

Model VAS - Supplemental Data

200.F.05 *(Sup. 2B.7, 7/30/76)*

VAS SELECTION PROCEDURE

A. Select pump size and number of stages from VAS curves.
 Record all data. Check bowl pressure limitations from Engineering Data Section (E.D.S.).

FROM CURVE:

(7) Size _____ (8) No. Stages _____ (9) Imp. Dia. Approx. _____ In.
 (10) K = _____ (11) Bowl Efficiency _____ % (12) Estimated HP
 (13) Curve No. _____

SPECIFIED

(1) G.P.M. _____ (2) Pumping Head _____ Ft.
 (3) Sp. Gr. _____ (4) Pumping Temp. _____ °F
Note: For fluid temperature higher than 85° F, contact factory for motor HP derate.
 (5) R.P.M. _____ (6) Setting _____ Ft.
 (6a) T.P.L. _____ Ft.

B. Record bowl assembly length and motor length.
 Record column length.

(14) Bowl Assembly Length _____ In.
 (15) Motor Length _____
 (6) Column Length _____
 (16) T.P.L. = (14) + (15) + (6) = _____

C. Column Friction Loss: Select column size from chart, using the non-shaded figures for the selection. Determine friction loss and record.

(17) Column _____ In.
 (18) Column Friction Loss _____ Ft.
 (19) Elbow Friction Loss _____ Ft.
 (20) Total Friction Loss = (18) + (19) = _____ Ft.

D. Add (20) and (2) to obtain Total Pump Head (TDH) and record.

(21) T.P.H. = (2) + (20) = _____ Ft.

E. Refer to pump curves and make the final pump selection with TPH (21). Record data (13A) (10A) (11A).

(11A) Final Bowl Efficiency _____ %
 (8A) Final No. of Stages _____
 (9A) Final Imp. Dia. _____

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F. Calculate final BHP with TPH (21) and Bowl Efficiency (11).

$$\text{HP (22)} = \frac{\text{GPM (1)} \times \text{TPH (21)} \times \text{Sp. Gr. (3)}}{3960 \times \text{Efficiency (11A)}}$$

Calculate maximum BHP based on this GPM, the associated Head and Efficiency.
Calculate maximum BHP (non-overloading) if required. (22A)

(22) Pump BHP _____

(22A) Maximum BHP _____

Note: To calculate maximum BPH (22A), determine the capacity at which HP curve (based on required trim) peaks on performance curve.

G. **Axial Thrust:** Find thrust constant "K" performance curve. Calculate maximum thrust at the expected minimum flow rate.

$$(23) \text{ Total Thrust (T)} = K (10) \times \text{TPH (21)} \times \text{Sp. Gr. (3)}$$

H. Select the proper cable size from the Cable

(24) Cable Size _____ Selection Chart.

$$\text{Note: Overall Efficiency} = \frac{\text{GPM (1)} \times \text{TPH (21)} \times \text{Sp. Gr. (3)}}{3960 \text{ BHP}} \times \text{Motor Efficiency}$$

K. Enter all data on TD Estimate Sheet and Quotation Form. Price pump and all auxiliary items from price book. Check to see that discharge pressure does not exceed column and discharge elbow ratings. **Note:** Flow of fluid between well casing and motor O.D. must be at least 1 ft./sec. at 85° F. If flow is slower or temperature is higher, contact the factory for derating of motor HP.

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