Comparison of Compound Indexing and Different Indexing for Particular Gear Cutting in Milling Machine

S.K.Sao
Associate Professor, Mechanical Department, B.I.T. Durg (C.G.), India

***Abstract*- To manufacture gear of required teeth can be obtained by dividing the peripheri of work piece in no of teeth's required with the help of universal dividing head. here two methods are compared to obtain the required teeth such as compound indexing and differential indexing for 51 teeth.**

INTRODUCTION

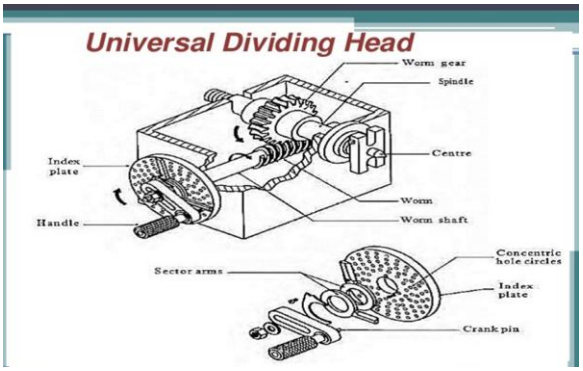
To compare the compound indexing and differential indexing by universal dividing head. in compound indexing and differential indexing both index plate and crank have to be move for dividing the pheripheri of piece of work in equal no. of divisions

CONTENTS

Universal dividing head, indexing, compound indexing, differential indexing

UNIVERSAL DIVIDING HEAD

Dividing Head is one of the most important attachments with the milling machine and it is almost indispensable the typical construction of the dividing head is shown in figure



The spindle of the dividing head drivers the work piece. The index plate of a dividing head consists of a no. of holes with a crank and pin. The Index Crank Drivers The Spindle and the live Centre through a Warm Gear Which has generally has 40 teeth full rotation of the work piece is produced by 40 full revolutions of the index crank.

The Index Plate Available:-
Plate No. 1. 15,16,17,18,19,20 Holes
Plate No. 2. 21,23,27,29,31,33 Holes
Plate No. 3. 37,39,41,43,47 Holes

INDEXING

Indexing is the method of dividing the piece of work in equal no. of parts

COMPOUND INDEXING

In this first the crank is moved in the usual fashion in the forward direction. Then a further motion is added or subtracted by rotating the index plate after locking the plate with plunger. To obtain 51 teeth to gear this method is used.
51 = 17X3
We Select the Number of Holes Circle are 17 and 18 holes
Now We Get the Ratio of Factor of Divisions Required X Factor of difference in holes circle / Factor of 40 x factor of first circle x factor of Second Circle
Factor of 51 x factors of (18 – 17) / factor of 40 x factor of 17 x factor of 18
17x3x1 / 5x2x2x2x17x3x6 = 1/240
Numerator is unity so circles are correct.
By trial and error method
2/17 + 12/18 = 40/51
So First movement is 2 holes in 17 holes circle in index plate second movement is both index palte and crank 12 holes in 18 holes circle in the same direction

DIFFRENTIAL INDEXING

In differential indexing the index plate is free to rotate. A gear is connected to the back of the dividing head spindle while another gear mounted on a shaft is connected to the shaft of the index plate through bevel gears.

The Change Gears Set Available

24,24,28,32,40,44,48,56,64,72,86 And 100

Now 51 Divisions to be indexed

51 No. of holes are not available in index plate so we select 50 divisions

40/50 = 4x4/5x4 = 16 / 20

So 20 Holes Circle in plate is available so 16 holes circle is moved by crank in 20 holes circle.

40/50 – 40/51 / 40/51

40 (51 – 50) / 50 X 51 / 1/51 = 4/5 = 32/40

Using simple gear driver has 32 teeth and driven has 40 teeth by using one idler for moving in same direction.

CONCLUSION

Though compound indexing is a convenient way to get any indexing required, it is fairly combersome to use in practice. Hence differential indexing is used for that purpose which is an automatic way to carry out the compound indexing method.

FUTURE SCOPE

To compare other teeth of gear by compound indexing and differential indexing

REFRENCES

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[3] Workshop Technology Volume 2 by Raghuwanshi