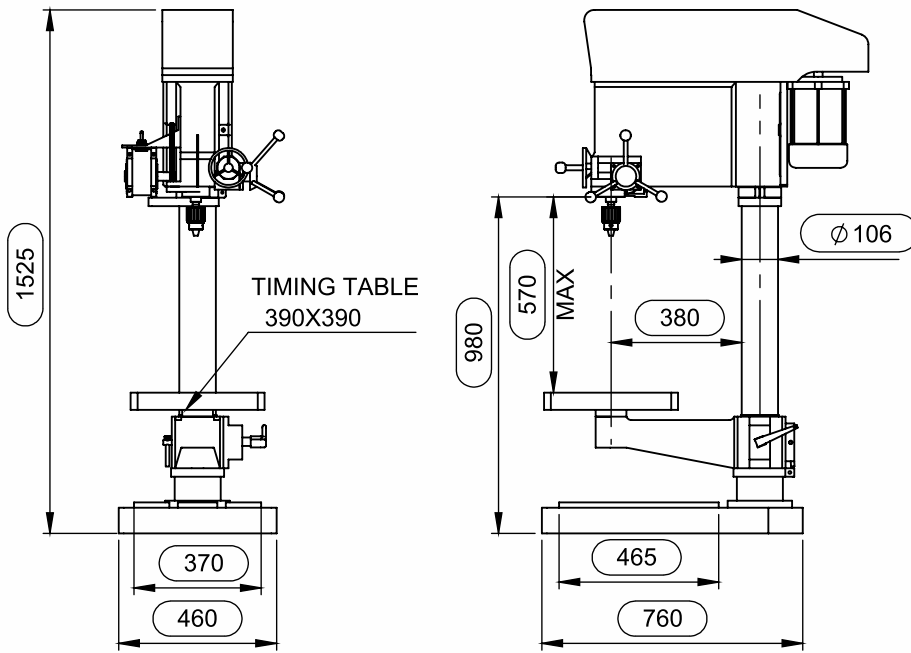
Tapping Feed rate = O/P RPM Of Spindle X pitch of tap

$$\frac{\quad\quad\quad}{60}$$

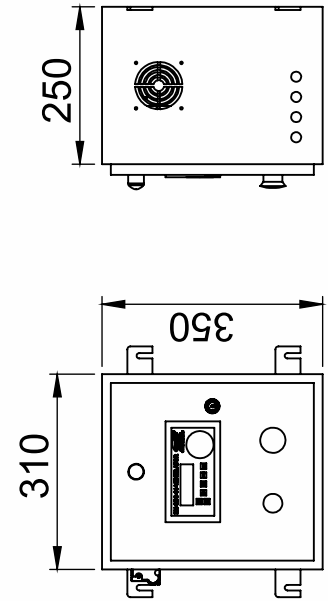
MM/SEC

**SPECIFICATION SHEET**  
**Bholanath**

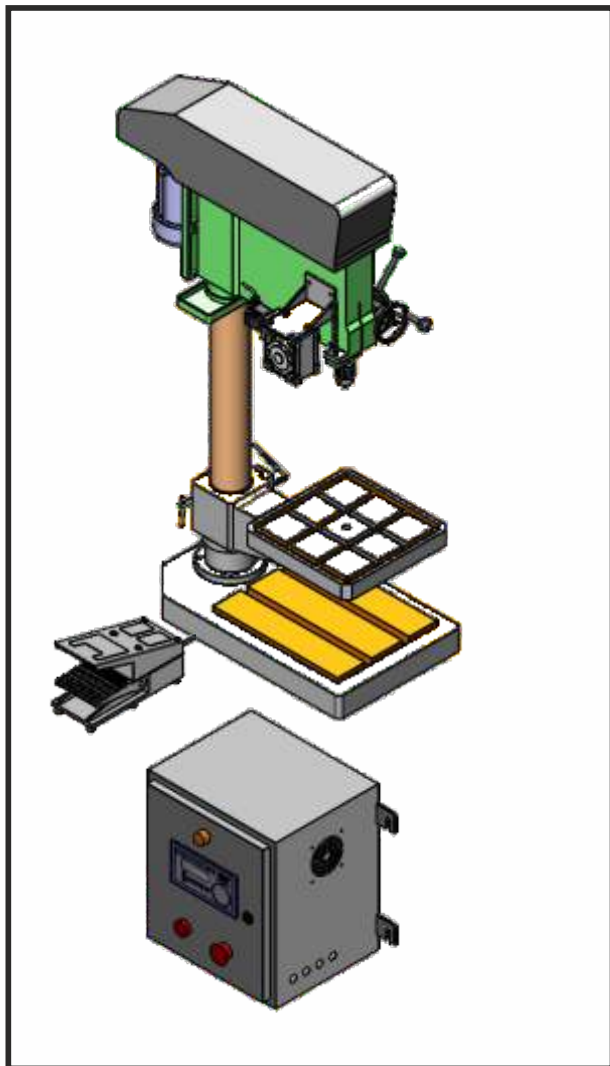
**Drill Machine Automation**  
**BH-DMA-04**



**Drill machine**



**Control Panel**

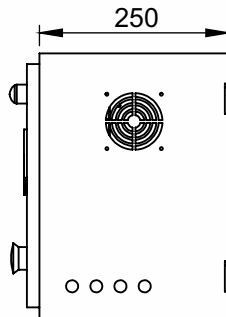
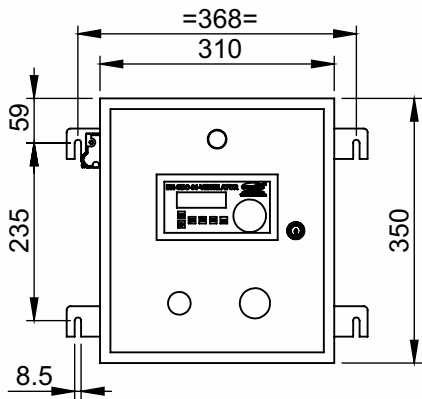


**Technical Data**

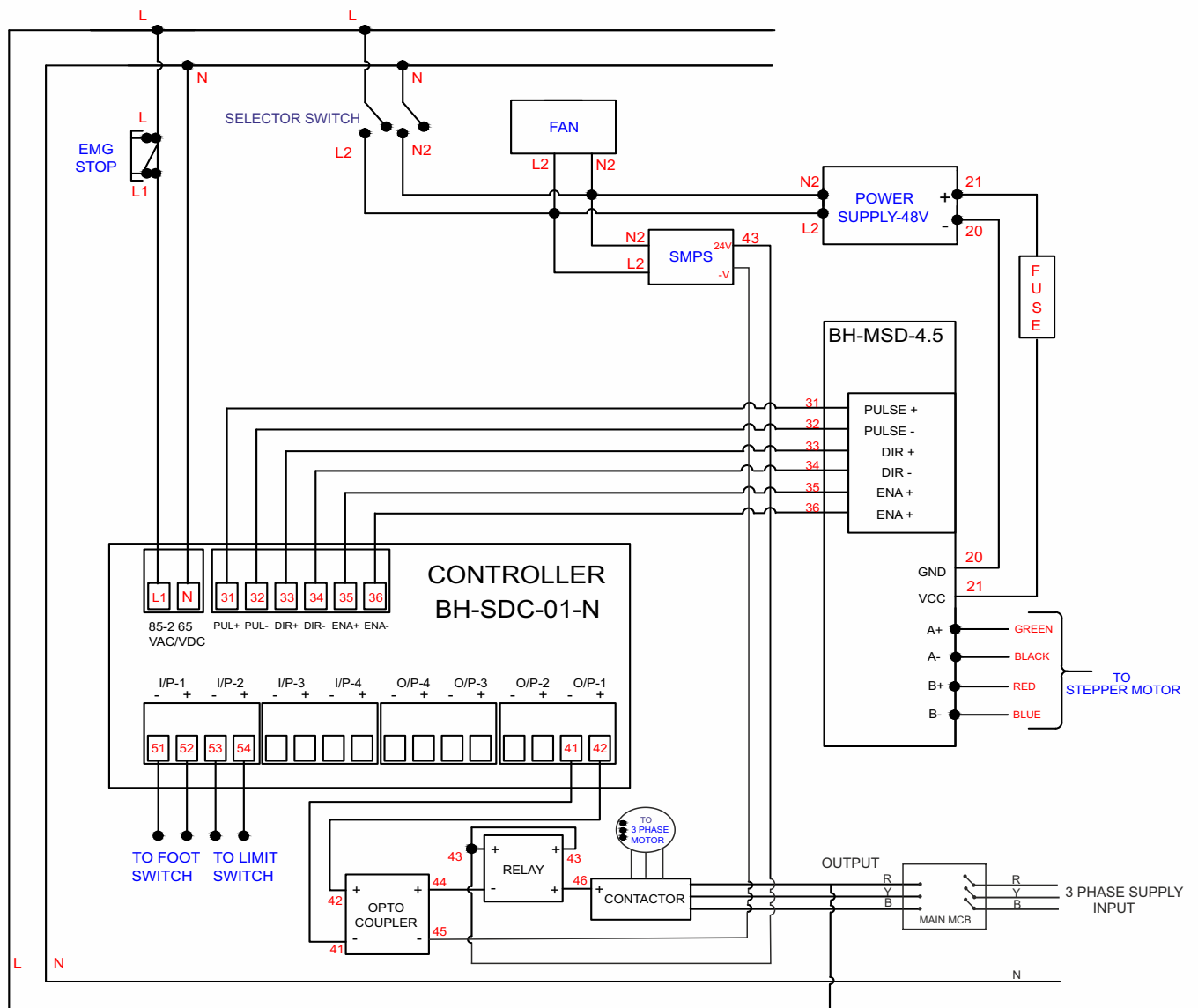
**TECHNICAL SPECIFICATION**

SR NO.	DESCRIPTION	CAPACITY & SIZE
1	DRILLING CAPACITY IN STEEL	32 MM
2	SPINDLE TRAVEL MAXIMUM	250 MM
3	SPINDLE TAPER	MT-3
4	NO OF SPINDLE SPEED	73 TO 1800 RPM
5	COLUMN DIAMETER	106 MM
6	MAX DISTANCE BETWEEN SPINDLE CENTRE TO COLUME FACE	380 MM
7	MAX DISTANCE BETWEEN SPINDLE NOSE TO WORKING TABLE	570 MM
8	MAX DISTANCE BETWEEN SPINDLE NOSE TO BASE PATE	980 MM
9	WORKING TABLE SIZE	345X345
10	NO OF SPEED	8
11	V -BELT SECTION	B-63
12	SIZE OF BASE PLATE	760X460 MM
13	BASE SIZE (MACHINE AREA)	465 X 370 MM
14	ELECTRICAL MOTOR	1 HP,50 CYCLE,1440 RPM (LUBI BRAND)
16	Feed rate of Z Axis (Rapid)	40 mm/sec
17	Drilling feed rate	3mm/sec
18	Controller Input / Output	2 Input /3 Output
19	Power consumption	1200W

# Mechanical Dimension for Control Panel



# Circuit Diagram for control panel.



# Program for Z axis Drilling Machines (Drill size 32mm & Drill Depth 10mm)

## Input Configuration

Press M1 and select configuration  $\xrightarrow{\text{Enter}}$  Select input  $\xrightarrow{\text{Enter}}$

M1 Move:- Linear $\xrightarrow{\text{Enter}}$	M1 Time:- Second $\xrightarrow{\text{Enter}}$
M1 Micro step:- 002 $\xrightarrow{\text{Enter}}$	M1 Linear speed unit } $\xrightarrow{\text{Enter}}$
M1 Pitch:- 5mm $\xrightarrow{\text{Enter}}$ (As per Drilling Machine)	speed : mm/sec } $\xrightarrow{\text{Enter}}$
M1 Max Length:- 1000mm $\xrightarrow{\text{Enter}}$	No of Limit SW: 4 $\xrightarrow{\text{Enter}}$
M1 Speed:- RPM $\xrightarrow{\text{Enter}}$	Jog mode: No $\xrightarrow{\text{Enter}}$
M1 Step unit:- step $\xrightarrow{\text{Enter}}$	

## Output Configuration

Press M1 and select configure  $\xrightarrow{\text{Enter}}$  Select system  $\xrightarrow{\text{Enter}}$

Set parameter }  $\xrightarrow{\text{Enter}}$   
Mode :- Auto

Program:- New  $\xrightarrow{\text{Enter}}$

Select Program no :- 1  $\xrightarrow{\text{Enter}}$

C001 M1 ON  $\xrightarrow{\text{Enter}}$

M Dir :- CCW  $\xrightarrow{\text{Enter}}$

M1 Distance:- 500mm  $\xrightarrow{\text{Enter}}$

M1 Speed:- 10mm/sec  $\xrightarrow{\text{Enter}}$

M1 Acc:- 0.2sec  $\xrightarrow{\text{Enter}}$

M1 Dec:- 0.2sec  $\xrightarrow{\text{Enter}}$

M1 Start at :- SW  $\xrightarrow{\text{Enter}}$

M1 Start at SW :- S1  $\xrightarrow{\text{Enter}}$

M1 Start at SW :- S1H  $\xrightarrow{\text{Enter}}$

M1 Stop at SW  $\xrightarrow{\text{Enter}}$

M1 Stop at SW:- S2  $\xrightarrow{\text{Enter}}$

M1 Stop at SW:- S2 H  $\xrightarrow{\text{Enter}}$

C001 at start : OP1 $\xrightarrow{\text{Enter}}$ OP2 $\xrightarrow{\text{Enter}}$ OP3 $\xrightarrow{\text{Enter}}$ OP4 $\xrightarrow{\text{Enter}}$

C001 at End : OP1 $\xrightarrow{\text{Enter}}$ OP2 $\xrightarrow{\text{Enter}}$ OP3 $\xrightarrow{\text{Enter}}$ OP4 $\xrightarrow{\text{Enter}}$

Present cycle : 001 }  $\xrightarrow{\text{Enter}}$   
Next cycle : C002

C002 type: Run  $\xrightarrow{\text{Enter}}$

C002 M1: ON  $\xrightarrow{\text{Enter}}$

M1 Dir: CW  $\xrightarrow{\text{Enter}}$

M1 Distance: 20mm  $\xrightarrow{\text{Enter}}$  (For Rapid)

M1 speed : 40mm/sec  $\xrightarrow{\text{Enter}}$

M1 Acc : 0.1sec  $\xrightarrow{\text{Enter}}$

M1 Dec : 0.1sec  $\xrightarrow{\text{Enter}}$

M1 start at :- SW  $\xrightarrow{\text{Enter}}$

M1 start at SW:- S1  $\xrightarrow{\text{Enter}}$

M1 start at SW:- S1H  $\xrightarrow{\text{Enter}}$

M1 stop at :- Direct  $\xrightarrow{\text{Enter}}$

C002 at start : OP1 $\xrightarrow{\text{Enter}}$ OP2 $\xrightarrow{\text{Enter}}$ OP3 $\xrightarrow{\text{Enter}}$ OP4 $\xrightarrow{\text{Enter}}$

C002 at End : OP1 $\xrightarrow{\text{Enter}}$ OP2 $\xrightarrow{\text{Enter}}$ OP3 $\xrightarrow{\text{Enter}}$ OP4 $\xrightarrow{\text{Enter}}$

Present cycle : 002 }  $\xrightarrow{\text{Enter}}$   
Next cycle : C003

C003 type: Run  $\xrightarrow{\text{Enter}}$

C003 M1: ON  $\xrightarrow{\text{Enter}}$

M1 Dir: CW  $\xrightarrow{\text{Enter}}$

M1 Distance: 10mm  $\xrightarrow{\text{Enter}}$  (For Drill Depth)

M1 speed : 3mm/sec  $\xrightarrow{\text{Enter}}$

M1 Acc : 0.2sec  $\xrightarrow{\text{Enter}}$

M1 Dec : 0.1sec  $\xrightarrow{\text{Enter}}$

M1 start at :- Direct  $\xrightarrow{\text{Enter}}$

M1 stop at :- Direct  $\xrightarrow{\text{Enter}}$

C003 at start : OP1 $\xrightarrow{\text{Enter}}$ OP2 $\xrightarrow{\text{Enter}}$ OP3 $\xrightarrow{\text{Enter}}$ OP4 $\xrightarrow{\text{Enter}}$

C003 at End : OP1 $\xrightarrow{\text{Enter}}$ OP2 $\xrightarrow{\text{Enter}}$ OP3 $\xrightarrow{\text{Enter}}$ OP4 $\xrightarrow{\text{Enter}}$

Present cycle : 003 }  $\xrightarrow{\text{Enter}}$   
Next cycle : C004

C004 type: Run  $\xrightarrow{\text{Enter}}$

C004 M1: ON  $\xrightarrow{\text{Enter}}$

M1 Dir: CCW  $\xrightarrow{\text{Enter}}$

M1 Distance: 20mm  $\xrightarrow{\text{Enter}}$  (For Drill Depth)

M1 speed : 60mm/sec  $\xrightarrow{\text{Enter}}$

M1 Acc : 0.2sec  $\xrightarrow{\text{Enter}}$

M1 Dec : 0.2sec  $\xrightarrow{\text{Enter}}$

M1 start at :- Direct  $\xrightarrow{\text{Enter}}$

M1 stop at :- Direct  $\xrightarrow{\text{Enter}}$

C004 at start : OP1 $\xrightarrow{\text{Enter}}$ OP2 $\xrightarrow{\text{Enter}}$ OP3 $\xrightarrow{\text{Enter}}$ OP4 $\xrightarrow{\text{Enter}}$

C004 at End : OP1 $\xrightarrow{\text{Enter}}$ OP2 $\xrightarrow{\text{Enter}}$ OP3 $\xrightarrow{\text{Enter}}$ OP4 $\xrightarrow{\text{Enter}}$

Present cycle : 004 }  $\xrightarrow{\text{Enter}}$   
Next cycle : C002

Auto Program No 1 (Completed )