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TECHNICAL DATA RECORD

TDR NO (SR)7955
PAGE 1 OF 11
APPROVALS

AUTHOR: *Richard S. Baker
DEPT & GROUP NO: 712 21
DATE: 11-12-62
GO NO: 7519

TITLE: **WEIGHTS AND EFFICIENCIES OF HELICAL-ROTOR ELECTROMAGNETIC PUMPS FOR SODIUM SERVICE**

S A NO: 4454
TWR: 34399

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PROGRAM: ASCR

SUBACCOUNT TITLE: SODIUM PUMPS

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STATEMENT OF PROBLEM

Curves of weight, efficiency, and pump dimensions for pump ratings in the range of 1000 GPM to 20,000 GPM are required in connection with SGR plant design.

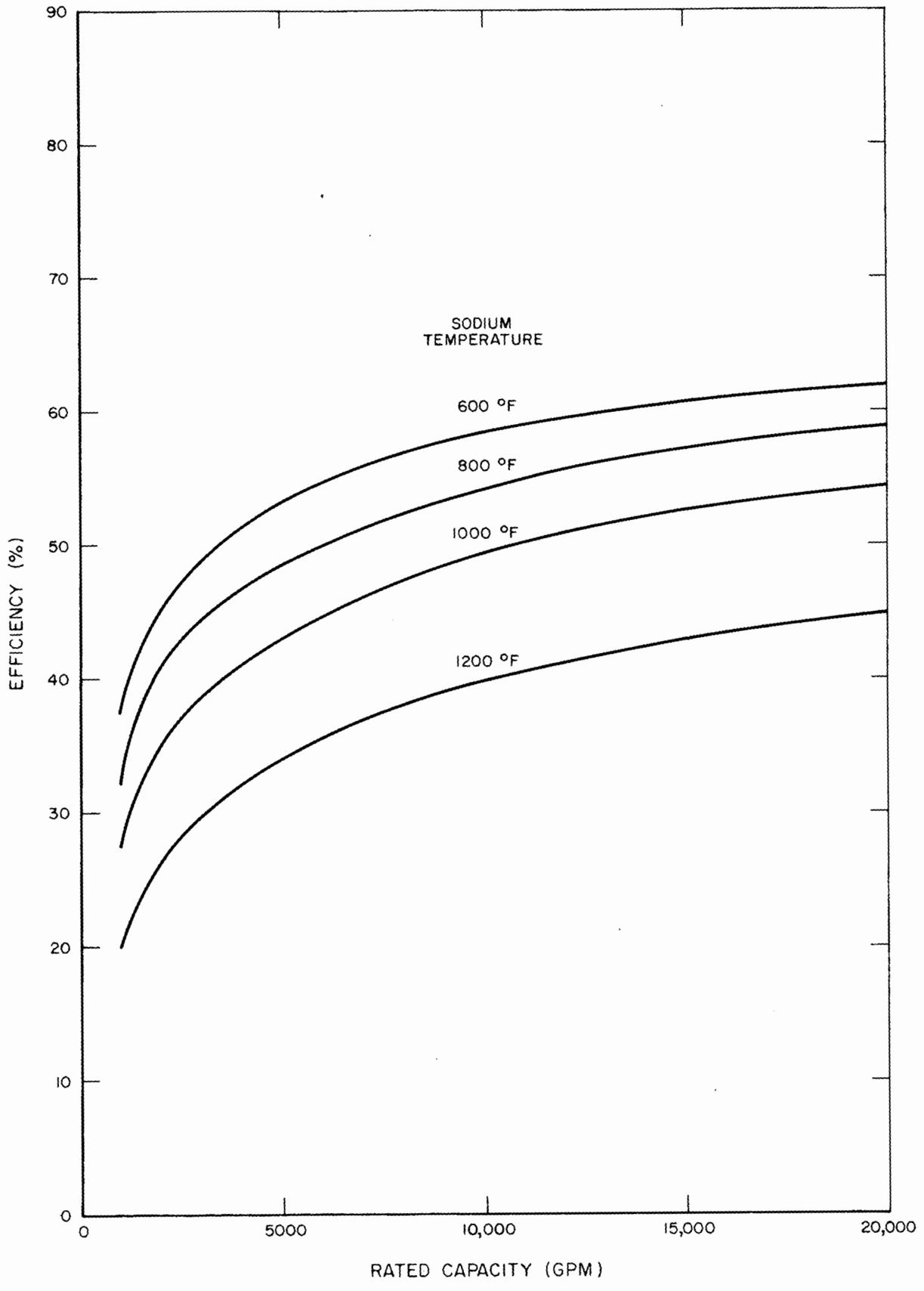
ABSTRACT

In order to provide information regarding the weights, efficiencies, and dimensions of helical-rotor electromagnetic pumps designed for rated flows from 1000 GPM to 20,000 GPM (molten sodium), curves are presented giving magnitudes of these items.

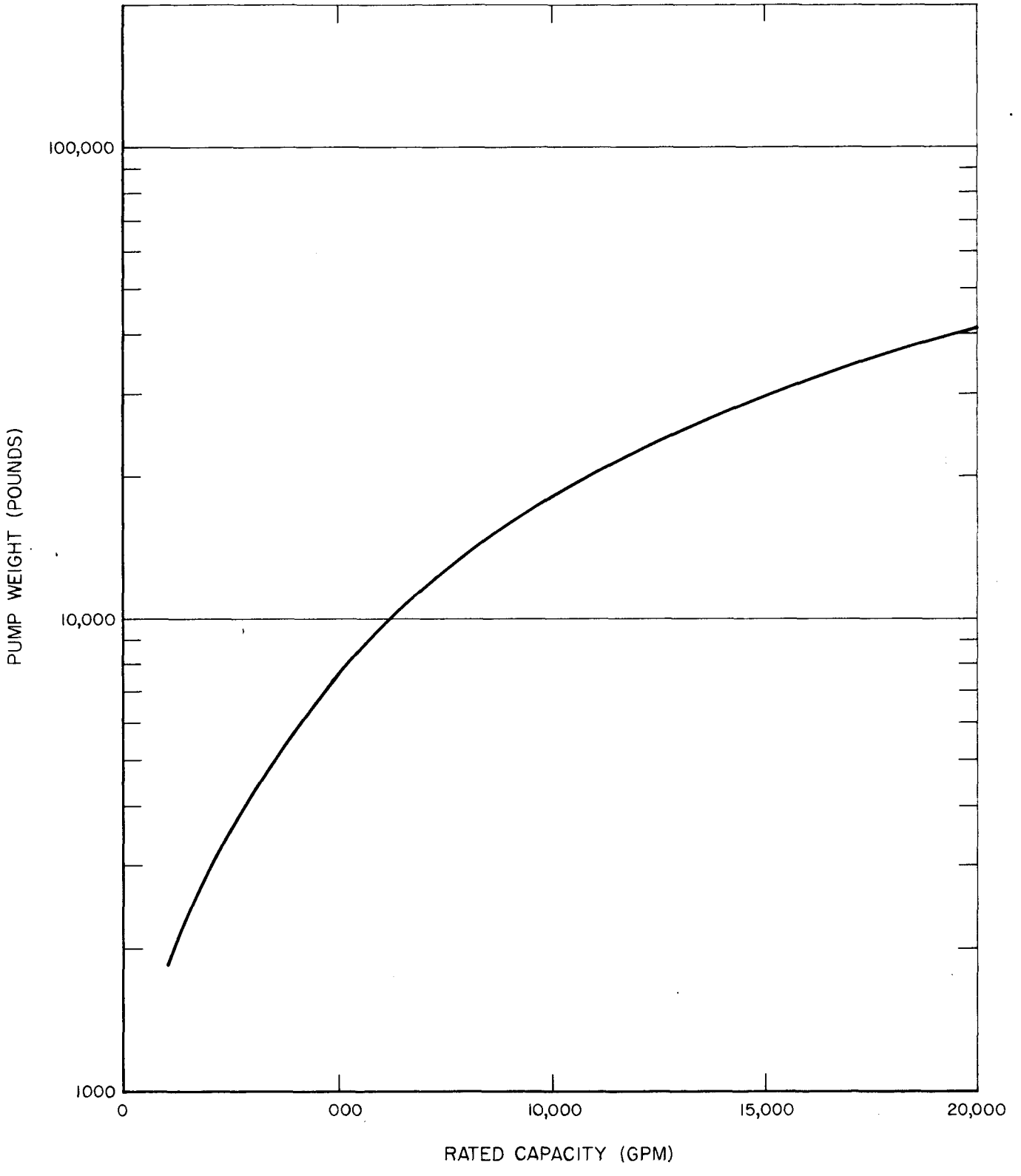
The calculations for this report were made on the Rocketdyne computer, using the code "Program for Optimizing EM Pump Design" Dept. 792 production file number 3W540. The code was prepared by M. R. Reed, 717-71, using the design procedure in NAA-SR-TDR 6577, "Design of Helical-Rotor Electromagnetic Pump".

Pump designs were prepared for developed pressures of 50 psi and 100 psi; and for sodium temperatures of 600°F and 1200°F.

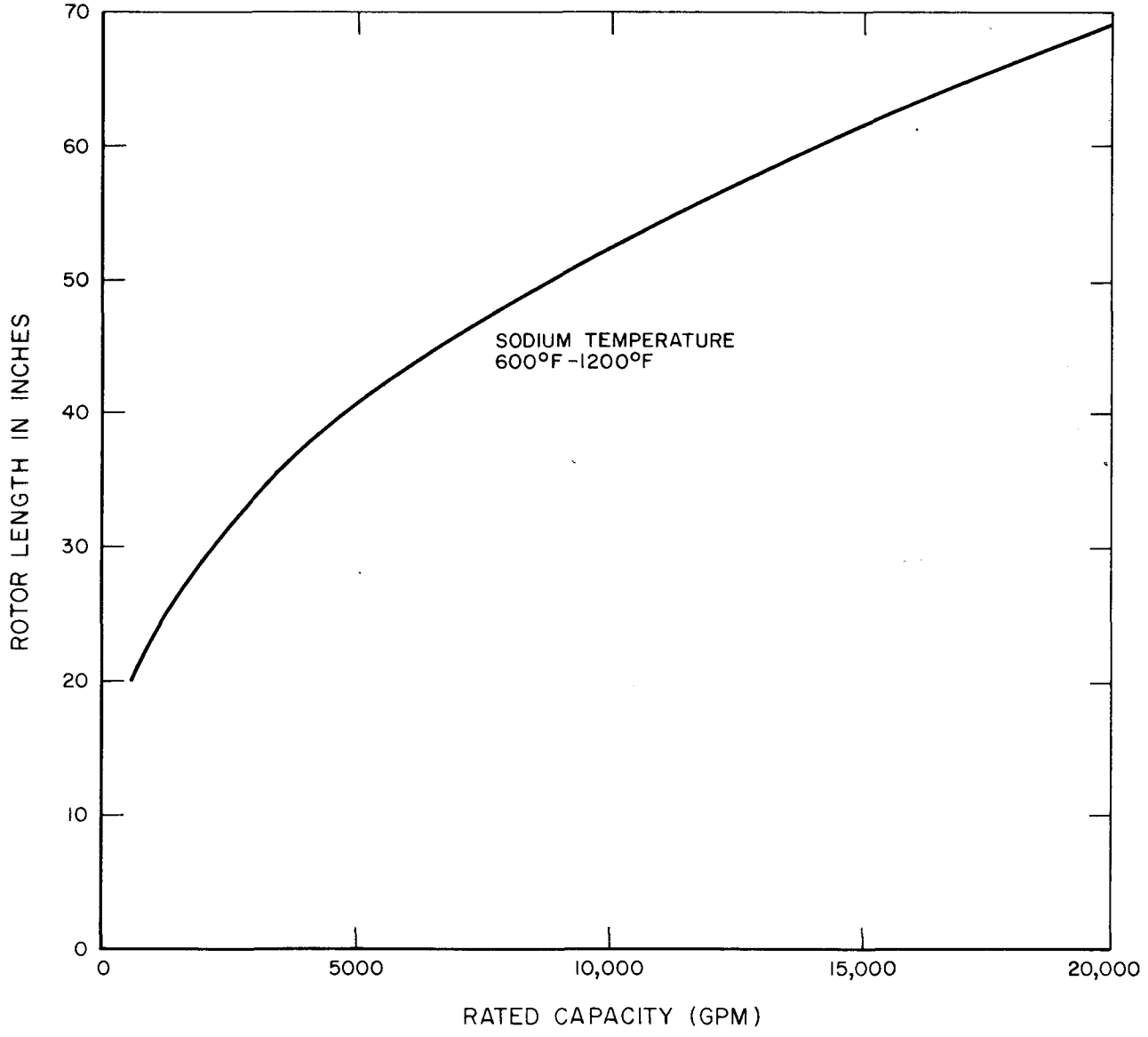
PUMP EFFICIENCY VS RATED FLOW
FOR
50 PSI DEVELOPED HEAD



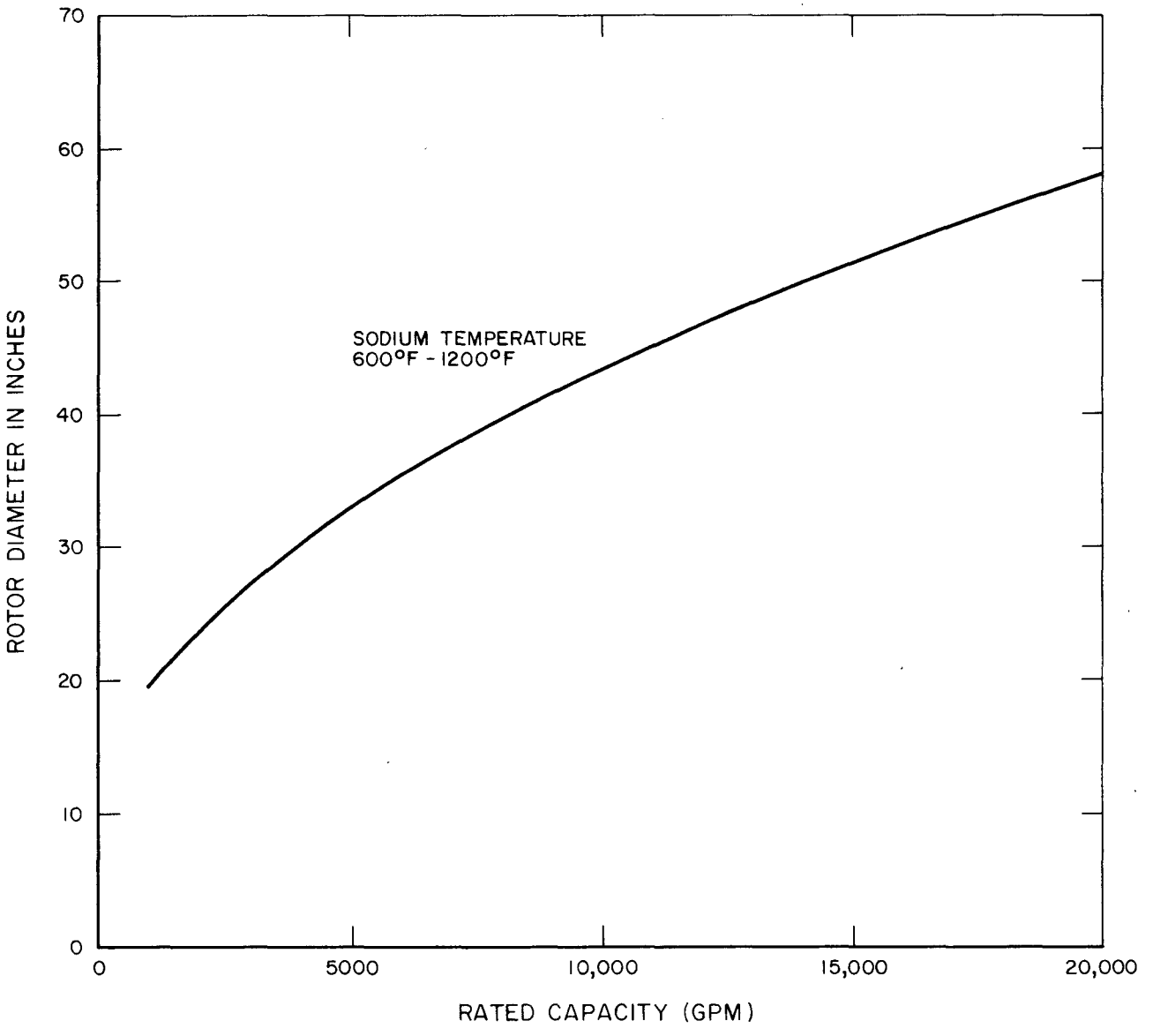
PUMP WEIGHT VS RATED CAPACITY
FOR
SODIUM TEMPERATURES OF 600°F — 1200°F
50 PSI DEVELOPED HEAD



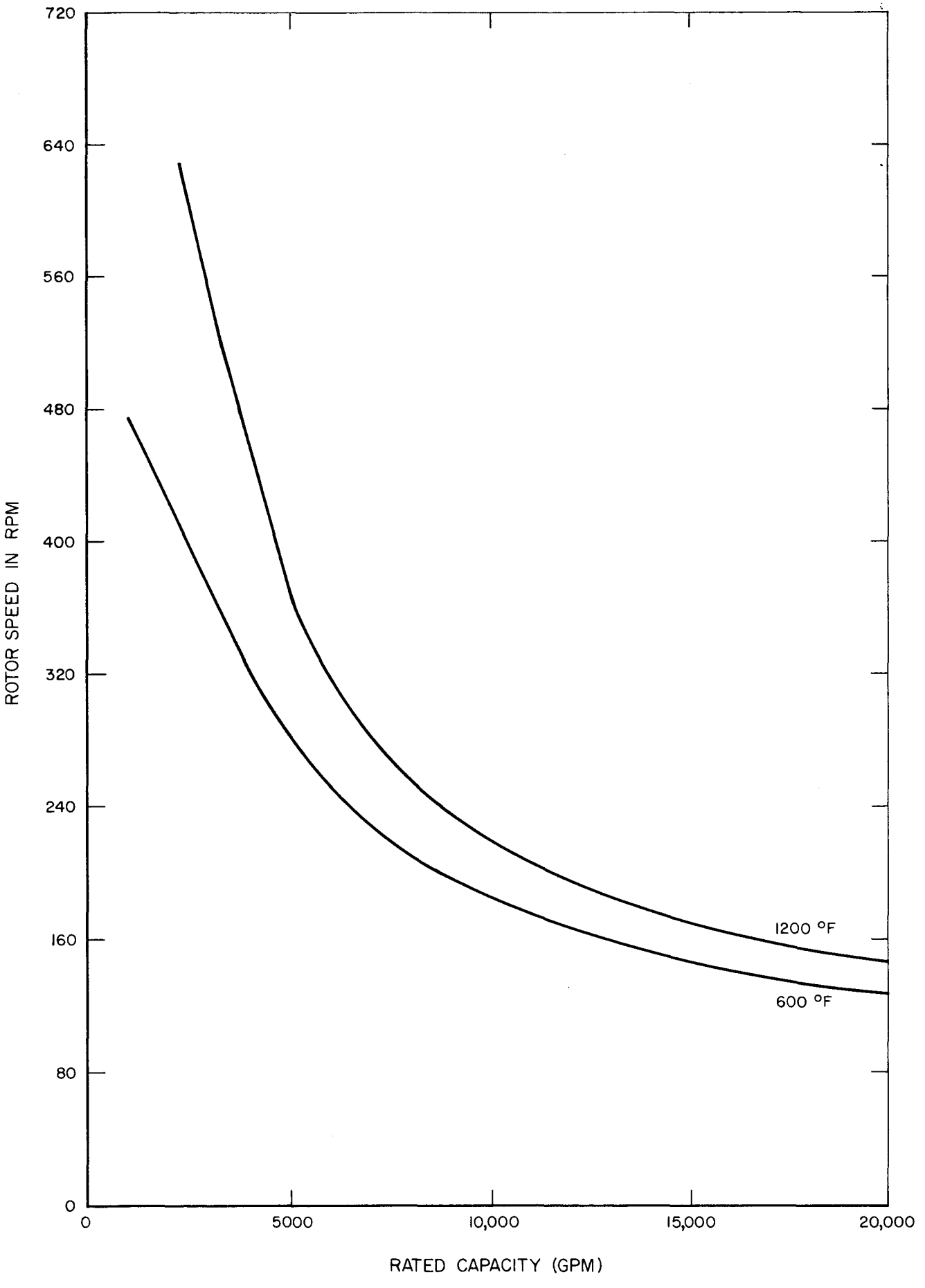
ROTOR LENGTH VS RATED CAPACITY
FOR
50 PSI DEVELOPED HEAD



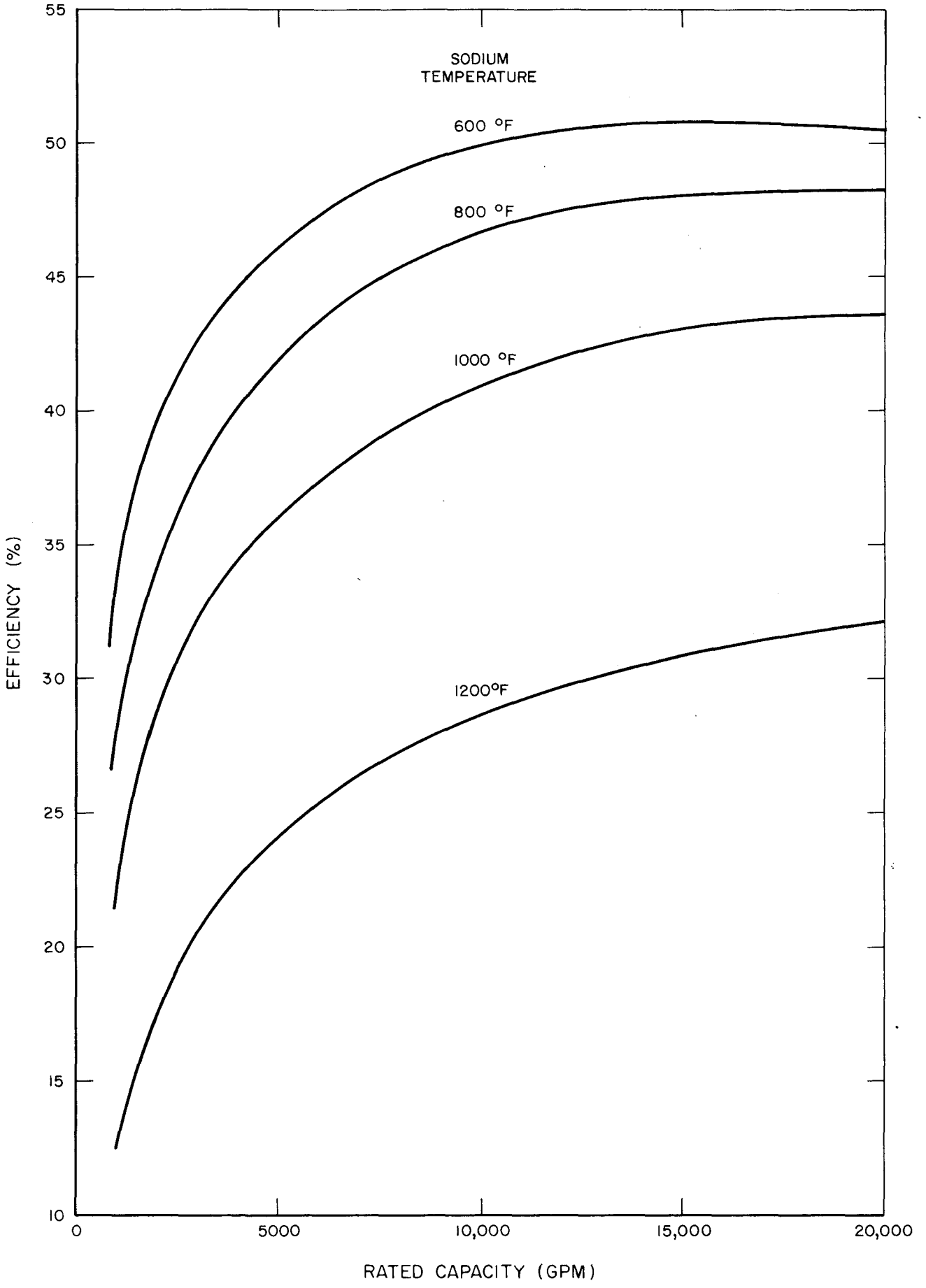
ROTOR DIAMETER VS RATED CAPACITY
FOR
50 PSI DEVELOPED HEAD



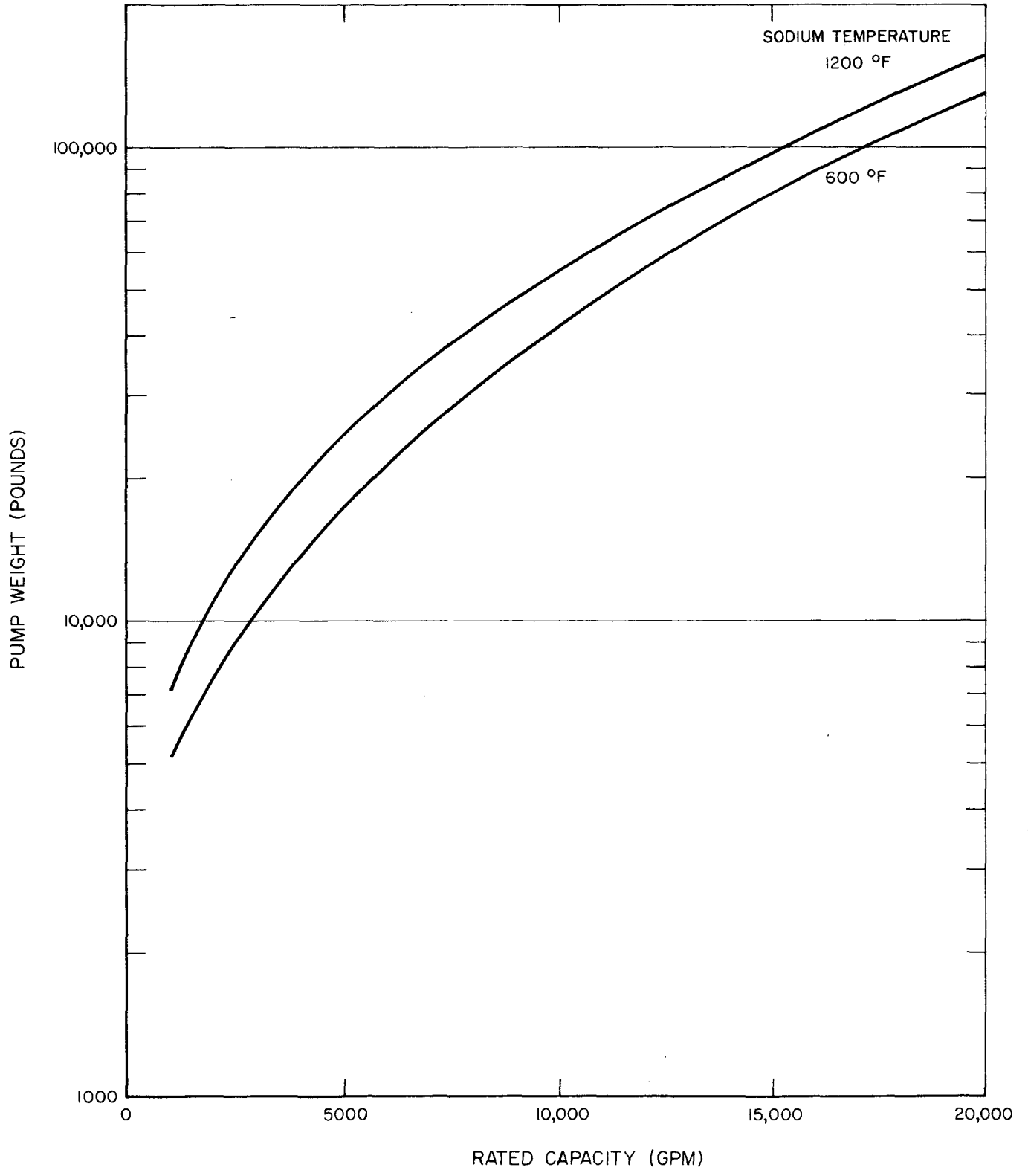
ROTOR SPEED VS RATED CAPACITY
FOR
50 PSI DEVELOPED HEAD



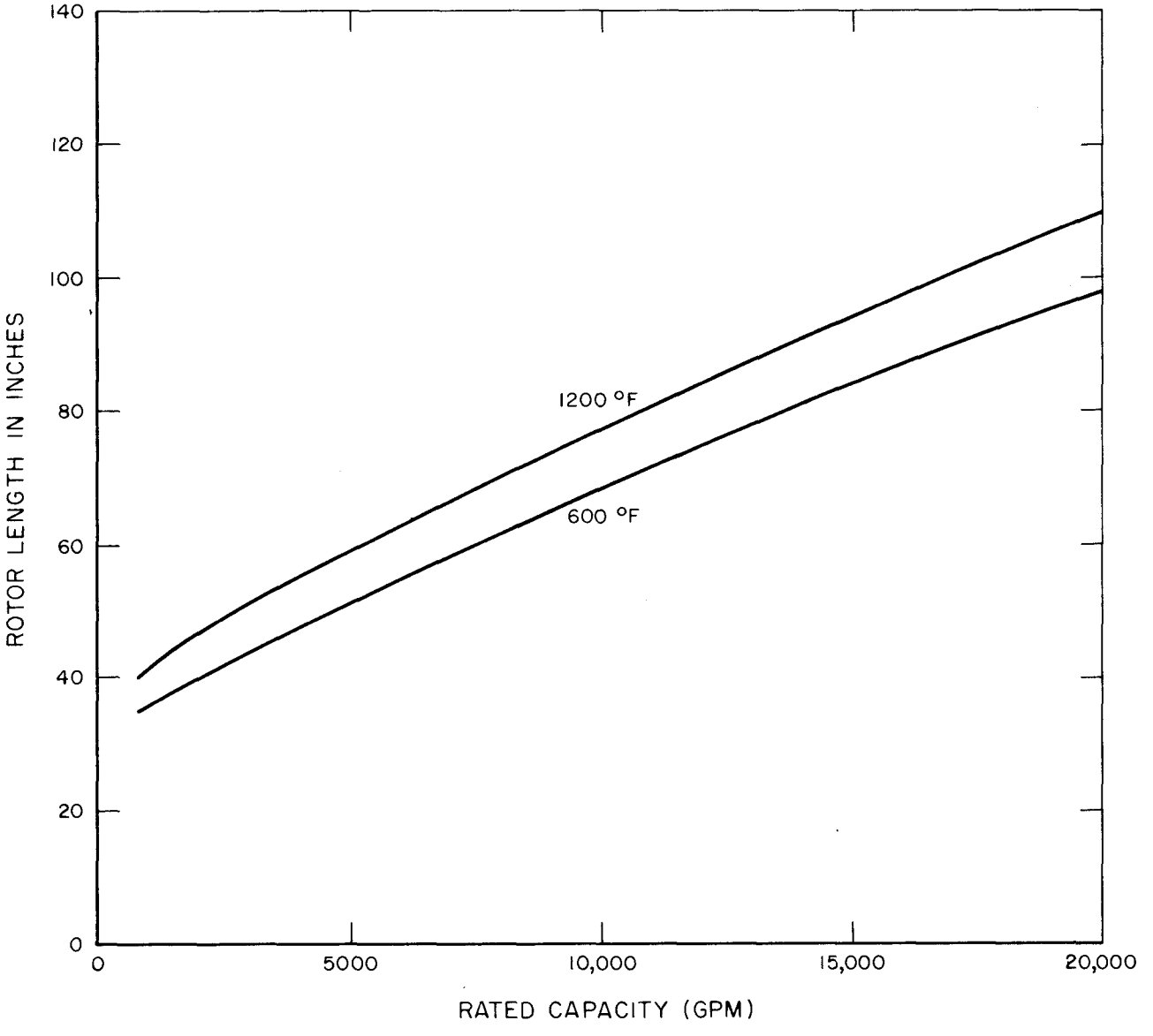
PUMP EFFICIENCY VS RATED CAPACITY FOR 100 PSI DEVELOPED HEAD



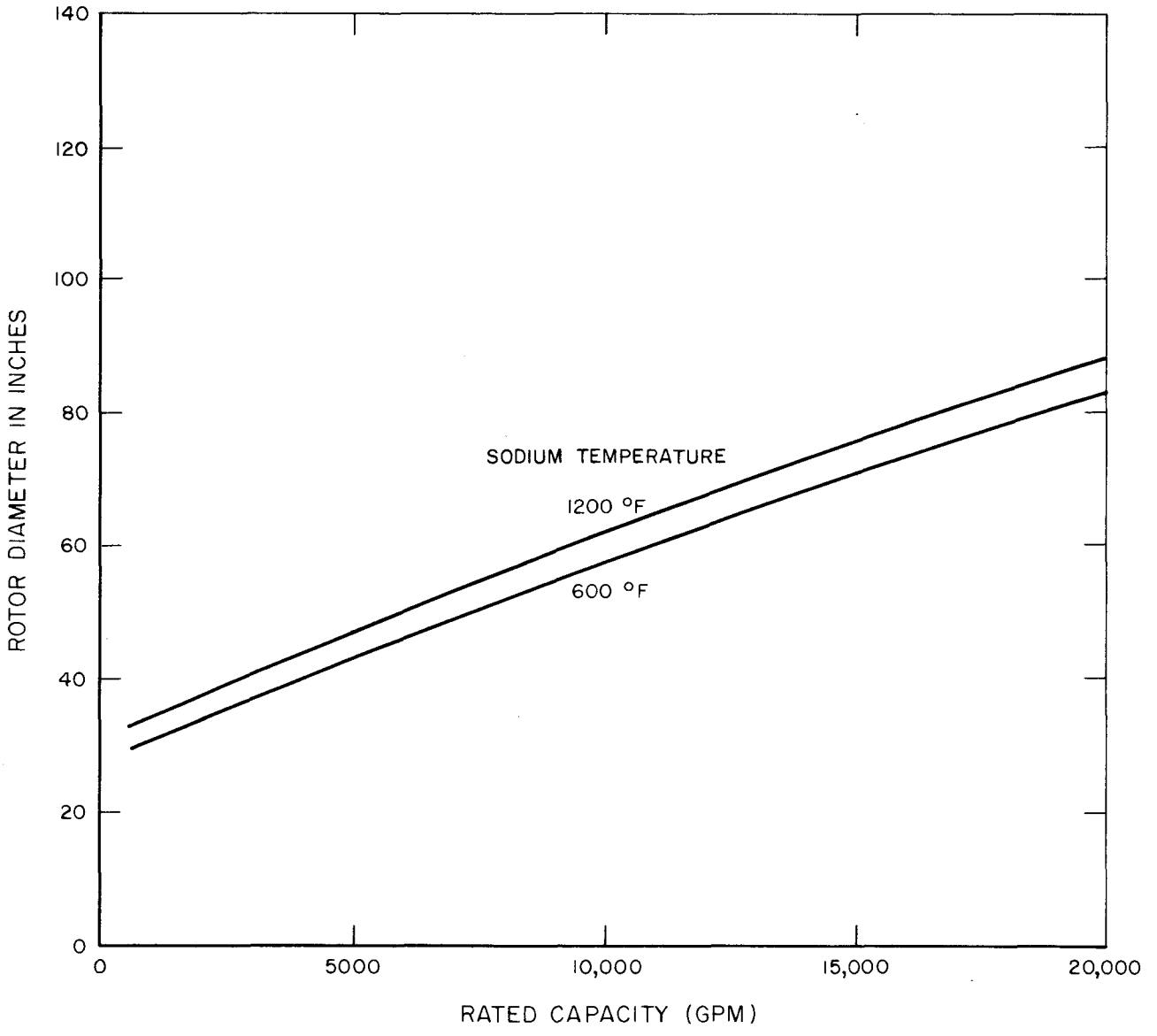
PUMP WEIGHT VS RATED CAPACITY
FOR
100 PSI DEVELOPED HEAD



ROTOR LENGTH VS RATED CAPACITY
FOR
100 PSI DEVELOPED HEAD



ROTOR DIAMETER VS RATED CAPACITY
FOR
100 PSI DEVELOPED HEAD



ROTOR SPEED VS RATED CAPACITY
FOR
100 PSI DEVELOPED HEAD