Jockey pump sizing & cycling

component

Why fire-pump installations need a jockey pump, how to size it, and how to set the cut-in/cut-out pressures to prevent short cycling.

Purpose

The jockey pump maintains system pressure against minor leaks and temperature-driven contraction so the main fire pump does not start on a non-fire event.

Sizing

NFPA 20 §4.26: jockey capacity should not exceed the largest expected leakage and should not refill the system in less than 10 minutes. Typical 40–80 L/min, 0.5–3.0 bar above main pump churn.

Pressure setting (NFPA 20 §A.4.26)

Main pump start = water supply minimum static + 0.34 bar (5 psi). Jockey start = main pump start + 0.69 bar (10 psi). Jockey stop = system normal pressure. Main pump stop = manual (preferred) or 10 min run timer.

Anti-cycling

Short jockey cycles (more than ~10 starts/hour) usually mean a leak — find it, do not just enlarge the jockey. A larger jockey will mask the leak and let the system fill faster than the fire pump can react.

Source: NFPA 20 (2022) §4.26; FM DS 3-7