SERIES HSCS

LARGE HORIZONTAL SPLIT CASE BASE MOUNTED - DOUBLE SUCTION PUMP PERFORMANCE CURVES
TABLE OF CONTENTS

USEFUL PUMP FORMULAS ........................................... 2
1800 RPM PUMP CURVES ........................................ 3-5
1200 RPM PUMP CURVES ........................................ 6-9
900 RPM PUMP CURVES ........................................ 10-11

USEFUL PUMP FORMULAS

Pressure (PSI) = \( \frac{\text{Head (Feet) \times Specific\ Gravity}}{2.31} \)

Head (Feet) = \( \frac{\text{Pressure (PSI) \times 2.31}}{\text{Specific Gravity}} \)

Vacuum (Inches of Mercury) = \( \frac{\text{Dynamic Suction Lift (Feet) \times 0.883}}{\text{Specific Gravity}} \)

Horsepower (Brake) = \( \frac{\text{GPM} \times \text{Head (Feet)} \times \text{Specific Gravity}}{3960 \times \text{Pump Efficiency}} \)

Horsepower (Water) = \( \frac{\text{GPM} \times \text{Head (Feet)} \times \text{Specific Gravity}}{3960} \)

Efficiency (Pump) = \( \frac{\text{Horsepower (Water)} \times 100 \text{ Per Cent}}{\text{Horsepower (Brake)}} \)

NPSH (Available) = Positive Factors – Negative Factors

Affinity Laws: Effect of change of speed or impeller diameter on centrifugal pumps.

\[
\begin{align*}
\text{GPM Capacity} & = D_2^2 \times Q_1, \\
\text{Ft. Head} & = \left( \frac{D_2}{D_1} \right)^2 H_1, \\
\text{BHP} & = \left( \frac{D_2}{D_1} \right)^3 P_1
\end{align*}
\]

\[
\begin{align*}
\text{Impeller Diameter Change} & : Q_2 = D_2 \times Q_1, \\
& : H_2 = \left( \frac{D_2}{D_1} \right)^2 H_1, \\
& : P_2 = \left( \frac{D_2}{D_1} \right)^3 P_1
\end{align*}
\]

\[
\begin{align*}
\text{Speed Change} & : Q_2 = \frac{\text{RPM}_2}{\text{RPM}_1} \times Q_1, \\
& : H_2 = \left( \frac{\text{RPM}_2}{\text{RPM}_1} \right)^2 H_1, \\
& : P_2 = \left( \frac{\text{RPM}_2}{\text{RPM}_1} \right)^3 P_1
\end{align*}
\]

Where \( Q = \text{GPM}, \ H = \text{Head}, \ P = \text{BHP}, \ D = \text{Impeller Dia.}, \ \text{RPM} = \text{Pump Speed} \)
SERIES HSCS

900 RPM PUMP CURVES

TOTAL HEAD BELL & GOSSETT PUMP 10x14x20S HSCS SERIES SPEED 885 RPM IMPPELLER DATA

IMPELLER NO. P-2597 NO. OF V ANES 6

MAX. DIA. 19.8" (503mm) MIN. DIA. 9.4" (239mm)
MAX. SPHERE 1.63" (41mm) AREA 112\text{a} \text{ (723cm)}^2

PERFORMANCE FOR NON OVERLOADING WITH A 1.0 S.F.

MOTOR HP IMP.
60 18.3" (465mm)
50 17.3" (439mm)
40 16.2" (411mm)
30 14.7" (373mm)
25 13.8" (351mm)
20 12.7" (323mm)
15 11.3" (287mm)
10 10.6" (254mm)
7.5 9.3" (236mm)

BHP

(GPM) (M^3/H)

TOTAL HEAD BELL & GOSSETT PUMP 12x16x23 HSCS SERIES SPEED 885 RPM IMPPELLER DATA

IMPELLER NO. P-2598 NO. OF V ANES 6

MAX. DIA. 23" (584mm) MIN. DIA. 13" (330mm)
MAX. SPHERE 1.63" (41mm) AREA 150\text{a} \text{ (968cm)}^2

PERFORMANCE FOR NON OVERLOADING WITH A 1.0 S.F.

MOTOR HP IMP.
200 22.3" (566mm)
150 20.6" (523mm)
125 19.6" (498mm)
100 18.5" (478mm)
75 17.5" (444mm)
60 16.2" (411mm)
50 15.3" (388mm)
40 14.3" (363mm)
30 13.4" (340mm)

BHP

(GPM) (M^3/H)

Minimum recommended flow is 40% B.E.P.