



A New Technique to Mark Center Points across Wall to Facilitate Drilling from Either Side

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Abstract:

Mostly in construction sites drilling machine is mainly used for plumbing, electric fitting or any kind of hole in the partition wall. When partition wall is tiled on both side of the wall then there is a huge risk of breaking the tiles while drilling which is on the other sides. So tiles breakage due to drilling is the major and known problem on construction sites and there some losses like, cost of break tiles, cost of tiles installation, it is not easy to get exact match of the tiles (e.g.: like design, color, size), and time loss too. For the reason, it is very crucial to find out accurate center point on both faces of the tiled partition wall. Thus with the new technique we not only able to find accurate center point but also we will get the flaw loss drill without any breakage. New technique to mark center points across wall, to facilitate drilling from either side technique used to measure an exact point across a surface of wall for drilling. People have used various form of water level to get measure level across a surface, but this technique is the easiest and most accurate method for exact point for drilling. Its construction is simple and easy to set at specific place to measure accurate drilling point. Instrument or machines are a vital resource for accomplishment of construction seminar. One of the most obvious problems in constructing a project is how to minimize the loss of material in constructions industries. This technique provides best solution to that big problem with low cost.

Keywords: Neodymium Magnet, Drilling Machine

I. INTRODUCTION

New time saver matching point technique is used to measure an exact point across a surface of partition wall for drilling. Thus with the new technique we not only able to find accurate center point but also we will get the flaw loss drill without any breakage In these techniques we used neodymium magnets having 12diax30length. A Neodymium magnet also known as NdFeB, NIB, or Neo magnet. NdFeB magnets have become most popular magnet in recent year. Neodymium Magnets can be used to invent new methods of time saver matching point's technique. The power of neodymium magnet is 3500 gauss.

II .OBJECTIVE AND NEED

- 1) To reduce the loss of material.
- 2) To save extra labor cost.
- 3) To minimize project time.

Need

To get the accurate point at both face of wall without any loss of material within short time.

III.BREAKAGE SCENARIO



Figure.1. Tiles break while drilling.



Figure.2. Another side's wall



Figure.3. Tiles break while drilling.

METHODOLOGY

Material required:-

Neodymium Magnet, Drilling Machine, Drilling Bits, Pen, Masking tape. This technique can directly measure accurate matching point on wall.

Working steps:-

- 1) Set the drill machine on the edge of the wall at mark point
- 2) After that drill up to 2 inch for 4 inch wall because effect of neodymium magnet up to 2 inch.
- 3) Then form outer sides set magnet at exact point inner sides from drilling which we have done.

- 4) Then keep the drilling machine inside the wall as it is, now from outer sides set the magnet to get the exact point.
- 5) Then you get the matching point on both faces of wall

APPLICATION OF CENTER POINT TECHNIQUE FOR ELECTRICAL FITTING.

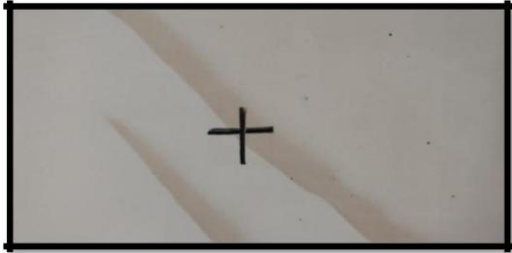


Figure.3. Marking of Center on Wall



Figure.4. Drilling Operation.



Figure.5. Setting up the magnet



Figure.6. Drilling without tiles breakage

APPLICATION:-

It is use for matching point over,

- 1).Tiles facing wall.
- 2).For electrical fitting.
- 3).Plumbing.

IV. WHAT IS NEODYMIUM MAGNET

Neodymium magnets are a type of rare earth magnet. They are the strongest rare earth magnets and can be very dangerous if handled improperly. They are often referred to as rare earth magnets because they belong to the rare earth elements on the periodic table. But they are not the same as rare earth magnets. There are different types of rare earth magnets and Neodymium magnets are just one type. Neodymium magnets are the strongest permanent magnets available today. Neodymium magnets are also known as Neodymium magnets are also known as Neodymium-Iron-Boron or Nd-Fe-B or NIB

super magnets since they are composed of these elements. These magnets are extremely strong for their small size and are metallic in appearance. We use 12x30 NdFeB magnets and the power of (12diax30) NIB magnet is 3500gauss.



Figure.7. Different shapes of NdFeB magnet



Figure.8. Nd-Fe-B (12x30)

V. PHYSICAL PROPERTIES OF NEODYMIUM MAGNET

Sr no	Property	Neodymium
1	Remanence (T)	1-1.3
2	Coercivity (MA/m)	0.875-1.99
3	Relative permeability	1.05
4	Temperature coefficient of remanence (%/K)	-0.12
5	Temperature coefficient of coercivity (%/K)	-0.55. -0.66
6	Curie temperature °C	320
7	Density (g/cm ³)	7.3-7.5
8	CTE, magnetizing direction (1/K)	5.2×10 ⁻⁶
9	CTE, normal to magnetizing direction (1/K)	-0.8×10 ⁻⁶
10	Flexural strength (N/mm ²)	250
11	Compressive strength (N/mm ²)	1100
12	Tensile strength (N/mm ²)	75
13	Vickers hardness (HV)	550-650
14	Electrical resistivity (Ω cm)	(110-170)×10 ⁻⁶

VI. MEASUREMENT SCALE ON DRILL BIT

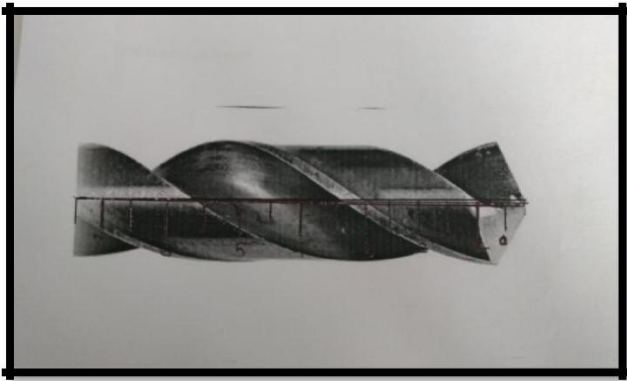


Figure.9. Drill Bits

Drill bits are cutting tools used to remove material to create holes, almost always of circular cross-section. Drill bits come in many sizes and shape and can create different kinds of holes in many different materials. We use drill bites for drilling on tiles. In time saver matching point technique we used neodymium magnet and the power of neodymium magnet is 3500 gauss. And the effect of neodymium magnet is up to 2 inch. When we apply the magnet on wall for matching points then the effect of magnet is up to 2 inch. So that for drilling, the measurement scales on drill bit is most important part.

VII. COMPARATIVE STUDY WITH TUBE LEVEL

The activities involved in Construction Projects where the magnitude of the work is on a large scale, Speedy Work and Timely Completion of Work with Quality Control are very vital. In order to achieve this, Mechanization of Work has to be done, where Construction Machinery & Instrument play a pivotal role. Considering the above procedure of center point technique and tube level,

- When we directly use the drill machine on wall with tiles facing, it may result in damaging the surrounding surface of point of action.
- For application of tube level it requires two persons for handling but handling this technique it requires only one person.
- For proceeding tube level it required much more time as compare to this instrument.
- In achieving the accurate result this is more efficient as compare to tube level.
- Life span of this neodymium magnet is more as compare to tube level.
- As compare to tube level operating cost is high.

VIII. OBSERVATION

Appropriate instrument contributes to Economy, Quality, Safety, Speed and Timely completion of the Project. Construction instrument is an important part of any construction process. It is not always desirable or possible for the Contractor to own each and every type of Construction instrument required for the Project. From this comparative study it is very important that the project should be completed at proper time. For achieving the accurate result this new mark point technique is more efficient. Due to accurate use of this instrument we can save time, money, and loss of material in construction project. As. we have seen when we drill a tiled partition wall the other side tiles gets damaged and it affects the appearance of the wall and to repair this wall costs, money,

labor and time. And sometimes even after repairing the damaged wall we don't get the exact finished. This huge loss is major issue on construction site. Hence to overcome all this issue mark point technique is the best solution.

IX. CONCLUSION

- Mark Point technique prevents the breakage of tiles while drilling and it reduced the loss of material which has resulted into saving of material cost. And maintains the aspect of the wall.
- By using Mark Point technique we have seen that material loss has been reduced and no damage was done to the tiles. Hence, there is no need to repair damage portion. Therefore the extra labor cost for repairing the tiles is reduced.
- At construction site we use large amount of instrument for completion of project. Appropriate instrument contributes to Economy of project, Quality of project, Safety of project, Speed and Timely completion of the Project. By the time saver mark point technique we can achieve, to avoid breakage, save excess of time, save loss of material.

X. REFERENCE

- [1].Building Construction S.P.ARORA,S.P.BINDRA.
- [2].Building Construction- Dr. B.C.PUNMIA.
- [3].Construction planning, equipment's and methods- M.C.GRAW HILL EDUCATION
- [4].A TO Z construction by Sandeep Mantri.
- [5].An Overview of Nd-Fe-B over Normal Magnets for the Generation of Energy By Prof. Parag G Shewane Prof. Mayuri Gite, Asst. Prof. Department of Electrical Engineering Dr. Babasaheb Ambedkar College of Engg. & Research Nagpur