SERIES 80

IN-LINE MOUNTED CENTRIFUGAL PUMP PERFORMANCE CURVES - 60 HZ
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USEFUL PUMP FORMULAS

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

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

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

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

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

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

\[
\text{NPSH (Available)} = \text{Positive Factors \text{ – Negative Factors}}
\]

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

\[
Q_2 = \frac{D_2}{D_1} Q_1
\]

\[
H_2 = \left(\frac{D_2}{D_1}\right)^2 H_1
\]

\[
P_2 = \left(\frac{D_2}{D_1}\right)^3 P_1
\]

\[
Q_2 = \frac{\text{RPM}_2}{\text{RPM}_1} Q_1
\]

\[
H_2 = \left(\frac{\text{RPM}_2}{\text{RPM}_1}\right)^2 H_1
\]

\[
P_2 = \left(\frac{\text{RPM}_2}{\text{RPM}_1}\right)^3 P_1
\]

Where \( Q \) = GPM, \( H \) = Head, \( P \) = BHP, \( D \) = Impeller Dia., \( \text{RPM} \) = Pump Speed.
SERIES 80 STANDARD PUMPS

Designed with preselected impeller diameters and motor horsepower sizes to offer better availability.

Pump Construction: Bronze Fitted
Standard Mechanical Seal
Maximum Working Pressure 175 psi
with 125# ANSI Flanges

Motors: 208-230/460 Volts
3 Phase, 60 Hertz
Open Dripproof

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HOW TO USE THIS BOOKLET

- Determine the Pump Model number from the quick selection charts on the cover of this Booklet. Required data: Pump Flow and Head and desired RPM. Use the Standard Pumps shown on this page when possible.

- Consult the individual pump curve for the desired pump model to determine the required motor horsepower, pump efficiency and NPSHR.

- For faster, computerized pump selections, consult your Bell & Gossett Representative about ESP-PLUS, Bell & Gossett’s Equipment Selection Program for personal computers.
SERIES 80 STANDARD PUMPS

3500 RPM PUMP CURVES

Centrifugal Pump Series 80

2 1/2 x 2 1/2 x 7
3500 R.P.M.

Total Head in Meters

Total Head in Feet

Capacity in U.S. Gallons Per Minute

Capacity in Cubic Meters/HR

NPSH in Feet

NPSH in Meters

Impellers are trimmed in 1/4 increments to supply required capacity. Responsibility for final impeller sizing remains with ITT Bell & Gossett.

3x3x7B
3525 R.P.M.

Impellers are trimmed in 1/4 increments to supply required capacity. Responsibility for final impeller sizing remains with ITT Bell & Gossett.
SERIES 80 STANDARD PUMPS

3500 RPM PUMP CURVES

4x4x7 3500 R.P.M.

Impellers are trimmed in 1/8" increments to supply required capacity. Responsibility for final impeller sizing remains with ITT Bell & Gossett.

5x5x7 3550 R.P.M.

Impellers are trimmed in 1/8" increments to supply required capacity. Responsibility for final impeller sizing remains with ITT Bell & Gossett.
SERIES 80 STANDARD PUMPS

3500 RPM PUMP CURVES

Impellers are trimmed in 1/4" increments to supply required capacity. Responsibility for final impeller sizing remains with ITT Bell & Gossett.
3500 RPM PUMP CURVES

CENTRIFUGAL PUMP SERIES 80

Approval Date: 8-17-62

2x2x9\(\frac{1}{2}\)B
3500 R.P.M.

TOTAL HEAD IN METERS

TOTAL HEAD IN FEET

NPSH IN FEET

NPSH IN METERS

CAPACITY IN U.S. GALLONS PER MINUTE

0 10 20 30 40 50 60 70
0 40 80 120
0 120

0 40 80 120
0 120

CENTRIFUGAL PUMP SERIES 80

Approval Date: 12-18-81

2\(\frac{1}{2}\)x2\(\frac{1}{2}\)x9\(\frac{1}{2}\)B
3550 R.P.M.

TOTAL HEAD IN METERS

TOTAL HEAD IN FEET

NPSH IN FEET

NPSH IN METERS

CAPACITY IN U.S. GALLONS PER MINUTE

0 20 40 60 80 100
0 20 40 60 120

0 20 40 60 120
0 120

Impellers are trimmed in \(\frac{1}{4}\) increments to supply required capacity. Responsibility for final impeller sizing remains with ITT Bell & Gossett.
SERIES 80 STANDARD PUMPS

3500 RPM PUMP CURVES

Impellers are trimmed in 1/2" increments to supply required capacity. Responsibility for final impeller sizing remains with ITT Bell & Gossett.

Approved Date 3/16/00

Impellers are trimmed in 1/2" increments to supply required capacity. Responsibility for final impeller sizing remains with ITT Bell & Gossett.

N.P.S.H. REQUIRED
SERIES 80 STANDARD PUMPS

1750 RPM PUMP CURVES

1½x1½x7B
1750 R.P.M.

Impellers are trimmed in 1/4" increments to supply required capacity. Responsibility for final impeller sizing remains with ITT Bell & Gossett.

2x2x7
1750 R.P.M.

Impellers are trimmed in 1/4" increments to supply required capacity. Responsibility for final impeller sizing remains with ITT Bell & Gossett.
SERIES 80 STANDARD PUMPS

1750 RPM PUMP CURVES

Impellers are trimmed in 1/8" increments to supply required capacity. Responsibility for final impeller sizing remains with ITT Bell & Gossett.

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SERIES 80 STANDARD PUMPS

1750 RPM PUMP CURVES

3x3x9\(\frac{1}{2}\)B
1750 R.P.M.

4x4x9\(\frac{1}{2}\)
1750 R.P.M.

Impellers are trimmed in \(\frac{1}{8}\) inch increments to supply required capacity. Responsibility for final impeller sizing remains with ITT Bell & Gossett.
SERIES 80 STANDARD PUMPS

1750 RPM PUMP CURVES

Impellers are trimmed in 1/8" increments to supply required capacity. Responsibility for final impeller sizing remains with ITT Bell & Gossett.

5x5x9\(\frac{1}{2}\)
1750 R.P.M.

6x6x9\(\frac{1}{2}\)
1750 R.P.M.
**1750 RPM PUMP CURVES**

**CENTRIFUGAL PUMP SERIES 80**

- Impellers are trimmed in 1/4 increments to supply required capacity. Responsibility for final impeller sizing remains with ITT Bell & Gossett.

**CENTRIFUGAL PUMP SERIES 80**

- Impellers are trimmed in 1/4 increments to supply required capacity. Responsibility for final impeller sizing remains with ITT Bell & Gossett.

**Approved Date 9-13-76**

**8x8x9 1/2**

1770 R.P.M.

**Approved Date 3/16/00**

**3x3x11**

1750 R.P.M.
SERIES 80 STANDARD PUMPS

1150 RPM PUMP CURVES

**4x4x7**

1150 R.P.M.

**5x5x7**

1150 R.P.M.

Impellers are trimmed in \( \frac{1}{8} \) increments to supply required capacity. Responsibility for final impeller sizing remains with ITT Bell & Gossett.
1150 RPM PUMP CURVES

**CENTRIFUGAL PUMP SERIES 80**

**3x3x91/2B**

1150 R.P.M.

Impellers are trimmed in 1/4" increments to supply required capacity. Responsibility for final impeller sizing remains with ITT Bell & Gossett.

**CENTRIFUGAL PUMP SERIES 80**

**4x4x91/2**

1150 R.P.M.

Impellers are trimmed in 1/4" increments to supply required capacity. Responsibility for final impeller sizing remains with ITT Bell & Gossett.
SERIES 80 STANDARD PUMPS

1150 RPM PUMP CURVES

**5x5x9 1/2**
1150 R.P.M.

**6x6x9 1/2**
1150 R.P.M.

Impellers are trimmed in 1/4" increments to supply required capacity. Responsibility for final impeller sizing remains with ITT Bell & Gossett.
SERIES 80 STANDARD PUMPS

1150 RPM PUMP CURVES

Impellers are trimmed in 1/8" increments to supply required capacity. Responsibility for final impeller sizing remains with ITT Bell & Gossett.

CENTRIFUGAL PUMP SERIES 80

Approx Date 4-10-91

4x4x11
1150 R.P.M.

NPSH IN FEET

NPSH IN METERS

TOTAL HEAD IN METERS

TOTAL HEAD IN FEET

CAPACITY IN U.S. GALLONS PER MINUTE

CAPACITY IN CUBIC METERS/HR

Approved Date 4-25-91

6x6x11
1150 R.P.M.

NPSH IN FEET

NPSH IN METERS

TOTAL HEAD IN METERS

TOTAL HEAD IN FEET

CAPACITY IN U.S. GALLONS PER MINUTE

CAPACITY IN CUBIC METERS/HR
1150 RPM PUMP CURVES

Impellers are trimmed in \( \frac{1}{8} \) inch increments to supply required capacity. Responsibility for final impeller sizing remains with ITT Bell & Gossett.