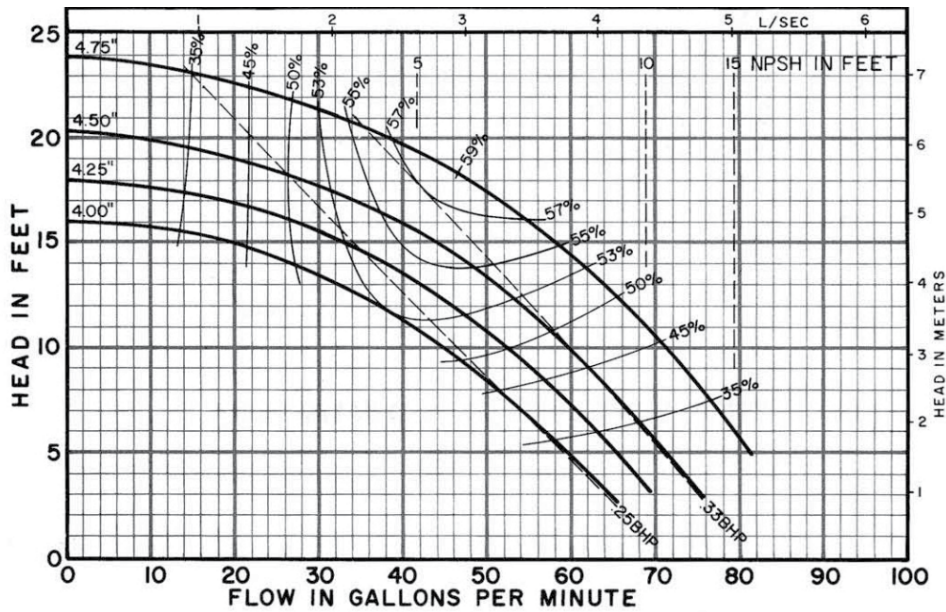


46.43 The operating pressure in a hydronic system is 15ft of head and the required flow is 120gpm. The system has been designed with 3 pumps operating in parallel. Referring to the pump curves below, what is the minimum impeller size sufficient for the system?

- A. 4.00in
- B. 4.25in
- C. 4.50in
- D. 4.75in



Refer to **Pump Performance Curves**.

Since the 3 pumps are in parallel, the head added is the same across each pump.

$$\Delta h = 15ft$$

The volume flow rate will be split equally across all 3 pumps.

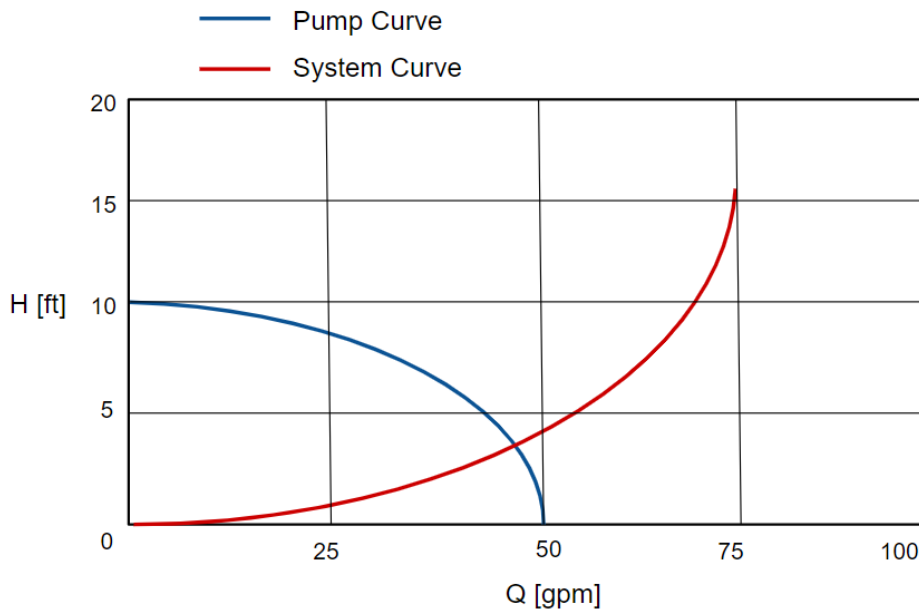
$$Q = \frac{120gpm}{3} = 40gpm$$

Find the operating point on the chart for 40gpm, 15ft and choose the next size up, which is the 4.5in impeller.

Answer C

46.44 A hydronic system operates according to the system curve shown below. The system is being designed to include two pumps in parallel, each with the characteristics of the pump curve shown below. What is the maximum hydraulic horsepower available to the system?

- A. 0.05hp
- B. 0.13hp
- C. 0.19hp
- D. 0.29hp



Reference the graph titled [Operating Conditions for Parallel Operation](#) and sketch a second pump in parallel. The curve for two pumps in parallel should connect 10ft on the vertical axis with 100gpm on the horizontal axis, and roughly parallel the single pump curve. Make a best approximation of the volume flow rate and head at the intersection of the new parallel pump curve and the existing system curve.

$$Q \approx 63gpm$$

$$\Delta h \approx 8ft$$