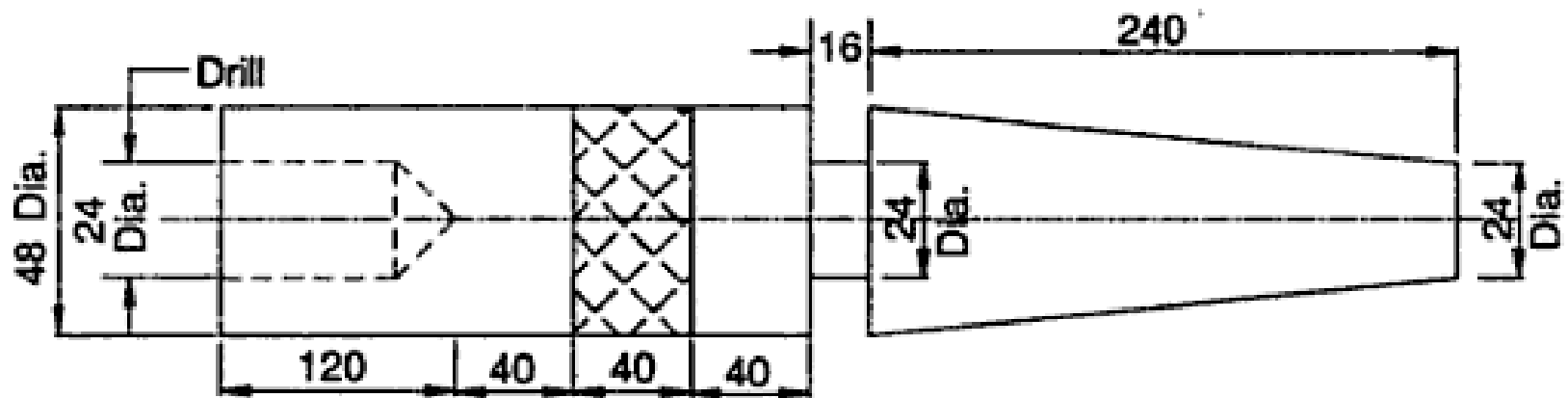


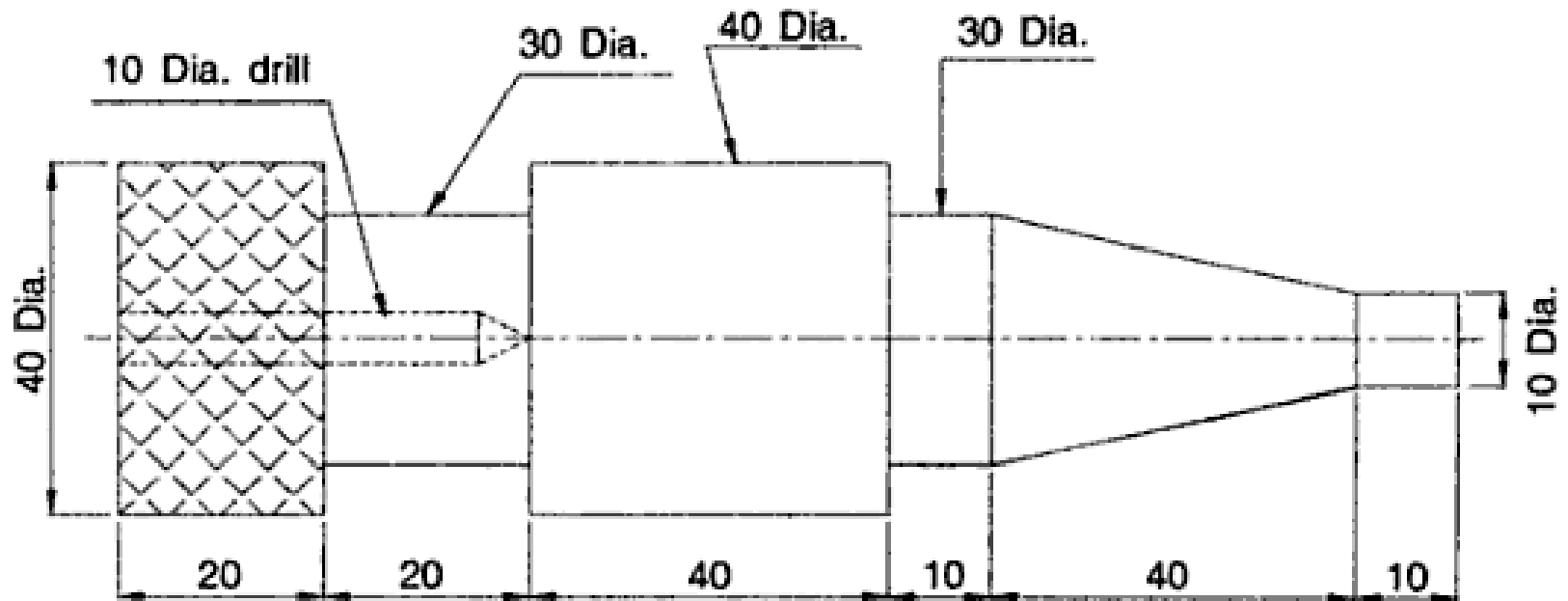
Lec 11. Drilling and Allied Operations

Problems

12. List the various operations involved to make the job shown in Fig. 6.11 from a raw workpiece of size 500 mm length and 50 mm diameter.



- 13.** Component shown in Fig. 6.12 is to be manufactured from workpiece of size 45 mm diameter and 150 mm length. List the operations involved and what will be the best sequence of operations in your opinion.



17. At what speed (rpm) a 20 mm drill should run for cutting steel at 25 m/min surface speed?

[Ans. 398 rpm]

18. At a speed of 33 m/min and the feed of 0.10 mm/rev of the drill, calculate the time required to drill a 15 mm diameter hole in a 25 mm thick plate. Take the length of approach and length of overtravel as 3 mm each.

[Ans. 0.442 min]

19. Estimate the time required to drill a 20 mm deep hole in a material of 30 mm thickness with a drill-bit of 10 mm diameter, when the cutting speed is 0.4 m/sec and feed rate is 0.25 mm/revolution. Assume approach distance as two times the drill-bit diameter.

[Ans. 0.209 min]

20. A 10 mm drilled hole in a workpiece of 10 mm thickness is to be brought in alignment by boring. Calculate the time taken in the boring operation assuming cutting speed as 30 m/min and feed as 0.13 mm/rev.

[Hint: Boring is similar to turning on a lathe.]

[Ans. 4.83 sec]

21. Calculate the time required to drill a 15 mm diameter, 30 mm deep hole in a 50 mm thick plate. Assume a cutting speed of 33 m/min and feed of 0.10 mm/rev.

[*Ans.* 0.43 min at 701 rpm]

22. Explain a possible sequence of manufacturing the component shown in Fig. 6.13 from a workpiece having a diameter of 100 mm and length of 402 mm. Two holes are indicated as h_1 and h_2 , (all dimensions are in mm).

