

SERIES 90 PUMP

SERIES 90

In-Line Mounted Centrifugal Pump Performance Curves



Bell & Gossett



## TABLE OF CONTENTS

Useful Pump Formulas .....	2
Series 90 Standard Pumps .....	3
Built To Order Curves .....	5

---

### USEFUL PUMP FORMULAS

$$\begin{aligned} \text{Pressure (PSI)} &= \frac{\text{Head (Feet)} \times \text{Specific Gravity}}{2.31} \\ \text{Head (Feet)} &= \frac{\text{Pressure (PSI)} \times 2.31}{\text{Specific Gravity}} \\ \text{Vacuum (Inches of Mercury)} &= \frac{\text{Dynamic Suction Lift (Feet)} \times .883}{\text{Specific Gravity}} \\ \text{Horsepower (Brake)} &= \frac{\text{GPM} \times \text{Head (Feet)} \times \text{Specific Gravity}}{3960 \times \text{Pump Efficiency}} \\ \text{Horsepower (Water)} &= \frac{\text{GPM} \times \text{Head (Feet)} \times \text{Specific Gravity}}{3960} \\ \text{Efficiency (Pump)} &= \frac{\text{Horsepower (Water)}}{\text{Horsepower (Brake)}} \times 100 \text{ Per Cent} \\ \text{NPSH (Available)} &= \text{Positive Factors} - \text{Negative Factors} \end{aligned}$$

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

	GPM Capacity	Ft. Head	BHP
Impeller Diameter Change	$Q_2 = \frac{D_2}{D_1} Q_1$	$H_2 = \left(\frac{D_2}{D_1}\right)^2 H_1$	$P_2 = \left(\frac{D_2}{D_1}\right)^3 P_1$
Speed Change	$Q_2 = \frac{\text{RPM}_2}{\text{RPM}_1} Q_1$	$H_2 = \left(\frac{\text{RPM}_2}{\text{RPM}_1}\right)^2 H_1$	$P_2 = \left(\frac{\text{RPM}_2}{\text{RPM}_1}\right)^3 P_1$

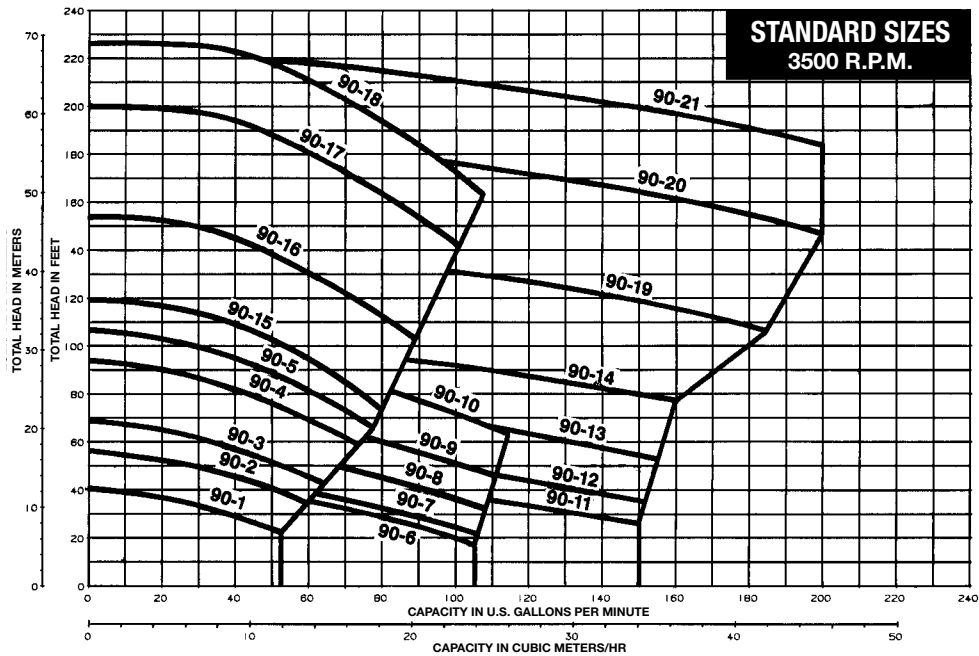
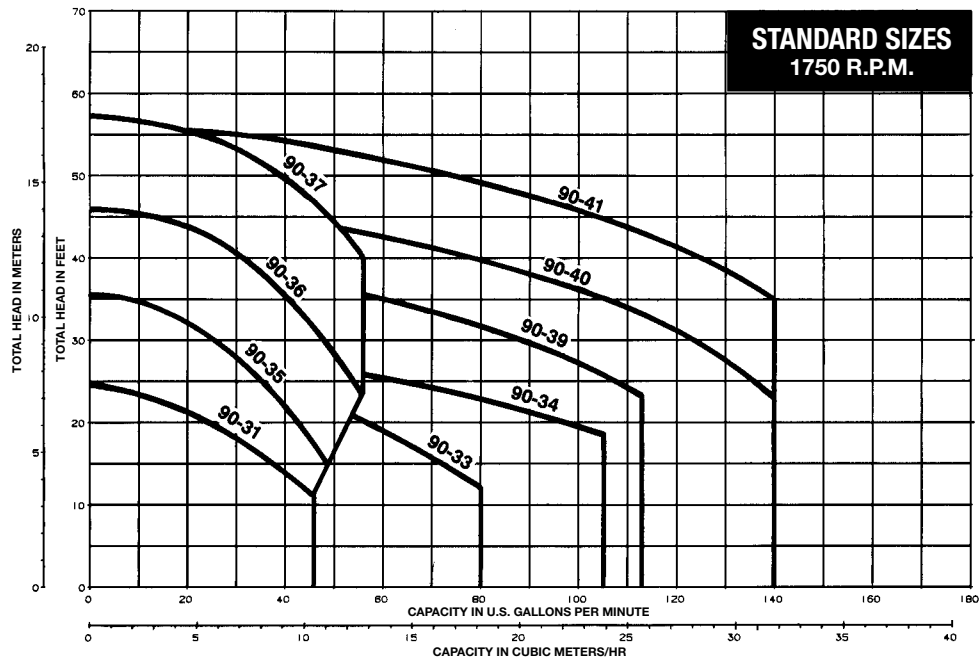
Where Q = GPM, H = Head, P = BHP, D = Impeller Dia., RPM = Pump Speed

# SERIES 90 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

Motors: 115/230 Volt, Single Phase or  
 208-230/460 Volt, Three Phase  
 60 Hertz  
 Open Dripproof



For more exact matches of required performance, consult the Built to Order Performance Curves

**3500 RPM**

MODEL NO.	PUMP SIZE	SUCTION & DISCHARGE SIZE INS. NPT	MOTOR H.P.
90-1S	1 1/4AA	1 1/4	1/2
90-1T			3/4
90-2S			1
90-2T			1 1/2
90-3S			2
90-3T			3
90-4S			5
90-4T			7 1/2
90-5T			10
90-6S			15
90-6T	20		
90-7S	1 1/2AA	1 1/2	1
90-7T			1 1/2
90-8S			2
90-8T			3
90-9T			5
90-10T			7 1/2
90-11S	2AA	2	11 1/2
90-11T			2
90-12T			3
90-13T			5
90-14T	1 1/2A	1 1/2	3
90-15T			5
90-16T			7 1/2
90-17T			10
90-18T			15
90-19T	2A	2	7 1/2
90-20T			10
90-21T			15

**1750 RPM**


MODEL NO.	PUMP SIZE	SUCTION & DISCHARGE SIZE INS. NPT	MOTOR H.P.
90-31S	1 1/4AA	1 1/4	1/4
90-31T			1/2
90-33S	1 1/2AA	1 1/2	1/2
90-33T			3/4
90-34S	2AA	2	3/4
90-34T			1
90-35S	1 1/2A	1 1/2	1/2
90-35T			3/4
90-36S			1
90-36T			1 1/2
90-37S			2
90-37T	2A	2	1
90-39S			1 1/2
90-39T			2
90-40S	2A	2	1 1/2
90-40T			2
90-41T			3

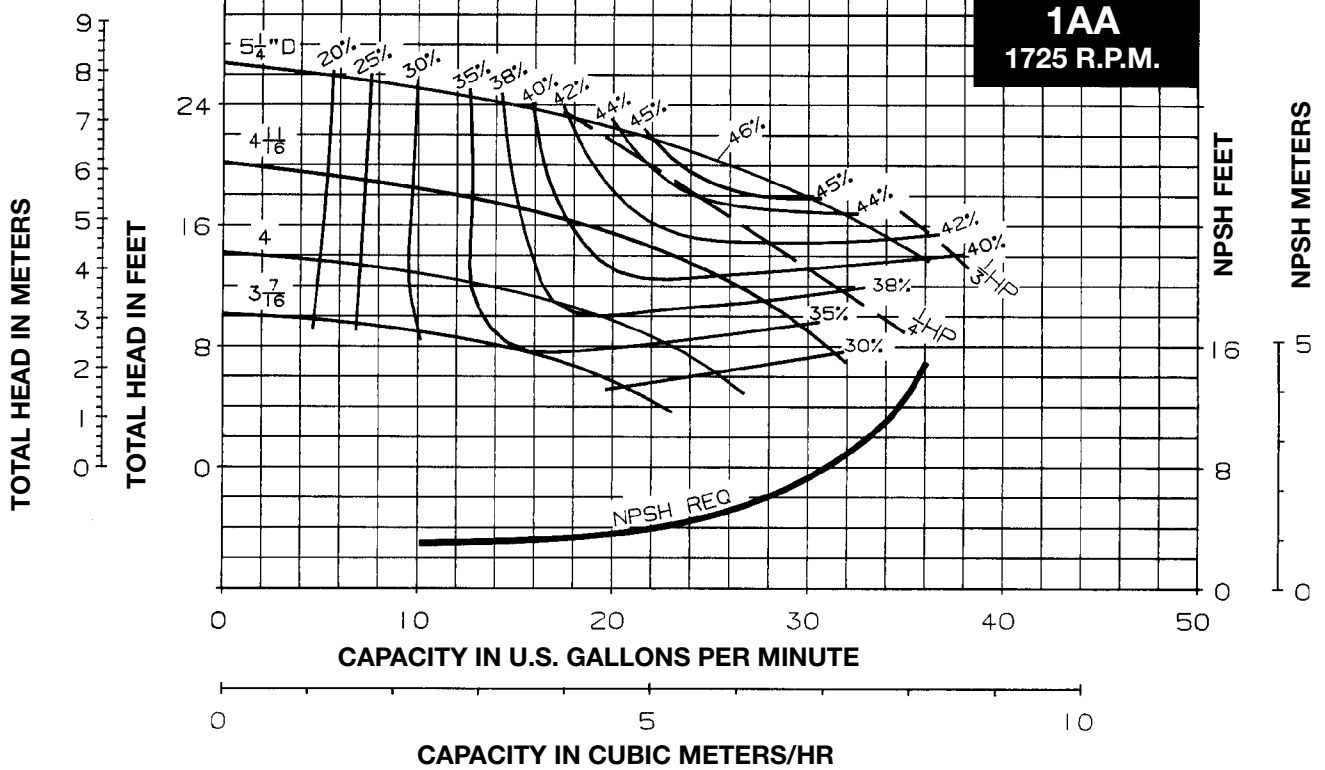
Single Phase – unit no. ending “S” 115/230 volt, single phase, 60 hertz, Open Dripproof  
 Three Phase – unit no. in “T” 208-230/460 volt, three phase, 60 hertz, Open Dripproof

# SERIES 90 PUMP PERFORMANCE CURVES

## PERFORMANCE CHARACTERISTICS CURVE


CENTRIFUGAL PUMP SERIES 90

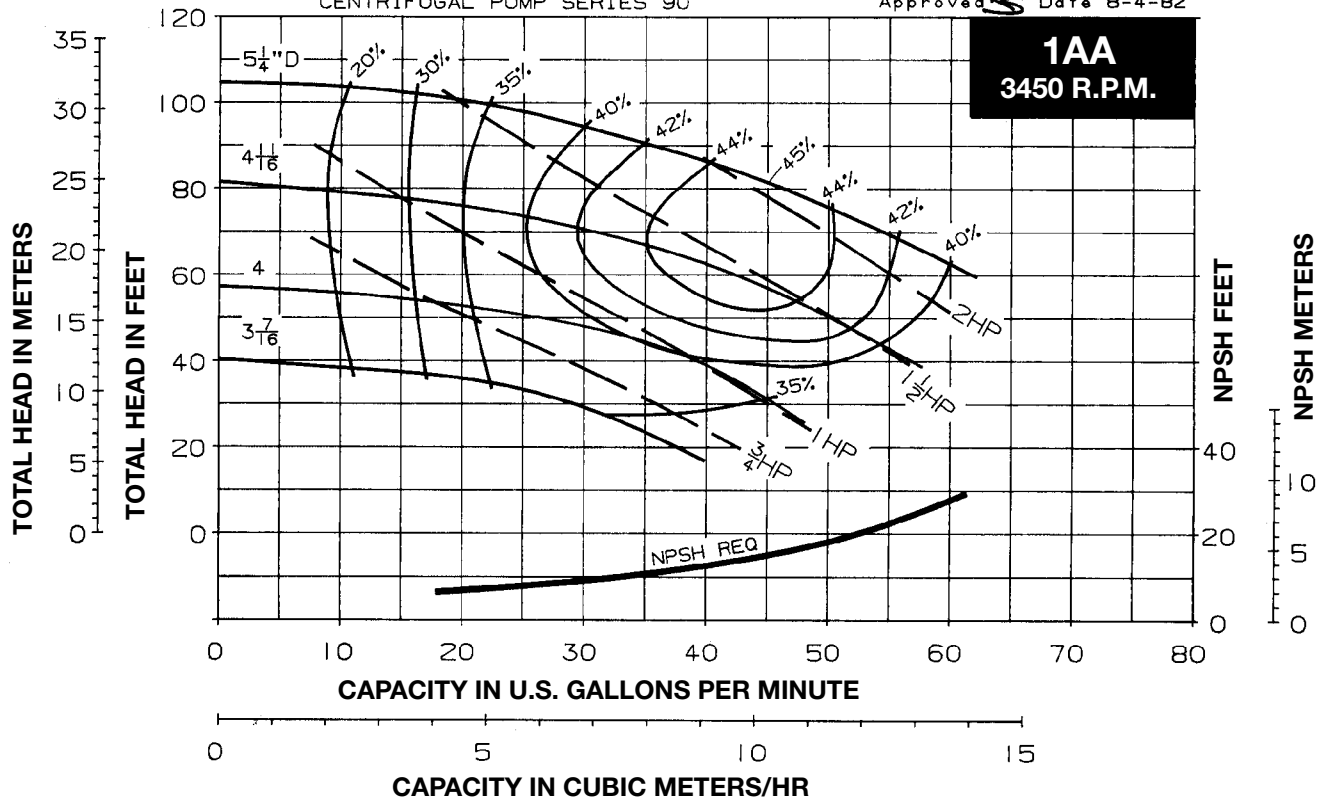
Approved  Date 1-26-83



## PERFORMANCE CHARACTERISTICS CURVE

CENTRIFUGAL PUMP SERIES 90

Approved  Date 8-4-82

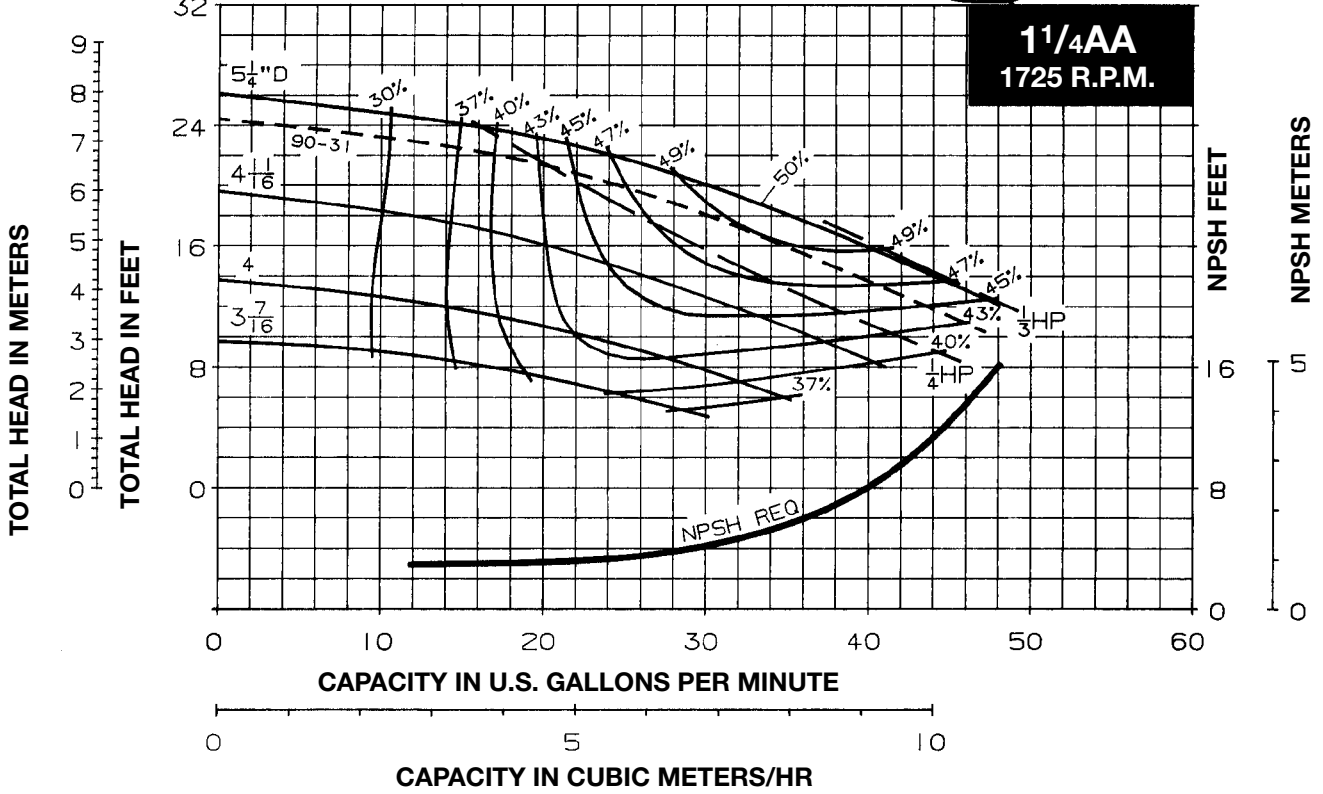


# SERIES 90 PUMP PERFORMANCE CURVES

## PERFORMANCE CHARACTERISTICS CURVE

CENTRIFUGAL PUMP SERIES 90

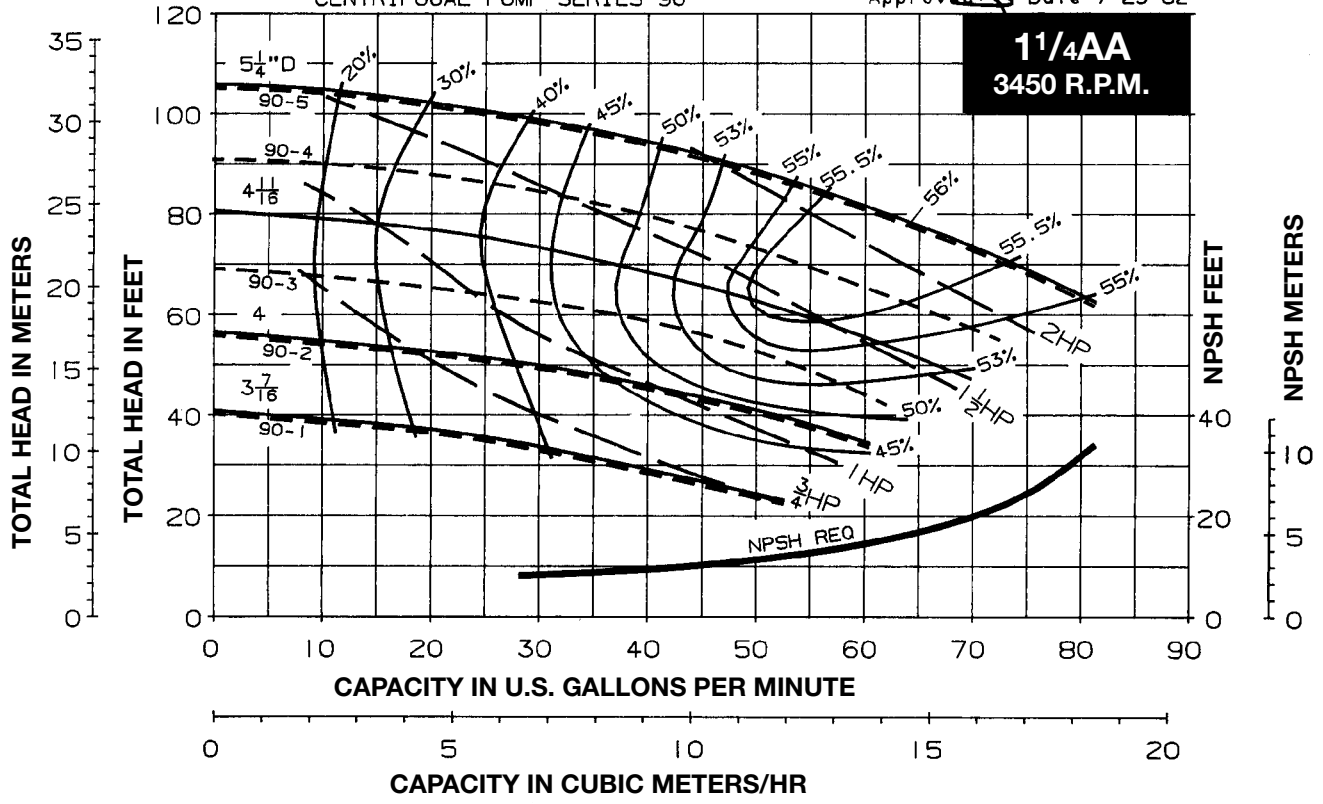
Approved  Date 1-10-83



## PERFORMANCE CHARACTERISTICS CURVE

CENTRIFUGAL PUMP SERIES 90

Approved  Date 7-29-82

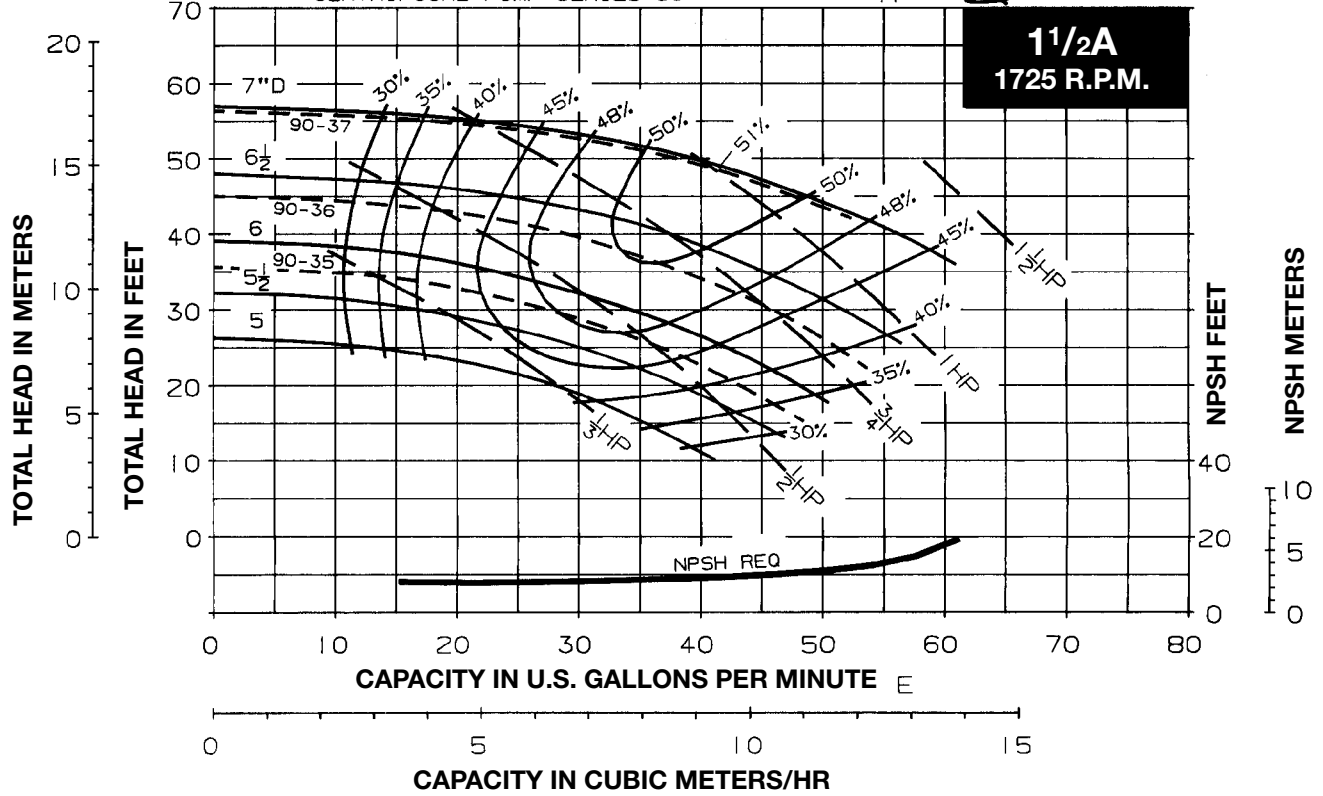


# SERIES 90 PUMP PERFORMANCE CURVES

## PERFORMANCE CHARACTERISTICS CURVE

CENTRIFUGAL PUMP SERIES 90

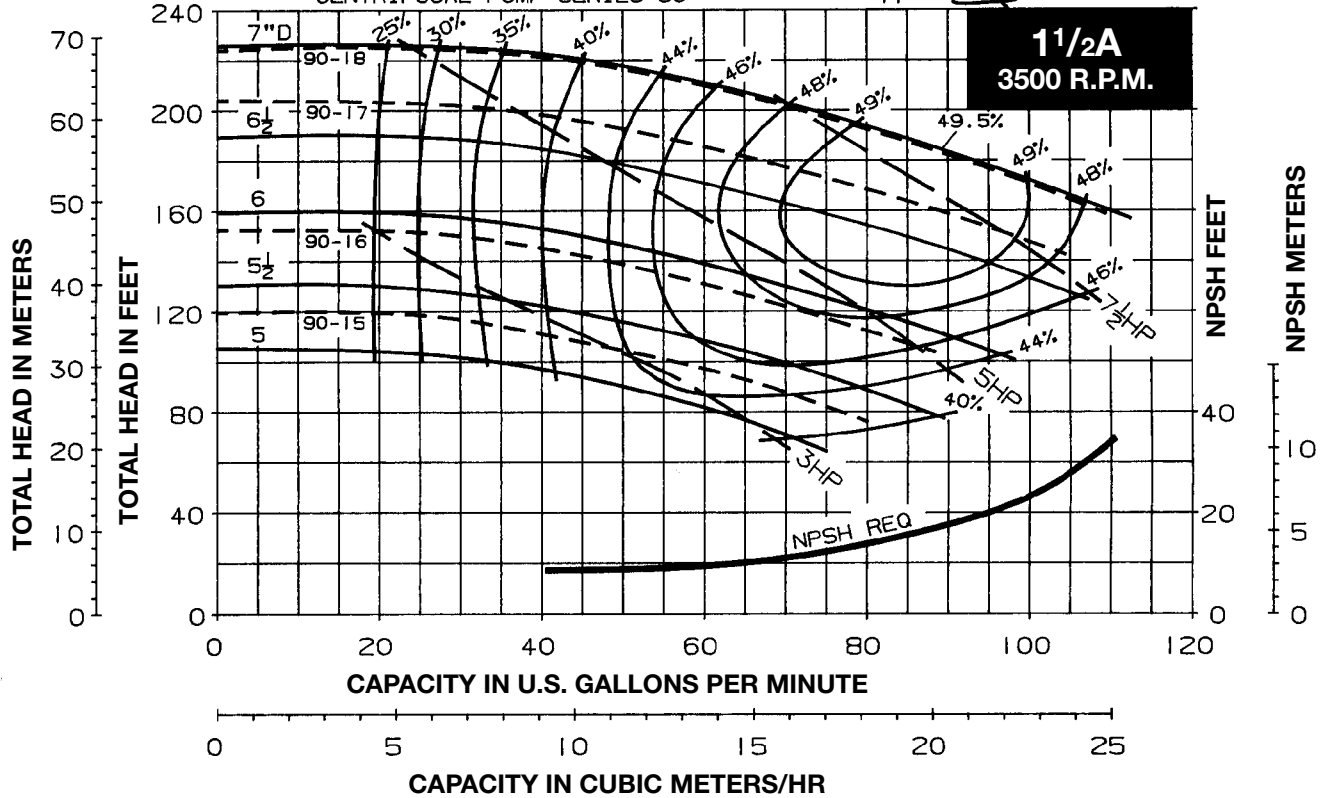
Approved  Date 6-23-83



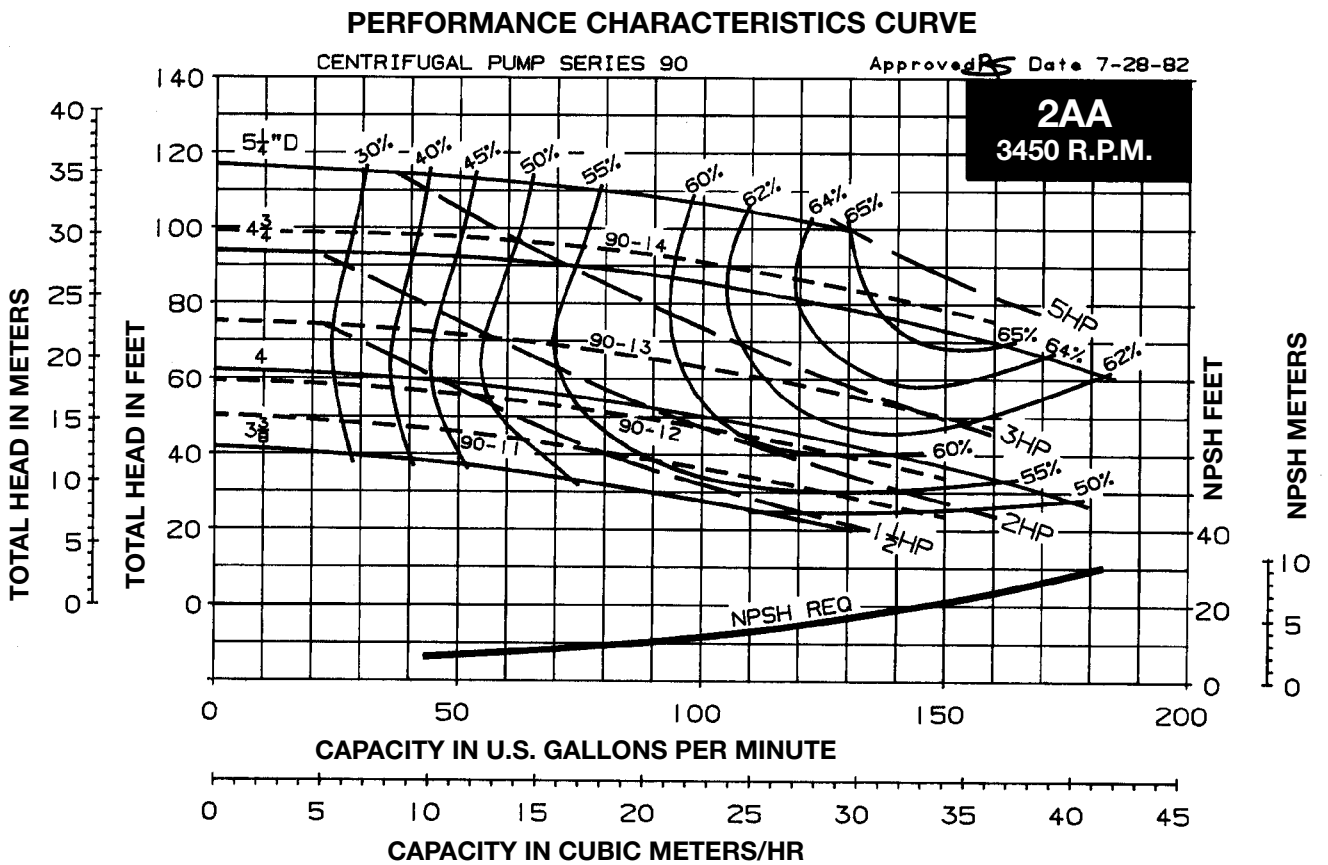
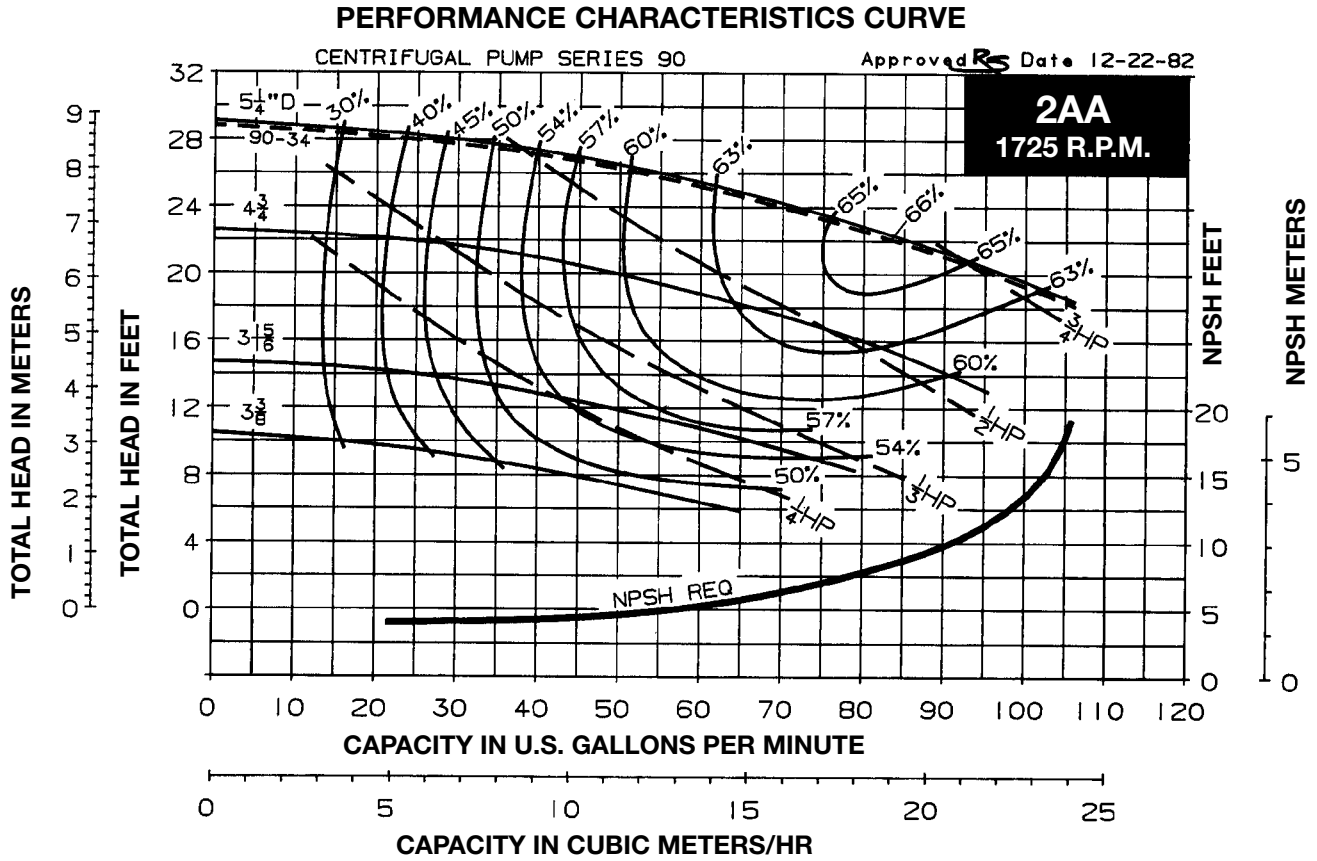
## PERFORMANCE CHARACTERISTICS CURVE

CENTRIFUGAL PUMP SERIES 90

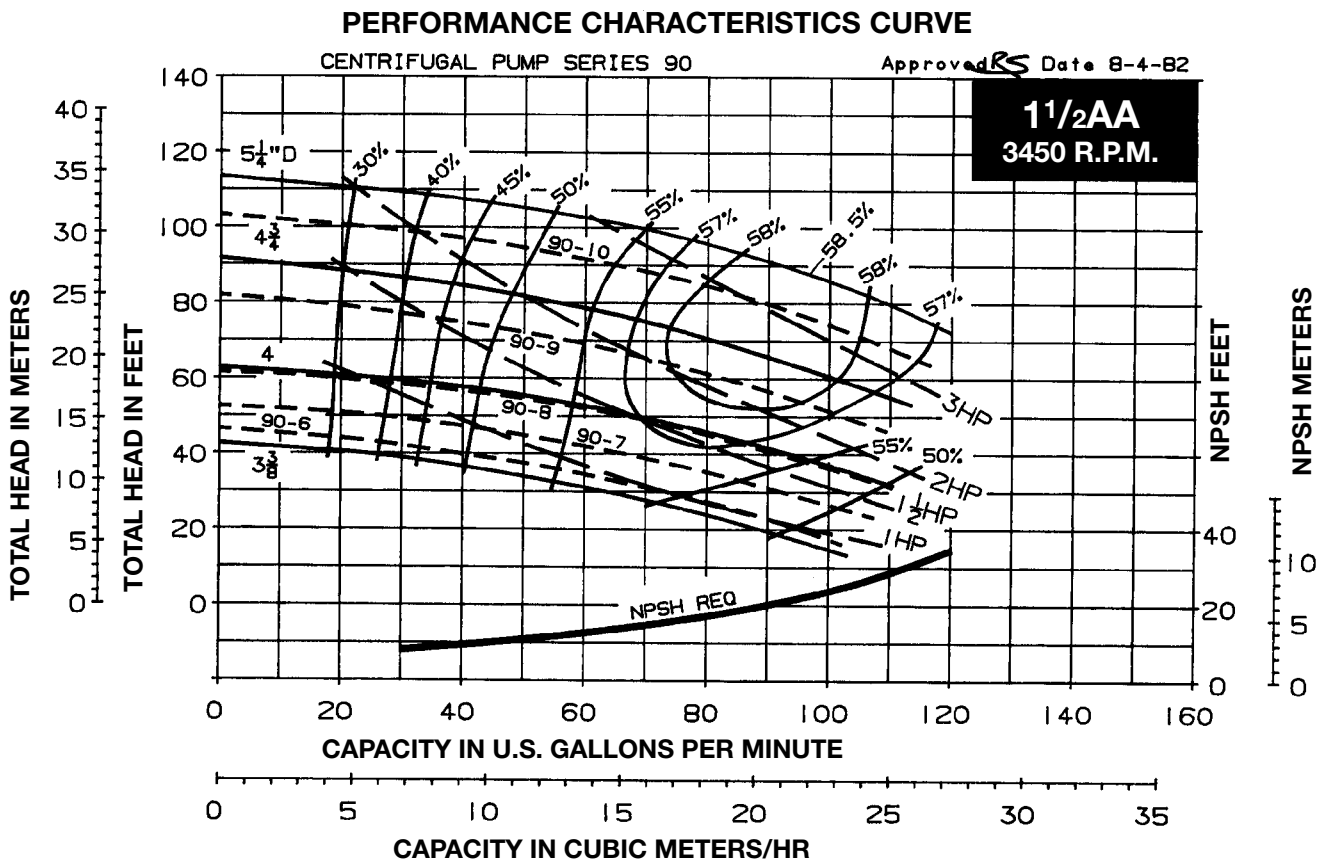
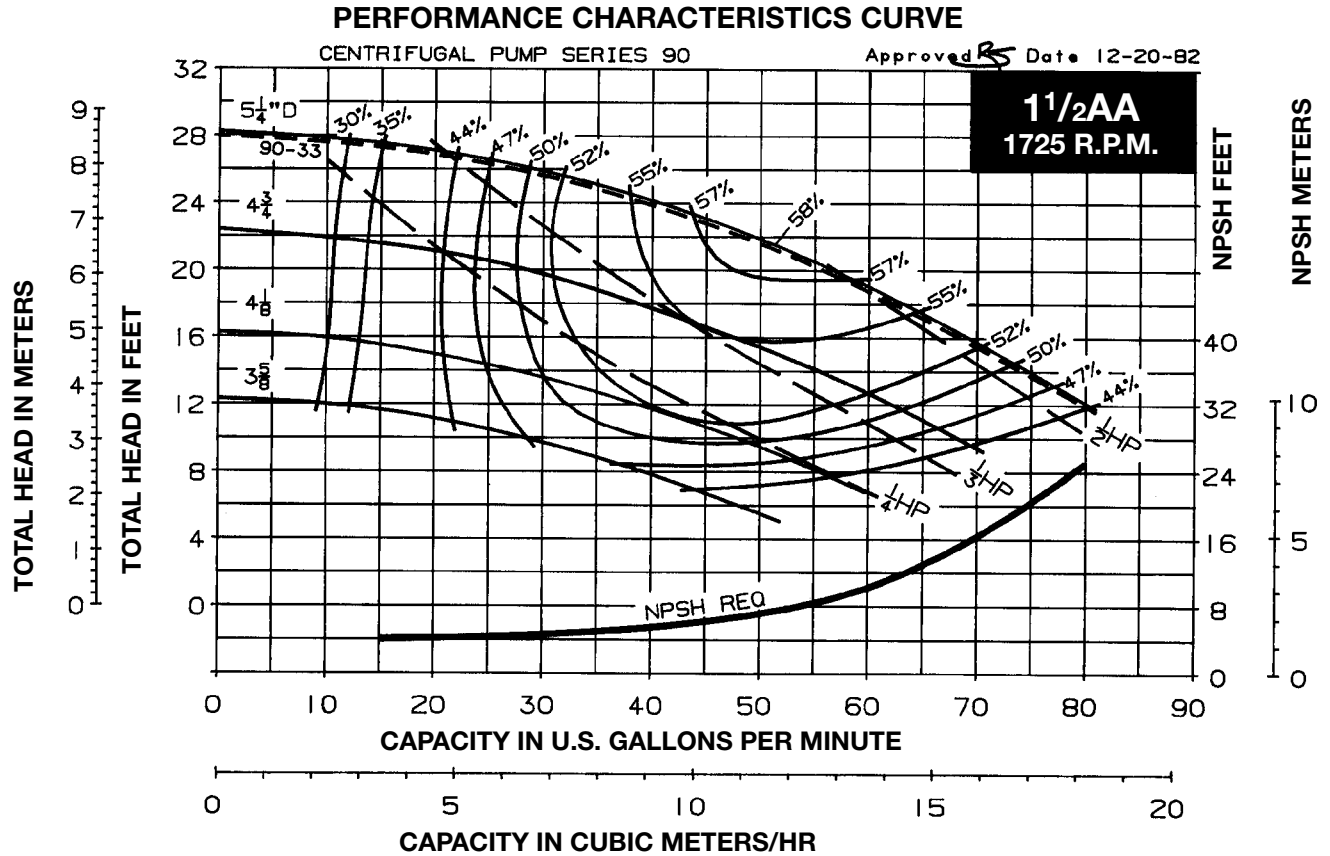
Approved  Date 8-27-82



# SERIES 90 PUMP PERFORMANCE CURVES



# SERIES 90 PUMP PERFORMANCE CURVES

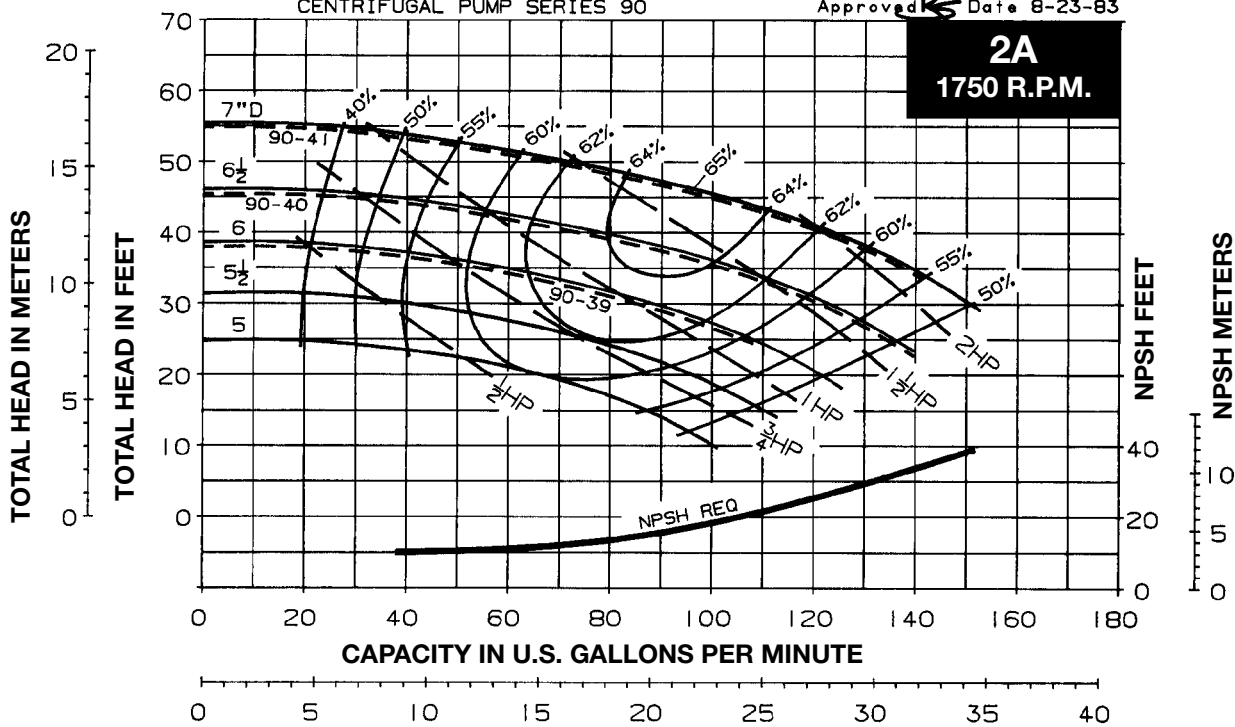


# SERIES 90 PUMP PERFORMANCE CURVES

## PERFORMANCE CHARACTERISTICS CURVE

CENTRIFUGAL PUMP SERIES 90

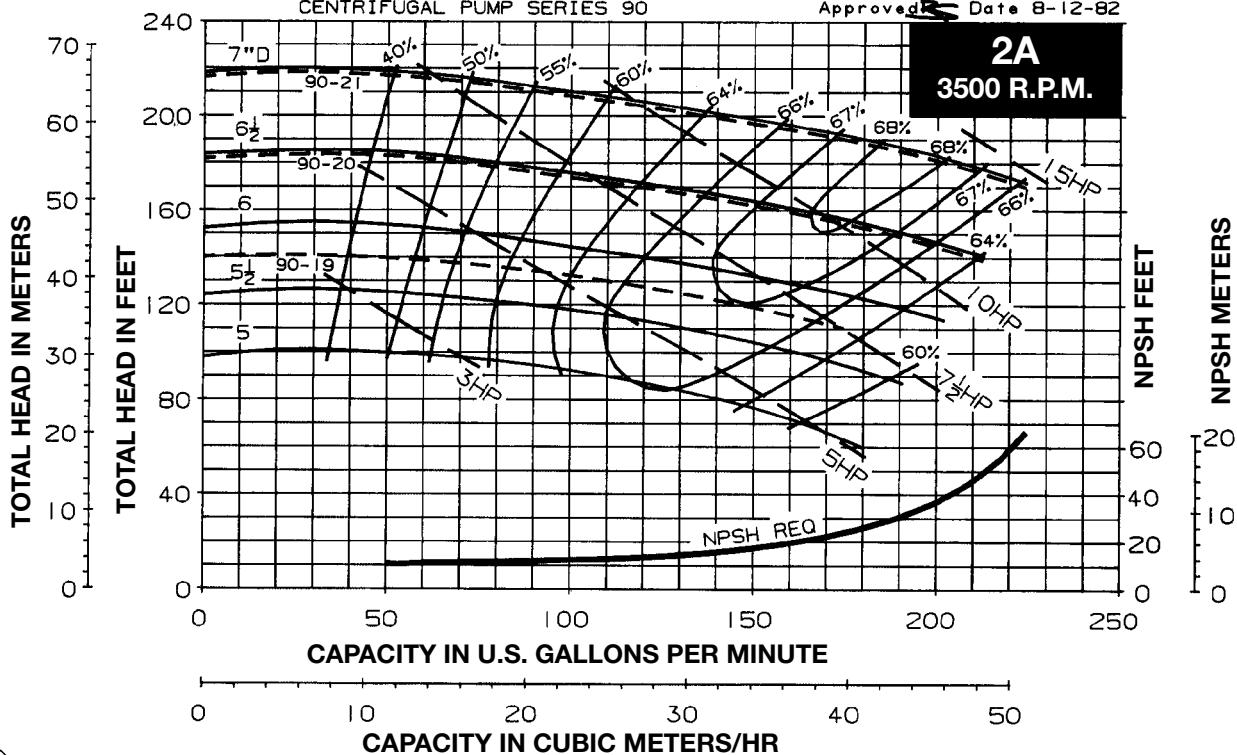
Approved  Date 8-23-83



## PERFORMANCE CHARACTERISTICS CURVE

CENTRIFUGAL PUMP SERIES 90

Approved  Date 8-12-82



ISO 9001 Certified

**Bell & Gossett**

**USA**  
Bell & Gossett  
8200 N. Austin Avenue  
Morton Grove, IL 60053  
Phone: (847) 966-3700  
Facsimile: (847) 966-9052  
<http://www.bellgossett.com>

**INTL.**  
Bell & Gossett / Export Dept.  
8200 N. Austin Avenue  
Morton Grove, IL 60053  
Phone: (847) 966-3700  
Facsimile: (847) 966-8366  
<http://www.bellgossett.com>

**CANADA**  
Fluid Products Canada  
55 Royal Road  
Guelph, Ontario,  
N1H 1T1, Canada  
Phone: (519) 821-1900