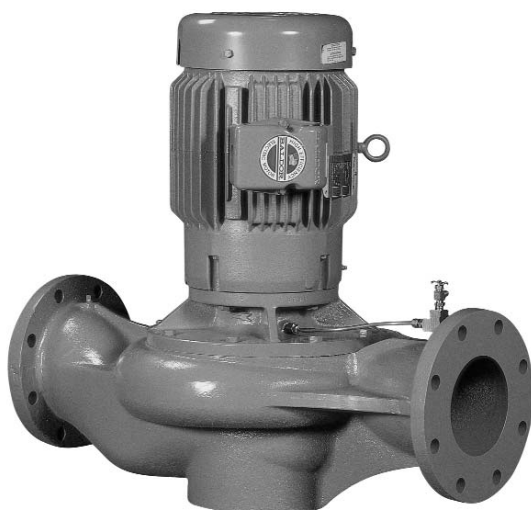


PERFORMANCE CURVES (50 Hz)



**KV Vertical In-Line
Close Coupled Pumps**



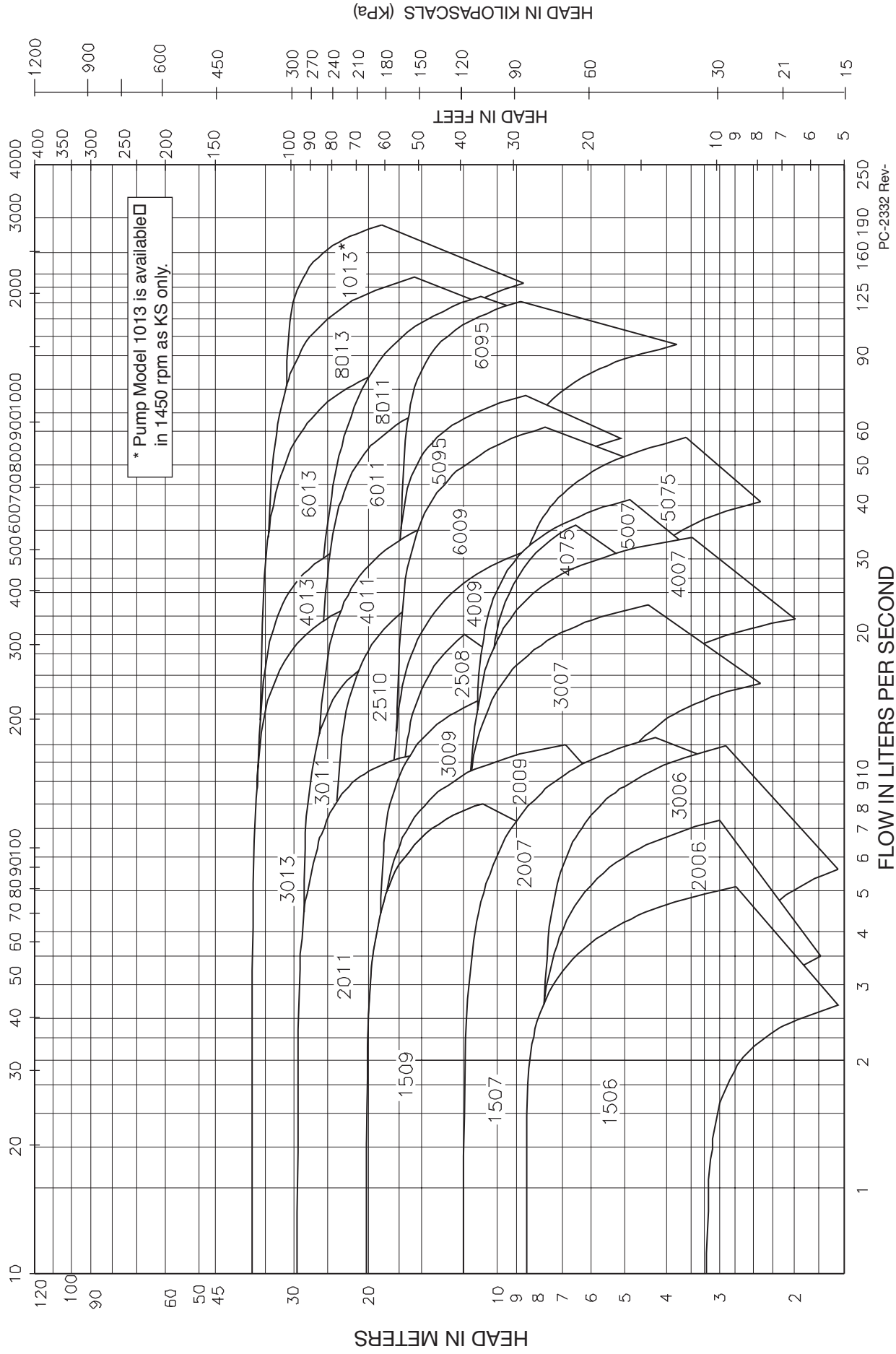
**KS Vertical In-Line
Split Coupled Pumps**

HYDRONIC COMPONENTS & SYSTEMS

**Do it once.
Do it right.**



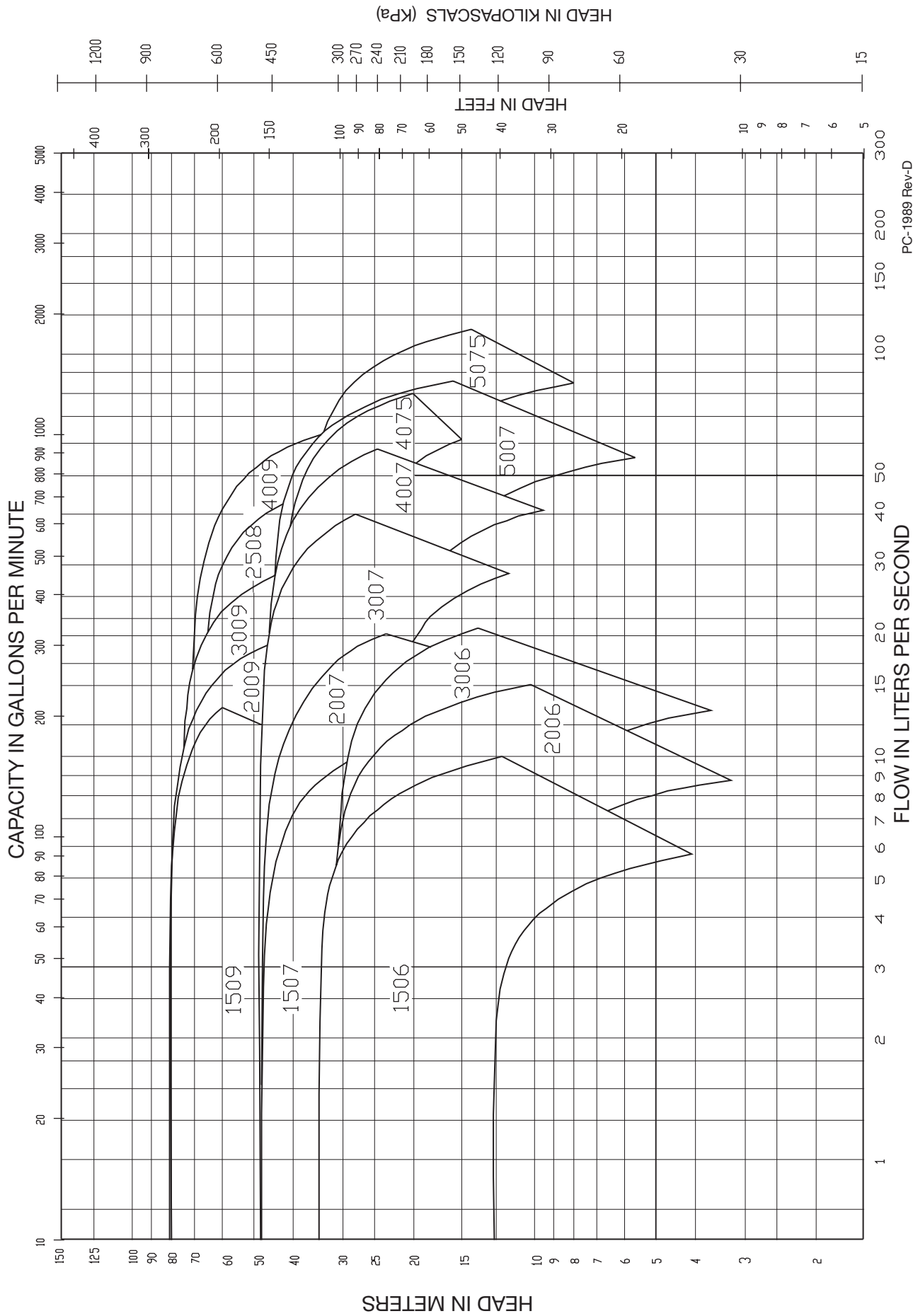
CAPACITY IN GALLONS PER MINUTE

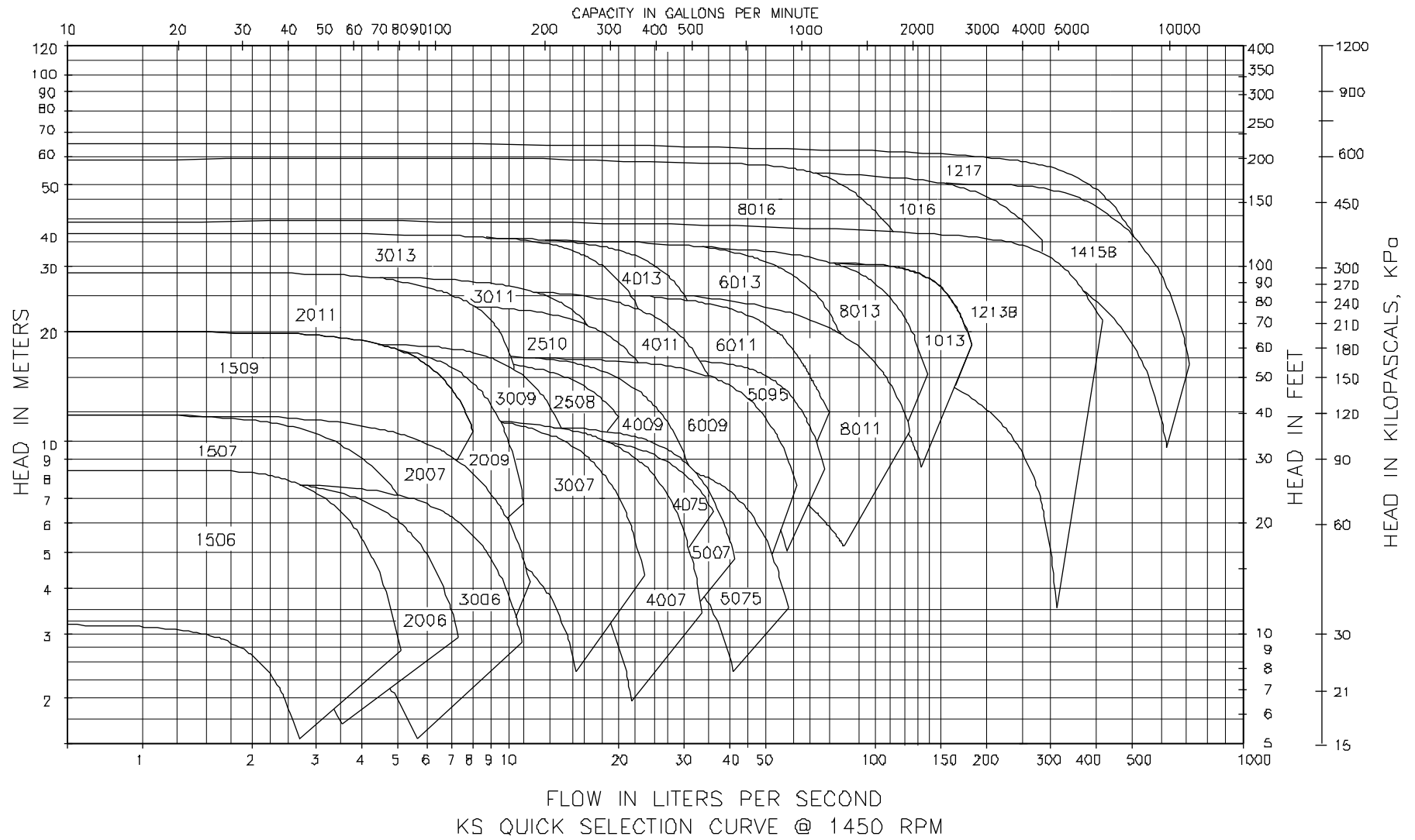


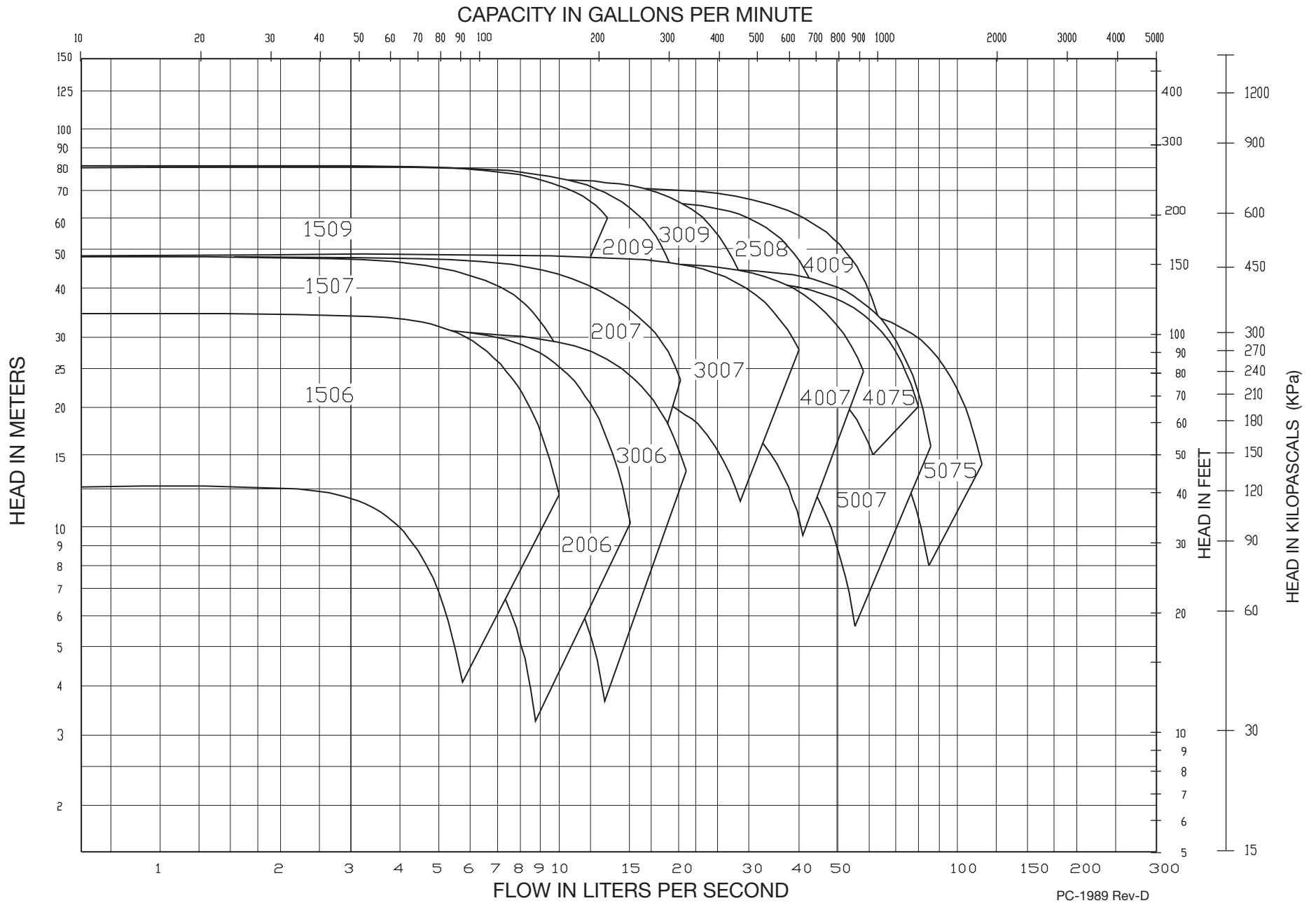
PC-2332 Rev-

Vertical In-Line Pump Quick Selection Curve

50 Hz - 1450 RPM







CORRECTION FACTORS FOR OTHER SPEEDS

For speeds other than 1750, hydraulic performance and B.H.P. requirements must be corrected before a selection can be made.

The following multipliers are used to correct performance and B.H.P.

	G.P.M.	Head	B.H.P.
1150 to 1750	1.52	2.31	
1750 to 1150			.28
1450 to 1750	1.21	1.46	
1750 to 1450			.58
2900 to 3450	1.19	1.42	
3450 to 2900			.58

Sizing Procedure

1. Using the proper multipliers correct G.P.M. and head.
2. Make pump selection as usual using corrected performance.
3. Determine max. B.H.P. requirement for pump selected.
4. Correct B.H.P. using multiplier, to lower speed.
5. Select motor based on Step 4. Use service factor if applicable.

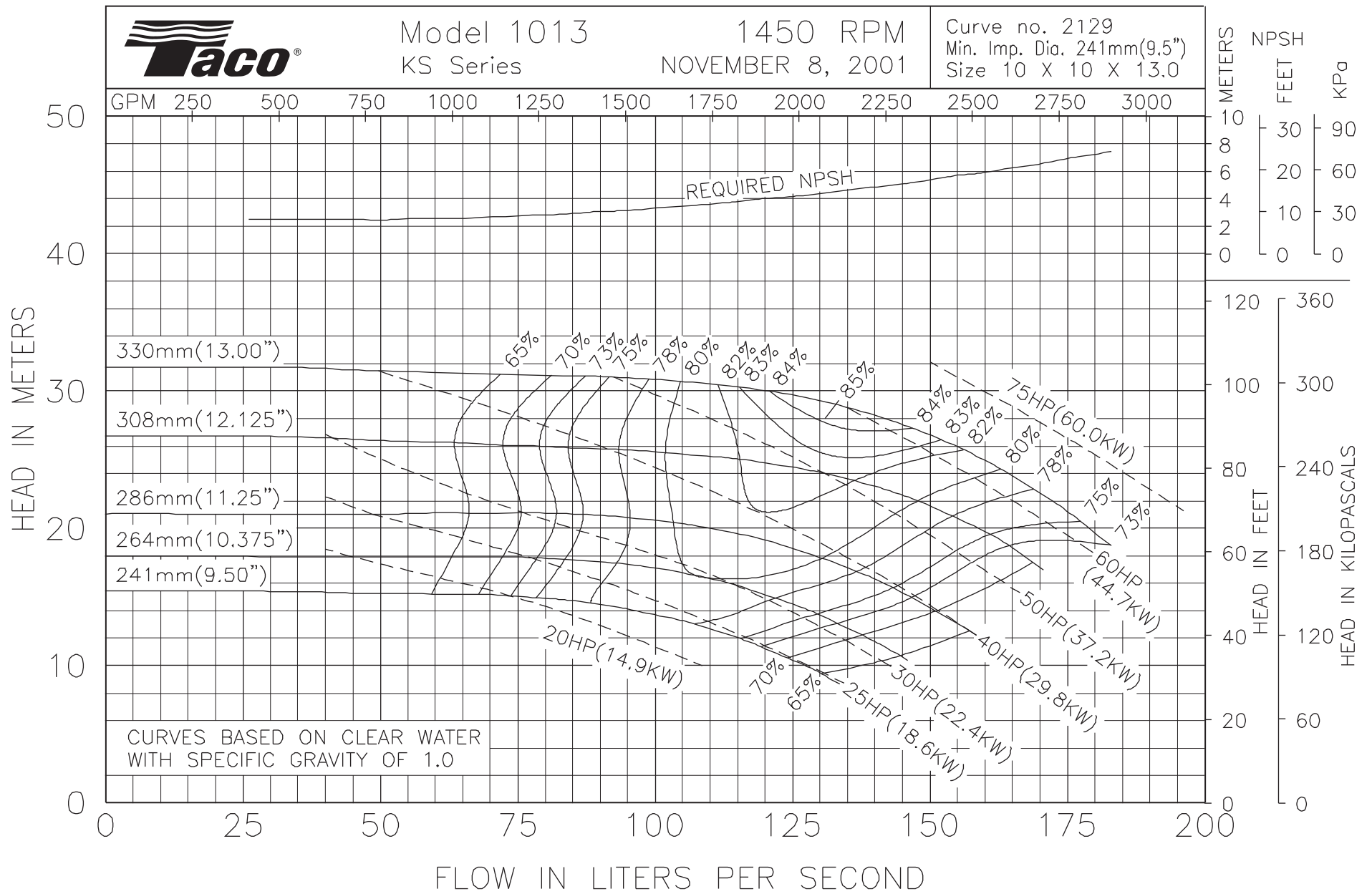
PUMP FORMULAS

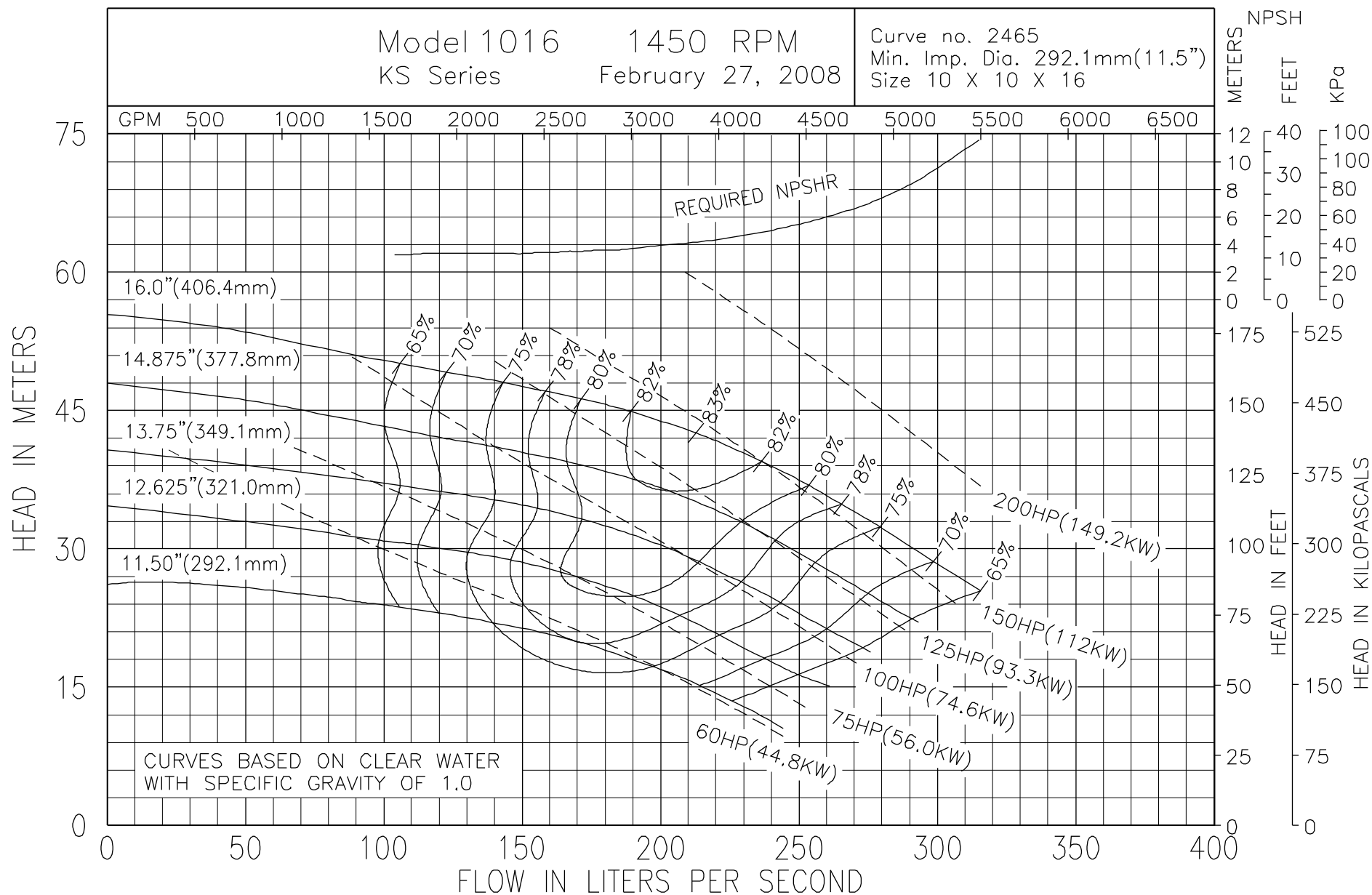
Pressure (PSI)	=	$\frac{\text{Head (Feet)} \times \text{Specific Gravity}}{2.31}$
Head (Feet)	=	$\frac{\text{Pressure (PSI)} \times 2.31}{\text{Specific Gravity}}$
Vacuum (Inches of Mercury)	=	Dynamic Suction Lift (Feet) x .883 x Specific Gravity
Horsepower (Brake)	=	$\frac{\text{GPM} \times \text{Head (Feet)} \times \text{Specific Gravity}}{3960 \times \text{Pump Efficiency}}$
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

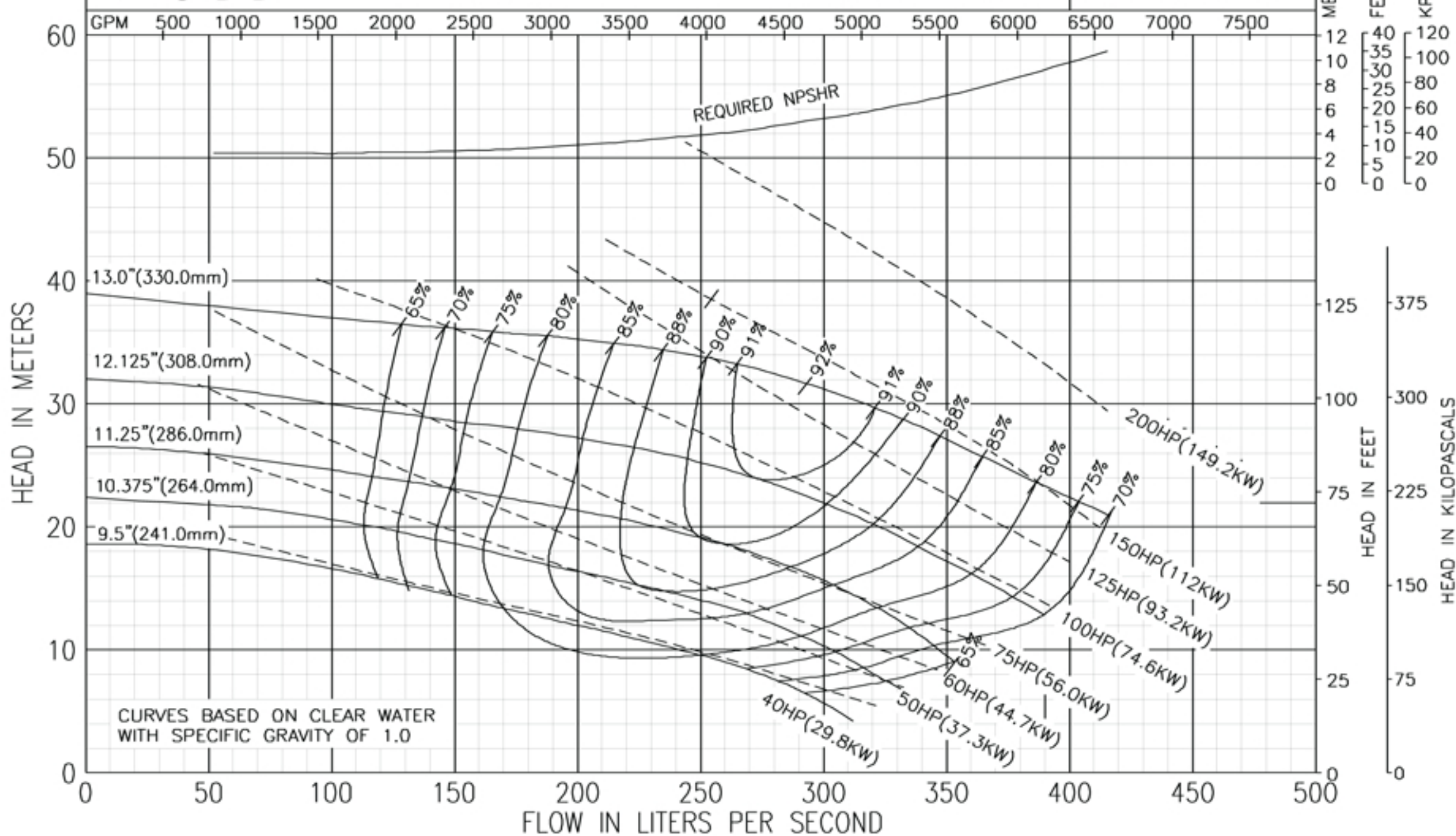
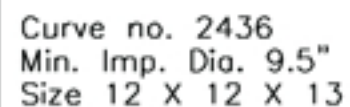
Affinity Laws: Effect of change of speed or impeller diameter on centrifugal pumps.

	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	$Q_2 = \frac{RPM_2}{RPM_1} Q_1$	$H_2 = \left(\frac{RPM_2}{RPM_1}\right)^2 H_1$	$P_2 = \left(\frac{RPM_2}{RPM_1}\right)^3 P_1$

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





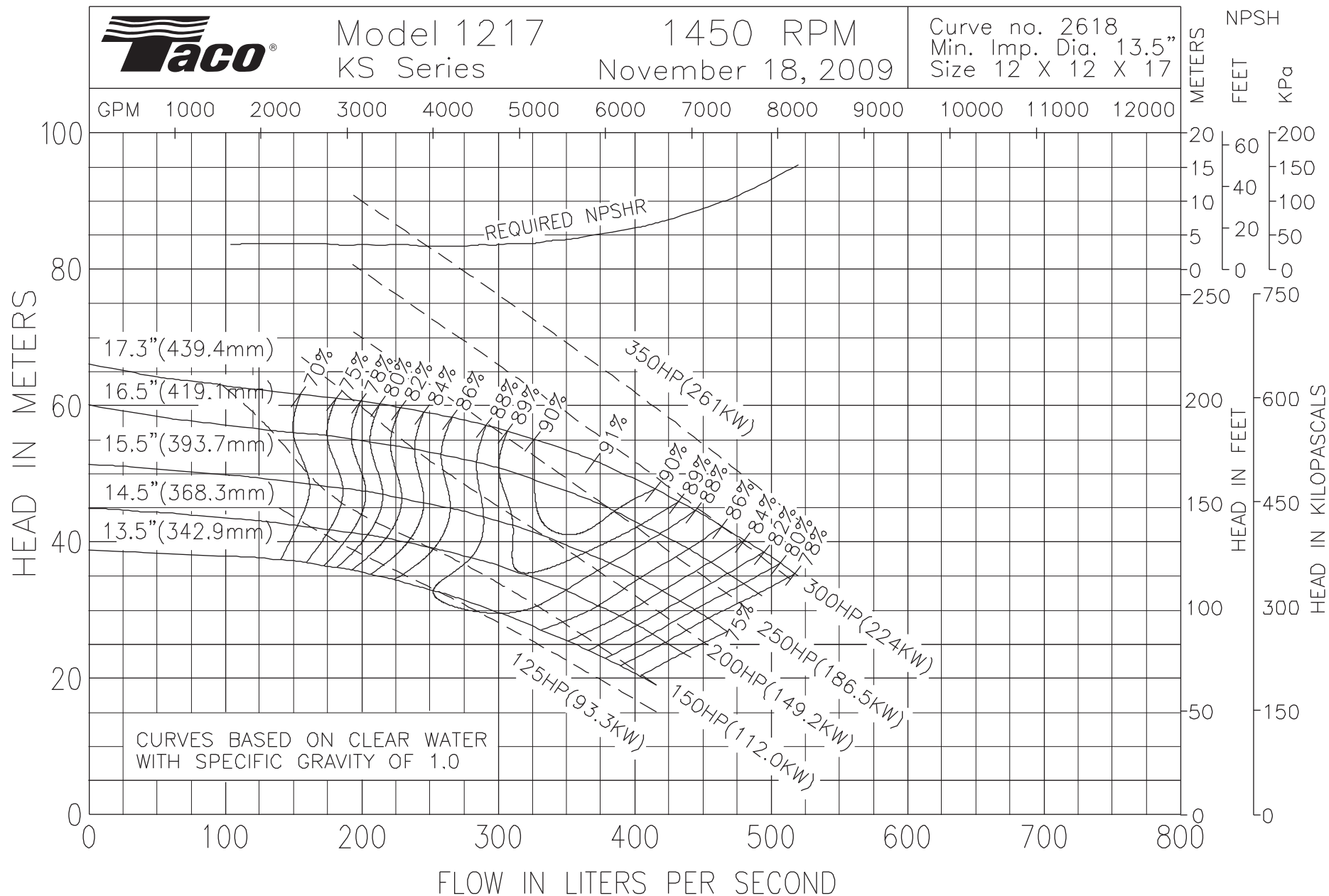




Model 1217
KS Series

1450 RPM
November 18, 2009

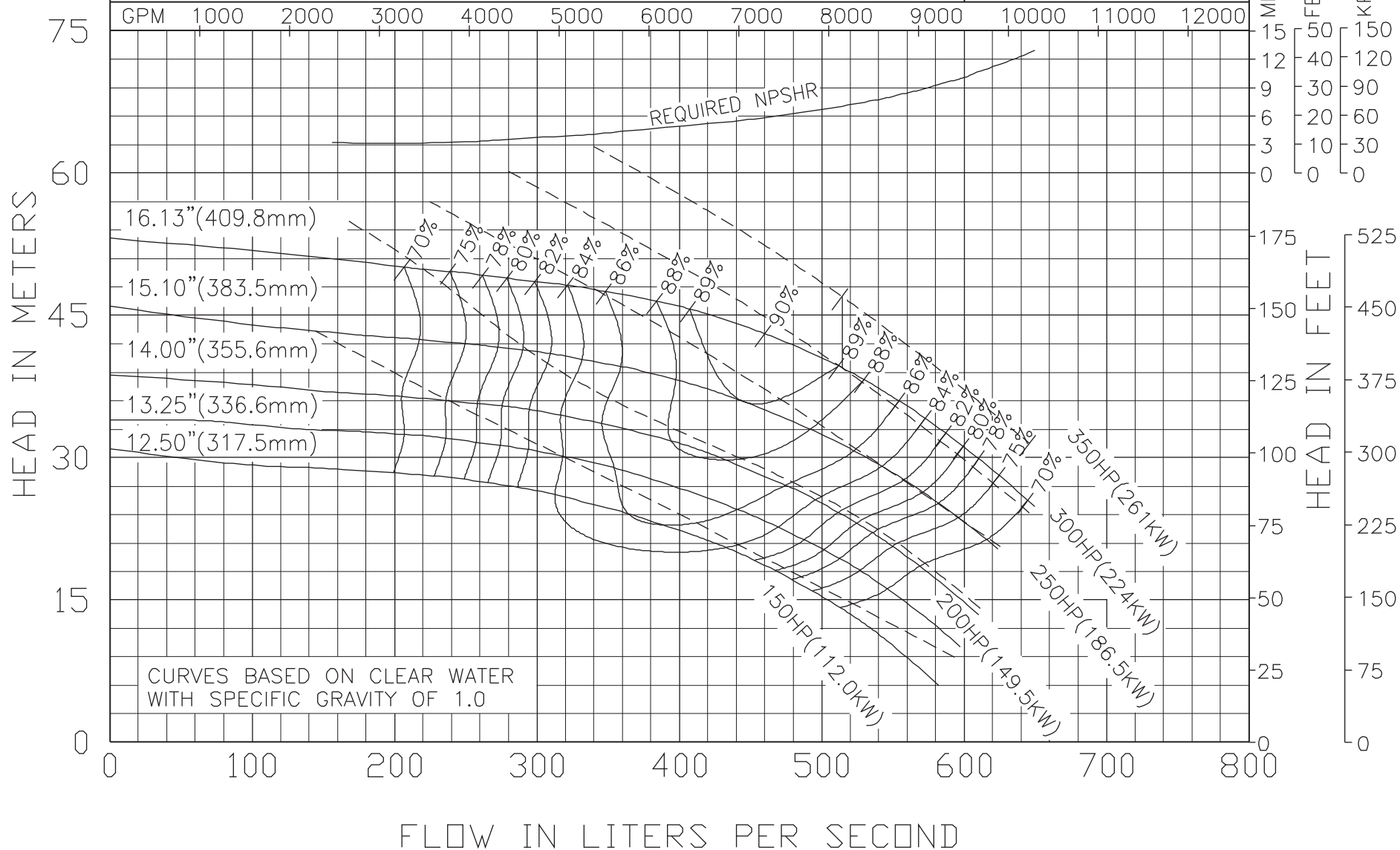
Curve no. 2618
Min. Imp. Dia. 13.5"
Size 12 X 12 X 17





Model 1415B 1450 RPM
KS Series December 5, 2008

Curve no. 2601
Min. Imp. Dia. 12.5"
Size 14 X 14 X 16

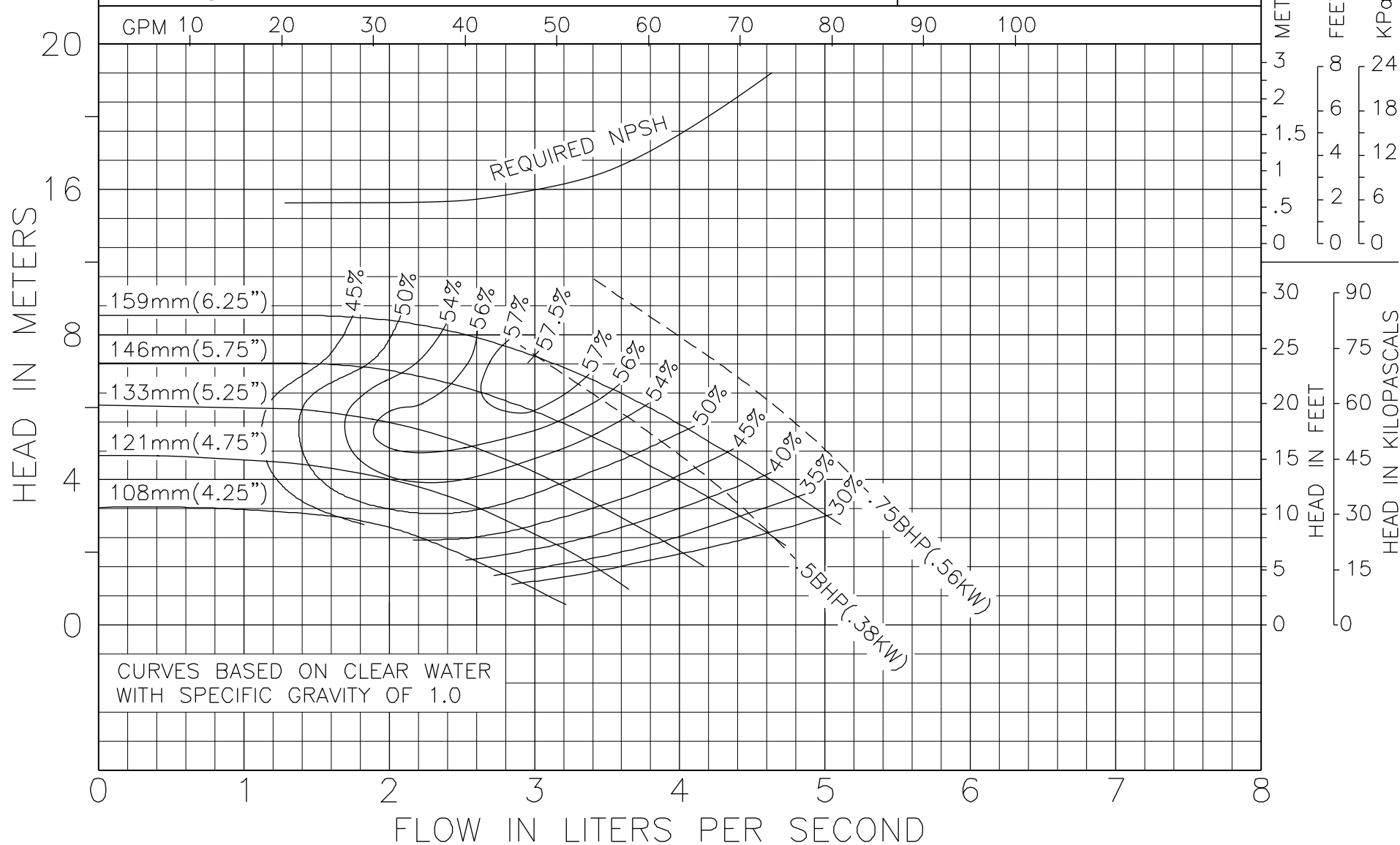




Model 1506
KV & KS Series

1450 RPM
April 4, 2002

Curve no. 1938
Min. Imp. Dia. 108mm/4.25"
Size 1 1/2" x 1 1/2" x 6"

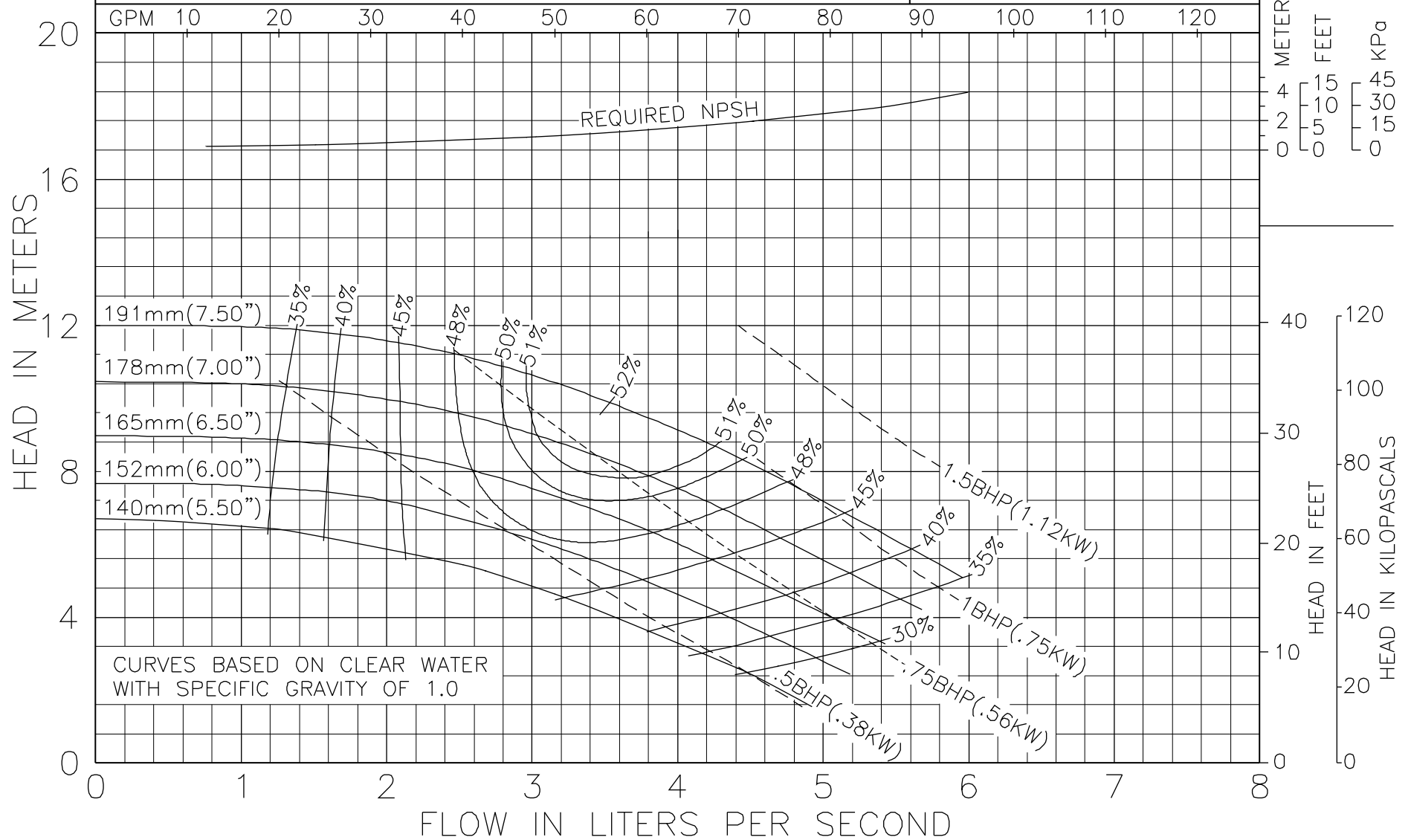




Model 1507
KV & KS Series

1450 RPM
February 14, 2001

Curve no. 1974
Min. Imp. Dia. 140mm/5.50"
Size 1 1/2" x 1 1/2" x 7"

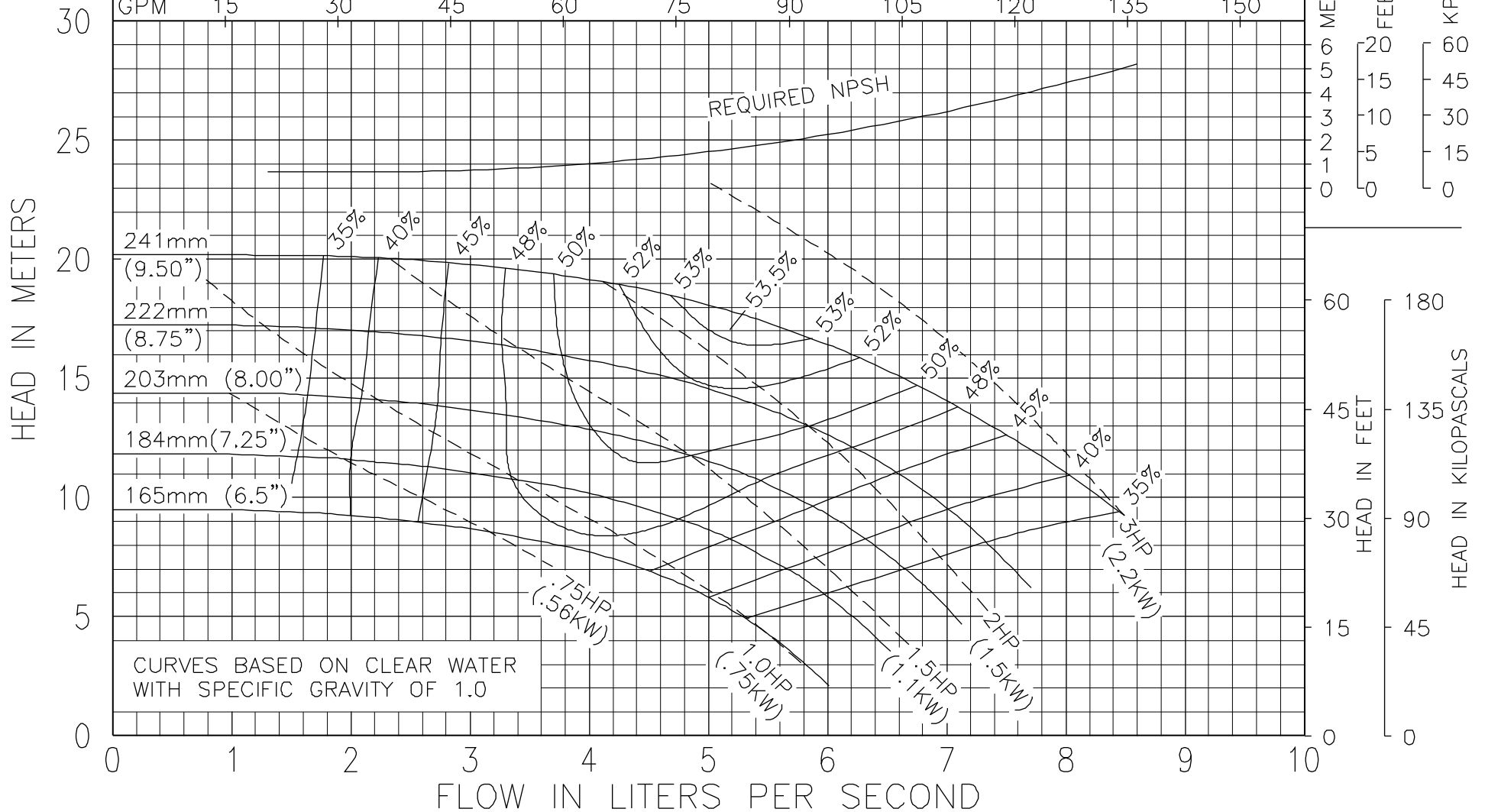




Model 1509
KV&KS Series

1450 RPM
AUGUST 3, 2001

Curve no. 2045
Min. Imp. Dia. 165mm (6.5")
Size 1.5 X 1.5 X 9.0

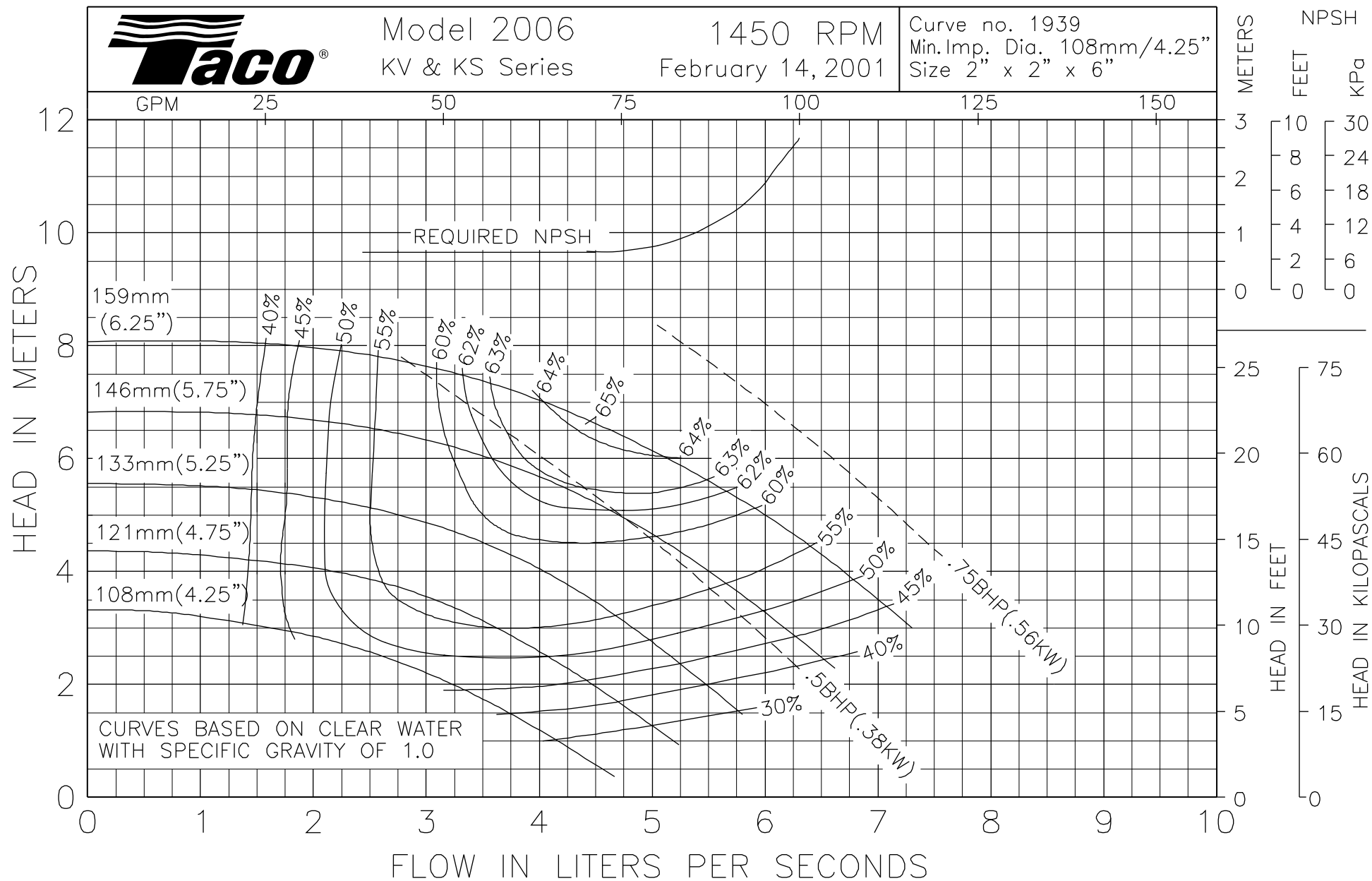




Model 2006
KV & KS Series

1450 RPM
February 14, 2001

Curve no. 1939
Min. Imp. Dia. 108mm/4.25"
Size 2" x 2" x 6"

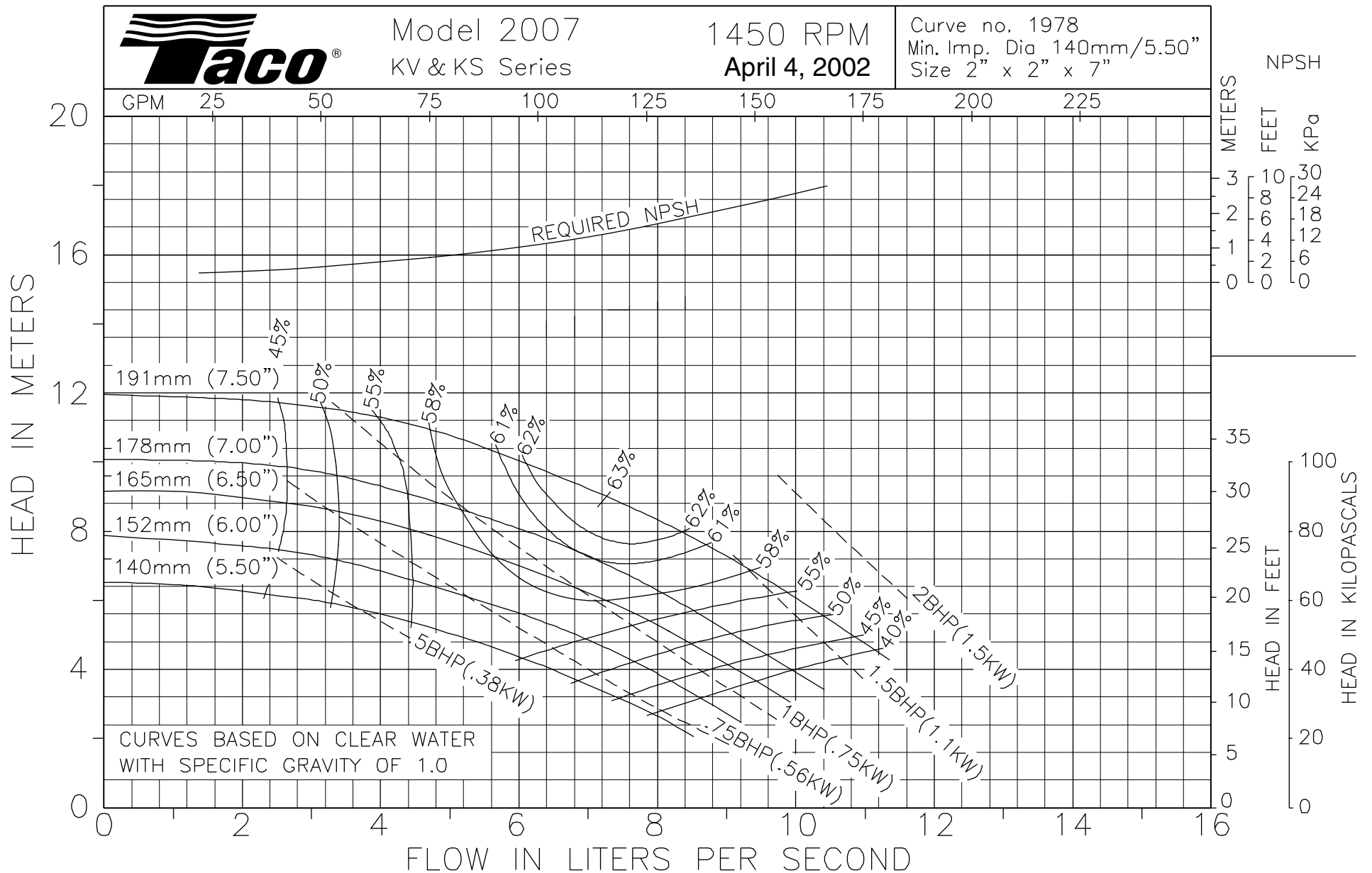




Model 2007
KV & KS Series

1450 RPM
April 4, 2002

Curve no. 1978
Min. Imp. Dia 140mm/5.50"
Size 2" x 2" x 7"





Model 2009

KV & KS Series

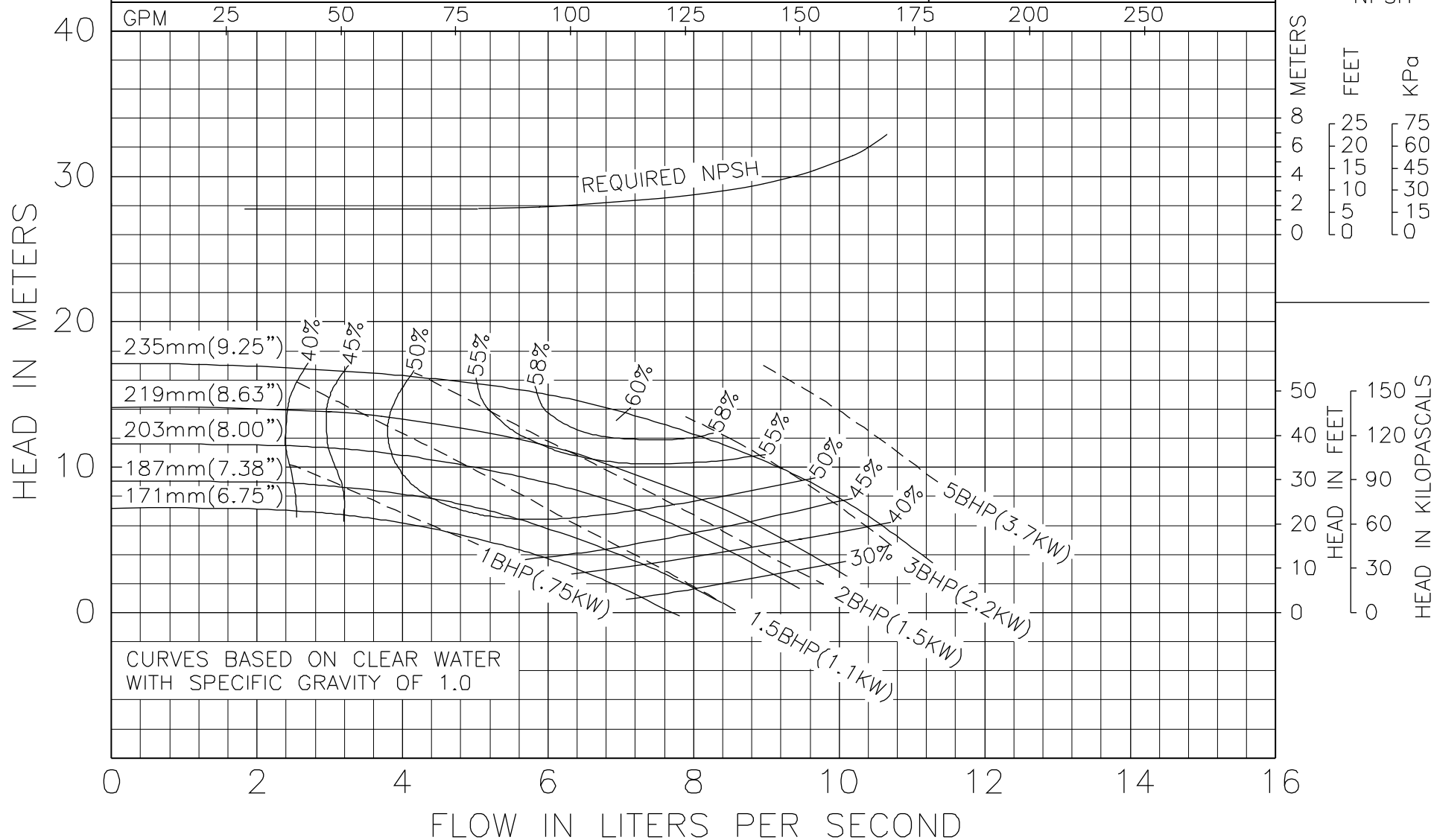
1450 RPM

April 4, 2002

Curve no. 1956

Min. Imp. Dia. 171mm/6.75"

Size 2" x 2" x 9"

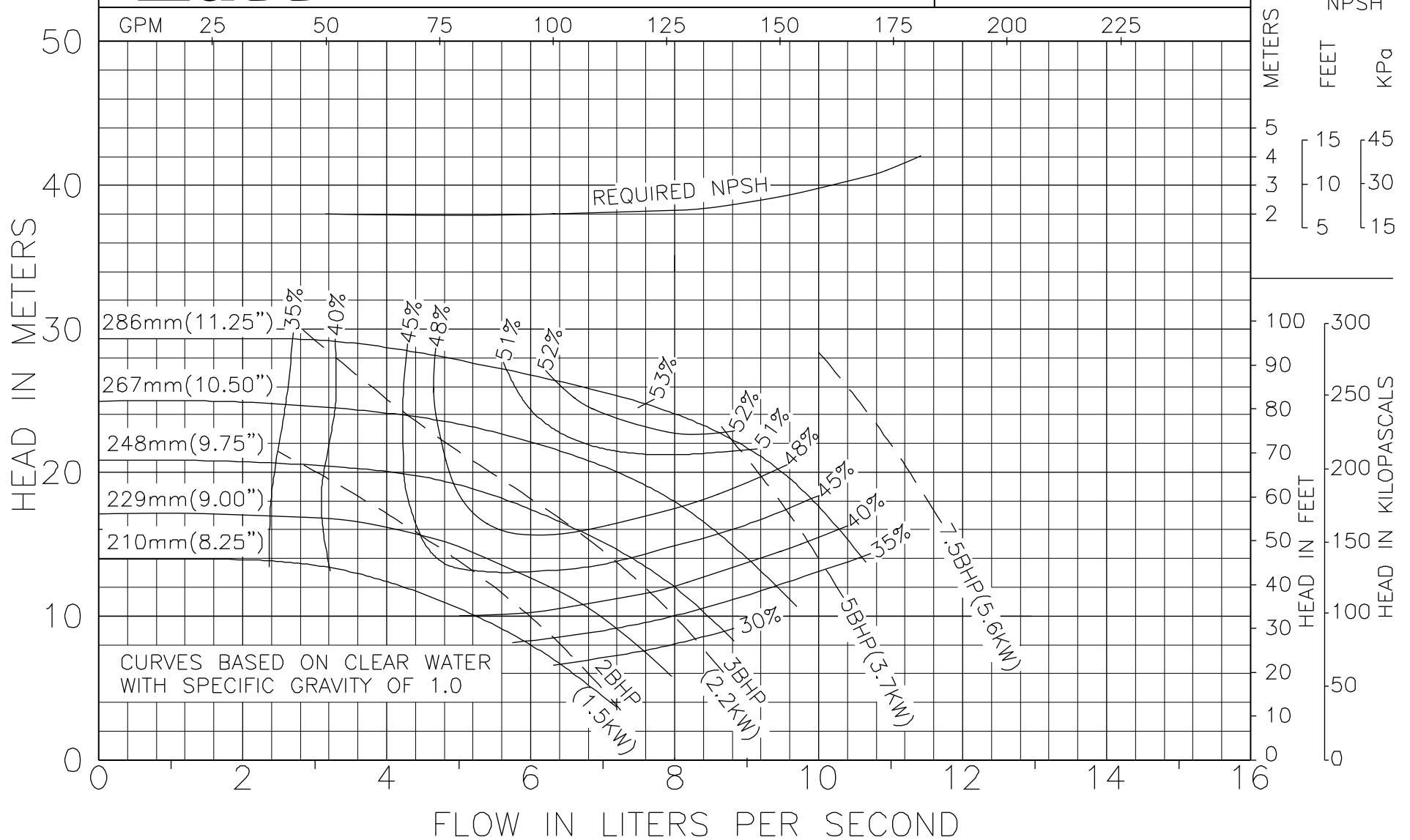




Model 2011
KV & KS Series

1450 RPM
April 4, 2002

Curve no. 1928
Min. Imp. Dia. 216mm/8.25"
Size 2" x 2" x 11"



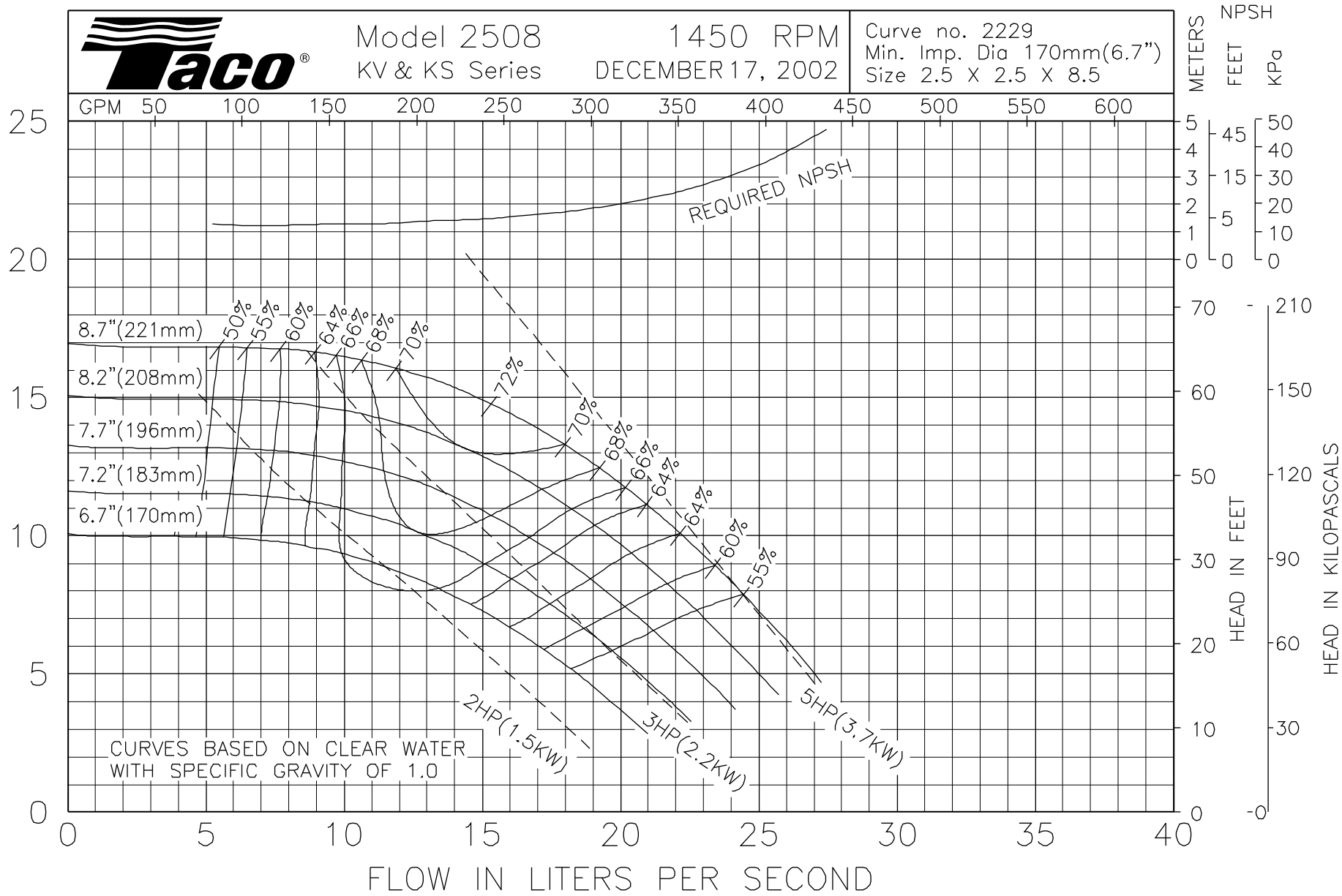


Model 2508
KV & KS Series

1450 RPM
DECEMBER 17, 2002

Curve no. 2229
Min. Imp. Dia 170mm(6.7")
Size 2.5 X 2.5 X 8.5

HEAD IN METERS

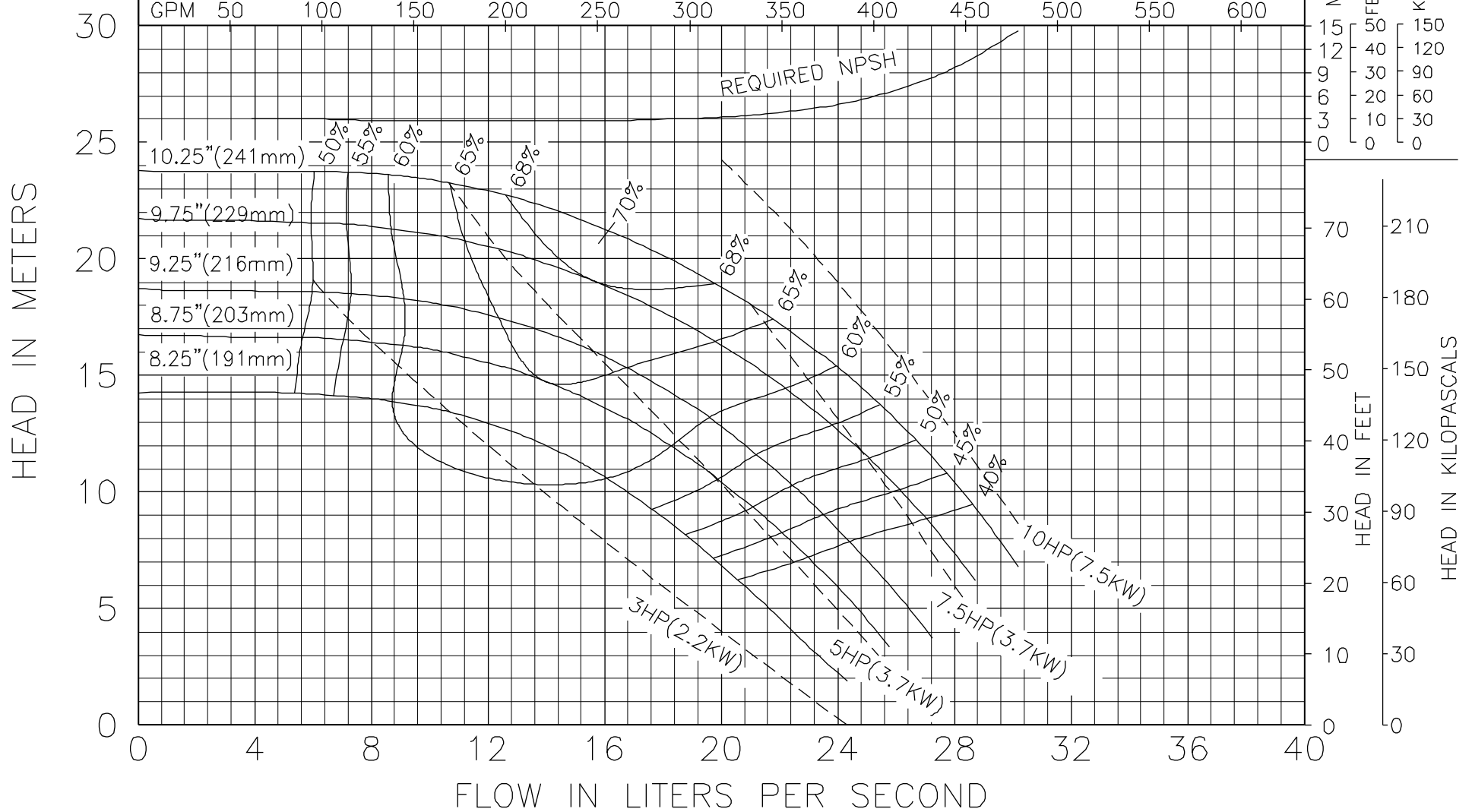




Model 2510
KV & KS Series

1450 RPM
JULY 24, 2003

Curve no. 2235
Min. Imp. Dia. 191mm (8.25")
Size 2.5 x 2.5 x 10.25

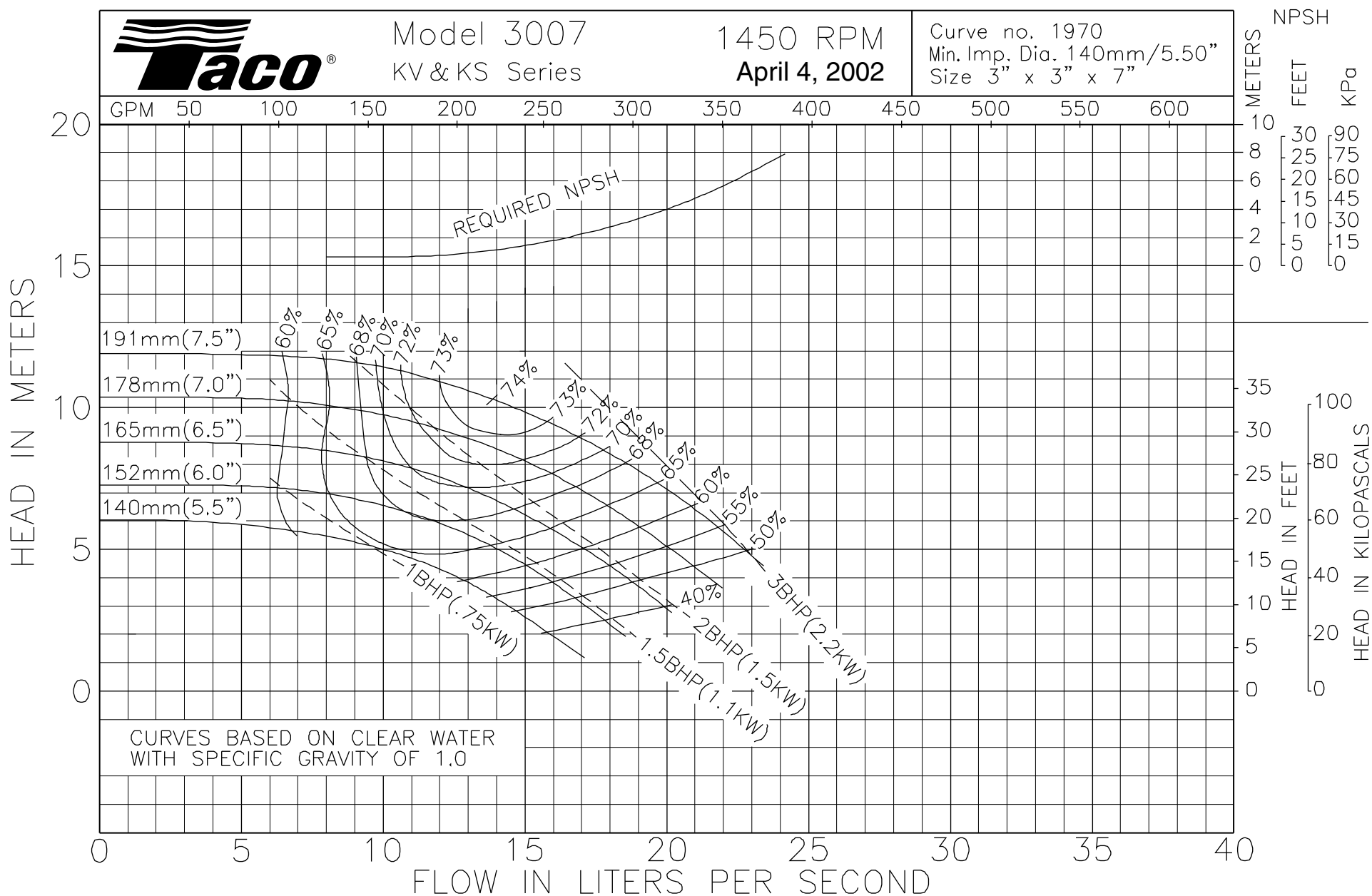




Model 3007
KV & KS Series

1450 RPM
April 4, 2002

Curve no. 1970
Min. Imp. Dia. 140mm/5.50"
Size 3" x 3" x 7"

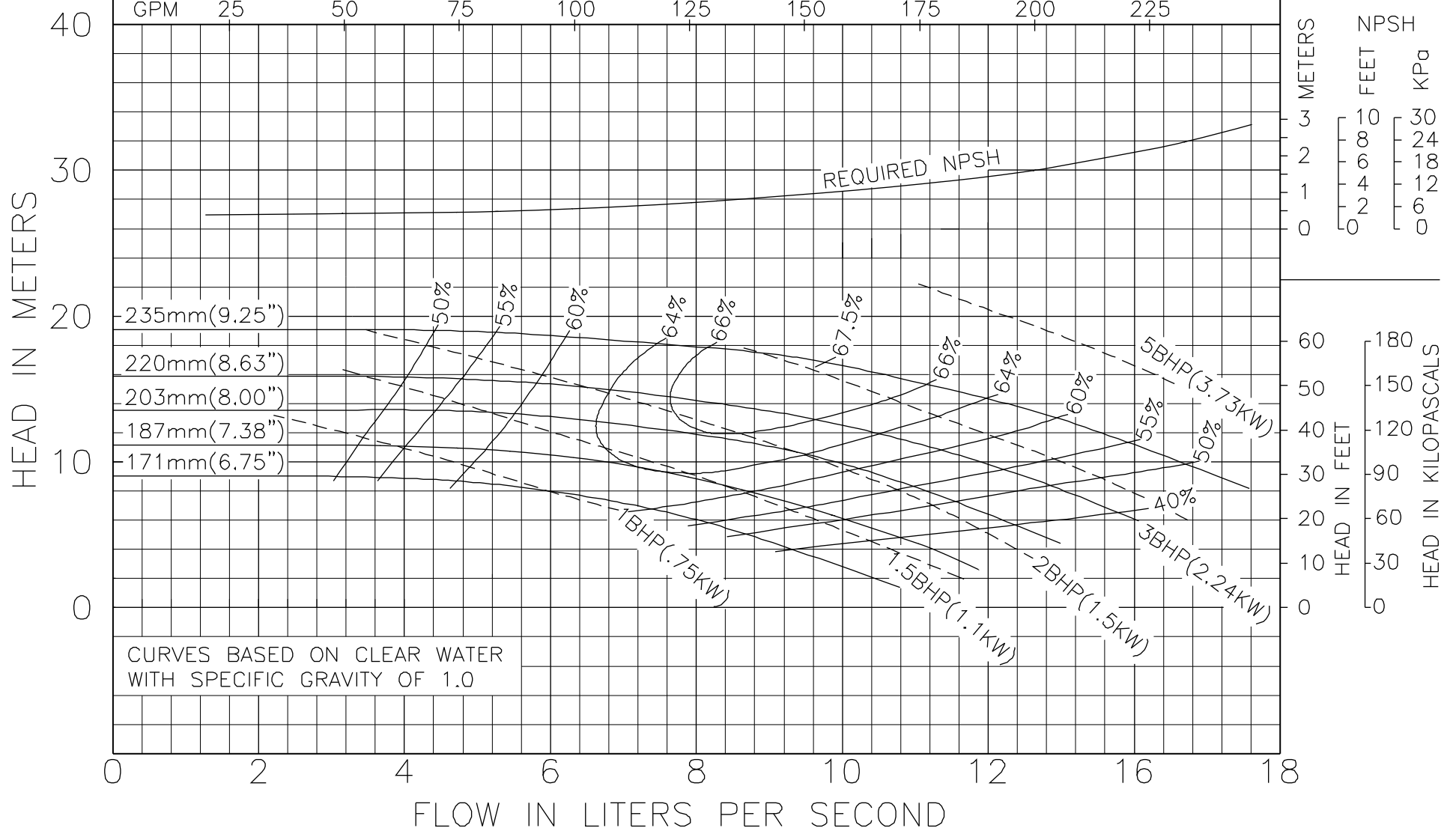




Model 3009
KV & KS Series

1450 RPM
April 4, 2002

Curve no. 1963
Min. Imp. Dia. 171mm/6.75"
Size 3" x 3" x 9"

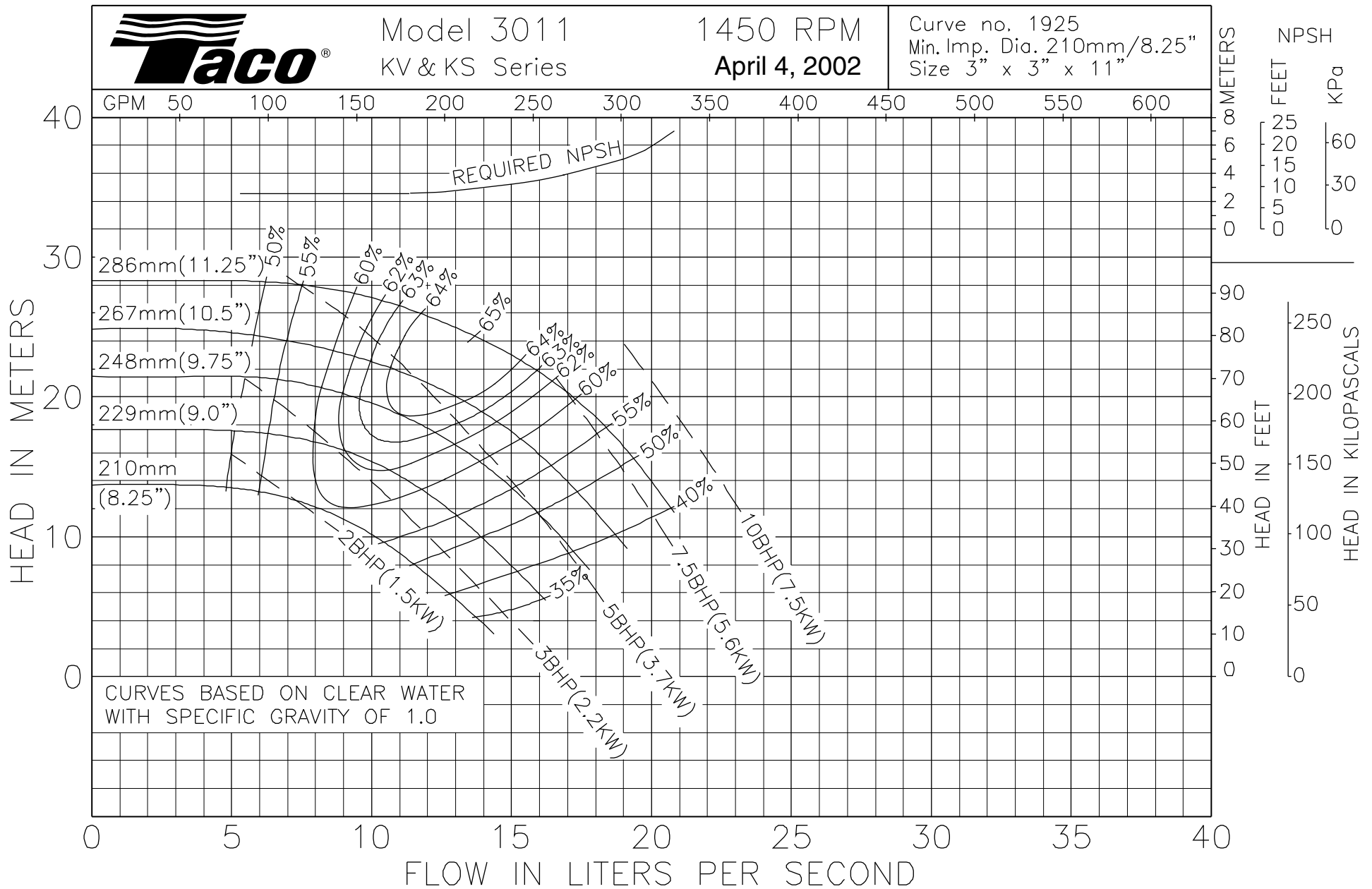




Model 3011
KV & KS Series

1450 RPM
April 4, 2002

Curve no. 1925
Min. Imp. Dia. 210mm/8.25"
Size 3" x 3" x 11"

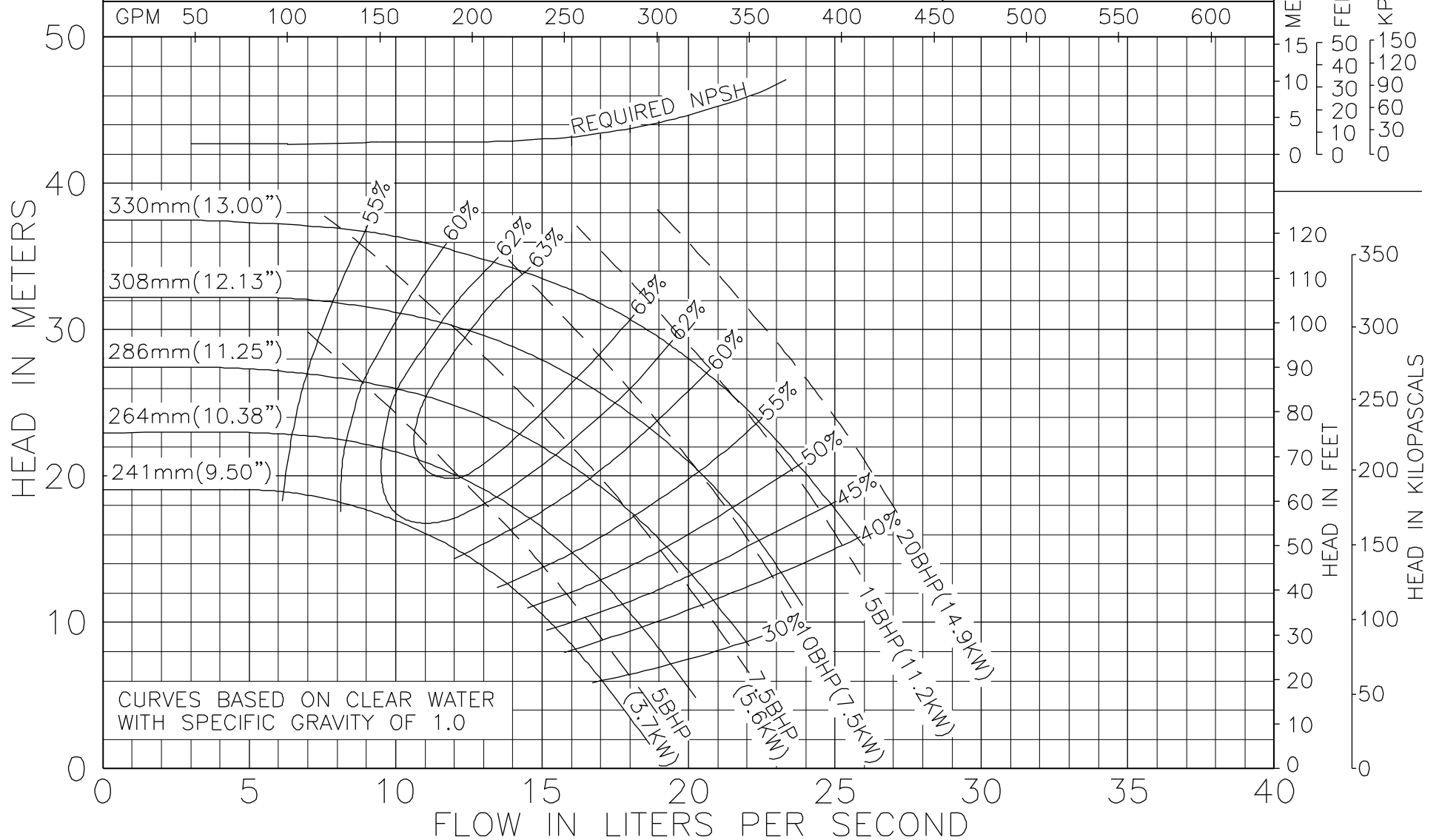




Model 3013
KV&KS Series

1450 RPM
April 4, 2002

Curve no. 1914
Min. Imp. Dia. 241mm/9.50"
Size 3" x 3" x 13"

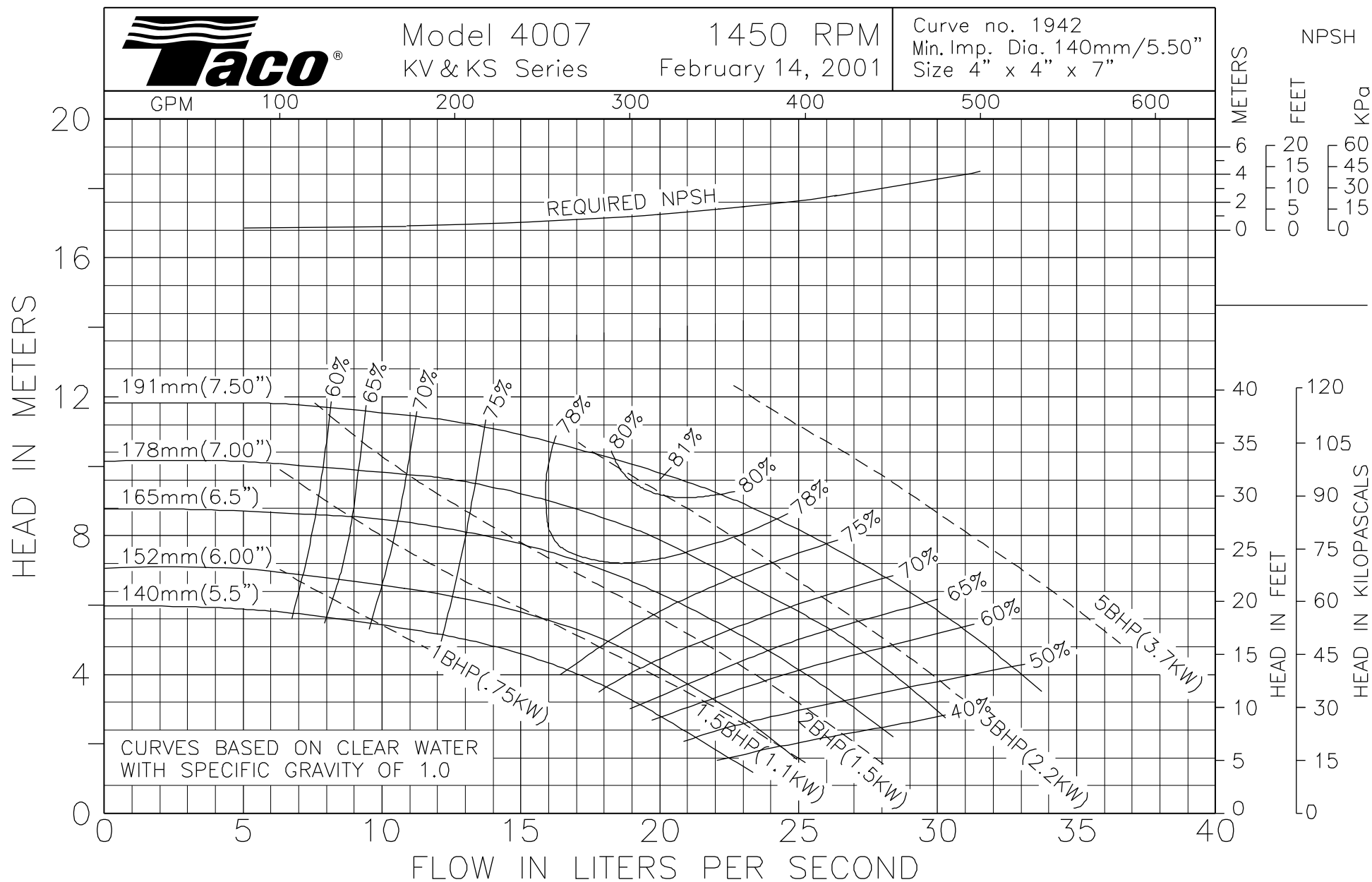




Model 4007
KV & KS Series

1450 RPM
February 14, 2001

Curve no. 1942
Min. Imp. Dia. 140mm/5.50"
Size 4" x 4" x 7"

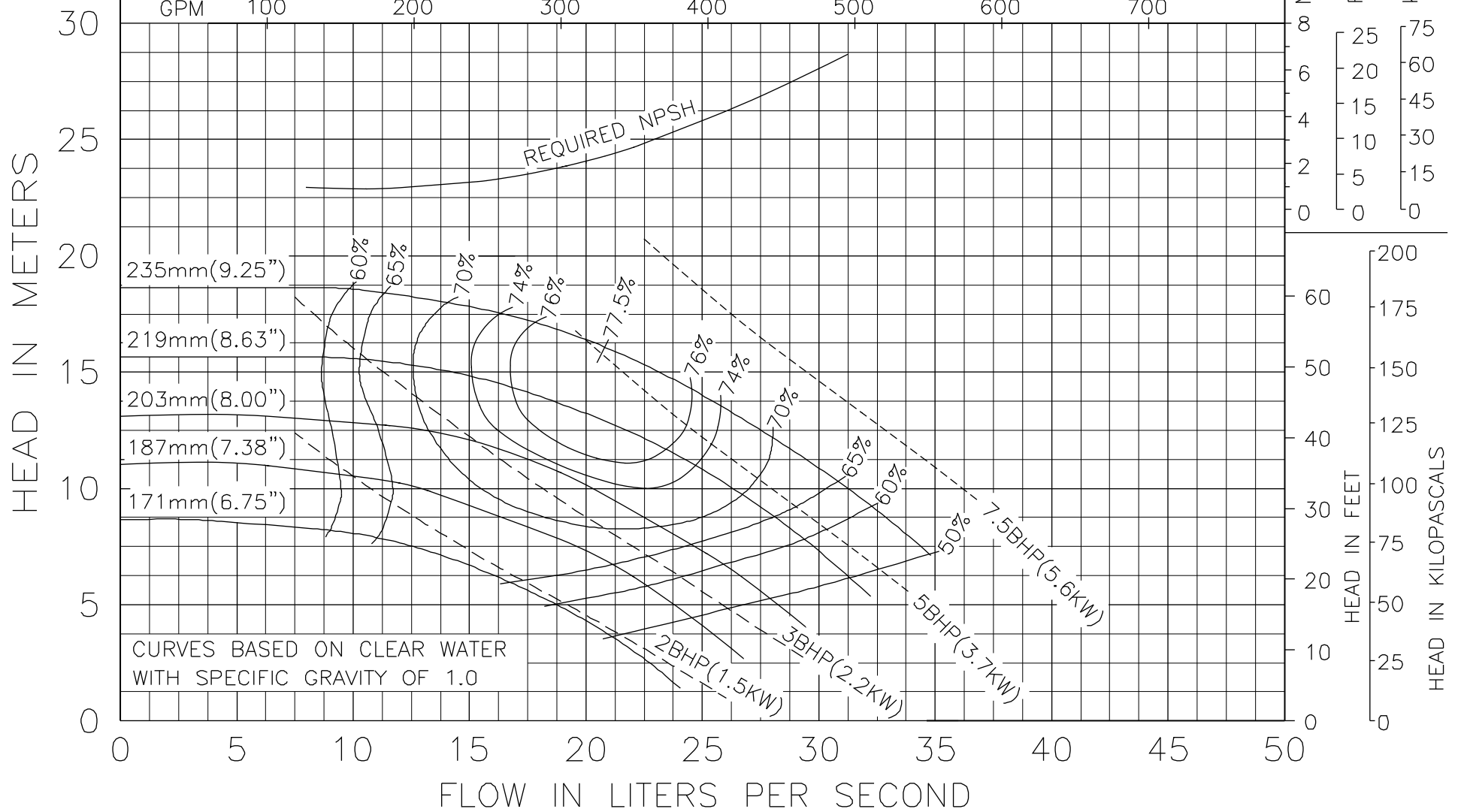




Model 4009
KV & KS Series

1450 RPM
April 4, 2002

Curve no. 1982
Min. Imp. Dia. 171mm/6.75"
Size 4" x 4" x 9"

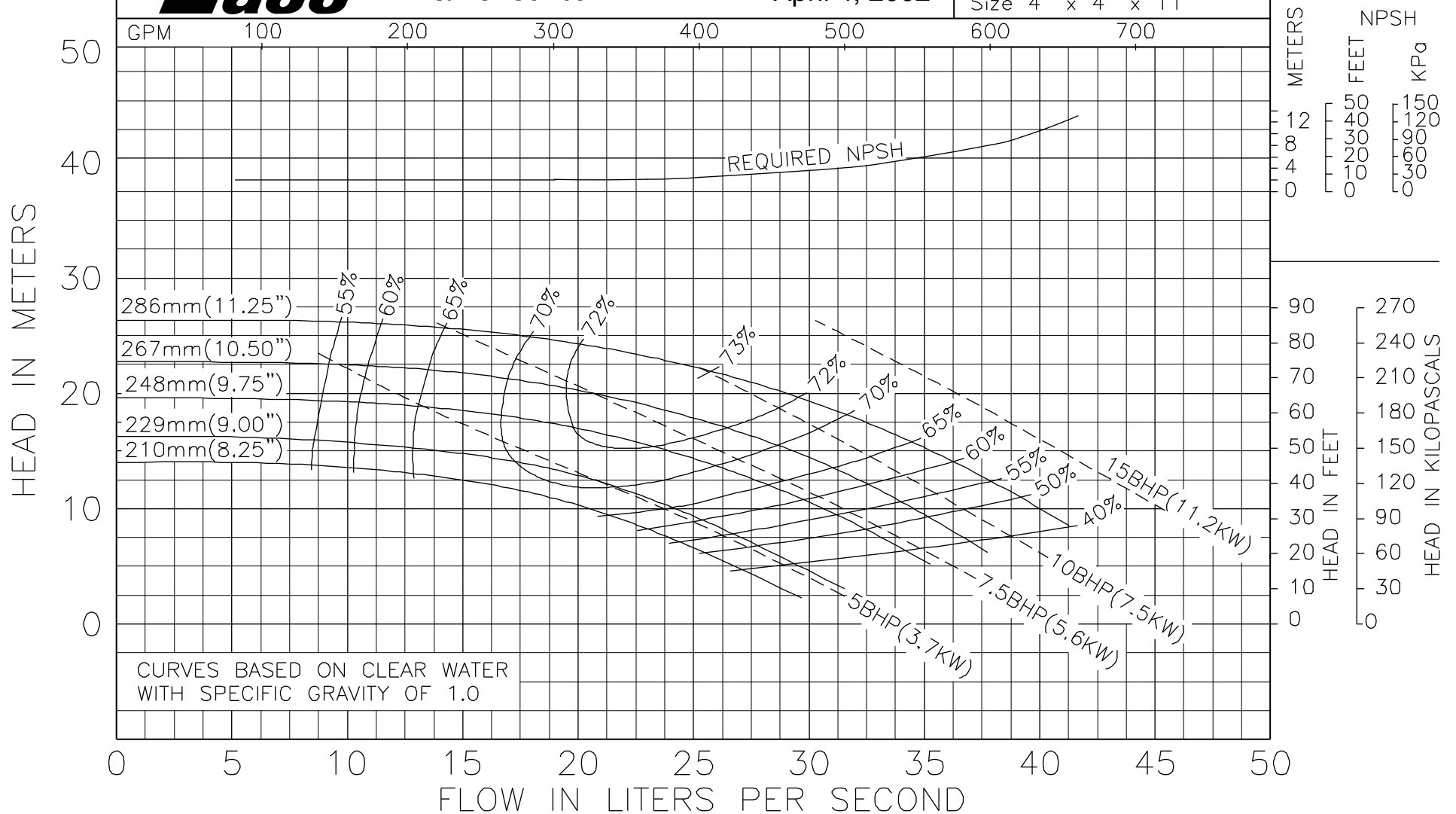




Model 4011
KV & KS Series

1450 RPM
April 4, 2002

Curve no. 1947
Min. Imp. Dia. 210mm/8.25"
Size 4" x 4" x 11"





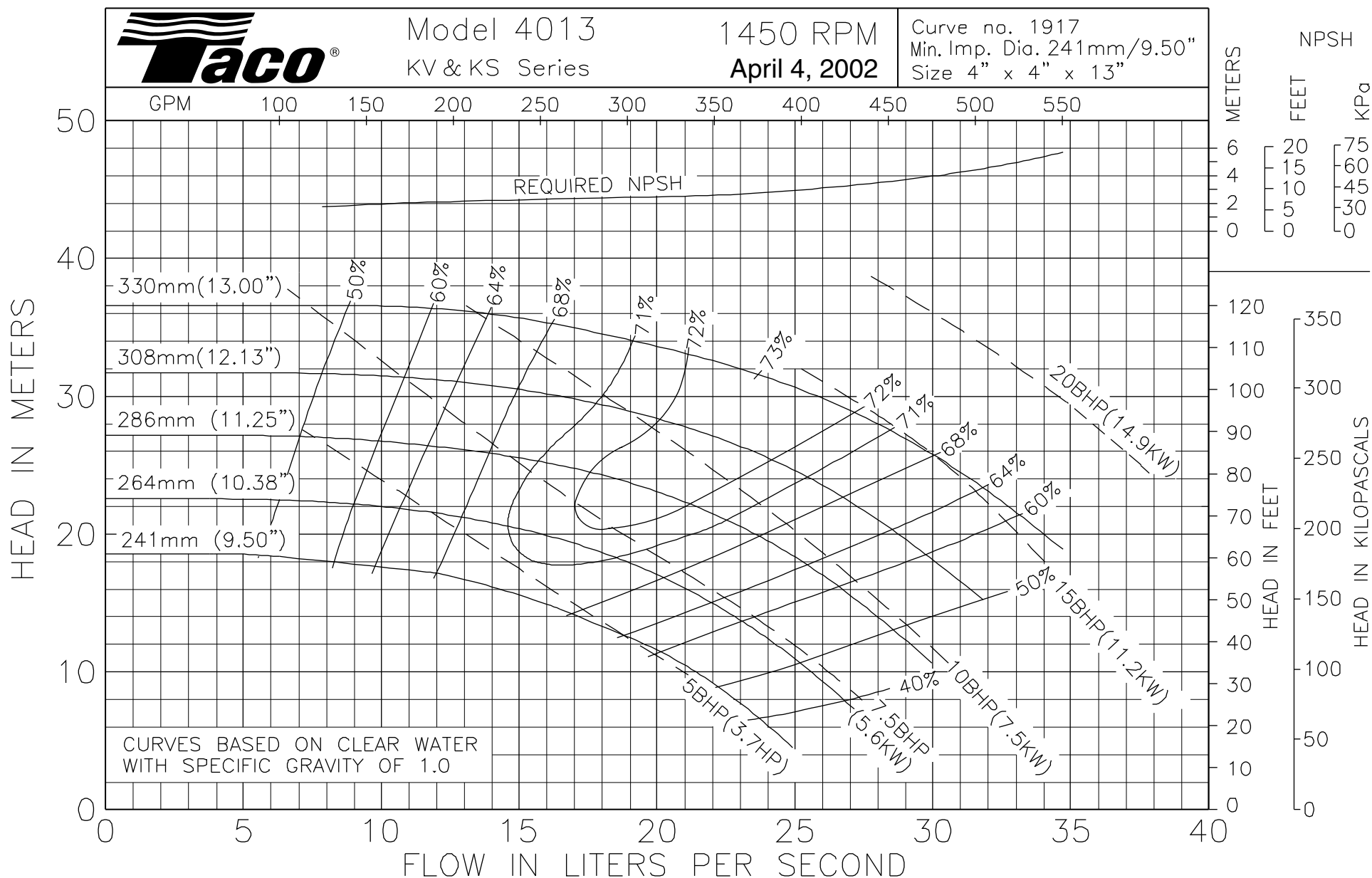
Model 4013

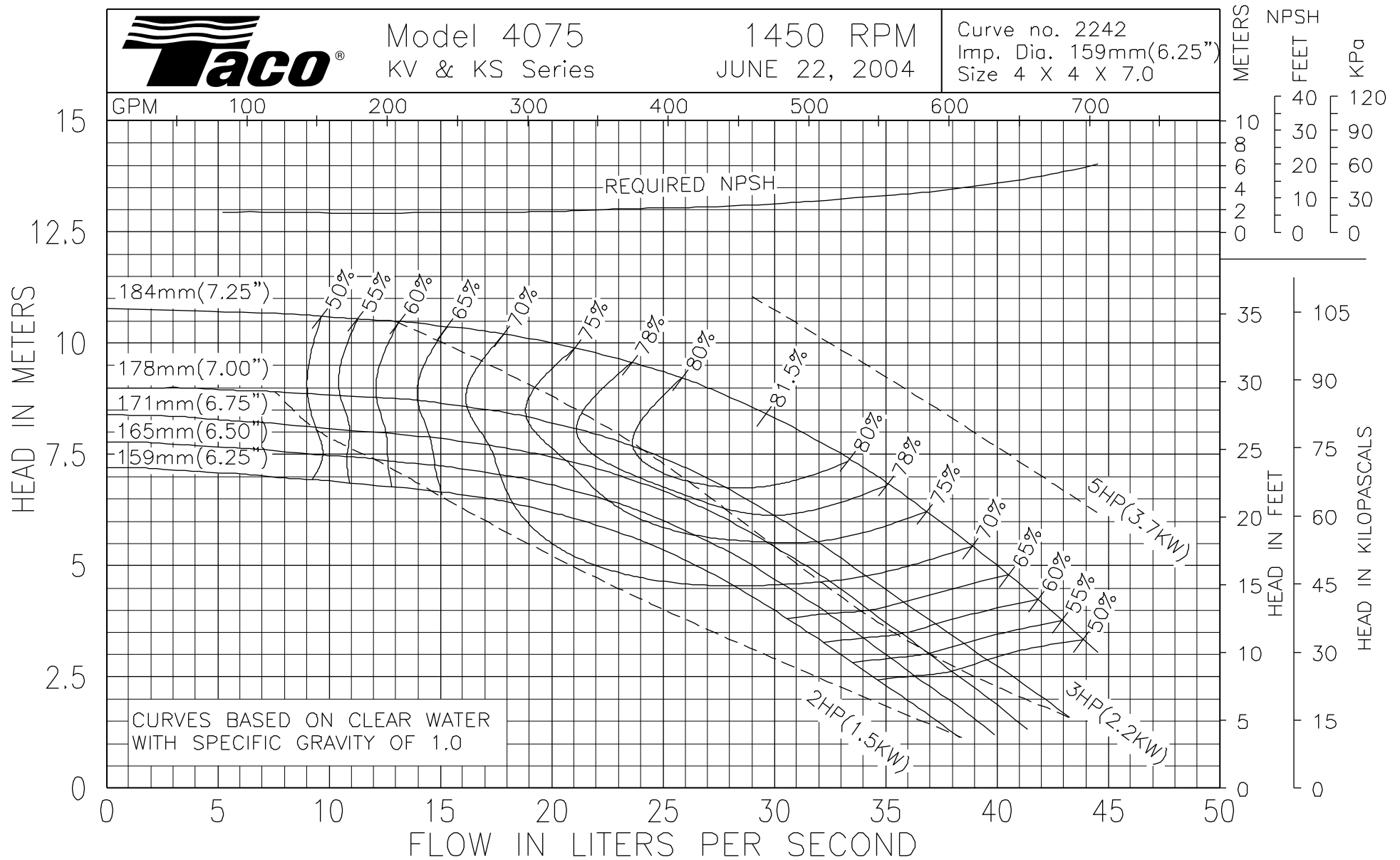
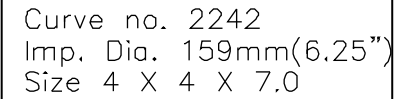
KV & KS Series

1450 RPM

April 4, 2002

Curve no. 1917
Min. Imp. Dia. 241mm/9.50"
Size 4" x 4" x 13"



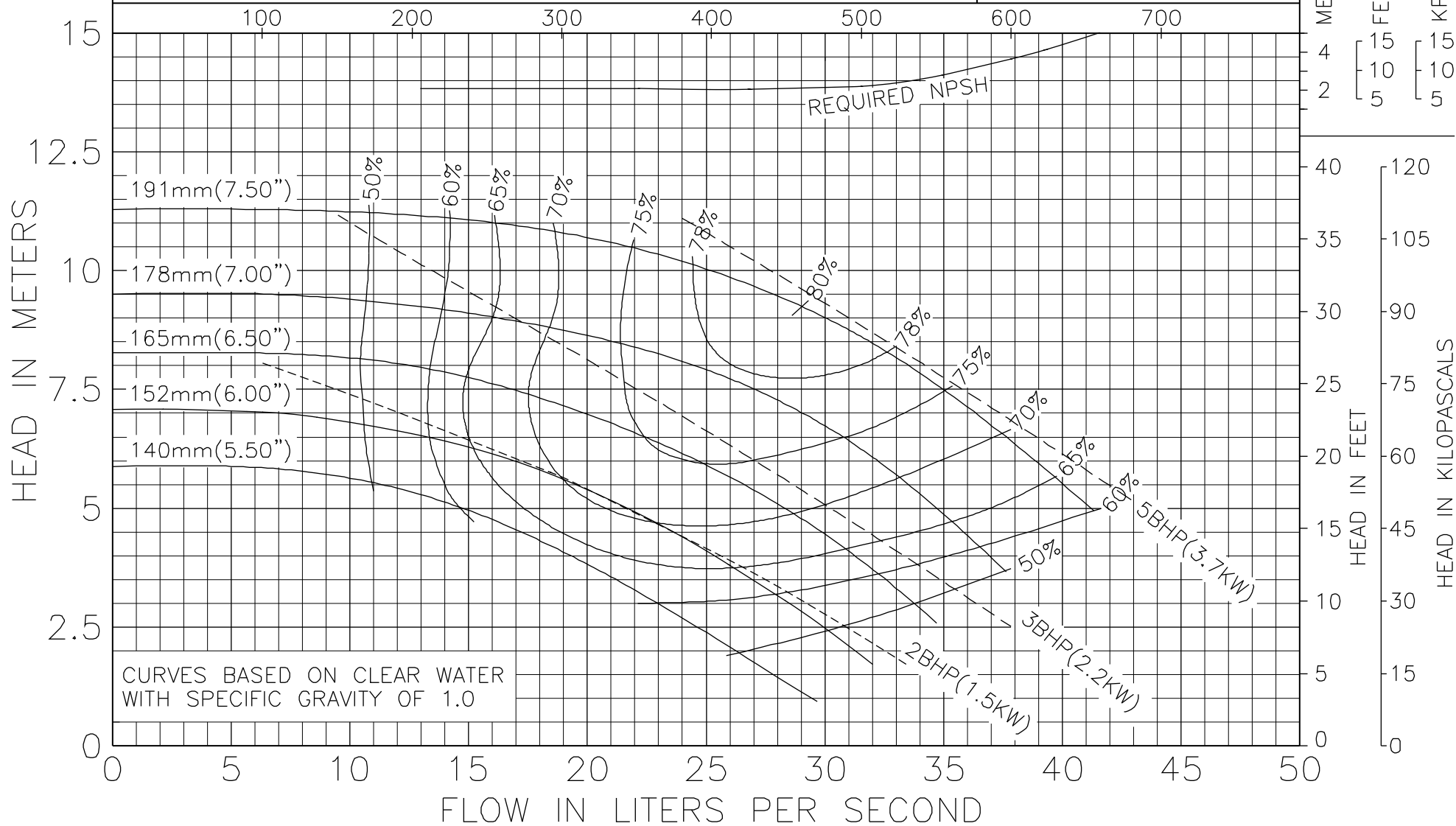




Model 5007
KV & KS Series

1450 RPM
February 14, 2001

Curve no. 1951
Min. Imp. Dia. 140mm/5.50"
Size 5" x 5" x 7"

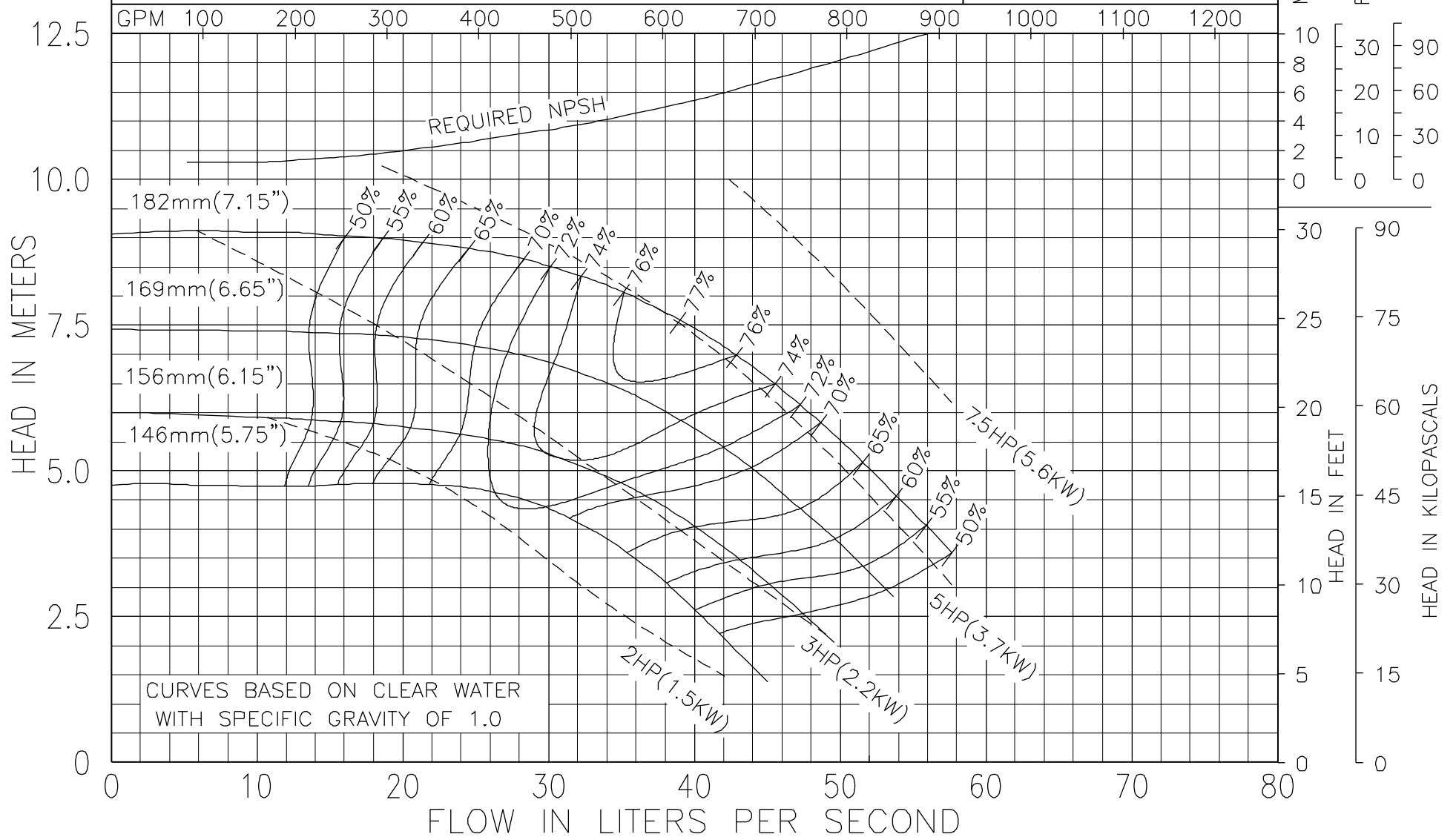




Model 5075
KV&KS Series

1450 RPM
JANUARY 07, 2003

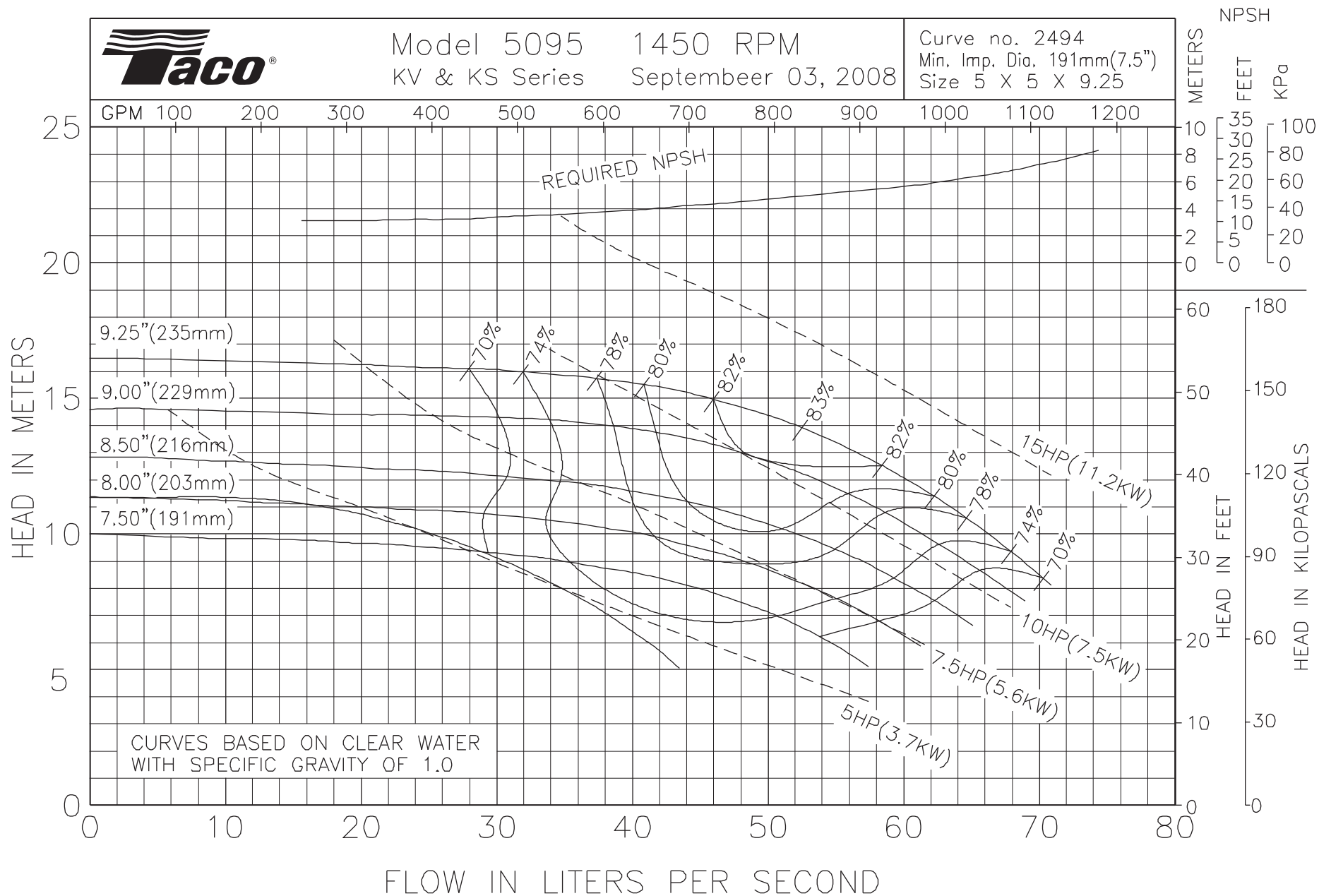
Curve no. 2247
Min. Imp. Dia. 146mm(5.75")
Size 5 X 5 X 7.0





Model 5095 1450 RPM
KV & KS Series September 03, 2008

Curve no. 2494
Min. Imp. Dia. 191mm(7.5")
Size 5 X 5 X 9.25

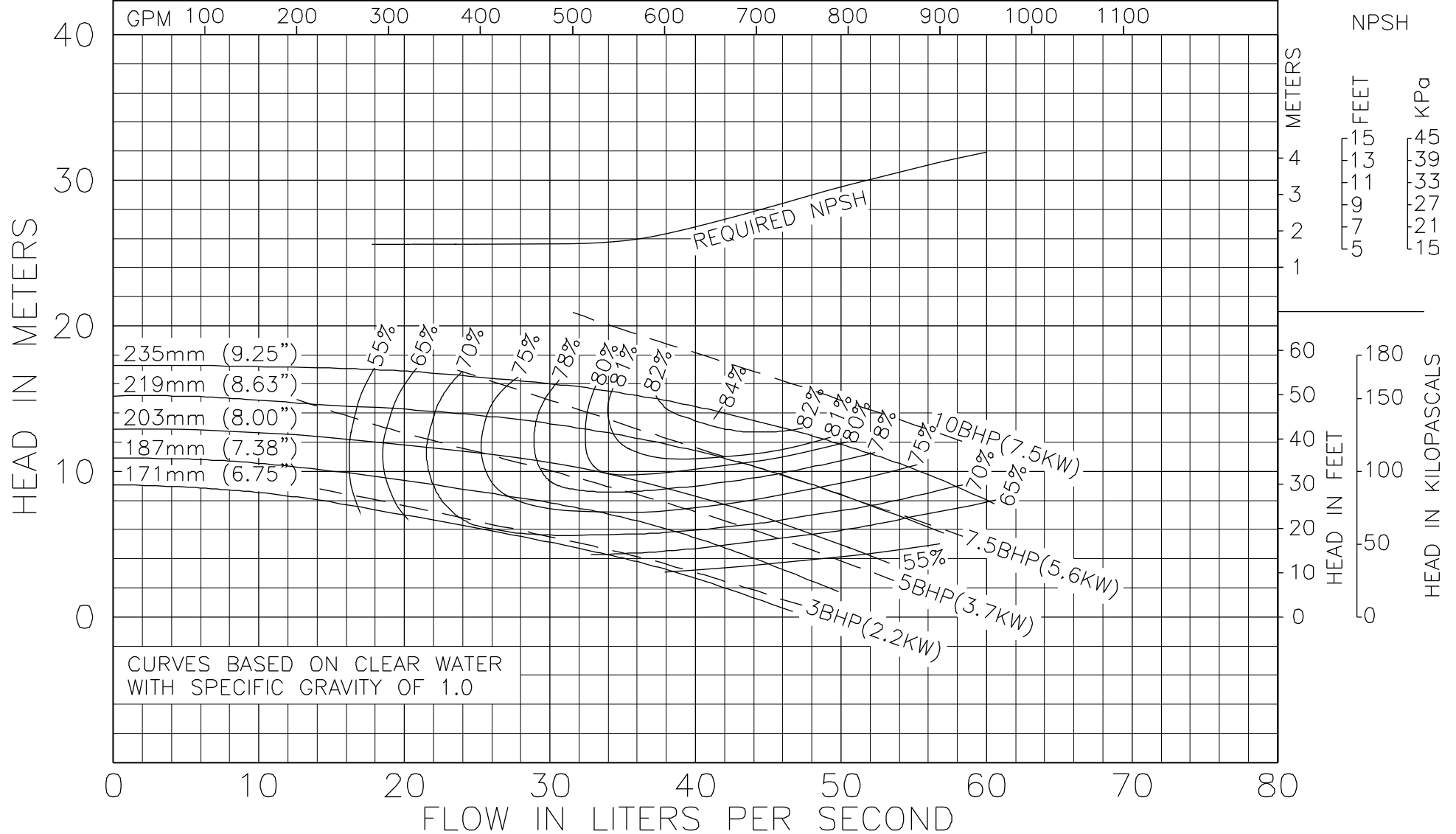




Model 6009
KV & KS Series

1450 RPM
February 14, 2001

Curve no. 1904
Min. Imp. Dia. 171mm/6.75"
Size 6" x 6" x 9"

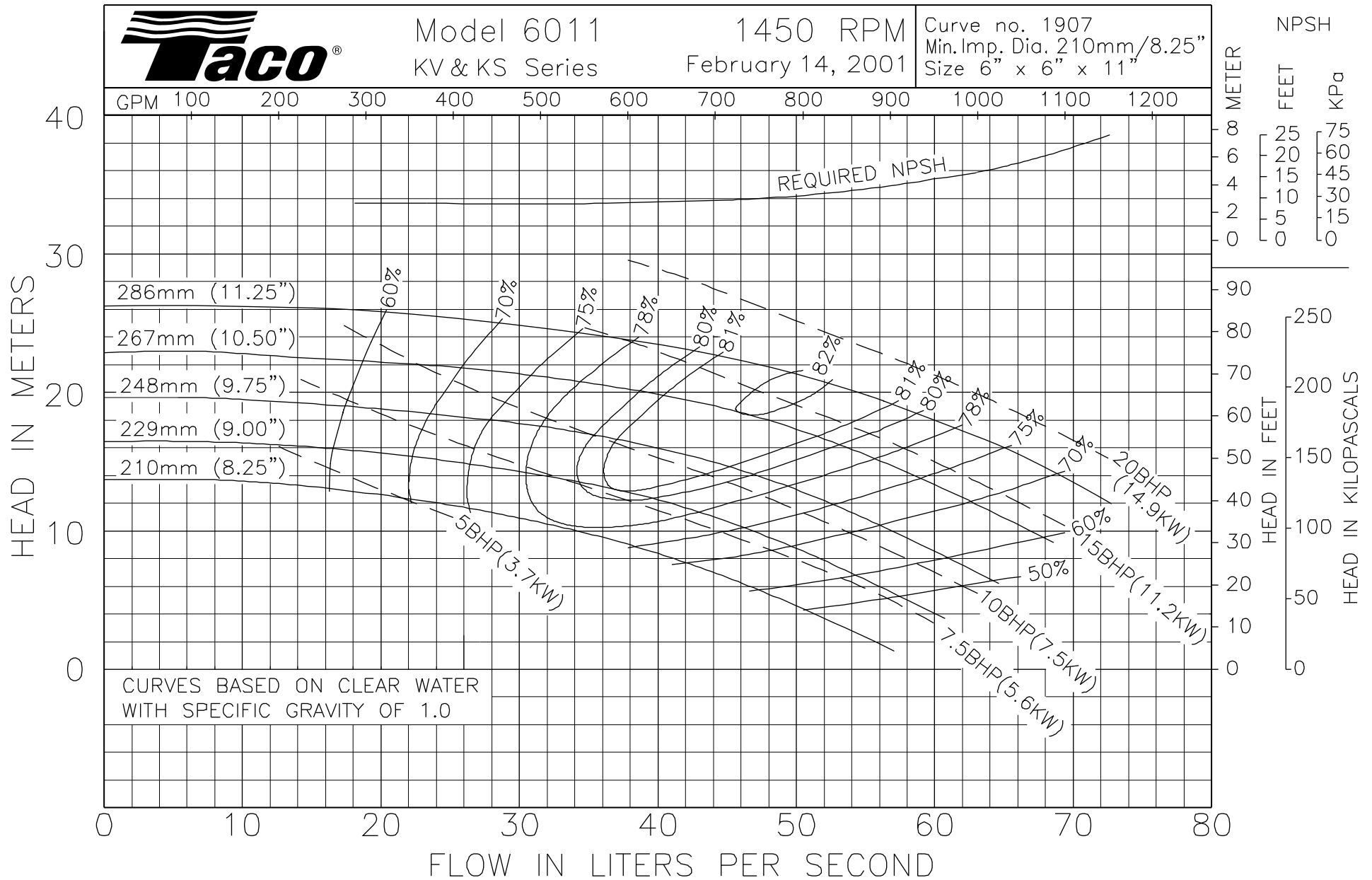


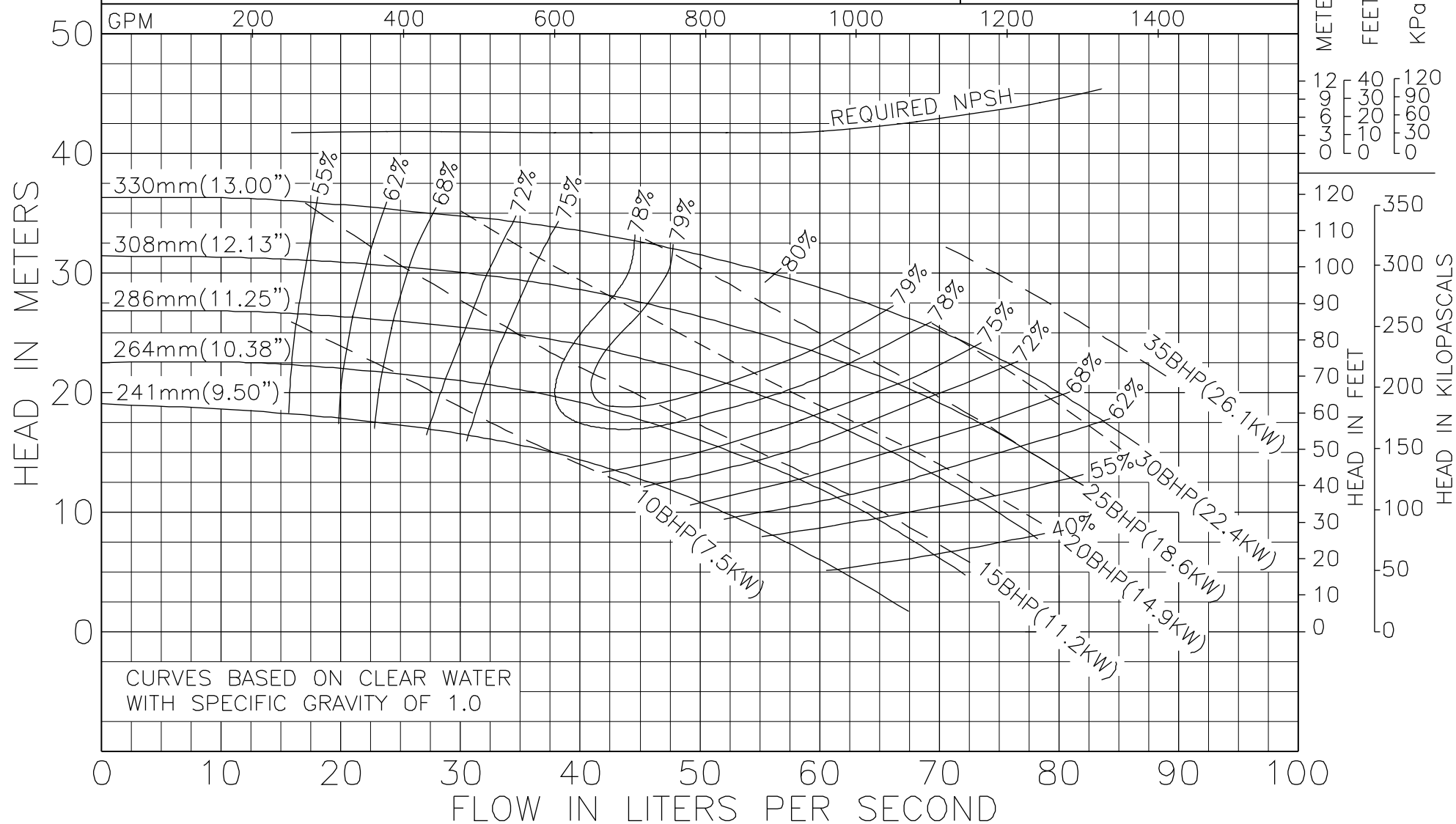
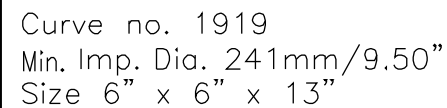


Model 6011
KV & KS Series

1450 RPM
February 14, 2001

Curve no. 1907
Min. Imp. Dia. 210mm/8.25"
Size 6" x 6" x 11"



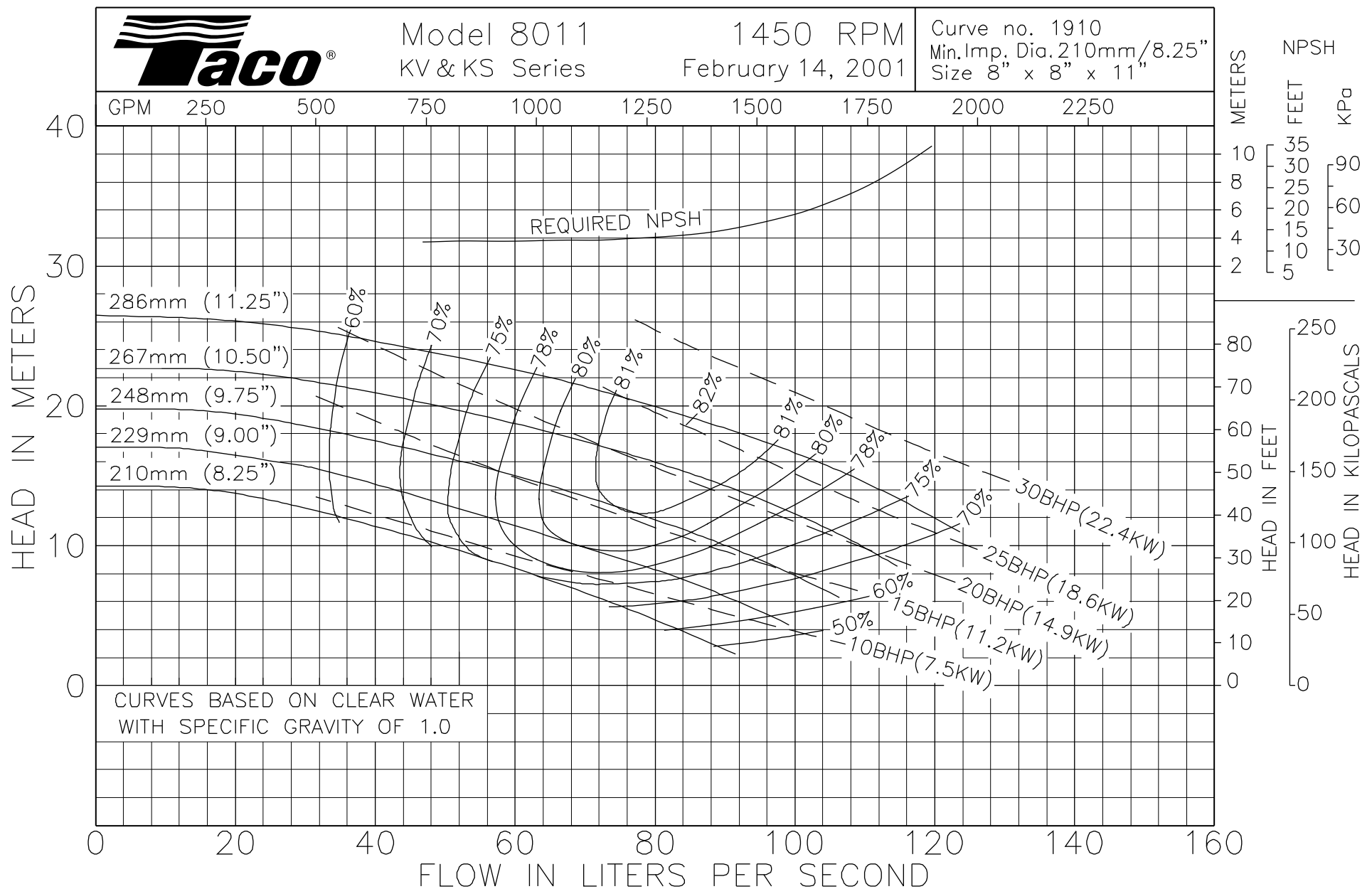




Model 8011
KV & KS Series

1450 RPM
February 14, 2001

Curve no. 1910
Min. Imp. Dia. 210mm/8.25"
Size 8" x 8" x 11"

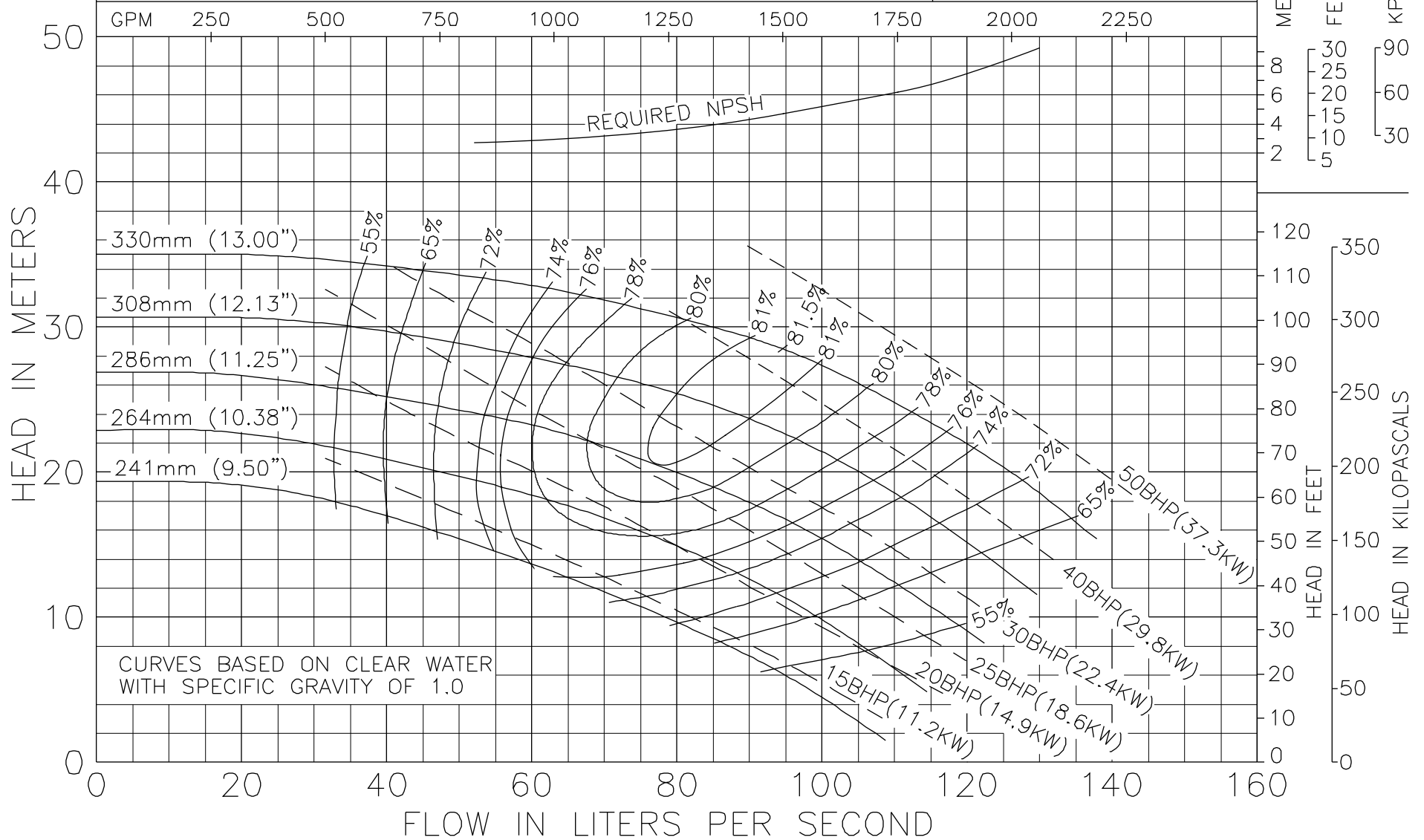




Model 8013
KV & KS Series

1450 RPM
February 14, 2001

Curve no. 1922
Min. Imp. Dia. 241mm/9.50"
Size 8" x 8" x 13"

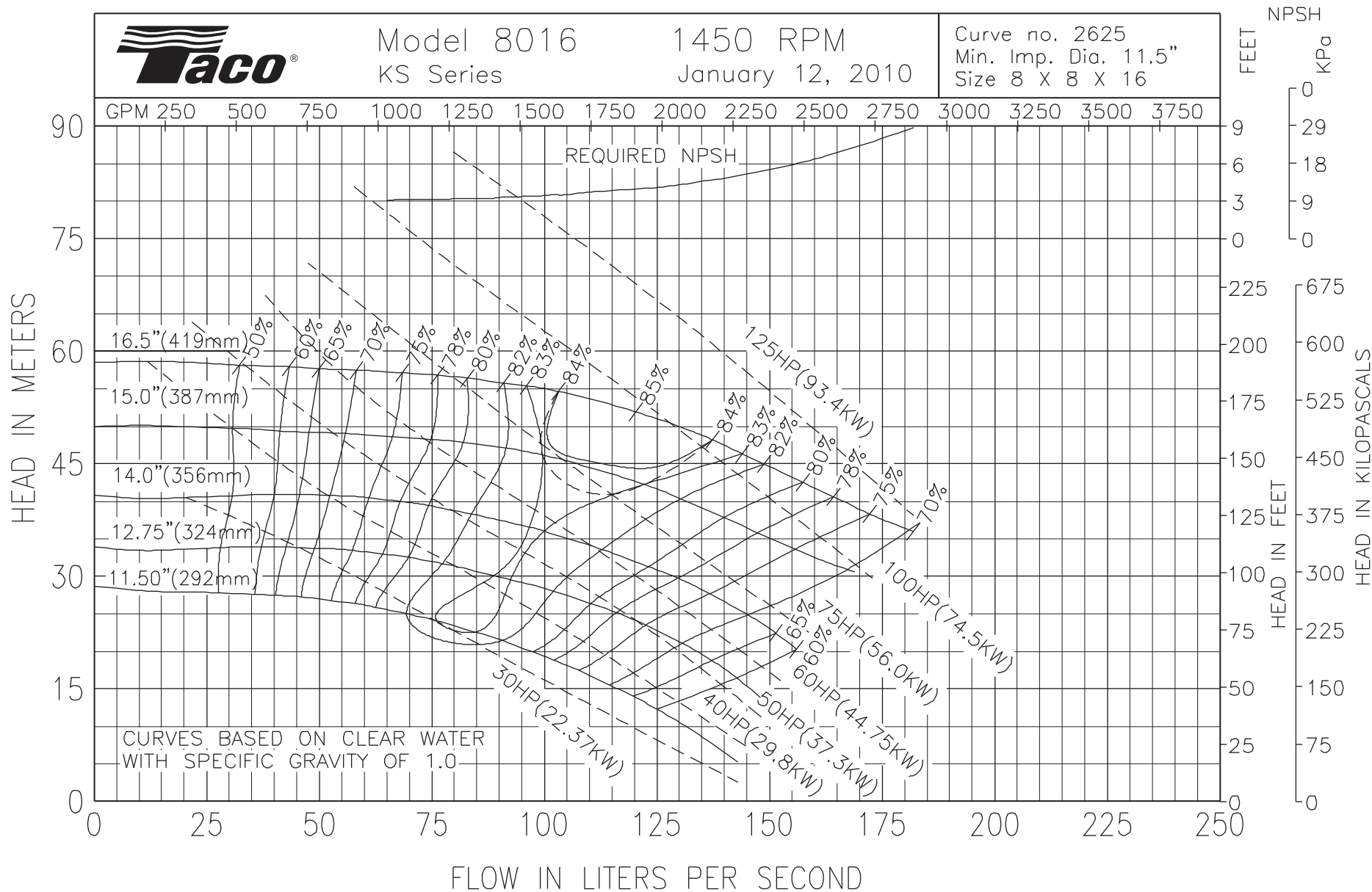




Model 8016
KS Series

1450 RPM
January 12, 2010

Curve no. 2625
Min. Imp. Dia. 11.5"
Size 8 X 8 X 16

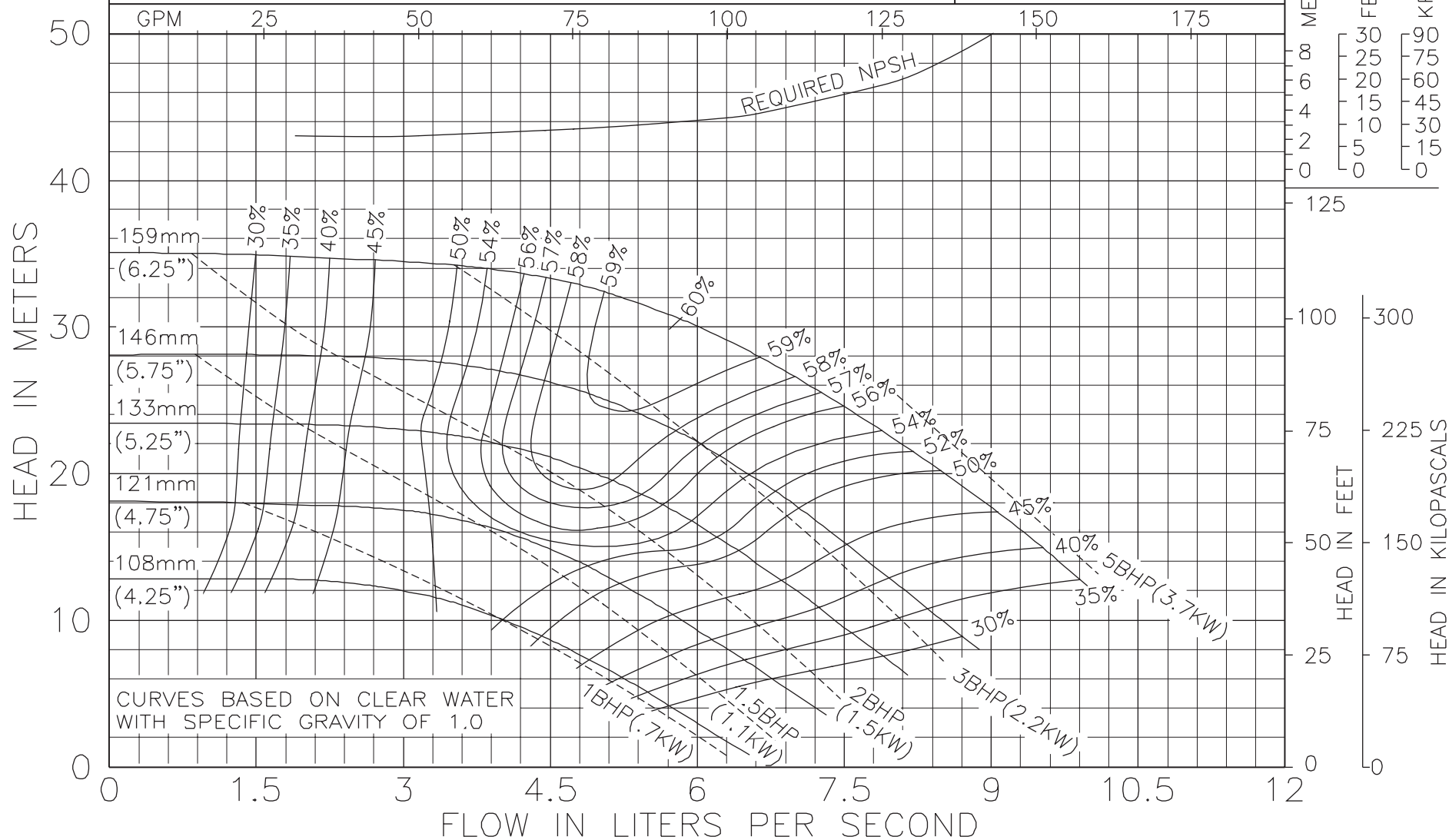




Model 1506
KV & KS Series

2900 RPM
August 31, 2006

Curve no. 1998
Imp. Dia. 108mm/4.25"
Size 1.5" x 1.5" x 6"

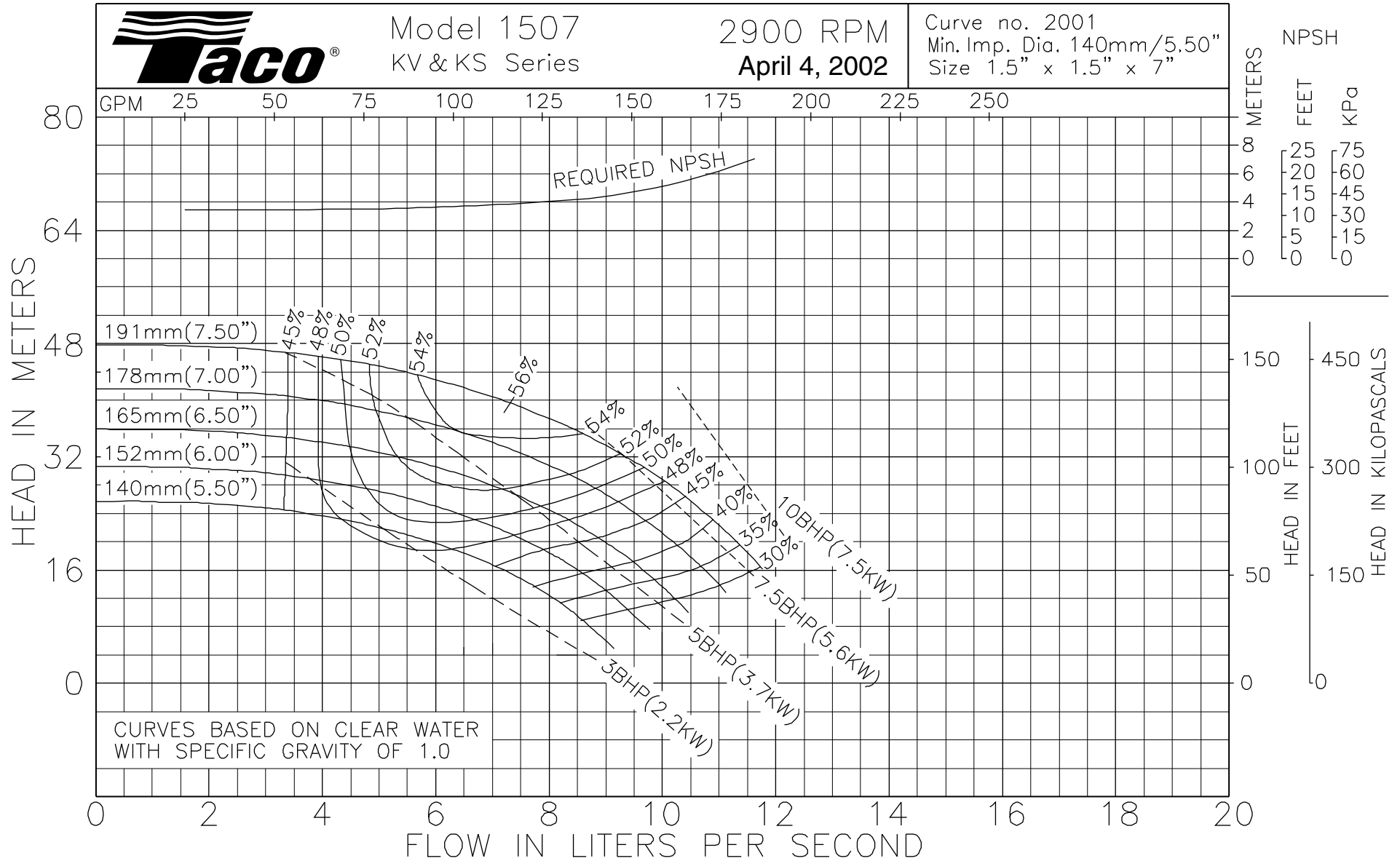




Model 1507
KV & KS Series

2900 RPM
April 4, 2002

Curve no. 2001
Min. Imp. Dia. 140mm/5.50"
Size 1.5" x 1.5" x 7"

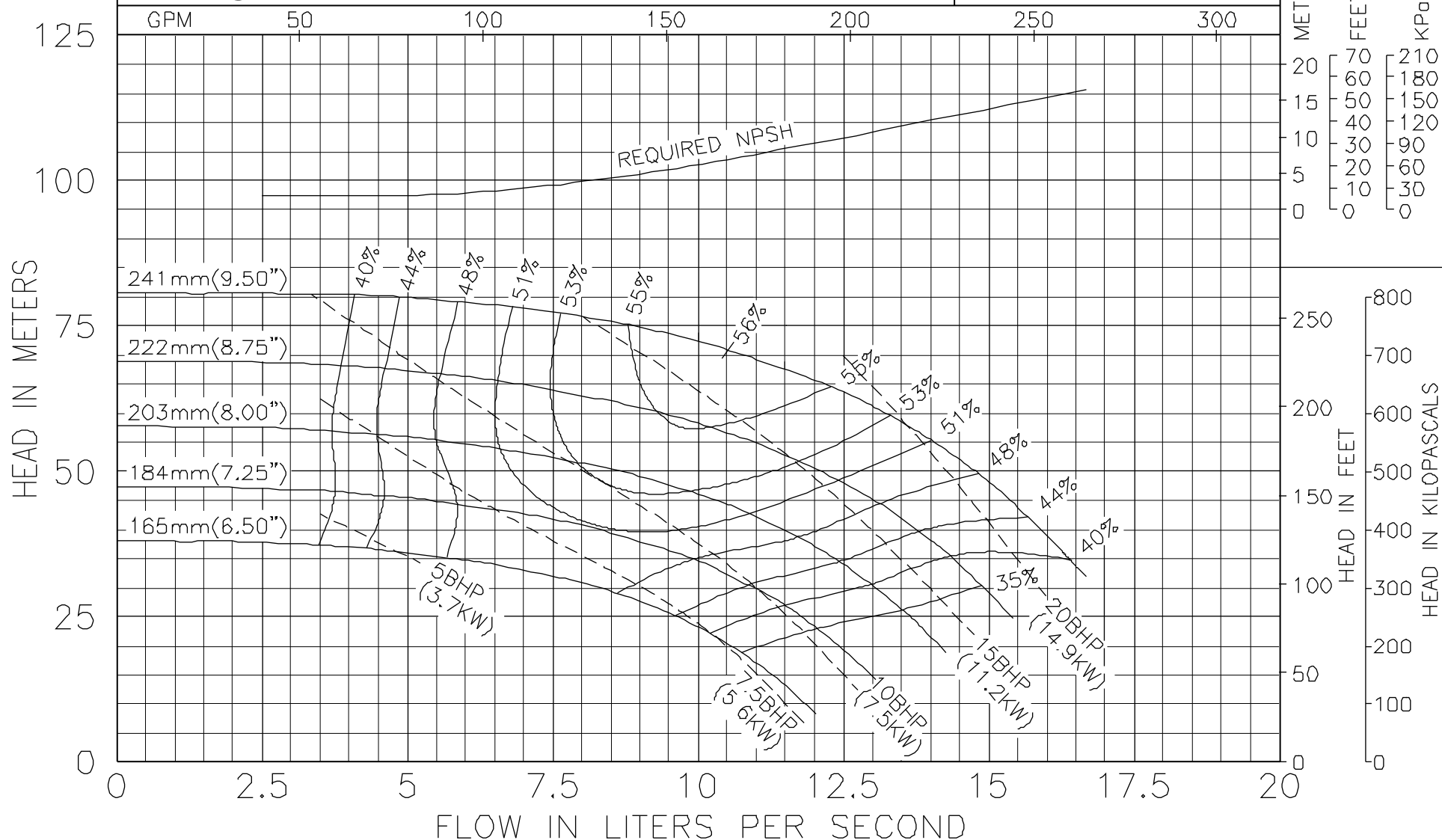




Model 1509
KV & KS Series

2900 RPM
August 2, 2001

Curve no. 2047
Min. Imp. Dia. 165mm/6.5"
Size 1.5 x 1.5 x 9.0



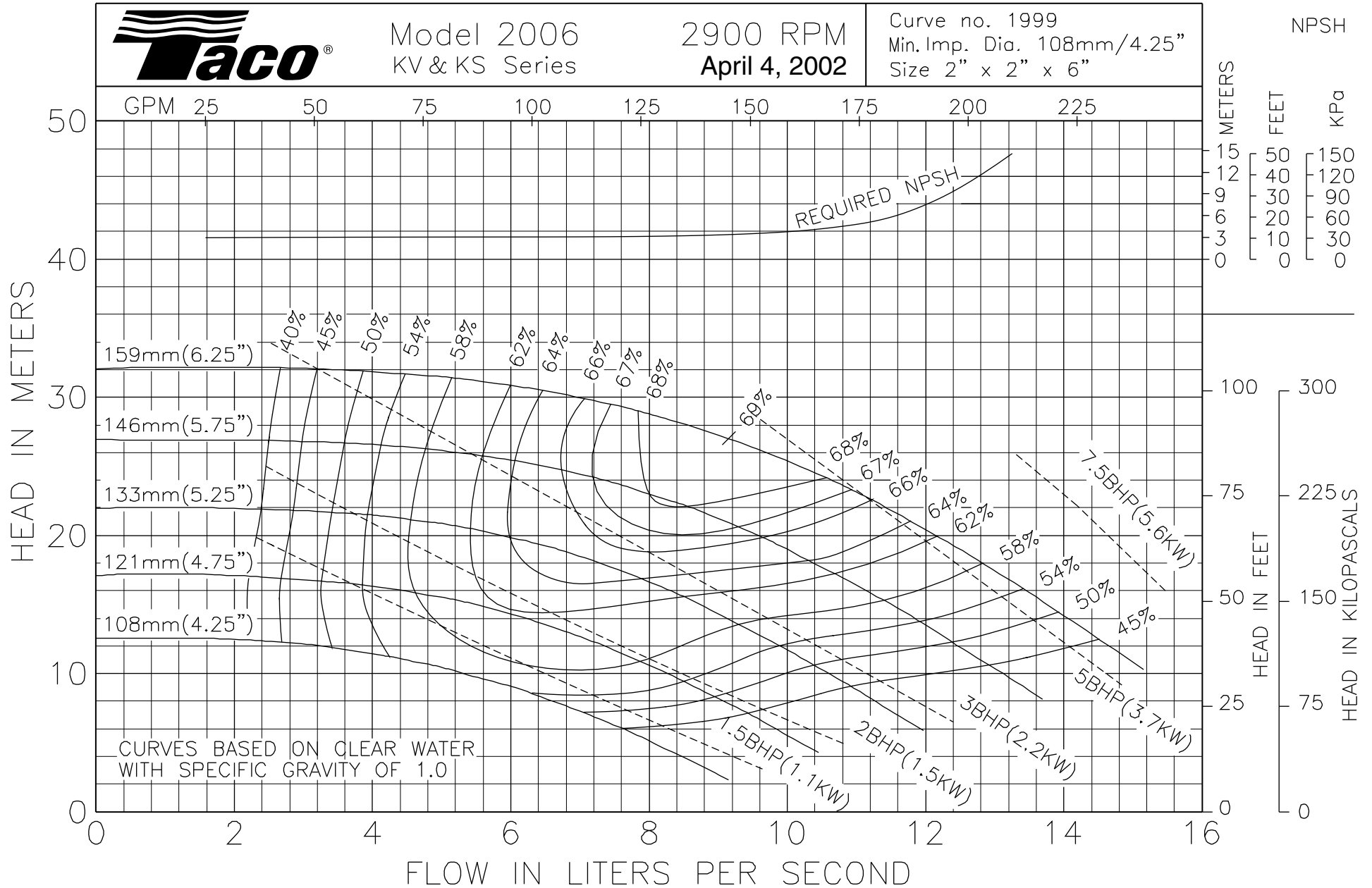


Model 2006
KV & KS Series

2900 RPM
April 4, 2002

Curve no. 1999
Min. Imp. Dia. 108mm/4.25"
Size 2" x 2" x 6"

NPSH

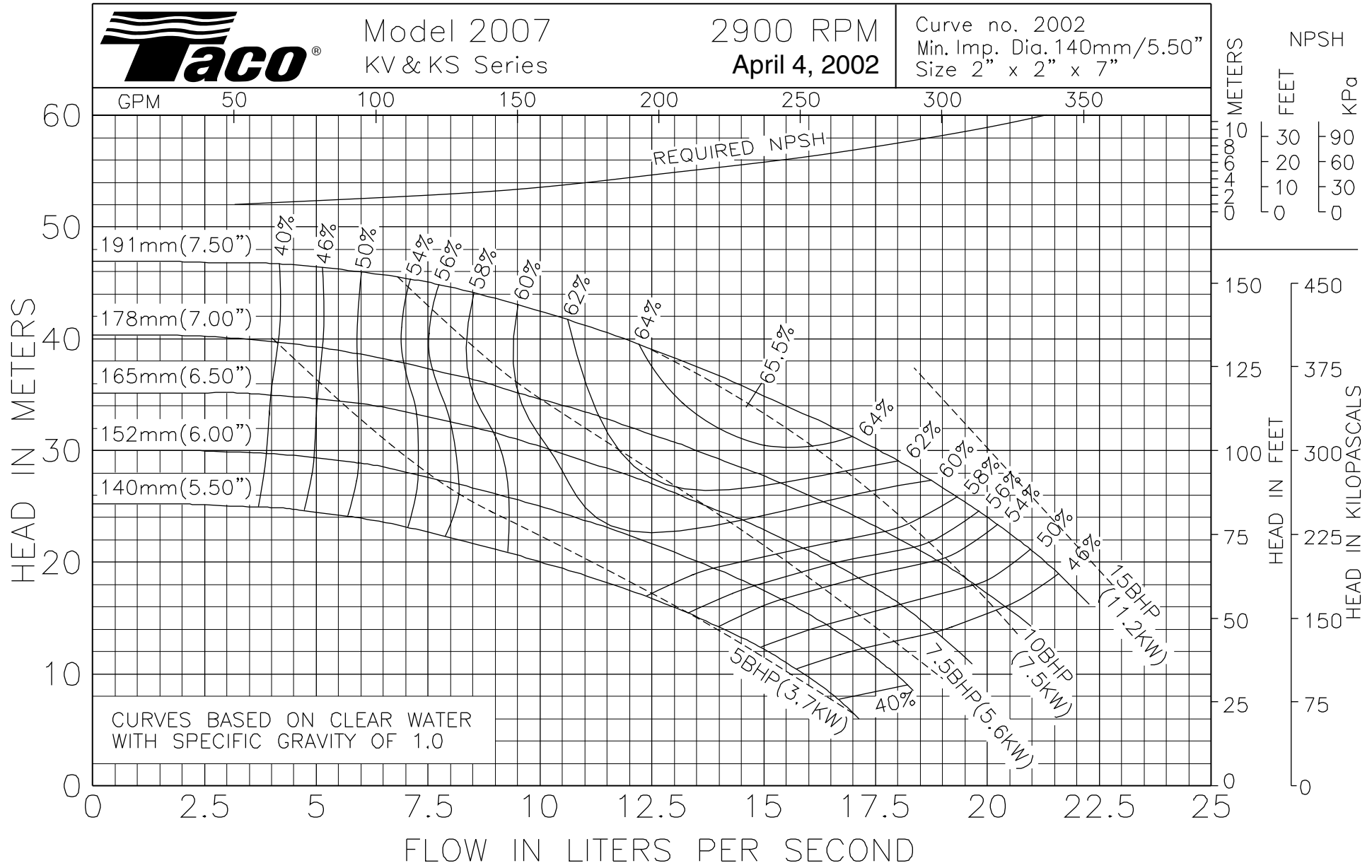




Model 2007
KV & KS Series

2900 RPM
April 4, 2002

Curve no. 2002
Min. Imp. Dia. 140mm/5.50"
Size 2" x 2" x 7"

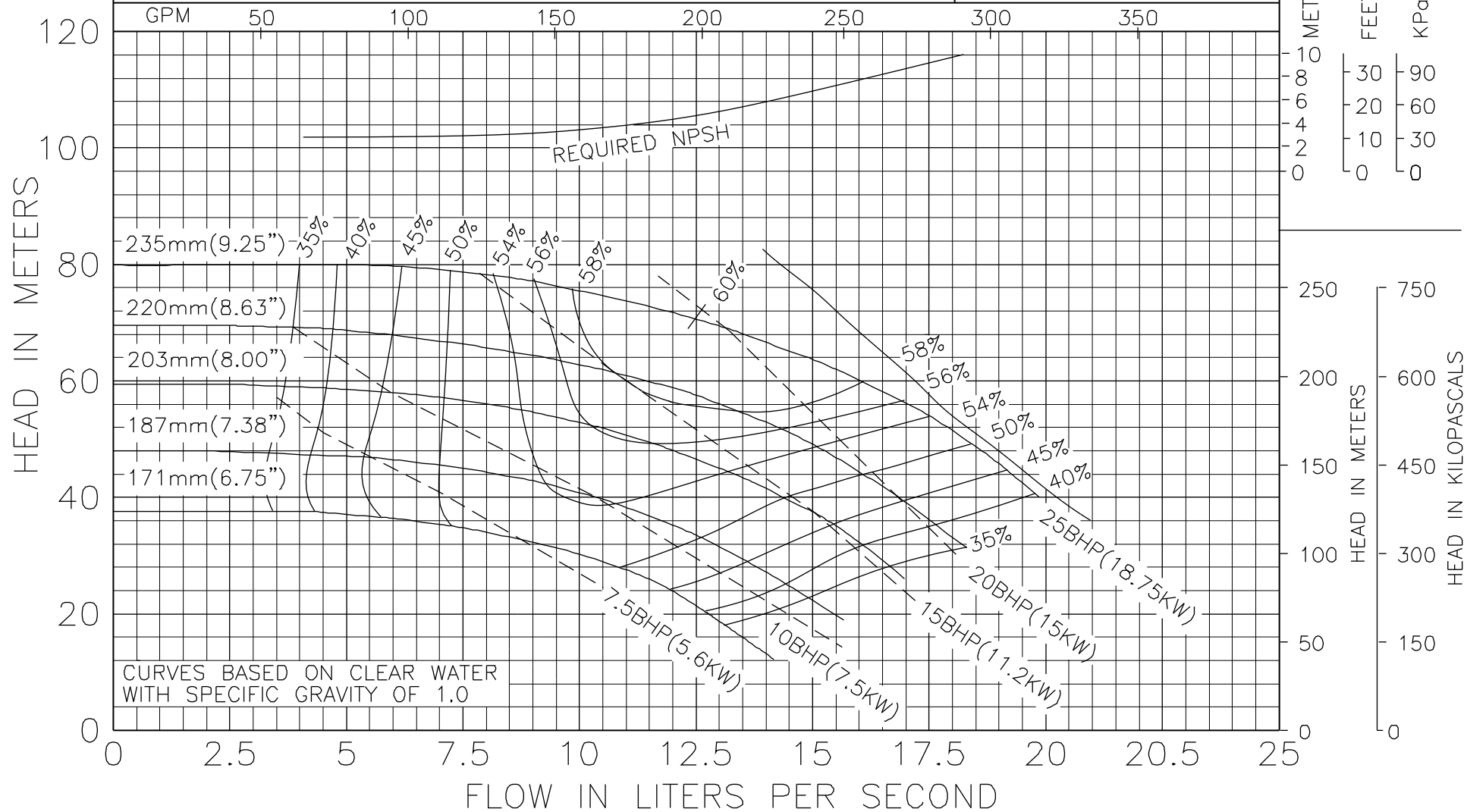




Model 2009
KV & KS Series

2900 RPM
April 4, 2002

Curve no. 2005
Min. Imp. Dia 171mm/6.75"
Size 4" x 4" x 9"

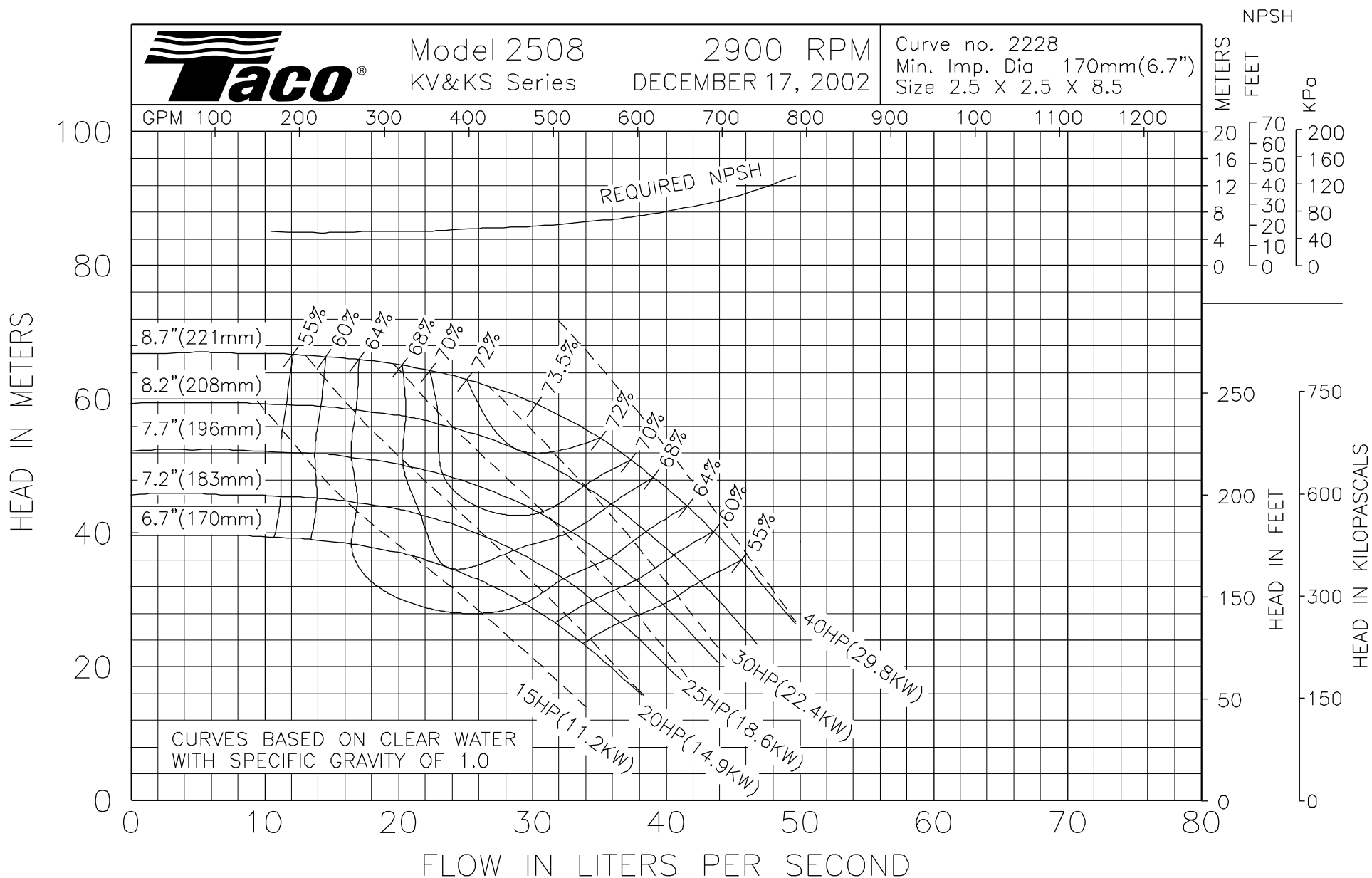




Model 2508
KV&KS Series

2900 RPM
DECEMBER 17, 2002

Curve no. 2228
Min. Imp. Dia 170mm(6.7")
Size 2.5 X 2.5 X 8.5

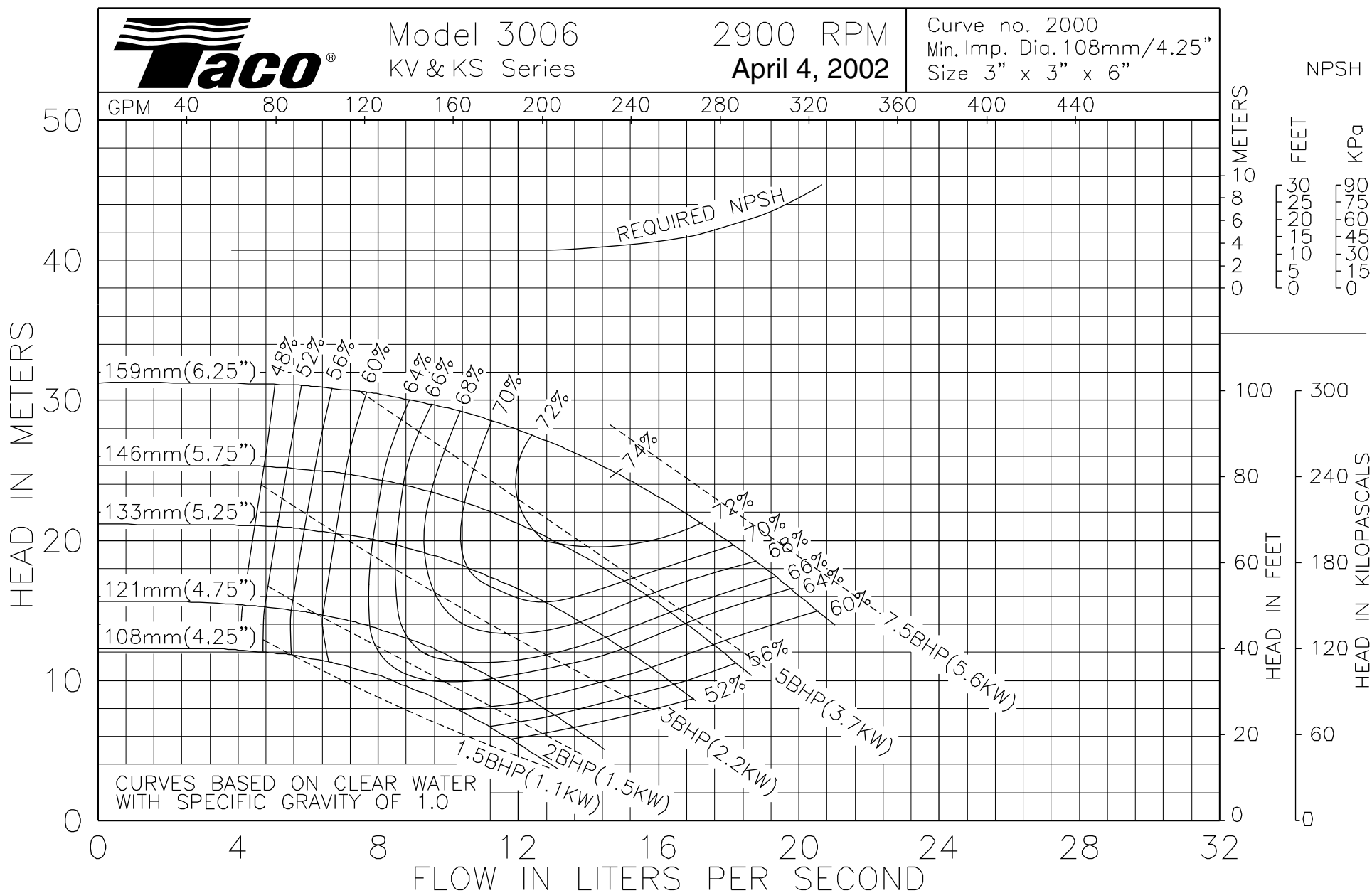




Model 3006
KV & KS Series

2900 RPM
April 4, 2002

Curve no. 2000
Min. Imp. Dia. 108mm/4.25"
Size 3" x 3" x 6"

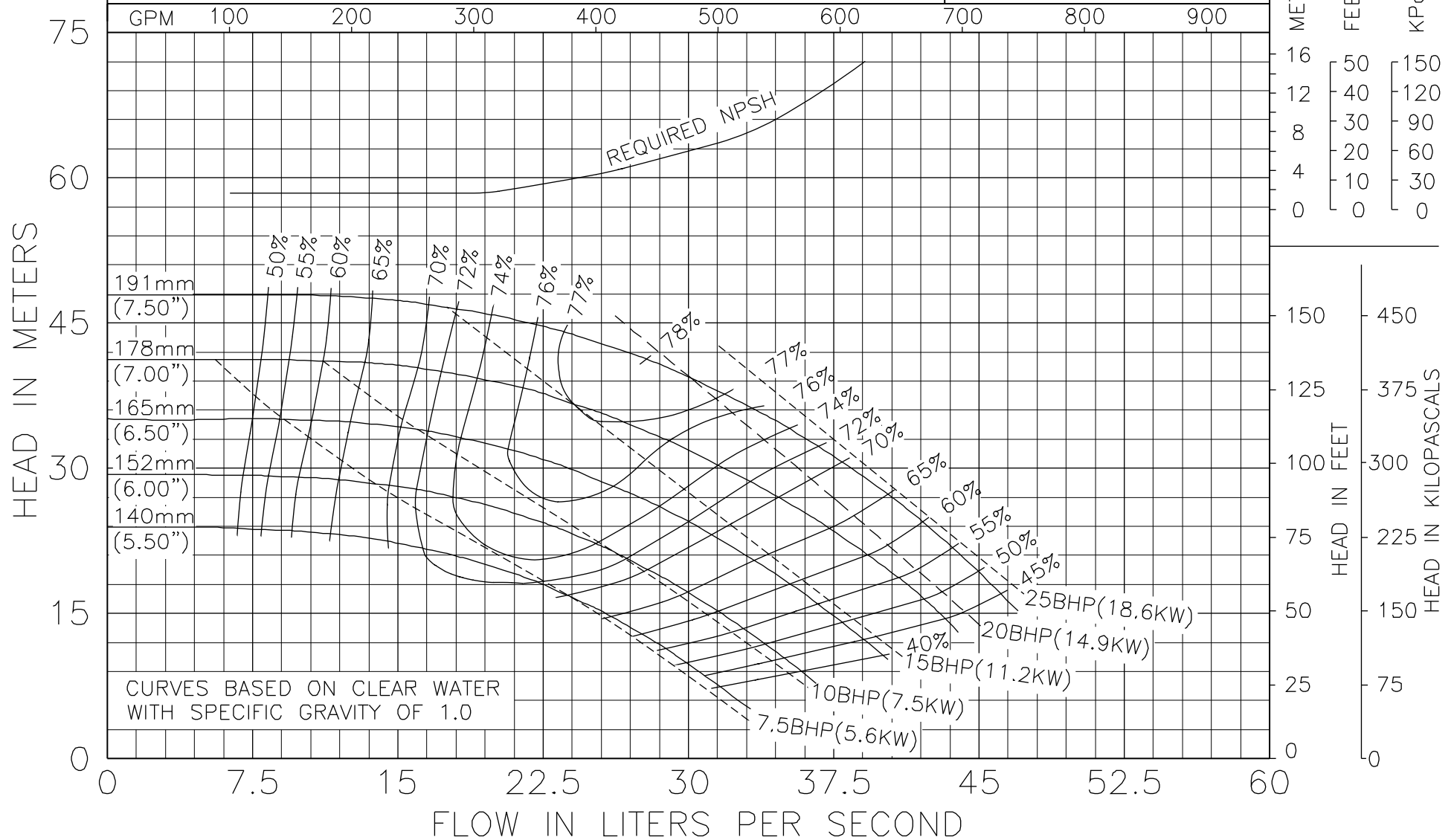




Model 3007
KV & KS Series

2900 RPM
March 1, 2001

Curve no. 1997
Min. Imp. Dia. 140mm/5.50"
Size 3" x 3" x 7"

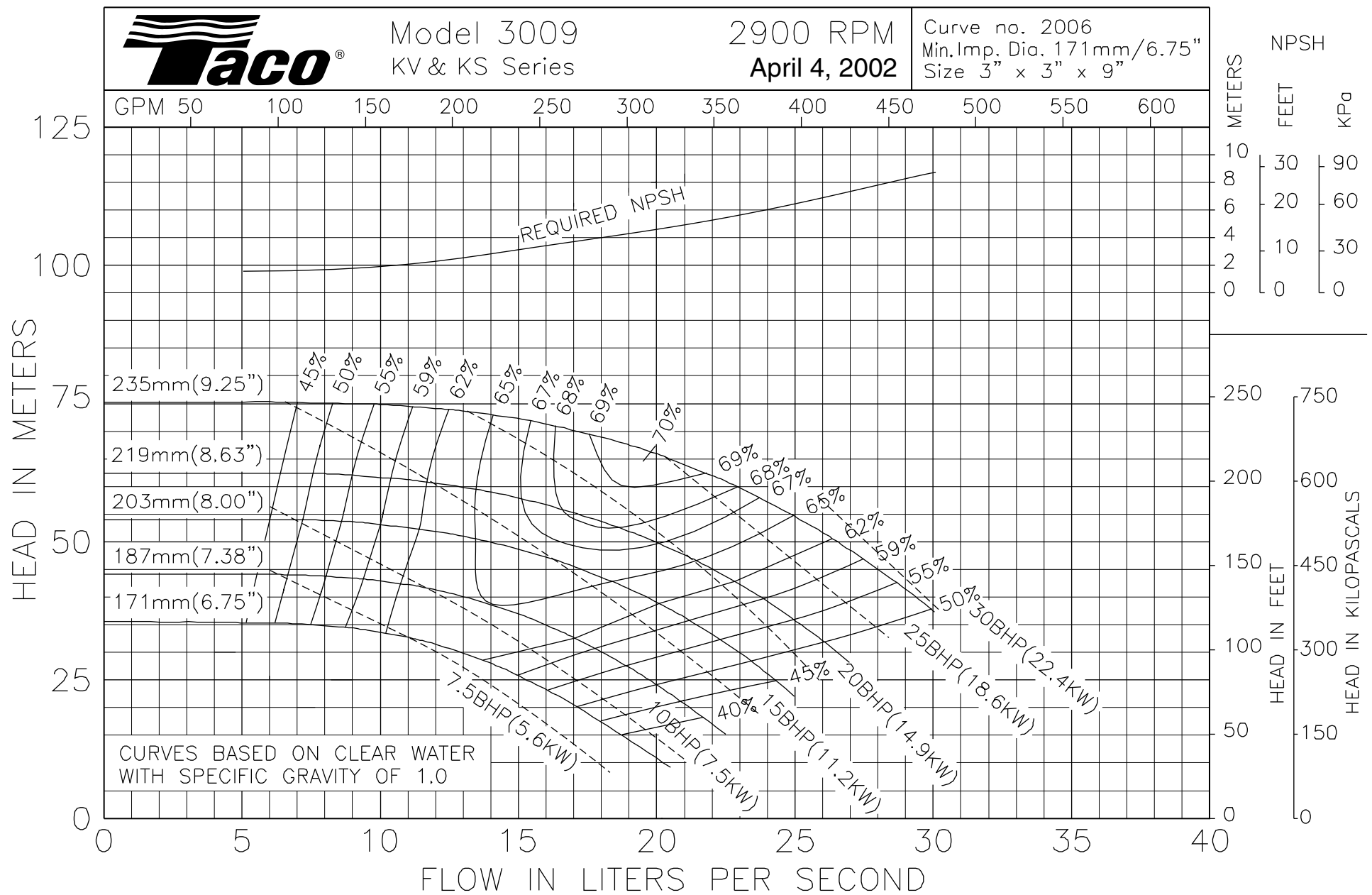




Model 3009
KV & KS Series

2900 RPM
April 4, 2002

Curve no. 2006
Min. Imp. Dia. 171mm/6.75"
Size 3" x 3" x 9"



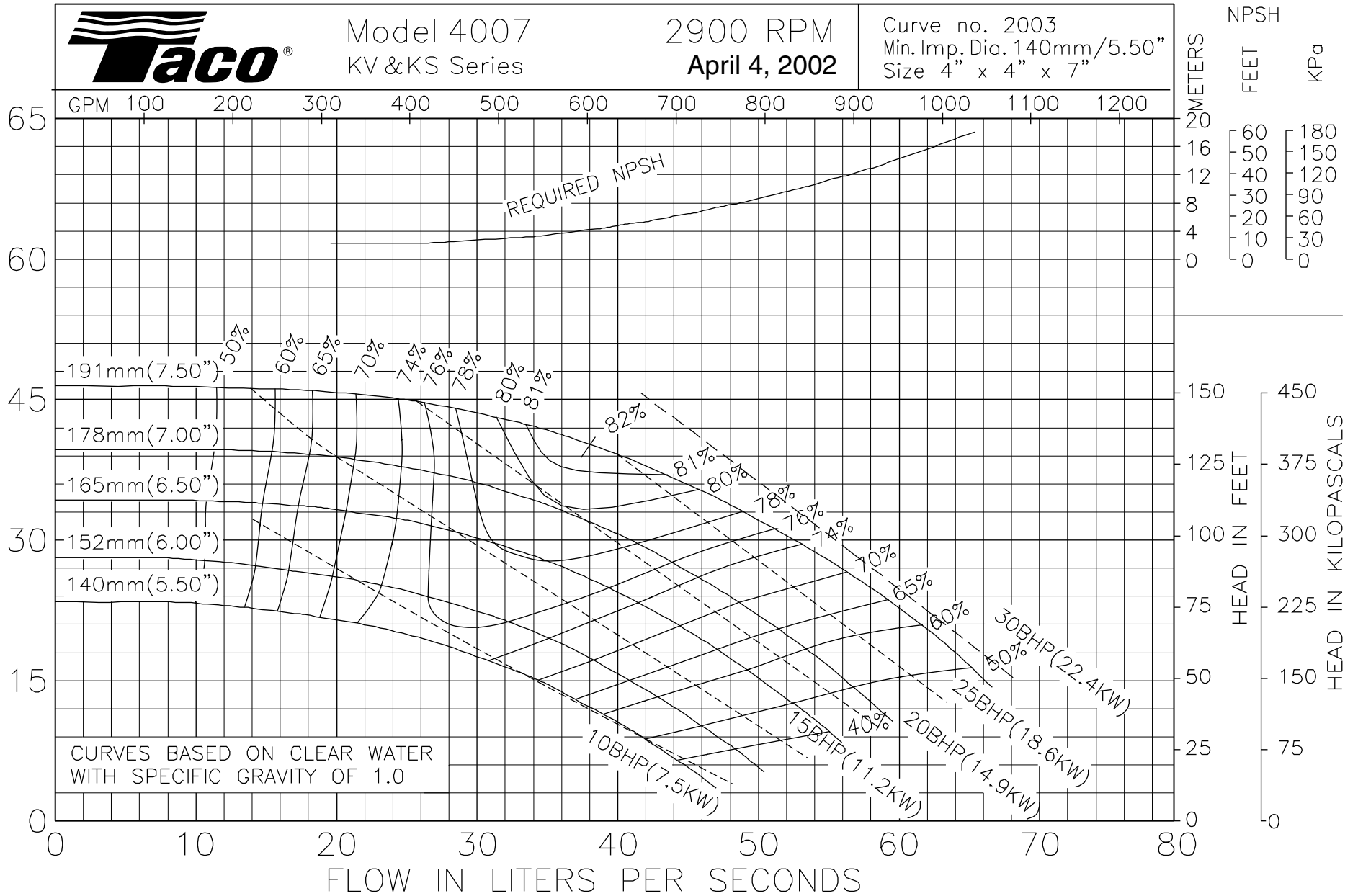


Model 4007
KV & KS Series

2900 RPM
April 4, 2002

Curve no. 2003
Min. Imp. Dia. 140mm/5.50"
Size 4" x 4" x 7"

HEAD IN METERS

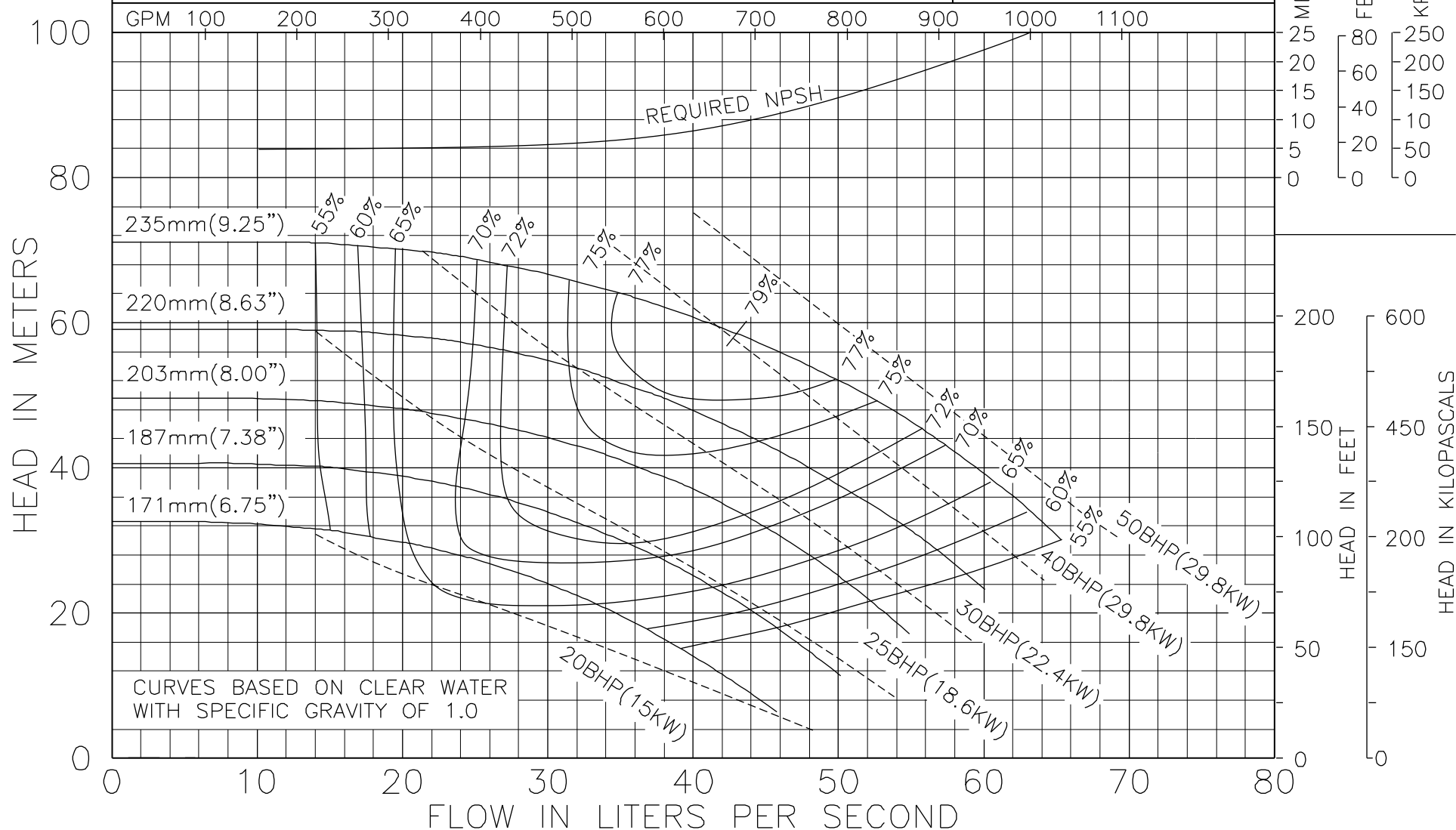




Model 4009
KV & KS Series

2900 RPM
April 4, 2002

Curve no. 2007
Min. Imp. Dia. 171mm/6.75"
Size 4" x 4" x 9"



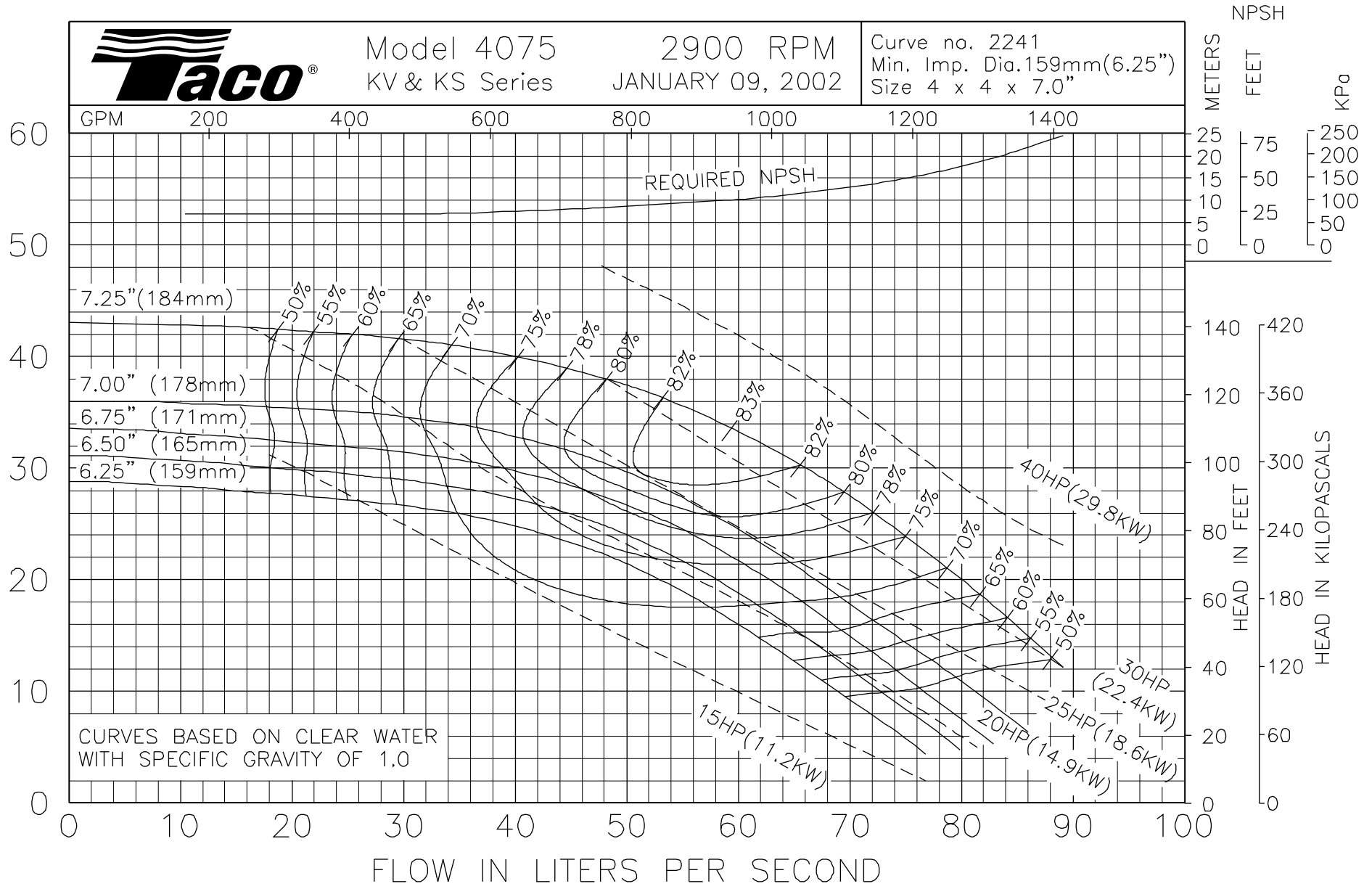


Model 4075
KV & KS Series

2900 RPM
JANUARY 09, 2002

Curve no. 2241
Min. Imp. Dia. 159mm(6.25")
Size 4 x 4 x 7.0"

HEAD IN MEETERS

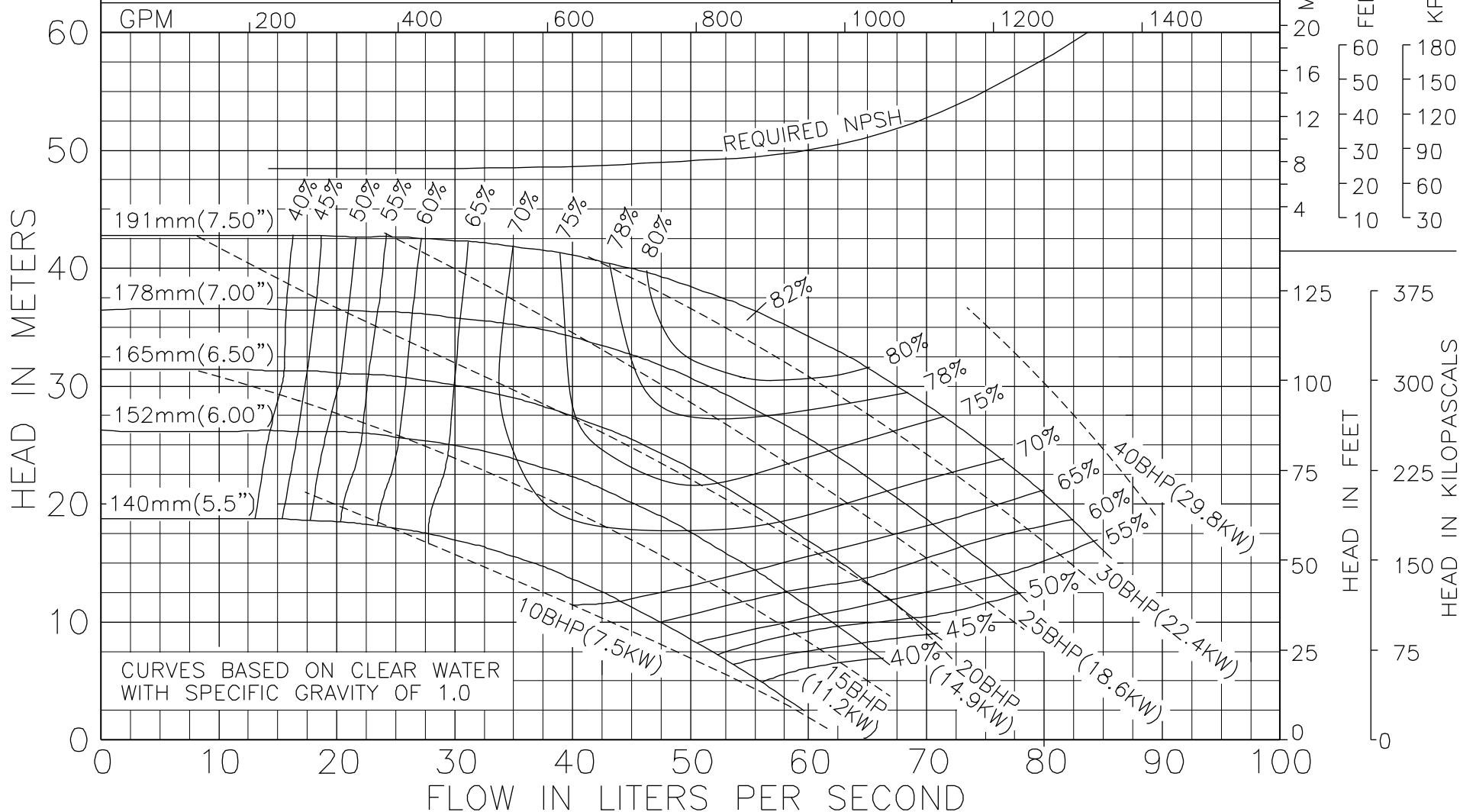




Model 5007
KV & KS Series

2900 RPM
March 1, 2001

Curve no. 2004
Min. Imp. Dia. 140mm/5.50"
Size 5" x 5" x 7"





Model 5075
KV & KS Series

2900 RPM
JANUARY 06, 2003

Curve no. 2246
Min. Imp. Dia. 146mm(5.75")
Size 5 X 5 X 7.0

