



ELECTRIC
SUBMERSIBLE PUMPS
FOR OILFIELD APPLICATIONS
PRODUCT CATALOGUE

CANADIAN OILWELL SYSTEMS COMPANY LTD.

COSCO Pump Company Limited

COSCO ESP, Inc.

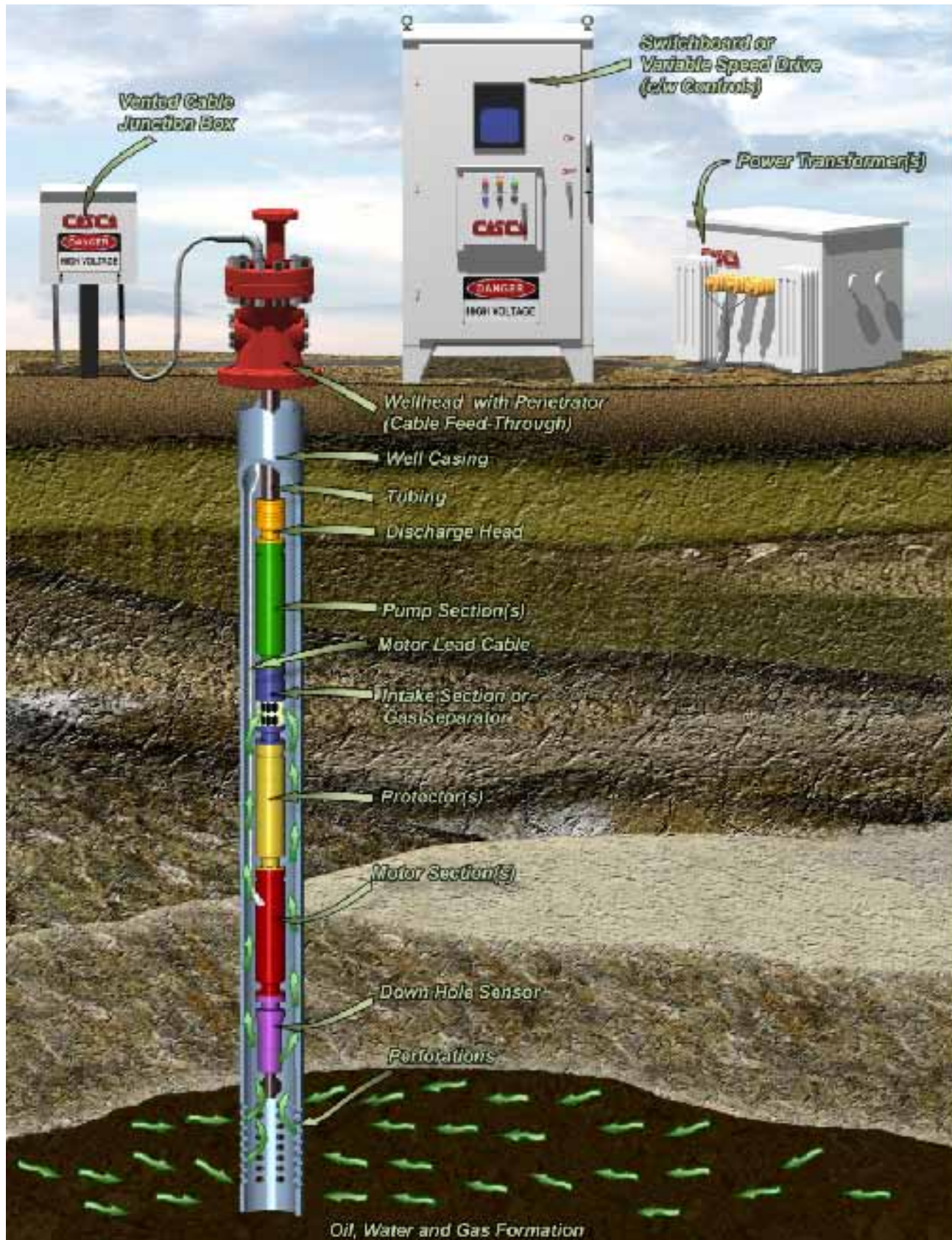
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Typical Oil Well ESP Installation

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Standard Warranty, Terms and Conditions

1. Limited Warranty

Seller warrants that products manufactured by Seller, when properly installed by trained, authorized service representatives, shall be free from defects in material and workmanship. Equipment's supplied but not manufactured by Seller is warranted only to the extent of and by the original manufacturer's warranty. Seller's obligation under this warranty shall be limited to the repair or replacement of the parts or product which prove to be defective at Seller's option within one year from the date of installation or eighteen (18) months from date of shipment. Whichever occurs first, provided that Buyer gives notice and satisfactory proof of any defects as provided herein after ("Warranty Claims"). Warranty claims by the Buyer must be submitted to the Seller or Seller's authorized representative within thirty (30) days following the failure date of the product(s). Any defective part must be returned at Buyer's expense to a location designated by seller. Seller will deliver repaired or replacement parts to Buyer, at Seller's expense, to the original shipment location. The product(s) submitted by Buyer for a warranty claim shall become the property of Seller. This limited warranty does not apply to defects in performance caused by, but not limited to, damage during shipment, operation in hostile environment, corrosive fluids, lightning, improper electrical power supply, improper handling at the well site or misapplication. Seller's obligation under this limited warranty shall not apply to any product which is normally consumed during operations, or which has an expected operating life inherently shorter than the warranty period stated herein. In the event that the products are not installed by trained, authorized representatives, or are altered by the Buyer or any other person without prior written authorization by Seller, all warranties are void.

A new warranty shall not be established for any products repaired or replaced by Seller under the terms of this limited warranty. Any such products shall be warranted only to the extent of the warranty time period on the original products.

The limited warranty described herein is in lieu of all other warranties, whether oral, written, expressed, implied or statutory, implied warranty of fitness and merchantability shall not apply. Seller's warranty obligations and Buyer's remedies there under are solely and exclusively as stated herein.

2. Limitation of Liability

The total liability of Seller, Seller's authorized representatives and subcontractors on any claim, whether sole or concurrent or otherwise, arising out of, in connection with, or resulting from the manufacture, sale, delivery, repair, replacement or any use of the product(s) or service shall not exceed the price allocable to the products or service which gives rise to the claim.

In no event shall Seller, Seller's authorized representatives or subcontractors be held liable for any special, incidental or consequential damages, including but not limited to, damages for loss of revenue, cost of capital, losses or other expenses arising from installation, use or any other caused, regardless of the advice or recommendation that may have been rendered regarding such installation or use of products and services.

3. Payment

Unless otherwise agreed to in writing, payment to Seller for products and services shall be made by a letter of credit. Buyer shall establish such credit at its sole expense. All such Letters of Credit shall be payable to Seller, shall be acceptable to Seller, shall be maintained in sufficient amount and for a sufficient length of time necessary to meet all payment obligations, shall be irrevocable, shall be payable in Canadian Dollars and confirmed by a Bank satisfactory to Seller. Currencies of other nations and confirming Banks of other Nations must be established prior to order placement. Other terms and conditions of payment shall be stated by Seller on invoices rendered at the time of shipment to Buyer, or as otherwise, may be stated in writing by an Officer of the Seller.

Standard Warranty, Terms and Conditions (cont.)

4. Delivery and Shipment

Unless otherwise agreed, Seller shall deliver products and services to Buyer at site designated by Seller. Buyer shall provide Seller with the date and desired method of shipment instructions with reasonable advance notice and must be agreed to by Seller. If any part of the products or services cannot be delivered when ready due to any cause defined in the "Force Majeure" article hereunder, Seller may place such products in storage. In such event, Seller's delivery obligations shall be deemed to be fulfilled and title and all risk of loss or damage shall pass to Buyer.

As a service to Buyer, Seller shall upon Buyer's written request and Seller's written reply, arrange for shipment and packaging of products on the behalf of Buyer. Buyer shall pay Seller on demand for all fees and expenses, including but not limited to, those covering preparation of Consular Documents, freight and insurance. In providing this service to reasonable instructions of Buyer, or in their absence, Seller shall act according to its best judgment. Seller shall be without liability on any claim asserted by the Buyer with respect to such shipment service.

5. Order Cancellation

Buyer may cancel an order at any time prior to the date of shipment by giving written notice to Seller. Buyer shall pay for all materials purchased on its behalf, for all work performed and a cancellation charge. The cancellation charge shall be 10% of the catalog price of the ordered products or services.

6. Title and Risk of Loss

Title and risk of loss will pass to buyer at the time of delivery specified in Article 4.

7. Taxes, Duties and Fees

All prices are exclusively of taxes, duties, fees, charges and other assessments levied by any Governmental authority. Any such taxes, duties, fees, charges or similar assessments paid by Seller will be solely for Buyer, and Buyer agrees to reimburse Seller for any such payments upon submission of Seller's invoice.

8. Governing Law

The Buyer and Seller agree that this agreement shall be construed, interpreted and governed on accordance with the Laws of Canada.

9. Force Majeure

Seller shall not be liable for any delay or failure to deliver products or services to Buyer or a failure to perform duties hereunder where such failure is the result of a condition beyond Seller's control including, but not limited to, an Act of God, Government Actions, Trade Sanctions, War, Fire, Flood, Labour strike or other such dispute.

10. Claims

No claims or allowances will be allowed for damaged or missing products after the products have been placed in transit by the Seller.

11. General

All prices are subject to change without notice. All prices in Seller's quotation(s) expire thirty (30) days from the date of issue and may be withdrawn by Seller at any time prior to acceptance of Buyer's order, unless otherwise stated in writing on the quotation.

International Field Service

Conditions:

- All field service work performed by COSCO personnel is subject to COSCO terms and conditions of sale.
- The normal COSCO work day is 12 hours per day or 72 hours per week. Overtime rates will be charged on all hours beyond these time boundaries.
- Day rate charges begin when COSCO personnel leave the COSCO base, and continues until COSCO personnel return to COSCO base. Customer shall pay all costs of transportation and living costs incurred by COSCO personnel.
- COSCO personnel will be allowed a two day break for each 14 days of work at the Customers location. Customer will not be billed for travel and living expenses of COSCO personnel while on break; a maximum of four (4) break days will be billed to the Customer in a given 30 day time period.
- COSCO will pay its personnel salaries, benefits and required insurance. COSCO will also pay the cost of obtaining passports, visas and similar expenses necessary for legal travel to the Customers location.

Electric Submersible Pump Design Sheet

Well Data

Company: _____ Field and Well: _____
Prepared By: _____ Date: _____
New Install Yes / No Install Date: _____
Casing Size: _____ OD _____ lbs/ft Liner Size: _____ OD _____ lbs/ft
Tubing Size: _____ lbs/ft Liner: Bottom: _____ Top: _____
Perforations: from _____ to _____ Open Hole- from _____ to _____
Existing Installation Model / Size: _____
Producing Information: _____
Electric Service: _____ amps _____ volts _____ hertz

Current Conditions

Static Bottom Hole Pressure: _____ PSIG at _____ /ft
Flowing Bottom Hole Pressure: _____ PSIG at _____ /ft
Present Production: _____
Productivity Index: _____ (Stock Tank BPD or M³PD)
Bottom Hole Temperature: _____ (°F OR °C)
Well Head Temperature _____ (°F OR °C)
Gas - Oil Ratio (GOR): _____ SCF / BBL
Formation Volume Factor: _____ (Reservoir BBL / Stock Tank BBL)
API Gravity: _____
Production – Oil: _____ (BBD or m³PD)
Production – Water: _____ (BBD or m³PD)
Production – Gas: _____ (1000ft³PD or m³PD)
Producing Wellhead Pressure: _____ PSIG

Reservoir Data

Water Specific Gravity: _____
Original Reservoir GOR: _____
Original Reservoir Pressure: _____ PSI @ feet / metres
Oil Viscosity: _____ @ _____ (°F OR °C)
Gas Specific Gravity: _____
Bubble Point Pressure: _____
Original Reservoir Temperature: _____ (°F OR °C)

Electric Submersible Pump Design Sheet

PVT Data

Test	Pressure (PSIA)	OIL FVF (RB/STB)	Gas FVF (RB/SMCF)	Oil Viscosity (CP/SSU)	Solution GOR (SCF/STB)
1					
2					
3					
4					
5					

Other Problems

- Sand Paraffin
 Corrosion (Type & Cause) _____ H2S
 Injected Chemicals Scale
 Other Problems _____

Equipment Design Specifications

- Desired Pump Setting Depth: _____ m / ft. Measured Pump Setting Depth: _____ m / ft.
Desired Producing Rate: _____ bbl / day Producing Fluid Level: _____ m / ft.
Operating Pump Intake Pressure: _____ PSI
Wellhead Pressure: _____ PSI (Tubing) _____ PSI (Casing)
Free Gas at Pump Intake Pressure:
Casing Vent: Atmosphere Flowline None

Additional Comments

Power and Efficiency Formulas

Power Calculations:

$$\begin{aligned} \text{Pump Output H.P. (Hydraulic H.P.)} &= \frac{\text{GPM} \times \text{HEAD} \times \text{SG}}{3960} && \text{or} && \frac{\text{BPD} \times \text{HEAD} \times \text{SG}}{136000} \\ \text{Pump Input H.P. (Brake H.P.)} &= \frac{\text{HP}_{\text{Pump Output}}}{\text{EFF}_{\text{Pump}}} \\ \text{Motor Output H.P. (Brake H.P.)} &= \frac{V_{\text{Motor}} \times I_{\text{Motor}} \times \text{PF} \times \text{EFF}_{\text{Motor}}}{746} \end{aligned}$$

Three Phase Motor:

$$\begin{aligned} \text{Motor Output H.P. (Brake H.P.)} &= \frac{1.732 \times V_{\text{Motor}} \times I_{\text{Motor}} \times \text{PF} \times \text{EFF}_{\text{Motor}}}{746} \\ \text{Motor Input HP} &= \frac{\text{HP}_{\text{Motor Output}}}{\text{EFF}_{\text{Motor}}} \\ \text{Motor Input kW} &= \text{HP}_{\text{Motor Input}} \times 0.746 && \text{or} && \frac{1.732 \times V_{\text{Motor}} \times I_{\text{Motor}} \times \text{PF}}{1000} \\ \text{Motor Input kVA} &= \frac{\text{HP}_{\text{Motor Input}}}{\text{PF}} && \text{or} && \frac{1.732 \times V_{\text{Motor}} \times I_{\text{Motor}}}{1000} \\ \text{Surface Power kVA} &= \frac{1.732 \times (V_{\text{Motor}} + V_{\text{Cable Drop}}) \times I}{1000} \end{aligned}$$

Efficiency:

$$\begin{aligned} \text{Motor EFF} &= \frac{\text{HP}_{\text{Motor Output}}}{1.341 \times \text{kW}_{\text{Motor Input}}} \\ \text{Pump EFF} &= \frac{\text{GPM} \times \text{HEAD} \times \text{SG} \times 746}{3960 \times V_{\text{Motor}} \times I_{\text{Motor}} \times \text{PF} \times \text{EFF}_{\text{Motor}} \times 1.732} \end{aligned}$$

where:

BPD	=	Flow rate expressed in barrels per day
EFF	=	Efficiency expressed as decimal (i.e. 95% = 0.95)
GPM	=	Flow rate expressed in United States gallons per minute
HEAD	=	Head expressed in feet
HP	=	Horsepower
kVA	=	Kilovolt - Ampere
kW	=	Kilowatts
PF	=	Power Factor (Always less than 1 for inductive loads)
SG	=	Specific gravity of the fluid (Water=1.0 kg/litre)

Power and Efficiency Formulas (cont.)

Pump Affinity Laws Due to Speed Changes:

Flow rate is directly proportional to speed:

$$Q_2/Q_1 = N_2/N_1$$

Head is proportional to the square of the speed ratio:

$$H_2/H_1 = (N_2/N_1)^2$$

Power is proportional to the cube of the speed ratio:

$$P_2/P_1 = (N_2/N_1)^3$$

Where:

Q= Flow Rate

N=Speed in RPM or Hertz

H=Head

P=Horsepower

Pump Shaft Loading Due to Speed Changes:

Shaft power loading is directly proportional to speed:

$$SHP_2/SHP_1 = N_2/N_1$$

Where:

SHP= Shaft Horsepower Rating

N=Speed in RPM or Hertz

Head Conversion Calculations:

$$\begin{array}{lcl} 1\text{PSI} = 2.31 \text{ feet HEAD S.G.} & = & 2.31 \text{ feet HEAD S.G} \\ 1 \text{ foot HEAD} & = & 0.433 \text{ PSI} \times \text{S.G.} \end{array}$$

Common Conversion Factors

Given	Multiply by:	To Obtain
acre feet	7758	Barrels
acres	0.4047	Hectares
acres	43560	feet ²
atmospheres	1.00323	kg/cm ²
atmospheres	14.696	PSI
barrels	5.614	feet ³
barrels	0.15898	m ³
barrels	42	gallons
Bpd	0.159	m ³ Pd
Bpd/Psi	0.0231	m ³ pd/Kpa
barrels	0.15625	metric tons
Bars	14.503	PSI
Celsius	(⁰ Cx9/5)+32	Fahrenheit
cm	0.03281	feet
cm	0.3937	inches
cm	0.01094	yards
cm ³	0.06102	inches ³
cm ³	0.03381	fluid ounces
feet ³	0.02832	m ³
feet ³	7.48	gallons
feet ³	28.316	litres
feet ³ /Min	0.4719	litres / sec
feet ³ /Min	0.02832	m ³ /min
feet ³ /Water	62.366	pounds
inches ³	16.387	cm ³
inches ³	0.01639	litres
m ³	6.289	Barrels
m ³	35.315	feet ³
m ³	1.308	yards ³
m ³	264.2	gallons
m ³ /hr	4.4028	GPM
Fahrenheit	(⁰ F-32)5/9	Centigrade
feet	30.48	cm
feet	0.3048	m
feet of water	0.0295	Atmospheres
gallons	0.02381	Barrels
gallons	0.00379	m ³
gallons	231	inches ³
gallons	3.785	litres
GPM	34.296	Bpd
GPM	227.1	litres / Hour
GPM	0.0609	litres / Sec
Imp. gallons	1.201	gallons Us
gallon of water	8.337	pounds
grams	0.0353	ounces

Given	Multiply by:	To Obtain
grams / cm ³	0.036	pounds/inch ³
grams / cm ²	98.07	PSI
horsepower	0.746	kilowatts
inches	2.54	cm
inches	0.025	m
kg	35.27	ounces
kg	2.205	pounds
kg/m ³	0.062	pounds/ft ³
kg/cm ²	14.22	PSI
km	0.621	miles
kilowatts	1.341	horsepower
lbs/ft	1.49	kg/m
litres	0.264	gallons
litres	0.035	feet ³
litres	61.03	inches ³
liters/Hour	0.004	GPM
litres /Sec.	15.85	GPM
litres /Sec.	2.119	ft ³ /Min
metres	3.281	feet
metres	39.37	inches
metres	1.094	yards
miles	1.609	km
millimetres	0.039	inches
pounds	0.454	kg
PSI	6.895	kilopascals
Scf/Barrel	0.177	M ³ /M ³
cm ²	0.155	inches ²
feet ²	0.093	metres ²
inches ²	6.452	cm ²
inches ²	645.2	mm ²
kilometres ²	0.386	miles ²
metres ²	10.76	feet ²
metres ²	1.196	yards ²
miles ²	640	acres
mm ²	0.002	inches ²
yards ²	0.836	m ²
tons	2000	pounds
tons	907.2	kg
tons	0.907	tonnes Metric
tonne - metric	2205	pounds
tonne - metric	0.984	ton imperial
Watts	0.001	horsepower
yards	0.914	m ²
yards	91.44	cm

API Tubular Data

API Regular Casing Size and OD (inches)	Thread	Weight (lbs/ft)	OD (inches)	ID (inches)	Drift (inches)	Coupling OD (inches)
4 1/2	8 rd	9.5	4.500	4.090	3.965	5.000
		10.5	4.500	4.052	3.927	5.000
		11.6	4.500	4.000	3.875	5.000
5 1/2	8 rd	15.5	5.500	4.950	7.825	6.050
		17.0	5.500	4.892	4.767	6.050
		20.0	5.500	4.778	4.653	6.050
6 5/8	8 rd	17.0	6.625	5.136	6.010	7.390
		24.0	6.625	5.921	5.796	7.390
7	8 rd	20.0	7.000	6.456	6.331	7.656
		23.0	7.000	6.366	6.241	7.656
		26.0	7.000	6.276	6.151	7.656
8 5/8	8 rd	28.0	8.625	8.017	7.892	9.625
		36.0	8.625	7.825	7.700	9.625
9 5/8	8 rd	36.0	9.625	8.921	8.765	10.625
		40.0	9.625	8.835	8.679	10.625
10 3/4	8 rd	40.5	10.750	10.050	9.894	11.750
		55.5	10.750	9.760	9.604	11.750
13 3/8	8 rd	48.0	13.375	12.715	12.559	14.375
		68.0	13.375	12.415	12.259	14.375

API Line Pipe Normal Size						
1 1/4"	11 1/2rd	2.3	1.660	1.380		2.054
1 1/2"	11 1/2rd	2.8	1.900	1.610		2.200
2"	11 1/2rd	3.8	2.375	2.067		2.875
2 1/2"	8rd	7.7	3.500	3.068		4.000
3"	8rd	11.7	4.500	4.026		5.200
3 1/2"	8rd	19.5	6.625	6.065		7.390
4"	8rd	25.6	8.625	8.071		9.625

API Tubing (EUE)						
1 1/2"	10rd	2.9	1.900	1.610	1.516	2.500
2"	8rd	4.7	2.375	1.995	1.901	3.063
2 1/2"	8rd	6.5	2.875	2.441	2.347	3.668
3"	8rd	9.3	3.500	2.992	2.867	4.500
3 1/2"	8rd	11.0	4.000	3.476	3.351	5.000
4"	8rd	12.8	4.500	3.958	3.833	5.563

API Tubing (EUE)						
1 1/2"	10rd	2.8	1.900	1.610	1.516	2.200
2"	10rd	4.0	2.375	2.041	1.947	2.875
2 1/2"	10rd	6.4	2.875	2.441	2.347	3.500
3"	10rd	7.7	3.500	3.068	2.943	4.250
3 1/2"	8rd	9.5	4.000	3.548	3.423	4.750

Electrical Terms for the Submersible Pump Industry

Alternating Current (AC) - an electrical current that reverses its direction at recurring intervals

Amp - abbreviation for *ampere* which is the measure of electrical flow

Armored Cable (BX) - metal sheathed flexible cable or down hole 3 phase submersible cable

Arrestor (surge) - stops or prevents a surge of electricity (such as from lightning) from harming down hole equipment

Circuit - the pathway an electrical current travels to and from the main source

Circuit Breaker - a device/switch which regulates the circuit's amp capacity - if the predetermined amperage is exceeded, this *opens* the circuit (remember, the circuit is a closed 'loop')

CODE - Implemented to ensure electrical safety measures. Canadian Electric Code (CEC), National Electric Code (NEC)

Conductor - material through which electricity flows; for the most part wire; cable (3 conductor)

Conduit - tube, pipe, or passageway that is used to house electrical wires

Continuity - uninterrupted electrical path, the complete flow along a circuit (power source to fixture and back)

CSA - Canadian Standards Association

Current - electrical flow through conductors measured in Ampere's

Current Transformer (CT) - The current ratio of a CT is utilized to reduce the high motor current to an 0-5 Amp typical motor controller current measuring input

Cycle - sequence of complete alternation (negative and positive) of a current

Direct Current (DC) - electrical current that flows in only one way

Dielectric Tests - tests conducted at a much higher rate than rated nameplate voltage to assure insulation quality

Disconnect - a device through which the conductors of a circuit are disconnected from their source

Frequency - the number of complete cycles per unit of time for a periodic quantity such as alternating current

Fuse - tube filled with combustible matter, metal band melts when circuit current exceeds its capacity

Gauge - refers to the thickness of wire or the *AWG (American Wire Gauge)*; also applies to bands and sheet metal.

Ground - an electrical conductor connected to the ground/earth

Harmonic - a sinusoidal component of an AC voltage that is a multiple of fundamental wave form frequency

Hertz (Hz) - unit of frequency, one Hz equals one cycle per second

Hot - 'live' wire that always carries a current (unless interrupted) as opposed to the neutral or ground

Hi Pot - an electrical test where voltage is applied at a higher rate to assure insulated valve and that an electrical breakdown does not occur

Junction Box (J-Box) - a box in which wires are joined together from the wellhead to the main power source (vents gas that might migrate from the down hole cable)

Knockout - something found on an outlet box, switch-box, or J-box, which needs to be 'knocked out' to accommodate wires

MegOHM - 1,000,000 OHMS

Megger - an electrical test where voltage is applied to test insulative values of the equipment

Neutral - paired with hot wires returns the current back to origin to complete circuit

OHM - unit of resistance

Open Circuit - circuit with a physical interruption like a switch, disconnection, burnt fuse, etc.

Raceway - electrical wires and/or cables in a specified space

Receptacle - electrical plug

Short Circuit - bad connection between wires

Splice - making a connection or repair assuring electrical and mechanical properties to down hole submersible cable

Stranded Wire - conductor wire made of several thinner strands of wire, twisted and braided together

Switch - device used to continue, disrupt, or redirect a circuit

Switchboard - a contained group of switches, relays, circuit breakers, etc. used to control distribution of power to other distribution equipment and larger loads

Switch Gear - see switchboard

Terminal - *screw type*: the wire is screwed to the device
push-in type: a stripped wire can be pushed into the acceptor

Transformer - a device that converts voltages

Volt - electrical pressure unit

Voltage - sufficient pressure to cause electrical current to flow

Watt - a measure of electrical power

VSD - Variable Speed Drive. A controller which allows you to vary the speed of the motor through modulations and applied frequency.

Transformer Troubleshooting

Condition	Possible Cause	Suggested Remedy
Hot Transformer	High ambient temperature	Improve ventilation or Re-locate to cooler location.
	Overload	Reduce load; reduce amperes by improving power factor with capacitors; check for circulating currents for paralleled transformers –different ratios or impedances; check for open phase in delta bank.
	High voltage	Change circuit voltage, taps.
	Insufficient cooling	If other than naturally cooled, check fans, pumps, valves, and other units in cooling systems.
	Winding failure – incipient fault	See “No Voltage – Unsteady Voltage.”
	Short-circuited core	Test for exciting current and no-load loss; if high, inspect core, remove and repair; check core bolts, clamps and tighten; check insulation between laminations; if welded together, return to factory for repair or replacement.
Noisy Transformer	Overload	See “Hot Transformer” above.
	Metal part ungrounded, loose connection	Determine part and reason; check clamps, core and other parts normally grounded for loose or broken connections, bolt fallen out, nuts vibrated off, bolts, etc.; tighten loose clamps, bolts, nuts; replace missing parts.
	External parts and accessories in resonant vibration	Tighten items as above; in some cases, loosen to relieve pressure causing resonance and install shims.
	Incipient fault – core or winding	See “Hot Transformer” above.
Bushing Flashover	Lightning	Check lightning protection; arresters, connections, lugs, and grounding.
	Dirty bushings	Clean porcelains; check source of dirt.
Broken Bushing or Parts	Strains on terminal connections	Flexible connections inserted between terminals and cables or busses to remove strain from bushing.
No Voltage – Unsteady Voltage	Winding failure – lightning; overload; short circuit from foreign object or low strength dielectric	Check winding, remove foreign object or damaged material: repair or replace parts of insulation materials.
Rust and Paint Deterioration	Weather, polluted, corrosive or salt atmosphere ; overloads Excessive heating discoloration	Remove rust and deteriorated paint; clean surfaces. Repaint with proper paints and sufficient coatings.
Hot Neutral Line	Overload	Too small neutral conductor: replace; severe unbalance between phases: rebalance and equalize loads.
	One leg of wye bank open	Check associated fuse; if blown, remove cause and replace; check for open circuit in winding or transformer in bank. Measure odd harmonic activity amps with RMS meter.

Maximum Fuse Ratings

Maximum Fuse Ratings with a Step Down Transformer Application:

Motor Type	Time Delay "D" Max Fuse Rating	Non-Time Delay Max Fuse Rating	Max Setting Time Limit Type Circuit Breaker
<i>(Percent of Full-Load Current)</i>			
AC Single-Phase			
Squirrel-Cage and Synchronous:	175	300	250
Full Voltage, Resistor and Reactor Starting	175	300	250
Auto-Transformer Starting <30A	175	250	200
Auto-Transformer Starting >30A	175	200	200
Wound Rotor	150	150	150
Direct Current	150	150	150

Maximum Fuse Ratings as a Percentage with a Step Up Transformer Application:

Over-current protection for power and distribution transformers rated 750 V or less, other than dry type transformers shall be protected by an individual over-current device on the primary side, rated or set at not more than 150% of the rated primary current (surface amperage requirement).

Cable Conductor Sizes

AWG	mm ²
30	0.05
28	0.08
26	0.14
24	0.25
22	0.34
21	0.38
20	0.50
18	0.75
17	1.00
16	1.50
14	2.50
12	4
10	6
8	10

AWG	mm ²
6	16
4	25
2	35
1	50
2/0	70
3/0	95
4/0	120
300 MCM	150
350 MCM	185
500 MCM	240
600 MCM	300
750 MCM	400
1000 MCM	500

This cross reference list shows equivalent nominal values. Actual cross sections may vary. The AWG values are approximate. If the cables are made to European Standards (mm²) and vice versa. In critical applications, where the current reaches upper limits, the deviating operation conditions for installation and laying according to standards are to be taken into consideration.

COSCO 338 Series Pumps

338 Series Pumps Summary List

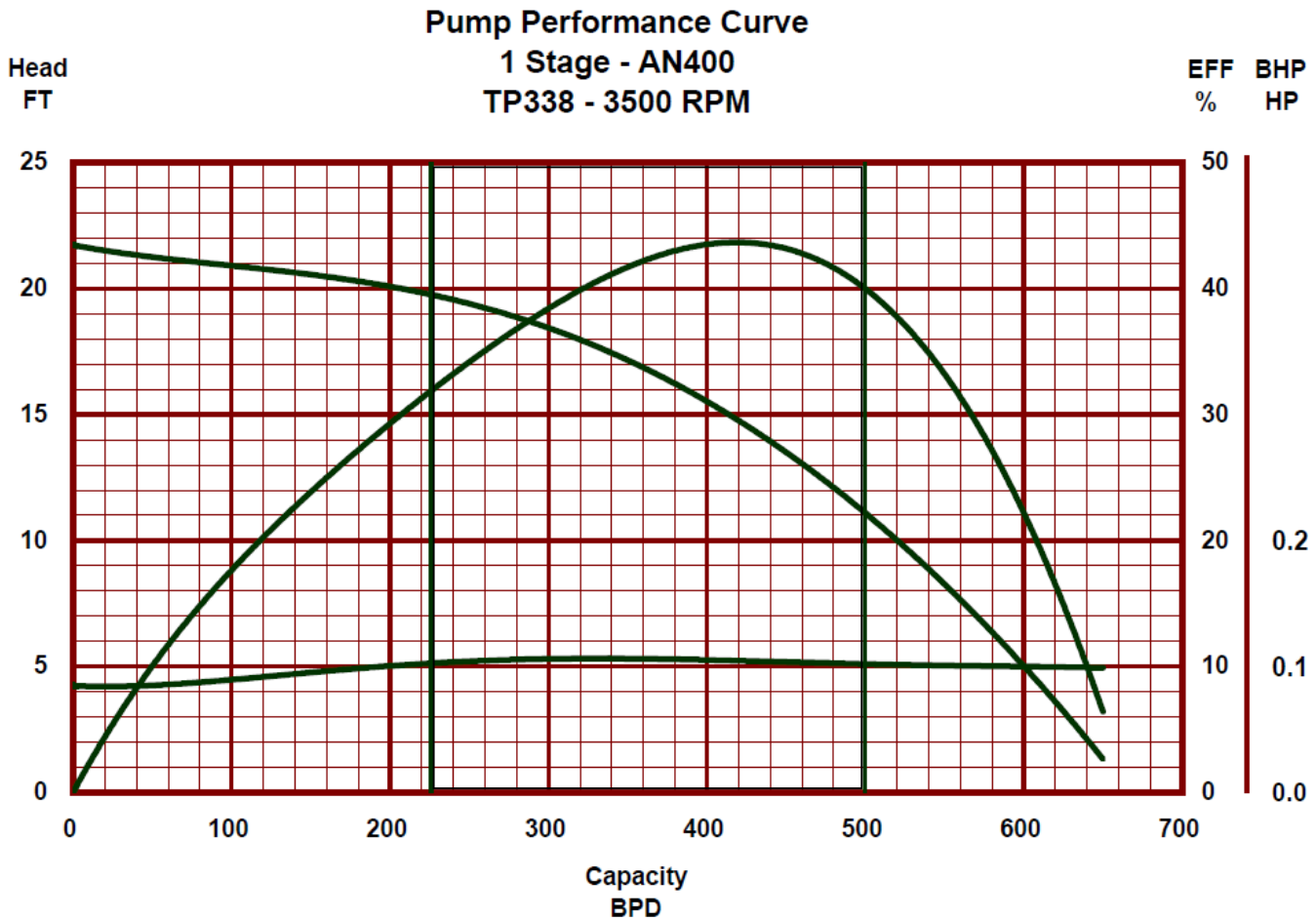
- Housing Diameter 3.375" (85.73 mm)
- Minimum Casing Size 4 1/2" Nominal O. D.

Pump Model	Shaft Dia. (in.)	Horsepower Shaft Limit		Flow Capacity Recommended Range			
		50 Hz.	60 Hz.	50 Hz. BPD	50 Hz. m ³ /PD	60 Hz. BPD	60 Hz. m ³ /PD
AN-400		78	94	189-415	30-66	226-500	36-79
AN-550	0.625	78	94	333-547	53-87	400-660	64-105
AN-900	0.625	78	94	585-818	93-130	700-980	111-156
AN-1200	0.625	78	94	667-1321	106-210	800-1580	127-251
AN-1500	0.688	104	125	837-1573	133-250	1000-1880	159-299
AN-2500	0.688	104	125	1497-2,579	238-410	1800-3100	286-493

Note: See the specific 50Hz or 60Hz performance curves for head capacity, pump efficiency and horsepower motor load.

Bolt on Discharge Head, Gas Separator, Intake and GasPro Intake Pump information are located at the back of the Pump Section.

COSCO 338 Series Pumps



This engineering performance curve represents nominal performance based on actual multi-stage testing and certification. All pumps supplied by COSCO will be tested and certified to perform within the acceptable limits for head, horsepower, and efficiency as defined in the "API RECOMMENDED PRACTICE(11S2) FOR ELECTRIC SUBMERSIBLE PUMP TESTING".

ENGINEERING DATA				
Housing Diameter		3.38 inches		
Minimum Casing Size		4 1/2 Inch		
Fluid Specific Gravity for Pump Curves		1.0		
Rotational Direction		CCW		
Shaft Details				
Shaft Diameter	5/8	0.625	Inches	
Shaft Area	0.307		Sq. Inches	
Shaft Limits				
Shaft Limit in HP at:		50 Hz	60 Hz	
Standard Shaft Limit		78	94	
High Strength (HSS)		125	150	
Maximum Staging: Shaft				
Shaft Type	No of Stages @			
	50 Hz	60 Hz		
Standard Shaft	1229	854		
HSS	1962	1363		
Housing Pressure Limit		5000 PSI		
Maximum Staging: Thrust Bearings (250F BHT)				
Bearing Type	No of Stages @			
	50 Hz	60 Hz		
Standard Bearing	434	361		
Hi Load Bearing	1328	1036		

COSCO 338 Series Pumps

AN400 / 338 Series Pump

>>Minimum Casing Size 4 1/2 Inches

Maximum Bottom Hole Temperature: 250 F

STANDARD PUMP

FLOATER		COMPRESSION		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31320001	18	31360001	17	1	2.1	38
31320002	39	31360002	38	2	3.5	64
31320003	60	31360003	59	3	4.9	89
31320004	81	31360004	80	4	6.3	107
31320005	102	31360005	101	5	7.8	142
31320006	123	31360006	122	6	9.1	167
31320007	144	31360007	143	7	10.5	194
31320008	166	31360008	165	8	11.9	220
31320009	187	31360009	186	9	13.3	245
31320010	208	31360010	207	10	14.8	272

ABRASION RESISTANT PUMP

FLOATER AR		COMPRESSION AR		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31340001	17	31380001	16	1	2.1	38
31340002	37	31380002	36	2	3.5	64
31340003	56	31380003	55	3	4.9	89
31340004	76	31380004	75	4	6.3	107
31340005	95	31380005	94	5	7.8	142
31340006	115	31380006	114	6	9.1	167
31340007	134	31380007	133	7	10.5	194
31340008	155	31380008	154	8	11.9	220
31340009	174	31380009	173	9	13.3	245
31340010	194	31380010	193	10	14.8	272

Pump Outside Diameter: 3.38 inches

Standard Features: Carbon Steel Head, Base and Housing. Monel K500 Shaft.

Housing also available in 13 Chrome.

Heads and Bases also available in SST410 or 316L Stainless Steel.

All pumps are in Center Tandem Configuration.

To calculate shipping length, add shipping caps (0.24 feet/cap) to component length.

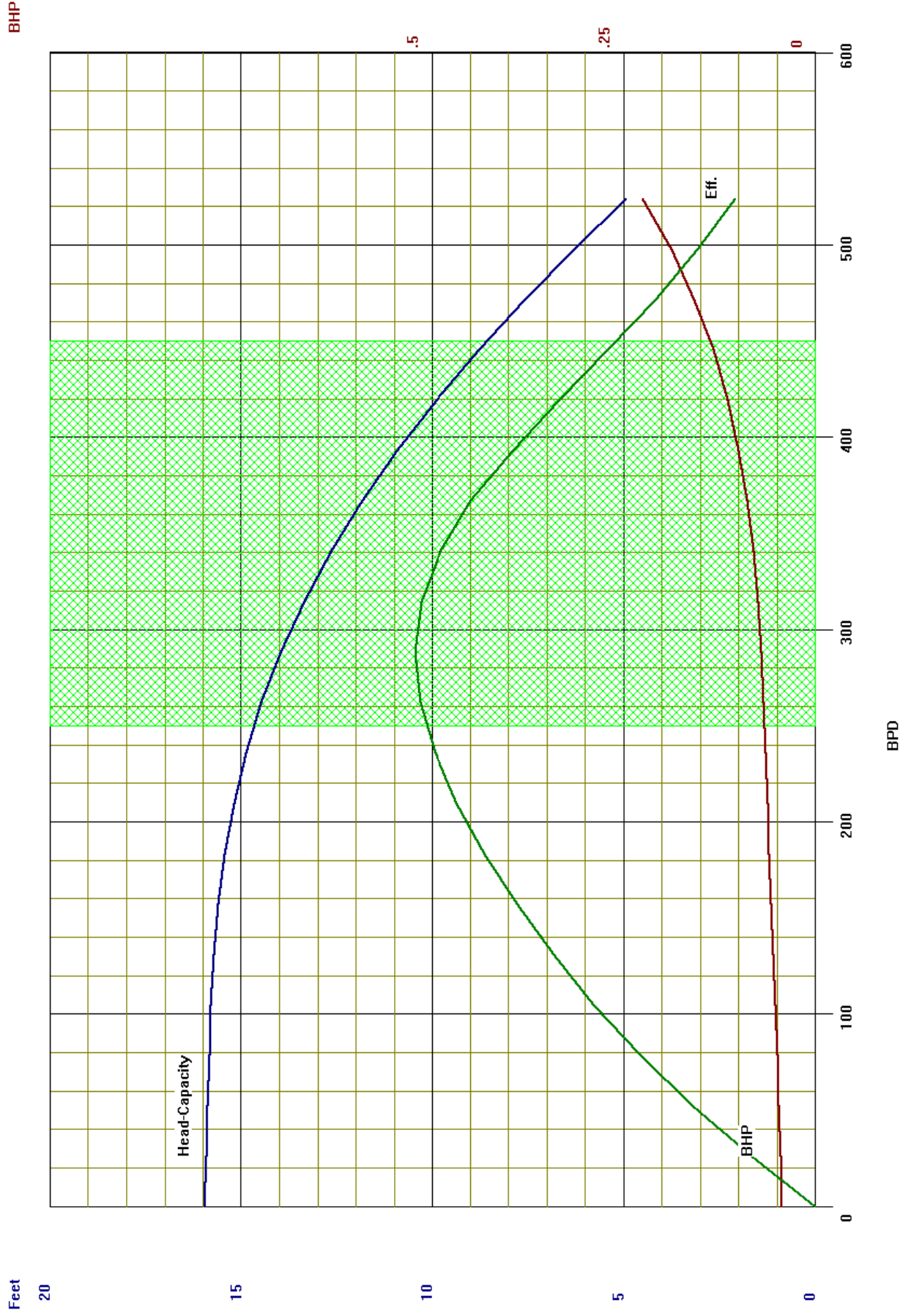


Pump Performance Curve

1 Stage AN-400

TP338 - 2917 RPM

Specific Gravity = 1.0



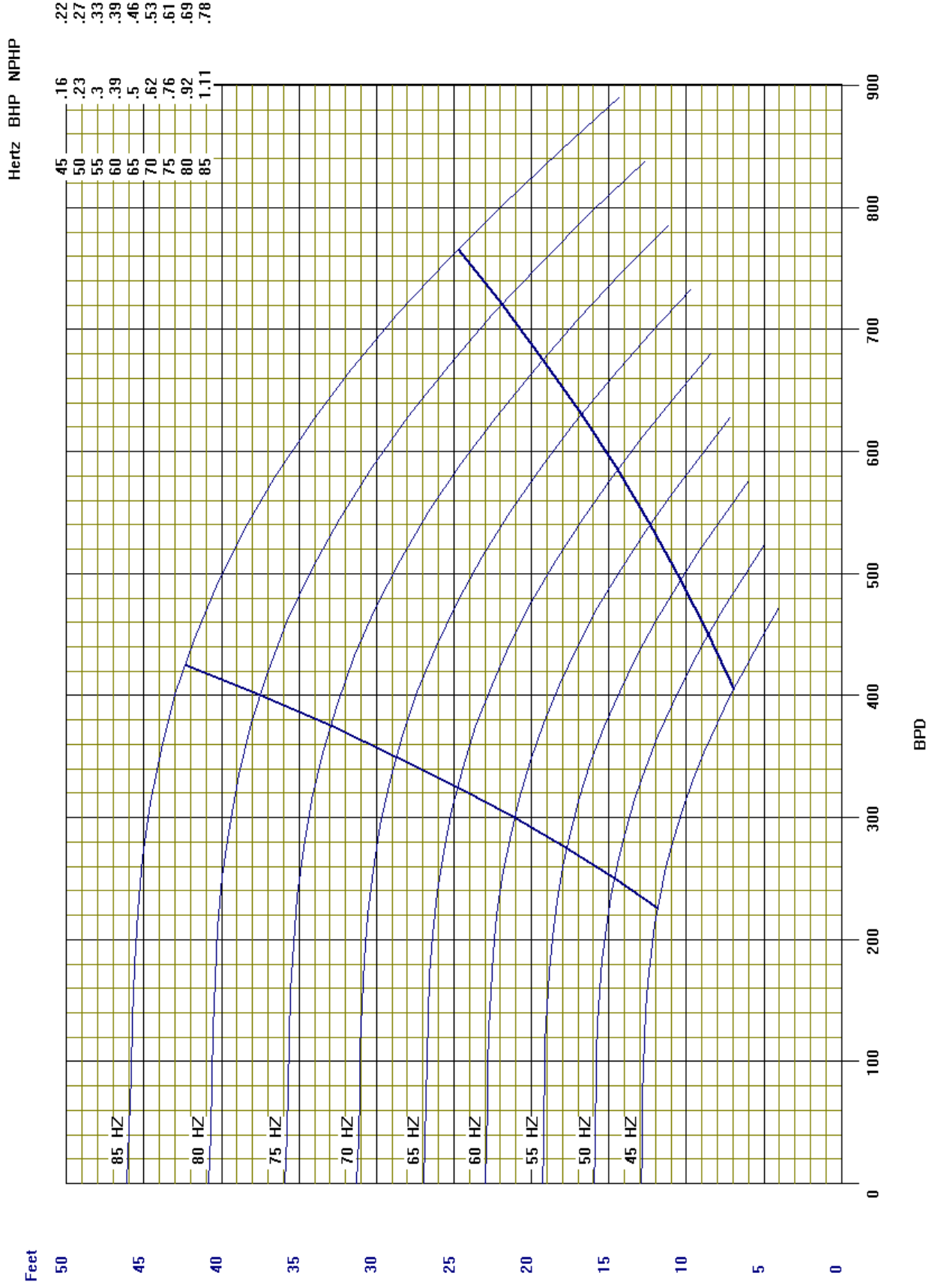


Pump Performance Curve

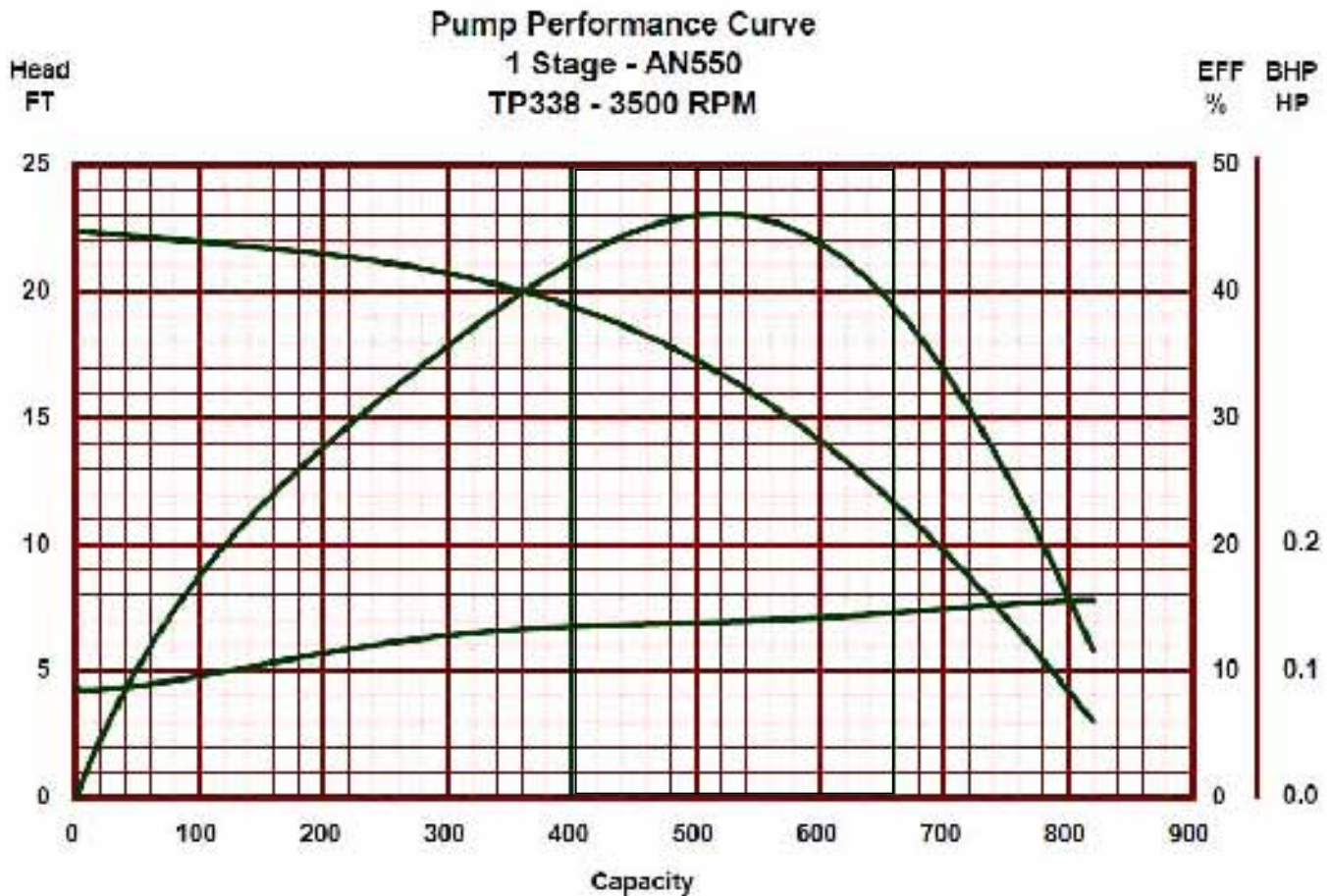
1 Stage AN-400

TP338 - Multi Hz

Specific Gravity = 1.0



COSCO 338 Series Pumps



This engineering performance curve represents nominal performance based on actual multi-stage testing and certification. All pumps supplied by COSCO will be tested and certified to perform within the acceptable limits for head, horsepower, and efficiency as defined in the "API RECOMMENDED PRACTICE(11S2) FOR ELECTRIC SUBMERSIBLE PUMP TESTING".

ENGINEERING DATA				
Housing Diameter		3.38 inches		
Minimum Casing Size		4 1/2 Inch		
Fluid Specific Gravity for Pump Curves		1.0		
Rotational Direction		CCW		
Shaft Details				
Shaft Diameter	5/8	0.625	Inches	
Shaft Area	0.3068		Sq. Inches	
Shaft Limits				
Shaft Limit in HP at:		50 Hz	60 Hz	
Standard Shaft Limit		78	94	
High Strength (HSS)		125	150	
Maximum Staging: Shaft				
Shaft Type	No of Stages @			
	50 Hz	60 Hz		
Standard Shaft	855	594		
HSS	1366	949		
Housing Pressure Limit			5000 PSI	
Maximum Staging: Thrust Bearings (250F BHT)				
Bearing Type	No of Stages @			
	50 Hz	60 Hz		
Standard Bearing	422	351		
Hi Load Bearing	1291	1007		

COSCO 338 Series Pumps

AN550 / 338 Series Pump

>>Minimum Casing Size 4 1/2 Inches

Maximum Bottom Hole Temperature: 250 F

STANDARD PUMP

FLOATER		COMPRESSION		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31320016	16	31360016	15	1	2.1	38
31320017	35	31360017	34	2	3.5	64
31320018	54	31360018	53	3	4.9	89
31320019	74	31360019	73	4	6.3	107
31320020	93	31360020	92	5	7.8	142
31320021	112	31360021	111	6	9.1	167
31320022	132	31360022	131	7	10.5	194
31320023	151	31360023	150	8	11.9	220
31320024	170	31360024	169	9	13.3	245
31320025	190	31360025	189	10	14.8	272

ABRASION RESISTANT PUMP

FLOATER AR		COMPRESSION AR		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31340016	15	31380016	14	1	2.1	38
31340017	33	31380017	32	2	3.5	64
31340018	50	31380018	49	3	4.9	89
31340019	69	31380019	68	4	6.3	107
31340020	86	31380020	85	5	7.8	142
31340021	104	31380021	103	6	9.1	167
31340022	122	31380022	121	7	10.5	194
31340023	140	31380023	139	8	11.9	220
31340024	157	31380024	156	9	13.3	245
31340025	176	31380025	175	10	14.8	272

Pump Outside Diameter: 3.38 inches

Standard Features: Carbon Steel Head, Base and Housing. Monel K500 Shaft.

Housing also available in 13 Chrome.

Heads and Bases also available in SST410 or 316L Stainless Steel.

All pumps are in Center Tandem Configuration.

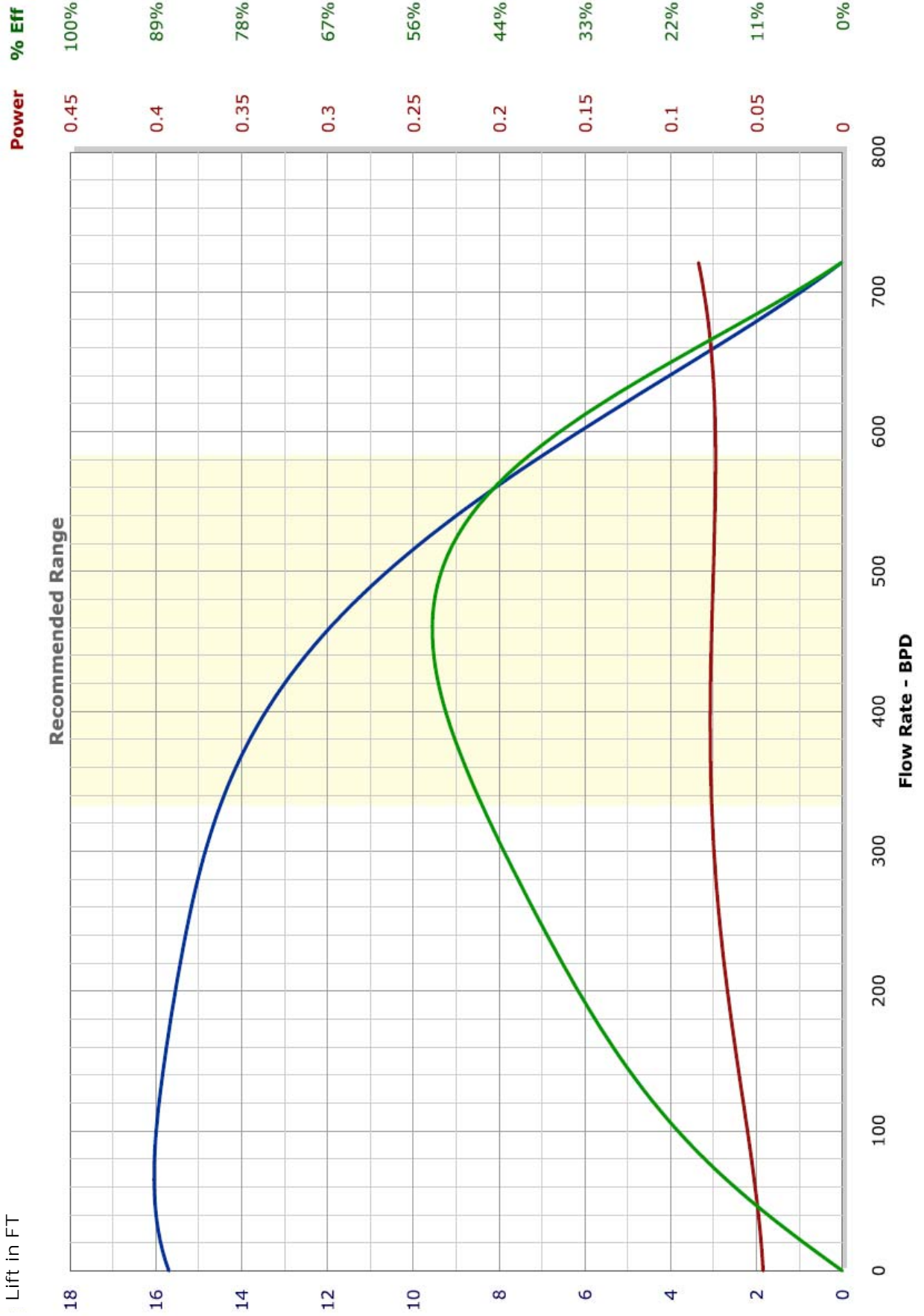
To calculate shipping length, add shipping caps (0.24 feet/cap) to component length.



Pump Performance Curve

1 Stage AN-550
TP338 - 2917 RPM

Specific Gravity = 1.0



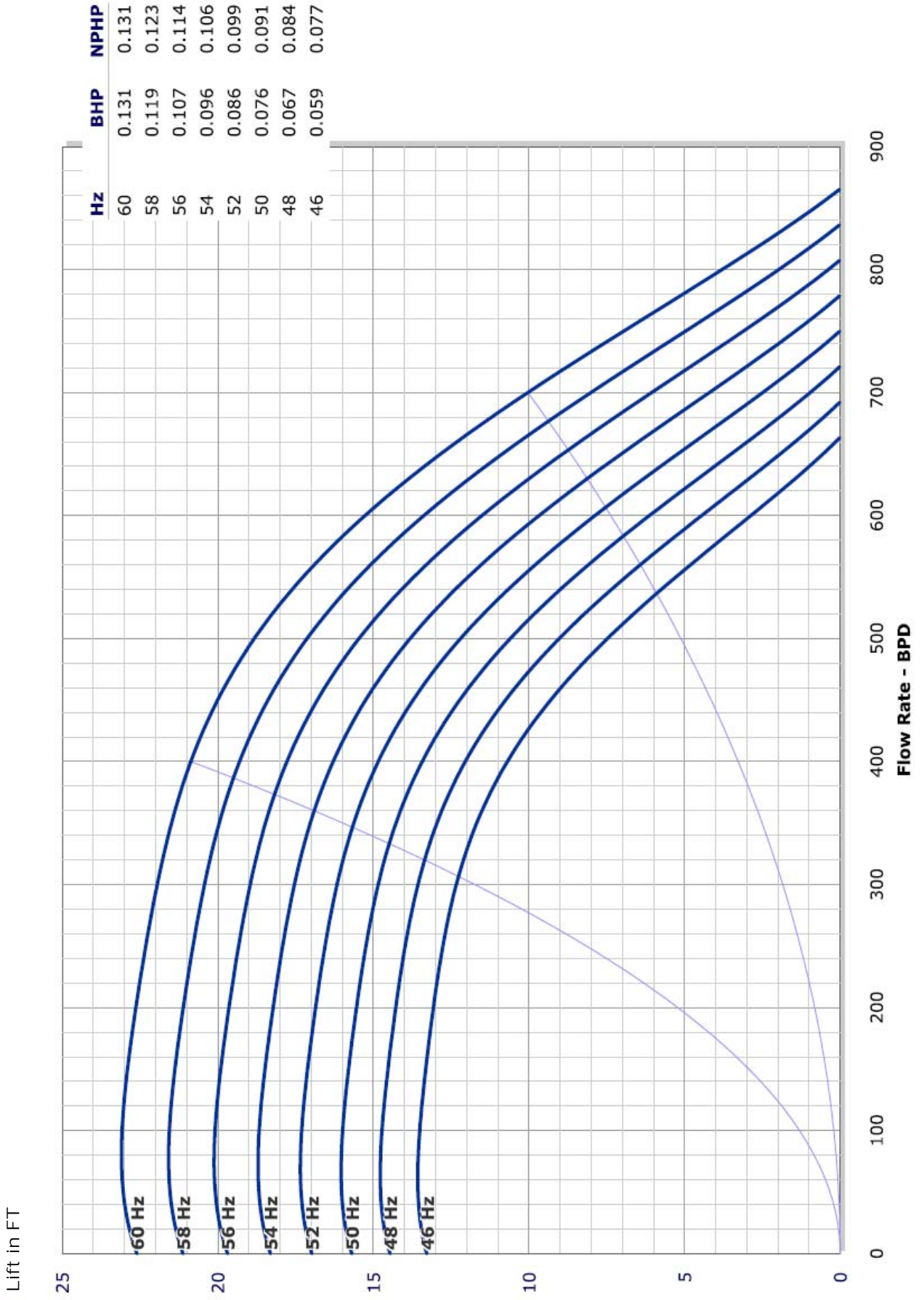


Pump Performance Curve

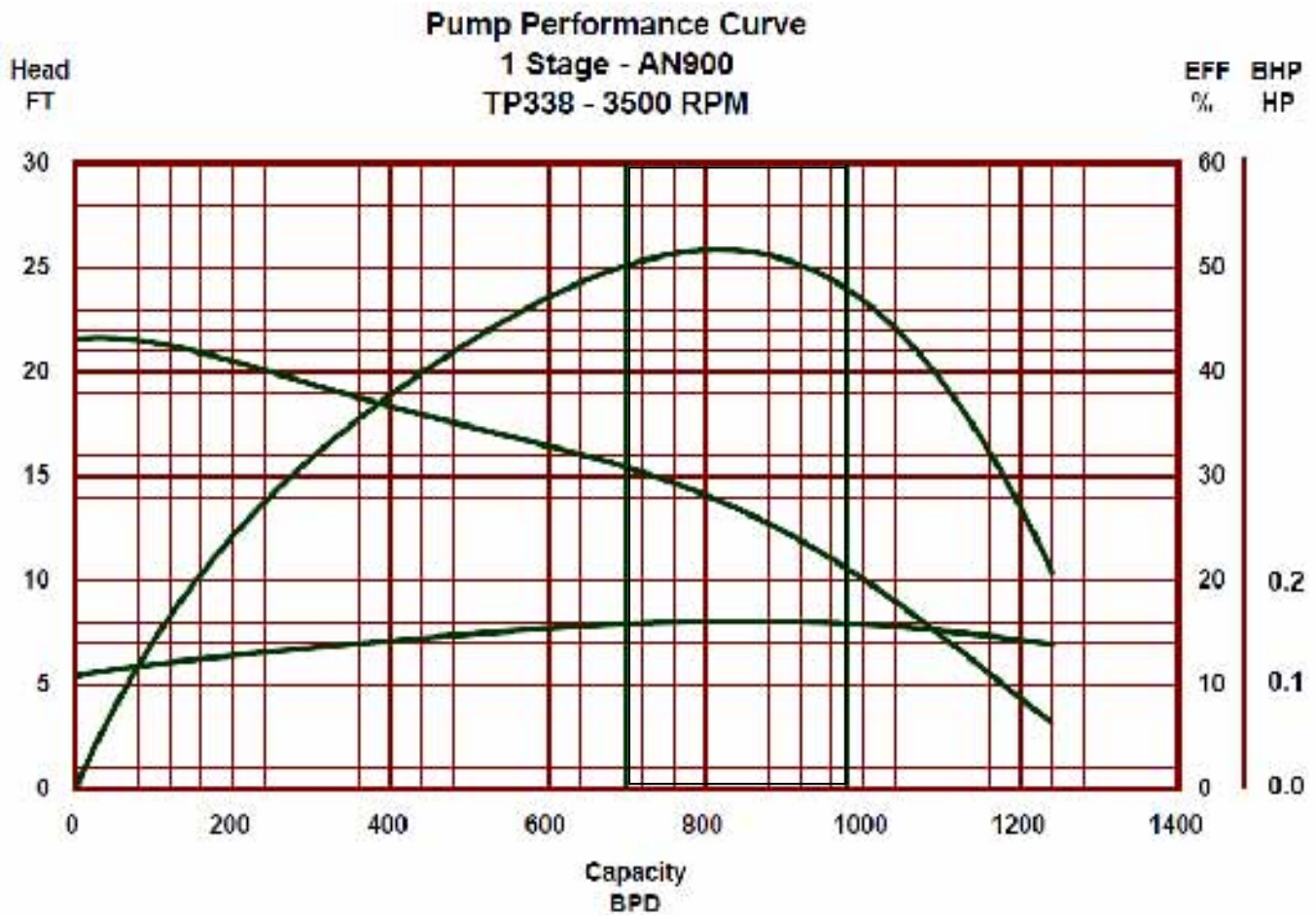
1 Stage AN-550

TP338 - Multi Hz

Specific Gravity = 1.0



COSCO 338 Series Pumps



This engineering performance curve represents nominal performance based on actual multi-stage testing and certification. All pumps supplied by COSCO will be tested and certified to perform within the acceptable limits for head, horsepower, and efficiency as defined in the “API RECOMMENDED PRACTICE(11S2) FOR ELECTRIC SUBMERSIBLE PUMP TESTING”.

ENGINEERING DATA						
Housing Diameter		3.38 inches		Maximum Staging: Shaft		
Minimum Casing Size		4 1/2 Inch				
Fluid Specific Gravity for Pump Curves		1.0				
Rotational Direction		CCW				
Shaft Details						
Shaft Diameter	5/8	0.625	Inches	Shaft Type	No of Stages @	
Shaft Area		0.3068	Sq. Inches		50 Hz	60 Hz
				Housing Pressure Limit		5000 PSI
Shaft Limits						
Shaft Limit in HP at:		50 Hz	60 Hz	Maximum Staging: Thrust Bearings (250F BHT)		
Standard Shaft Limit		78	94	Bearing Type	No of Stages @	
High Strength (HSS)		125	150		50 Hz	60 Hz
				Standard Bearing	439	365
				Hi Load Bearing	1343	1047

COSCO 338 Series Pumps

AN900 / 338 Series Pump

>>Minimum Casing Size 4 1/2 Inches

Maximum Bottom Hole Temperature: 250 F

STANDARD PUMP

FLOATER		COMPRESSION		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31320031	16	31360031	15	1	2.1	38
31320032	35	31360032	34	2	3.5	64
31320033	54	31360033	53	3	4.9	89
31320034	74	31360034	73	4	6.3	107
31320035	93	31360035	92	5	7.8	142
31320036	112	31360036	111	6	9.1	167
31320037	132	31360037	131	7	10.5	194
31320038	151	31360038	150	8	11.9	220
31320039	170	31360039	169	9	13.3	245
31320040	190	31360040	189	10	14.8	272

ABRASION RESISTANT PUMP

FLOATER AR		COMPRESSION AR		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31340031	15	31380031	14	1	2.1	38
31340032	33	31380032	32	2	3.5	64
31340033	50	31380033	49	3	4.9	89
31340034	69	31380034	68	4	6.3	107
31340035	86	31380035	85	5	7.8	142
31340036	104	31380036	103	6	9.1	167
31340037	122	31380037	121	7	10.5	194
31340038	140	31380038	139	8	11.9	220
31340039	157	31380039	156	9	13.3	245
31340040	176	31380040	175	10	14.8	272

Pump Outside Diameter: 3.38 inches

Standard Features: Carbon Steel Head, Base and Housing. Monel K500 Shaft.

Housing also available in 13 Chrome.

Heads and Bases also available in SST410 or 316L Stainless Steel.

All pumps are in Center Tandem Configuration.

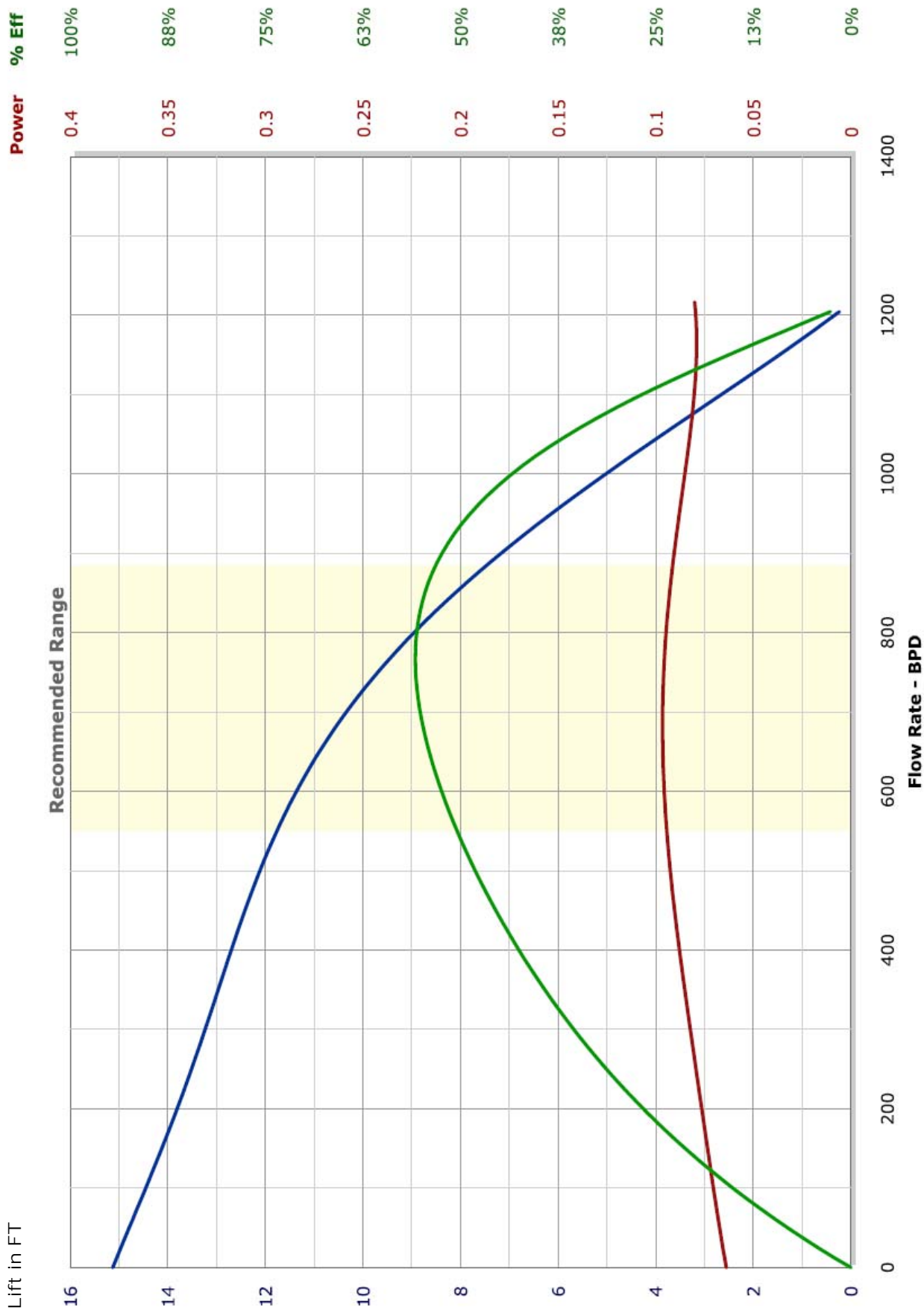
To calculate shipping length, add shipping caps (0.24 feet/cap) to component length.



Pump Performance Curve

1 Stage AN-900
TP338 - 2917 RPM

Specific Gravity = 1.0



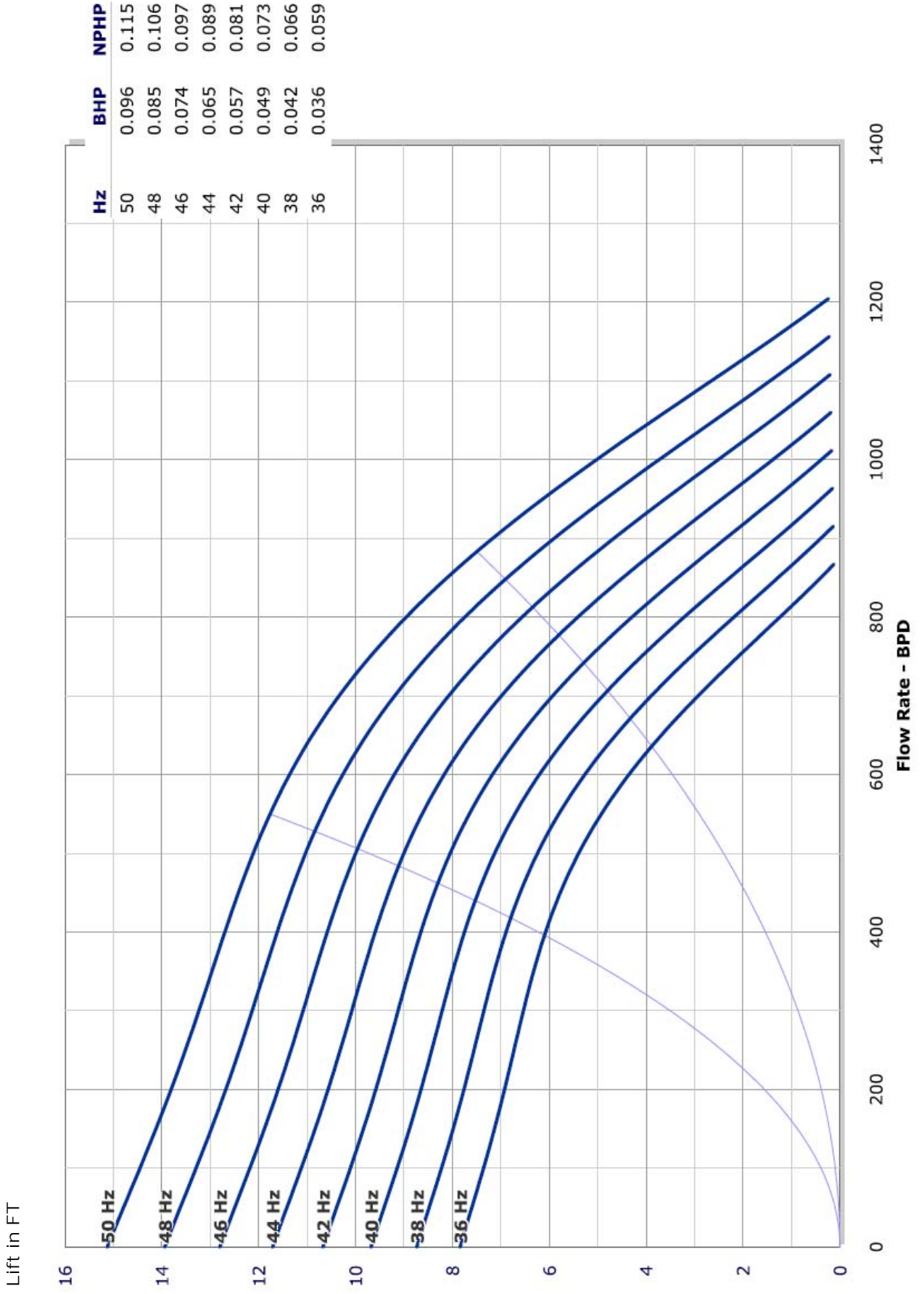


Pump Performance Curve

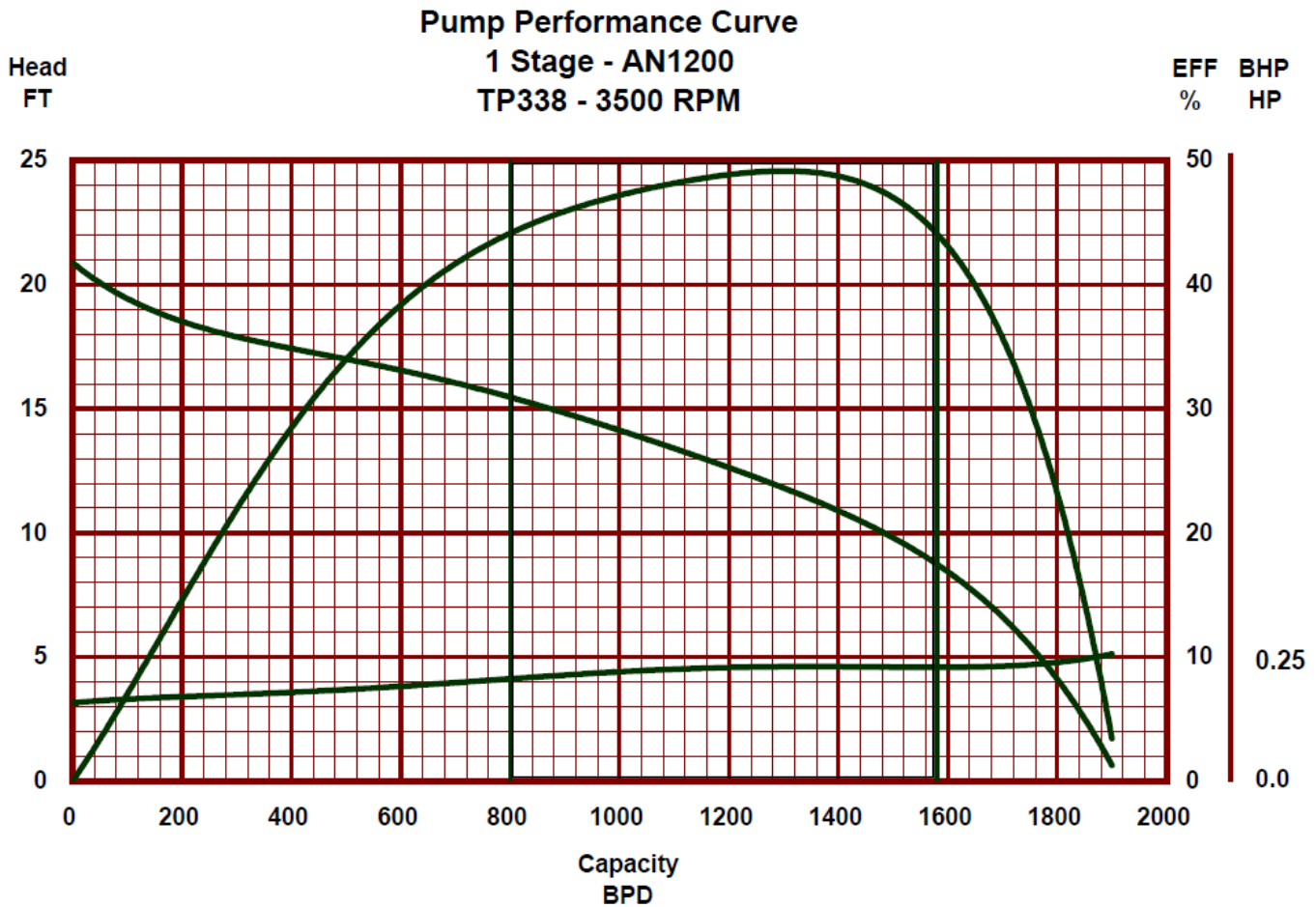
1 Stage AN-900

TP338 - Multi Hz

Specific Gravity = 1.0



COSCO 338 Series Pumps



This engineering performance curve represents nominal performance based on actual multi-stage testing and certification. All pumps supplied by COSCO will be tested and certified to perform within the acceptable limits for head, horsepower, and efficiency as defined in the "API RECOMMENDED PRACTICE(11S2) FOR ELECTRIC SUBMERSIBLE PUMP TESTING".

ENGINEERING DATA				
Housing Diameter		3.38 inches		
Minimum Casing Size		4 1/2 Inch		
Fluid Specific Gravity for Pump Curves		1.0		
Rotational Direction		CCW		
Shaft Details				
Shaft Diameter	5/8	0.625	Inches	
Shaft Area	0.3068		Sq. Inches	
Shaft Limits				
Shaft Limit in HP at:		50 Hz	60 Hz	
Standard Shaft Limit		78	94	
High Strength (HSS)		125	150	
Maximum Staging: Shaft				
Shaft Type	No of Stages @			
	50 Hz		60 Hz	
Standard Shaft	525		365	
HSS	839		583	
Housing Pressure Limit			5000 PSI	
Maximum Staging: Thrust Bearings (250F BHT)				
Bearing Type	No of Stages @			
	50 Hz		60 Hz	
Standard Bearing	447		372	
Hi Load Bearing	1367		1067	

COSCO 338 Series Pumps

AN1200 / 338 Series Pump

>>Minimum Casing Size 4 1/2 Inches

Maximum Bottom Hole Temperature: 250 F

STANDARD PUMP

FLOATER		COMPRESSION		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31320046	13	31360046	12	1	2.1	38
31320047	27	31360047	26	2	3.5	64
31320048	45	31360048	44	3	4.9	89
31320049	61	31360049	60	4	6.3	107
31320050	77	31360050	76	5	7.8	142
31320051	93	31360051	92	6	9.1	167
31320052	108	31360052	107	7	10.5	194
31320053	124	31360053	123	8	11.9	220
31320054	140	31360054	139	9	13.3	245
31320055	156	31360055	155	10	14.8	272

ABRASION RESISTANT PUMP

FLOATER AR		COMPRESSION AR		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31340046	12	31380046	11	1	2.1	38
31340047	25	31380047	24	2	3.5	64
31340048	41	31380048	40	3	4.9	89
31340049	56	31380049	55	4	6.3	107
31340050	70	31380050	69	5	7.8	142
31340051	85	31380051	84	6	9.1	167
31340052	98	31380052	97	7	10.5	194
31340053	113	31380053	112	8	11.9	220
31340054	127	31380054	126	9	13.3	245
31340055	142	31380055	141	10	14.8	272

Pump Outside Diameter: 3.38 inches

Standard Features: Carbon Steel Head, Base and Housing. Monel K500 Shaft.

Housing also available in 13 Chrome.

Heads and Bases also available in SST410 or 316L Stainless Steel.

All pumps are in Center Tandem Configuration.

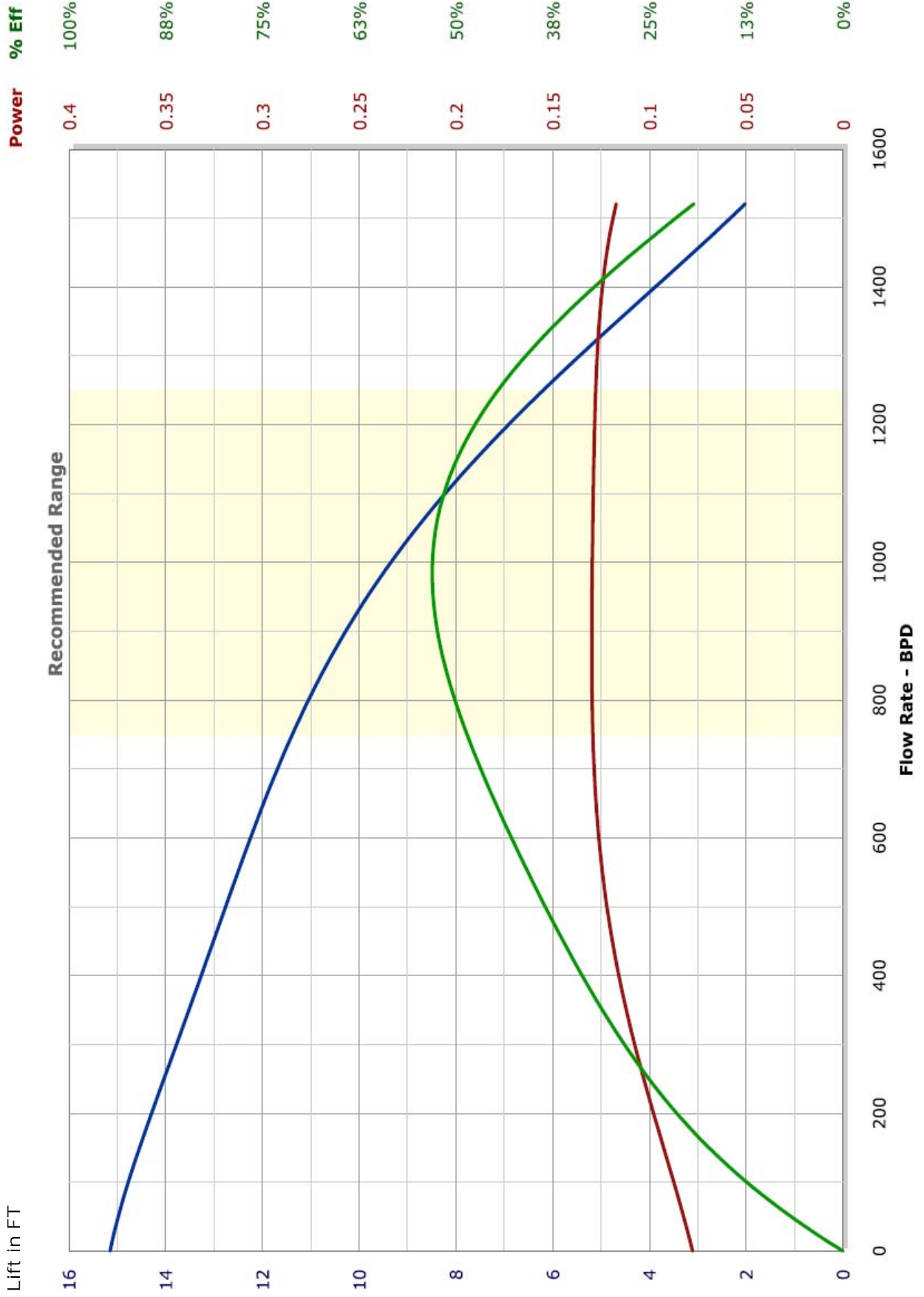
To calculate shipping length, add shipping caps (0.24 feet/cap) to component length.



Pump Performance Curve

1 Stage AN-1200
TP338 - 2917 RPM

Specific Gravity = 1.0





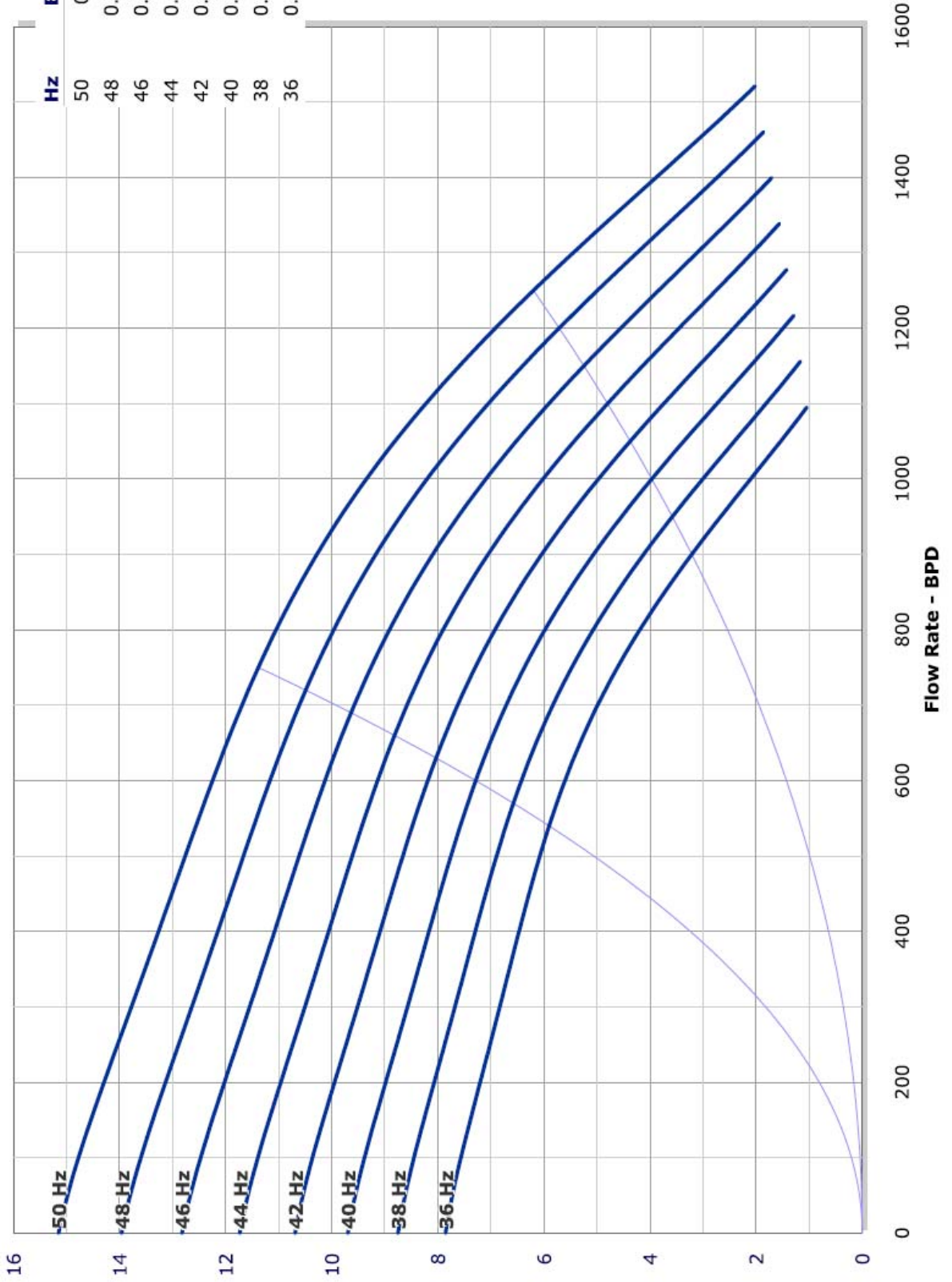
Pump Performance Curve

1 Stage AN-1200

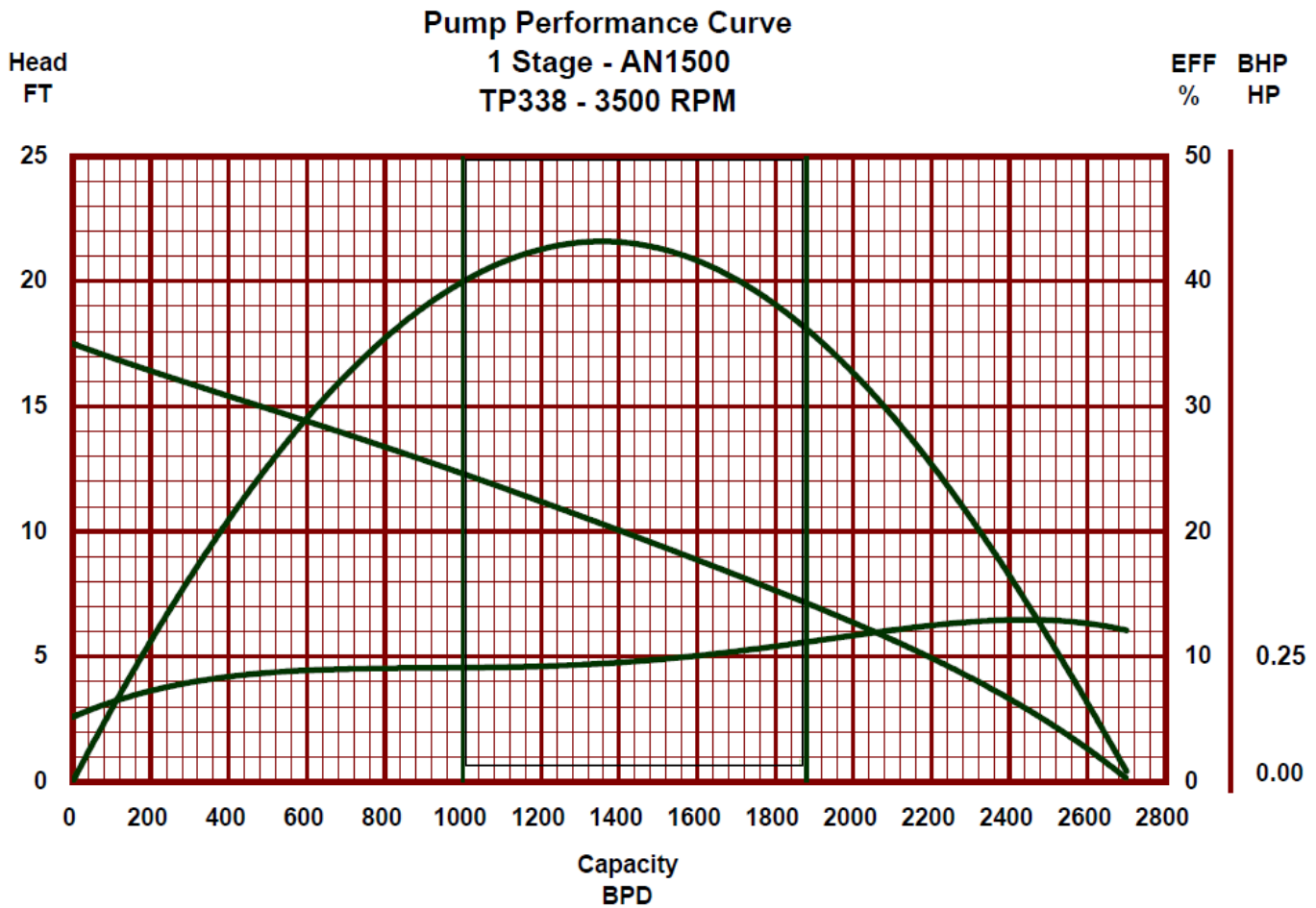
TP338 - Multi Hz

Specific Gravity = 1.0

Lift in FT



COSCO 338 Series Pumps



This engineering performance curve represents nominal performance based on actual multi-stage testing and certification. All pumps supplied by COSCO will be tested and certified to perform within the acceptable limits for head, horsepower, and efficiency as defined in the "API RECOMMENDED PRACTICE(11S2) FOR ELECTRIC SUBMERSIBLE PUMP TESTING".

ENGINEERING DATA				
Housing Diameter		3.38 inches		
Minimum Casing Size		4 1/2 Inch		
Fluid Specific Gravity for Pump Curves		1.0		
Rotational Direction		CCW		
Shaft Details				
Shaft Diameter	11/16	0.6875	Inches	
Shaft Area	0.3712		Sq. Inches	
Shaft Limits				
Shaft Limit in HP at:		50 Hz	60 Hz	
Standard Shaft Limit		105	125	
High Strength (HSS)		168	200	
Maximum Staging: Shaft				
Shaft Type	No of Stages @			
	50 Hz	60 Hz		
Standard Shaft	544	378		
HSS	872	606		
Housing Pressure Limit			5000 PSI	
Maximum Staging: Thrust Bearings (250F BHT)				
Bearing Type	No of Stages @			
	50 Hz	60 Hz		
Standard Bearing	440	366		
Hi Load Bearing	1346	1050		

COSCO 338 Series Pumps

AN1500 / 338 Series Pump

>>Minimum Casing Size 4 1/2 Inches

Maximum Bottom Hole Temperature: 250 F

STANDARD PUMP

FLOATER		COMPRESSION		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31320061	10	31360061	9	1	2.1	38
31320062	23	31360062	22	2	3.5	64
31320063	35	31360063	34	3	4.9	89
31320064	48	31360064	47	4	6.3	107
31320065	60	31360065	59	5	7.8	142
31320066	73	31360066	72	6	9.1	167
31320067	85	31360067	84	7	10.5	194
31320068	98	31360068	97	8	11.9	220
31320069	110	31360069	109	9	13.3	245
31320070	123	31360070	122	10	14.8	272

ABRASION RESISTANT PUMP

FLOATER AR		COMPRESSION AR		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31340061	9	31380061	8	1	2.1	38
31340062	21	31380062	20	2	3.5	64
31340063	32	31380063	31	3	4.9	89
31340064	44	31380064	43	4	6.3	107
31340065	55	31380065	54	5	7.8	142
31340066	67	31380066	66	6	9.1	167
31340067	78	31380067	77	7	10.5	194
31340068	90	31380068	89	8	11.9	220
31340069	101	31380069	100	9	13.3	245
31340070	113	31380070	112	10	14.8	272

Pump Outside Diameter: 3.38 inches

Standard Features: Carbon Steel Head, Base and Housing. Monel K500 Shaft.

Housing also available in 13 Chrome.

Heads and Bases also available in SST410 or 316L Stainless Steel.

All pumps are in Center Tandem Configuration.

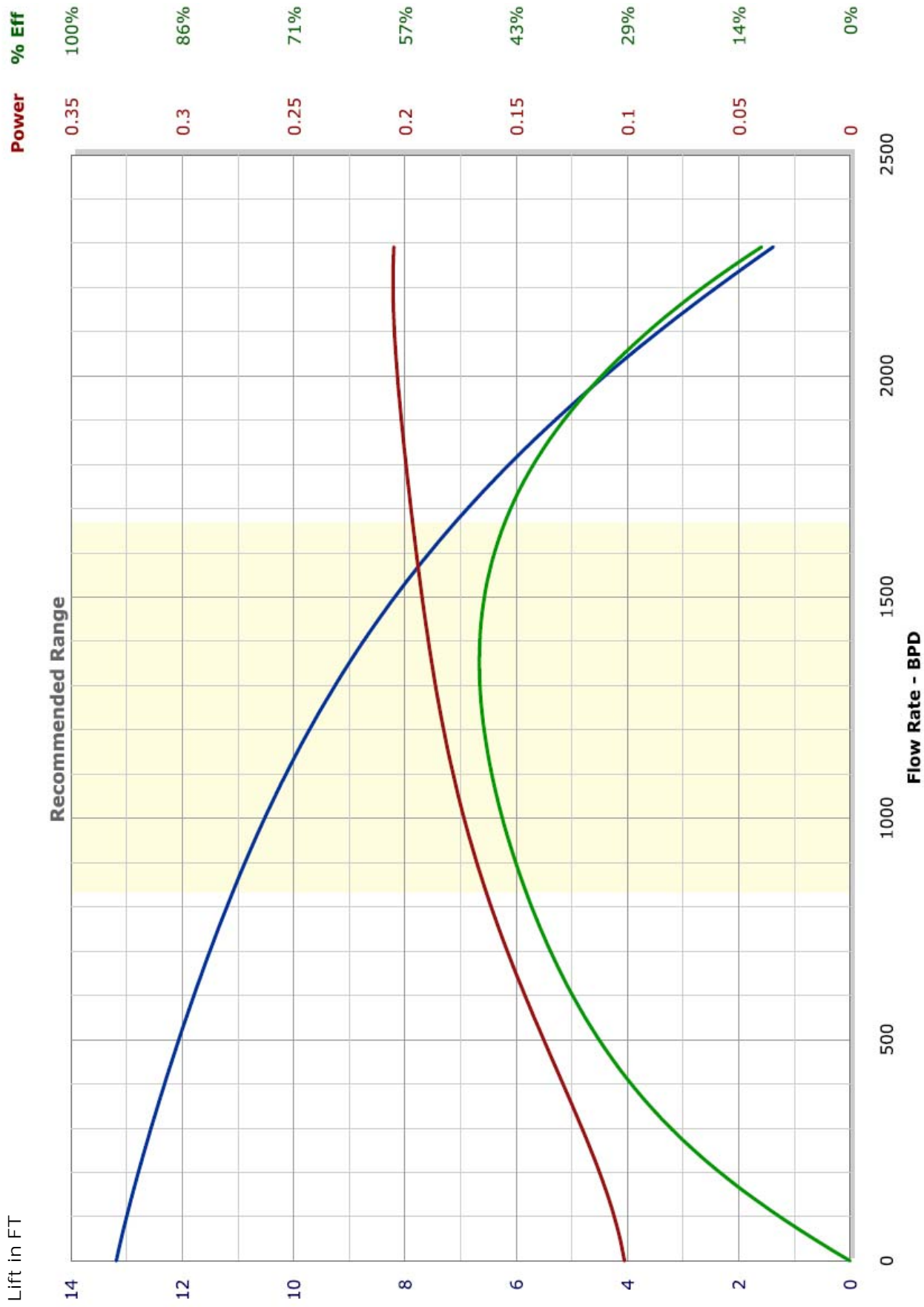
To calculate shipping length, add shipping caps (0.24 feet/cap) to component length.



Pump Performance Curve

1 Stage AN-1500
TP338 - 2917 RPM

Specific Gravity = 1.0



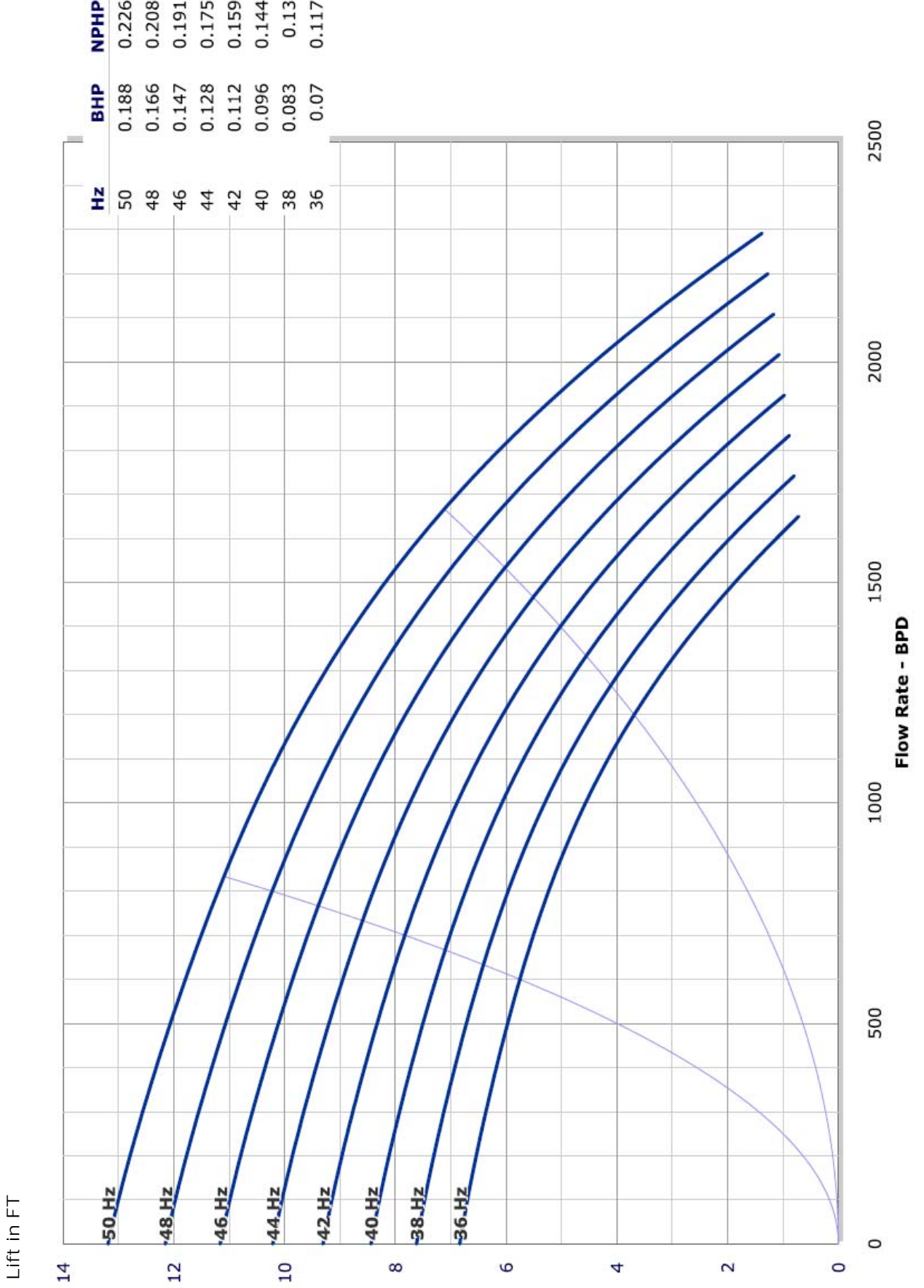


Pump Performance Curve

1 Stage AN-1500

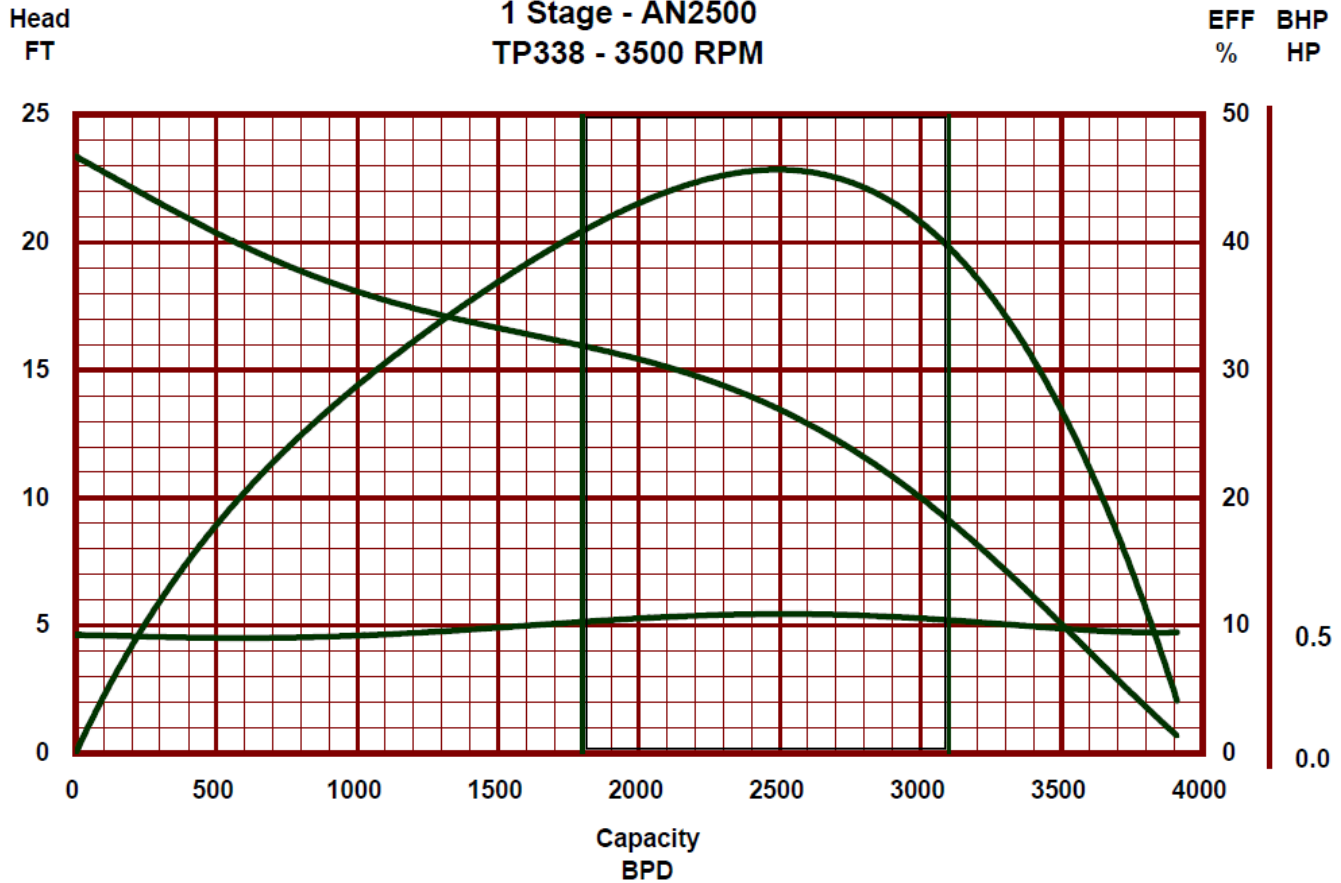
TP338 - Multi Hz

Specific Gravity = 1.0



COSCO 338 Series Pumps

Pump Performance Curve
1 Stage - AN2500
TP338 - 3500 RPM



This engineering performance curve represents nominal performance based on actual multi-stage testing and certification. All pumps supplied by COSCO will be tested and certified to perform within the acceptable limits for head, horsepower, and efficiency as defined in the "API RECOMMENDED PRACTICE(11S2) FOR ELECTRIC SUBMERSIBLE PUMP TESTING".

ENGINEERING DATA							
Housing Diameter		3.38 inches			Maximum Staging: Shaft		
Minimum Casing Size		4 1/2 Inch			Shaft Type	No of Stages @	
Fluid Specific Gravity for Pump Curves		1.0				50 Hz	60 Hz
Rotational Direction		CCW			Standard Shaft	322	223
Shaft Details					HSS	516	357
Shaft Diameter	11/16	0.6875	Inches		Housing Pressure Limit		
Shaft Area		0.3712	Sq. Inches		5000 PSI		
Shaft Limits					Maximum Staging: Thrust Bearings (250F BHT)		
Shaft Limit in HP at:		50 Hz	60 Hz		Bearing Type	No of Stages @	
						50 Hz	60 Hz
Standard Shaft Limit		105	125		Standard Bearing	336	280
High Strength (HSS)		168	200		Hi Load Bearing	1028	803

COSCO 338 Series Pumps

AN2500 / 338 Series Pump

>>Minimum Casing Size 4 1/2 Inches

Maximum Bottom Hole Temperature: 250 F

STANDARD PUMP

FLOATER		COMPRESSION		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31320076	4	31360076	3	1	2.1	38
31320077	10	31360077	9	2	3.5	64
31320078	15	31360078	14	3	4.9	89
31320079	21	31360079	20	4	6.3	107
31320080	26	31360080	25	5	7.8	142
31320081	31	31360081	30	6	9.1	167
31320082	37	31360082	36	7	10.5	194
31320083	42	31360083	41	8	11.9	220
31320084	48	31360084	47	9	13.3	245
31320085	53	31360085	52	10	14.8	272

ABRASION RESISTANT PUMP

FLOATER AR		COMPRESSION AR		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31340076	4	31380076	3	1	2.1	38
31340077	10	31380077	9	2	3.5	64
31340078	15	31380078	14	3	4.9	89
31340079	21	31380079	20	4	6.3	107
31340080	26	31380080	25	5	7.8	142
31340081	31	31380081	30	6	9.1	167
31340082	37	31380082	36	7	10.5	194
31340083	42	31380083	41	8	11.9	220
31340084	48	31380084	47	9	13.3	245
31340085	53	31380085	52	10	14.8	272

Pump Outside Diameter: 3.38 inches

Standard Features: Carbon Steel Head, Base and Housing. Monel K500 Shaft.

Housing also available in 13 Chrome.

Heads and Bases also available in SST410 or 316L Stainless Steel.

All pumps are in Center Tandem Configuration.

To calculate shipping length, add shipping caps (0.24 feet/cap) to component length.

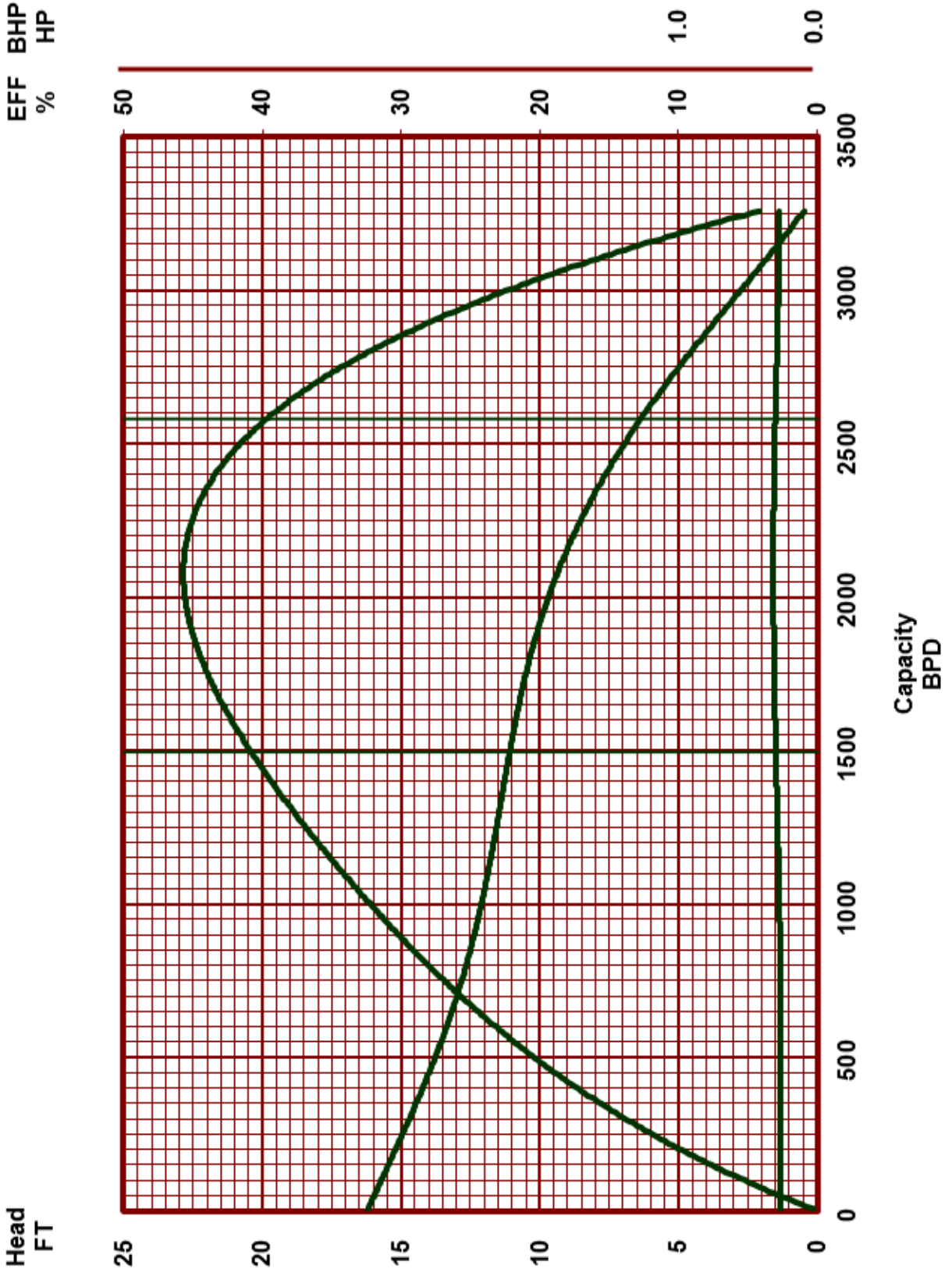


Pump Performance Curve

1 Stage AN-2500

TP338- 2917 RPM

Specific Gravity = 1.0



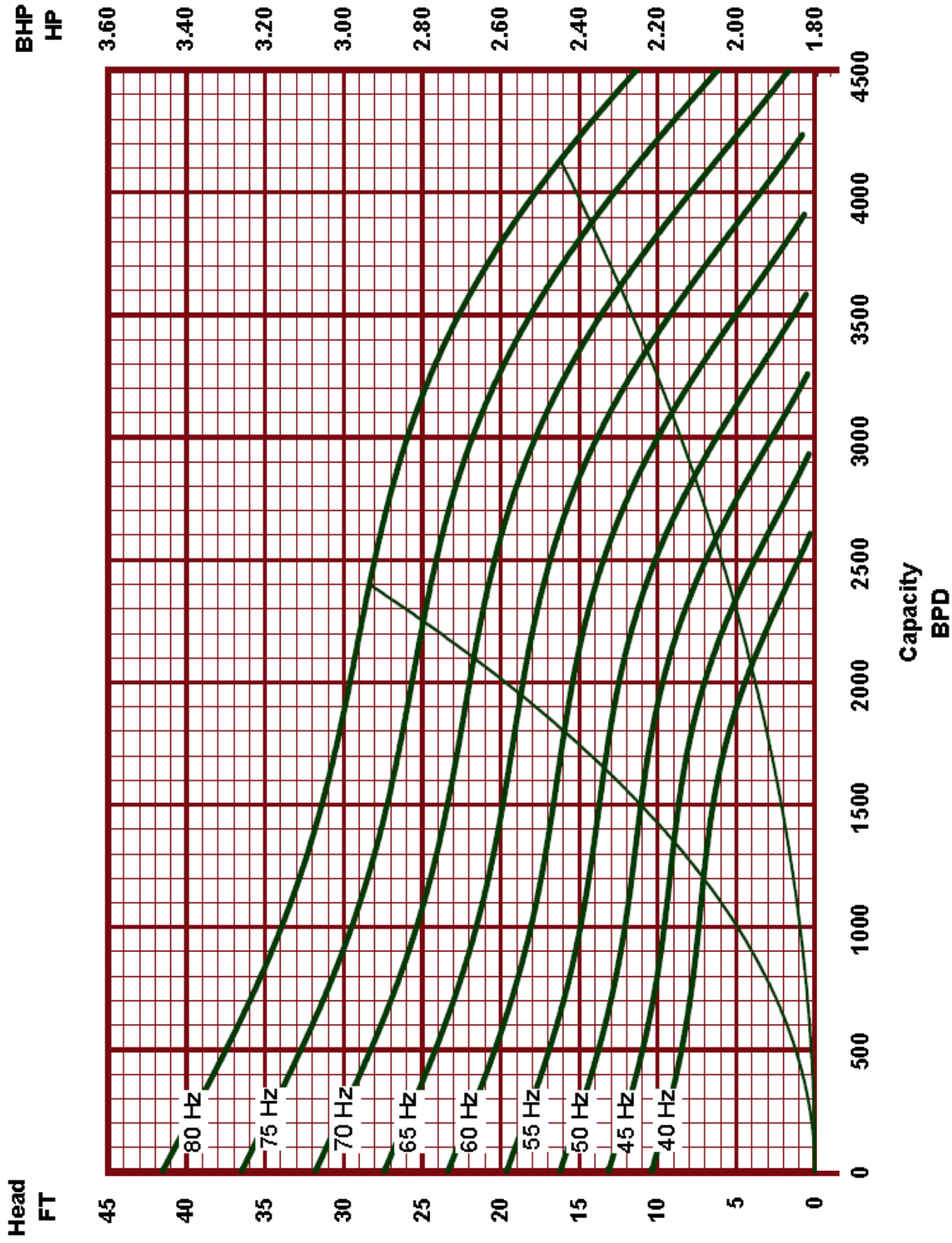


Pump Performance Curve

1 Stage AN-2500

TP338— Multi Hz

Specific Gravity = 1.0



COSCO 400 Series Pumps

387 or 400 Series Pumps Summary List

- Housing diameter - 3.875" (98.5 mm) or 4.0" (101.6 mm)
- Minimum casing size - 5 1/2" nominal OD for 400 Series Pumps

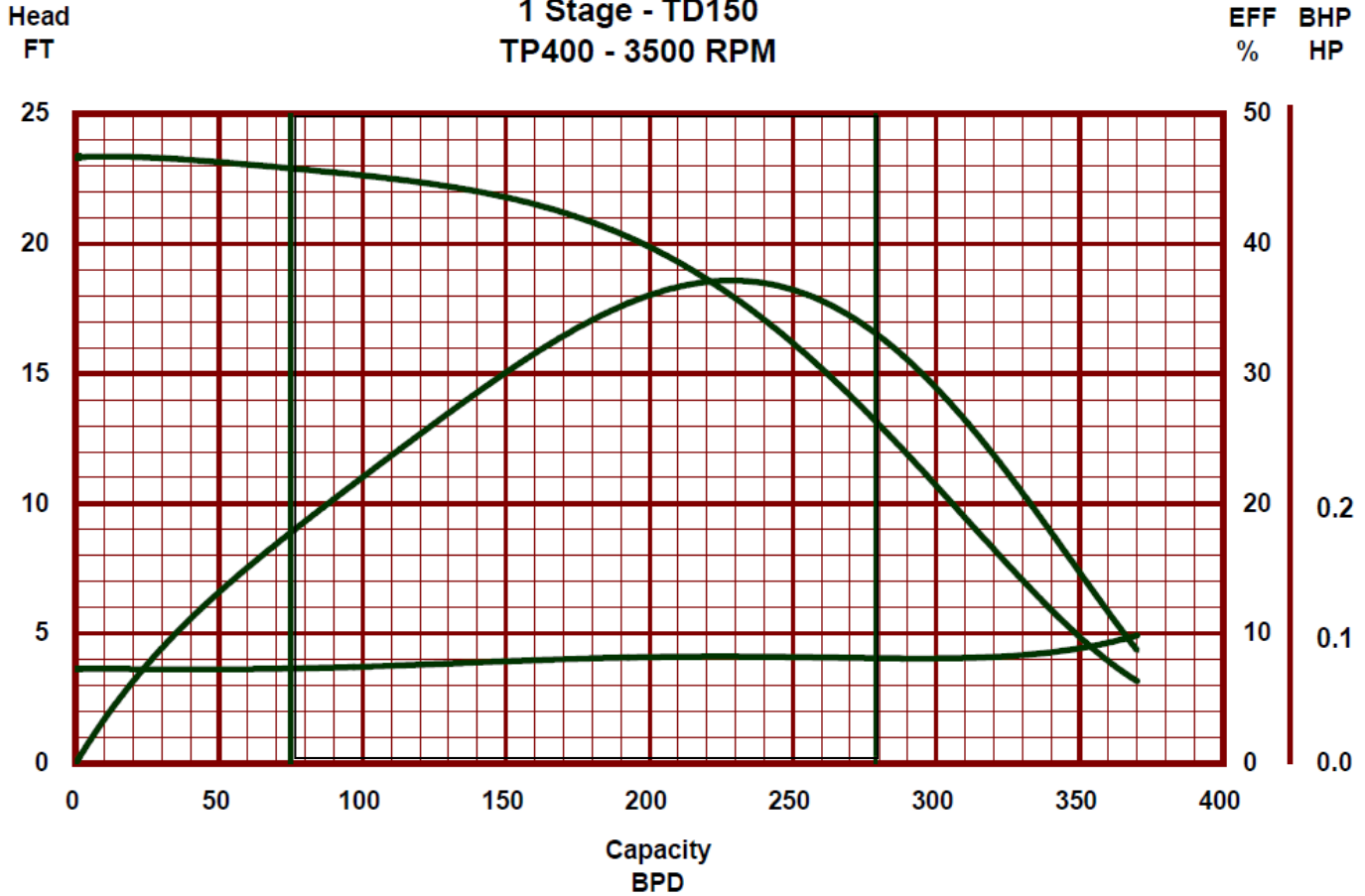
Pump Model	Shaft Dia. (in.)	Horsepower		Flow Capacity Recommended Range			
		Shaft Limit		50 Hz		60 Hz	
		STD	HSS	BPD	m ³ /PD	BPD	m ³ /PD
TD 150	0.500	44	70	63-233	10-37	75-279	12-44
TD 300	0.625	94	150	170-352	27-56	204-422	32-67
TD 330	0.6875	125	200	170-459	27-73	216-555	34-88
TD 650	0.625	94	150	346-723	55-115	415-867	66-138
TD 850	0.625	94	150	535-1006	85-160	640-1200	102-191
TD 1250	0.6875	125	200	667-1,415	106-225	800-1700	127-270
TD 1750	0.6875	125	200	1000-1749	159-278	1200-2,100	191-334
TD 2200	0.6875	125	200	1195-2327	190-370	1434-2792	228-444
TD 3000	0.875	256	410	1698-3051	270-485	2040-3,660	324-582
TD 4300	0.875	256	410	2497-4497	397-715	3000-5400	477-858
TD 6000	0.875	256	410	2912-6246	463-993	3500-7500	556-1192

Note: See the specific 50Hz or 60Hz performance curves for head capacity, pump efficiency any horsepower motor load.

Bolt on Discharge Head, Gas Separator, Intake and GasPro Intake Pump information are located at the back of the Pump Section.

COSCO 400 Series Pumps

Pump Performance Curve
1 Stage - TD150
TP400 - 3500 RPM



This engineering performance curve represents nominal performance based on actual multi-stage testing and certification. All pumps supplied by COSCO will be tested and certified to perform within the acceptable limits for head, horsepower, and efficiency as defined in the "API RECOMMENDED PRACTICE(11S2) FOR ELECTRIC SUBMERSIBLE PUMP TESTING."

ENGINEERING DATA				
Housing Dimeter		4.00 inches		
Minimum Casing Size		5 1/2 Inch		
Fluid Specific Gravity for Pump Curves		1.0		
Rotational Direction		CCW		
Shaft Details				
Shaft Diameter	1/2	0.500	Inches	
Shaft Area	0.1963		Sq. Inches	
Shaft Limits				
Shaft Limit in HP at:		50 Hz	60 Hz	
Standard Shaft Limit		38	44	
High Strength (HSS)		59	70	
Maximum Staging: Shaft				
Shaft Type	No of Stages @			
	50 Hz		60 Hz	
Standard Shaft	1229		440	
HSS	1962		700	
Housing Pressure Limit			5000 PSI	
Maximum Staging: Thrust Bearings (250F BHT)				
Bearing Type	No of Stages @			
	50 Hz		60 Hz	
Standard Bearing	434		603	
Hi Load Bearing	1328		3321	

COSCO 400 Series Pumps

TD150 / 400 Series Pump

>>Minimum Casing Size 5 1/2 Inches

Maximum Bottom Hole Temperature: 250 F

STANDARD PUMP

FLOATER		COMPRESSION		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31420001	19	31460001	17	1	2.1	44
31420002	39	31460002	37	2	3.5	73
31420003	60	31460003	58	3	4.8	106
31420004	80	31460004	78	4	6.3	134
31420005	101	31460005	99	5	7.8	165
31420006	122	31460006	120	6	9.2	196
31420007	142	31460007	140	7	10.6	225
31420008	163	31460008	161	8	12	258
31420009	184	31460009	182	9	13.4	287
31420010	204	31460010	202	10	14.8	317
31420011	225	31460011	223	11	16.2	348
31420012	245	31460012	243	12	17.6	377

ABRASION RESISTANT PUMP

FLOATER AR		COMPRESSION AR		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31440001	18	31480001	16	1	2.1	44
31440002	37	31480002	35	2	3.5	73
31440003	56	31480003	54	3	4.8	106
31440004	75	31480004	73	4	6.3	134
31440005	94	31480005	92	5	7.8	165
31440006	114	31480006	112	6	9.2	196
31440007	132	31480007	130	7	10.6	225
31440008	152	31480008	150	8	12	258
31440009	171	31480009	169	9	13.4	287
31440010	190	31480010	188	10	14.8	317
31440011	209	31480011	207	11	16.2	348
31440012	228	31480012	226	12	17.6	377

Pump Outside Diameter: 4.00 inches

Standard Features: Carbon Steel Head, Base and Housing. Monel K500 Shaft.

Housing also available in 13 Chrome.

Heads and Bases also available in SST410 or 316L Stainless Steel.

All pumps are in Center Tandem Configuration.

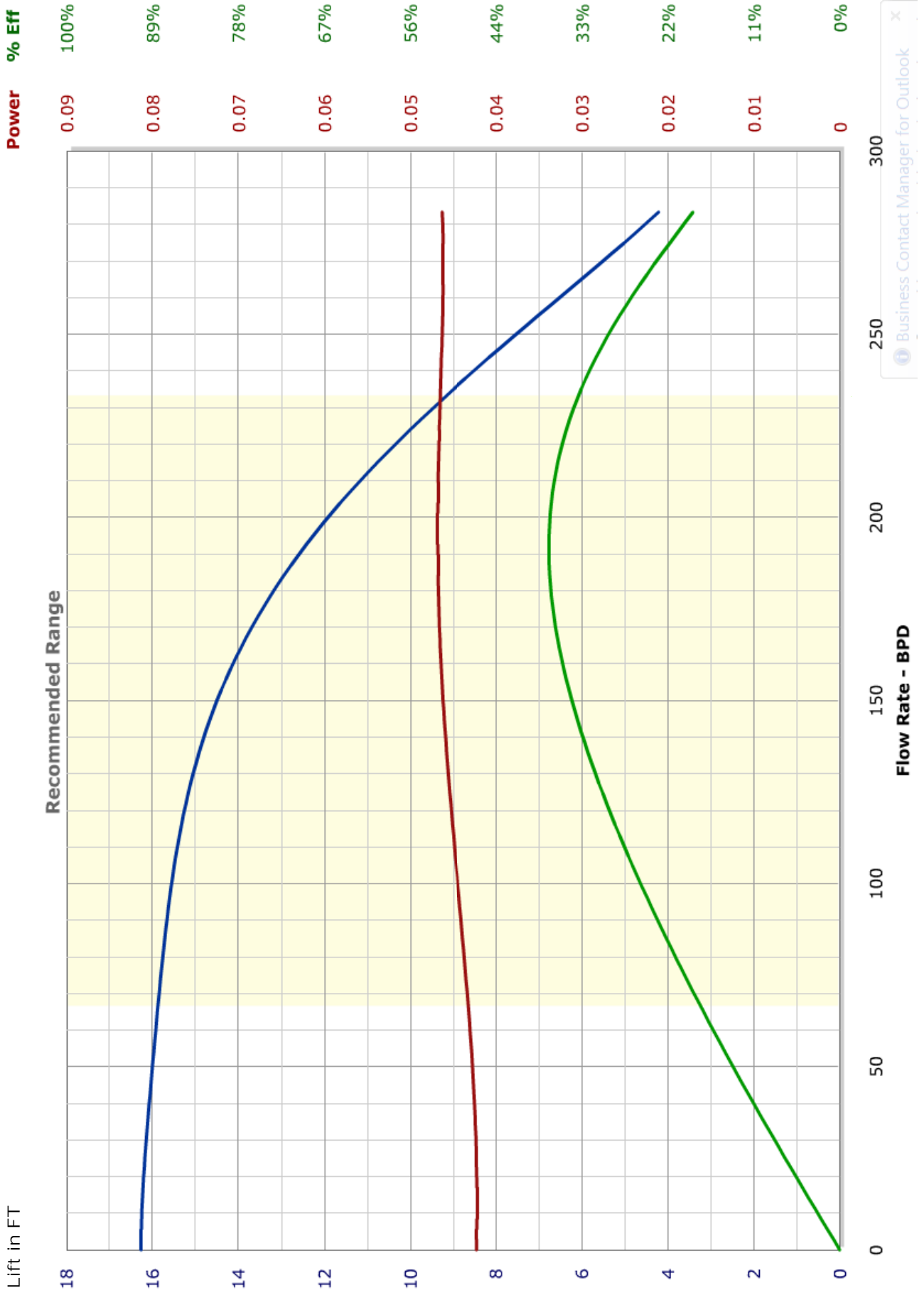
To calculate shipping length, add shipping caps (0.24 feet/cap) to component length.



Pump Performance Curve

1 Stage TD-150
TP400 - 2917 RPM

Specific Gravity = 1.0



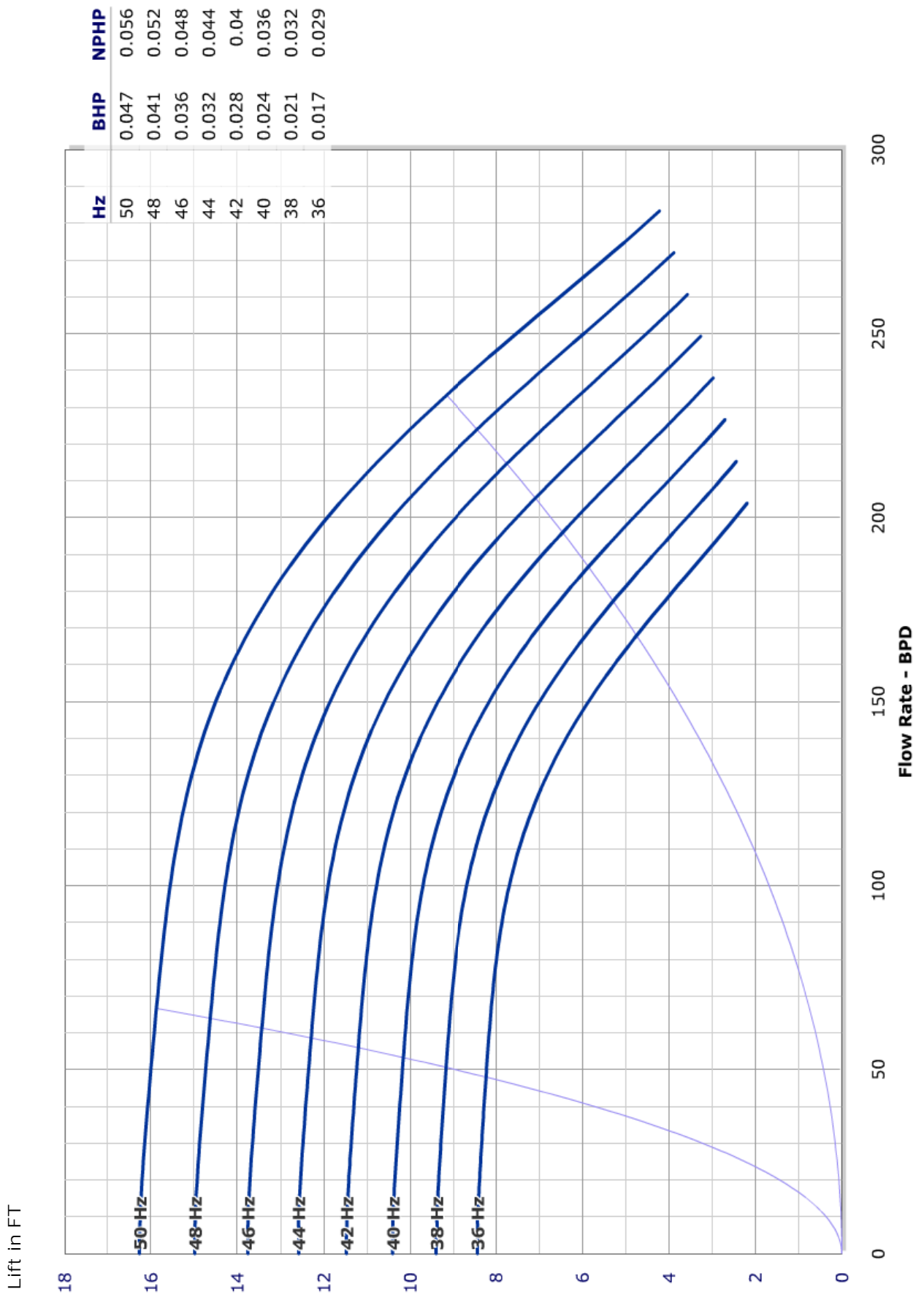


Pump Performance Curve

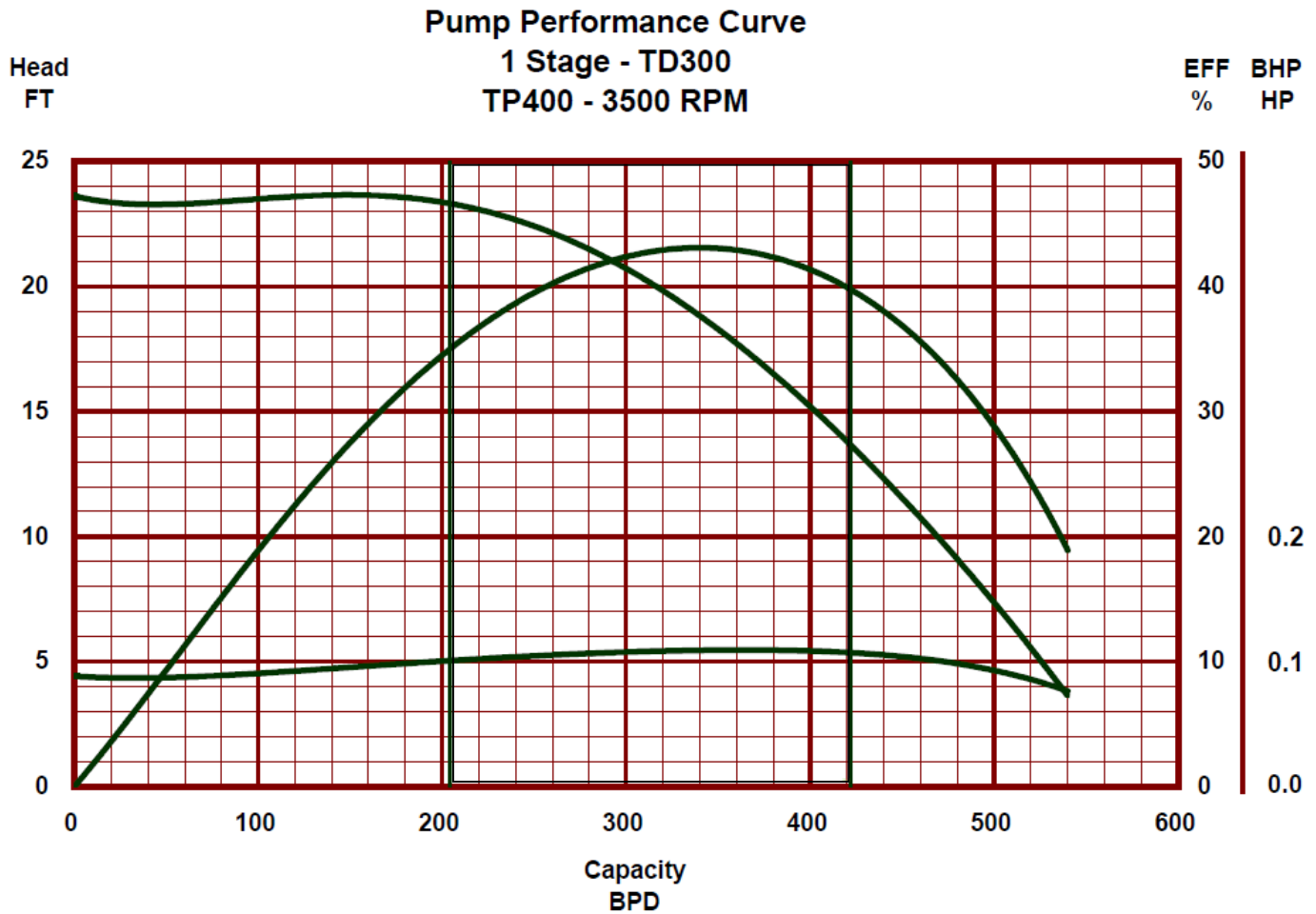
1 Stage TD-150

TP400 - Multi Hz

Specific Gravity = 1.0



COSCO 400 Series Pumps



This engineering performance curve represents nominal performance based on actual multi-stage testing and certification. All pumps supplied by COSCO will be tested and certified to perform within the acceptable limits for head, horsepower, and efficiency as defined in the "API RECOMMENDED PRACTICE(11S2) FOR ELECTRIC SUBMERSIBLE PUMP TESTING."

ENGINEERING DATA				
Housing Dimeter		4.00 inches		
Minimum Casing Size		5 1/2 Inch		
Fluid Specific Gravity for Pump Curves		1.0		
Rotational Direction		CCW		
Shaft Details				
Shaft Diameter	5/8	0.625	Inches	
Shaft Area	0.307		Sq. Inches	
Shaft Limits				
Shaft Limit in HP at:		50 Hz	60 Hz	
Standard Shaft Limit		78	94	
High Strength (HSS)		125	150	
Maximum Staging: Shaft				
Shaft Type	No of Stages @			
	50 Hz		60 Hz	
Standard Shaft	1229		854	
HSS	1962		1363	
Housing Pressure Limit			5000 PSI	
Maximum Staging: Thrust Bearings (250F BHT)				
Bearing Type	No of Stages @			
	50 Hz		60 Hz	
Standard Bearing	464		386	
Hi Load Bearing	2338		1775	

COSCO 400 Series Pumps

TD300 / 400 Series Pump

>>Minimum Casing Size 5 1/2 Inches

Maximum Bottom Hole Temperature: 250 F

STANDARD PUMP

FLOATER		COMPRESSION		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31420016	15	31460016	14	1	2.1	44
31420017	32	31460017	31	2	3.5	73
31420018	49	31460018	48	3	4.8	106
31420019	66	31460019	65	4	6.3	134
31420020	83	31460020	82	5	7.8	165
31420021	99	31460021	98	6	9.2	196
31420022	117	31460022	116	7	10.6	225
31420023	133	31460023	132	8	12	258
31420024	150	31460024	149	9	13.4	287
31420025	167	31460025	166	10	14.8	317
31420026	184	31460026	183	11	16.2	348
31420027	201	31460027	200	12	17.6	377

ABRASION RESISTANT PUMP

FLOATER AR		COMPRESSION AR		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31440016	14	31480016	13	1	2.1	44
31440017	30	31480017	29	2	3.5	73
31440018	45	31480018	44	3	4.8	106
31440019	61	31480019	60	4	6.3	134
31440020	76	31480020	75	5	7.8	165
31440021	91	31480021	90	6	9.2	196
31440022	107	31480022	106	7	10.6	225
31440023	122	31480023	121	8	12	258
31440024	137	31480024	136	9	13.4	287
31440025	153	31480025	152	10	14.8	317
31440026	168	31480026	167	11	16.2	348
31440027	184	31480027	183	12	17.6	377

Pump Outside Diameter: 4.00 inches

Standard Features: Carbon Steel Head, Base and Housing. Monel K500 Shaft.

Housing also available in 13 Chrome.

Heads and Bases also available in SST410 or 316L Stainless Steel.

All pumps are in Center Tandem Configuration.

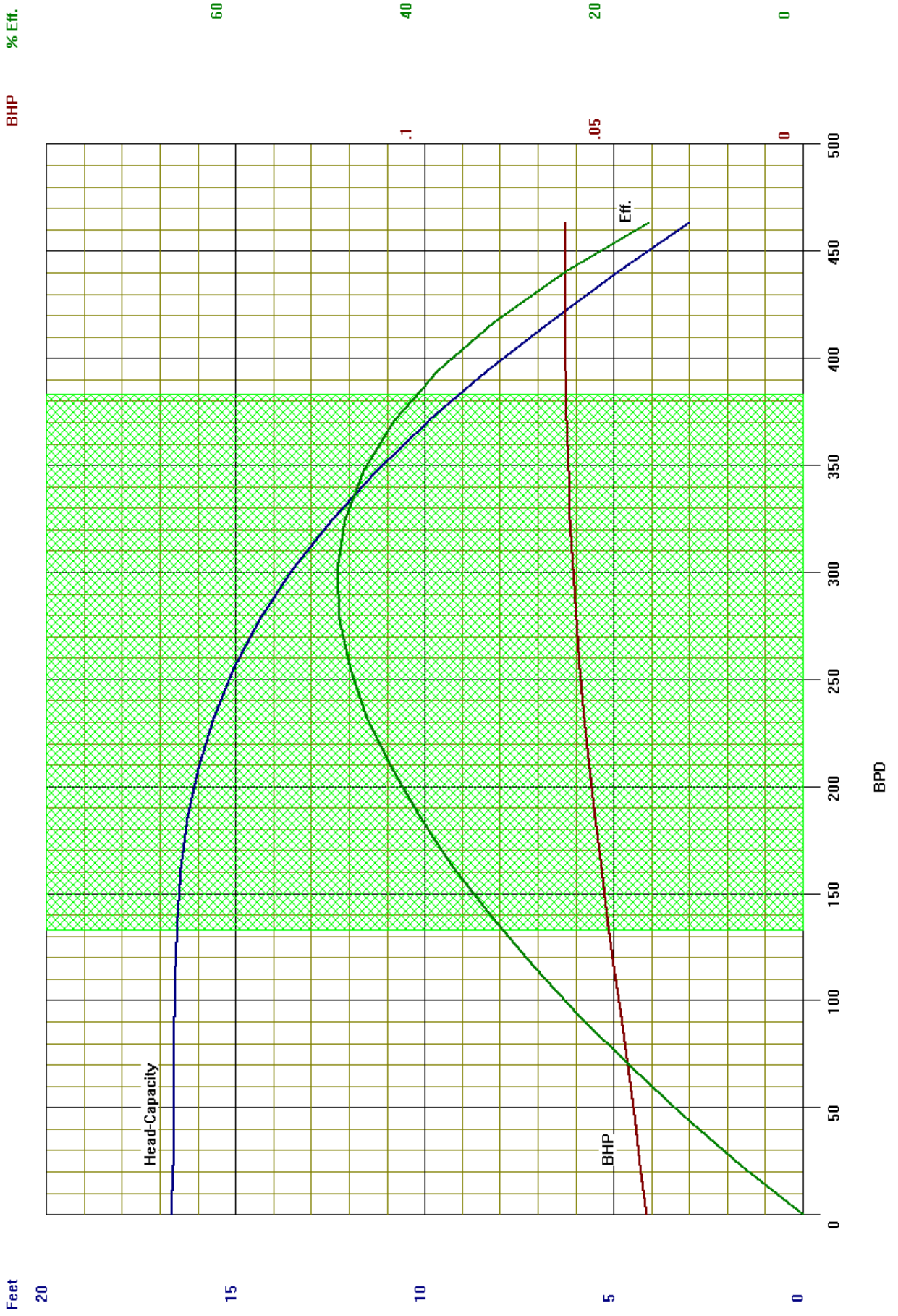
To calculate shipping length, add shipping caps (0.24 feet/cap) to component length.



Pump Performance Curve

1 Stage TD-300
TP400- 2917 RPM

Specific Gravity = 1.0

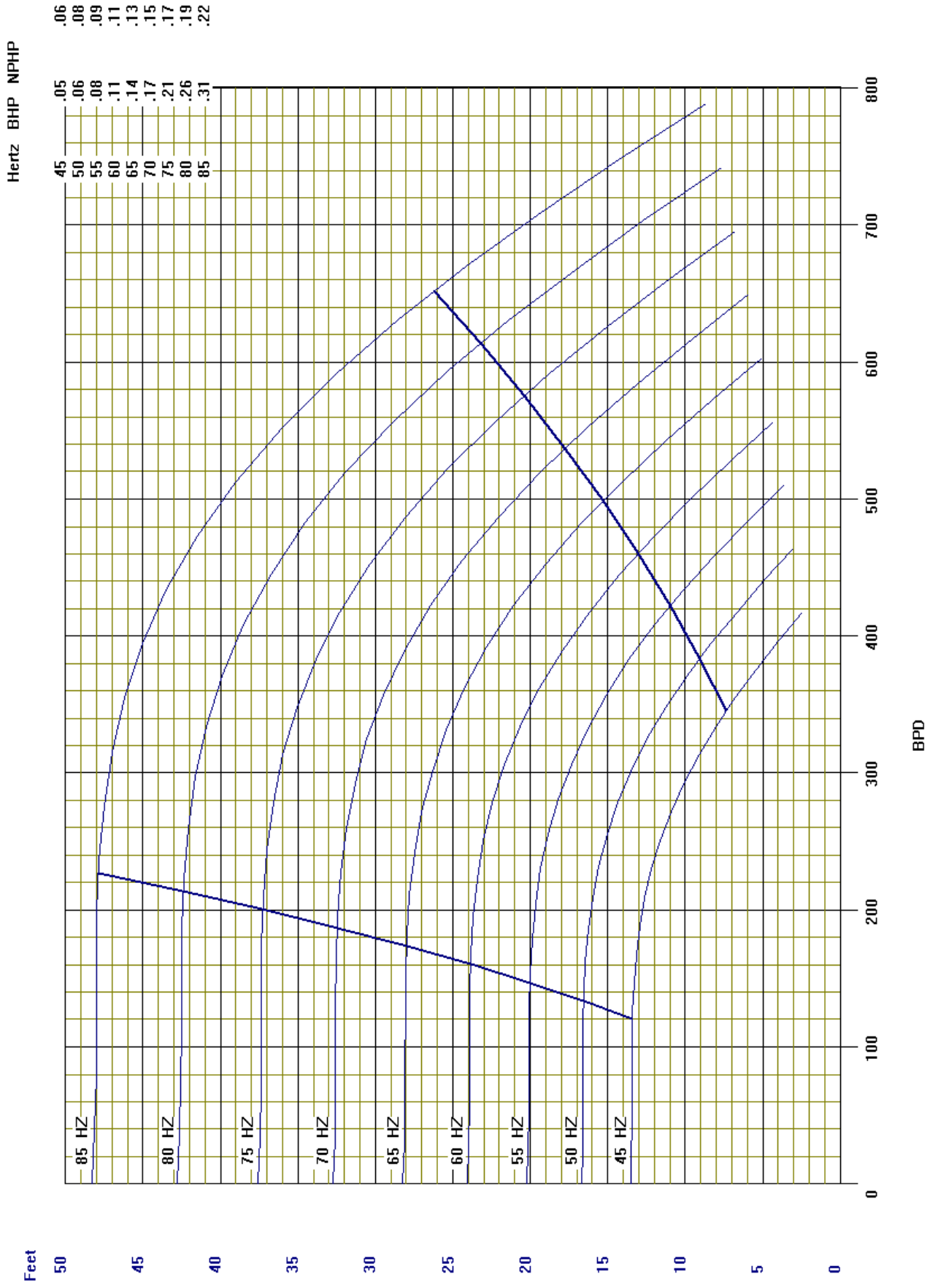




Pump Performance Curve

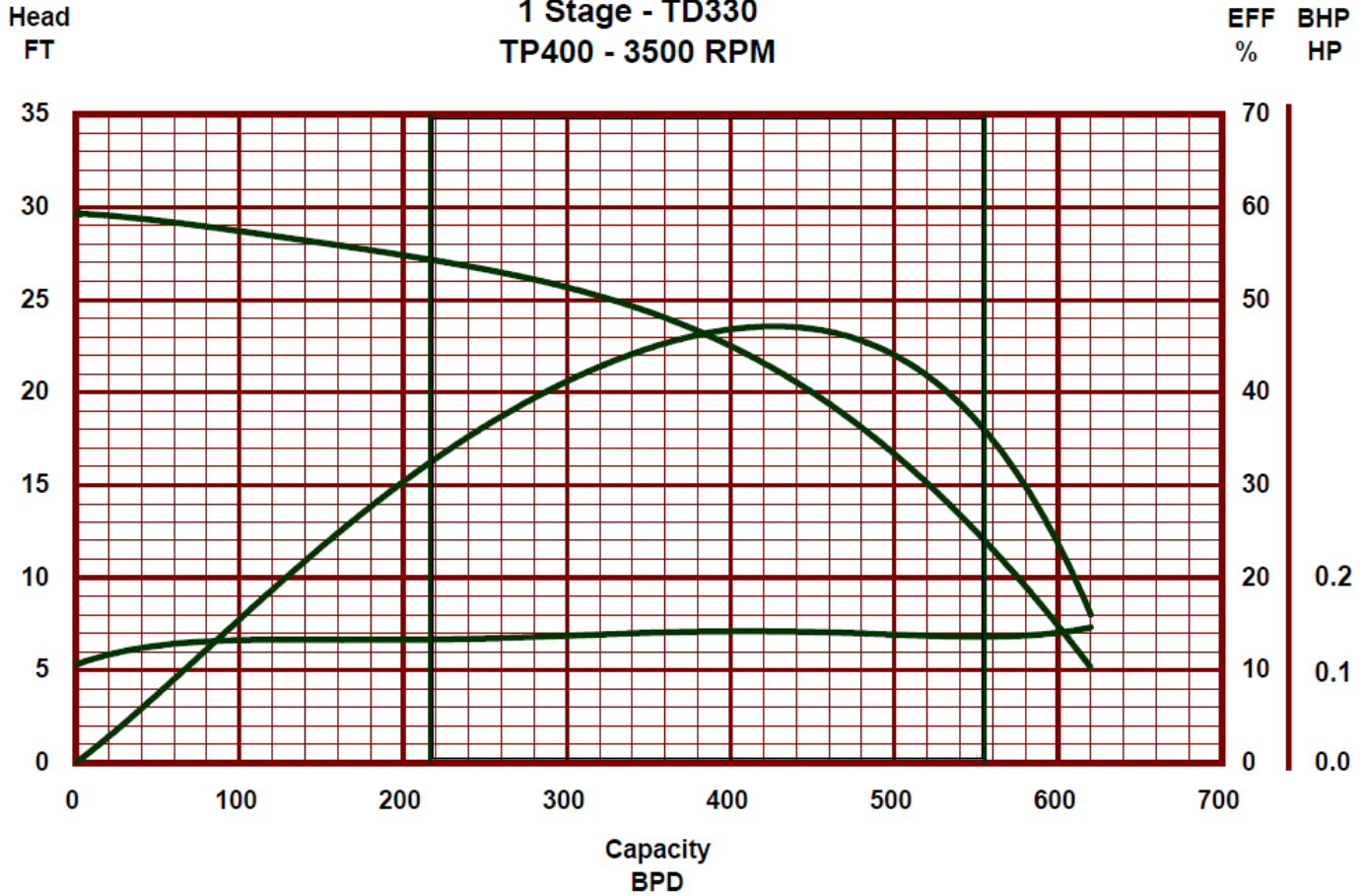
1 Stage TD-300

Specific Gravity = 1.0



COSCO 400 Series Pumps

Pump Performance Curve
1 Stage - TD330
TP400 - 3500 RPM



This engineering performance curve represents nominal performance based on actual multi-stage testing and certification. All pumps supplied by COSCO will be tested and certified to perform within the acceptable limits for head, horsepower, and efficiency as defined in the "API RECOMMENDED PRACTICE(11S2) FOR ELECTRIC SUBMERSIBLE PUMP TESTING."

ENGINEERING DATA				
Housing Dimeter		4.00 inches		
Minimum Casing Size		5 1/2 Inch		
Fluid Specific Gravity for Pump Curves		1.0		
Rotational Direction		CCW		
Shaft Details				
Shaft Diameter	11/16	0.688	Inches	
Shaft Area	0.371		Sq. Inches	
Shaft Limits				
Shaft Limit in HP at:		50 Hz	60 Hz	
Standard Shaft Limit		105	125	
High Strength (HSS)		168	150	
Maximum Staging: Shaft				
Shaft Type	No of Stages @			
	50 Hz		60 Hz	
Standard Shaft	1215		844	
HSS	1945		1351	
Housing Pressure Limit			5000 PSI	
Maximum Staging: Thrust Bearings (250F BHT)				
Bearing Type	No of Stages @			
	50 Hz		60 Hz	
Standard Bearing	407		339	
Hi Load Bearing	2051		1168	

COSCO 400 Series Pumps

TD330 / 400 Series Pump

>>Minimum Casing Size 5 1/2 Inches

Maximum Bottom Hole Temperature: 250 F

STANDARD PUMP

FLOATER		COMPRESSION		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31420031	18	31460031	16	1	2.1	44
31420032	37	31460032	35	2	3.5	73
31420033	56	31460033	54	3	4.8	106
31420034	77	31460034	75	4	6.3	134
31420035	96	31460035	94	5	7.8	165
31420036	115	31460036	113	6	9.2	196
31420037	134	31460037	132	7	10.6	225
31420038	155	31460038	153	8	12	258
31420039	174	31460039	172	9	13.4	287
31420040	193	31460040	191	10	14.8	317
31420041	212	31460041	210	11	16.2	348
31420042	232	31460042	230	12	17.6	377
31420043	250	31460043	248	13	19	403

ABRASION RESISTANT PUMP

FLOATER AR		COMPRESSION AR		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31440031	17	31480031	15	1	2.1	44
31440032	35	31480032	33	2	3.5	73
31440033	52	31480033	50	3	4.8	106
31440034	72	31480034	70	4	6.3	134
31440035	89	31480035	87	5	7.8	165
31440036	107	31480036	105	6	9.2	196
31440037	124	31480037	122	7	10.6	225
31440038	144	31480038	142	8	12	258
31440039	161	31480039	159	9	13.4	287
31440040	179	31480040	177	10	14.8	317
31440041	196	31480041	194	11	16.2	348
31440042	215	31480042	213	12	17.6	377
31440043	231	31480043	229	13	19	403

Pump Outside Diameter: 4.00 inches

Standard Features: Carbon Steel Head, Base and Housing. Monel K500 Shaft.

Housing also available in 13 Chrome.

Heads and Bases also available in SST410 or 316L Stainless Steel.

All pumps are in Center Tandem Configuration.

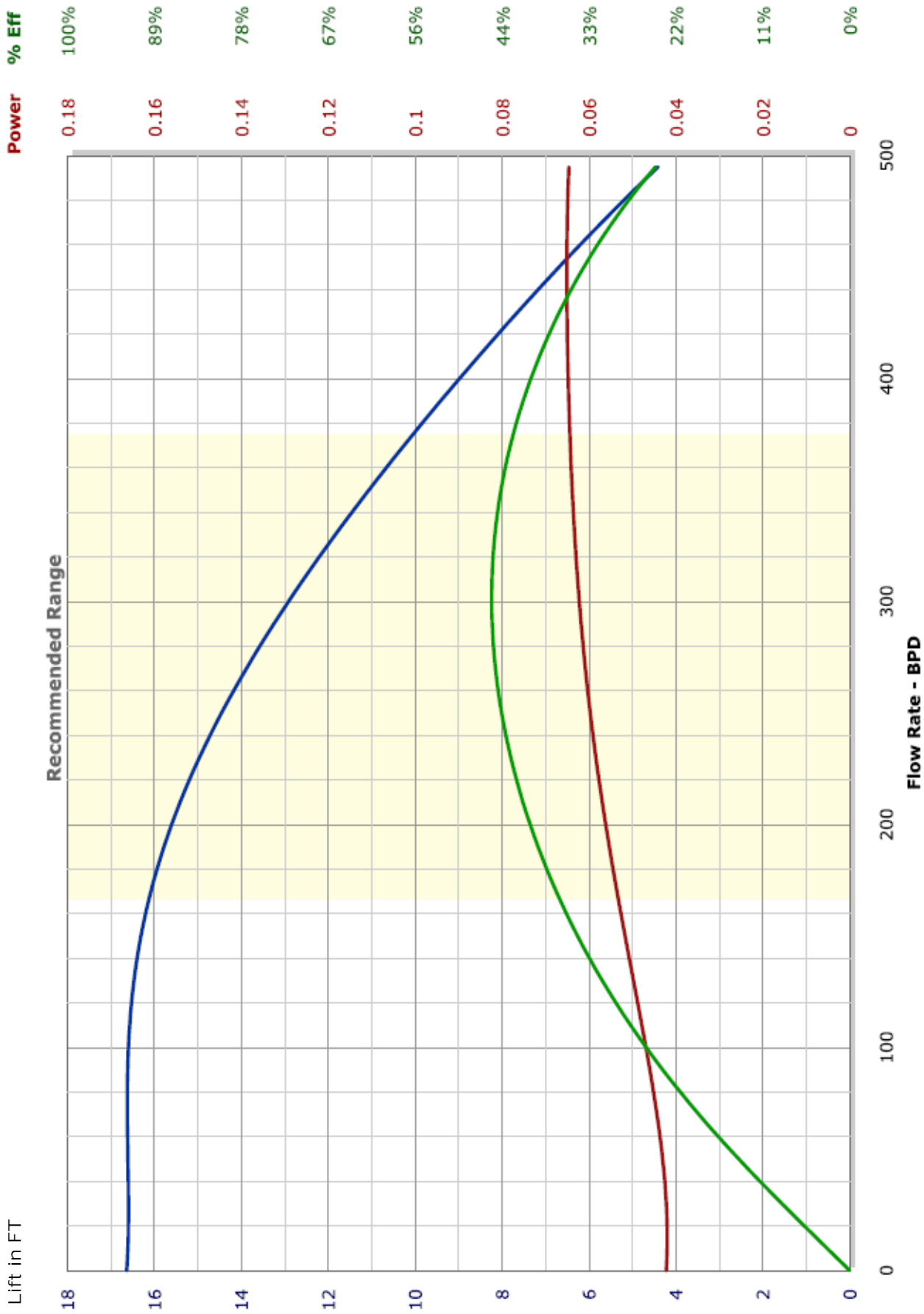
To calculate shipping length, add shipping caps (0.24 feet/cap) to component length.



Pump Performance Curve

1 Stage TD-330
TP400 - 2917 RPM

Specific Gravity = 1.0



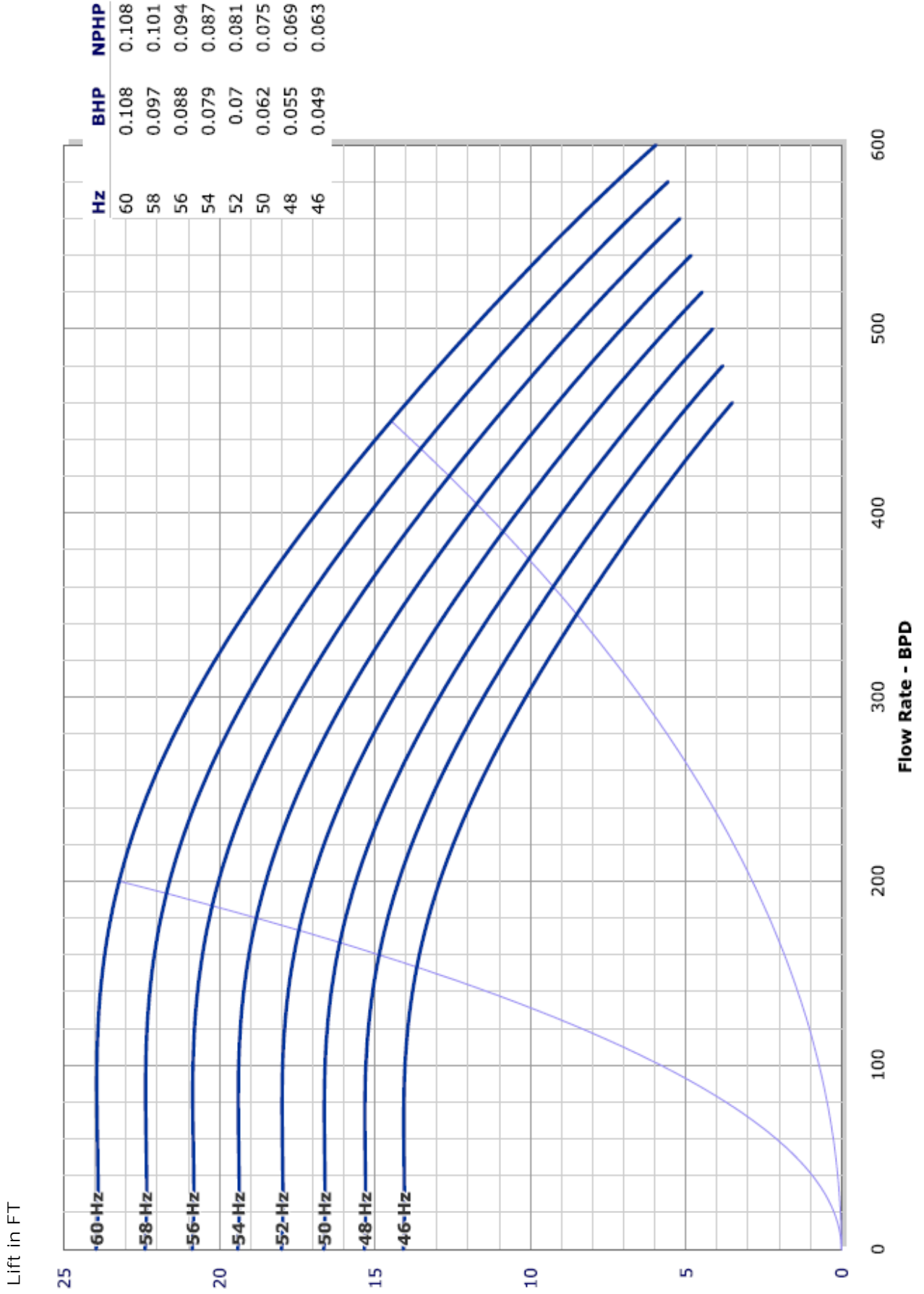


Pump Performance Curve

1 Stage TD-330

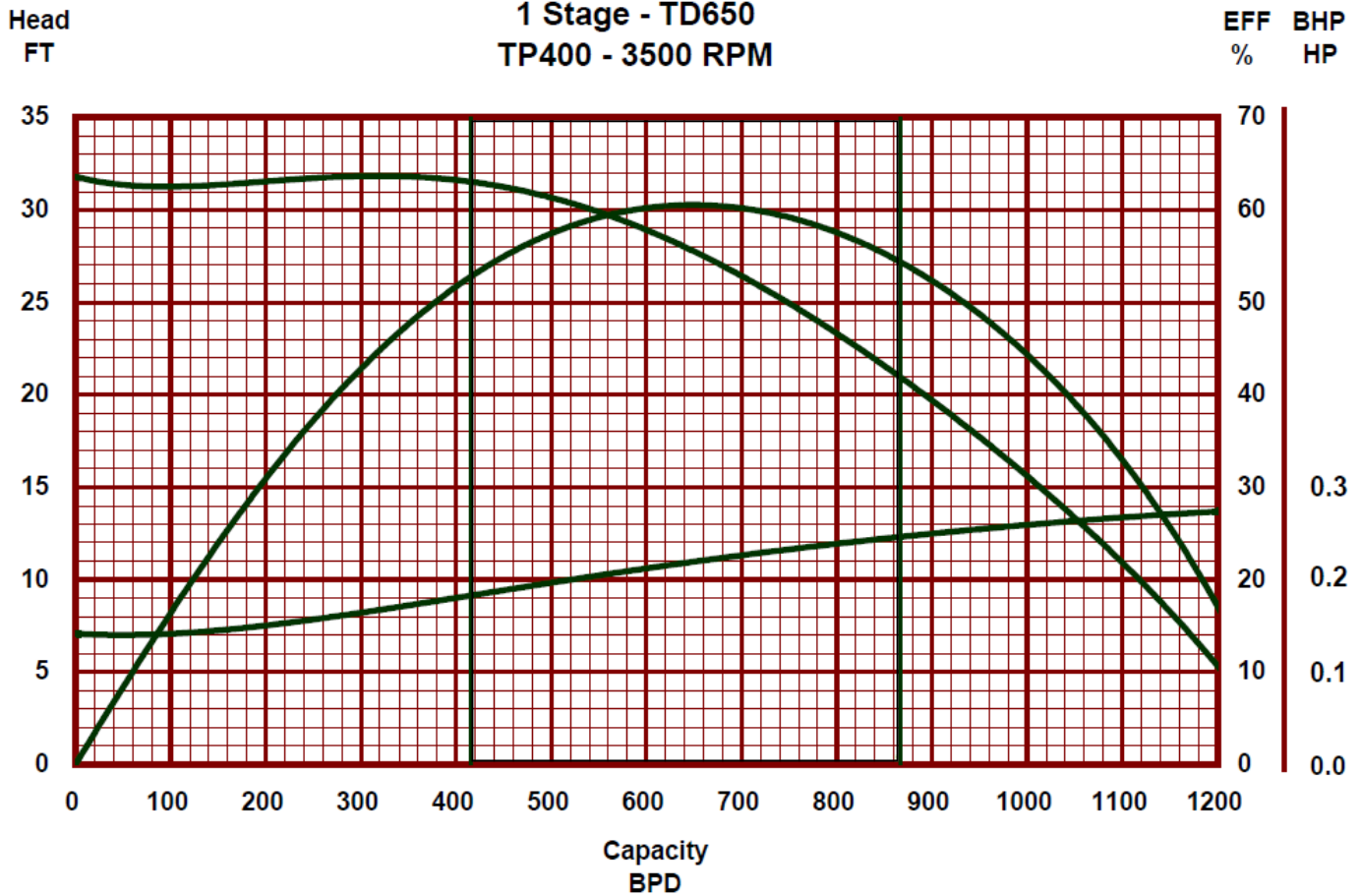
TP400 - Multi Hz

Specific Gravity = 1.0



COSCO 400 Series Pumps

Pump Performance Curve
1 Stage - TD650
TP400 - 3500 RPM



This engineering performance curve represents nominal performance based on actual multi-stage testing and certification. All pumps supplied by COSCO will be tested and certified to perform within the acceptable limits for head, horsepower, and efficiency as defined in the "API RECOMMENDED PRACTICE(11S2) FOR ELECTRIC SUBMERSIBLE PUMP TESTING."

ENGINEERING DATA				
Housing Dimeter		4.00 inches		
Minimum Casing Size		5 1/2 Inch		
Fluid Specific Gravity for Pump Curves		1.0		
Rotational Direction		CCW		
Shaft Details				
Shaft Diameter	5/8	0.625	Inches	
Shaft Area	0.307		Sq. Inches	
Shaft Limits				
Shaft Limit in HP at:		50 Hz	60 Hz	
Standard Shaft Limit		78	94	
High Strength (HSS)		125	150	
Maximum Staging: Shaft				
Shaft Type	No of Stages @			
	50 Hz		60 Hz	
Standard Shaft	482		335	
HSS	770		535	
Housing Pressure Limit			5000 PSI	
Maximum Staging: Thrust Bearings (250F BHT)				
Bearing Type	No of Stages @			
	50 Hz		60 Hz	
Standard Bearing	342		285	
Hi Load Bearing	1723		1311	

COSCO 400 Series Pumps

TD650 / 400 Series Pump

>>Minimum Casing Size 5 1/2 Inches

Maximum Bottom Hole Temperature: 250 F

STANDARD PUMP

FLOATER		COMPRESSION		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31420046	18	31460046	16	1	2.1	44
31420047	37	31460047	35	2	3.5	73
31420048	56	31460048	54	3	4.8	106
31420049	76	31460049	74	4	6.3	134
31420050	95	31460050	93	5	7.8	165
31420051	114	31460051	112	6	9.2	196
31420052	133	31460052	131	7	10.6	225
31420053	153	31460053	151	8	12	258
31420054	172	31460054	170	9	13.4	287
31420055	191	31460055	189	10	14.8	317
31420056	210	31460056	208	11	16.2	348
31420057	230	31460057	228	12	17.6	377

ABRASION RESISTANT PUMP

FLOATER AR		COMPRESSION AR		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31440046	17	31480046	15	1	2.1	44
31440047	35	31480047	33	2	3.5	73
31440048	52	31480048	50	3	4.8	106
31440049	71	31480049	69	4	6.3	134
31440050	88	31480050	86	5	7.8	165
31440051	106	31480051	104	6	9.2	196
31440052	123	31480052	121	7	10.6	225
31440053	142	31480053	140	8	12	258
31440054	159	31480054	157	9	13.4	287
31440055	177	31480055	175	10	14.8	317
31440056	194	31480056	192	11	16.2	348
31440057	213	31480057	211	12	17.6	377

Pump Outside Diameter: 4.00 inches

Standard Features: Carbon Steel Head, Base and Housing. Monel K500 Shaft.

Housing also available in 13 Chrome.

Heads and Bases also available in SST410 or 316L Stainless Steel.

All pumps are in Center Tandem Configuration.

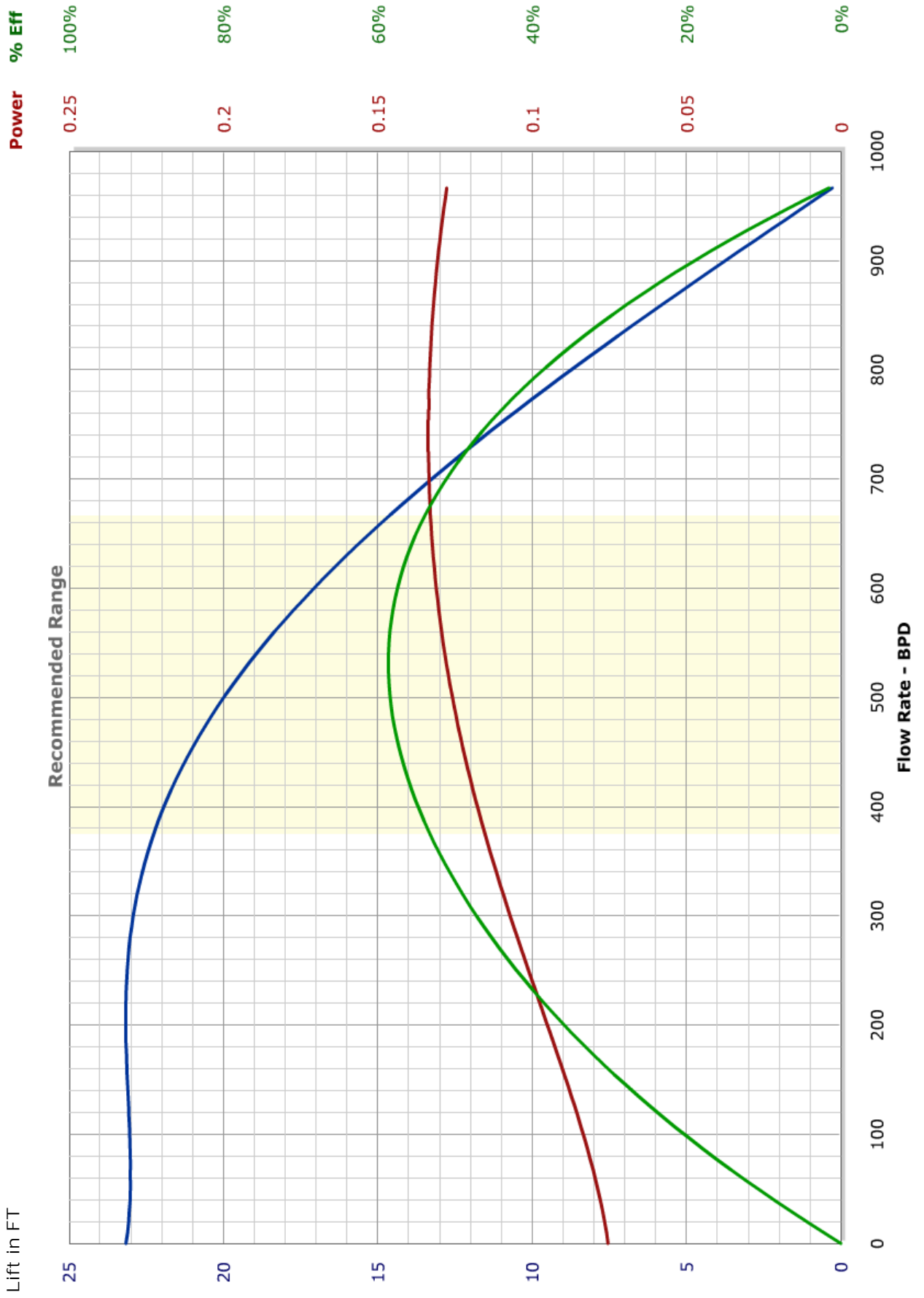
To calculate shipping length, add shipping caps (0.24 feet/cap) to component length.



Pump Performance Curve

1 Stage TD-650
TP400 - 2917 RPM

Specific Gravity = 1.0



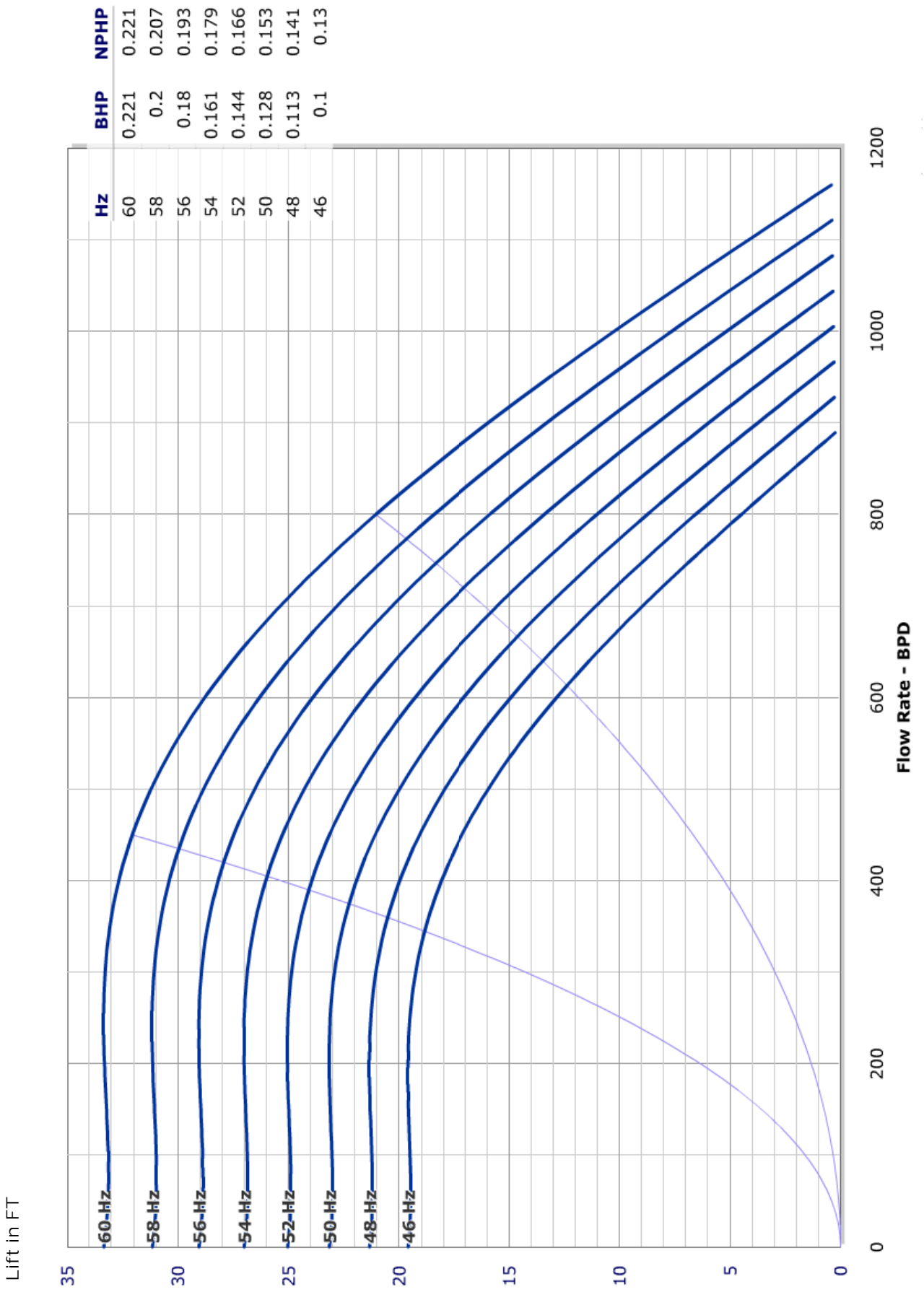


Pump Performance Curve

1 Stage TD-650

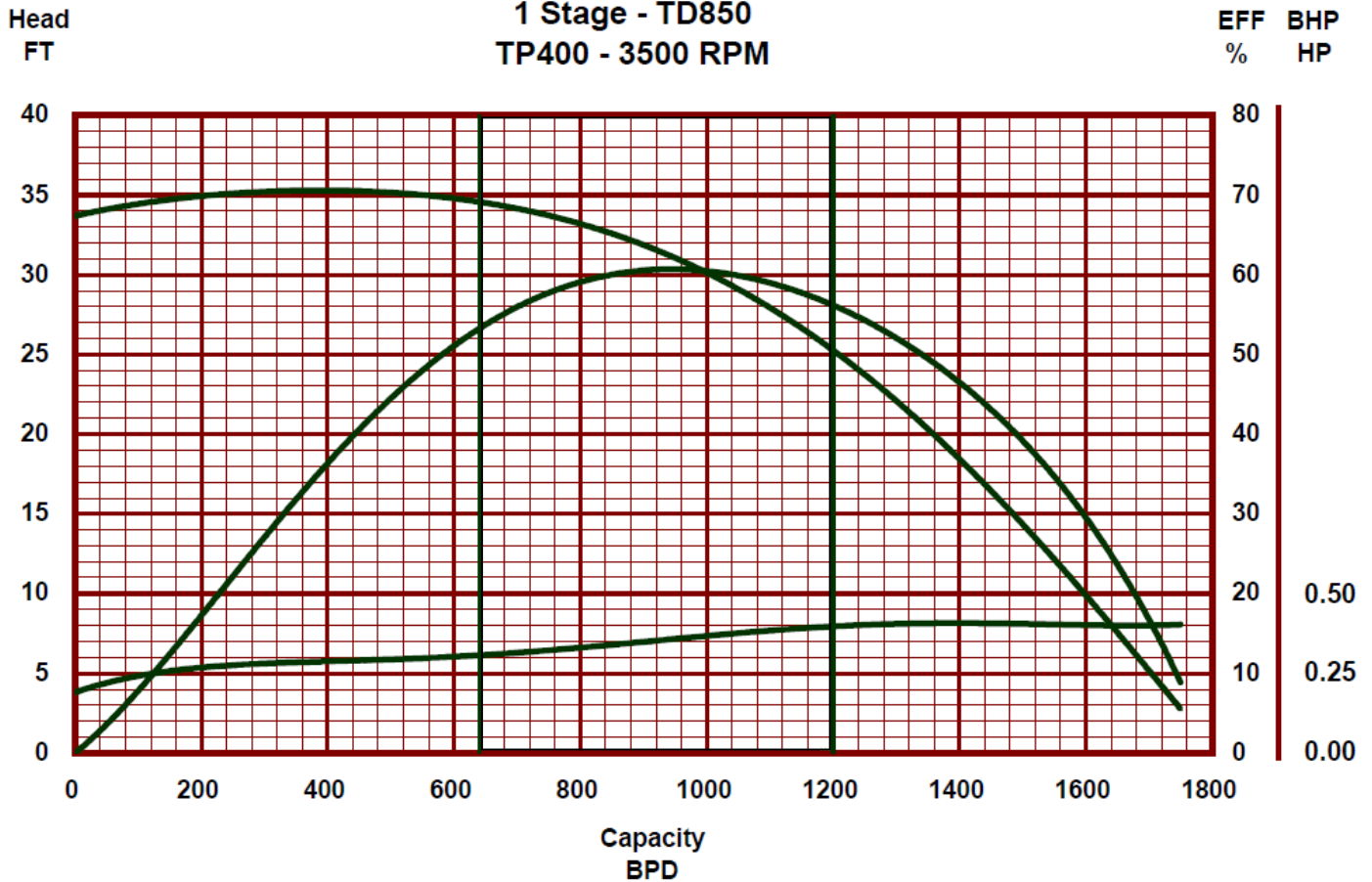
TP400 - Multi Hz

Specific Gravity = 1.0



COSCO 400 Series Pumps

Pump Performance Curve
1 Stage - TD850
TP400 - 3500 RPM



This engineering performance curve represents nominal performance based on actual multi-stage testing and certification. All pumps supplied by COSCO will be tested and certified to perform within the acceptable limits for head, horsepower, and efficiency as defined in the "API RECOMMENDED PRACTICE(11S2) FOR ELECTRIC SUBMERSIBLE PUMP TESTING."

ENGINEERING DATA				
Housing Dimeter		4.00 inches		
Minimum Casing Size		5 1/2 Inch		
Fluid Specific Gravity for Pump Curves		1.0		
Rotational Direction		CCW		
Shaft Details				
Shaft Diameter	5/8	0.625	Inches	
Shaft Area	0.307		Sq. Inches	
Shaft Limits				
Shaft Limit in HP at:		50 Hz	60 Hz	
Standard Shaft Limit		78	94	
High Strength (HSS)		125	150	
Maximum Staging: Shaft				
Shaft Type	No of Stages @			
	50 Hz		60 Hz	
Standard Shaft	329		229	
HSS	525		365	
Housing Pressure Limit			5000 PSI	
Maximum Staging: Thrust Bearings (250F BHT)				
Bearing Type	No of Stages @			
	50 Hz		60 Hz	
Standard Bearing	307		256	
Hi Load Bearing	1547		1177	

COSCO 400 Series Pumps

TD850 / 400 Series Pump

>>Minimum Casing Size 5 1/2 Inches

Maximum Bottom Hole Temperature: 250 F

STANDARD PUMP

FLOATER		COMPRESSION		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31420061	15	31460061	14	1	2.1	44
31420062	32	31460062	31	2	3.5	73
31420063	49	31460063	48	3	4.8	106
31420064	66	31460064	65	4	6.3	134
31420065	83	31460065	82	5	7.8	165
31420066	99	31460066	98	6	9.2	196
31420067	117	31460067	116	7	10.6	225
31420068	133	31460068	132	8	12	258
31420069	150	31460069	149	9	13.4	287
31420070	167	31460070	166	10	14.8	317
31420071	184	31460071	183	11	16.2	348
31420072	201	31460072	200	12	17.6	377

ABRASION RESISTANT PUMP

FLOATER AR		COMPRESSION AR		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31440061	14	31480061	13	1	2.1	44
31440062	30	31480062	29	2	3.5	73
31440063	45	31480063	44	3	4.8	106
31440064	61	31480064	60	4	6.3	134
31440065	76	31480065	75	5	7.8	165
31440066	91	31480066	90	6	9.2	196
31440067	107	31480067	106	7	10.6	225
31440068	122	31480068	121	8	12	258
31440069	137	31480069	136	9	13.4	287
31440070	153	31480070	152	10	14.8	317
31440071	168	31480071	167	11	16.2	348
31440072	184	31480072	183	12	17.6	377

Pump Outside Diameter: 4.00 inches

Standard Features: Carbon Steel Head, Base and Housing. Monel K500 Shaft.

Housing also available in 13 Chrome.

Heads and Bases also available in SST410 or 316L Stainless Steel.

All pumps are in Center Tandem Configuration.

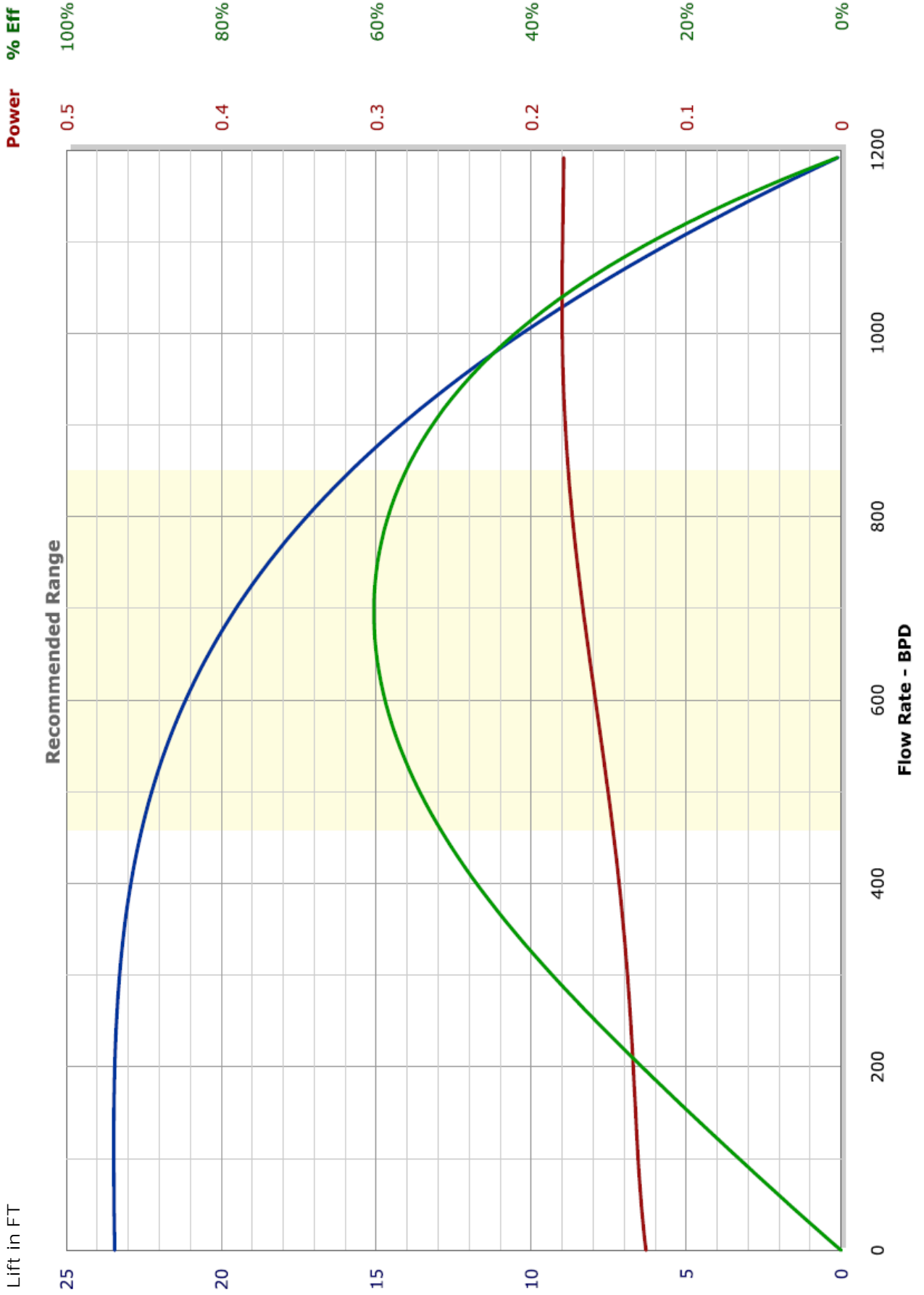
To calculate shipping length, add shipping caps (0.24 feet/cap) to component length.



Pump Performance Curve

1 Stage TD-850
TP400 - 2917 RPM

Specific Gravity = 1.0





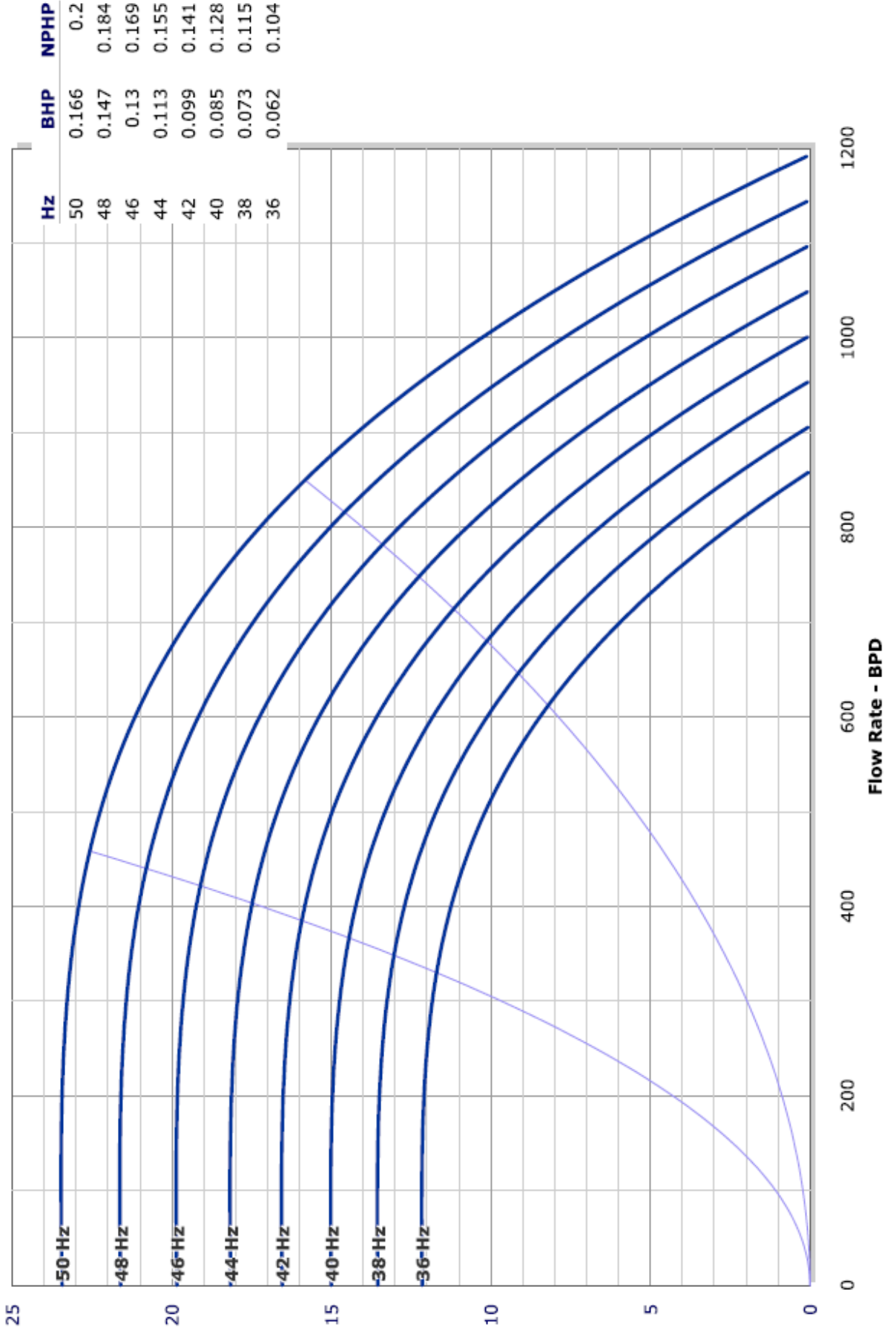
Pump Performance Curve

1 Stage TD-850

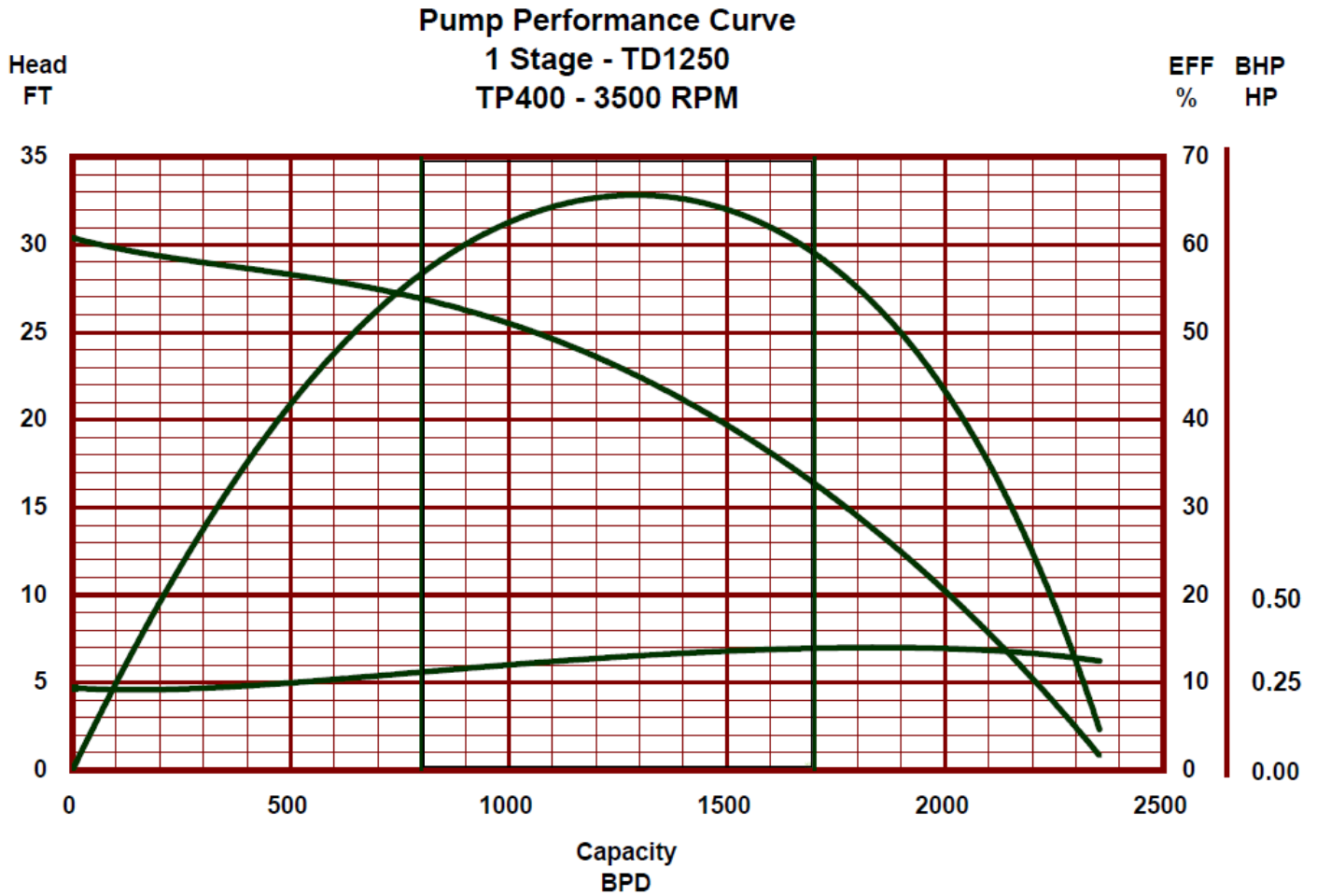
TP400 - Multi Hz

Specific Gravity = 1.0

Lift in FT



COSCO 400 Series Pumps



This engineering performance curve represents nominal performance based on actual multi-stage testing and certification. All pumps supplied by COSCO will be tested and certified to perform within the acceptable limits for head, horsepower, and efficiency as defined in the "API RECOMMENDED PRACTICE(11S2) FOR ELECTRIC SUBMERSIBLE PUMP TESTING."

ENGINEERING DATA				
Housing Dimeter		4.00 inches		
Minimum Casing Size		5 1/2 Inch		
Fluid Specific Gravity for Pump Curves		1.0		
Rotational Direction		CCW		
Shaft Details				
Shaft Diameter	11/16	0.688	Inches	
Shaft Area	0.371		Sq. Inches	
Shaft Limits				
Shaft Limit in HP at:		50 Hz	60 Hz	
Standard Shaft Limit		105	125	
High Strength (HSS)		168	200	
Maximum Staging: Shaft				
Shaft Type	No of Stages @			
	50 Hz		60 Hz	
Standard Shaft	514		357	
HSS	822		571	
Housing Pressure Limit			5000 PSI	
Maximum Staging: Thrust Bearings (250F BHT)				
Bearing Type	No of Stages @			
	50 Hz		60 Hz	
Standard Bearing	296		247	
Hi Load Bearing	1490		1136	

COSCO 400 Series Pumps

TD1250 / 400 Series Pump

>>Minimum Casing Size 5 1/2 Inches

Maximum Bottom Hole Temperature: 250 F

STANDARD PUMP

FLOATER		COMPRESSION		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31420076	8	31460076	7	1	2.1	44
31420077	16	31460077	15	2	3.5	73
31420078	25	31460078	24	3	4.8	106
31420079	34	31460079	33	4	6.3	134
31420080	43	31460080	42	5	7.8	165
31420081	52	31460081	51	6	9.2	196
31420082	61	31460082	60	7	10.6	225
31420083	70	31460083	69	8	12	258
31420084	78	31460084	77	9	13.4	287
31420085	87	31460085	86	10	14.8	317
31420086	96	31460086	95	11	16.2	348
31420087	105	31460087	104	12	17.6	377
31420088	114	31460088	113	13	19	403
31420089	123	31460089	122	14	20.4	438
31420090	132	31460090	131	15	21.9	478

ABRASION RESISTANT PUMP

FLOATER AR		COMPRESSION AR		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31440076	8	31480076	7	1	2.1	44
31440077	16	31480077	15	2	3.5	73
31440078	25	31480078	24	3	4.8	106
31440079	34	31480079	33	4	6.3	134
31440080	43	31480080	42	5	7.8	165
31440081	52	31480081	51	6	9.2	196
31440082	61	31480082	60	7	10.6	225
31440083	70	31480083	69	8	12	258
31440084	78	31480084	77	9	13.4	287
31440085	87	31480085	86	10	14.8	317
31440086	96	31480086	95	11	16.2	348
31440087	105	31480087	104	12	17.6	377
31440088	114	31480088	113	13	19	403
31440089	123	31480089	122	14	20.4	438
31440090	132	31480090	131	15	21.9	478

Pump Outside Diameter: 4.00 inches

Standard Features: Carbon Steel Head, Base and Housing. Monel K500 Shaft.

Housing also available in 13 Chrome.

Heads and Bases also available in SST410 or 316L Stainless Steel.

All pumps are in Center Tandem Configuration.

To calculate shipping length, add shipping caps (0.24 feet/cap) to component length.

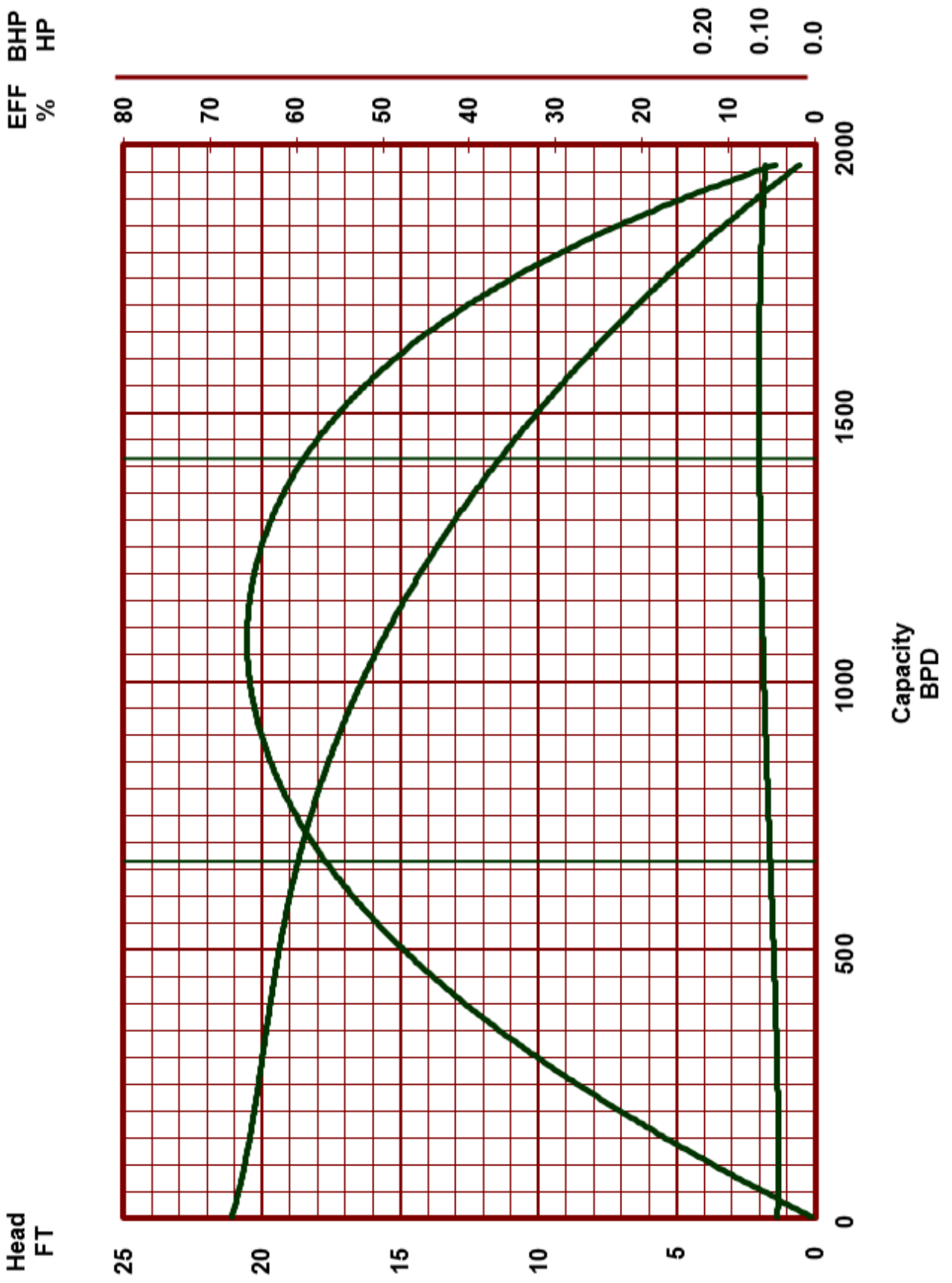


Pump Performance Curve

1 Stage TD-1250

TP400- 2917 RPM

Specific Gravity = 1.0

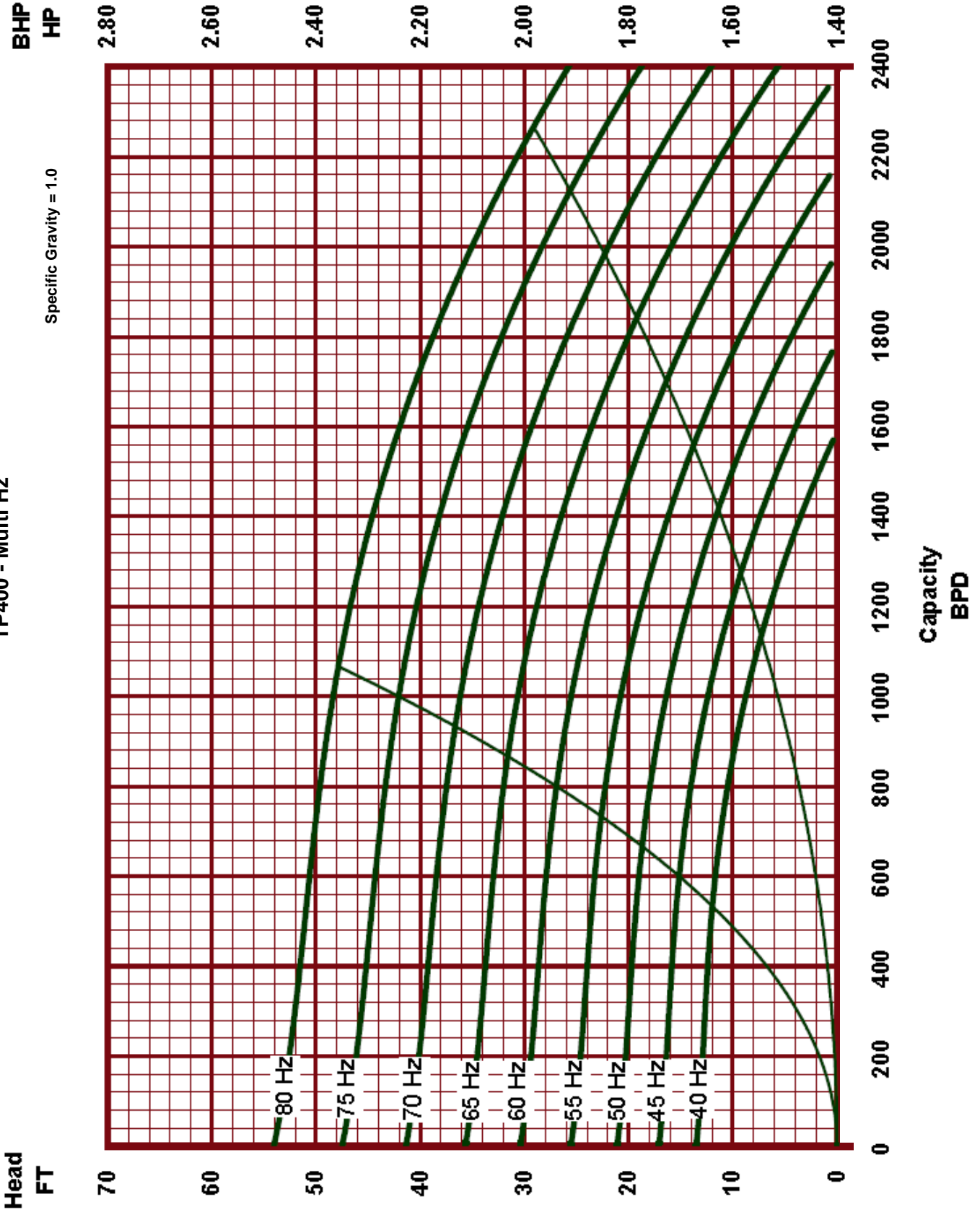




Pump Performance Curve

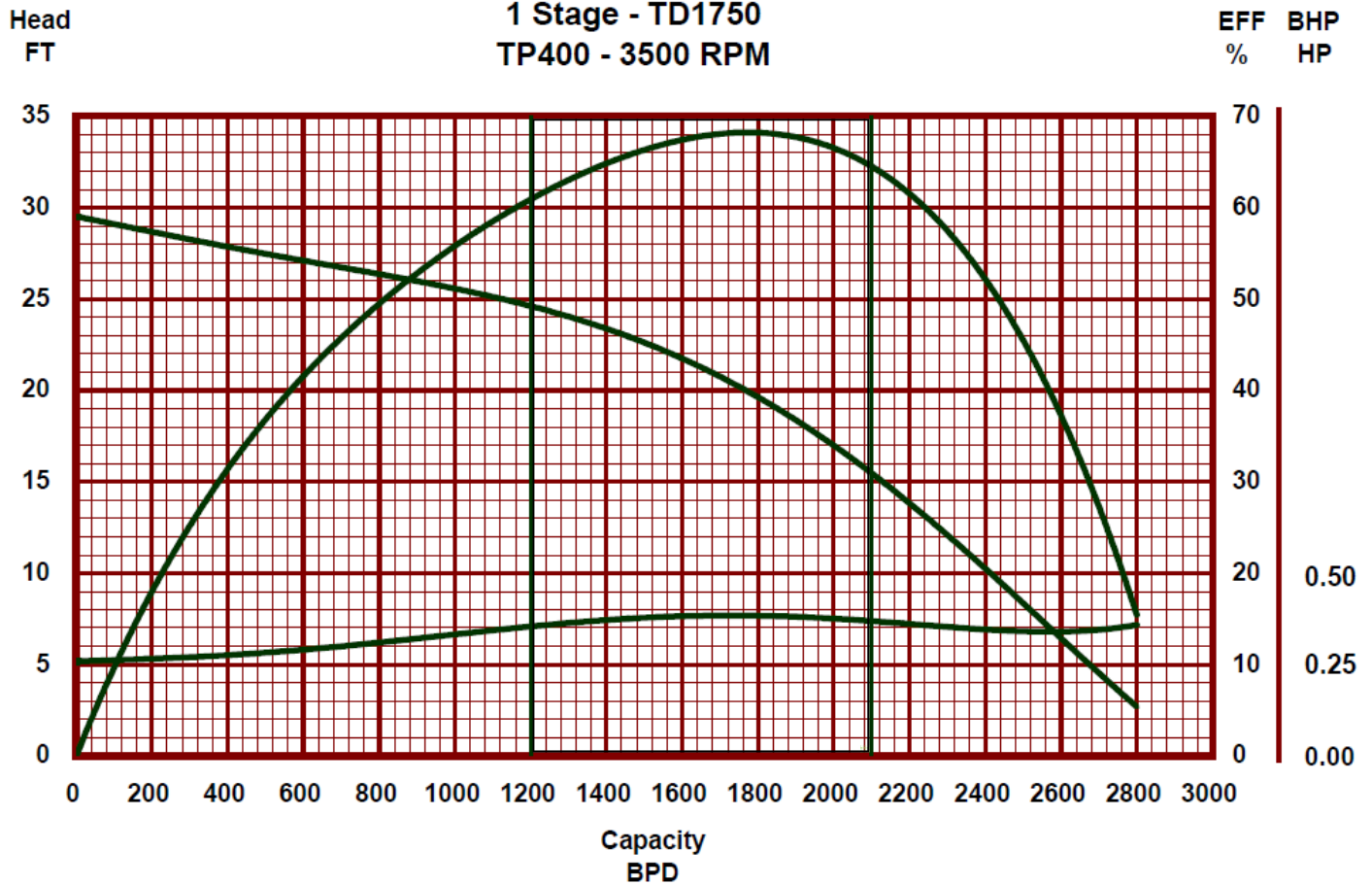
1 Stage TD-1250

TP400 - Multi Hz



COSCO 400 Series Pumps

Pump Performance Curve
1 Stage - TD1750
TP400 - 3500 RPM



This engineering performance curve represents nominal performance based on actual multi-stage testing and certification. All pumps supplied by COSCO will be tested and certified to perform within the acceptable limits for head, horsepower, and efficiency as defined in the "API RECOMMENDED PRACTICE(11S2) FOR ELECTRIC SUBMERSIBLE PUMP TESTING."

ENGINEERING DATA				
Housing Diameter		4.00 inches		
Minimum Casing Size		5 1/2 Inch		
Fluid Specific Gravity for Pump Curves		1.0		
Rotational Direction		CCW		
Shaft Details				
Shaft Diameter	11/16	0.688	Inches	
Shaft Area	0.371		Sq. Inches	
Shaft Limits				
Shaft Limit in HP at:		50 Hz	60 Hz	
Standard Shaft Limit		105	125	
High Strength (HSS)		168	200	
Maximum Staging: Shaft				
Shaft Type	No of Stages @			
	50 Hz		60 Hz	
Standard Shaft	460		320	
HSS	737		512	
Housing Pressure Limit			5000 PSI	
Maximum Staging: Thrust Bearings (250F BHT)				
Bearing Type	No of Stages @			
	50 Hz		60 Hz	
Standard Bearing	301		250	
Hi Load Bearing	1517		1150	

COSCO 400 Series Pumps

TD1750 / 400 Series Pump

>>Minimum Casing Size 5 1/2 Inches

Maximum Bottom Hole Temperature: 250 F

STANDARD PUMP

FLOATER		COMPRESSION		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31420091	8	31460091	7	1	2.1	44
31420092	16	31460092	15	2	3.5	73
31420093	24	31460093	23	3	4.8	106
31420094	33	31460094	32	4	6.3	134
31420095	41	31460095	40	5	7.8	165
31420096	50	31460096	49	6	9.2	196
31420097	58	31460097	57	7	10.6	225
31420098	67	31460098	66	8	12	258
31420099	75	31460099	74	9	13.4	287
31420100	84	31460100	83	10	14.8	317
31420101	92	31460101	91	11	16.2	348
31420102	100	31460102	99	12	17.6	377
31420103	108	31460103	107	13	19	403
31420104	116	31460104	115	14	20.4	438
31420105	125	31460105	124	15	21.9	478

ABRASION RESISTANT PUMP

FLOATER AR		COMPRESSION AR		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31440091	8	31480091	7	1	2.1	44
31440092	16	31480092	15	2	3.5	73
31440093	24	31480093	23	3	4.8	106
31440094	33	31480094	32	4	6.3	134
31440095	41	31480095	40	5	7.8	165
31440096	50	31480096	49	6	9.2	196
31440097	58	31480097	57	7	10.6	225
31440098	67	31480098	66	8	12	258
31440099	75	31480099	74	9	13.4	287
31440100	84	31480100	83	10	14.8	317
31440101	92	31480101	91	11	16.2	348
31440102	100	31480102	99	12	17.6	377
31440103	108	31480103	107	13	19	403
31440104	116	31480104	115	14	20.4	438
31440105	125	31480105	124	15	21.9	478

Pump Outside Diameter: 4.00 inches

Standard Features: Carbon Steel Head, Base and Housing. Monel K500 Shaft.

Housing also available in 13 Chrome.

Heads and Bases also available in SST410 or 316L Stainless Steel.

All pumps are in Center Tandem Configuration.

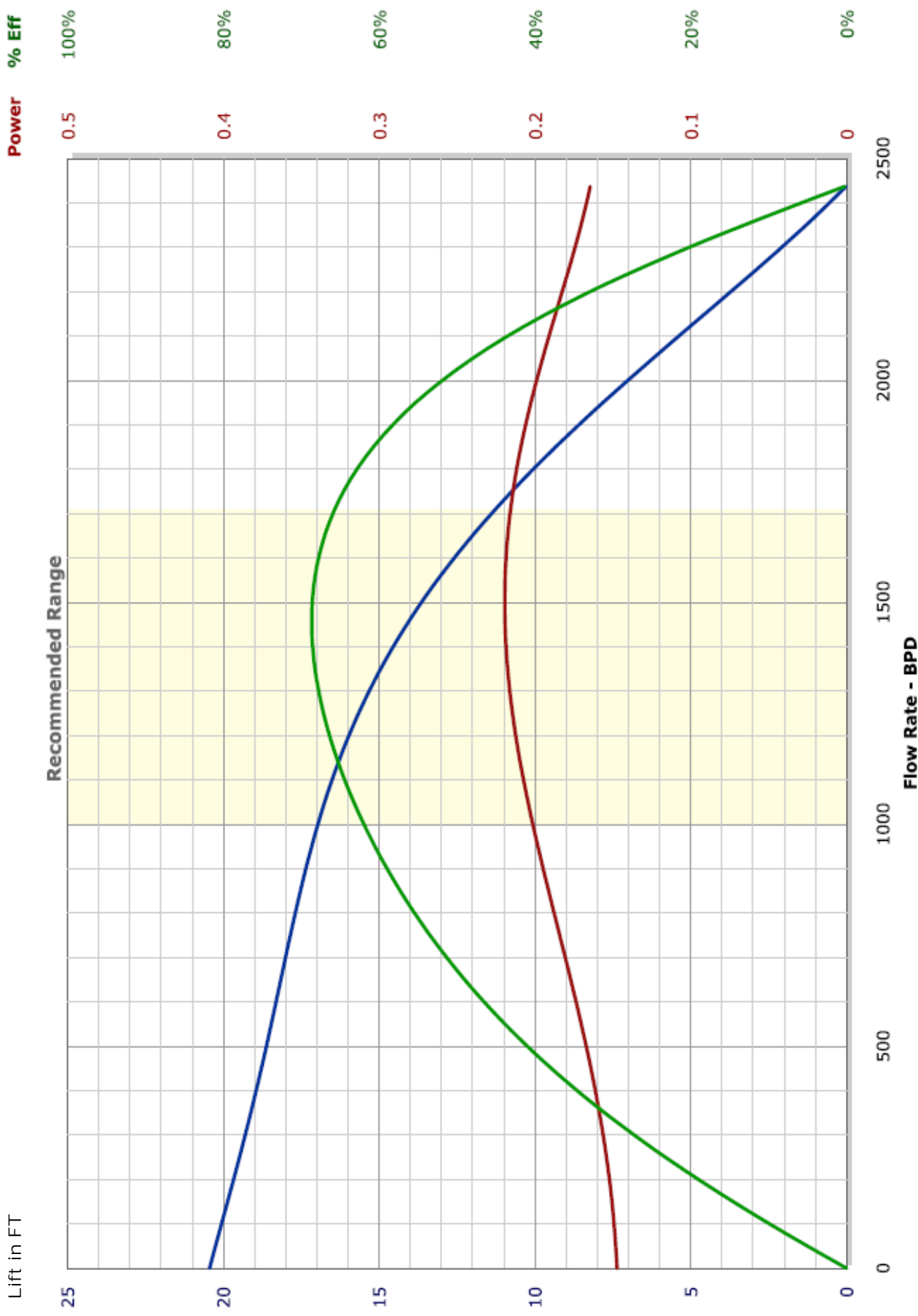
To calculate shipping length, add shipping caps (0.24 feet/cap) to component length.



Pump Performance Curve

1 Stage TD-1750
TP400 - 2917 RPM

Specific Gravity = 1.0





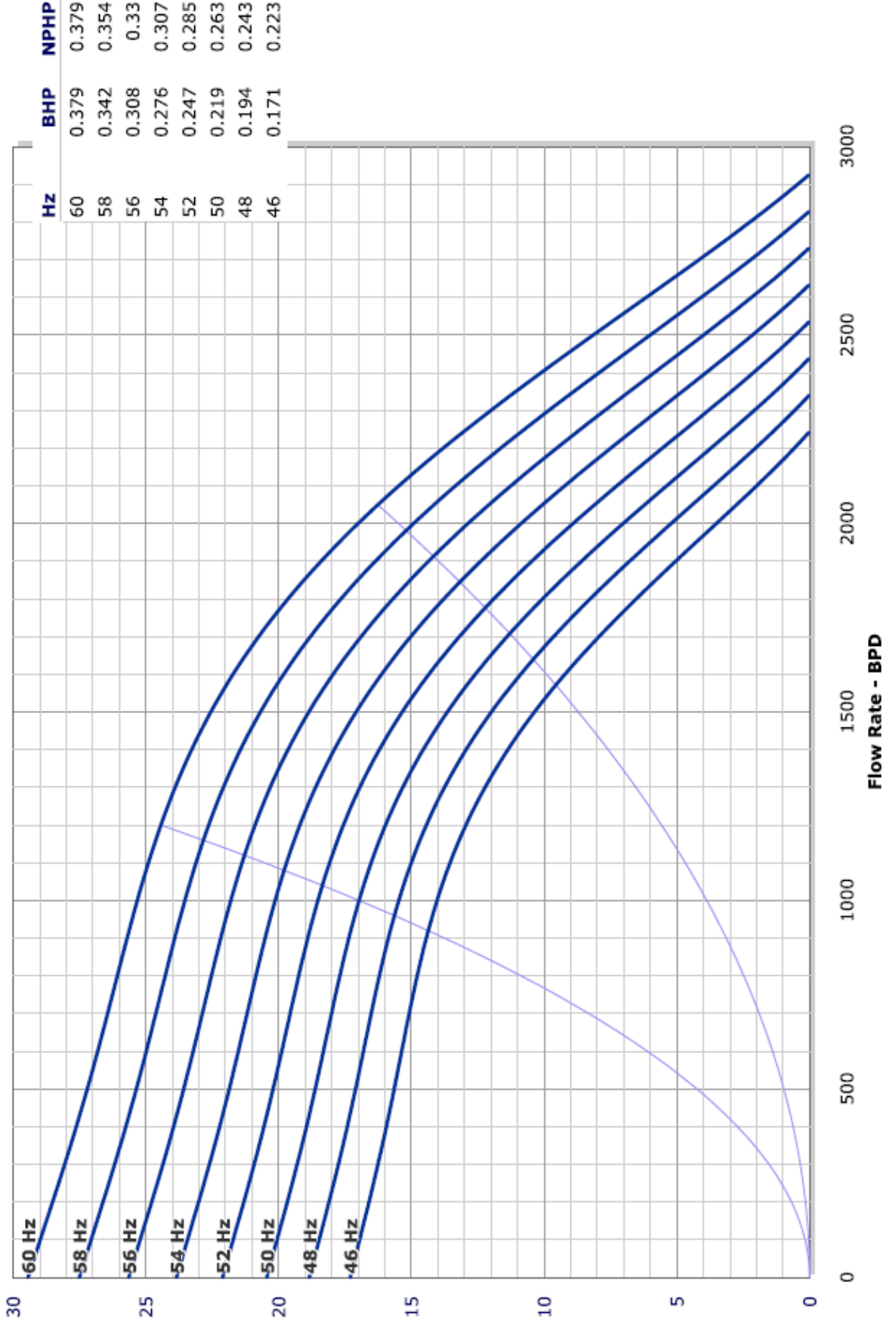
Pump Performance Curve

1 Stage TD-1750

TP400 - Multi Hz

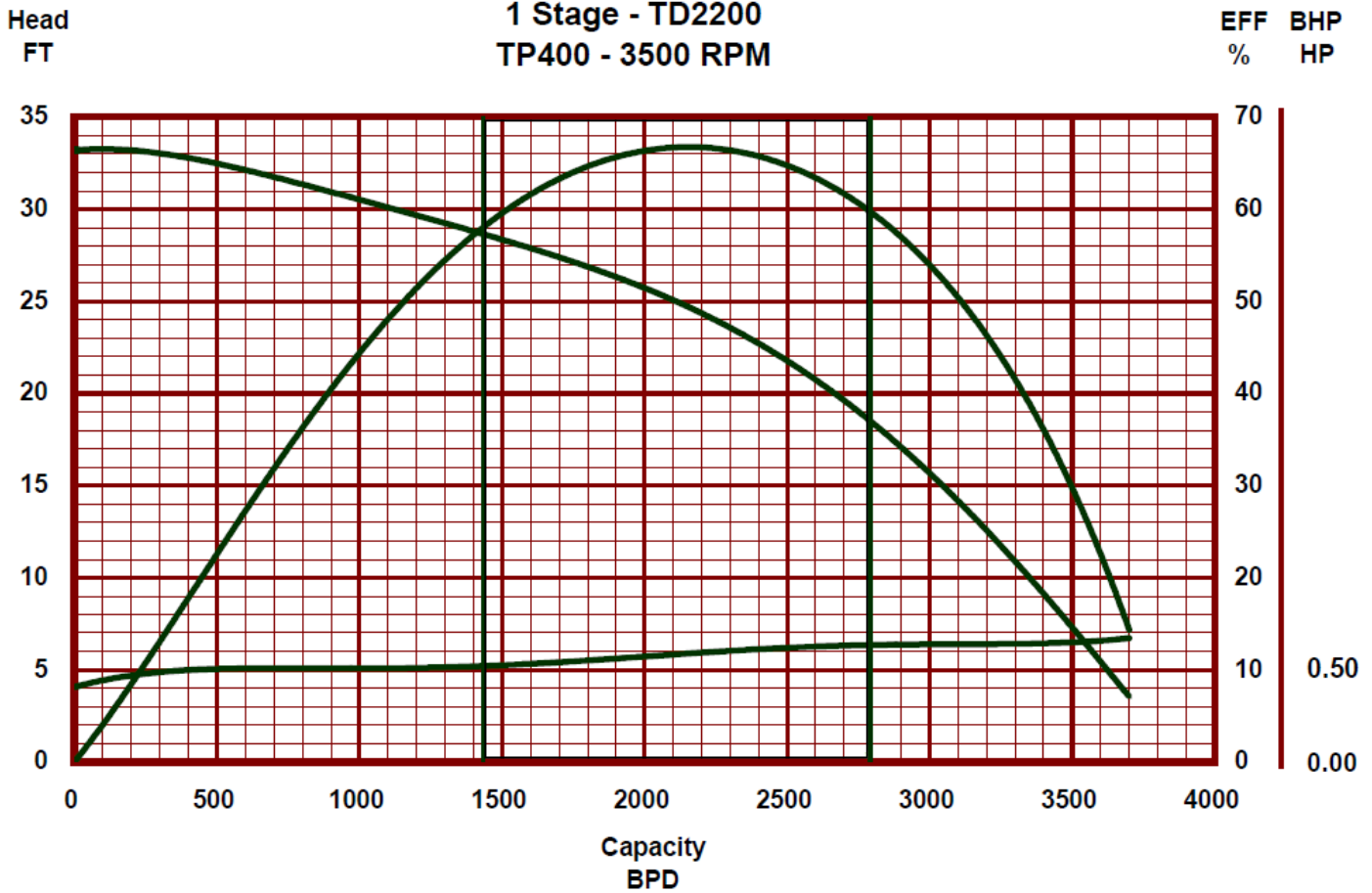
Specific Gravity = 1.0

Lift in FT



COSCO 400 Series Pumps

Pump Performance Curve
1 Stage - TD2200
TP400 - 3500 RPM



This engineering performance curve represents nominal performance based on actual multi-stage testing and certification. All pumps supplied by COSCO will be tested and certified to perform within the acceptable limits for head, horsepower, and efficiency as defined in the "API RECOMMENDED PRACTICE(11S2) FOR ELECTRIC SUBMERSIBLE PUMP TESTING."

ENGINEERING DATA				
Housing Dimeter		4.00 inches		
Minimum Casing Size		5 1/2 Inch		
Fluid Specific Gravity for Pump Curves		1.0		
Rotational Direction		CCW		
Shaft Details				
Shaft Diameter	11/16	0.688	Inches	
Shaft Area	0.371		Sq. Inches	
Shaft Limits				
Shaft Limit in HP at:		50 Hz	60 Hz	
Standard Shaft Limit		105	125	
High Strength (HSS)		168	200	
Maximum Staging: Shaft				
Shaft Type	No of Stages @			
	50 Hz		60 Hz	
Standard Shaft	315		219	
HSS	504		350	
Housing Pressure Limit			5000 PSI	
Maximum Staging: Thrust Bearings (250F BHT)				
Bearing Type	No of Stages @			
	50 Hz		60 Hz	
Standard Bearing	271		226	
Hi Load Bearing	1365		1039	

COSCO 400 Series Pumps

TD2200 / 400 Series Pump

>>Minimum Casing Size 5 1/2 Inches

Maximum Bottom Hole Temperature: 250 F

STANDARD PUMP

FLOATER		COMPRESSION		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31420106	8	31460106	7	1	2.1	44
31420107	16	31460107	15	2	3.5	73
31420108	24	31460108	23	3	4.8	106
31420109	33	31460109	32	4	6.3	134
31420110	41	31460110	40	5	7.8	165
31420111	50	31460111	49	6	9.2	196
31420112	58	31460112	57	7	10.6	225
31420113	67	31460113	66	8	12	258
31420114	75	31460114	74	9	13.4	287
31420115	84	31460115	83	10	14.8	317
31420116	92	31460116	91	11	16.2	348
31420117	100	31460117	99	12	17.6	377
31420118	108	31460118	107	13	19	403
31420119	116	31460119	115	14	20.4	438
31420120	125	31460120	124	15	21.9	478

ABRASION RESISTANT

FLOATER AR		COMPRESSION AR		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31440106	8	31480106	7	1	2.1	44
31440107	16	31480107	15	2	3.5	73
31440108	24	31480108	23	3	4.8	106
31440109	33	31480109	32	4	6.3	134
31440110	41	31480110	40	5	7.8	165
31440111	50	31480111	49	6	9.2	196
31440112	58	31480112	57	7	10.6	225
31440113	67	31480113	66	8	12	258
31440114	75	31480114	74	9	13.4	287
31440115	84	31480115	83	10	14.8	317
31440116	92	31480116	91	11	16.2	348
31440117	100	31480117	99	12	17.6	377
31440118	108	31480118	107	13	19	403
31440119	116	31480119	115	14	20.4	438
31440120	125	31480120	124	15	21.9	478

Pump Outside Diameter: 4.00 inches

Standard Features: Carbon Steel Head, Base and Housing. Monel K500 Shaft.

Housing also available in 13 Chrome.

Heads and Bases also available in SST410 or 316L Stainless Steel.

All pumps are in Center Tandem Configuration.

To calculate shipping length, add shipping caps (0.24 feet/cap) to component length.

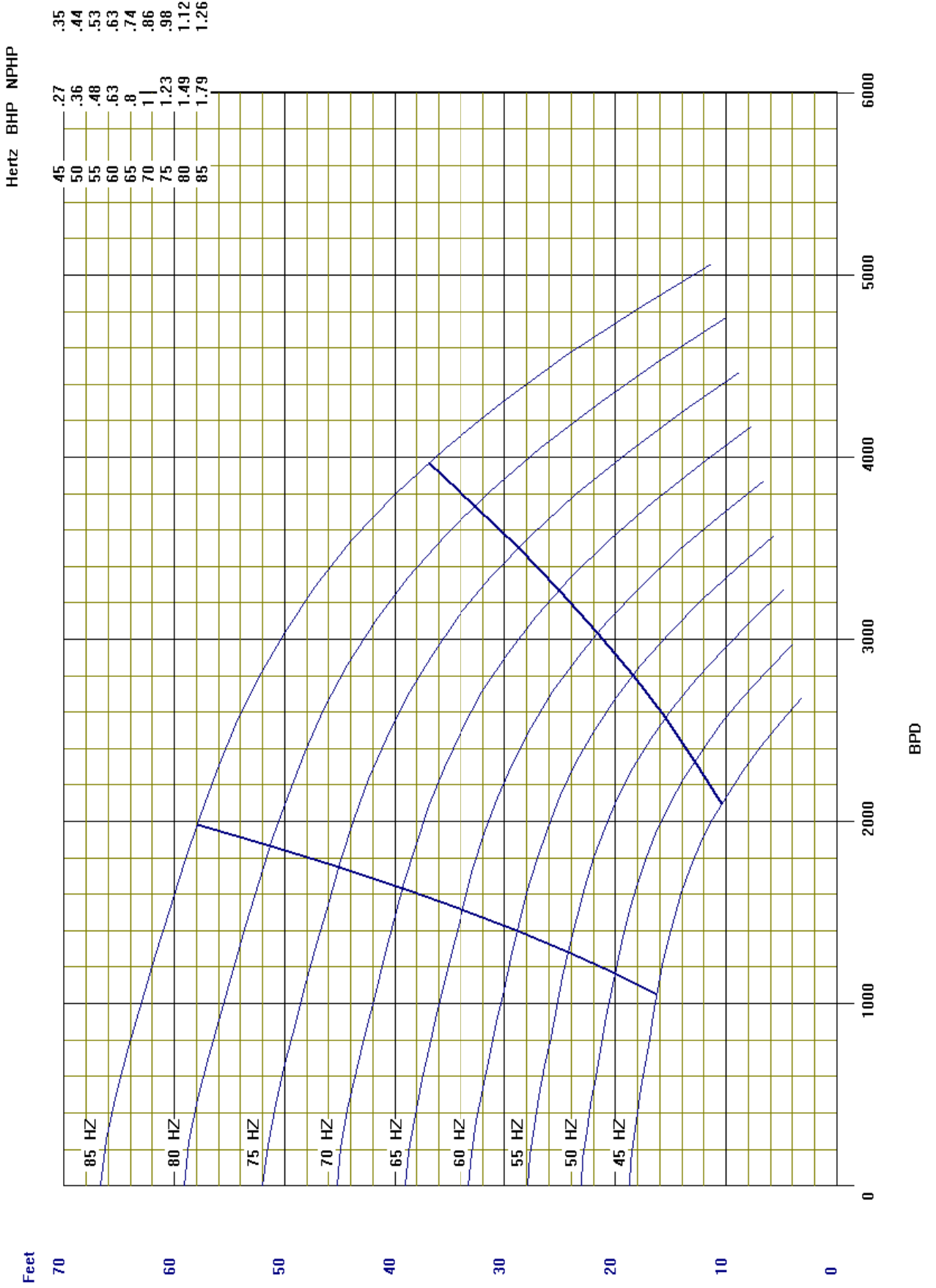


Pump Performance Curve

1 Stage TD-2200

TP400 - Multi Hz

Specific Gravity = 1.0



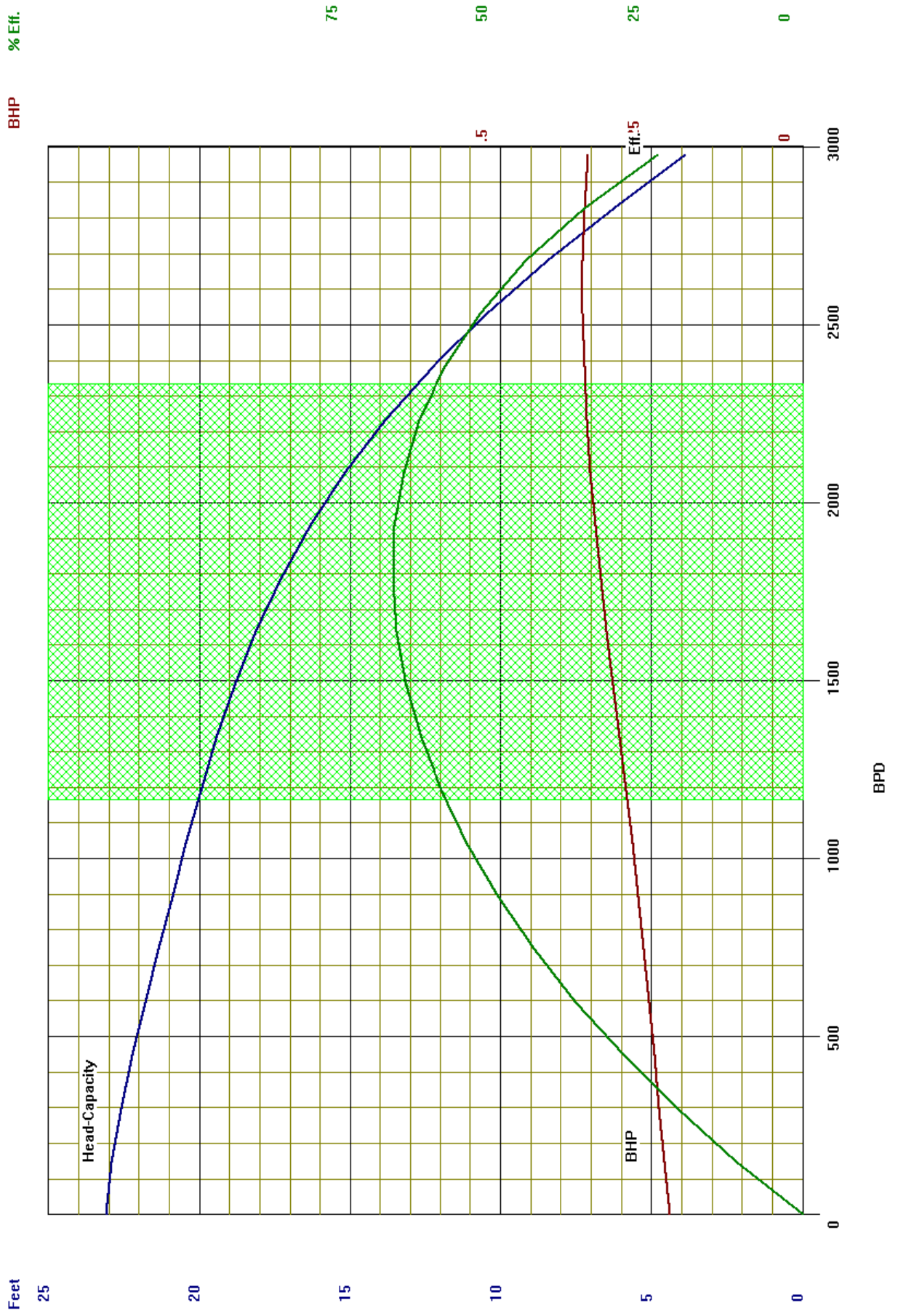


Pump Performance Curve

1 Stage TD-2200

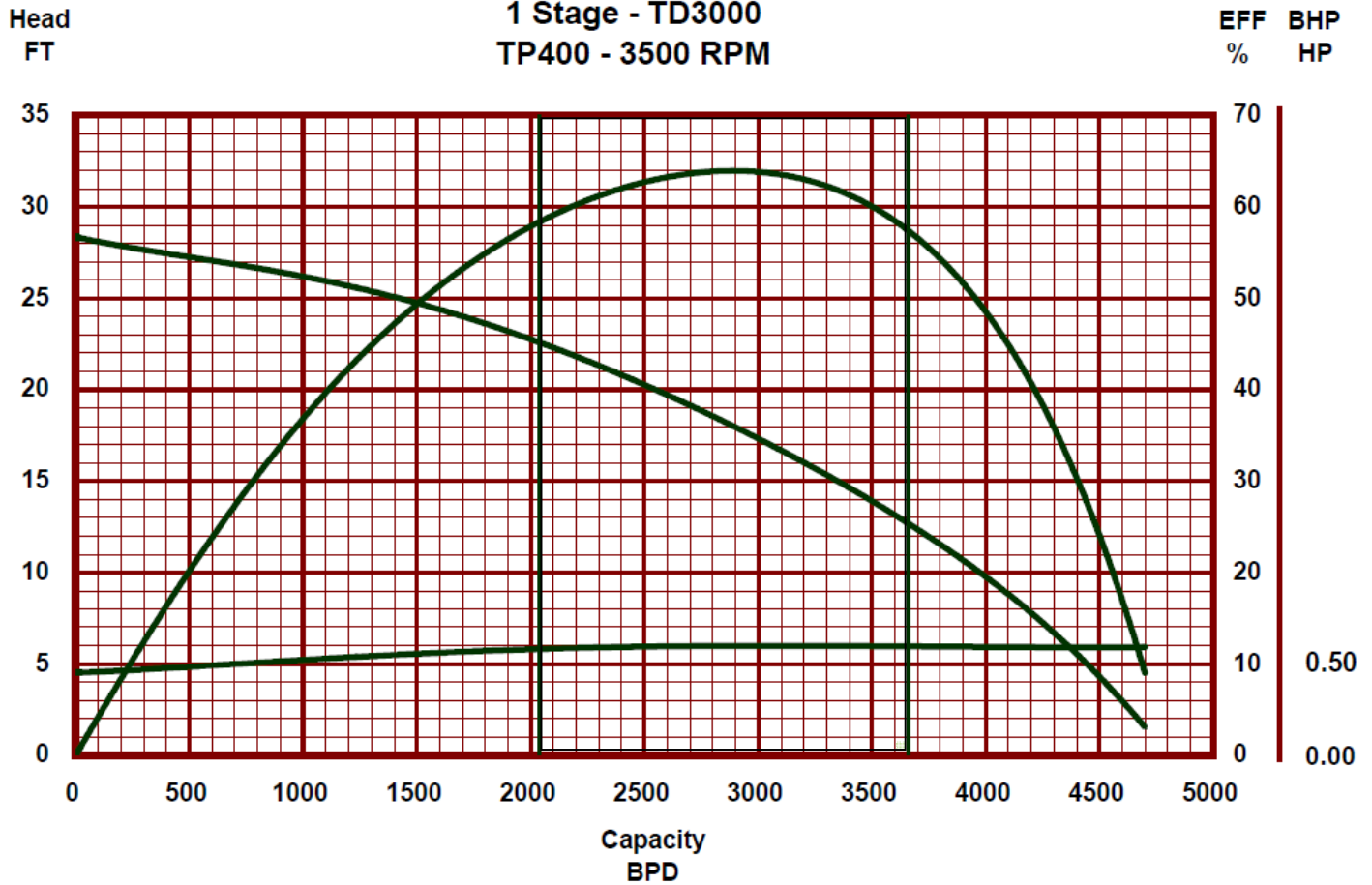
TP400- 2917 RPM

Specific Gravity = 1.0



COSCO 400 Series Pumps

Pump Performance Curve
1 Stage - TD3000
TP400 - 3500 RPM



This engineering performance curve represents nominal performance based on actual multi-stage testing and certification. All pumps supplied by COSCO will be tested and certified to perform within the acceptable limits for head, horsepower, and efficiency as defined in the "API RECOMMENDED PRACTICE(11S2) FOR ELECTRIC SUBMERSIBLE PUMP TESTING."

ENGINEERING DATA				
Housing Dimeter		4.00 inches		
Minimum Casing Size		5 1/2 Inch		
Fluid Specific Gravity for Pump Curves		1.0		
Rotational Direction		CCW		
Shaft Details				
Shaft Diameter	7/8	0.875	Inches	
Shaft Area	0.601		Sq. Inches	
Shaft Limits				
Shaft Limit in HP at:		50 Hz	60 Hz	
Standard Shaft Limit		213	256	
High Strength (HSS)		342	410	
Maximum Staging: Shaft				
Shaft Type	No of Stages @			
	50 Hz		60 Hz	
Standard Shaft	613		426	
HSS	983		683	
Housing Pressure Limit			5000 PSI	
Maximum Staging: Thrust Bearings (250F BHT)				
Bearing Type	No of Stages @			
	50 Hz		60 Hz	
Standard Bearing	194		162	
Hi Load Bearing	977		745	

COSCO 400 Series Pumps

TD3000 / 400 Series Pump

>>Minimum Casing Size 5 1/2 Inches

Maximum Bottom Hole Temperature: 250 F

STANDARD PUMP

FLOATER		COMPRESSION		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31420121	6	31460121	5	1	2.1	44
31420122	14	31460122	13	2	3.5	73
31420123	21	31460123	20	3	4.8	106
31420124	29	31460124	28	4	6.3	134
31420125	36	31460125	35	5	7.8	165
31420126	44	31460126	43	6	9.2	196
31420127	51	31460127	50	7	10.6	225
31420128	59	31460128	58	8	12	258
31420129	66	31460129	65	9	13.4	287
31420130	74	31460130	73	10	14.8	317
31420131	81	31460131	80	11	16.2	348
31420132	89	31460132	88	12	17.6	377
31420133	96	31460133	95	13	19	403
31420134	104	31460134	103	14	20.4	438
31420135	111	31460135	110	15	21.9	478

ABRASION RESISTANT PUMP

FLOATER AR		COMPRESSION AR		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31440121	6	31480121	5	1	2.1	44
31440122	14	31480122	13	2	3.5	73
31440123	21	31480123	20	3	4.8	106
31440124	29	31480124	28	4	6.3	134
31440125	36	31480125	35	5	7.8	165
31440126	44	31480126	43	6	9.2	196
31440127	51	31480127	50	7	10.6	225
31440128	59	31480128	58	8	12	258
31440129	66	31480129	65	9	13.4	287
31440130	74	31480130	73	10	14.8	317
31440131	81	31480131	80	11	16.2	348
31440132	89	31480132	88	12	17.6	377
31440133	96	31480133	95	13	19	403
31440134	104	31480134	103	14	20.4	438
31440135	111	31480135	110	15	21.9	478

Pump Outside Diameter: 4.00 inches

Standard Features: Carbon Steel Head, Base and Housing. Monel K500 Shaft.

Housing also available in 13 Chrome.

Heads and Bases also available in SST410 or 316L Stainless Steel.

All pumps are in Center Tandem Configuration.

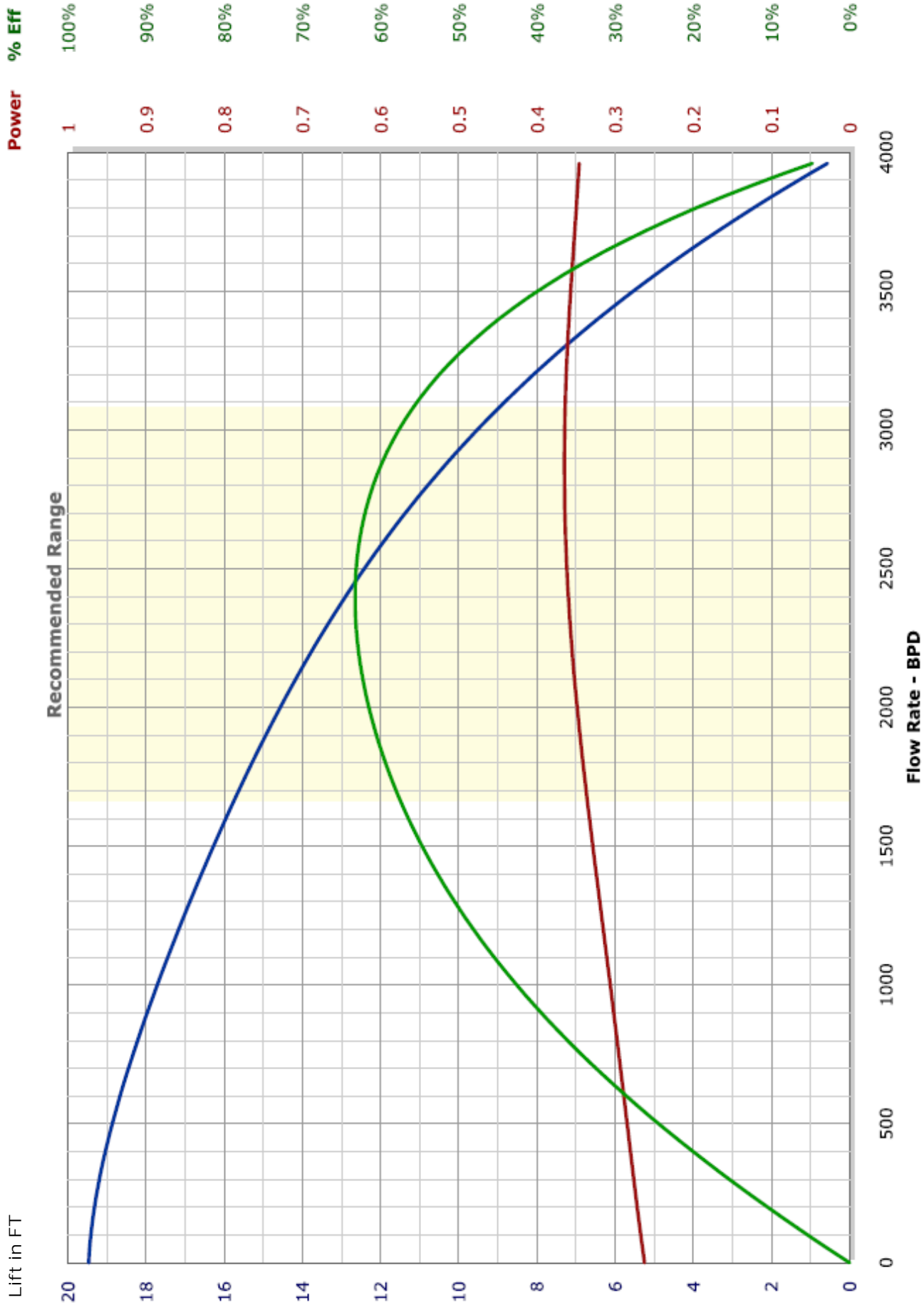
To calculate shipping length, add shipping caps (0.24 feet/cap) to component length.



Pump Performance Curve

1 Stage TD-3000
TP400 - 2917 RPM

Specific Gravity = 1.0



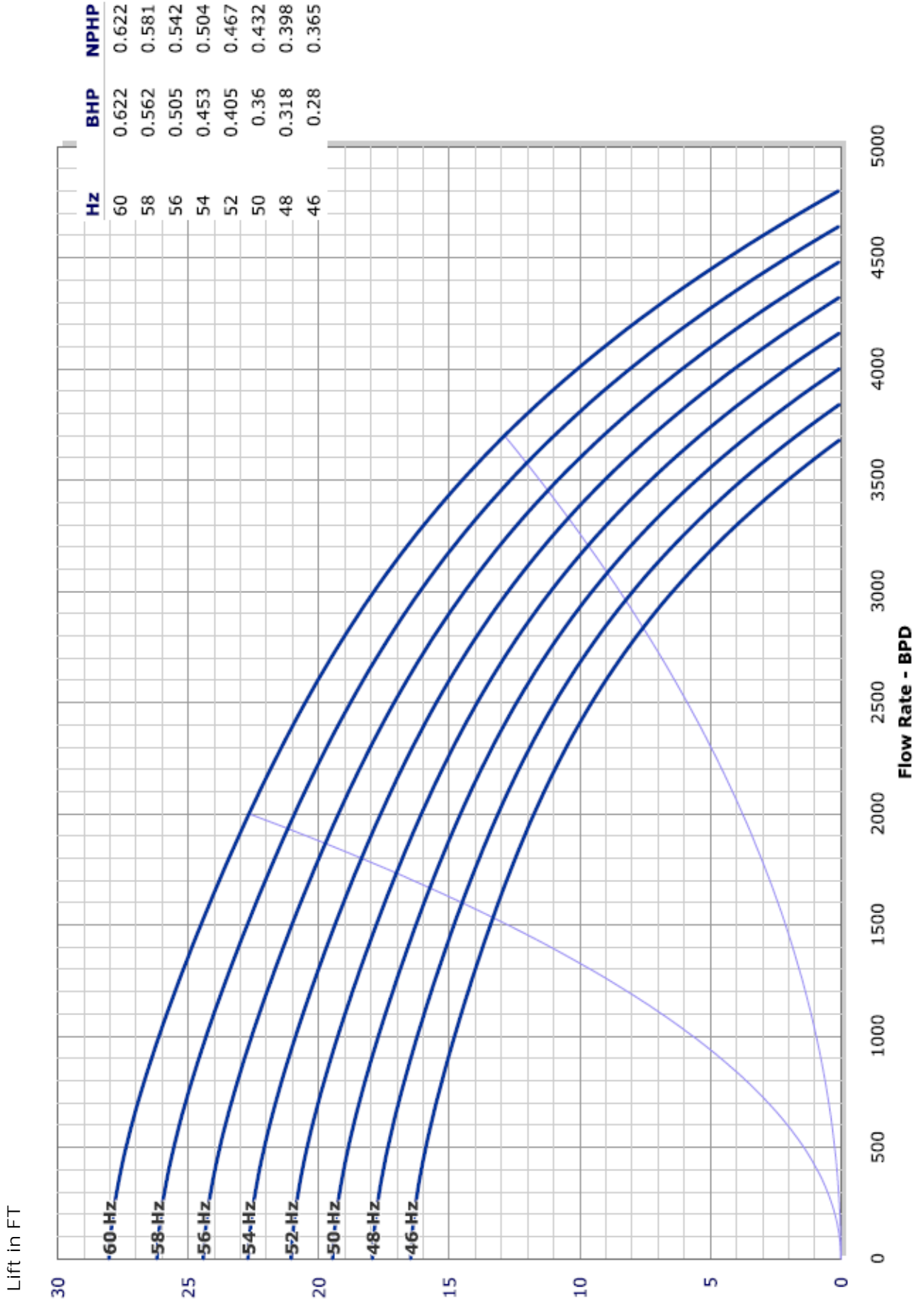


Pump Performance Curve

1 Stage TD-3000

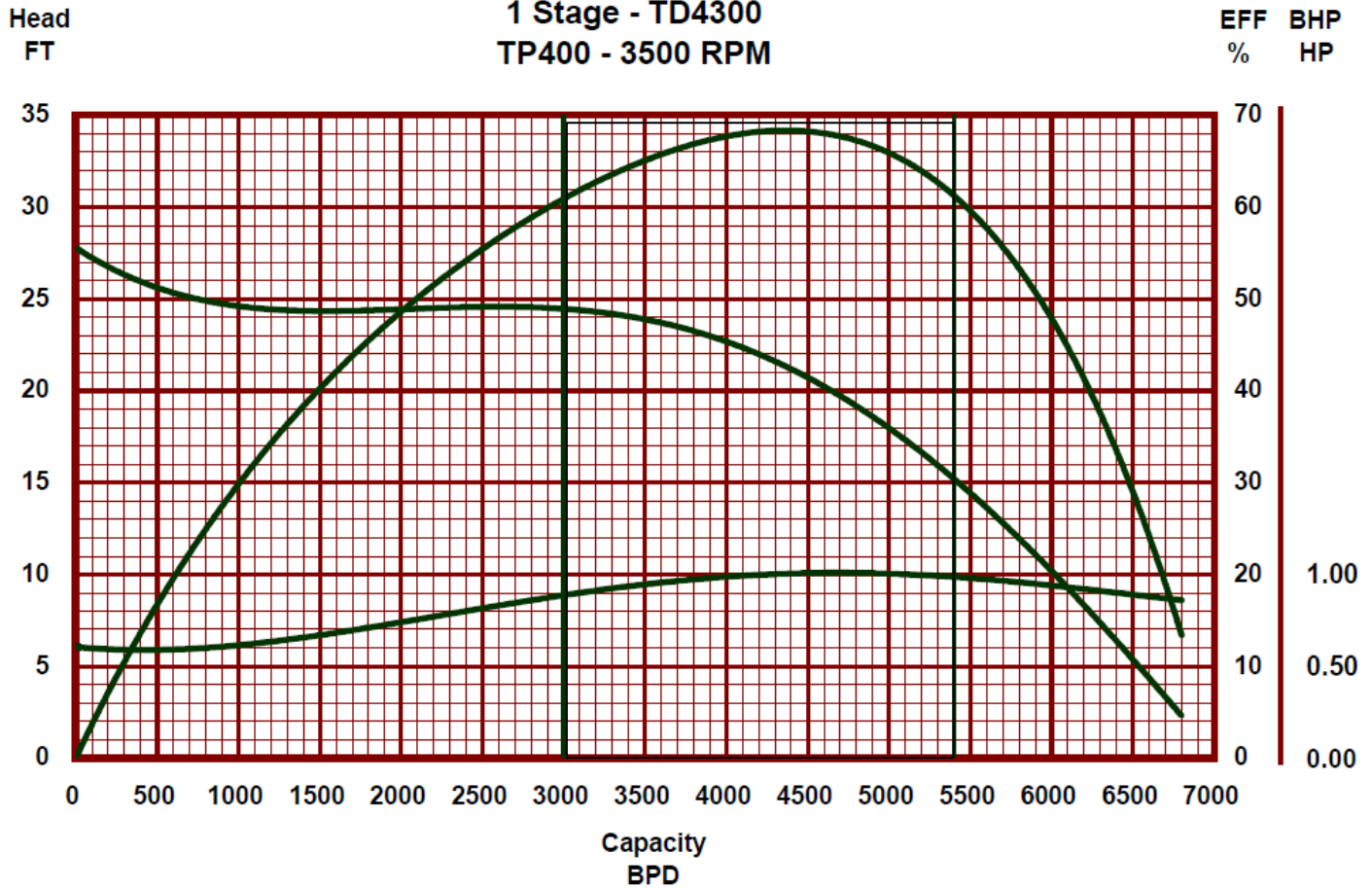
TP400 - Multi Hz

Specific Gravity = 1.0



COSCO 400 Series Pumps

Pump Performance Curve
1 Stage - TD4300
TP400 - 3500 RPM



This engineering performance curve represents nominal performance based on actual multi-stage testing and certification. All pumps supplied by COSCO will be tested and certified to perform within the acceptable limits for head, horsepower, and efficiency as defined in the "API RECOMMENDED PRACTICE(11S2) FOR ELECTRIC SUBMERSIBLE PUMP TESTING."

ENGINEERING DATA				
Housing Dimeter		4.00 inches		
Minimum Casing Size		5 1/2 Inch		
Fluid Specific Gravity for Pump Curves		1.0		
Rotational Direction		CCW		
Shaft Details				
Shaft Diameter	7/8	0.875	Inches	
Shaft Area	0.601		Sq. Inches	
Shaft Limits				
Shaft Limit in HP at:		50 Hz	60 Hz	
Standard Shaft Limit		213	256	
High Strength (HSS)		342	410	
Maximum Staging: Shaft				
Shaft Type	No of Stages @			
	50 Hz		60 Hz	
Standard Shaft	360		250	
HSS	577		401	
Housing Pressure Limit			5000 PSI	
Maximum Staging: Thrust Bearings (250F BHT)				
Bearing Type	No of Stages @			
	50 Hz		60 Hz	
Standard Bearing	196		163	
Hi Load Bearing	987		749	

COSCO 400 Series Pumps

TD4300 / 400 Series Pump

>>Minimum Casing Size 5 1/2 Inches

Maximum Bottom Hole Temperature: 250 F

STANDARD PUMP

FLOATER		COMPRESSION		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31420136	4	31460136	3	1	2.1	44
31420137	8	31460137	7	2	3.5	73
31420138	13	31460138	12	3	4.8	106
31420139	17	31460139	16	4	6.3	134
31420140	22	31460140	21	5	7.8	165
31420141	27	31460141	26	6	9.2	196
31420142	31	31460142	30	7	10.6	225
31420143	36	31460143	35	8	12	258
31420144	40	31460144	39	9	13.4	287
31420145	45	31460145	44	10	14.8	317
31420146	49	31460146	48	11	16.2	348
31420147	54	31460147	53	12	17.6	377
31420148	59	31460148	58	13	19	500
31420149	63	31460149	62	14	20.4	538
31420150	68	31460150	67	15	21.9	578

ABRASION RESISTANT

FLOATER AR		COMPRESSION AR		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31440136	4	31480136	3	1	2.1	44
31440137	8	31480137	7	2	3.5	73
31440138	13	31480138	12	3	4.8	106
31440139	17	31480139	16	4	6.3	134
31440140	22	31480140	21	5	7.8	165
31440141	27	31480141	26	6	9.2	196
31440142	31	31480142	30	7	10.6	225
31440143	36	31480143	35	8	12	258
31440144	40	31480144	39	9	13.4	287
31440145	45	31480145	44	10	14.8	317
31440146	49	31480146	48	11	16.2	348
31440147	54	31480147	53	12	17.6	377
31440148	59	31480148	58	13	19	403
31440149	63	31480149	62	14	20.4	438
31440150	68	31480150	67	15	21.9	478

Pump Outside Diameter: 4.00 inches

Standard Features: Carbon Steel Head, Base and Housing. Monel K500 Shaft.

Housing also available in 13 Chrome.

Heads and Bases also available in SST410 or 316L Stainless Steel.

All pumps are in Center Tandem Configuration.

To calculate shipping length, add shipping caps (0.24 feet/cap) to component length.

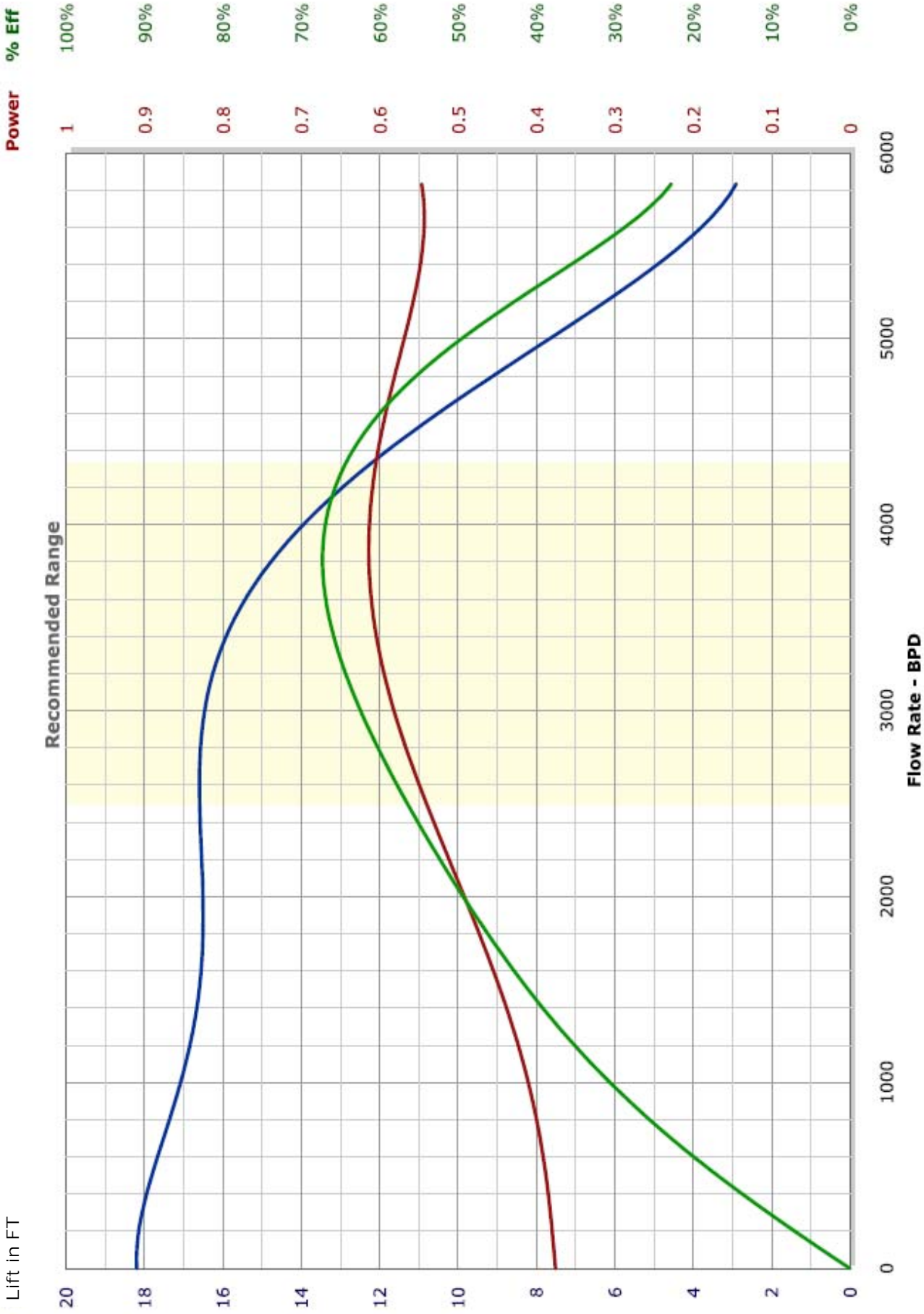


Pump Performance Curve

1 Stage TD-4300

TP400 - 2917 RPM

Specific Gravity = 1.0



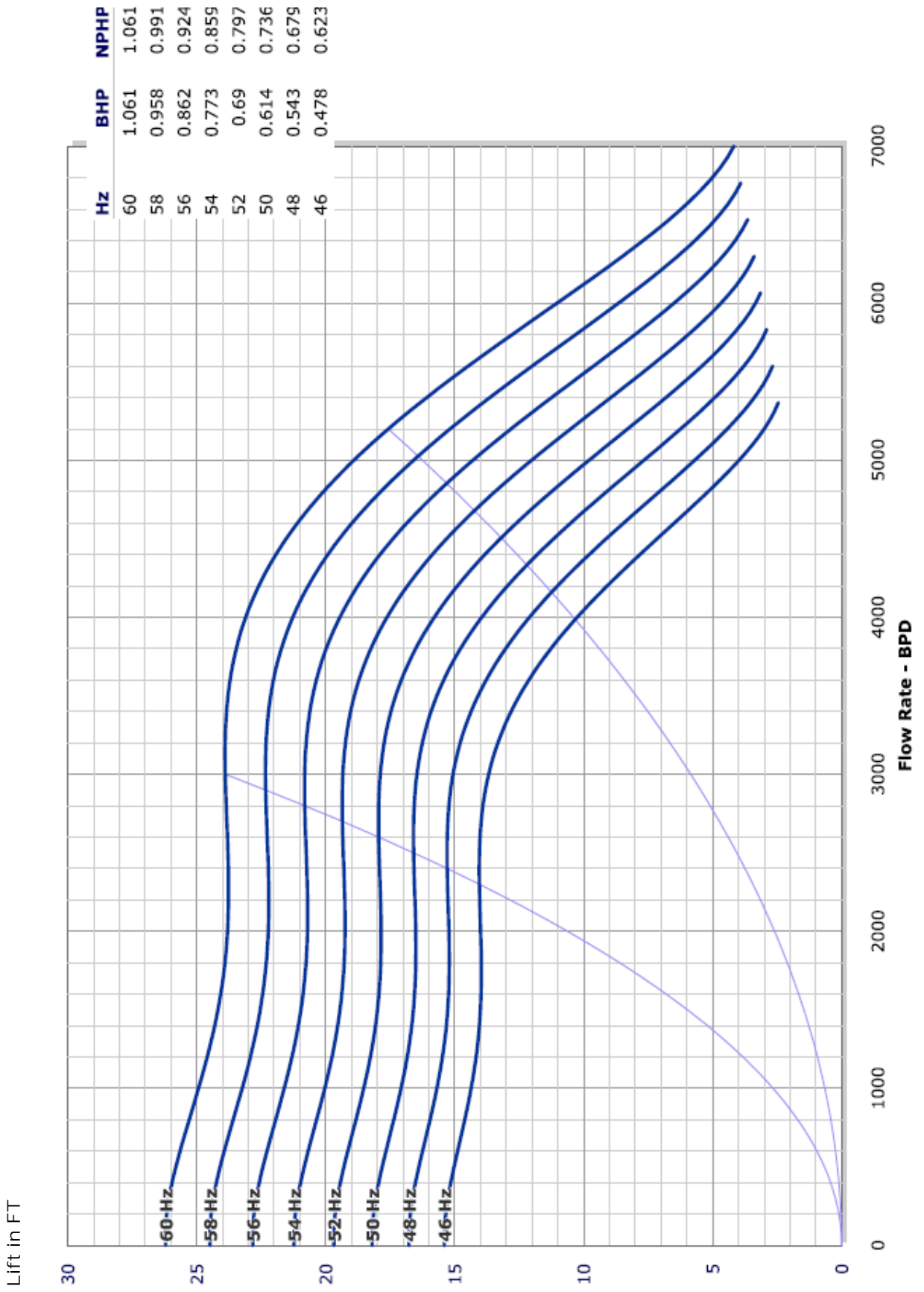


Pump Performance Curve

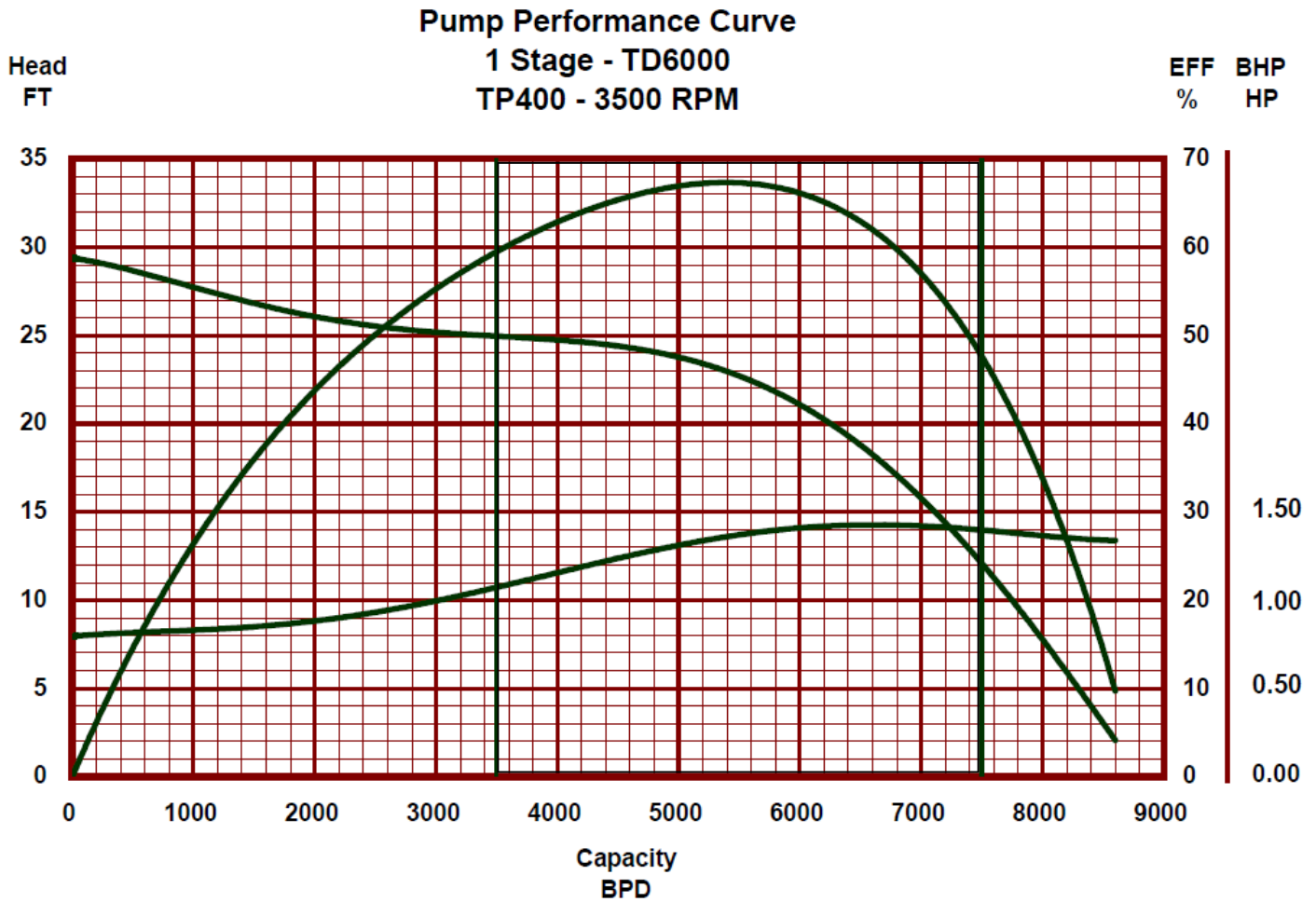
1 Stage TD-4300

TP400 - Multi Hz

Specific Gravity = 1.0



COSCO 400 Series Pumps



This engineering performance curve represents nominal performance based on actual multi-stage testing and certification. All pumps supplied by COSCO will be tested and certified to perform within the acceptable limits for head, horsepower, and efficiency as defined in the "API RECOMMENDED PRACTICE(11S2) FOR ELECTRIC SUBMERSIBLE PUMP TESTING."

ENGINEERING DATA				
Housing Dimeter		4.00 inches		
Minimum Casing Size		5 1/2 Inch		
Fluid Specific Gravity for Pump Curves		1.0		
Rotational Direction		CCW		
Shaft Details				
Shaft Diameter	7/8	0.875	Inches	
Shaft Area	0.601		Sq. Inches	
Shaft Limits				
Shaft Limit in HP at:		50 Hz	60 Hz	
Standard Shaft Limit		213	256	
High Strength (HSS)		342	410	
Maximum Staging: Shaft				
Shaft Type	No of Stages @			
	50 Hz		60 Hz	
Standard Shaft	259		180	
HSS	414		288	
Housing Pressure Limit			5000 PSI	
Maximum Staging: Thrust Bearings (250F BHT)				
Bearing Type	No of Stages @			
	50 Hz		60 Hz	
Standard Bearing	188		157	
Hi Load Bearing	947		722	

COSCO 400 Series Pumps

TD6000 / 400 Series Pump

>>Minimum Casing Size 5 1/2 Inches

Maximum Bottom Hole Temperature: 250 F

STANDARD PUMP

FLOATER		COMPRESSION		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31420151	4	31460151	3	1	2.1	44
31420152	8	31460152	7	2	3.5	73
31420153	13	31460153	12	3	4.8	106
31420154	17	31460154	16	4	6.3	134
31420155	22	31460155	21	5	7.8	165
31420156	27	31460156	26	6	9.2	196
31420157	31	31460157	30	7	10.6	225
31420158	36	31460158	35	8	12	258
31420159	40	31460159	39	9	13.4	287
31420160	45	31460160	44	10	14.8	317
31420161	49	31460161	48	11	16.2	348
31420162	54	31460162	53	12	17.6	377
31420163	59	31460163	58	13	19	500
31420164	63	31460164	62	14	20.4	538
31420165	68	31460165	67	15	21.9	578

ABRASION RESISTANT

FLOATER AR		COMPRESSION AR		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31440151	4	31480151	3	1	2.1	44
31440152	8	31480152	7	2	3.5	73
31440153	13	31480153	12	3	4.8	106
31440154	17	31480154	16	4	6.3	134
31440155	22	31480155	21	5	7.8	165
31440156	27	31480156	26	6	9.2	196
31440157	31	31480157	30	7	10.6	225
31440158	36	31480158	35	8	12	258
31440159	40	31480159	39	9	13.4	287
31440160	45	31480160	44	10	14.8	317
31440161	49	31480161	48	11	16.2	348
31440162	54	31480162	53	12	17.6	377
31440163	59	31480163	58	13	19	403
31440164	63	31480164	62	14	20.4	438
31440165	68	31480165	67	15	21.9	478

Pump Outside Diameter: 4.00 inches

Standard Features: Carbon Steel Head, Base and Housing. Monel K500 Shaft.

Housing also available in 13 Chrome.

Heads and Bases also available in SST410 or 316L Stainless Steel.

All pumps are in Center Tandem Configuration.

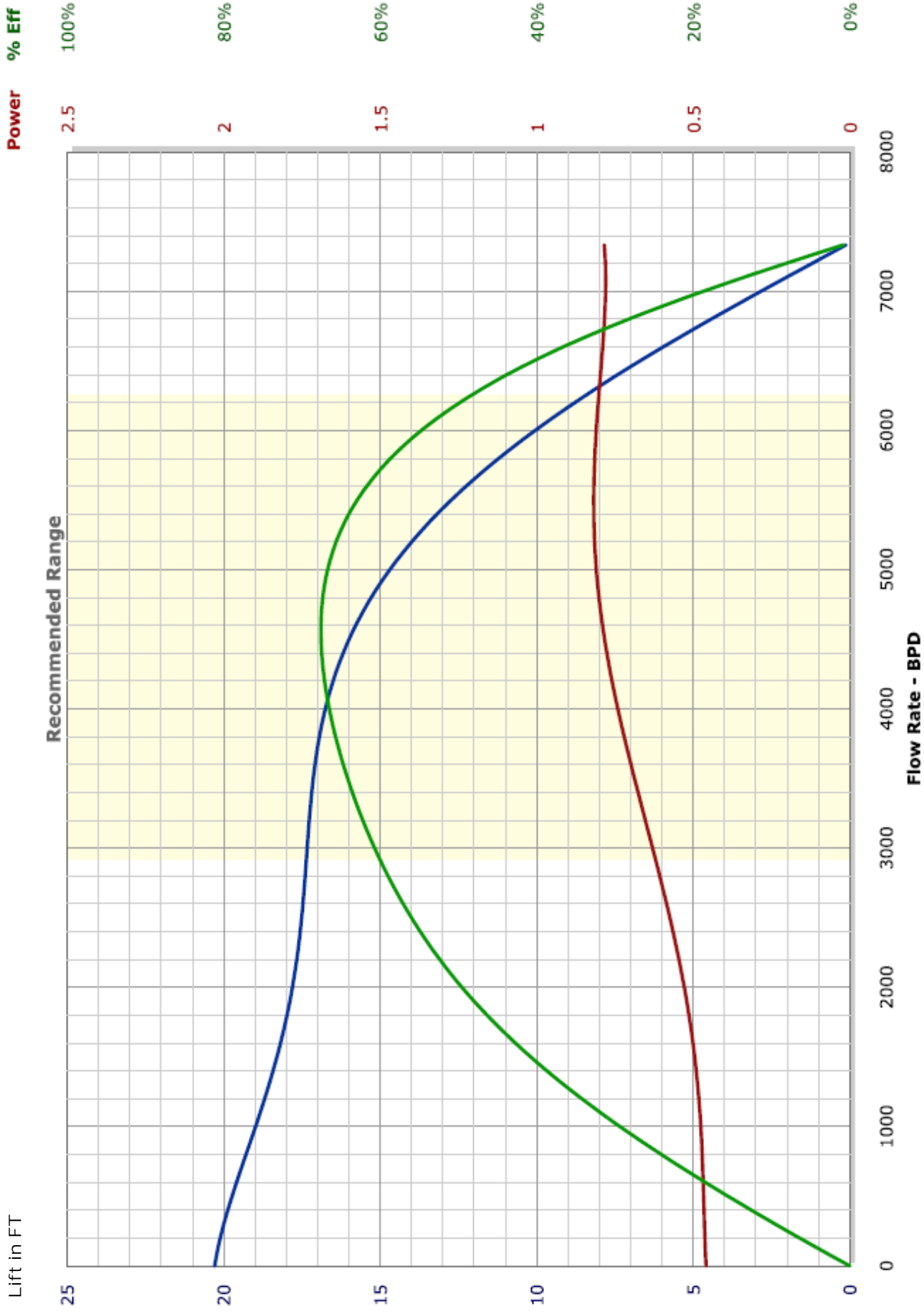
To calculate shipping length, add shipping caps (0.24 feet/cap) to component length.



Pump Performance Curve

1 Stage TD-6000
TP400 - 2917 RPM

Specific Gravity = 1.0



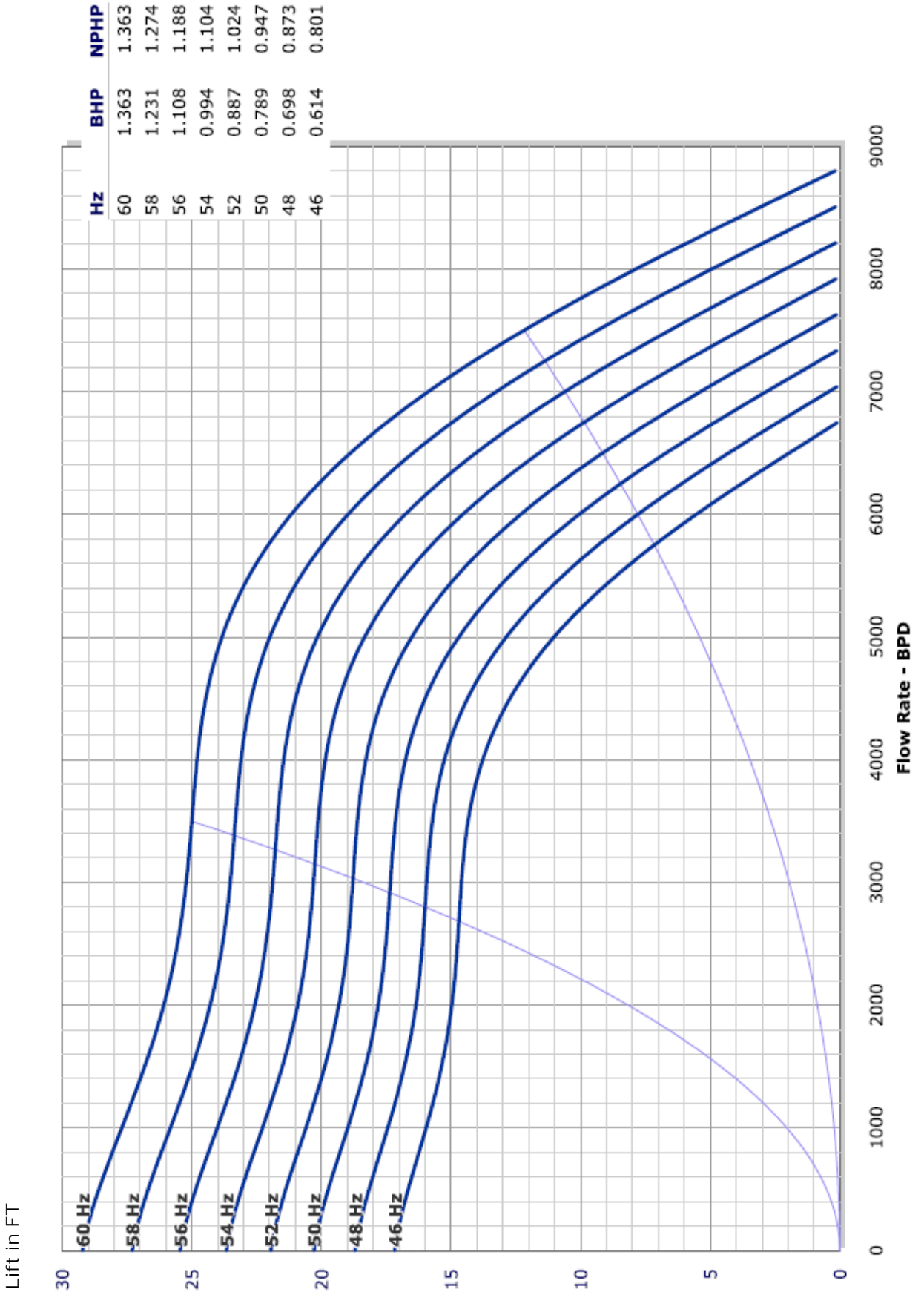


Pump Performance Curve

1 Stage TD-6000

TP400 - Multi Hz

Specific Gravity = 1.0



COSCO 500 Series Pumps

513 Series Pumps Summary List

- Housing diameter - 5.13" (130mm)
- Minimum casing size - 6 5/8" nominal OD

Pump Model	Shaft Diam. (in.)	Horsepower		Flow Capacity Recommended Range			
		Shaft Limit		50 Hz		60 Hz	
		STD	HSS	BPD	m ³ /PD	BPD	m ³ /PD
TG 1600	0.875	256	410	1000-1667	159-265	1200-2,000	191-318
TG 2000	0.875	256	410	1334-2252	212-358	1600-2700	254-429
TG 2500	0.875	256	410	1547-2497	246-397	1860-3000	296-477
TG 3100	0.875	256	410	1749-2912	278-463	2100-3500	334-556
TG 4000	1.000	375	600	2648-4164	421-662	3180-5000	506-795
TG 5600	1.000	375	600	3397-5994	540-953	4080-7200	649-1145
TG 7000	1.000	375	600	4233-7580	673-1205	5080-9100	808-1447

538 Series Pumps Summary List

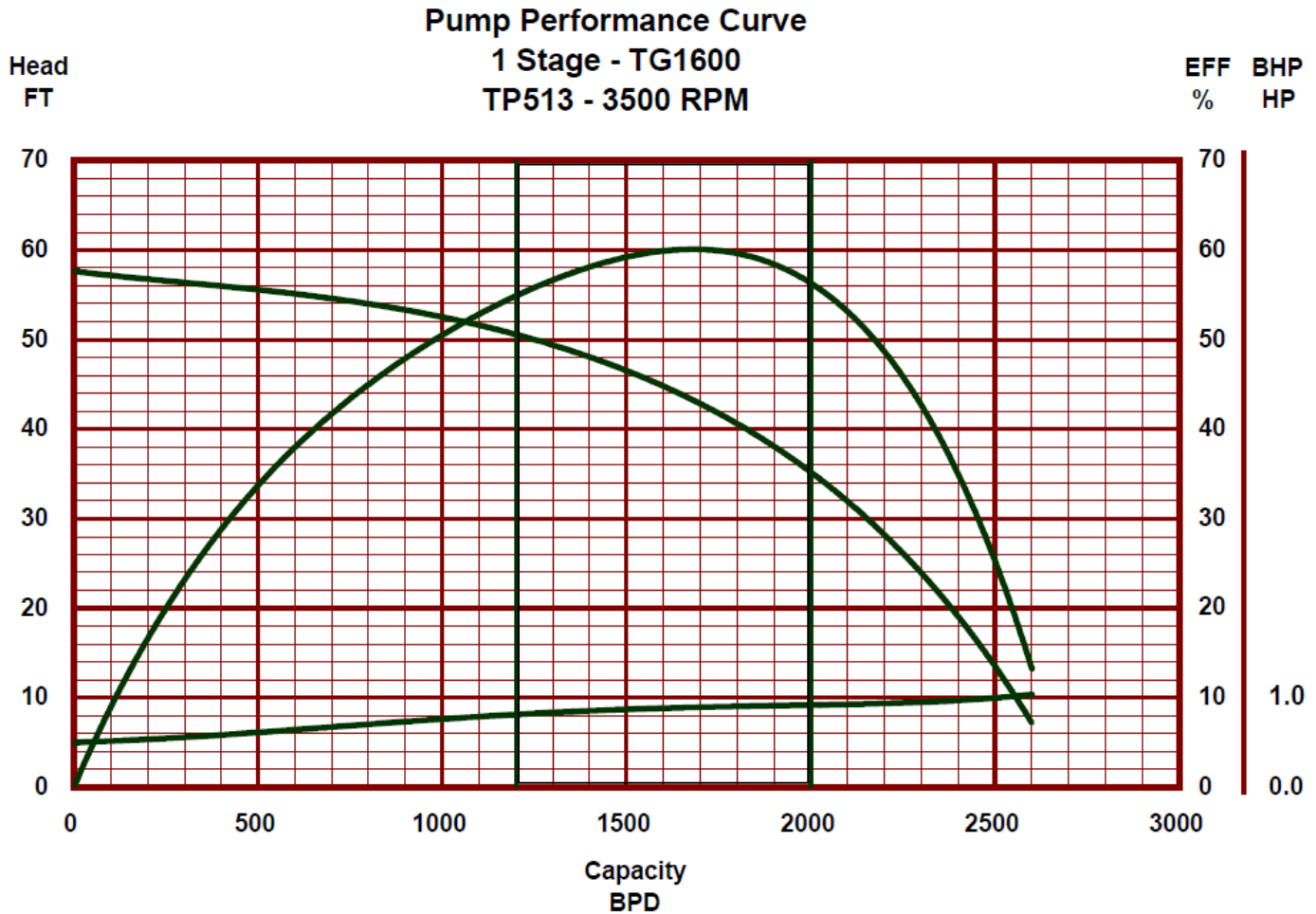
- Housing diameter - 5.38" (137mm)
- Minimum casing size - 7" nominal OD

Pump Model	Shaft Diam. (in.)	Horsepower		Flow Capacity Recommended Range			
		Shaft Limit		50 Hz		60 Hz	
		STD	HSS	BPD	m ³ /PD	BPD	m ³ /PD
TE 1500	0.875	256	410	944-1887	150-300	1132-2264	180-360
SN 2600	0.875	256	410	1447-2579	230-410	1735-3100	276-493
SN 3600	0.875	256	410	2000-3912	318-622	2400-4700	382-747
TE 5500	1.000	375	600	2893-5976	460-950	3470-7169	552-1140
TE 7000	1.000	375	600	3334-8001	530-1272	4000-9600	636-1526
SN 8500	1.000	375	600	5347-8806	850-1400	6414-10565	1020-1680
TE 11000	1.1875	637	1,019	6668-11,737	1060-1855	8000-14,000	1272-2226

Note: See the specific 50 Hz or 60 Hz performance curves for head capacity, pump efficiency any horsepower motor load.

Bolt on Discharge Head, Gas Separator, Intake and GasPro Intake Pump information are located at the back of the Pump Section.

COSCO 513 Series Pumps



This engineering performance curve represents nominal performance based on actual multi-stage testing and certification. All pumps supplied by COSCO will be tested and certified to perform within the acceptable limits for head, horsepower, and efficiency as defined in the "API RECOMMENDED PRACTICE(11S2) FOR ELECTRIC SUBMERSIBLE PUMP TESTING."

ENGINEERING DATA				
Housing Dimeter		5.13 inches		
Minimum Casing Size		6 5/8 Inches		
Fluid Specific Gravity for Pump Curves		1.0		
Rotational Direction		CCW		
Shaft Details				
Shaft Diameter	7/8	0.875	Inches	
Shaft Area	0.6013		Sq. Inches	
Shaft Limits				
Shaft Limit in HP at:		50 Hz	60 Hz	
Standard Shaft Limit		213	256	
High Strength (HSS)		342	410	
Maximum Staging: Shaft				
Shaft Type	No of Stages @			
	50 Hz		60 Hz	
Standard Shaft	334		232	
HSS	535		372	
Housing Pressure Limit			5000 PSI	
Maximum Staging: Thrust Bearings (250F BHT)				
Bearing Type	No of Stages @			
	50 Hz		60 Hz	
Standard Bearing	199		166	
Hi Load Bearing	1100		830	

COSCO 513 Series Pumps

TG1600 /513 Series Pump

>>Minimum Casing Size 6 5/8 Inches

Maximum Bottom Hole Temperature: 250 F

STANDARD PUMP

FLOATER		COMPRESSION		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31520001	12	31560001	11	1	2.1	77
31520002	28	31560002	27	2	3.5	145
31520003	43	31560003	42	3	4.9	212
31520004	59	31560004	58	4	6.3	271
31520005	75	31560005	74	5	7.7	340
31520006	90	31560006	89	6	9.1	407
31520007	106	31560007	105	7	10.5	467
31520008	122	31560008	121	8	11.9	535
31520009	137	31560009	136	9	13.3	602
31520010	153	31560010	152	10	14.7	661
31520011	169	31560011	168	11	16.1	730
31520012	184	31560012	183	12	17.5	789

ABRASION RESISTANT PUMP

FLOATER AR		COMPRESSION AR		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31540001	11	31580001	10	1	2.1	77
31540002	26	31580002	25	2	3.5	145
31540003	39	31580003	38	3	4.9	212
31540004	54	31580004	53	4	6.3	271
31540005	69	31580005	68	5	7.7	340
31540006	82	31580006	81	6	9.1	407
31540007	97	31580007	96	7	10.5	467
31540008	111	31580008	110	8	11.9	535
31540009	125	31580009	124	9	13.3	602
31540010	140	31580010	139	10	14.7	661
31540011	154	31580011	153	11	16.1	730
31540012	168	31580012	167	12	17.5	789

Pump Outside Diameter: 5.13 inches

Standard Features: Carbon Steel Head, Base and Housing. Monel K500 Shaft.

Housing also available in 13 Chrome.

Heads and Bases also available in SST410 or 316L Stainless Steel.

All pumps are in Center Tandem Configuration.

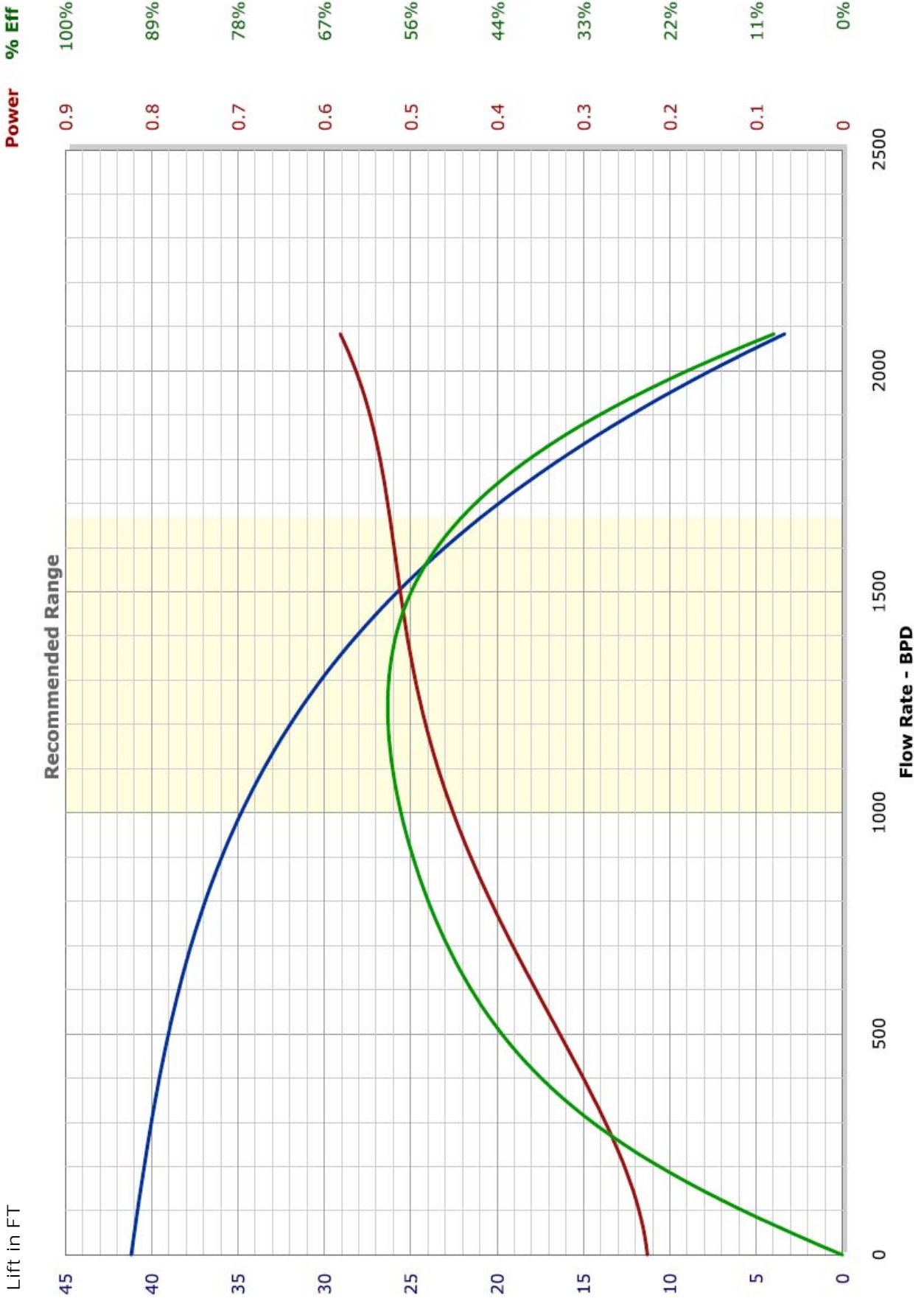
To calculate shipping length, add shipping caps (0.24 feet/cap) to component length.



Pump Performance Curve

1 Stage TG-1600
TP513 - 2917 RPM

Specific Gravity = 1.0



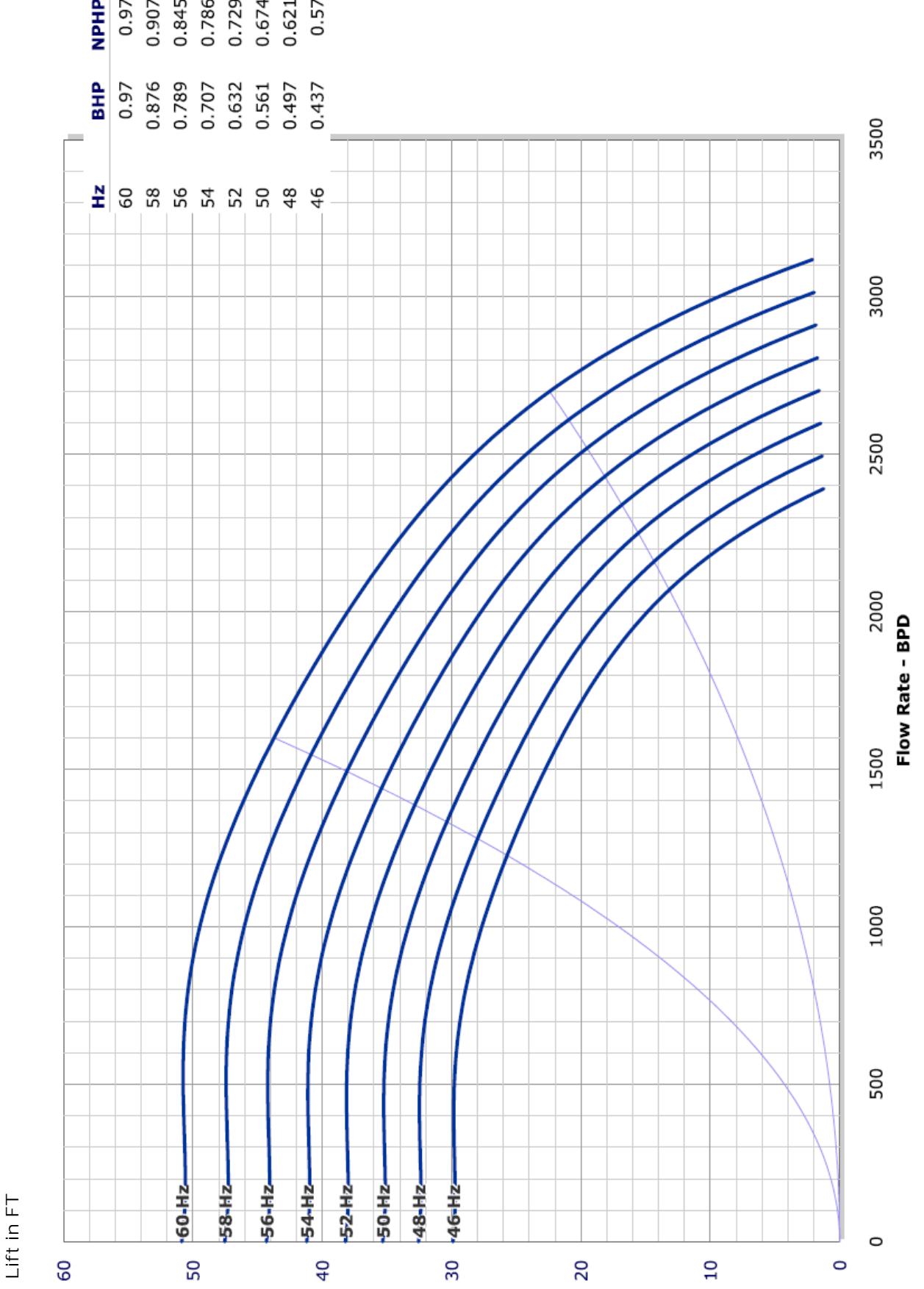


Pump Performance Curve

1 Stage TG-1600

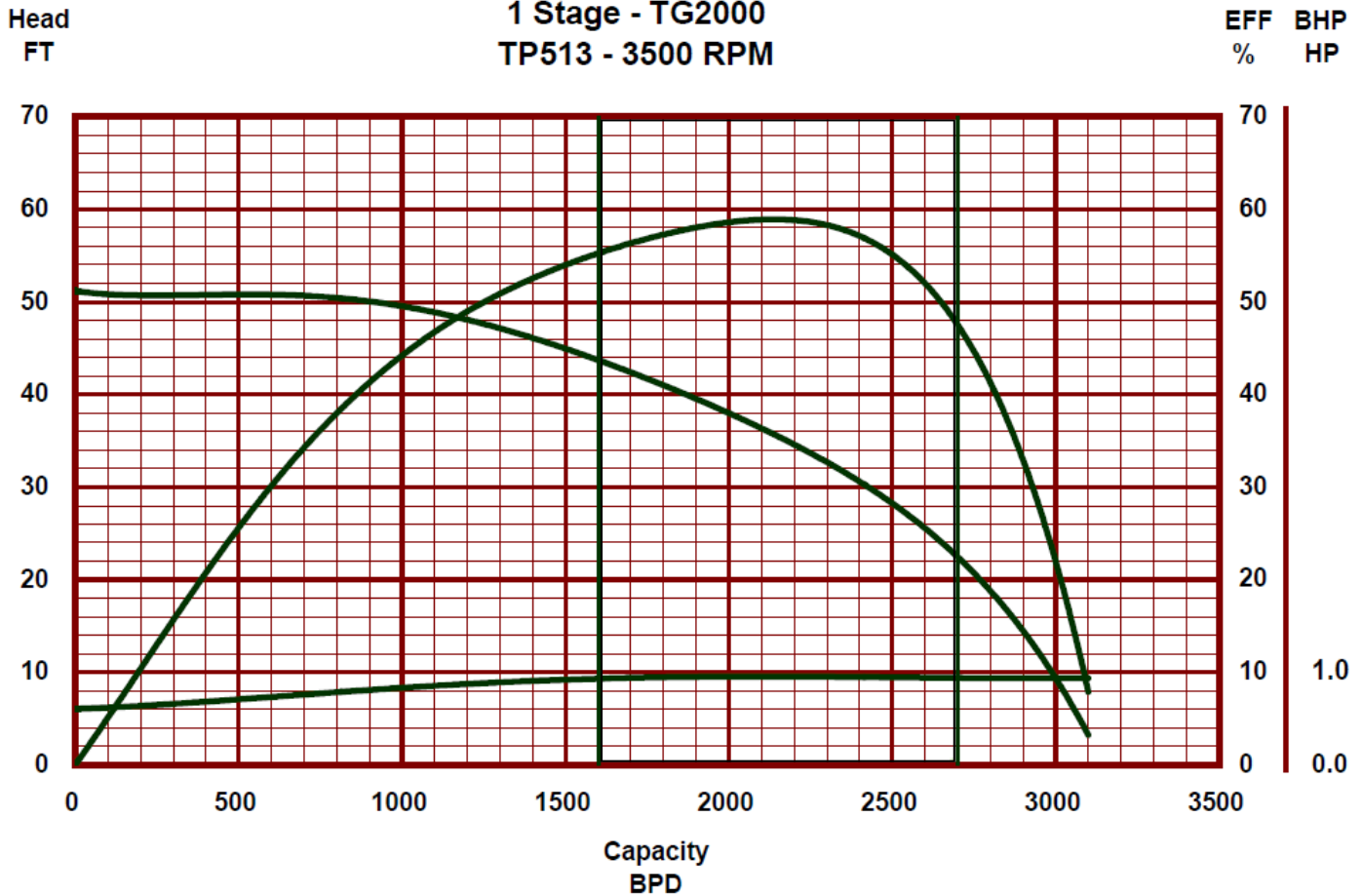
TP513 - Multi Hz

Specific Gravity = 1.0



COSCO 513 Series Pumps

Pump Performance Curve
1 Stage - TG2000
TP513 - 3500 RPM



This engineering performance curve represents nominal performance based on actual multi-stage testing and certification. All pumps supplied by COSCO will be tested and certified to perform within the acceptable limits for head, horsepower, and efficiency as defined in the "API RECOMMENDED PRACTICE(11S2) FOR ELECTRIC SUBMERSIBLE PUMP TESTING."

ENGINEERING DATA							
Housing Diameter		5.13 inches			Maximum Staging: Shaft		
Minimum Casing Size		6 5/8 Inches			Shaft Type	No of Stages @	
Fluid Specific Gravity for Pump Curves		1.0				50 Hz	60 Hz
Rotational Direction		CCW			Standard Shaft	375	261
Shaft Details					HSS	601	418
Shaft Diameter	7/8	0.875	Inches		Housing Pressure Limit		
Shaft Area	0.6013		Sq. Inches		5000 PSI		
Shaft Limits					Maximum Staging: Thrust Bearings (250F BHT)		
Shaft Limit in HP at:		50 Hz	60 Hz		Bearing Type	No of Stages @	
Standard Shaft Limit		213	256			50 Hz	60 Hz
High Strength (HSS)		342	410		Standard Bearing	217	180
					Hi Load Bearing	1200	900

COSCO 513 Series Pumps

TG2000 /513 Series Pump

>>Minimum Casing Size 6 5/8 Inches

Maximum Bottom Hole Temperature: 250 F

STANDARD PUMP

FLOATER		COMPRESSION		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31520016	10	31560016	9	1	2.1	77
31520017	22	31560017	21	2	3.5	145
31520018	34	31560018	33	3	4.9	212
31520019	47	31560019	46	4	6.3	271
31520020	59	31560020	58	5	7.7	340
31520021	71	31560021	70	6	9.1	407
31520022	83	31560022	82	7	10.5	467
31520023	96	31560023	95	8	11.9	535
31520024	108	31560024	107	9	13.3	602
31520025	120	31560025	119	10	14.7	661
31520026	132	31560026	131	11	16.1	730
31520027	145	31560027	144	12	17.5	789

ABRASION RESISTANT PUMP

FLOATER AR		COMPRESSION AR		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31540016	9	31580016	8	1	2.1	77
31540017	20	31580017	19	2	3.5	145
31540018	30	31580018	29	3	4.9	212
31540019	42	31580019	41	4	6.3	271
31540020	53	31580020	52	5	7.7	340
31540021	63	31580021	62	6	9.1	407
31540022	74	31580022	73	7	10.5	467
31540023	85	31580023	84	8	11.9	535
31540024	96	31580024	95	9	13.3	602
31540025	107	31580025	106	10	14.7	661
31540026	117	31580026	116	11	16.1	730
31540027	129	31580027	128	12	17.5	789

Pump Outside Diameter: 5.13 inches

Standard Features: Carbon Steel Head, Base and Housing. Monel K500 Shaft.

Housing also available in 13 Chrome.

Heads and Bases also available in SST410 or 316L Stainless Steel.

All pumps are in Center Tandem Configuration.

To calculate shipping length, add shipping caps (0.24 feet/cap) to component length.

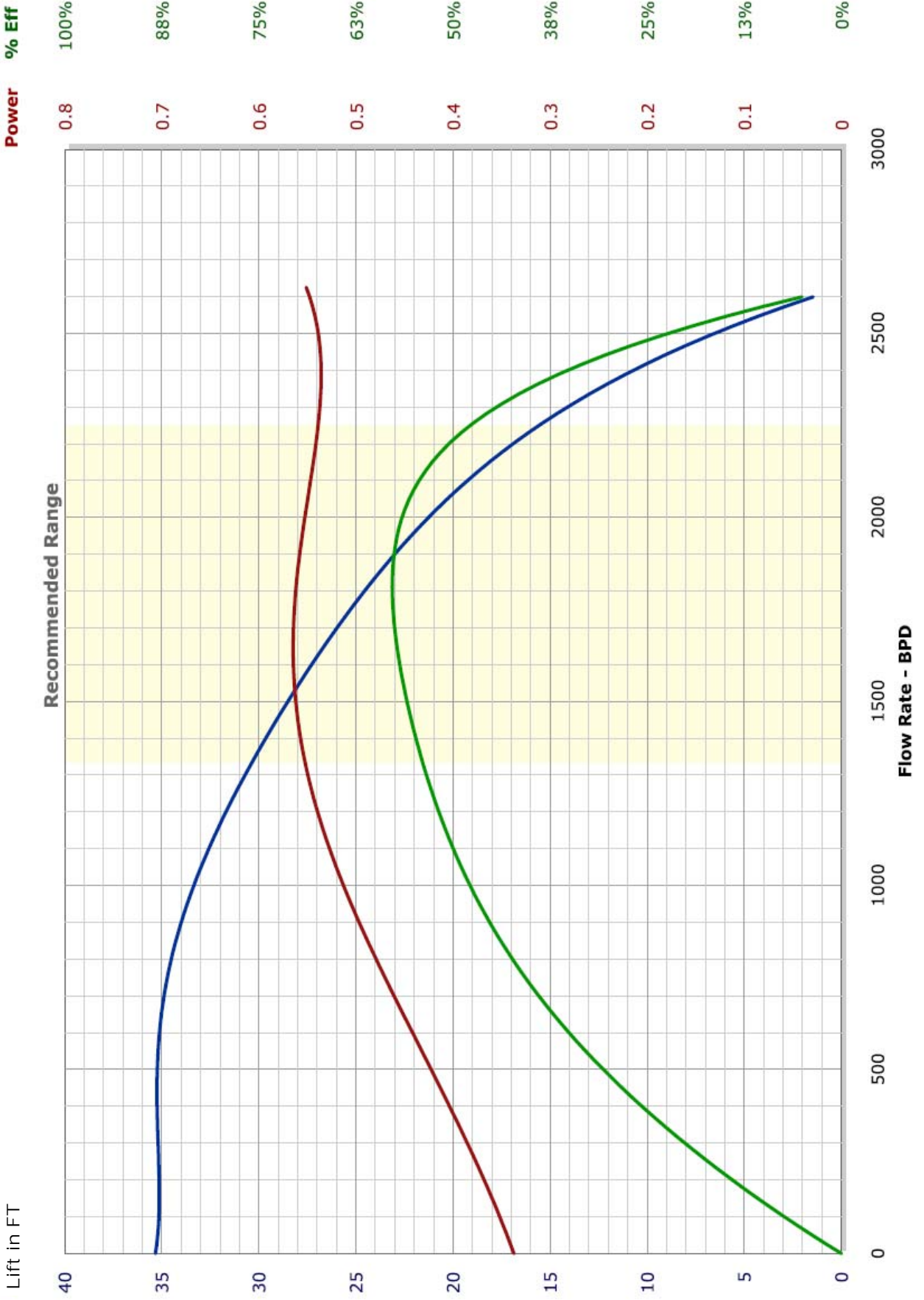


Pump Performance Curve

1 Stage TG-2000

TP513 - 2917 RPM

Specific Gravity = 1.0



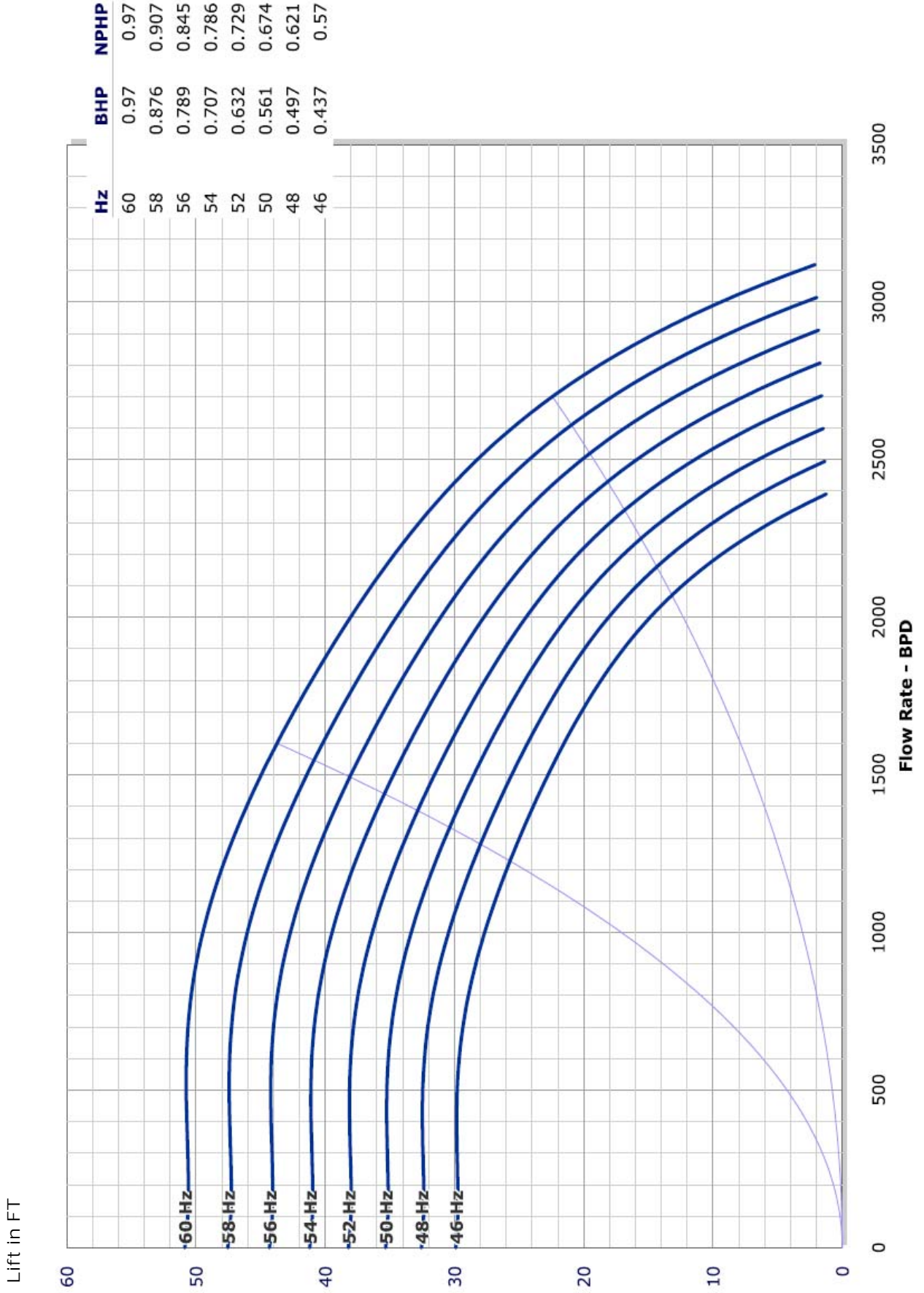


Pump Performance Curve

1 Stage TG-2000

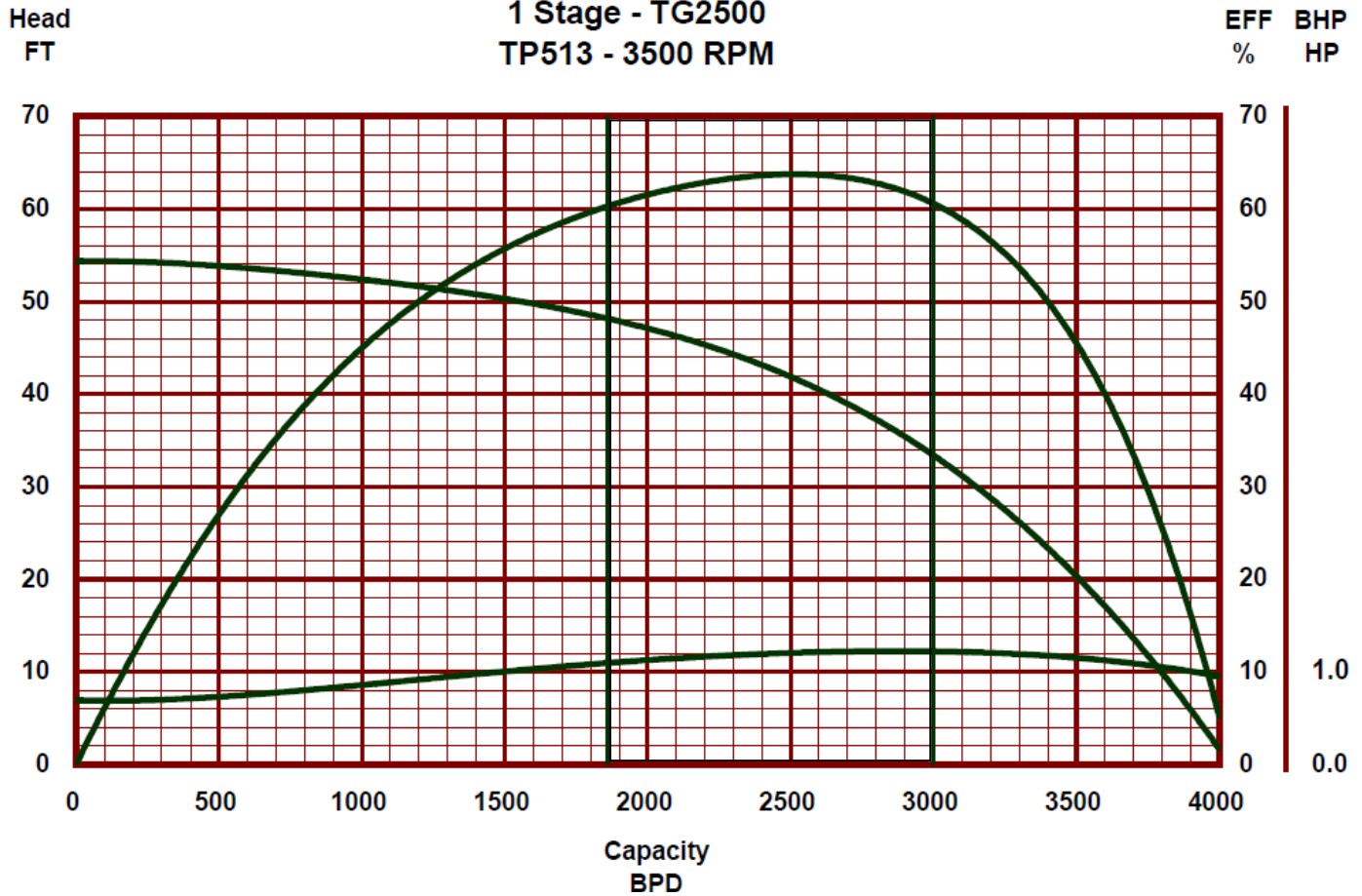
TP513 - Multi Hz

Specific Gravity = 1.0



COSCO 513 Series Pumps

Pump Performance Curve
1 Stage - TG2500
TP513 - 3500 RPM



This engineering performance curve represents nominal performance based on actual multi-stage testing and certification. All pumps supplied by COSCO will be tested and certified to perform within the acceptable limits for head, horsepower, and efficiency as defined in the "API RECOMMENDED PRACTICE(11S2) FOR ELECTRIC SUBMERSIBLE PUMP TESTING."

ENGINEERING DATA				
Housing Diameter		5.13 inches		
Minimum Casing Size		6 5/8 Inches		
Fluid Specific Gravity for Pump Curves		1.0		
Rotational Direction		CCW		
Shaft Details				
Shaft Diameter	7/8	0.875	Inches	
Shaft Area	0.6013		Sq. Inches	
Shaft Limits				
Shaft Limit in HP at:		50 Hz	60 Hz	
Standard Shaft Limit		213	256	
High Strength (HSS)		342	410	
Maximum Staging: Shaft				
Shaft Type	No of Stages @			
	50 Hz		60 Hz	
Standard Shaft	300		210	
HSS	480		336	
Housing Pressure Limit			5000 PSI	
Maximum Staging: Thrust Bearings (250F BHT)				
Bearing Type	No of Stages @			
	50 Hz		60 Hz	
Standard Bearing	206		171	
Hi Load Bearing	1139		855	

COSCO 513 Series Pumps

TG2500 /513 Series Pump

>>Minimum Casing Size 6 5/8 Inches

Maximum Bottom Hole Temperature: 250 F

STANDARD PUMP

FLOATER		COMPRESSION		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31520031	10	31560031	9	1	2.1	44
31520032	22	31560032	21	2	3.5	73
31520033	34	31560033	33	3	4.8	106
31520034	47	31560034	46	4	6.3	134
31520035	59	31560035	58	5	7.8	165
31520036	71	31560036	70	6	9.2	196
31520037	83	31560037	82	7	10.6	225
31520038	96	31560038	95	8	12	258
31520039	108	31560039	107	9	13.4	287
31520040	120	31560040	119	10	14.8	317
31520041	132	31560041	131	11	16.2	348
31520042	145	31560042	144	12	17.6	377

ABRASION RESISTANT PUMP

FLOATER AR		COMPRESSION AR		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31540031	9	31580031	8	1	2.1	44
31540032	20	31580032	19	2	3.5	73
31540033	30	31580033	29	3	4.8	106
31540034	42	31580034	41	4	6.3	134
31540035	53	31580035	52	5	7.8	165
31540036	63	31580036	62	6	9.2	196
31540037	74	31580037	73	7	10.6	225
31540038	85	31580038	84	8	12	258
31540039	96	31580039	95	9	13.4	287
31540040	107	31580040	106	10	14.8	317
31540041	117	31580041	116	11	16.2	348
31540042	129	31580042	128	12	17.6	377

Pump Outside Diameter: 5.13 inches

Standard Features: Carbon Steel Head, Base and Housing. Monel K500 Shaft.

Housing also available in 13 Chrome.

Heads and Bases also available in SST410 or 316L Stainless Steel.

All pumps are in Center Tandem Configuration.

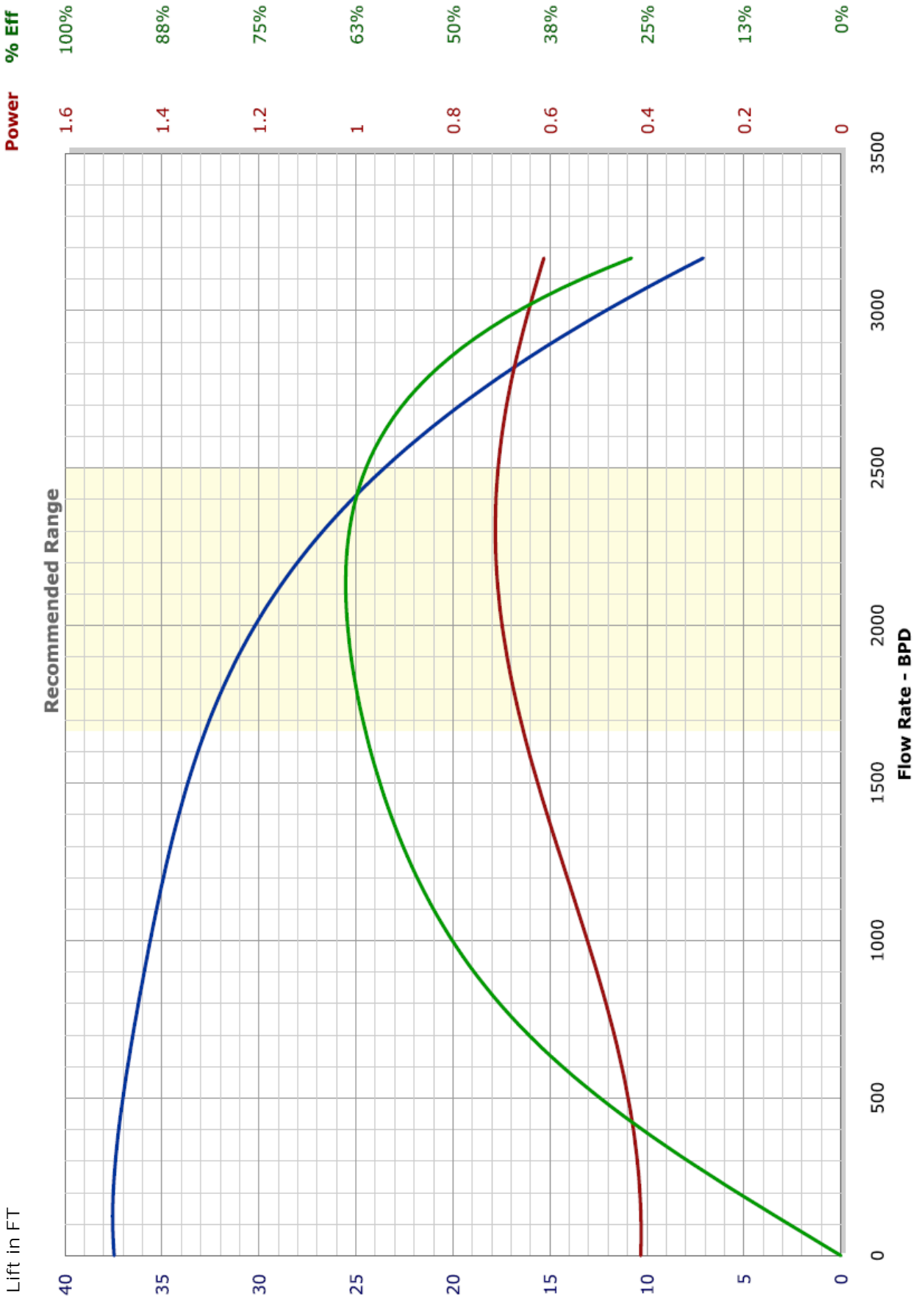
To calculate shipping length, add shipping caps (0.24 feet/cap) to component length.



Pump Performance Curve

1 Stage TG-2500
TP513 - 2917 RPM

Specific Gravity = 1.0





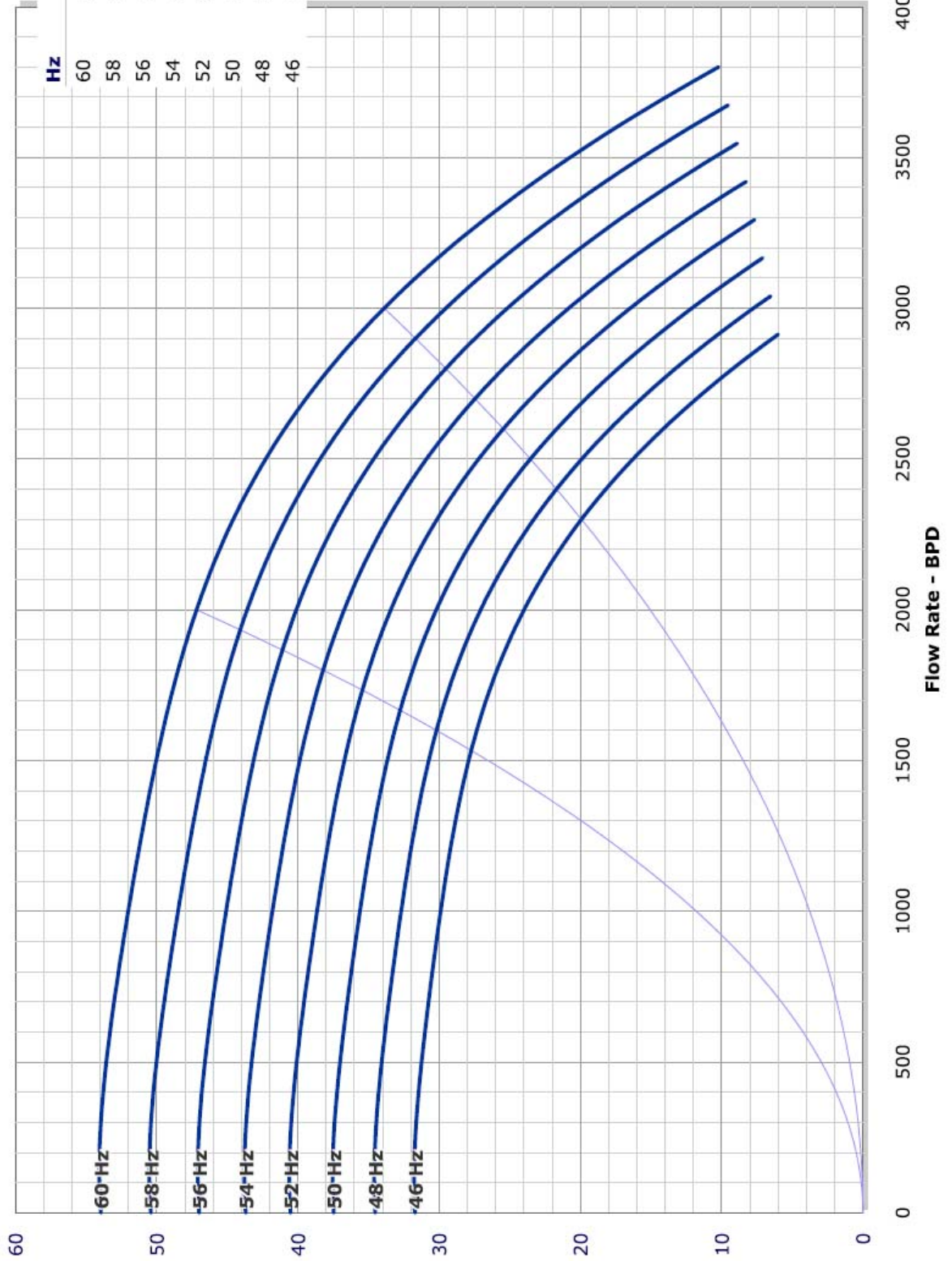
Pump Performance Curve

1 Stage TG-2500

TP513 - Multi Hz

Specific Gravity = 1.0

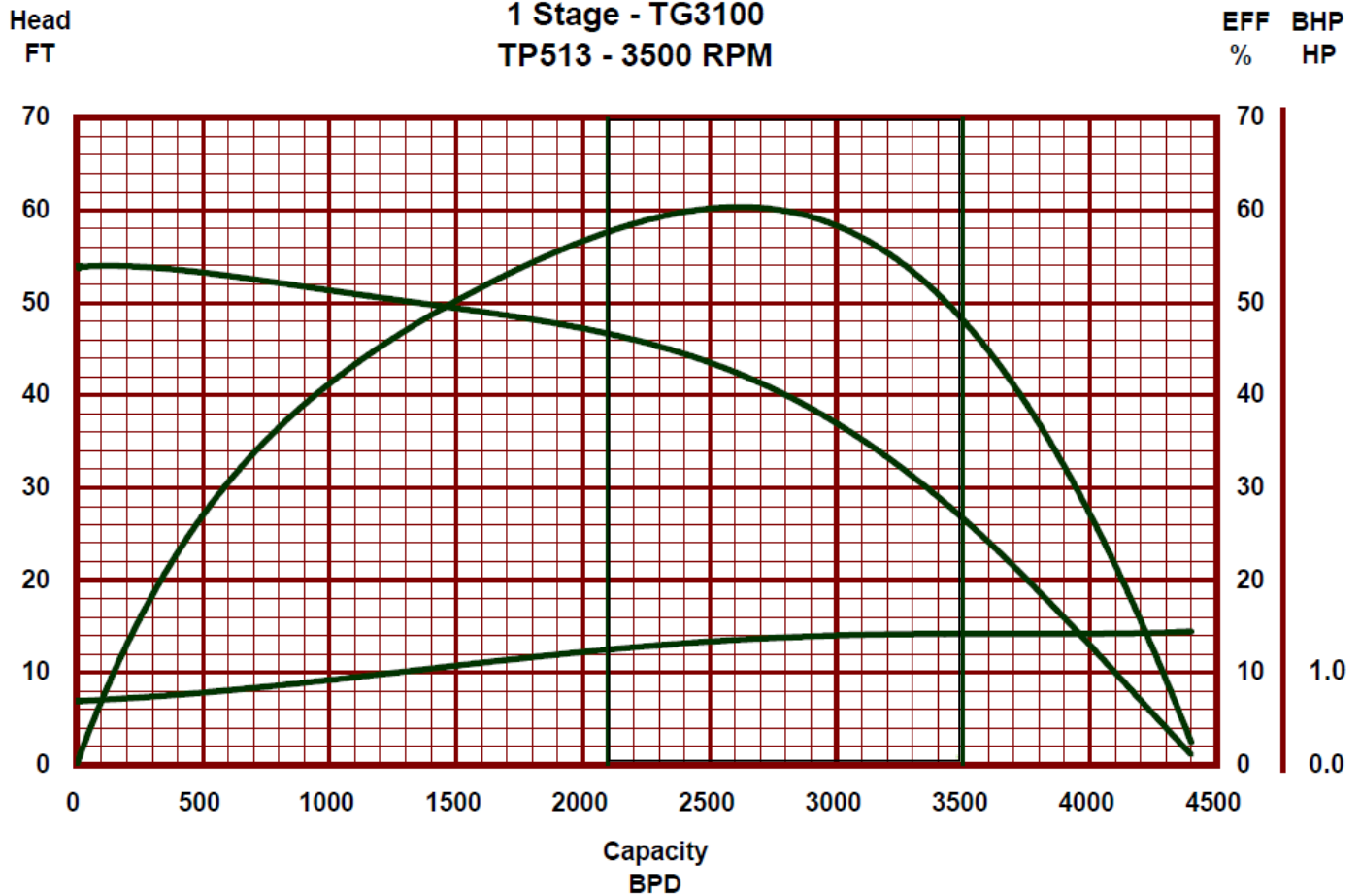
Lift in FT



COSCO 513 Series Pumps

Pump Performance Curve

1 Stage - TG3100
TP513 - 3500 RPM



This engineering performance curve represents nominal performance based on actual multi-stage testing and certification. All pumps supplied by COSCO will be tested and certified to perform within the acceptable limits for head, horsepower, and efficiency as defined in the "API RECOMMENDED PRACTICE(11S2) FOR ELECTRIC SUBMERSIBLE PUMP TESTING."

ENGINEERING DATA				
Housing Diameter		5.13 inches		
Minimum Casing Size		6 5/8 Inches		
Fluid Specific Gravity for Pump Curves		1.0		
Rotational Direction		CCW		
Shaft Details				
Shaft Diameter	7/8	0.875	Inches	
Shaft Area	0.6013		Sq. Inches	
Shaft Limits				
Shaft Limit in HP at:		50 Hz	60 Hz	
Standard Shaft Limit		213	256	
High Strength (HSS)		342	410	
Maximum Staging: Shaft				
Shaft Type	No of Stages @			
	50 Hz		60 Hz	
Standard Shaft	253		176	
HSS	406		282	
Housing Pressure Limit			5000 PSI	
Maximum Staging: Thrust Bearings (250F BHT)				
Bearing Type	No of Stages @			
	50 Hz		60 Hz	
Standard Bearing	200		166	
Hi Load Bearing	1106		830	

COSCO 513 Series Pumps

TG3100 /513 Series Pump

>>Minimum Casing Size 6 5/8 Inches

Maximum Bottom Hole Temperature: 250 F

STANDARD PUMP

FLOATER		COMPRESSION		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31520046	10	31560046	9	1	2.1	77
31520047	22	31560047	21	2	3.5	145
31520048	34	31560048	33	3	4.9	212
31520049	47	31560049	46	4	6.3	271
31520050	59	31560050	58	5	7.7	340
31520051	71	31560051	70	6	9.1	407
31520052	83	31560052	82	7	10.5	467
31520053	96	31560053	95	8	11.9	535
31520054	108	31560054	107	9	13.3	602
31520055	120	31560055	119	10	14.7	661
31520056	132	31560056	131	11	16.1	730
31520057	145	31560057	144	12	17.5	789

ABRASION RESISTANT PUMP

FLOATER AR		COMPRESSION AR		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31540046	9	31580046	8	1	2.1	77
31540047	20	31580047	19	2	3.5	145
31540048	30	31580048	29	3	4.9	212
31540049	42	31580049	41	4	6.3	271
31540050	53	31580050	52	5	7.7	340
31540051	63	31580051	62	6	9.1	407
31540052	74	31580052	73	7	10.5	467
31540053	85	31580053	84	8	11.9	535
31540054	96	31580054	95	9	13.3	602
31540055	107	31580055	106	10	14.7	661
31540056	117	31580056	116	11	16.1	730
31540057	129	31580057	128	12	17.5	789

Pump Outside Diameter: 5.13 inches

Standard Features: Carbon Steel Head, Base and Housing. Monel K500 Shaft.

Housing also available in 13 Chrome.

Heads and Bases also available in SST410 or 316L Stainless Steel.

All pumps are in Center Tandem Configuration.

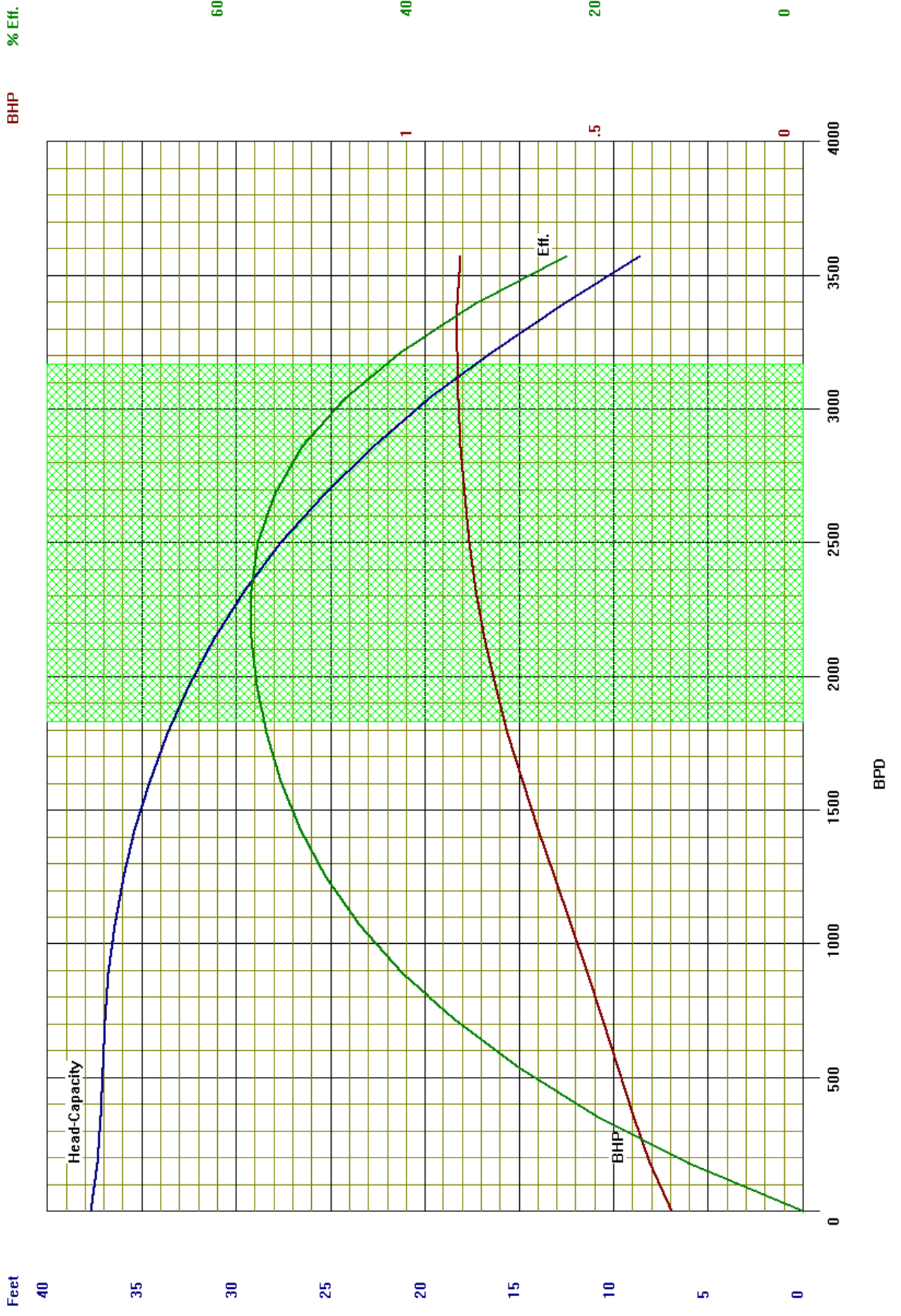
To calculate shipping length, add shipping caps (0.24 feet/cap) to component length.



Pump Performance Curve

1 Stage TG-3100
TP513 - 2917 RPM

Specific Gravity = 1.0



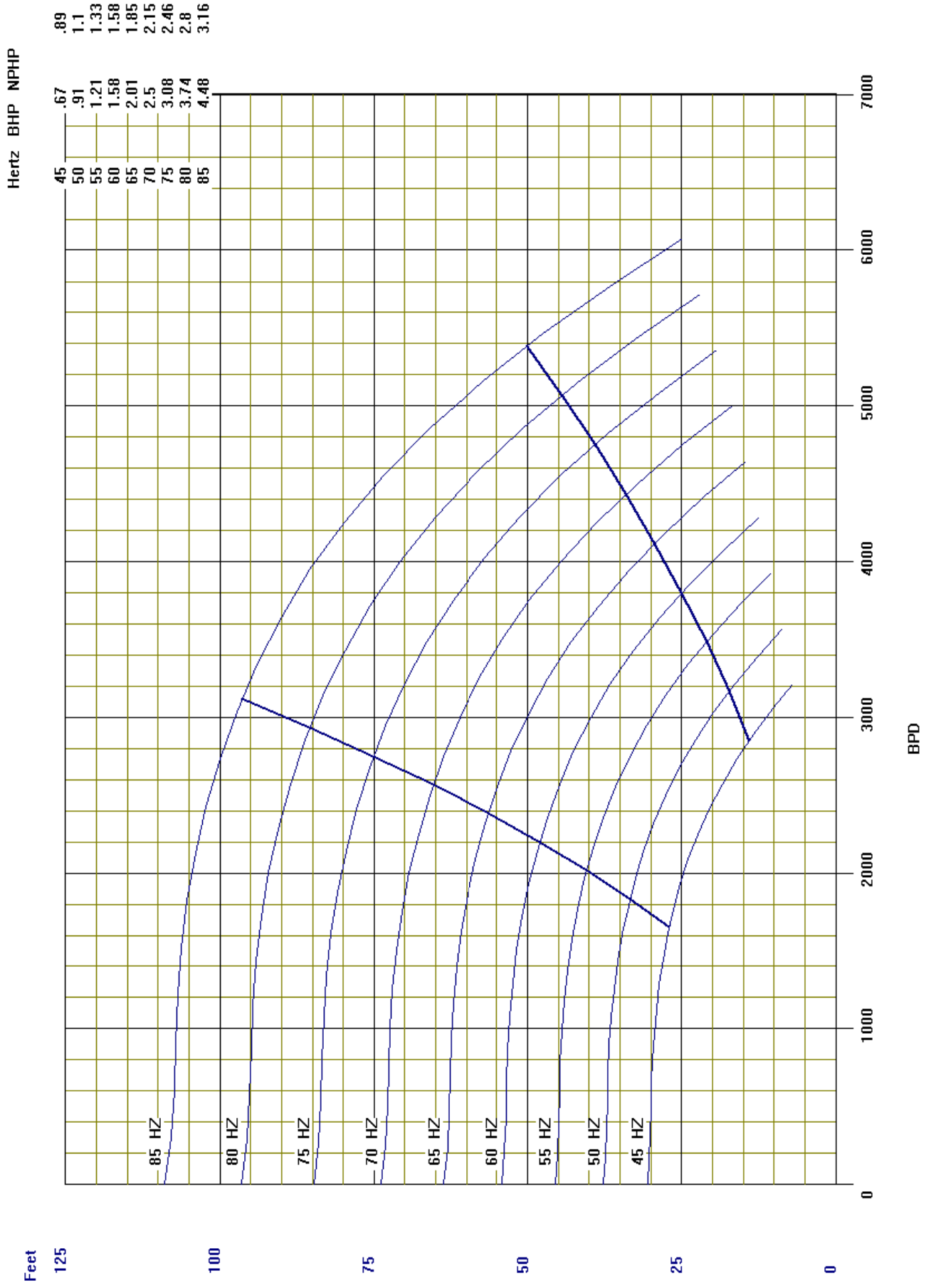


Pump Performance Curve

1 Stage TG-3100

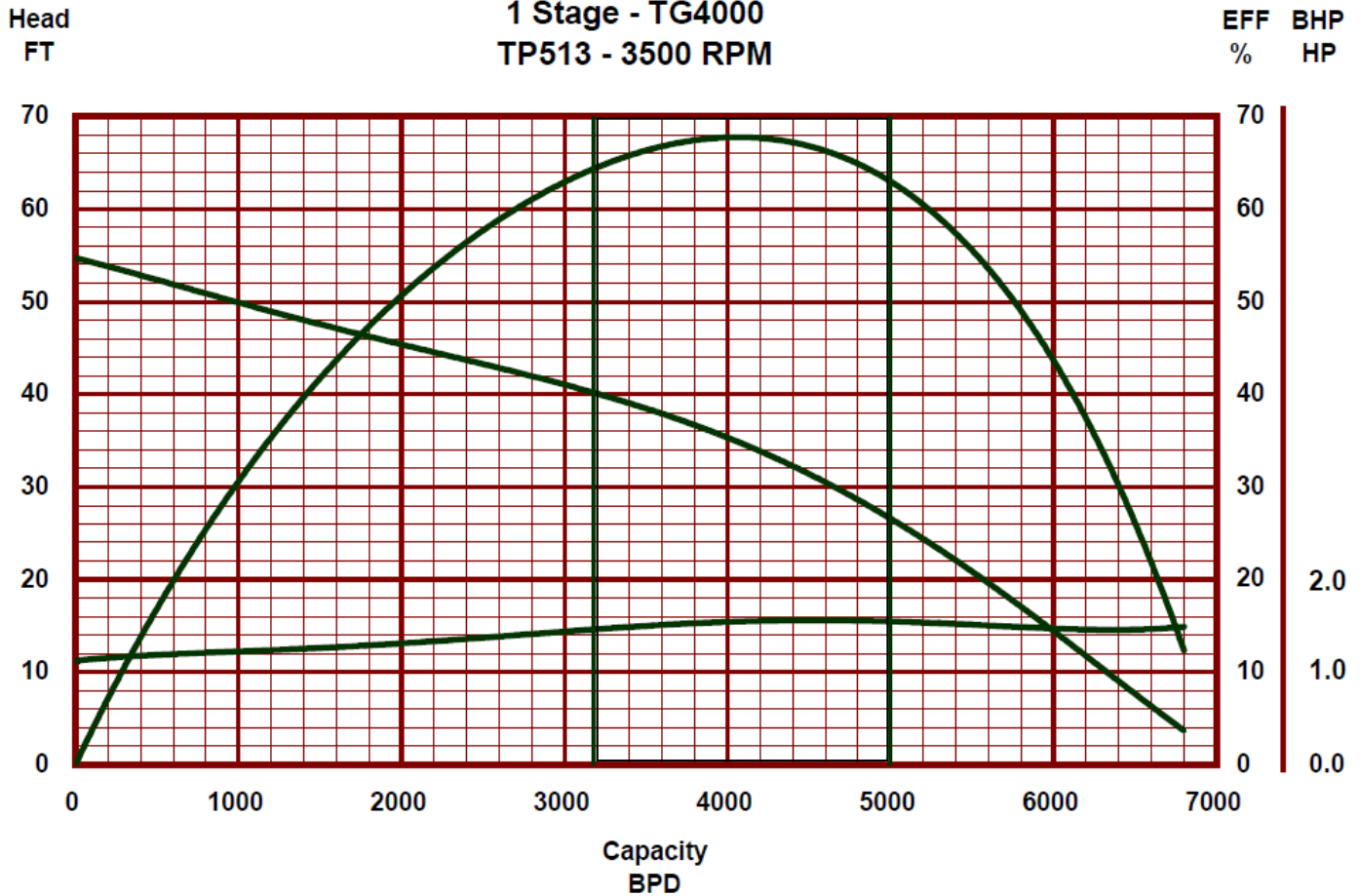
TP513 - Multi Hz

Specific Gravity = 1.0



COSCO 513 Series Pumps

Pump Performance Curve
1 Stage - TG4000
TP513 - 3500 RPM



This engineering performance curve represents nominal performance based on actual multi-stage testing and certification. All pumps supplied by COSCO will be tested and certified to perform within the acceptable limits for head, horsepower, and efficiency as defined in the "API RECOMMENDED PRACTICE(11S2) FOR ELECTRIC SUBMERSIBLE PUMP TESTING."

ENGINEERING DATA				
Housing Diameter		5.13 inches		
Minimum Casing Size		6 5/8 Inches		
Fluid Specific Gravity for Pump Curves		1.0		
Rotational Direction		CCW		
Shaft Details				
Shaft Diameter	1	1.000	Inches	
Shaft Area		0.7854	Sq. Inches	
Shaft Limits				
Shaft Limit in HP at:		50 Hz	60 Hz	
Standard Shaft Limit		312	375	
High Strength (HSS)		500	600	
Maximum Staging: Shaft				
Shaft Type	No of Stages @			
	50 Hz		60 Hz	
Standard Shaft	336		234	
HSS	540		375	
Housing Pressure Limit			5000 PSI	
Maximum Staging: Thrust Bearings (250F BHT)				
Bearing Type	No of Stages @			
	50 Hz		60 Hz	
Standard Bearing	156		130	
Hi Load Bearing	862		650	

COSCO 513 Series Pumps

TG4000 / 513 Series Pump

>>Minimum Casing Size 6 5/8 Inches

Maximum Bottom Hole Temperature: 250 F

STANDARD PUMP

FLOATER		COMPRESSION		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31520061	5	31560061	4	1	2.1	77
31520062	12	31560062	11	2	3.5	145
31520063	18	31560063	17	3	4.9	212
31520064	25	31560064	24	4	6.3	271
31520065	32	31560065	31	5	7.7	340
31520066	39	31560066	38	6	9.1	407
31520067	46	31560067	45	7	10.5	467
31520068	52	31560068	51	8	11.9	535
31520069	59	31560069	58	9	13.3	602
31520070	66	31560070	65	10	14.7	661
31520071	73	31560071	72	11	16.1	730
31520072	79	31560072	78	12	17.5	789
31520073	86	31560073	85	13	19	858
31520074	93	31560074	92	14	20.4	924
31520075	100	31560075	99	15	21.9	983

ABRASION RESISTANT

FLOATER AR		COMPRESSION AR		Housings	Length	Weight
Part	Stages	Part	Stages			
31540061	5	31580061	4	1	2.1	77
31540062	12	31580062	11	2	3.5	145
31540063	18	31580063	17	3	4.9	212
31540064	25	31580064	24	4	6.3	271
31540065	32	31580065	31	5	7.7	340
31540066	39	31580066	38	6	9.1	407
31540067	46	31580067	45	7	10.5	467
31540068	52	31580068	51	8	11.9	535
31540069	59	31580069	58	9	13.3	602
31540070	66	31580070	65	10	14.7	661
31540071	73	31580071	72	11	16.1	730
31540072	79	31580072	78	12	17.5	789
31540073	86	31580073	85	13	19	858
31540074	93	31580074	92	14	20.4	924
31540075	100	31580075	99	15	21.9	983

Pump Outside Diameter: 5.13 inches

Standard Features: Carbon Steel Head, Base and Housing. Monel K500 Shaft.

Housing also available in 13 Chrome.

Heads and Bases also available in SST410 or 316L Stainless Steel.

All pumps are in Center Tandem Configuration.

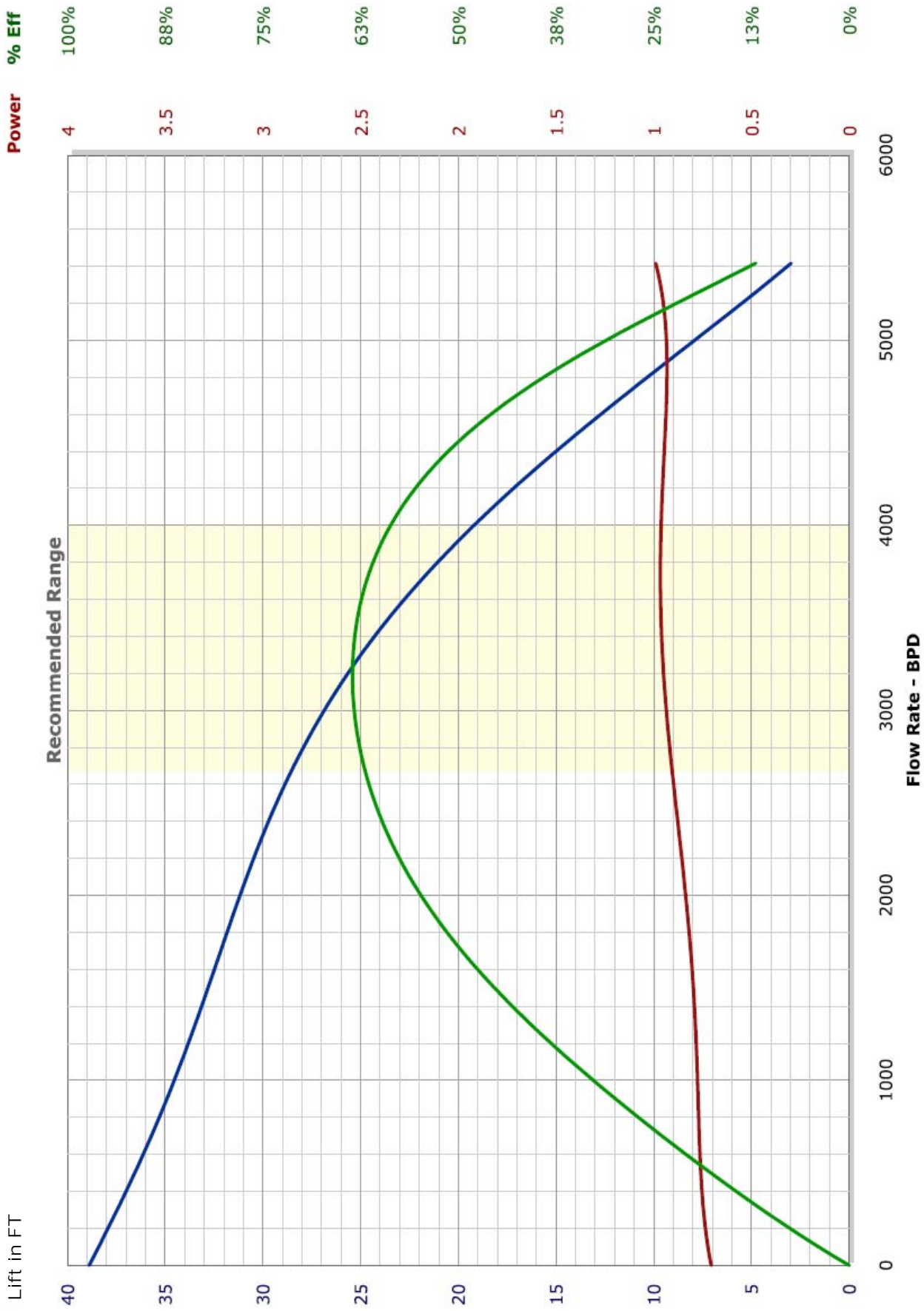
To calculate shipping length, add shipping caps (0.24 feet/cap) to component length.



Pump Performance Curve

1 Stage TG-4000
TP513 - 2917 RPM

Specific Gravity = 1.0



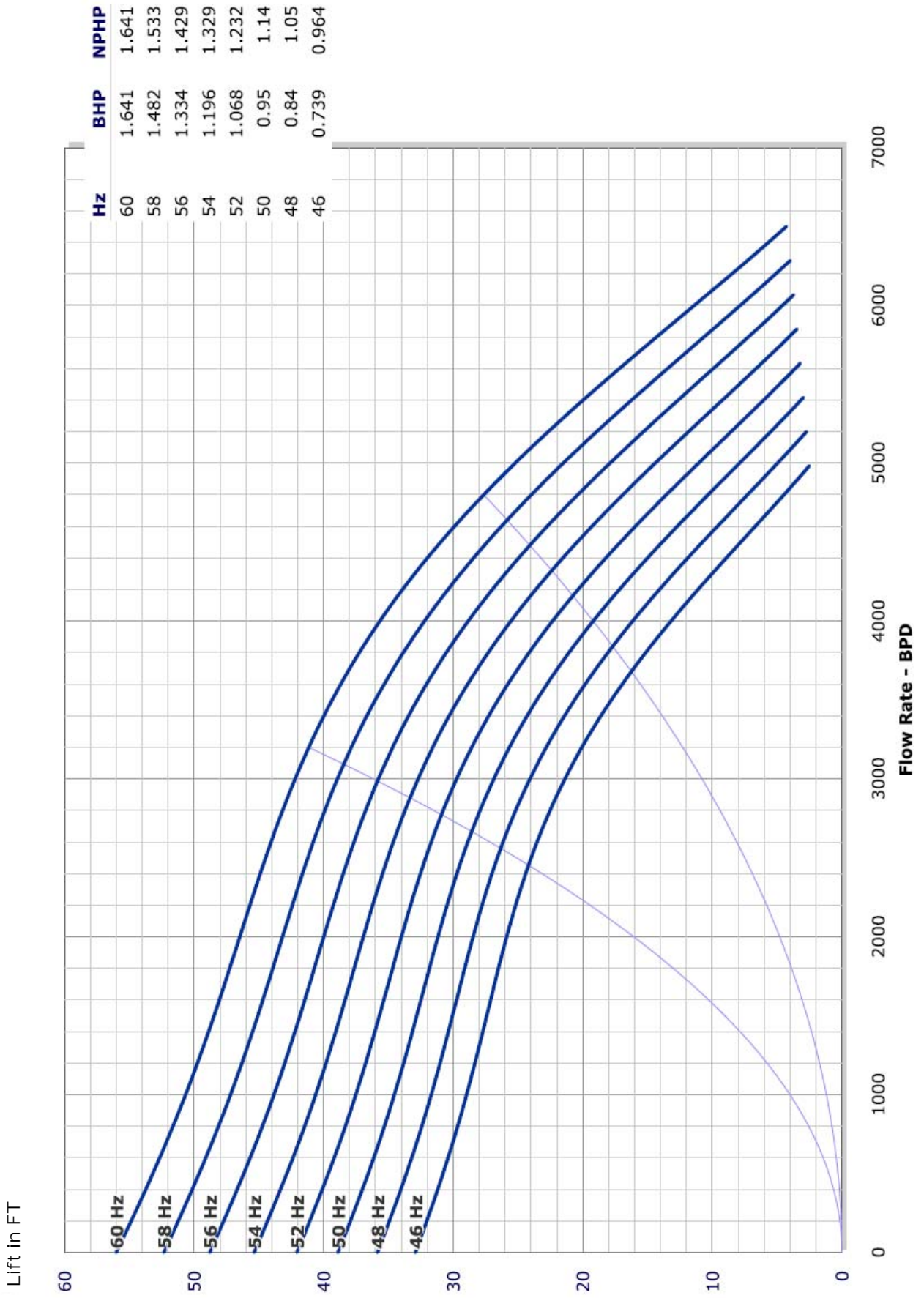


Pump Performance Curve

1 Stage TG-4000

TP513 - Multi Hz

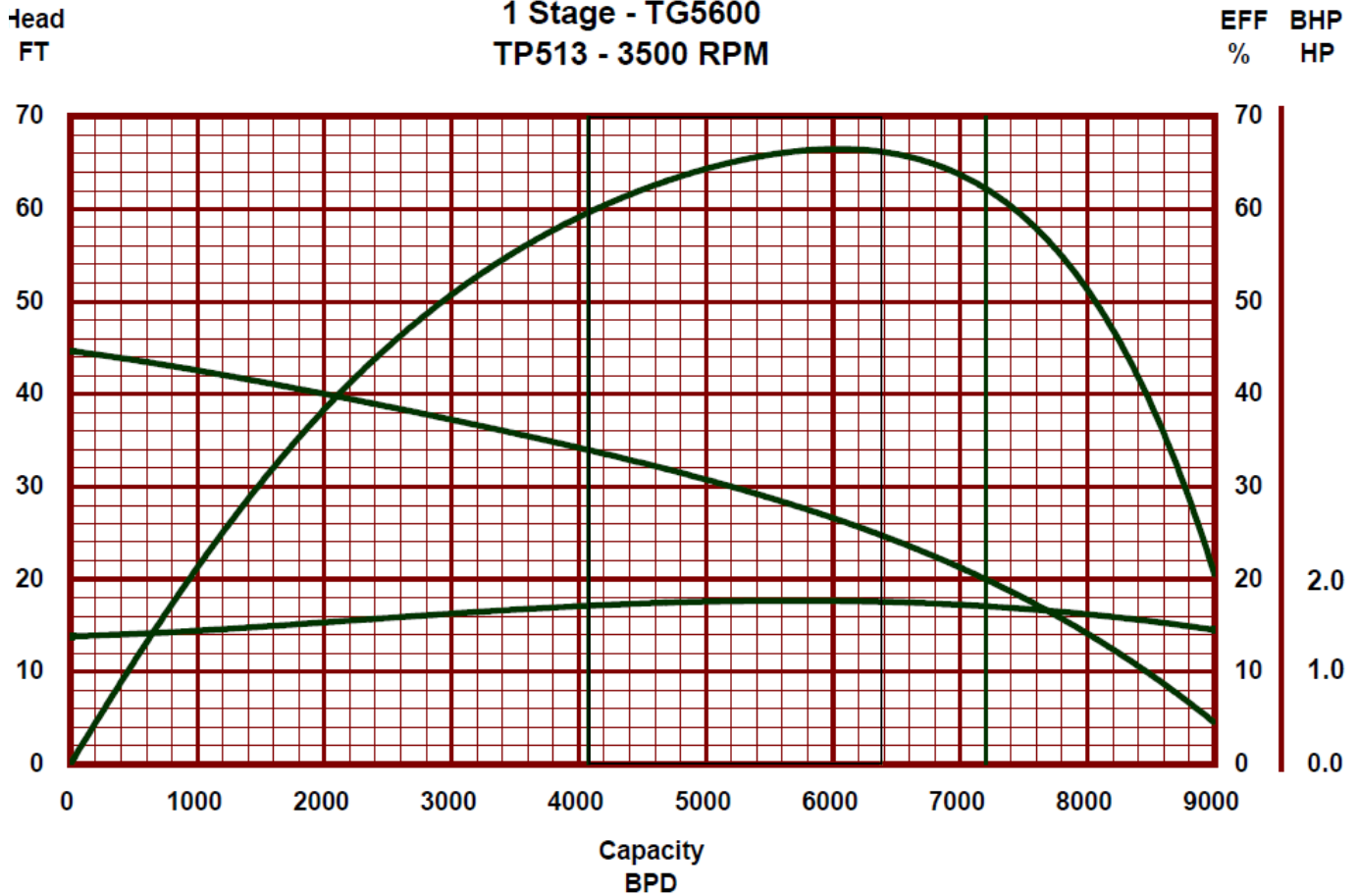
Specific Gravity = 1.0



COSCO 513 Series Pumps

Pump Performance Curve

1 Stage - TG5600
TP513 - 3500 RPM



This engineering performance curve represents nominal performance based on actual multi-stage testing and certification. All pumps supplied by COSCO will be tested and certified to perform within the acceptable limits for head, horsepower, and efficiency as defined in the "API RECOMMENDED PRACTICE(11S2) FOR ELECTRIC SUBMERSIBLE PUMP TESTING."

ENGINEERING DATA				
Housing Diameter		5.13 inches		
Minimum Casing Size		6 5/8 Inches		
Fluid Specific Gravity for Pump Curves		1.0		
Rotational Direction		CCW		
Shaft Details				
Shaft Diameter	1	1.000	Inches	
Shaft Area		0.7854	Sq. Inches	
Shaft Limits				
Shaft Limit in HP at:		50 Hz	60 Hz	
Standard Shaft Limit		312	375	
High Strength (HSS)		500	600	
Maximum Staging: Shaft				
Shaft Type	No of Stages @			
	50 Hz		60 Hz	
Standard Shaft	298		207	
HSS	476		331	
Housing Pressure Limit			5000 PSI	
Maximum Staging: Thrust Bearings (250F BHT)				
Bearing Type	No of Stages @			
	50 Hz		60 Hz	
Standard Bearing	191		159	
Hi Load Bearing	1056		795	

COSCO 513 Series Pumps

TG5600 / 513 Series Pump

>>Minimum Casing Size 6 5/8 Inches

Maximum Bottom Hole Temperature: 250 F

STANDARD PUMP

FLOATER		COMPRESSION		Housings	Length	Weight
Part	Stages	Part	Stages			
31520076	3	31560076	2	1	2.1	77
31520077	8	31560077	7	2	3.5	145
31520078	13	31560078	12	3	4.9	212
31520079	17	31560079	16	4	6.3	271
31520080	22	31560080	21	5	7.7	340
31520081	27	31560081	26	6	9.1	407
31520082	31	31560082	30	7	10.5	467
31520083	36	31560083	35	8	11.9	535
31520084	41	31560084	40	9	13.3	602
31520085	45	31560085	44	10	14.7	661
31520086	50	31560086	49	11	16.1	730
31520087	54	31560087	53	12	17.5	789
31520088	59	31560088	58	13	19	858
31520089	64	31560089	63	14	20.4	924
31520090	68	31560090	67	15	21.9	983

ABRASION RESISTANT

FLOATER AR		COMPRESSION AR		Housings	Length	Weight
Part	Stages	Part	Stages			
31540076	3	31580076	2	1	2.1	77
31540077	8	31580077	7	2	3.5	145
31540078	13	31580078	12	3	4.9	212
31540079	17	31580079	16	4	6.3	271
31540080	22	31580080	21	5	7.7	340
31540081	27	31580081	26	6	9.1	407
31540082	31	31580082	30	7	10.5	467
31540083	36	31580083	35	8	11.9	535
31540084	41	31580084	40	9	13.3	602
31540085	45	31580085	44	10	14.7	661
31540086	50	31580086	49	11	16.1	730
31540087	54	31580087	53	12	17.5	789
31540088	59	31580088	58	13	19	858
31540089	64	31580089	63	14	20.4	924
31540090	68	31580090	67	15	21.9	983

Pump Outside Diameter: 5.13 inches

Standard Features: Carbon Steel Head, Base and Housing. Monel K500 Shaft.

Housing also available in 13 Chrome.

Heads and Bases also available in SST410 or 316L Stainless Steel.

All pumps are in Center Tandem Configuration.

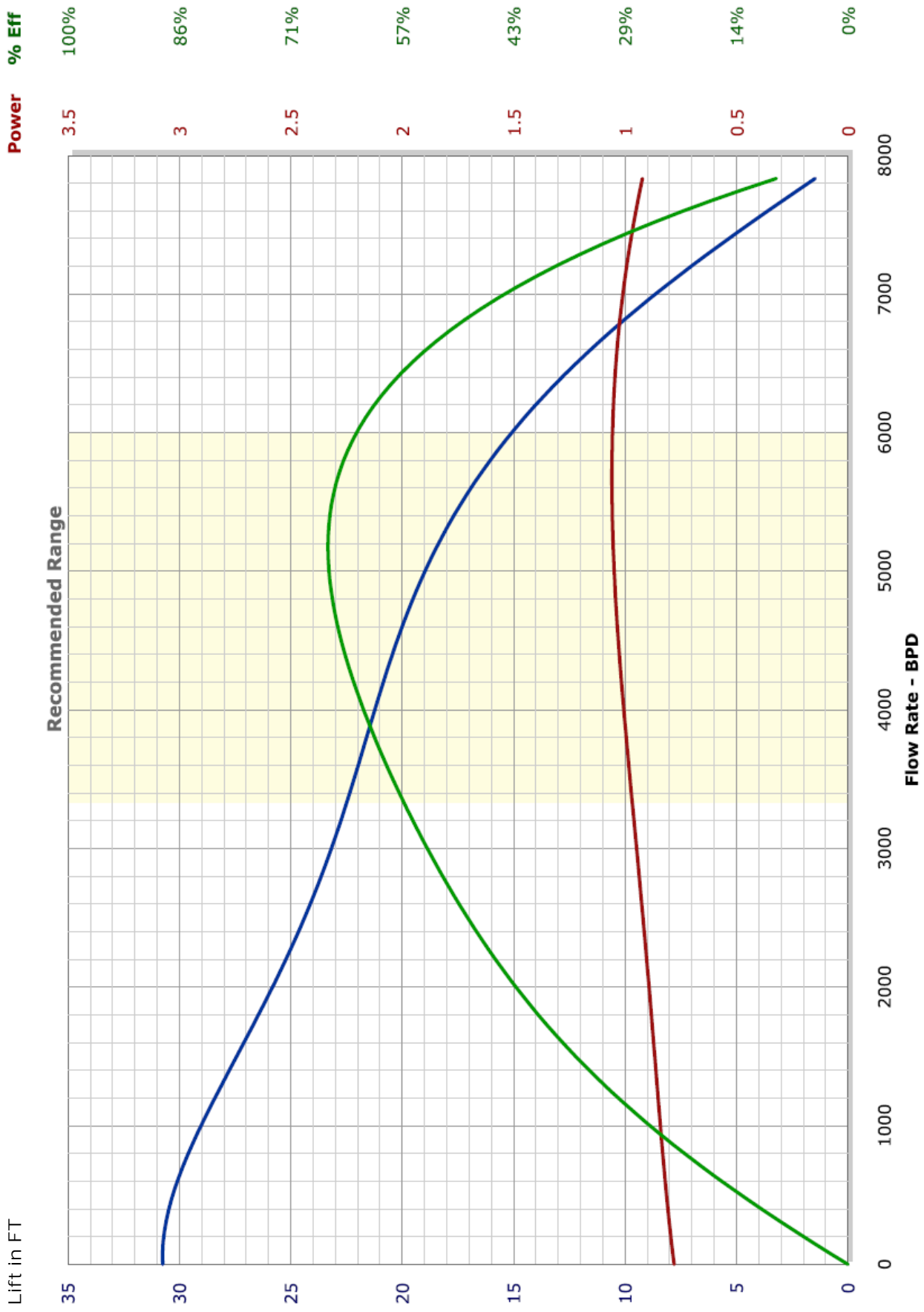
To calculate shipping length, add shipping caps (0.24 feet/cap) to component length.



Pump Performance Curve

1 Stage TG-5600
TP513 - 2917 RPM

Specific Gravity = 1.0





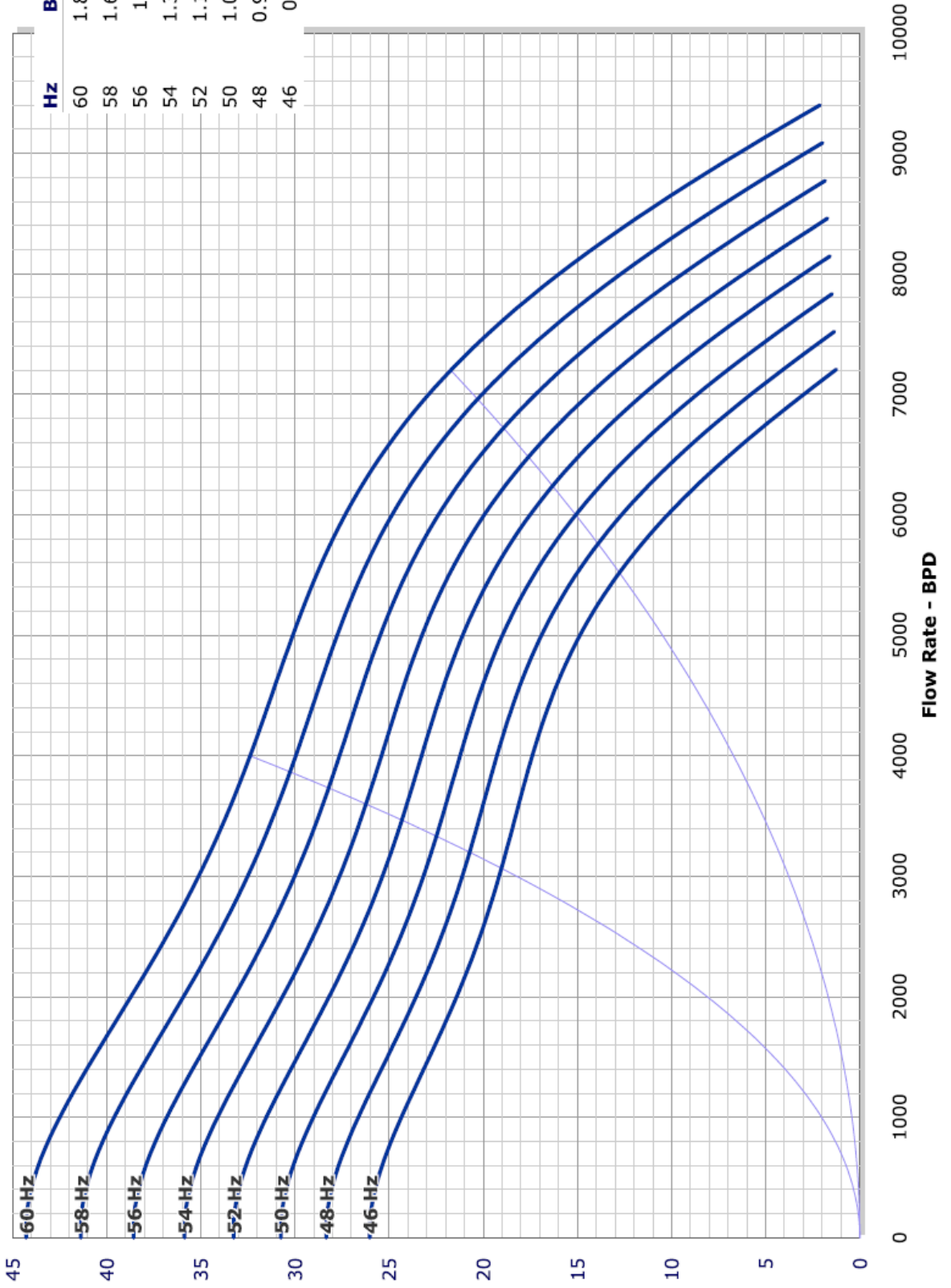
Pump Performance Curve

1 Stage TG-5600

TP513 - Multi Hz

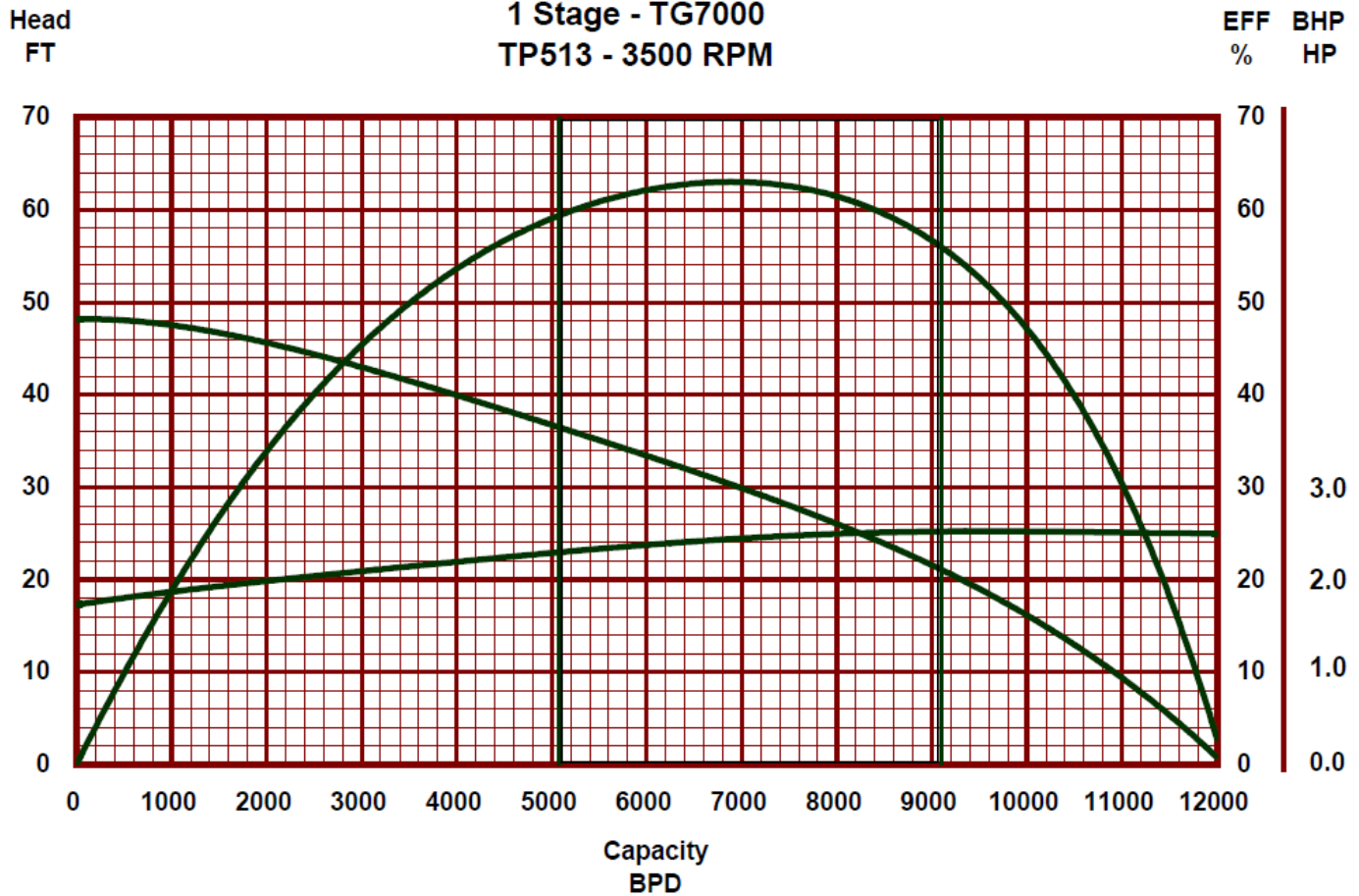
Specific Gravity = 1.0

Lift in FT



COSCO 513 Series Pumps

Pump Performance Curve
1 Stage - TG7000
TP513 - 3500 RPM



This engineering performance curve represents nominal performance based on actual multi-stage testing and certification. All pumps supplied by COSCO will be tested and certified to perform within the acceptable limits for head, horsepower, and efficiency as defined in the "API RECOMMENDED PRACTICE(11S2) FOR ELECTRIC SUBMERSIBLE PUMP TESTING."

ENGINEERING DATA				
Housing Diameter		5.13 inches		
Minimum Casing Size		6 5/8 Inches		
Fluid Specific Gravity for Pump Curves		1.0		
Rotational Direction		CCW		
Shaft Details				
Shaft Diameter	1	1.000	Inches	
Shaft Area	0.7854		Sq. Inches	
Shaft Limits				
Shaft Limit in HP at:		50 Hz	60 Hz	
Standard Shaft Limit		312	375	
High Strength (HSS)		500	600	
Maximum Staging: Shaft				
Shaft Type	No of Stages @			
	50 Hz		60 Hz	
Standard Shaft	214		149	
HSS	344		239	
Housing Pressure Limit			5000 PSI	
Maximum Staging: Thrust Bearings (250F BHT)				
Bearing Type	No of Stages @			
	50 Hz		60 Hz	
Standard Bearing	179		149	
Hi Load Bearing	989		745	

COSCO 513 Series Pumps

TG7000 / 513 Series Pump

>>Minimum Casing Size 6 5/8 Inches

Maximum Bottom Hole Temperature: 250 F

STANDARD PUMP

FLOATER		COMPRESSION		Housings	Length	Weight
Part	Stages	Part	Stages			
31520091	3	31560091	2	1	2.1	77
31520092	8	31560092	7	2	3.5	145
31520093	13	31560093	12	3	4.9	212
31520094	17	31560094	16	4	6.3	271
31520095	22	31560095	21	5	7.7	340
31520096	27	31560096	26	6	9.1	407
31520097	31	31560097	30	7	10.5	467
31520098	36	31560098	35	8	11.9	535
31520099	41	31560099	40	9	13.3	602
31520100	45	31560100	44	10	14.7	661
31520101	50	31560101	49	11	16.1	730
31520102	54	31560102	53	12	17.5	789
31520103	59	31560103	58	13	19	858
31520104	64	31560104	63	14	20.4	924
31520105	68	31560105	67	15	21.9	983

ABRASION RESISTANT PUMP

FLOATER AR		COMPRESSION AR		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31540091	3	31580091	2	1	2.1	77
31540092	8	31580092	7	2	3.5	145
31540093	13	31580093	12	3	4.9	212
31540094	17	31580094	16	4	6.3	271
31540095	22	31580095	21	5	7.7	340
31540096	27	31580096	26	6	9.1	407
31540097	31	31580097	30	7	10.5	467
31540098	36	31580098	35	8	11.9	535
31540099	41	31580099	40	9	13.3	602
31540100	45	31580100	44	10	14.7	661
31540101	50	31580101	49	11	16.1	730
31540102	54	31580102	53	12	17.5	789
31540103	59	31580103	58	13	19	858
31540104	64	31580104	63	14	20.4	924
31540105	68	31580105	67	15	21.9	983

Pump Outside Diameter: 5.13 inches

Standard Features: Carbon Steel Head, Base and Housing. Monel K500 Shaft.

Housing also available in 13 Chrome.

Heads and Bases also available in SST410 or 316L Stainless Steel.

All pumps are in Center Tandem Configuration.

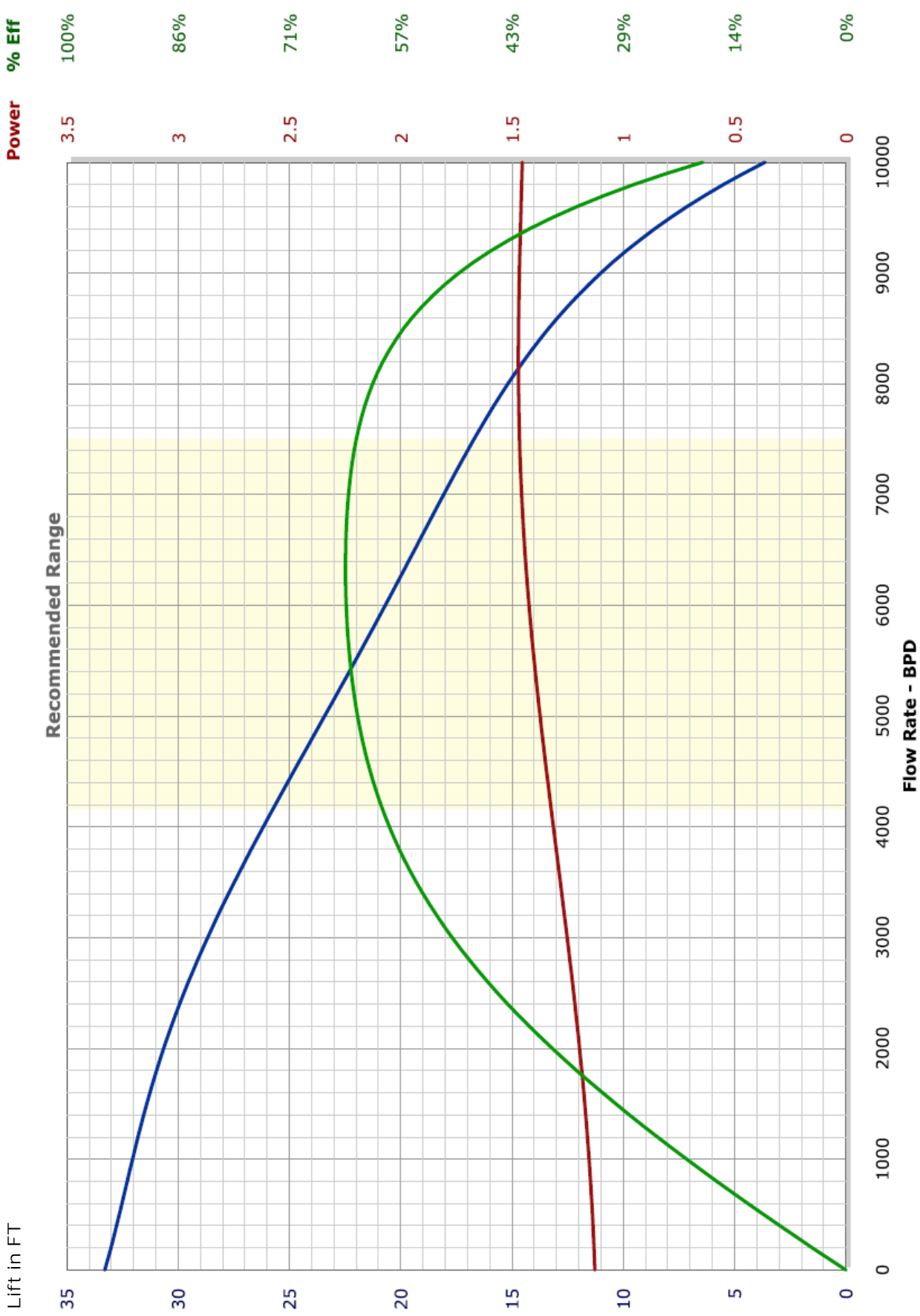
To calculate shipping length, add shipping caps (0.24 feet/cap) to component length.



Pump Performance Curve

1 Stage TG-7000
TP513 - 2917 RPM

Specific Gravity = 1.0



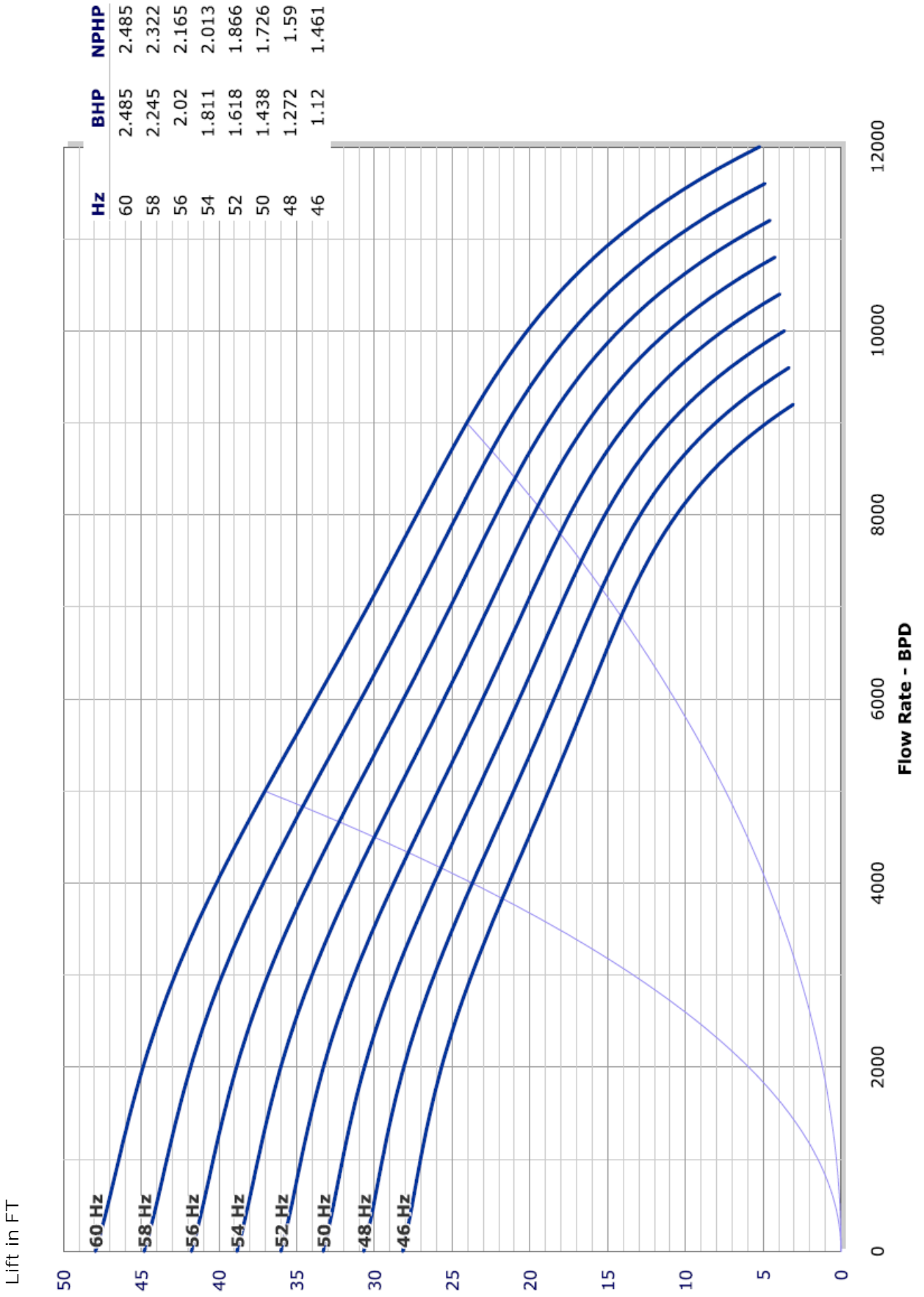


Pump Performance Curve

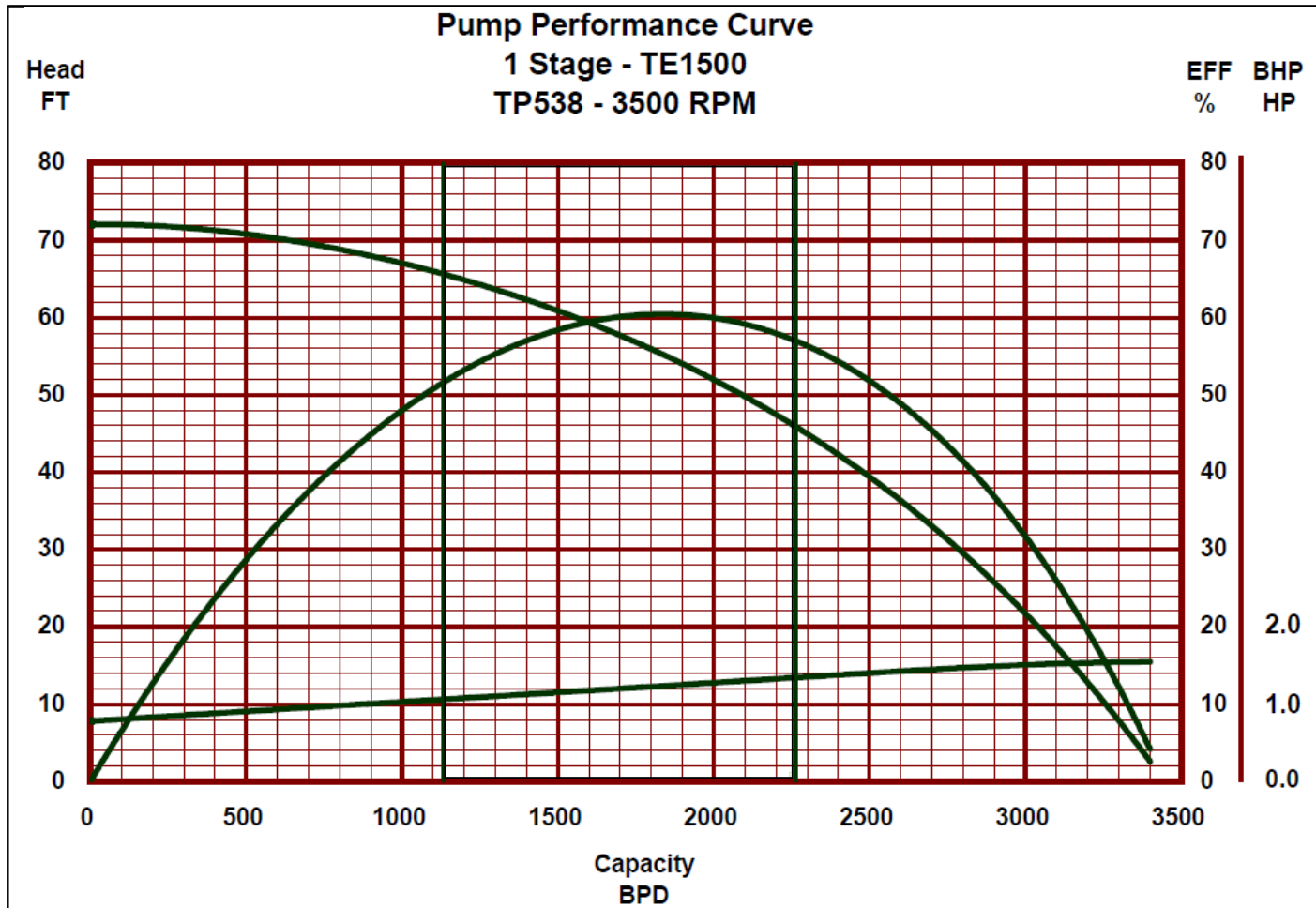
1 Stage TG-7000

TP513 - Multi Hz

Specific Gravity = 1.0



COSCO 538 Series Pumps



This engineering performance curve represents nominal performance based on actual multi-stage testing and certification. All pumps supplied by COSCO will be tested and certified to perform within the acceptable limits for head, horsepower, and efficiency as defined in the "API RECOMMENDED PRACTICE(11S2) FOR ELECTRIC SUBMERSIBLE PUMP TESTING."

ENGINEERING DATA				
Housing Dimeter		5.38 inches		
Minimum Casing Size		7.0 Inches		
Fluid Specific Gravity for Pump Curves		1.0		
Rotational Direction		CCW		
Shaft Details				
Shaft Diameter	7/8	0.875	Inches	
Shaft Area	0.6013		Sq. Inches	
Shaft Limits				
Shaft Limit in HP at:		50 Hz	60 Hz	
Standard Shaft Limit		213	256	
High Strength (HSS)		342	410	
Maximum Staging: Shaft				
Shaft Type	No of Stages @			
	50 Hz		60 Hz	
Standard Shaft	236		164	
HSS	377		262	
Housing Pressure Limit			5000 PSI	
Maximum Staging: Thrust Bearings (250F BHT)				
Bearing Type	No of Stages @			
	50 Hz		60 Hz	
Standard Bearing	153		128	
Hi Load Bearing	846		640	

COSCO 538 Series Pumps

TE1500 / 538 Series Pump

>>Minimum Casing Size 7 Inches

Maximum Bottom Hole Temperature: 250 F

STANDARD PUMP

FLOATER		COMPRESSION		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31520106	7	31560106	6	1	2.5	93
31520107	14	31560107	13	2	4	157
31520108	22	31560108	21	3	5.5	220
31520109	30	31560109	29	4	7	284
31520110	37	31560110	36	5	8.5	347
31520111	45	31560111	44	6	10	412
31520112	52	31560112	51	7	11.5	473
31520113	60	31560113	59	8	13	537
31520114	68	31560114	67	9	14.5	602
31520115	75	31560115	74	10	16	665
31520116	83	31560116	82	11	17.5	729
31520117	90	31560117	89	12	19	793
31520118	98	31560118	97	13	20.5	857
31520119	106	31560119	105	14	22	921
31520120	113	31560120	112	15	23.5	985

ABRASION RESISTANT PUMP

FLOATER AR		COMPRESSION AR		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31540106	7	31580106	6	1	2.5	93
31540107	14	31580107	13	2	4	157
31540108	22	31580108	21	3	5.5	220
31540109	30	31580109	29	4	7	284
31540110	37	31580110	36	5	8.5	347
31540111	45	31580111	44	6	10	412
31540112	52	31580112	51	7	11.5	473
31540113	60	31580113	59	8	13	537
31540114	68	31580114	67	9	14.5	602
31540115	75	31580115	74	10	16	665
31540116	83	31580116	82	11	17.5	729
31540117	90	31580117	89	12	19	793
31540118	98	31580118	97	13	20.5	857
31540119	106	31580119	105	14	22	921
31540120	113	31580120	112	15	23.5	985

Pump Outside Diameter: 5.38 inches

Standard Features: Carbon Steel Head, Base and Housing. Monel K500 Shaft.

Housing also available in 13 Chrome.

Heads and Bases also available in SST410 or 316L Stainless Steel.

All pumps are in Center Tandem Configuration.

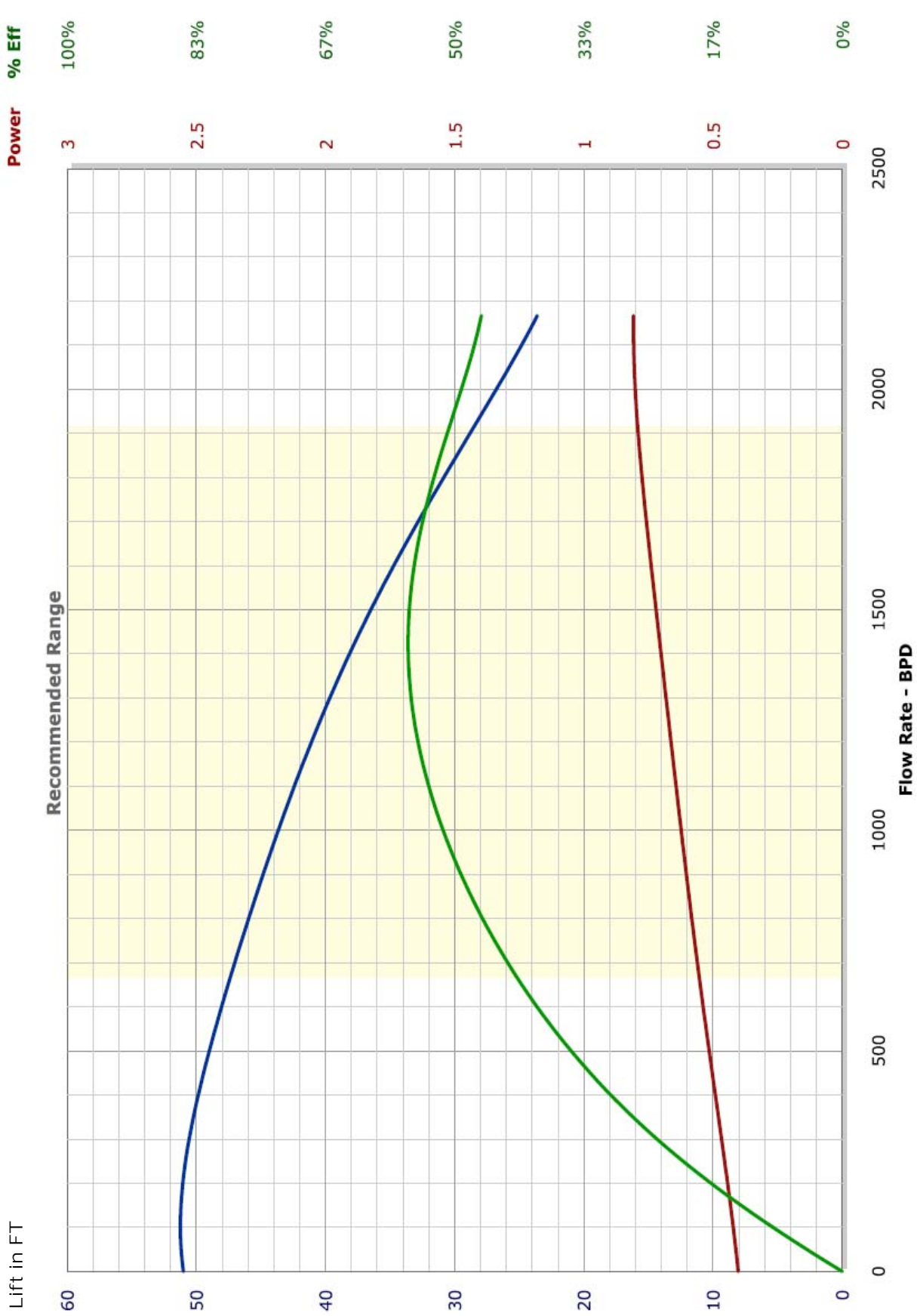
To calculate shipping Length, add shipping caps (0.24 feet/cap) to component Length.



Pump Performance Curve

1 Stage TE-1500
TP538 - 2917 RPM

Specific Gravity = 1.0



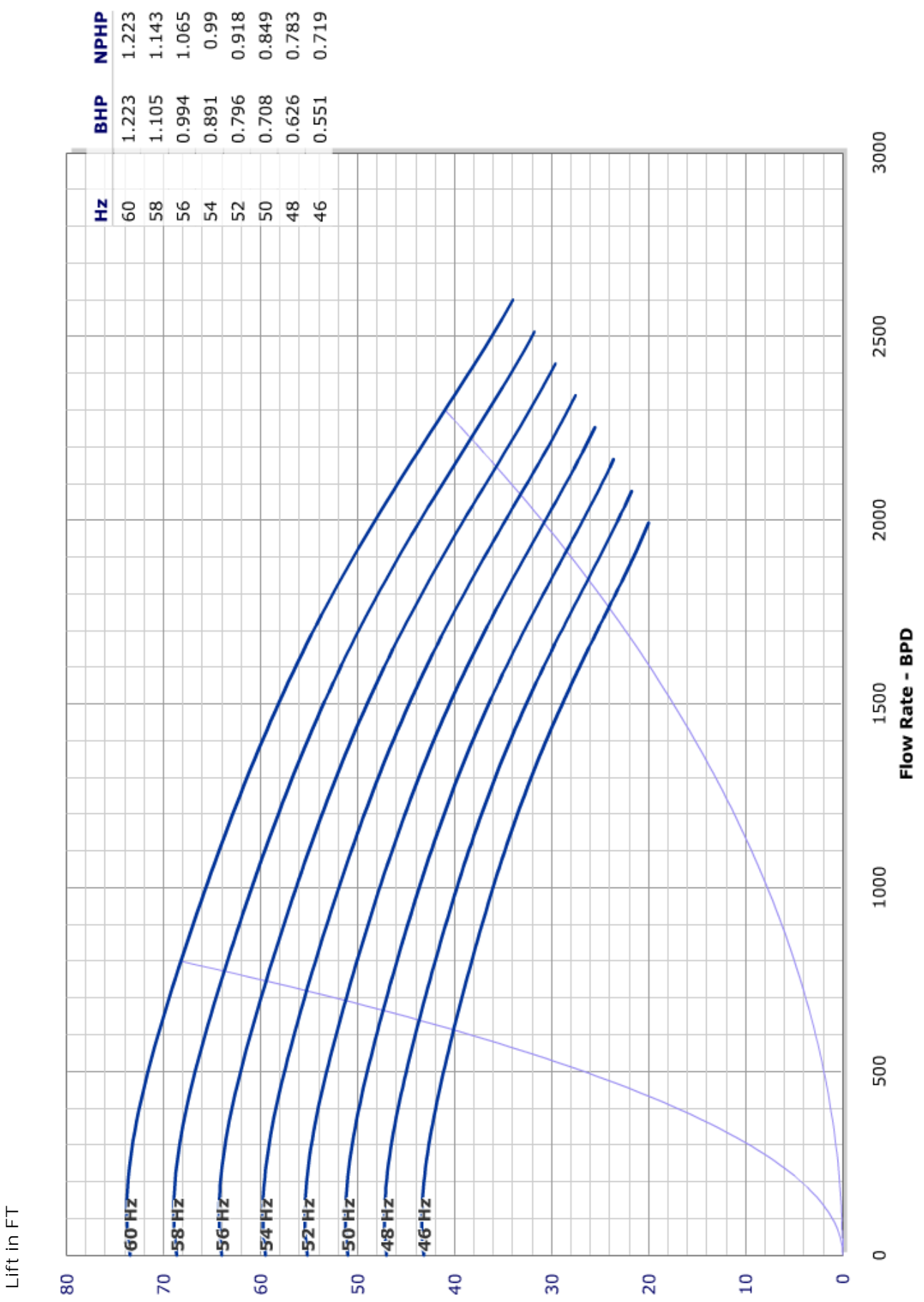


Pump Performance Curve

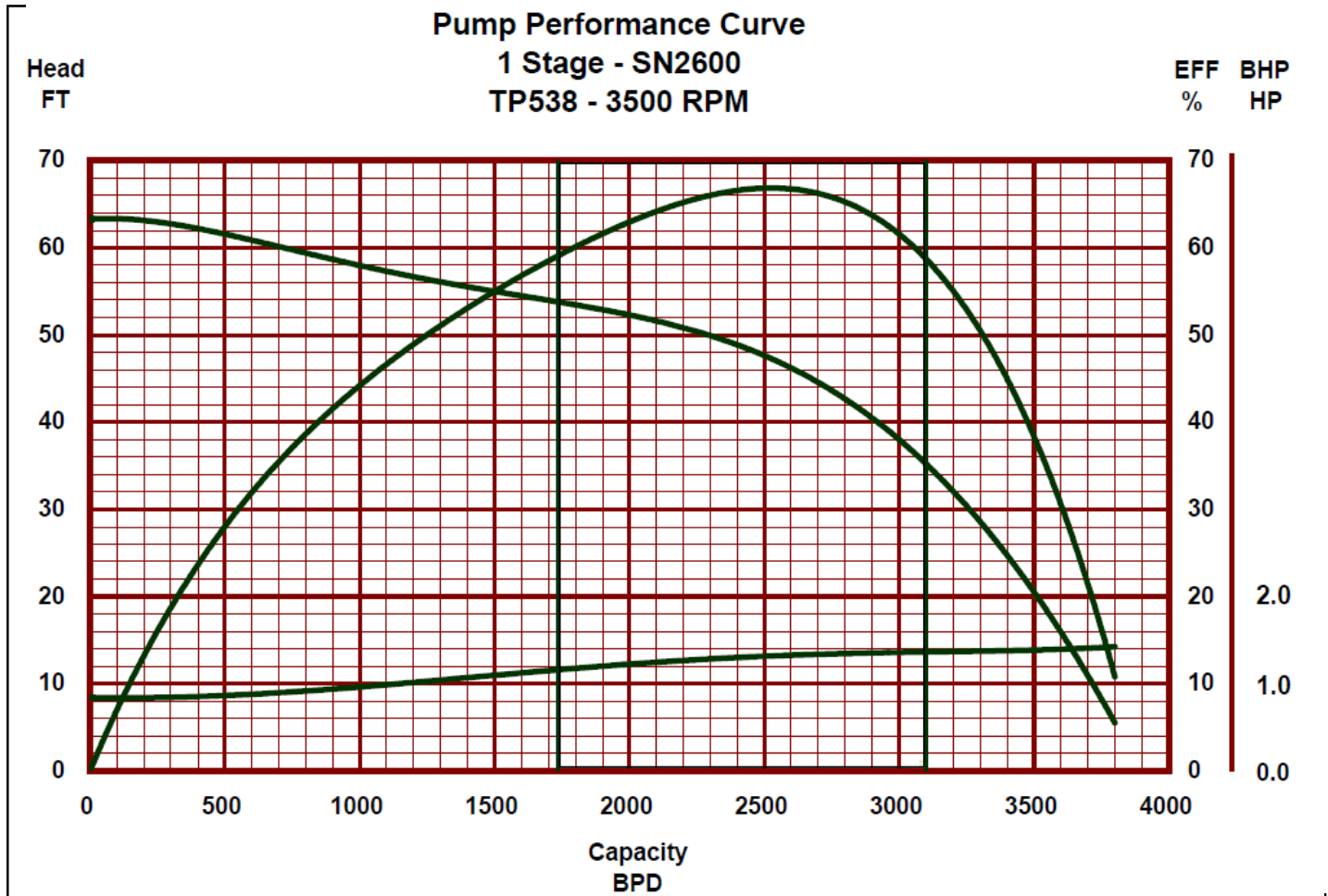
1 Stage TE-1500

TP538 - Multi Hz

Specific Gravity = 1.0



COSCO 538 Series Pumps



This engineering performance curve represents nominal performance based on actual multi-stage testing and certification. All pumps supplied by COSCO will be tested and certified to perform within the acceptable limits for head, horsepower, and efficiency as defined in the "API RECOMMENDED PRACTICE(11S2) FOR ELECTRIC SUBMERSIBLE PUMP TESTING."

ENGINEERING DATA				
Housing Dimeter		5.38 inches		
Minimum Casing Size		7.0 Inches		
Fluid Specific Gravity for Pump Curves		1.0		
Rotational Direction		CCW		
Shaft Details				
Shaft Diameter	7/8	0.875	Inches	
Shaft Area	0.6013		Sq. Inches	
Shaft Limits				
Shaft Limit in HP at:		50 Hz	60 Hz	
Standard Shaft Limit		213	256	
High Strength (HSS)		342	410	
Maximum Staging: Shaft				
Shaft Type	No of Stages @			
	50 Hz	60 Hz		
Standard Shaft	254	177		
HSS	408	284		
Housing Pressure Limit			5000 PSI	
Maximum Staging: Thrust Bearings (250F BHT)				
Bearing Type	No of Stages @			
	50 Hz	60 Hz		
Standard Bearing	175	146		
Hi Load Bearing	967	730		

COSCO 538 Series Pumps

SN2600 / 538 Series Pump

>>Minimum Casing Size 7 Inches

Maximum Bottom Hole Temperature: 250 F

STANDARD PUMP

FLOATER		COMPRESSION		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31520121	13	31560121	12	1	2.5	93
31520122	27	31560122	26	2	4	157
31520123	41	31560123	40	3	5.5	220
31520124	55	31560124	54	4	7	284
31520125	69	31560125	68	5	8.5	347
31520126	83	31560126	82	6	10	412
31520127	97	31560127	96	7	11.5	473
31520128	111	31560128	110	8	13	537
31520129	125	31560129	124	9	14.5	602
31520130	139	31560130	138	10	16	665
31520131	153	31560131	152	11	17.5	729
31520132	166	31560132	165	12	19	793
31520133	180	31560133	179	13	20.5	857
31520134	194	31560134	193	14	22	921
31520135	208	31560135	207	15	23.5	985

ABRASION RESISTANT PUMP

FLOATER AR		COMPRESSION AR		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31540121	12	31580121	11	1	2.5	93
31540122	24	31580122	23	2	4	157
31540123	37	31580123	36	3	5.5	220
31540124	49	31580124	48	4	7	284
31540125	62	31580125	61	5	8.5	347
31540126	74	31580126	73	6	10	412
31540127	87	31580127	86	7	11.5	473
31540128	99	31580128	98	8	13	537
31540129	112	31580129	111	9	14.5	602
31540130	124	31580130	123	10	16	665
31540131	136	31580131	135	11	17.5	729
31540132	148	31580132	147	12	19	793
31540133	160	31580133	159	13	20.5	857
31540134	173	31580134	172	14	22	921
31540135	185	31580135	184	15	23.5	985

Pump Outside Diameter: 5.38 inches

Standard Features: Carbon Steel Head, Base and Housing. Monel K500 Shaft.

Housing also available in 13 Chrome.

Heads and Bases also available in SST410 or 316L Stainless Steel.

All pumps are in Center Tandem Configuration.

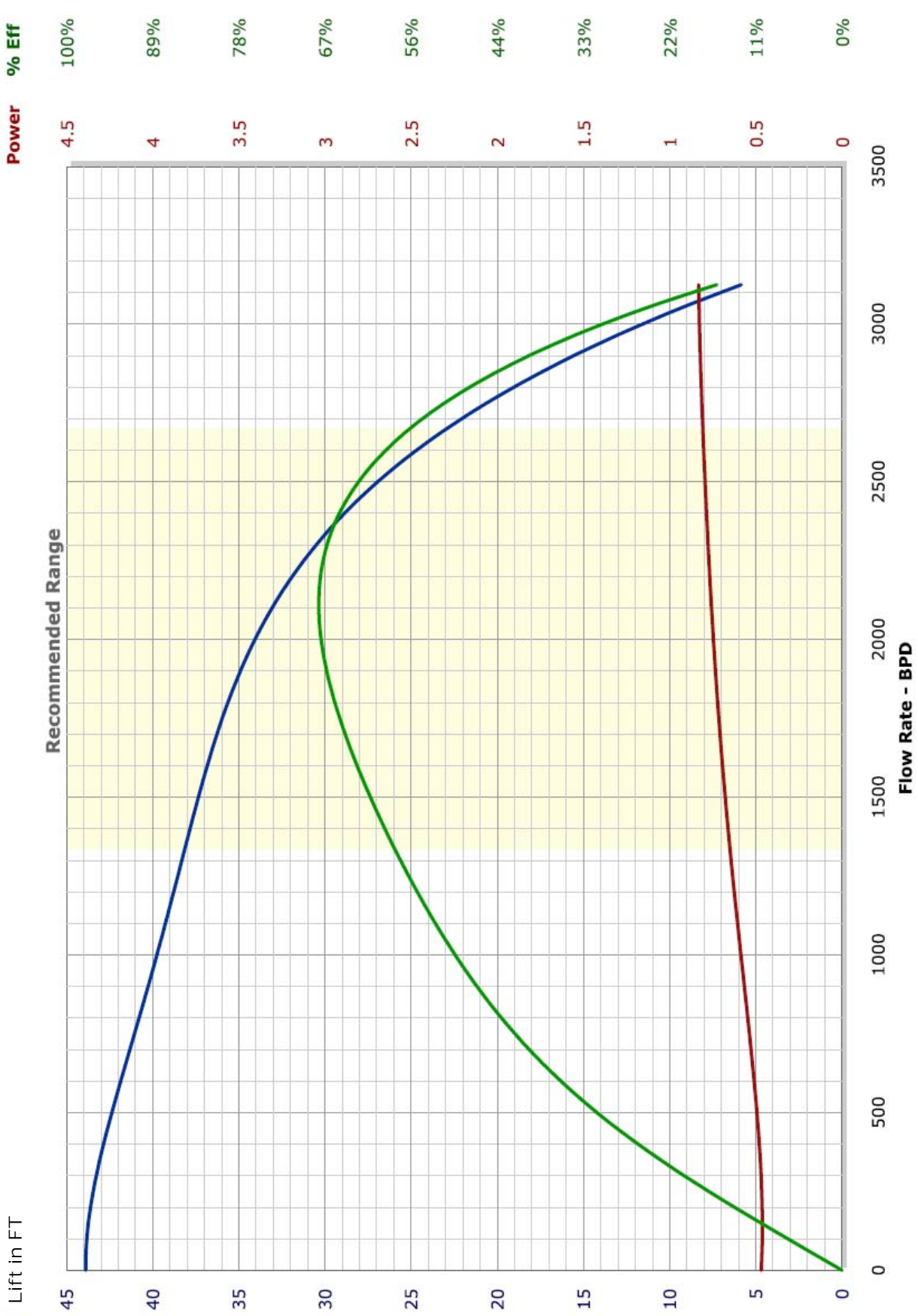
To calculate shipping Length, add shipping caps (0.24 feet/cap) to component Length.



Pump Performance Curve

1 Stage SN-2600
TP538 - 2917 RPM

Specific Gravity = 1.0



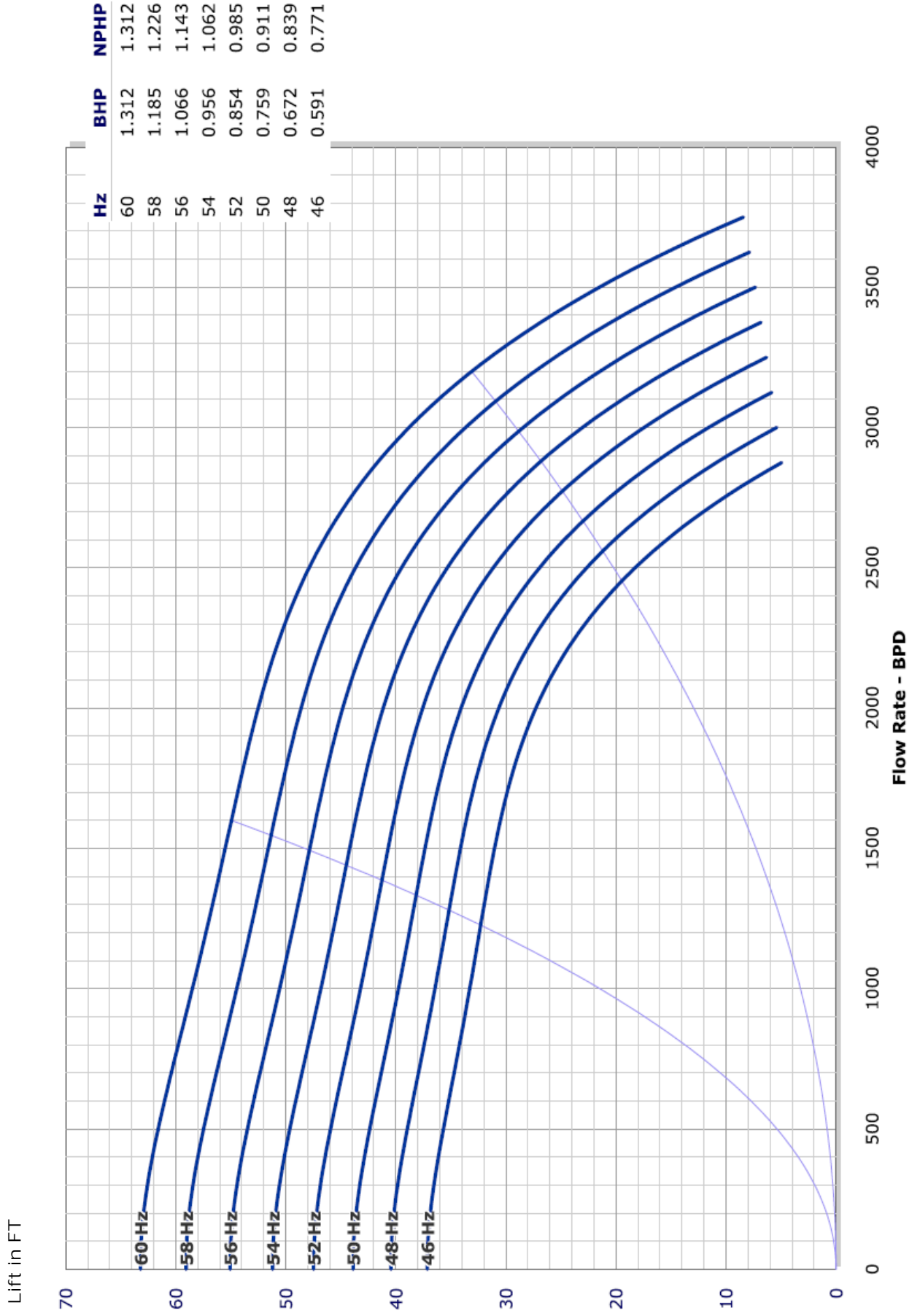


Pump Performance Curve

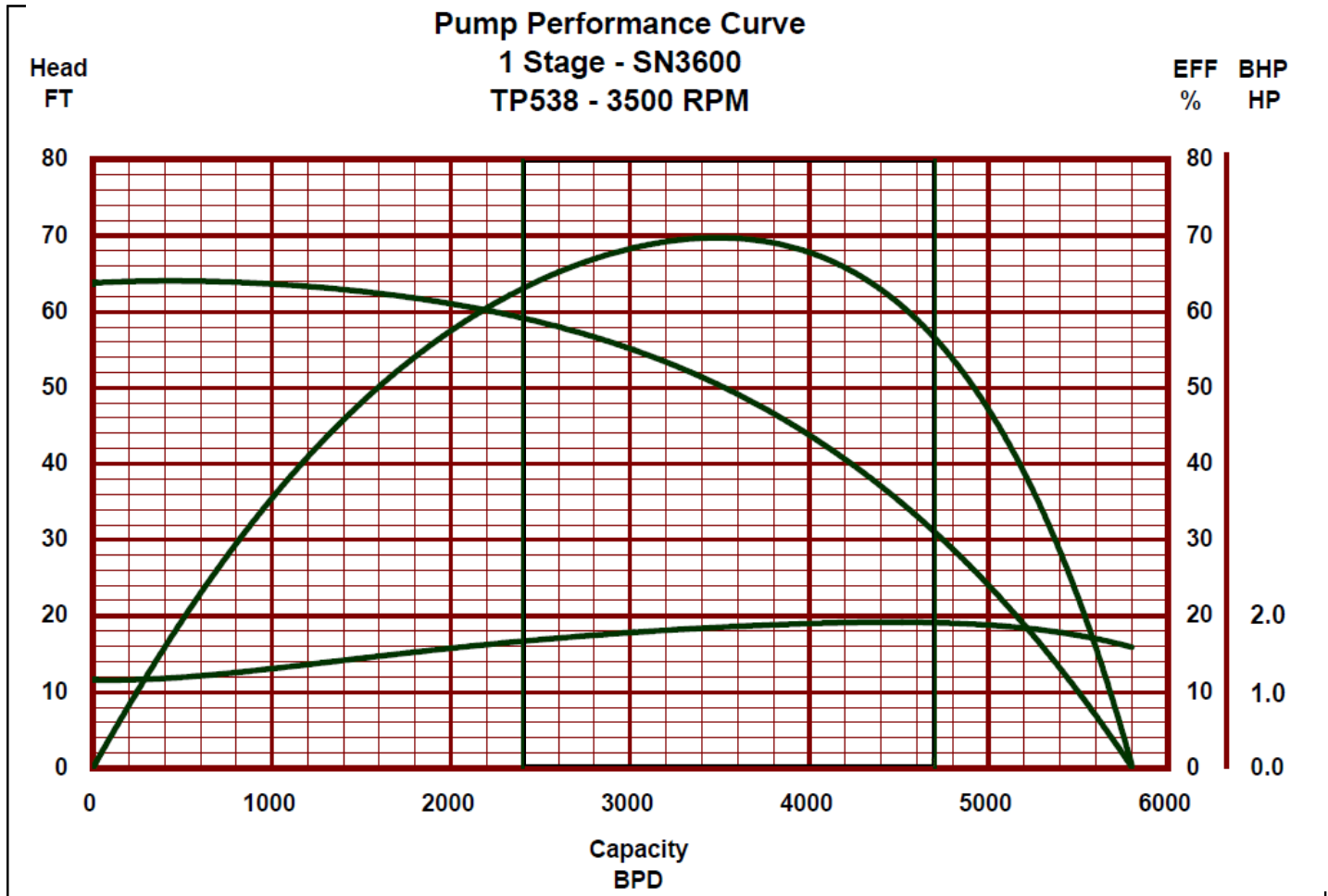
1 Stage SN-2600

TP538 - Multi Hz

Specific Gravity = 1.0



COSCO 538 Series Pumps



This engineering performance curve represents nominal performance based on actual multi-stage testing and certification. All pumps supplied by COSCO will be tested and certified to perform within the acceptable limits for head, horsepower, and efficiency as defined in the "API RECOMMENDED PRACTICE(11S2) FOR ELECTRIC SUBMERSIBLE PUMP TESTING."

ENGINEERING DATA				
Housing Dimeter		5.38 inches		
Minimum Casing Size		7.0 Inches		
Fluid Specific Gravity for Pump Curves		1.0		
Rotational Direction		CCW		
Shaft Details				
Shaft Diameter	7/8	0.875	Inches	
Shaft Area	0.6013		Sq. Inches	
Shaft Limits				
Shaft Limit in HP at:		50 Hz	60 Hz	
Standard Shaft Limit		213	256	
High Strength (HSS)		342	410	
Maximum Staging: Shaft				
Shaft Type	No of Stages @			
	50 Hz		60 Hz	
Standard Shaft	188		131	
HSS	302		210	
Housing Pressure Limit			5000 PSI	
Maximum Staging: Thrust Bearings (250F BHT)				
Bearing Type	No of Stages @			
	50 Hz		60 Hz	
Standard Bearing	173		144	
Hi Load Bearing	956		720	

COSCO 538 Series Pumps

SN3600 / 538 Series Pump

>>Minimum Casing Size 7 Inches

Maximum Bottom Hole Temperature: 250 F

STANDARD PUMP

FLOATER		COMPRESSION		Housings	Length	Weight
Part	Stages	Part	Stages			
31520136	9	31560136	8	1	2.5	93
31520137	19	31560137	18	2	4	157
31520138	29	31560138	28	3	5.5	220
31520139	39	31560139	38	4	7	284
31520140	49	31560140	48	5	8.5	347
31520141	59	31560141	58	6	10	412
31520142	68	31560142	67	7	11.5	473
31520143	78	31560143	77	8	13	537
31520144	88	31560144	87	9	14.5	602
31520145	98	31560145	97	10	16	665
31520146	108	31560146	107	11	17.5	729
31520147	118	31560147	117	12	19	793
31520148	128	31560148	127	13	20.5	857
31520149	138	31560149	137	14	22	921
31520150	148	31560150	147	15	23.5	985

ABRASION RESISTANT PUMP

FLOATER AR		COMPRESSION AR		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31540136	8	31580136	7	1	2.5	93
31540137	16	31580137	15	2	4	157
31540138	25	31580138	24	3	5.5	220
31540139	33	31580139	32	4	7	284
31540140	41	31580140	40	5	8.5	347
31540141	50	31580141	49	6	10	412
31540142	57	31580142	56	7	11.5	473
31540143	65	31580143	64	8	13	537
31540144	74	31580144	73	9	14.5	602
31540145	82	31580145	81	10	16	665
31540146	90	31580146	89	11	17.5	729
31540147	99	31580147	98	12	19	793
31540148	107	31580148	106	13	20.5	857
31540149	115	31580149	114	14	22	921
31540150	124	31580150	123	15	23.5	985

Pump Outside Diameter: 5.38 inches

Standard Features: Carbon Steel Head, Base and Housing. Monel K500 Shaft.

Housing also available in 13 Chrome.

Heads and Bases also available in SST410 or 316L Stainless Steel.

All pumps are in Center Tandem Configuration.

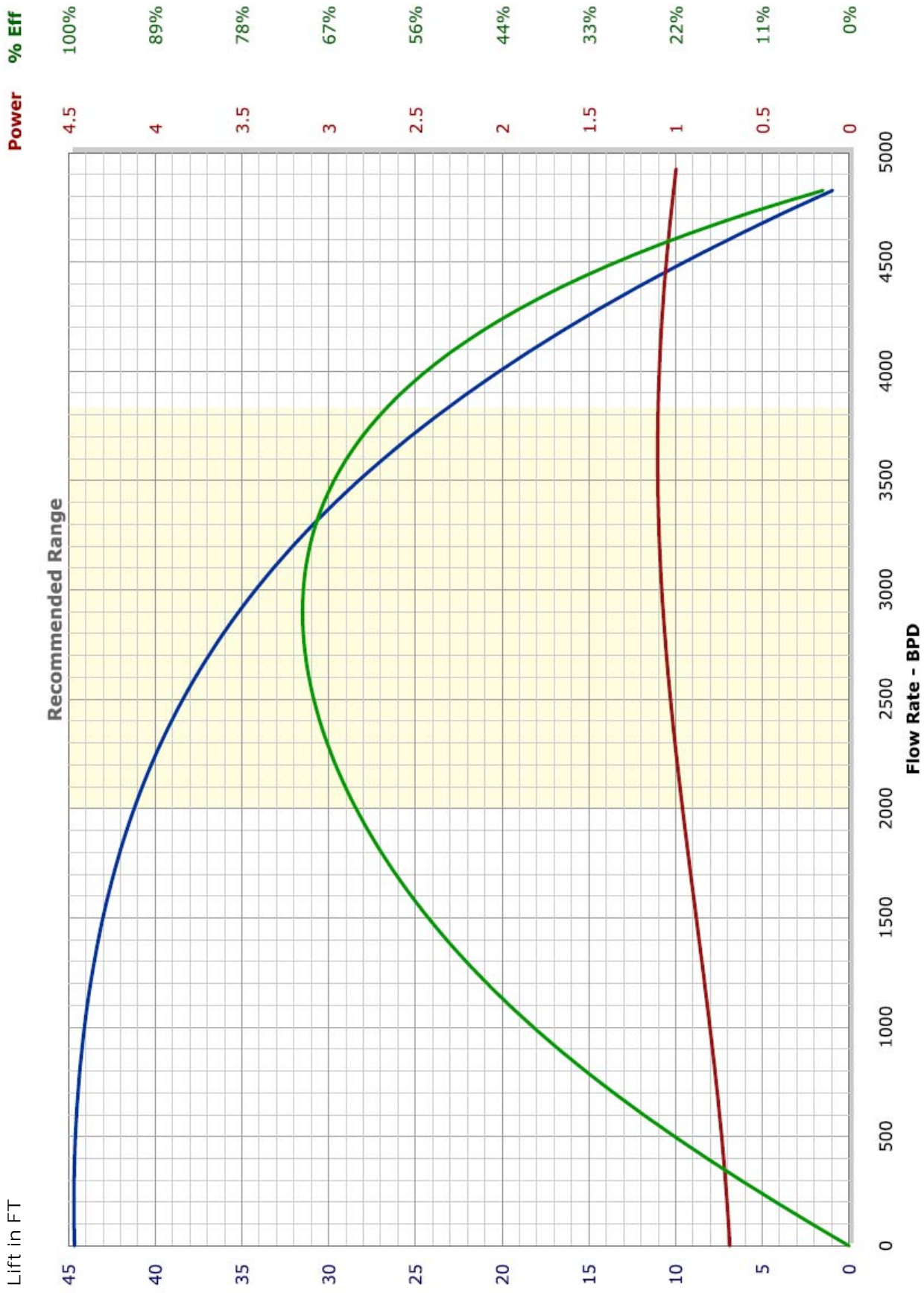
To calculate shipping Length, add shipping caps (0.24 feet/cap) to component Length.



Pump Performance Curve

1 Stage SN-3600
TP538 - 2917 RPM

Specific Gravity = 1.0



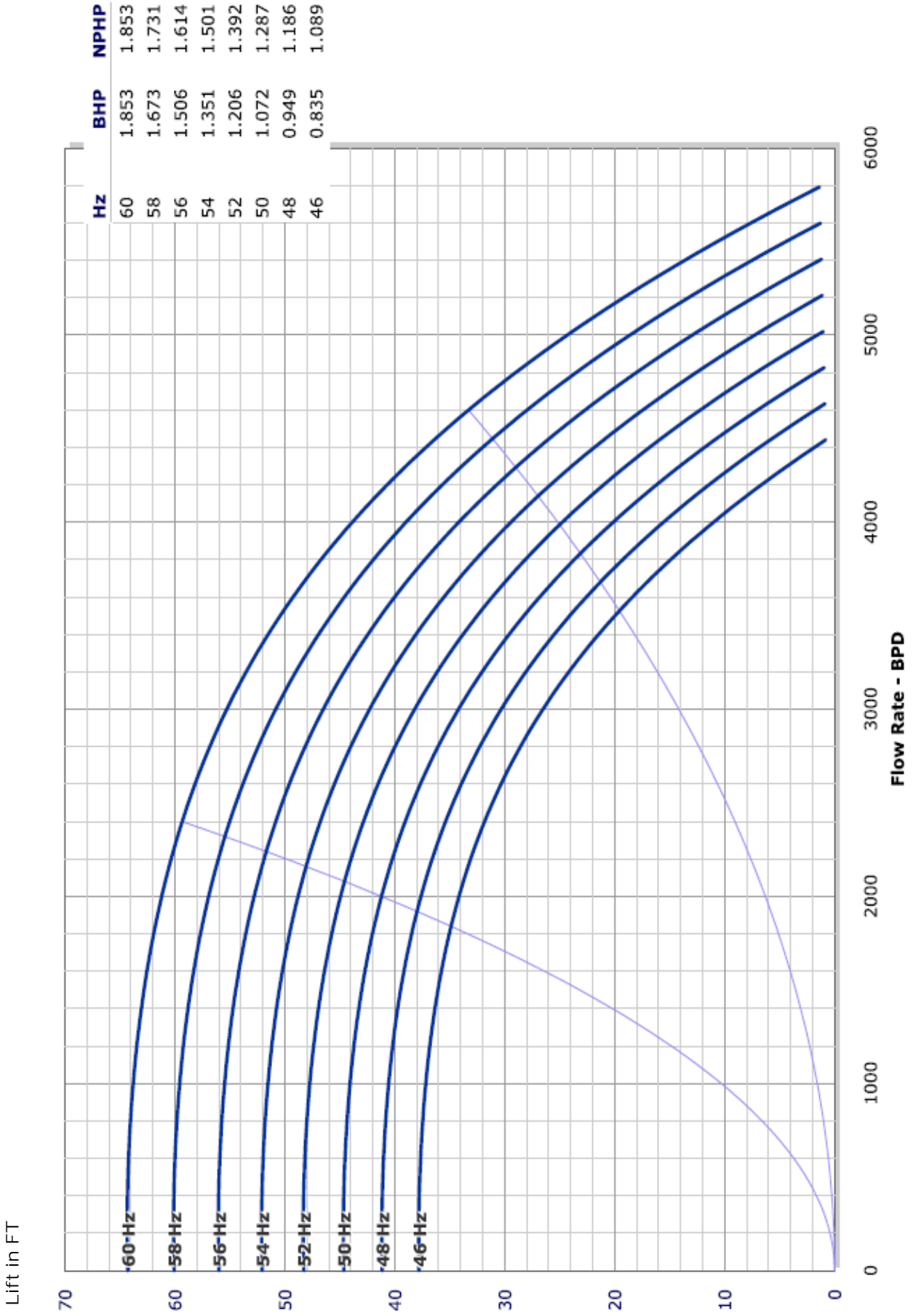


Pump Performance Curve

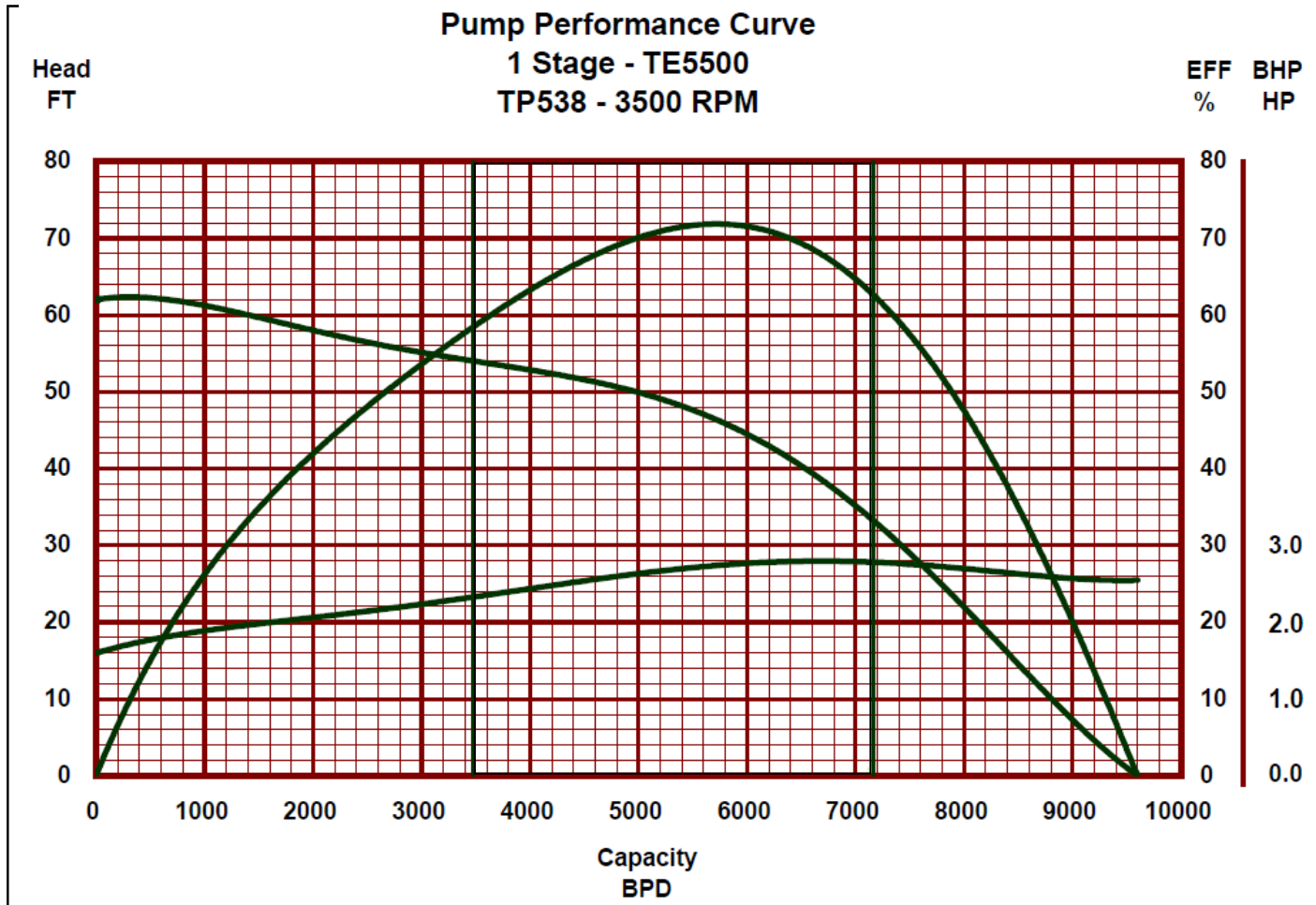
1 Stage SN-3600

TP538 - Multi Hz

Specific Gravity = 1.0



COSCO 538 Series Pumps



This engineering performance curve represents nominal performance based on actual multi-stage testing and certification. All pumps supplied by COSCO will be tested and certified to perform within the acceptable limits for head, horsepower, and efficiency as defined in the "API RECOMMENDED PRACTICE(11S2) FOR ELECTRIC SUBMERSIBLE PUMP TESTING."

ENGINEERING DATA				
Housing Dimeter		5.38 inches		
Minimum Casing Size		7.0 Inches		
Fluid Specific Gravity for Pump Curves		1.0		
Rotational Direction		CCW		
Shaft Details				
Shaft Diameter	1	1.000	Inches	
Shaft Area		0.7854	Sq. Inches	
Shaft Limits				
Shaft Limit in HP at:		50 Hz	60 Hz	
Standard Shaft Limit		312	375	
High Strength (HSS)		500	600	
Maximum Staging: Shaft				
Shaft Type	No of Stages @			
	50 Hz	60 Hz		
Standard Shaft	190	132		
HSS	305	212		
Housing Pressure Limit			5000 PSI	
Maximum Staging: Thrust Bearings (250F BHT)				
Bearing Type	No of Stages @			
	50 Hz	60 Hz		
Standard Bearing	137	114		
Hi Load Bearing	757	570		

COSCO 538 Series Pumps

TE5500 / 538 Series Pump

>>Minimum Casing Size 7 Inches

Maximum Bottom Hole Temperature: 250 F

STANDARD PUMP

FLOATER		COMPRESSION		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31520151	5	31560151	4	1	2.5	93
31520152	11	31560152	10	2	4	157
31520153	17	31560153	16	3	5.5	220
31520154	23	31560154	22	4	7	284
31520155	29	31560155	28	5	8.5	347
31520156	35	31560156	34	6	10	412
31520157	41	31560157	40	7	11.5	473
31520158	47	31560158	46	8	13	537
31520159	53	31560159	52	9	14.5	602
31520160	59	31560160	58	10	16	665
31520161	65	31560161	64	11	17.5	729
31520162	71	31560162	70	12	19	793
31520163	77	31560163	76	13	20.5	857
31520164	83	31560164	82	14	22	921
31520165	89	31560165	88	15	23.5	985

ABRASION RESISTANT PUMP

FLOATER AR		COMPRESSION AR		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31540151	5	31580151	4	1	2.5	93
31540152	11	31580152	10	2	4	157
31540153	17	31580153	16	3	5.5	220
31540154	23	31580154	22	4	7	284
31540155	29	31580155	28	5	8.5	347
31540156	35	31580156	34	6	10	412
31540157	41	31580157	40	7	11.5	473
31540158	47	31580158	46	8	13	537
31540159	53	31580159	52	9	14.5	602
31540160	59	31580160	58	10	16	665
31540161	65	31580161	64	11	17.5	729
31540162	71	31580162	70	12	19	793
31540163	77	31580163	76	13	20.5	857
31540164	83	31580164	82	14	22	921
31540165	89	31580165	88	15	23.5	985

Pump Outside Diameter: 5.38 inches

Standard Features: Carbon Steel Head, Base and Housing. Monel K500 Shaft.

Housing also available in 13 Chrome.

Heads and Bases also available in SST410 or 316L Stainless Steel.

All pumps are in Center Tandem Configuration.

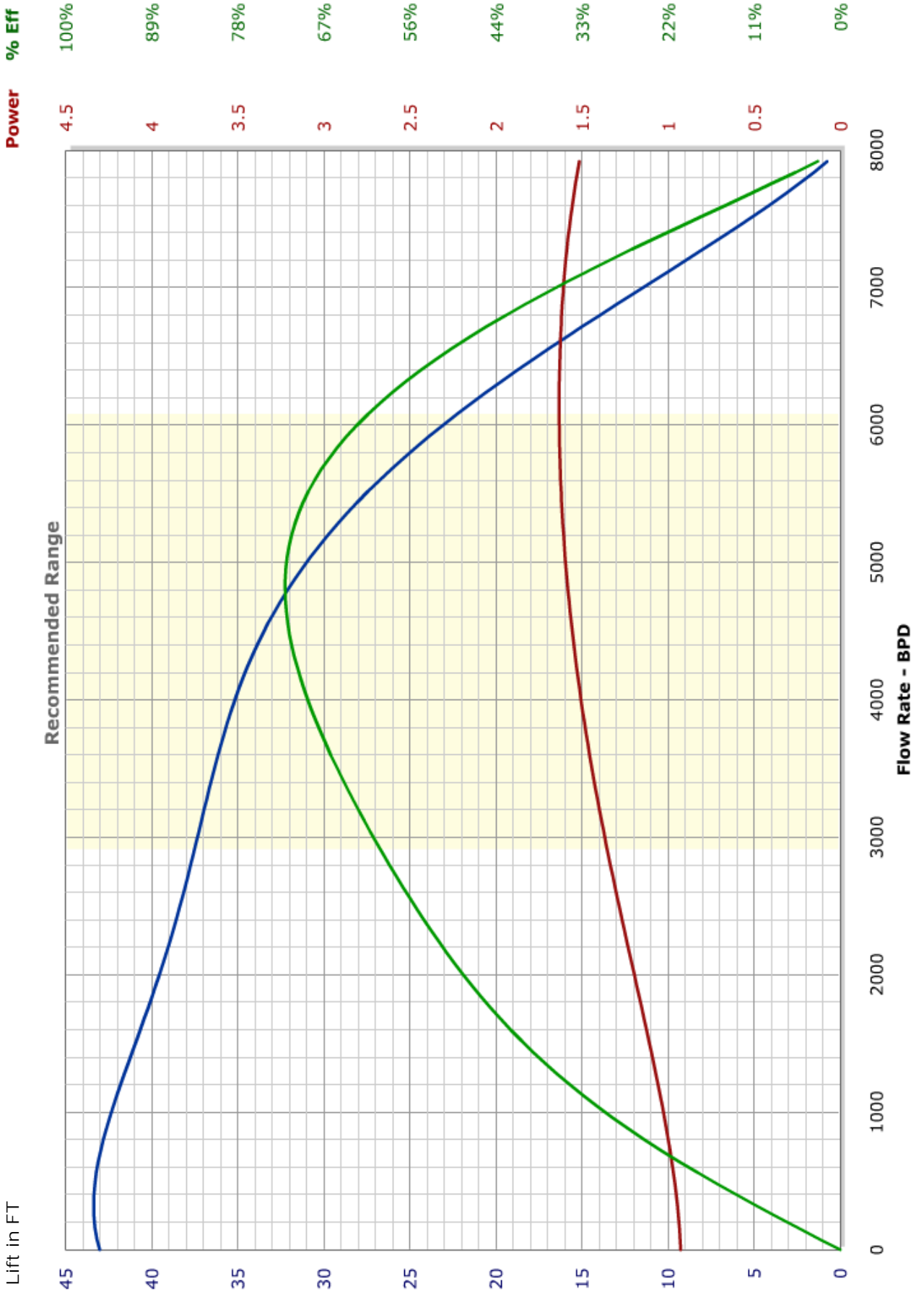
To calculate shipping Length, add shipping caps (0.24 feet/cap) to component Length.



Pump Performance Curve

1 Stage TE-5500
TP538 - 2917 RPM

Specific Gravity = 1.0



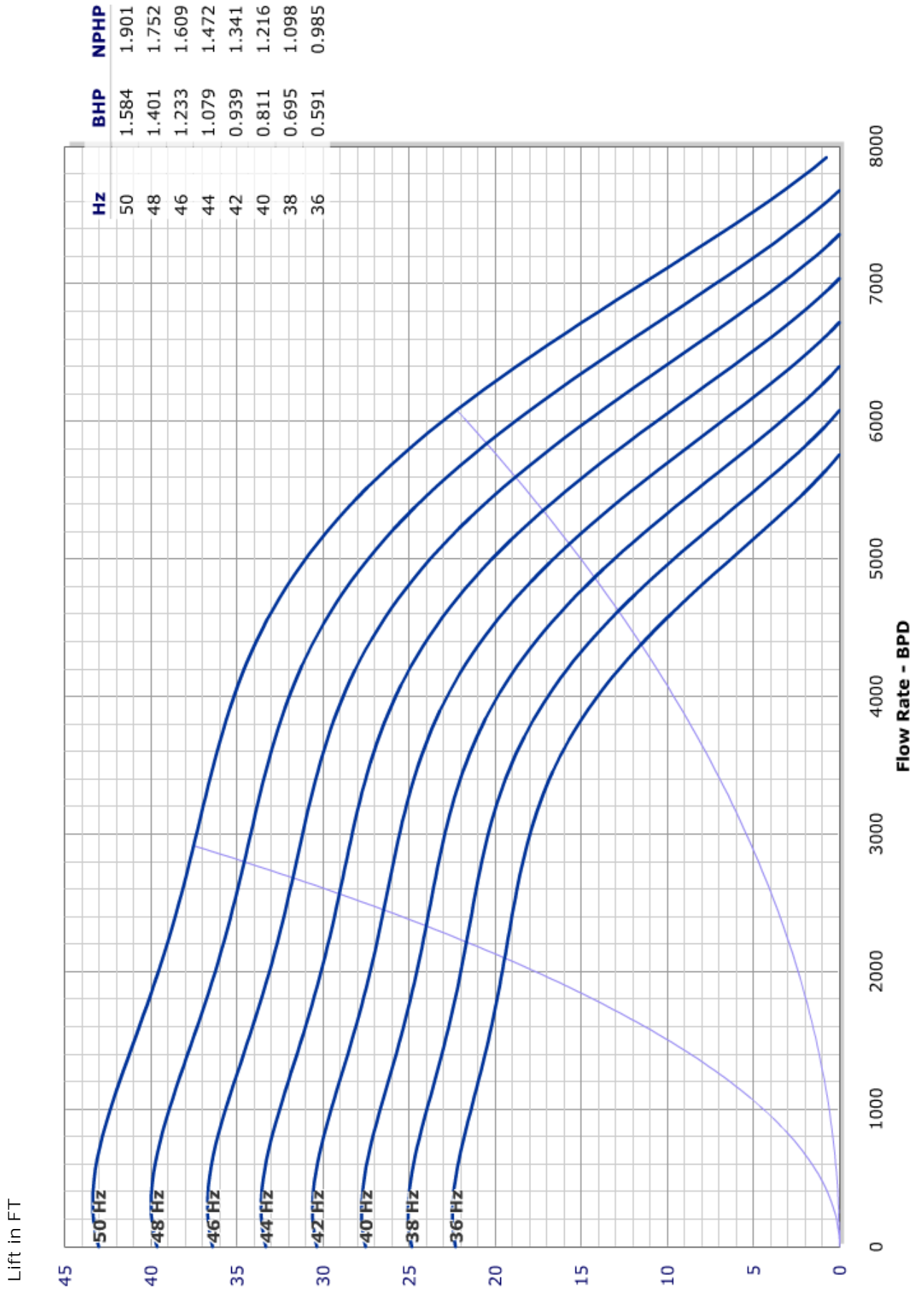


Pump Performance Curve

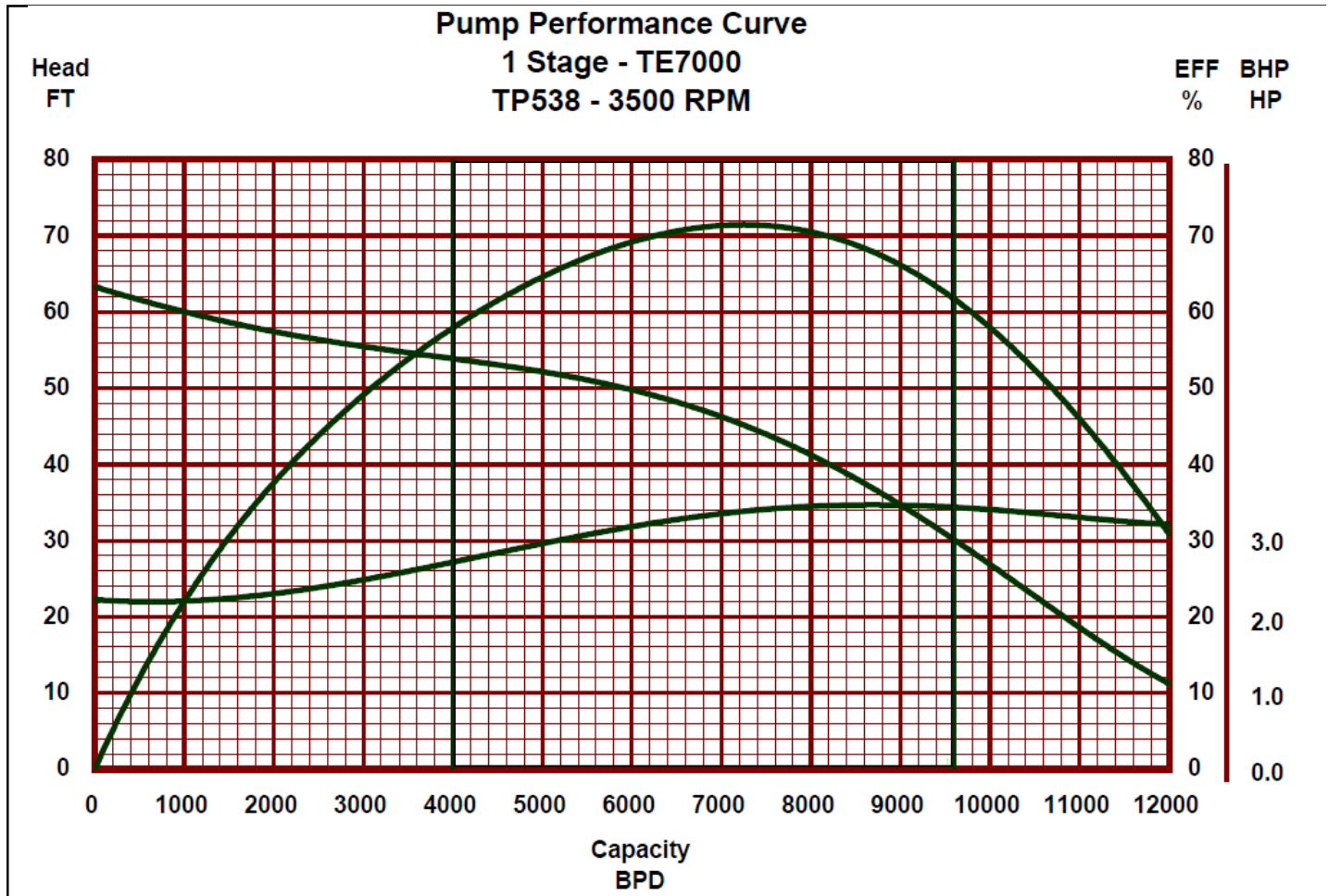
1 Stage TE-5500

TP538 - Multi Hz

Specific Gravity = 1.0



COSCO 538 Series Pumps



This engineering performance curve represents nominal performance based on actual multi-stage testing and certification. All pumps supplied by COSCO will be tested and certified to perform within the acceptable limits for head, horsepower, and efficiency as defined in the "API RECOMMENDED PRACTICE(11S2) FOR ELECTRIC SUBMERSIBLE PUMP TESTING."

ENGINEERING DATA				
Housing Dimeter		5.38 inches		
Minimum Casing Size		7.0 Inches		
Fluid Specific Gravity for Pump Curves		1.0		
Rotational Direction		CCW		
Shaft Details				
Shaft Diameter	1	1.000	Inches	
Shaft Area		0.7854	Sq. Inches	
Shaft Limits				
Shaft Limit in HP at:		50 Hz	60 Hz	
Standard Shaft Limit		312	375	
High Strength (HSS)		500	600	
Maximum Staging: Shaft				
Shaft Type	No of Stages @			
	50 Hz	60 Hz		
Standard Shaft	154	107		
HSS	246	175		
Housing Pressure Limit			5000 PSI	
Maximum Staging: Thrust Bearings (250F BHT)				
Bearing Type	No of Stages @			
	50 Hz	60 Hz		
Standard Bearing	133	110		
Hi Load Bearing	735	550		

COSCO 538 Series Pumps

TE7000 / 538 Series Pump

>>Minimum Casing Size 7 Inches

Maximum Bottom Hole Temperature: 250 F

STANDARD PUMP

FLOATER		COMPRESSION		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31520166	5	31560166	4	1	2.5	93
31520167	11	31560167	10	2	4	157
31520168	17	31560168	16	3	5.5	220
31520169	23	31560169	22	4	7	284
31520170	29	31560170	28	5	8.5	347
31520171	35	31560171	34	6	10	412
31520172	41	31560172	40	7	11.5	473
31520173	47	31560173	46	8	13	537
31520174	53	31560174	52	9	14.5	602
31520175	59	31560175	58	10	16	665
31520176	65	31560176	64	11	17.5	729
31520177	71	31560177	70	12	19	793
31520178	77	31560178	76	13	20.5	857
31520179	83	31560179	82	14	22	921
31520180	89	31560180	88	15	23.5	985

ABRASION RESISTANT PUMP

FLOATER AR		COMPRESSION AR		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31540166	5	31580166	4	1	2.5	93
31540167	11	31580167	10	2	4	157
31540168	17	31580168	16	3	5.5	220
31540169	23	31580169	22	4	7	284
31540170	29	31580170	28	5	8.5	347
31540171	35	31580171	34	6	10	412
31540172	41	31580172	40	7	11.5	473
31540173	47	31580173	46	8	13	537
31540174	53	31580174	52	9	14.5	602
31540175	59	31580175	58	10	16	665
31540176	65	31580176	64	11	17.5	729
31540177	71	31580177	70	12	19	793
31540178	77	31580178	76	13	20.5	857
31540179	83	31580179	82	14	22	921
31540180	89	31580180	88	15	23.5	985

Pump Outside Diameter: 5.38 inches

Standard Features: Carbon Steel Head, Base and Housing. Monel K500 Shaft.

Housing also available in 13 Chrome.

Heads and Bases also available in SST410 or 316L Stainless Steel.

All pumps are in Center Tandem Configuration.

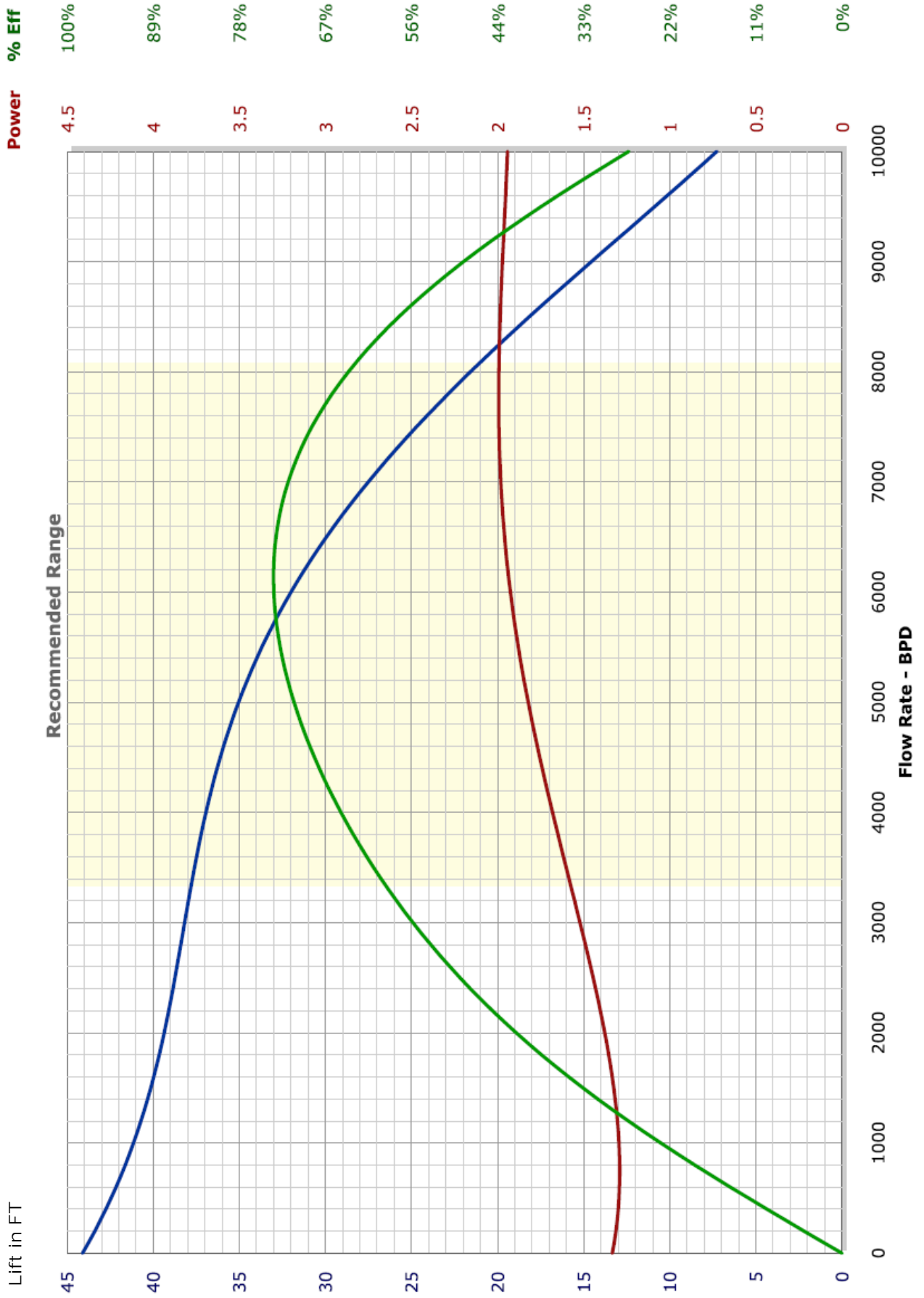
To calculate shipping Length, add shipping caps (0.24 feet/cap) to component Length.



Pump Performance Curve

1 Stage TE-7000
TP538 - 2917 RPM

Specific Gravity = 1.0



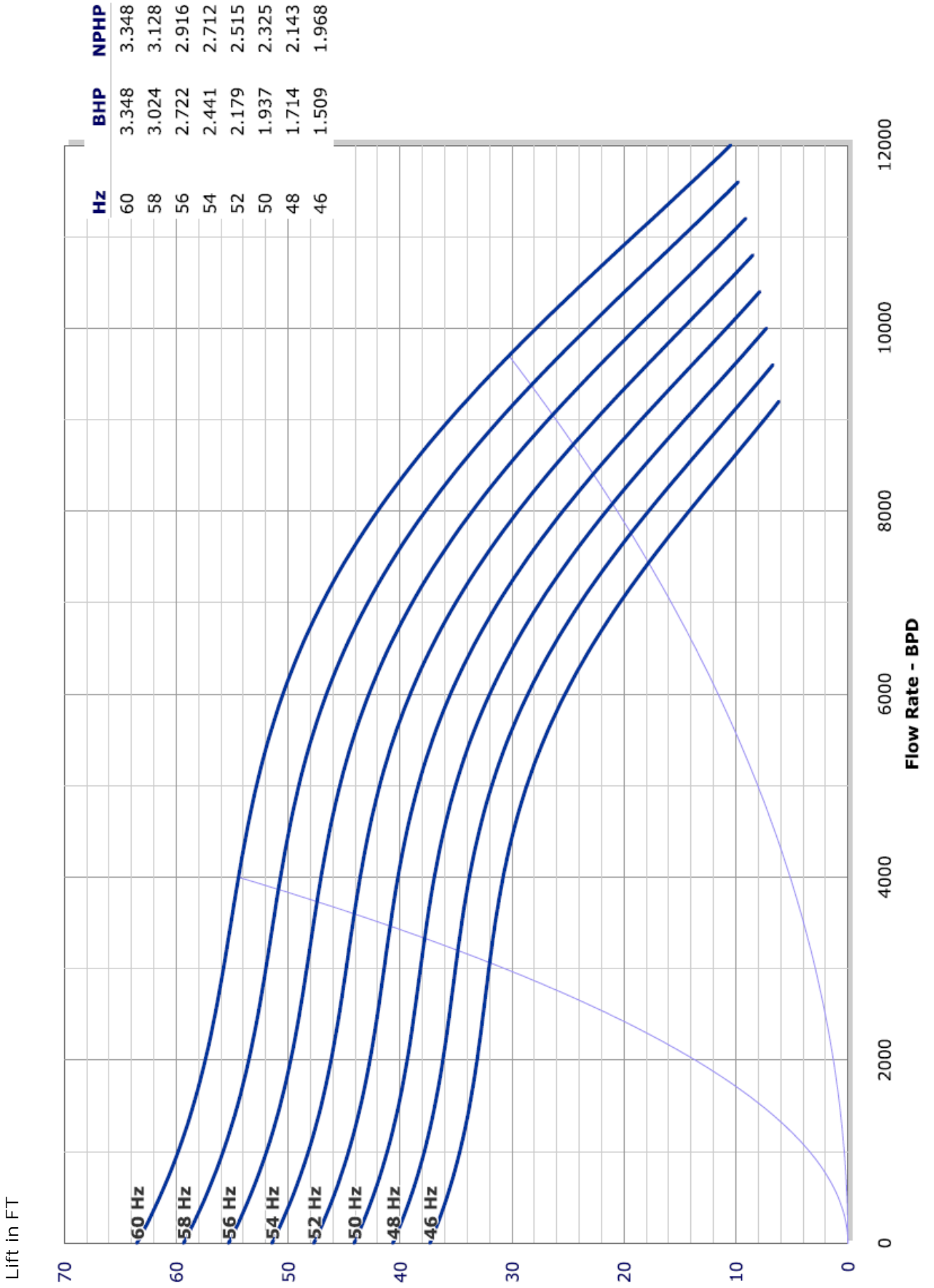


Pump Performance Curve

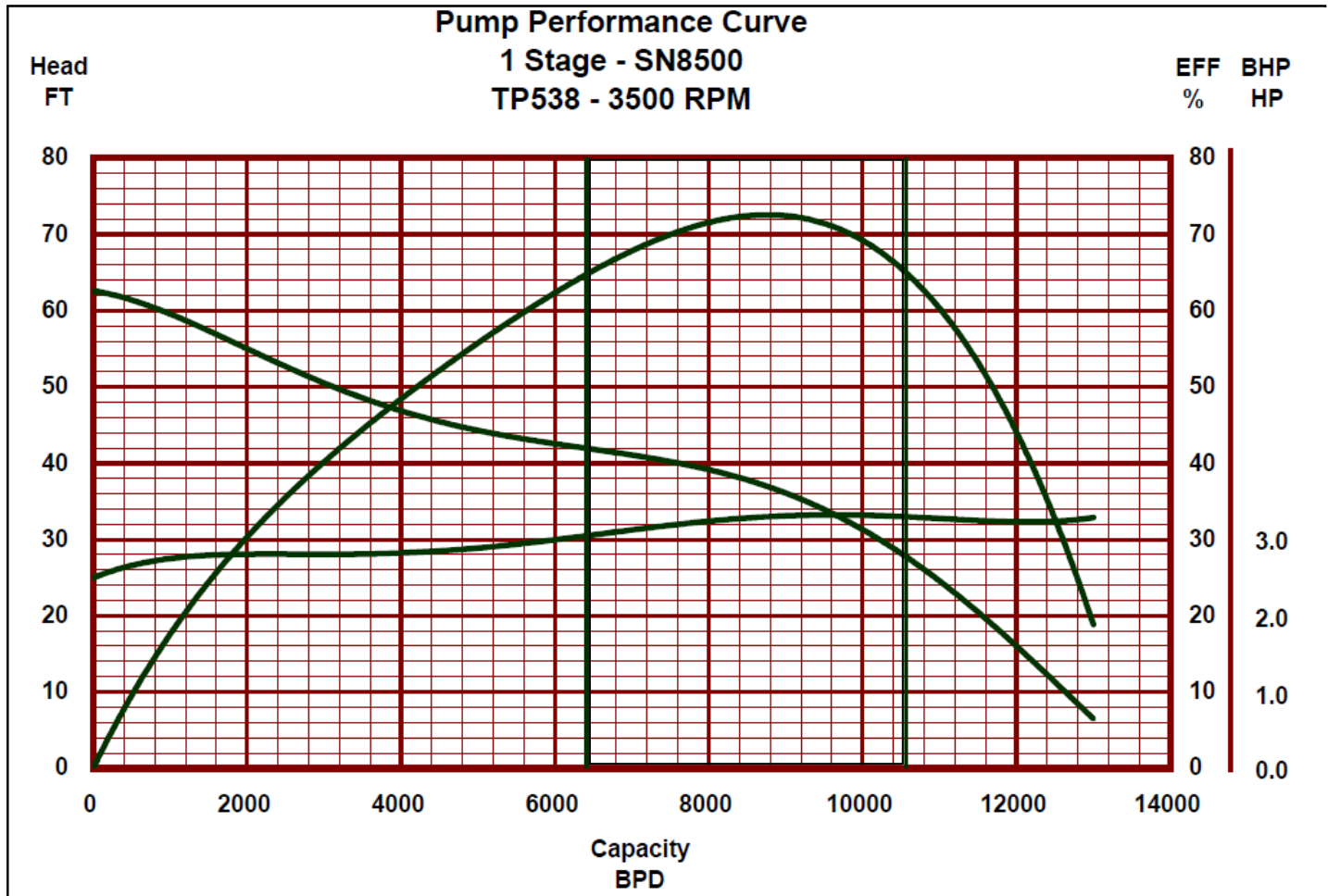
1 Stage TE-7000

TP538 - Multi Hz

Specific Gravity = 1.0



COSCO 538 Series Pumps



This engineering performance curve represents nominal performance based on actual multi-stage testing and certification. All pumps supplied by COSCO will be tested and certified to perform within the acceptable limits for head, horsepower, and efficiency as defined in the "API RECOMMENDED PRACTICE(11S2) FOR ELECTRIC SUBMERSIBLE PUMP TESTING."

ENGINEERING DATA				
Housing Dimeter		5.38 inches		
Minimum Casing Size		7.0 Inches		
Fluid Specific Gravity for Pump Curves		1.0		
Rotational Direction		CCW		
Shaft Details				
Shaft Diameter	1	1.000	Inches	
Shaft Area	0.7854		Sq. Inches	
Shaft Limits				
Shaft Limit in HP at:		50 Hz	60 Hz	
Standard Shaft Limit		312	375	
High Strength (HSS)		500	600	
Maximum Staging: Shaft				
Shaft Type	No of Stages @			
	50 Hz		60 Hz	
Standard Shaft	159		111	
HSS	257		179	
Housing Pressure Limit			5000 PSI	
Maximum Staging: Thrust Bearings (250F BHT)				
Bearing Type	No of Stages @			
	50 Hz		60 Hz	
Standard Bearing	136		114	
Hi Load Bearing	752		570	

COSCO 538 Series Pumps

SN8500 / 538 Series Pump

>>Minimum Casing Size 7 Inches

Maximum Bottom Hole Temperature: 250 F

STANDARD PUMP

FLOATER		COMPRESSION		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31520181	5	31560181	4	1	2.5	93
31520182	10	31560182	9	2	4	157
31520183	15	31560183	14	3	5.5	220
31520184	21	31560184	20	4	7	284
31520185	26	31560185	25	5	8.5	347
31520186	31	31560186	30	6	10	412
31520187	37	31560187	36	7	11.5	473
31520188	42	31560188	41	8	13	537
31520189	47	31560189	46	9	14.5	602
31520190	53	31560190	52	10	16	665
31520191	58	31560191	57	11	17.5	729
31520192	63	31560192	62	12	19	793
31520193	68	31560193	67	13	20.5	857
31520194	74	31560194	73	14	22	921
31520195	79	31560195	78	15	23.5	985

ABRASION RESISTANT PUMP

FLOATER AR		COMPRESSION AR		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31540181	5	31580181	4	1	2.5	93
31540182	10	31580182	9	2	4	157
31540183	15	31580183	14	3	5.5	220
31540184	21	31580184	20	4	7	284
31540185	26	31580185	25	5	8.5	347
31540186	31	31580186	30	6	10	412
31540187	37	31580187	36	7	11.5	473
31540188	42	31580188	41	8	13	537
31540189	47	31580189	46	9	14.5	602
31540190	53	31580190	52	10	16	665
31540191	58	31580191	57	11	17.5	729
31540192	63	31580192	62	12	19	793
31540193	68	31580193	67	13	20.5	857
31540194	74	31580194	73	14	22	921
31540195	79	31580195	78	15	23.5	985

Pump Outside Diameter: 5.38 inches

Standard Features: Carbon Steel Head, Base and Housing. Monel K500 Shaft.

Housing also available in 13 Chrome.

Heads and Bases also available in SST410 or 316L Stainless Steel.

All pumps are in Center Tandem Configuration.

To calculate shipping Length, add shipping caps (0.24 feet/cap) to component Length.

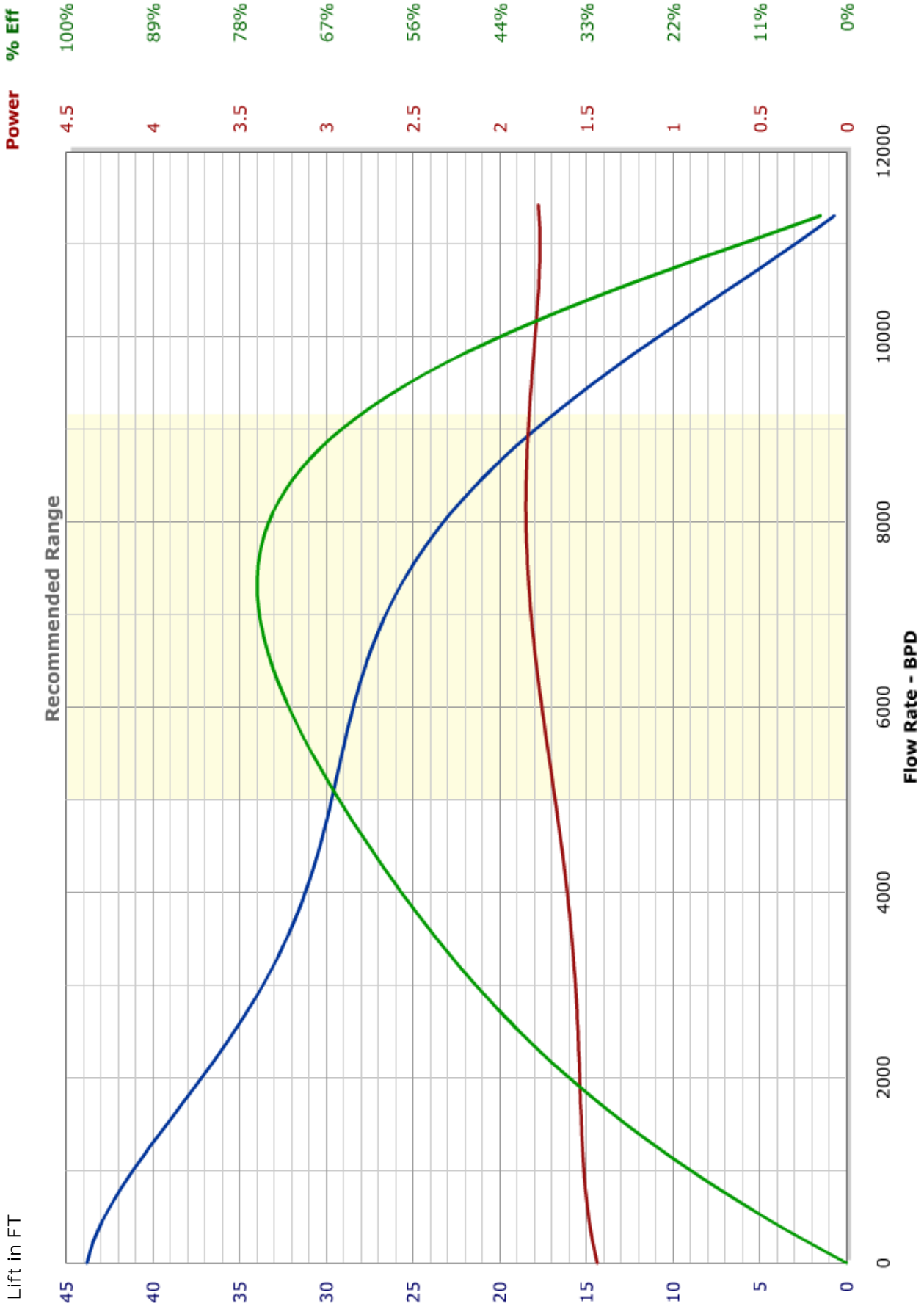


Pump Performance Curve

1 Stage SN-8500

TP538 - Multi Hz

Specific Gravity = 1.0



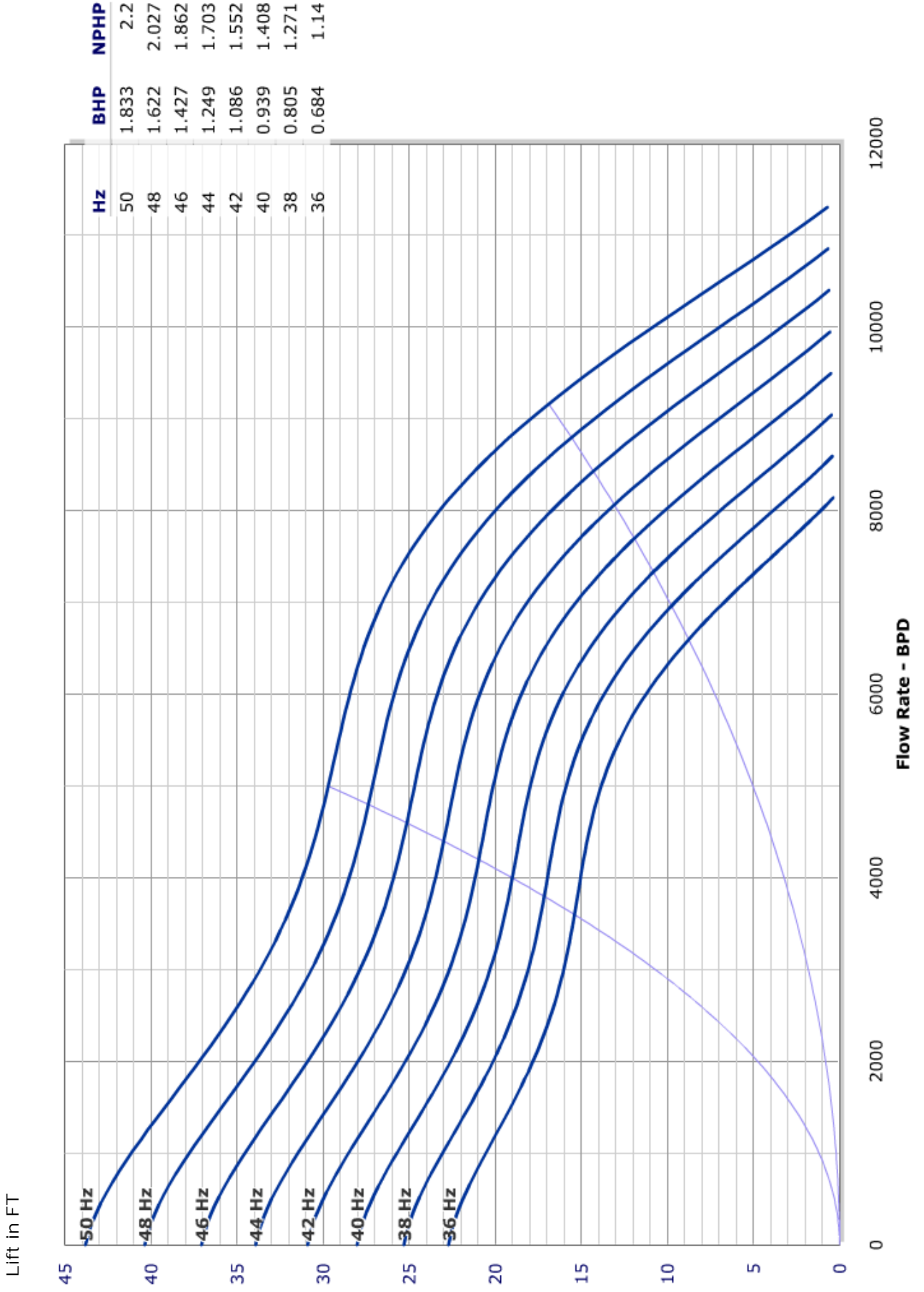


Pump Performance Curve

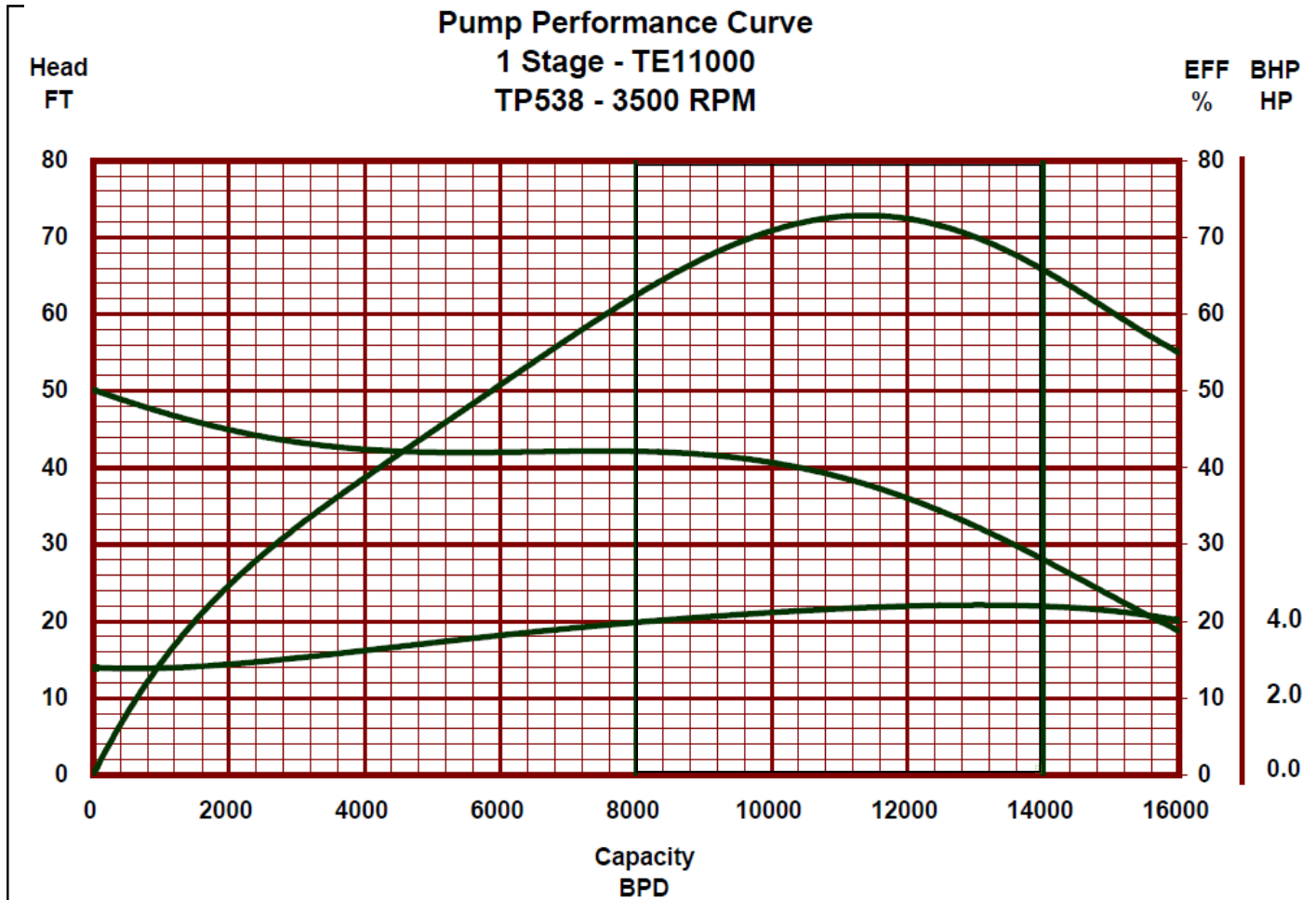
1 Stage SN-8500

TP538 - Multi Hz

Specific Gravity = 1.0



COSCO 538 Series Pumps



This engineering performance curve represents nominal performance based on actual multi-stage testing and certification. All pumps supplied by COSCO will be tested and certified to perform within the acceptable limits for head, horsepower, and efficiency as defined in the "API RECOMMENDED PRACTICE(11S2) FOR ELECTRIC SUBMERSIBLE PUMP TESTING."

ENGINEERING DATA				
Housing Dimeter		5.38 inches		
Minimum Casing Size		7.0 Inches		
Fluid Specific Gravity for Pump Curves		1.0		
Rotational Direction		CCW		
Shaft Details				
Shaft Diameter	1 3/16	1.188	Inches	
Shaft Area	1.107		Sq. Inches	
Shaft Limits				
Shaft Limit in HP at:		50 Hz	60 Hz	
Standard Shaft Limit		531	637	
High Strength (HSS)		849	1019	
Maximum Staging: Shaft				
Shaft Type	No of Stages @			
	50 Hz		60 Hz	
Standard Shaft	207		144	
HSS	332		231	
Housing Pressure Limit			5000 PSI	
Maximum Staging: Thrust Bearings (250F BHT)				
Bearing Type	No of Stages @			
	50 Hz		60 Hz	
Standard Bearing	41		35	
Hi Load Bearing	226		173	

COSCO 538 Series Pumps

TE11000 / 538 Series Pump

>>Minimum Casing Size 7 Inches

Maximum Bottom Hole Temperature: 250 F

STANDARD PUMP

FLOATER		COMPRESSION		Housings	Length	Weight
Part	Stages	Part	Stages			
		31560196	3	1	2.5	93
		31560197	7	2	4	157
		31560198	10	3	5.5	220
		31560199	14	4	7	284
		31560200	18	5	8.5	347
		31560201	22	6	10	412
		31560202	26	7	11.5	473
		31560203	29	8	13	537
		31560204	33	9	14.5	602
		31560205	37	10	16	665
		31560206	41	11	17.5	729
		31560207	44	12	19	793
		31560208	48	13	20.5	857
		31560209	52	14	22	921
		31560210	56	15	23.5	985

ABRASION RESISTANT PUMP

FLOATER AR		COMPRESSION AR		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
		31580196	3	1	2.5	93
		31580197	7	2	4	157
		31580198	10	3	5.5	220
		31580199	14	4	7	284
		31580200	18	5	8.5	347
		31580201	22	6	10	412
		31580202	26	7	11.5	473
		31580203	29	8	13	537
		31580204	33	9	14.5	602
		31580205	37	10	16	665
		31580206	41	11	17.5	729
		31580207	44	12	19	793
		31580208	48	13	20.5	857
		31580209	52	14	22	921
		31580210	56	15	23.5	985

Pump Outside Diameter: 5.38 inches

Standard Features: Carbon Steel Head, Base and Housing. Monel K500 Shaft.

Housing also available in 13 Chrome.

Heads and Bases also available in SST410 or 316L Stainless Steel.

All pumps are in Center Tandem Configuration.

To calculate shipping Length, add shipping caps (0.24 feet/cap) to component Length.



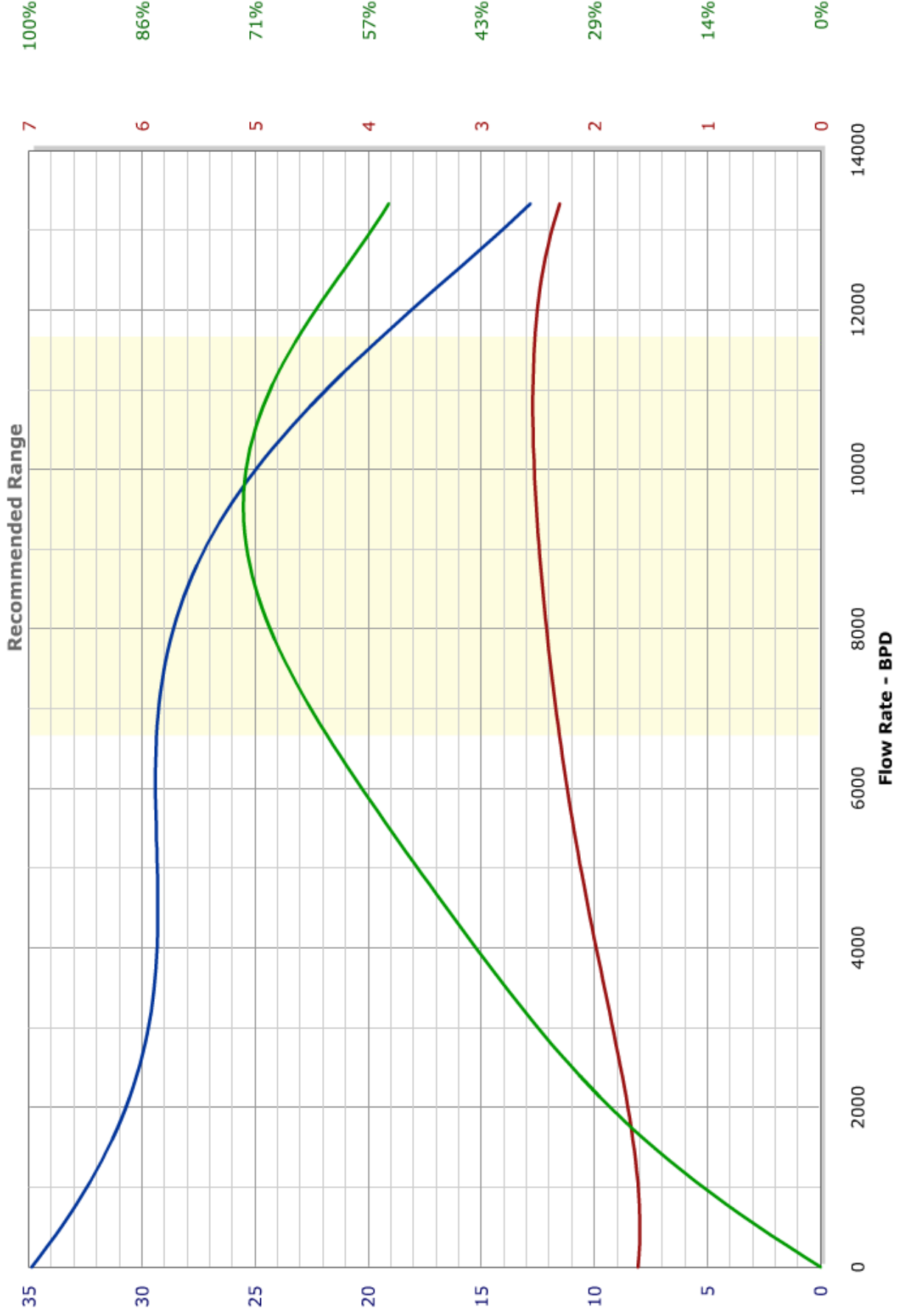
Pump Performance Curve

1 Stage TE-11000
TP538 - 2917 RPM

Specific Gravity = 1.0

Lift in FT

Power % Eff





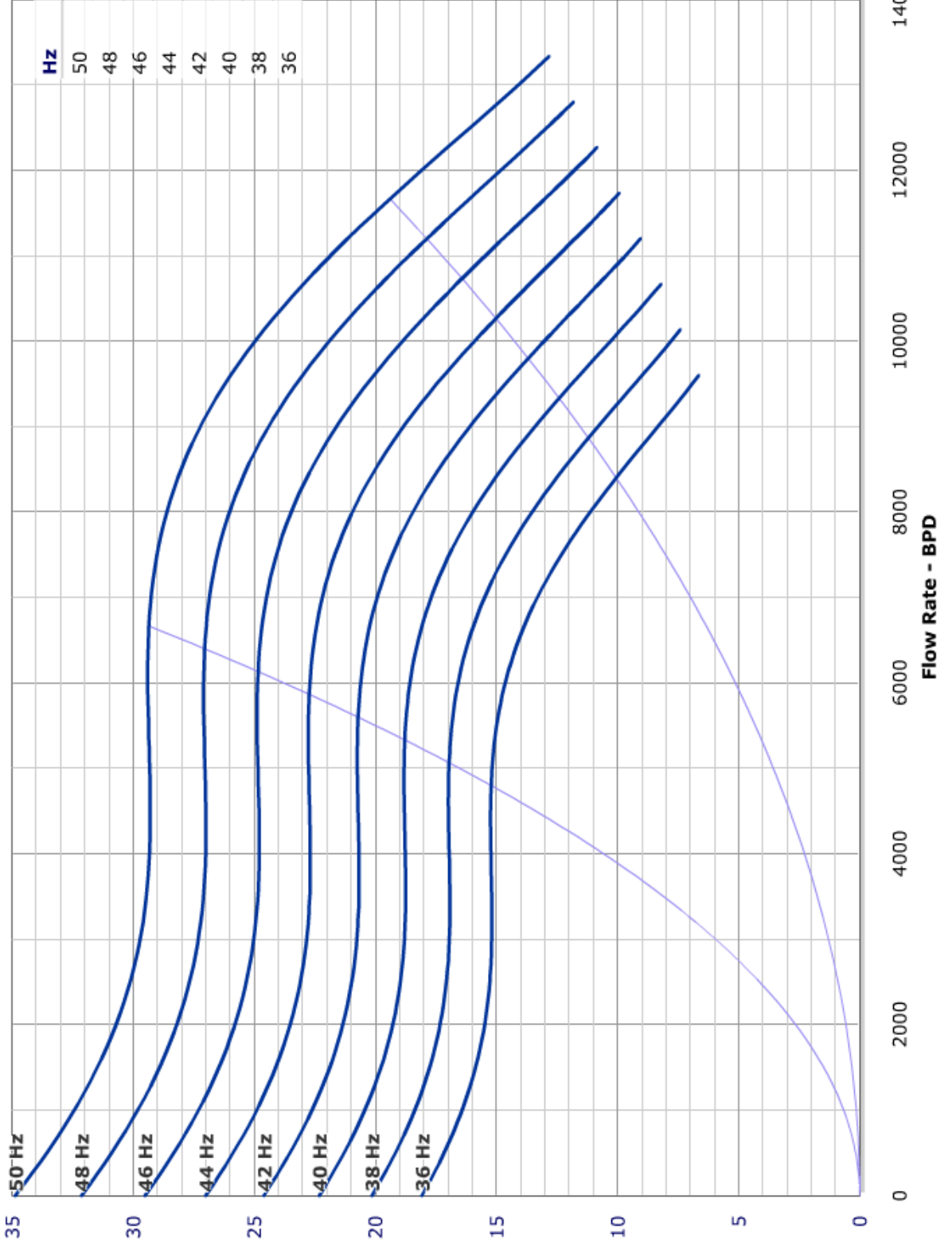
Pump Performance Curve

1 Stage TE-11000

TP538 - Multi Hz

Specific Gravity = 1.0

Lift in FT



COSCO 675 Series Pumps

675 Series Pumps Summary List

- Housing diameter - 6.750" (171mm)
- Minimum casing size - 8 5/8" nominal OD

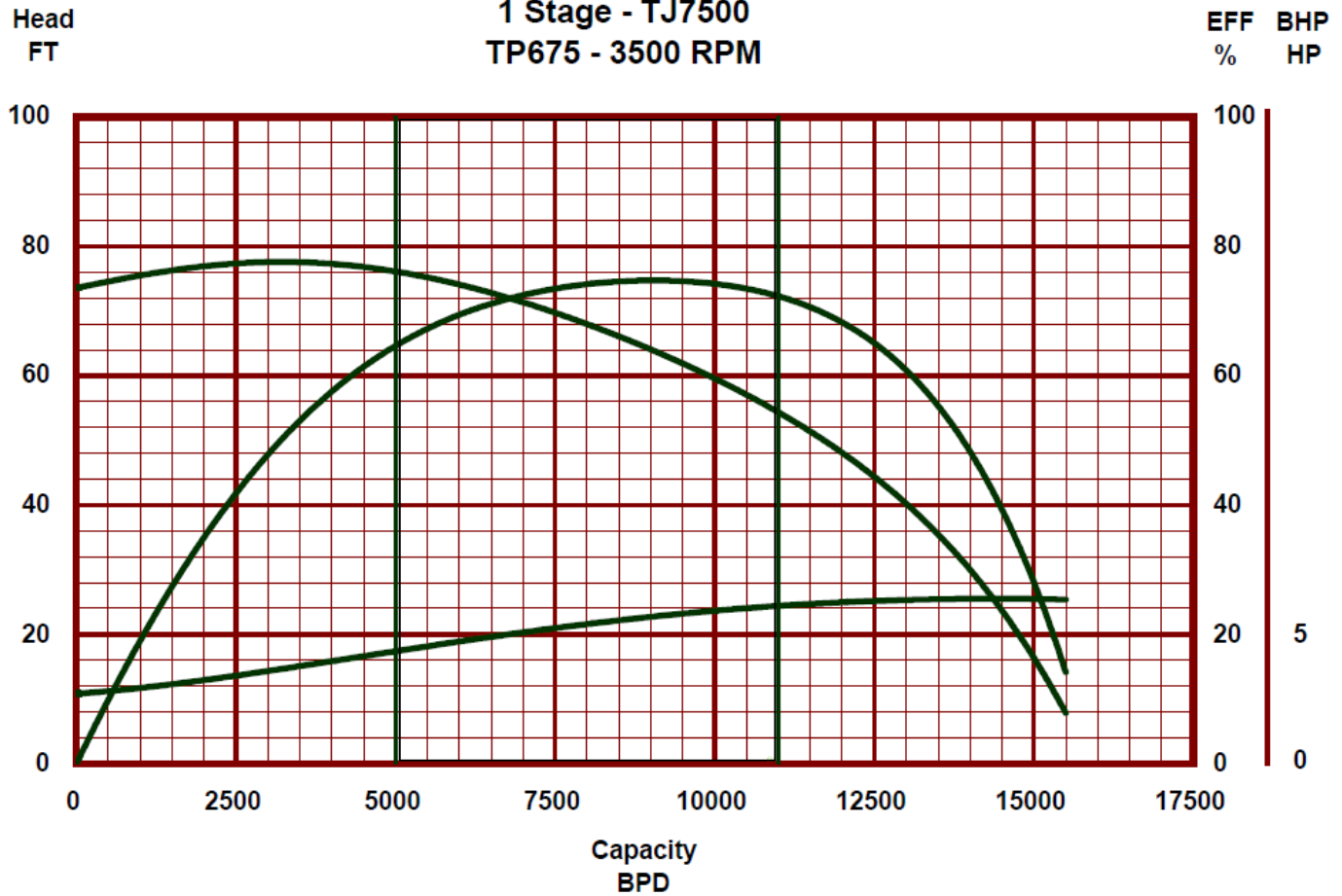
Pump Model	Shaft Diam. (in.)	Horsepower		Flow Capacity Recommended Range			
		Shaft Limit		50 Hz		60 Hz	
		STD	HSS	BPD	m ³ /PD	BPD	m ³ /PD
TJ-7500	1.187	637	1019	4151-9184	660-1,460	5000-11,000	795-1,749
TJ-12000	1.187	637	1019	7485-13,712	1190-2,180	9000-16,500	1,431-2,623
TJ-16000	1.187	637	1019	10,001-15,002	1590-2385	12,000-18,000	1,908-2,862
TJ-21000	1.187	637	1019	15,002-22,519	2385-3580	18,000-27,000	2862-4292

Note: See the specific 50 Hz or 60 Hz performance curves for head capacity, pump efficiency any horsepower motor load.

Bolt on Discharge Head and Intake information are located at the back of the Pump Section.

COSCO 675 Series Pumps

Pump Performance Curve
1 Stage - TJ7500
TP675 - 3500 RPM



This engineering performance curve represents nominal performance based on actual multi-stage testing and certification. All pumps supplied by COSCO will be tested and certified to perform within the acceptable limits for head, horsepower, and efficiency as defined in the "API RECOMMENDED PRACTICE(11S2) FOR ELECTRIC SUBMERSIBLE PUMP TESTING".

ENGINEERING DATA							
Housing Diameter		6.75 inches			Maximum Staging: Shaft		
Minimum Casing Size		8 5/8 Inch			Shaft Type	No of Stages @	
Fluid Specific Gravity for Pump Curves		1.0				50 Hz	60 Hz
Rotational Direction		CCW			Standard Shaft	142	99
Shaft Details					HSS	228	159
Shaft Diameter	1 3/16	1.1875	Inches		Housing Pressure Limit		
Shaft Area	1.107		Sq. Inches		3000 PSI		
Shaft Limits					Maximum Staging: Thrust Bearings (250F BHT)		
Shaft Limit in HP at:		50 Hz	60 Hz		Bearing Type	No of Stages @	
						50 Hz	60 Hz
Standard Shaft Limit		531	637		Standard Bearing		
High Strength (HSS)		849	1019		Hi Load Bearing		

COSCO 675 Series Pumps

TJ7500 / 675 Series Pump

>>Minimum Casing Size 8 5/8 Inches

Maximum Bottom Hole Temperature: 250 F

STANDARD PUMP

COMPRESSION		COMPRESSION AR		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31660001	2	31680001	2	1	2.7	210
31660002	6	31680002	6	2	4	327
31660003	9	31680003	9	3	5.4	419
31660004	12	31680004	12	4	6.8	511
31660005	15	31680005	15	5	8.2	603
31660006	19	31680006	19	6	9.5	714
31660007	22	31680007	22	7	10.9	806
31660008	25	31680008	25	8	12.3	898
31660009	29	31680009	29	9	13.7	1009
31660010	32	31680010	32	10	15	1104
31660011	35	31680011	35	11	16.4	1193
31660012	39	31680012	39	12	17.8	1304
31660013	42	31680013	42	13	19.2	1396
31660014	45	31680014	45	14	20.5	1488
31660015	48	31680015	48	15	21.9	1580

Pump Outside Diameter: 6.75 inches

Standard Features: Carbon Steel Head, Base and Housing. Monel K500 Shaft.

Housing also available in 13 Chrome.

Heads and Bases also available in SST410 or 316L Stainless Steel.

All pumps are in Center Tandem Configuration.

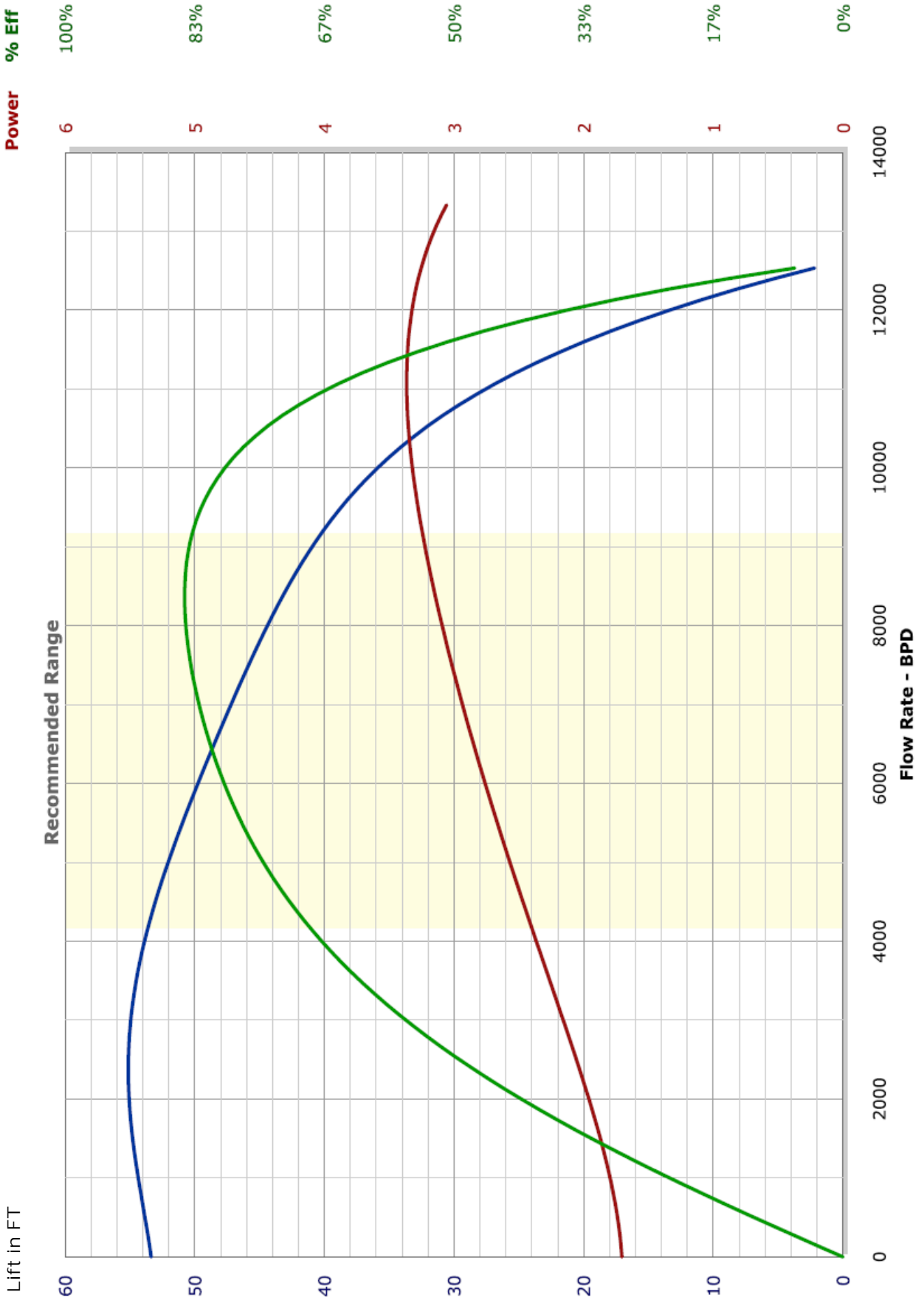
To calculate shipping length, add shipping caps (0.06 feet upper / 0.24 feet/cap) to component length.



Pump Performance Curve

1 Stage TJ-7500
TP675 - 2917 RPM

Specific Gravity = 1.0



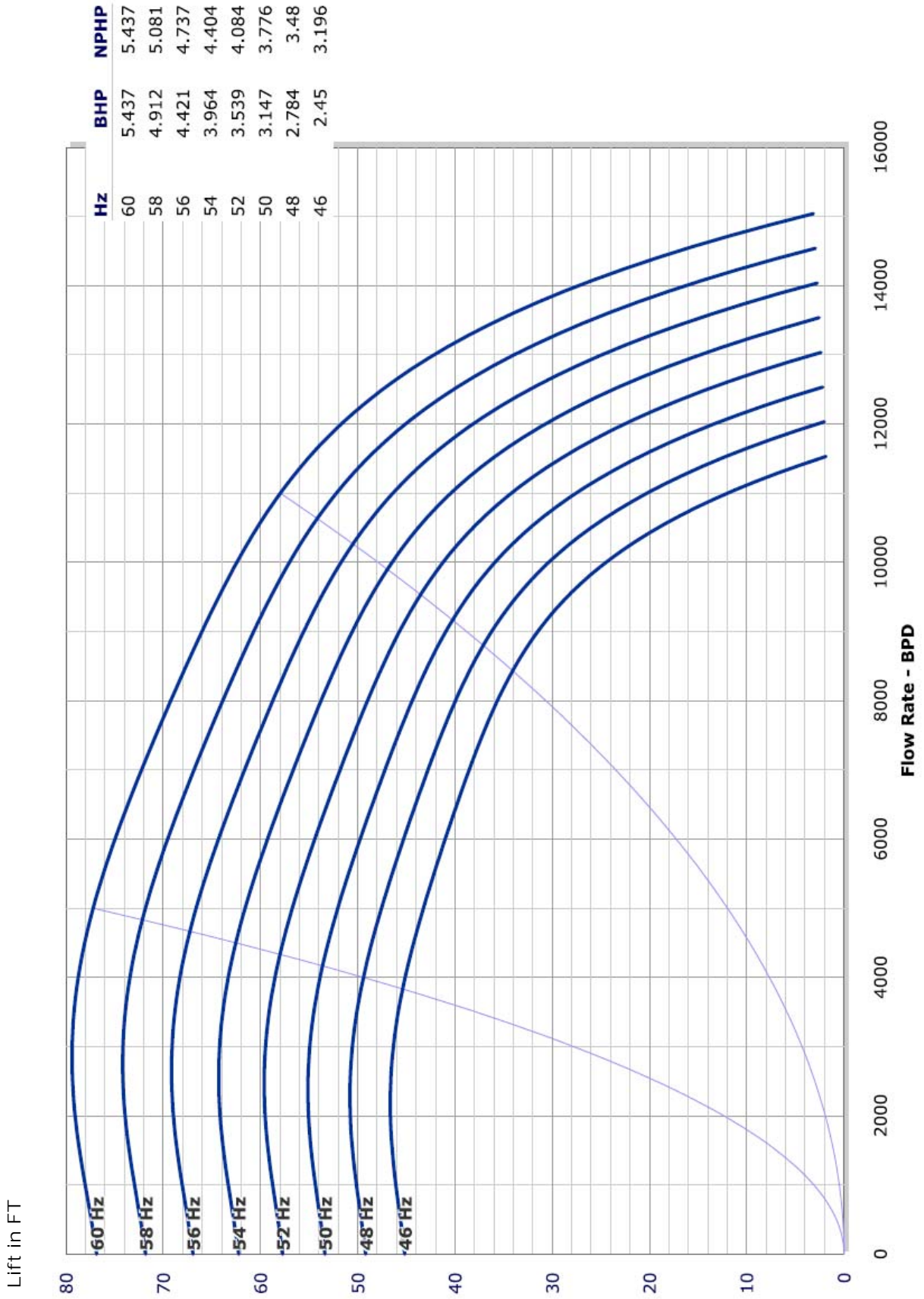


Pump Performance Curve

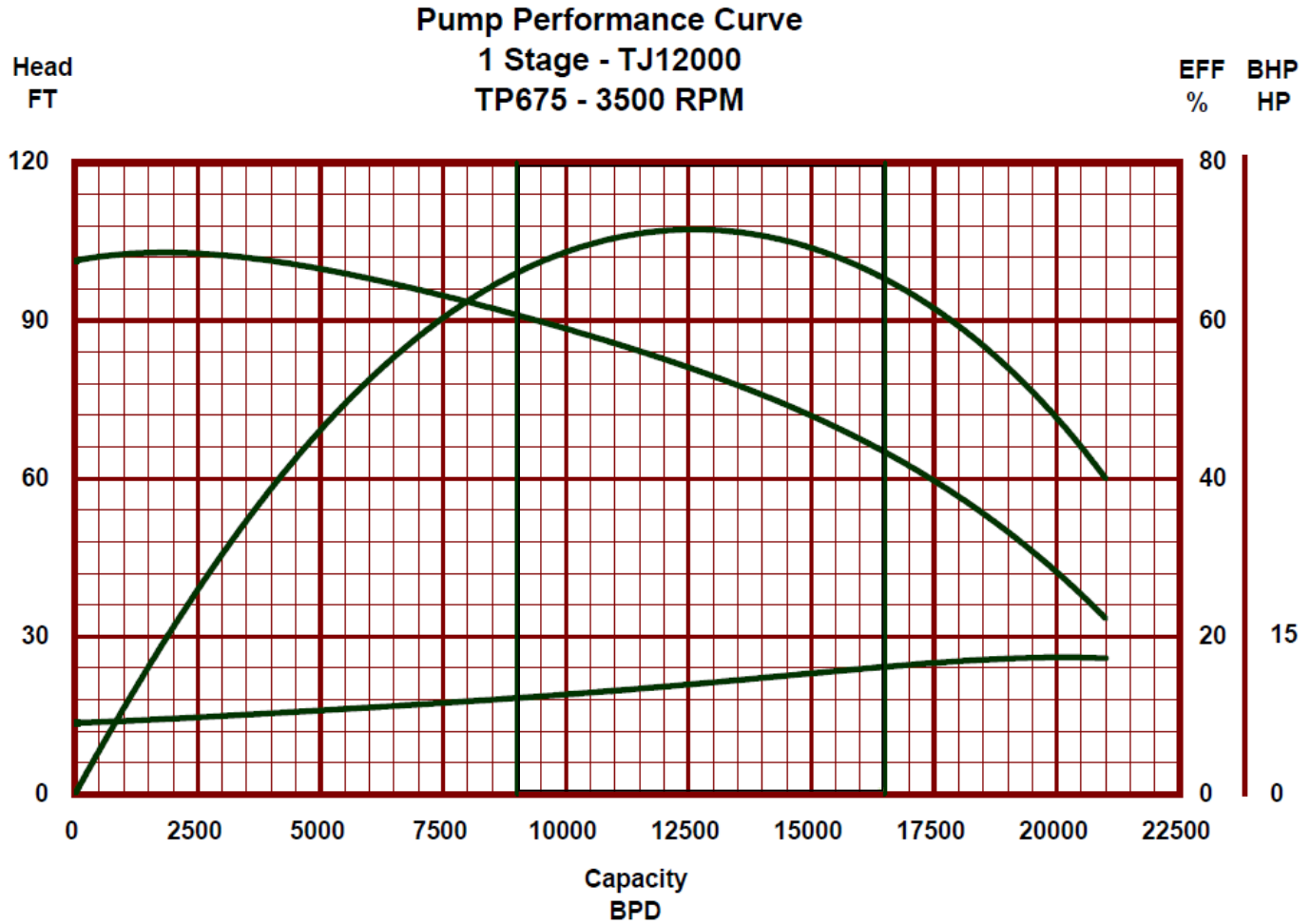
1 Stage TJ-7500

TP675 - Multi Hz

Specific Gravity = 1.0



COSCO 675 Series Pumps



This engineering performance curve represents nominal performance based on actual multi-stage testing and certification. All pumps supplied by COSCO will be tested and certified to perform within the acceptable limits for head, horsepower, and efficiency as defined in the "API RECOMMENDED PRACTICE(11S2) FOR ELECTRIC SUBMERSIBLE PUMP TESTING".

ENGINEERING DATA				
Housing Diameter		6.75 inches		
Minimum Casing Size		8 5/8 Inch		
Fluid Specific Gravity for Pump Curves		1.0		
Rotational Direction		CCW		
Shaft Details				
Shaft Diameter	1 3/16	1.1875	Inches	
Shaft Area	1.107		Sq. Inches	
Shaft Limits				
Shaft Limit in HP at:		50 Hz	60 Hz	
Standard Shaft Limit		531	637	
High Strength (HSS)		849	1019	
Maximum Staging: Shaft				
Shaft Type	No of Stages @			
	50 Hz	60 Hz		
Standard Shaft	70	49		
HSS	112	78		
Housing Pressure Limit			3000 PSI	
Maximum Staging: Thrust Bearings (250F BHT)				
Bearing Type	No of Stages @			
	50 Hz	60 Hz		
Standard Bearing				
Hi Load Bearing				

COSCO 675 Series Pumps

TJ12000 / 675 Series Pump

>>Minimum Casing Size 8 5/8 Inches

Maximum Bottom Hole Temperature: 250 F

STANDARD PUMP

COMPRESSION		COMPRESSION AR		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31660031	2	31680031	2	1	2.7	210
31660032	5	31680032	5	2	4	327
31660033	8	31680033	8	3	5.4	419
31660034	11	31680034	11	4	6.8	511
31660035	14	31680035	14	5	8.2	603
31660036	17	31680036	17	6	9.5	714
31660037	20	31680037	20	7	10.9	806
31660038	23	31680038	23	8	12.3	898
31660039	26	31680039	26	9	13.7	1009
31660040	29	31680040	29	10	15	1104
31660041	32	31680041	32	11	16.4	1193
31660042	35	31680042	35	12	17.8	1304
31660043	38	31680043	38	13	19.2	1396
31660044	41	31680044	41	14	20.5	1488
31660045	44	31680045	44	15	21.9	1580

Pump Outside Diameter: 6.75 inches

Standard Features: Carbon Steel Head, Base and Housing. Monel K500 Shaft.

Housing also available in 13 Chrome.

Heads and Bases also available in SST410 or 316L Stainless Steel.

All pumps are in Center Tandem Configuration.

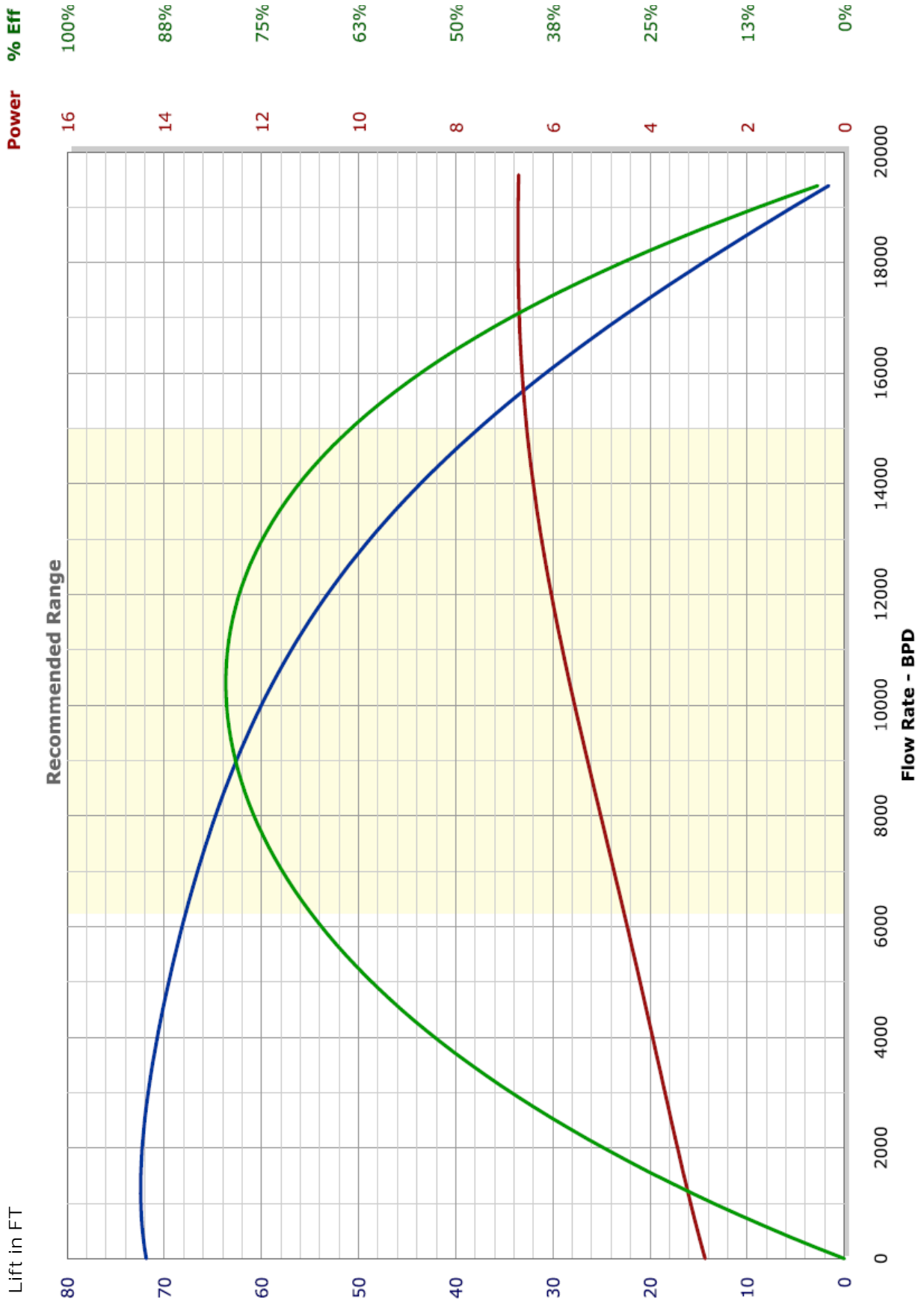
To calculate shipping length, add shipping caps (0.06 feet upper / 0.24 feet/cap) to component length.



Pump Performance Curve

1 Stage TJ-12000
TP675 - 2917 RPM

Specific Gravity = 1.0



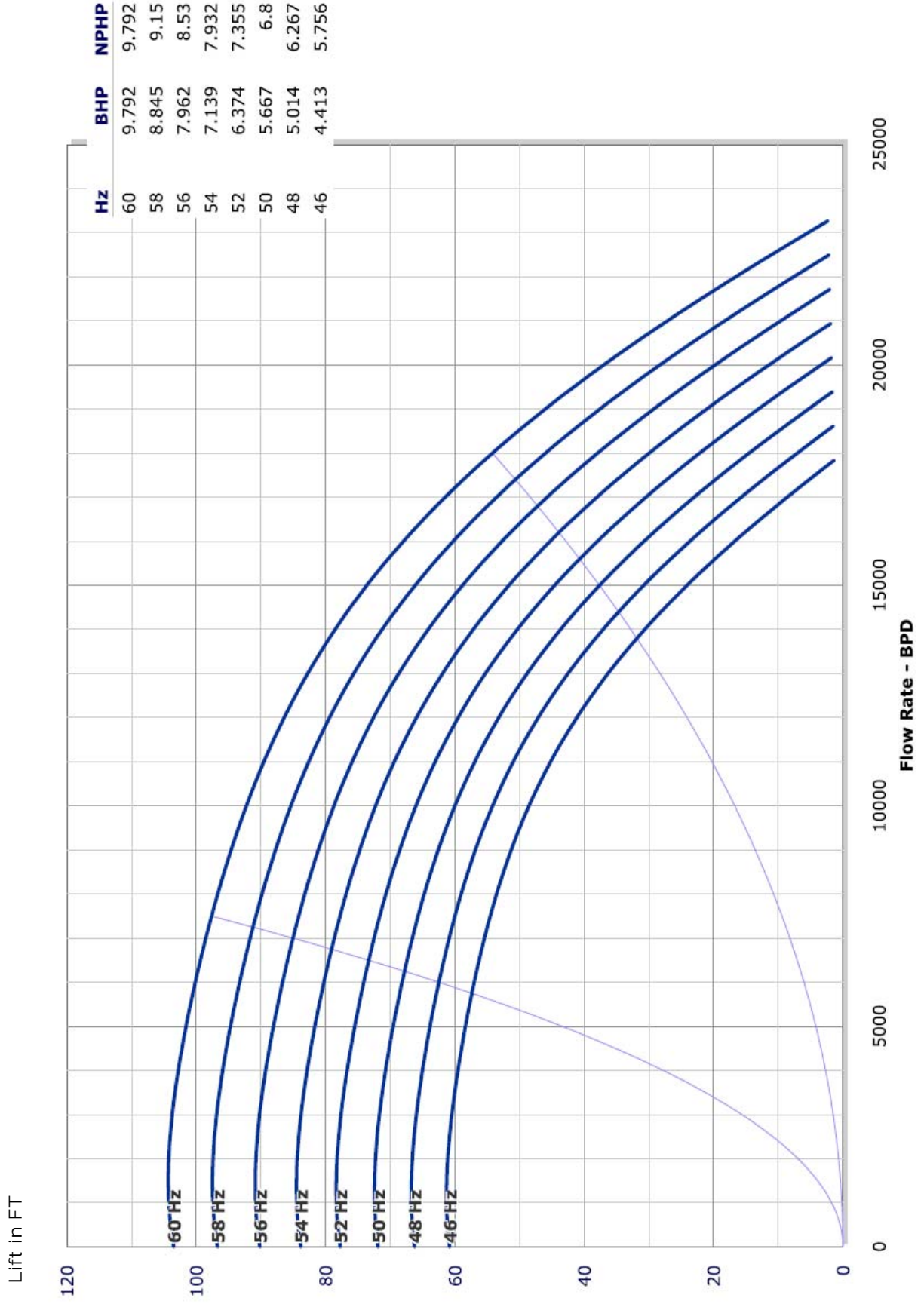


Pump Performance Curve

1 Stage TJ-12000

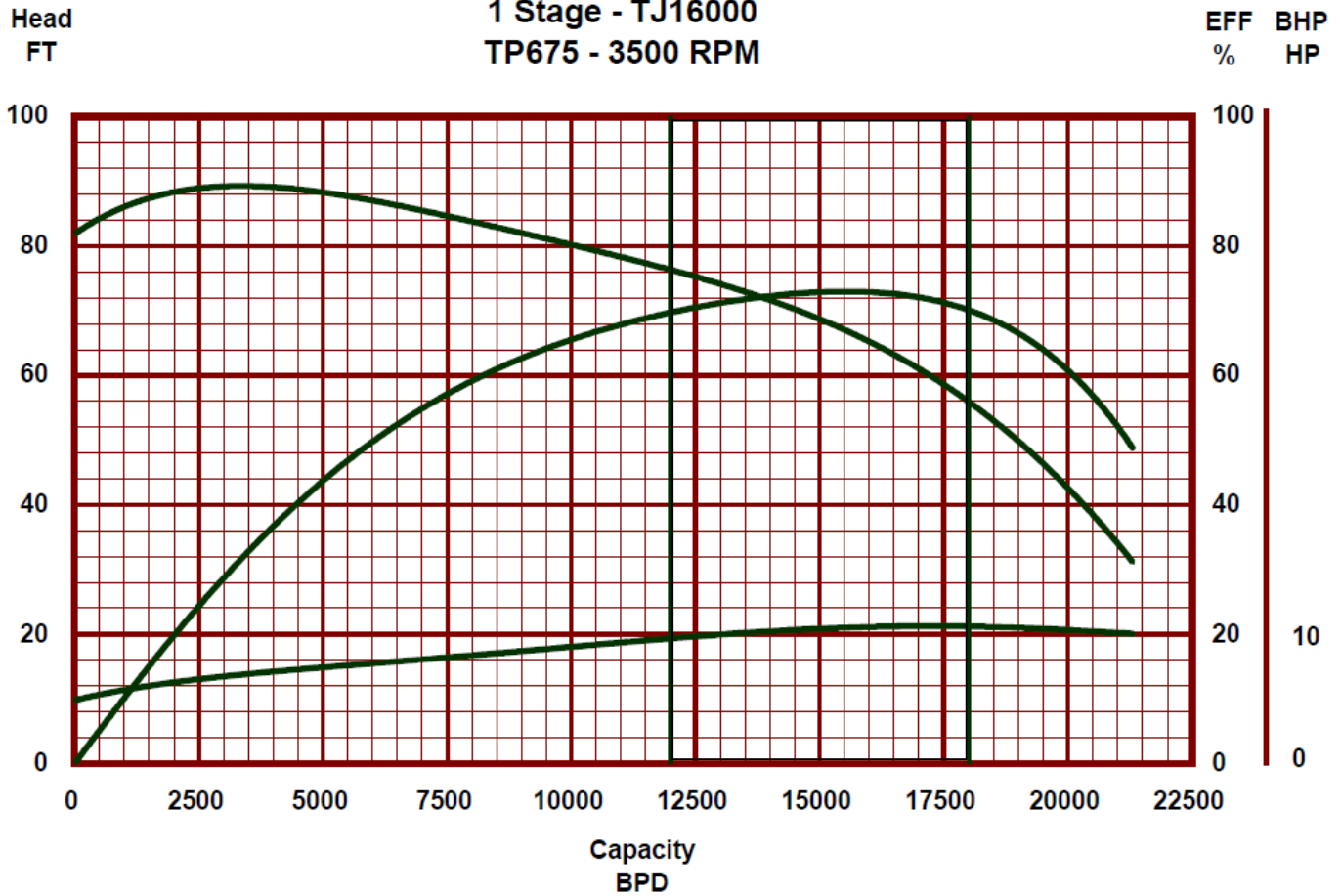
TP675 - Multi Hz

Specific Gravity = 1.0



COSCO 675 Series Pumps

Pump Performance Curve
1 Stage - TJ16000
TP675 - 3500 RPM



This engineering performance curve represents nominal performance based on actual multi-stage testing and certification. All pumps supplied by COSCO will be tested and certified to perform within the acceptable limits for head, horsepower, and efficiency as defined in the "API RECOMMENDED PRACTICE(11S2) FOR ELECTRIC SUBMERSIBLE PUMP TESTING".

ENGINEERING DATA						
Housing Diameter		6.75 inches		Maximum Staging: Shaft		
Minimum Casing Size		8 5/8 Inch		Shaft Type	No of Stages @	
Fluid Specific Gravity for Pump Curves		1.0			50 Hz	60 Hz
Rotational Direction		CCW		Standard Shaft	82	57
Shaft Details				HSS	132	92
Shaft Diameter	1 3/16	1.1875	Inches	Housing Pressure Limit		3000 PSI
Shaft Area		1.107	Sq. Inches	Maximum Staging: Thrust Bearings (250F BHT)		
Shaft Limits				Bearing Type	No of Stages @	
Shaft Limit in HP at:		50 Hz	60 Hz		50 Hz	60 Hz
Standard Shaft Limit		531	637	Standard Bearing		
High Strength (HSS)		849	1019	Hi Load Bearing		

COSCO 675 Series Pumps

TJ16000 / 675 Series Pump

>>Minimum Casing Size 8 5/8 Inches

Maximum Bottom Hole Temperature: 250 F

STANDARD PUMP

COMPRESSION		COMPRESSION AR		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31660046	2	31680046	2	1	2.7	210
31660047	6	31680047	6	2	4	327
31660048	9	31680048	9	3	5.4	419
31660049	12	31680049	12	4	6.8	511
31660050	15	31680050	15	5	8.2	603
31660051	19	31680051	19	6	9.5	714
31660052	22	31680052	22	7	10.9	806
31660053	25	31680053	25	8	12.3	898
31660054	29	31680054	29	9	13.7	1009
31660055	32	31680055	32	10	15	1104
31660056	35	31680056	35	11	16.4	1193
31660057	39	31680057	39	12	17.8	1304
31660058	42	31680058	42	13	19.2	1396
31660059	45	31680059	45	14	20.5	1488
31660060	48	31680060	48	15	21.9	1580

Pump Outside Diameter: 6.75 inches

Standard Features: Carbon Steel Head, Base and Housing. Monel K500 Shaft.

Housing also available in 13 Chrome.

Heads and Bases also available in SST410 or 316L Stainless Steel.

All pumps are in Center Tandem Configuration.

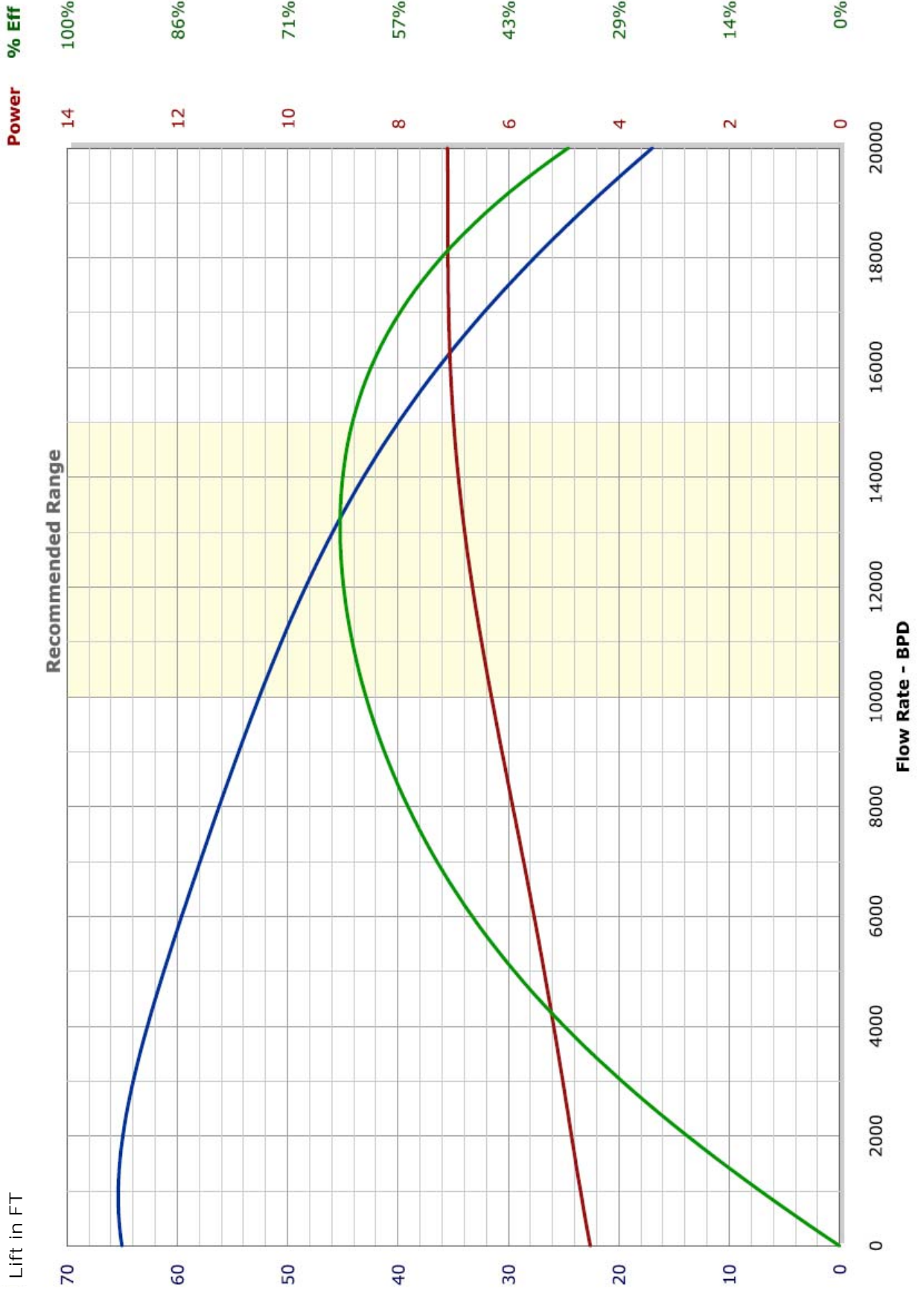
To calculate shipping length, add shipping caps (0.06 feet upper / 0.24 feet/cap) to component length.



Pump Performance Curve

1 Stage TJ-16000
TP675 - 2917 RPM

Specific Gravity = 1.0



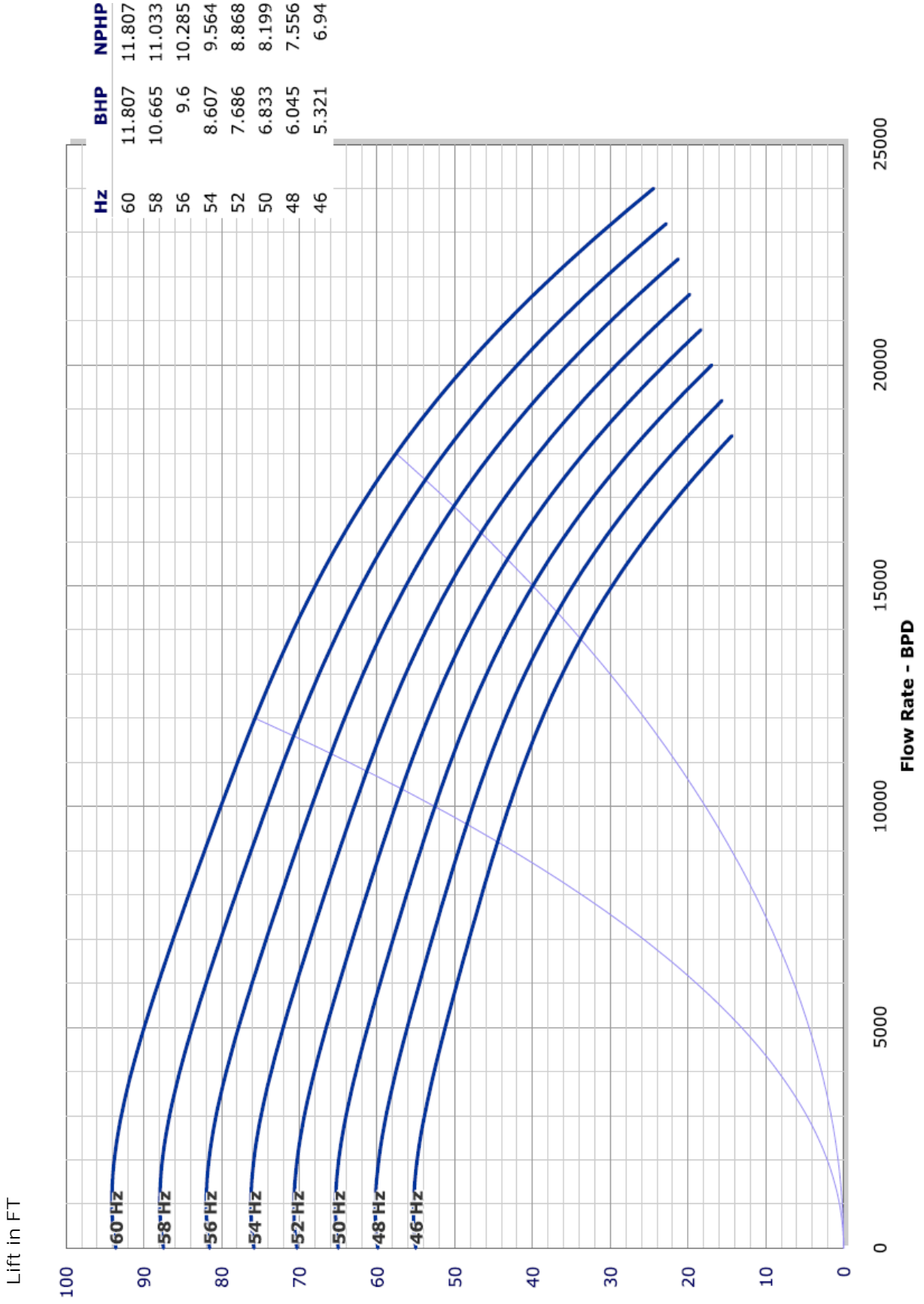


Pump Performance Curve

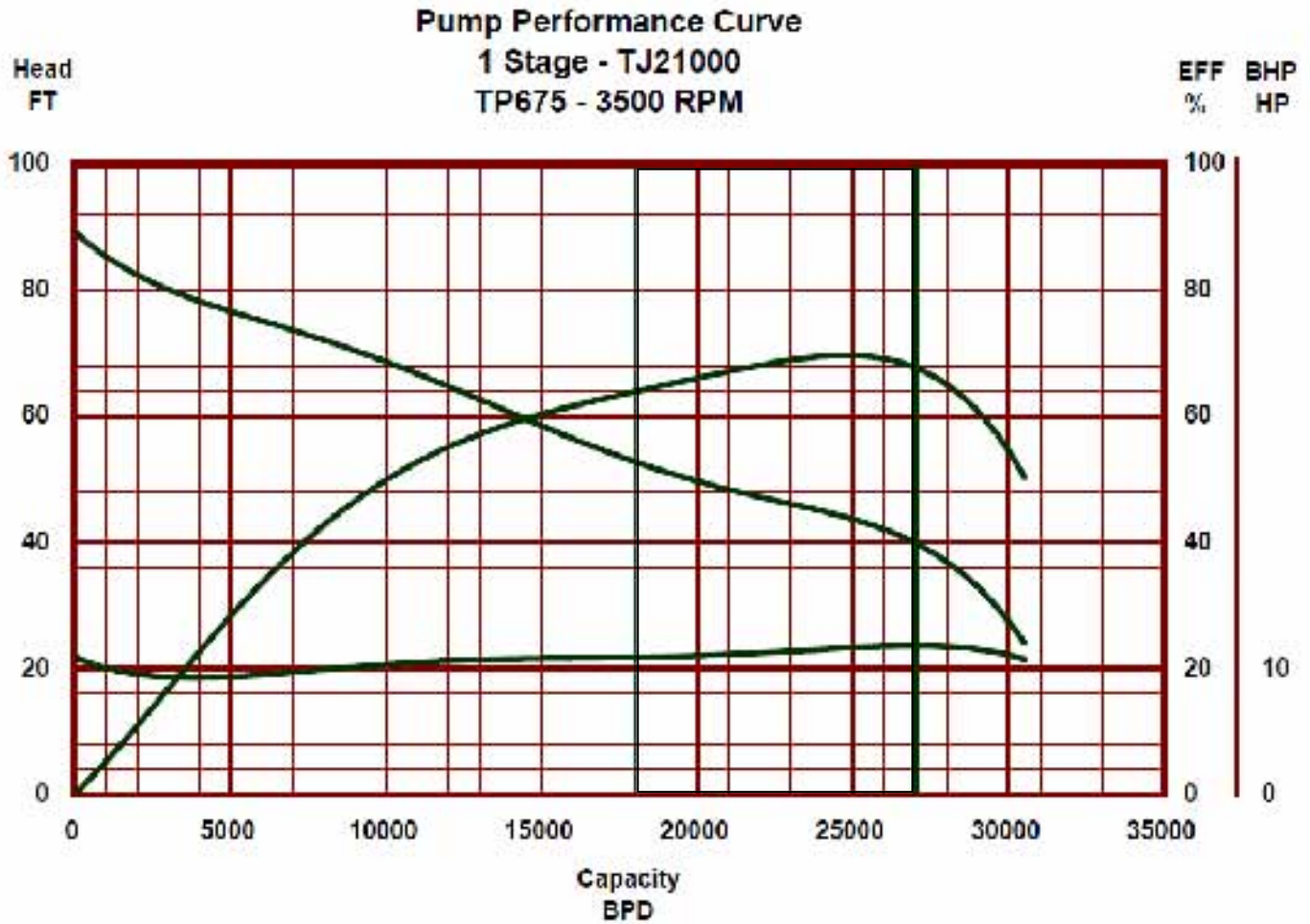
1 Stage TJ-16000

TP675 - Multi Hz

Specific Gravity = 1.0



COSCO 675 Series Pumps



This engineering performance curve represents nominal performance based on actual multi-stage testing and certification. All pumps supplied by COSCO will be tested and certified to perform within the acceptable limits for head, horsepower, and efficiency as defined in the "API RECOMMENDED PRACTICE(11S2) FOR ELECTRIC SUBMERSIBLE PUMP TESTING".

ENGINEERING DATA				
Housing Diameter		6.75 inches		
Minimum Casing Size		8 5/8 Inch		
Fluid Specific Gravity for Pump Curves		1.0		
Rotational Direction		CCW		
Shaft Details				
Shaft Diameter	1 3/16	1.1875	Inches	
Shaft Area	1.107		Sq. Inches	
Shaft Limits				
Shaft Limit in HP at:		50 Hz	60 Hz	
Standard Shaft Limit		531	637	
High Strength (HSS)		849	1019	
Maximum Staging: Shaft				
Shaft Type	No of Stages @			
	50 Hz	60 Hz		
Standard Shaft	76	53		
HSS	120	84		
Housing Pressure Limit			3000 PSI	
Maximum Staging: Thrust Bearings (250F BHT)				
Bearing Type	No of Stages @			
	50 Hz	60 Hz		
Standard Bearing				
Hi Load Bearing				

COSCO 675 Series Pumps

TJ21000 / 675 Series Pump

>>Minimum Casing Size 8 5/8 Inches

Maximum Bottom Hole Temperature: 250 F

STANDARD PUMP

COMPRESSION		COMPRESSION AR		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31660061	2	31680061	2	1	2.7	210
31660062	5	31680062	5	2	4	327
31660063	8	31680063	8	3	5.4	419
31660064	11	31680064	11	4	6.8	511
31660065	14	31680065	14	5	8.2	603
31660066	17	31680066	17	6	9.5	714
31660067	20	31680067	20	7	10.9	806
31660068	23	31680068	23	8	12.3	898
31660069	26	31680069	26	9	13.7	1009
31660070	29	31680070	29	10	15	1104
31660071	32	31680071	32	11	16.4	1193
31660072	35	31680072	35	12	17.8	1304
31660073	38	31680073	38	13	19.2	1396
31660074	41	31680074	41	14	20.5	1488
31660075	44	31680075	44	15	21.9	1580

Pump Outside Diameter: 6.75 inches

Standard Features: Carbon Steel Head, Base and Housing. Monel K500 Shaft.

Housing also available in 13 Chrome.

Heads and Bases also available in SST410 or 316L Stainless Steel.

All pumps are in Center Tandem Configuration.

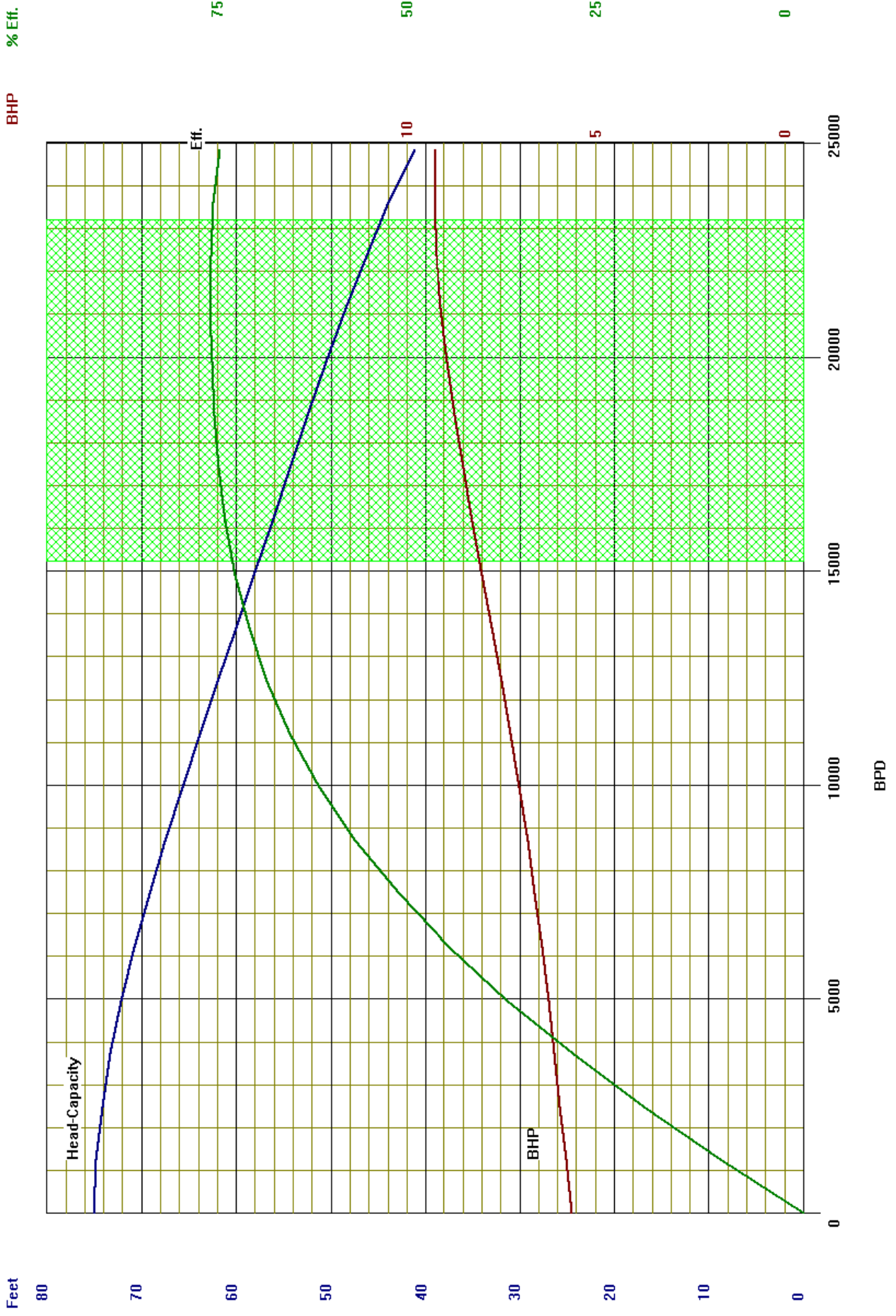
To calculate shipping length, add shipping caps (0.06 feet upper / 0.24 feet/cap) to component length.



Pump Performance Curve

1 Stage TJ-21000

Specific Gravity = 1.0



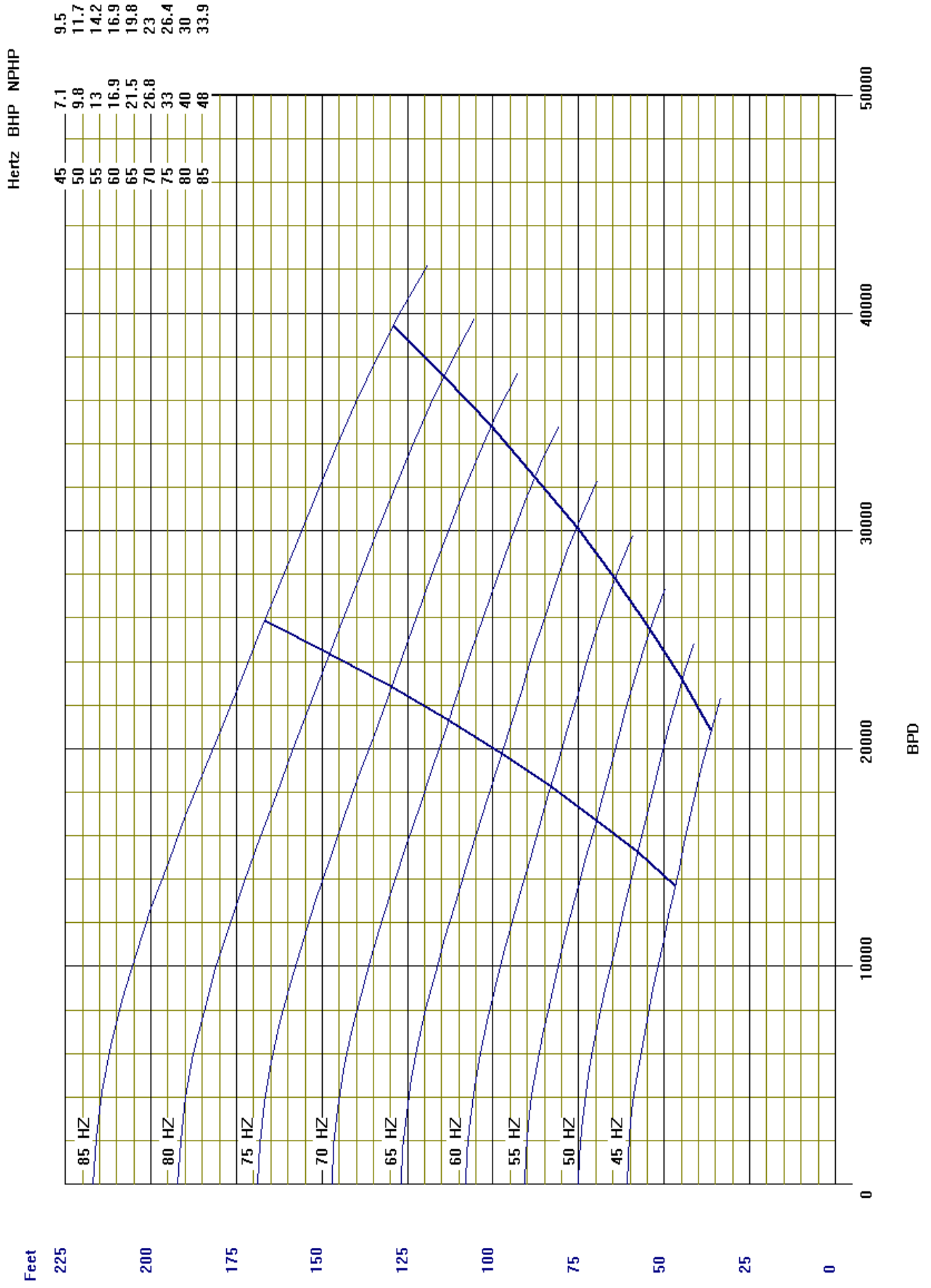


Pump Performance Curve

1 Stage TJ-21000

TP675 - Multi Hz

Specific Gravity = 1.0



COSCO 862 Series Pumps

862 Series Pumps Summary List

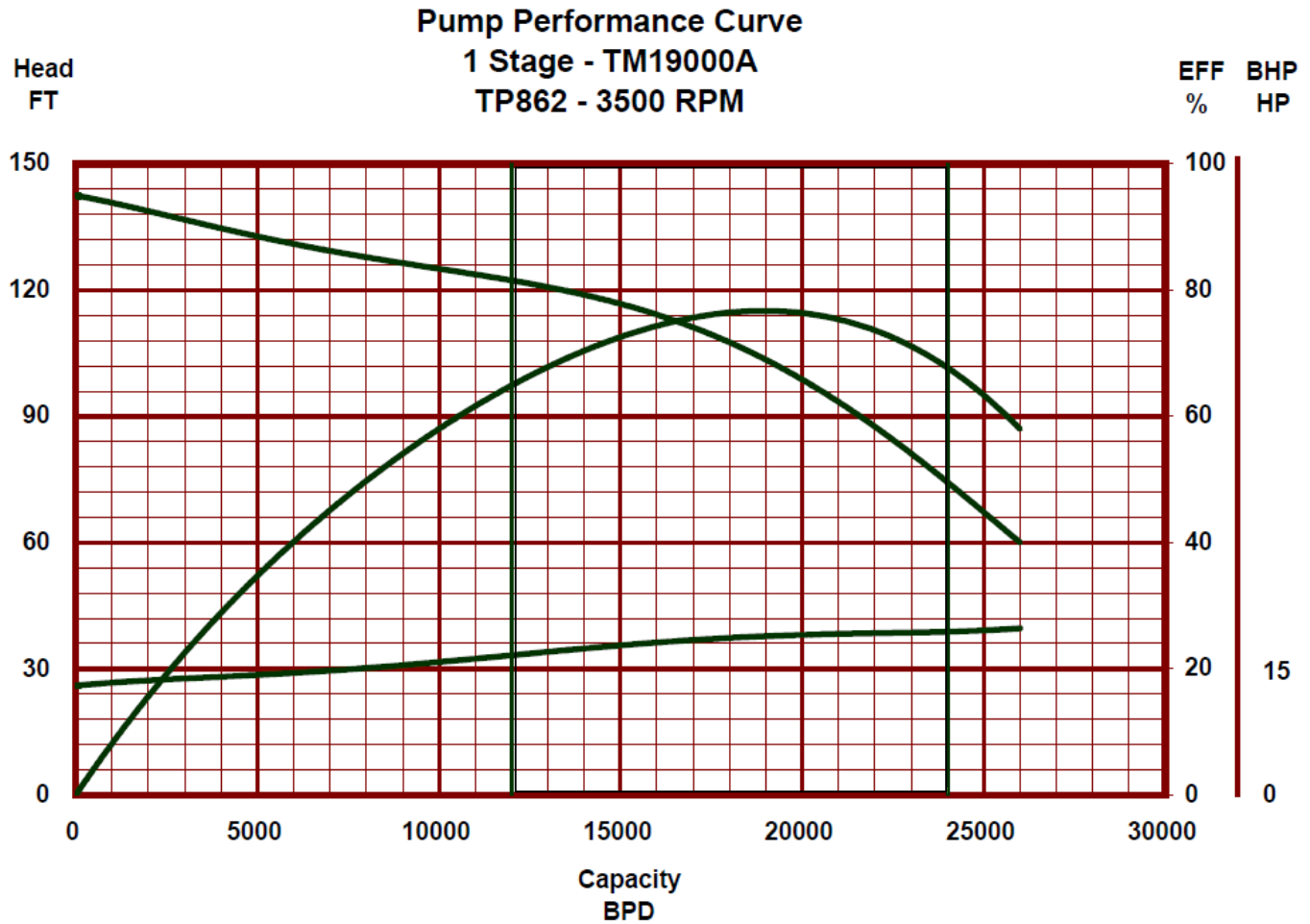
- Housing diameter - 8.62" (219 mm)
- Minimum casing size – 10 ¾" nominal OD

Pump Model	Shaft Diam. (in.)	Horsepower		Flow Capacity Recommended Range			
		Shaft Limit		50 Hz		60 Hz	
		STD	HSS	BPD	m ³ /PD	BPD	m ³ /PD
TM 19000A	1.187	637	1019	10,001-20,003	1590-3180	12,000-24,000	1908-3816
TM 19000B	1.187	637	1019	10,832-19,166	1722-3047	13,000-23,000	2067-3657
TM 19000C	1.187	637	1019	13,755-20,003	2190-3180	12,500-22,500	1987-3577
TM 24000A	1.187	637	1019	11,668-26,670	1855-4240	14,000-32,000	2226-5087
TM 24000B	1.187	637	1019	16,669-24,167	2650-3842	20,000-29,000	3180-4610
TM 24000C	1.187	637	1019	16,247-23,751	2583-,776	19,500-28,500	3100-4531

Note: See the specific 50 Hz or 60 Hz performance curves for head capacity, pump efficiency any horsepower motor load.

Bolt on Discharge Head and Intake information are located at the back of the Pump Section.

COSCO 862 Series Pumps



This engineering performance curve represents nominal performance based on actual multi-stage testing and certification. All pumps supplied by COSCO will be tested and certified to perform within the acceptable limits for head, horsepower, and efficiency as defined in the "API RECOMMENDED PRACTICE(11S2) FOR ELECTRIC SUBMERSIBLE PUMP TESTING".

ENGINEERING DATA				
Housing Diameter		8.62 inches		
Minimum Casing Size		10 3/4 Inches		
Fluid Specific Gravity for Pump Curves		1.0		
Rotational Direction		CCW		
Shaft Details				
Shaft Diameter	1 3/16	1.1875	Inches	
Shaft Area	1.107		Sq. Inches	
Shaft Limits				
Shaft Limit in HP at:		50 Hz	60 Hz	
Standard Shaft Limit		531	637	
High Strength (HSS)		849	1019	
Maximum Staging: Shaft				
Shaft Type	No of Stages @			
	50 Hz	60 Hz		
Standard Shaft	44	31		
HSS	72	50		
Housing Pressure Limit			2000 PSI	
Maximum Staging: Thrust Bearings (250F BHT)				
Bearing Type	No of Stages @			
	50 Hz	60 Hz		
Standard Bearing				
Hi Load Bearing				

COSCO 862 Series Pumps

TM19000A / 862 Series Pump

>>Minimum Casing Size 10 3/4 Inches

Maximum Bottom Hole Temperature: 250 F

STANDARD PUMP

COMPRESSION		COMPRESSION AR		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31860001	3	31880001	3	3	3.3	528
31860002	4	31880002	4	4	3.9	587
31860003	5	31880003	5	5	4.5	662
31860004	6	31880004	6	6	5.1	729
31860005	7	31880005	7	7	5.7	789
31860006	8	31880006	8	8	6.3	863
31860007	9	31880007	9	9	6.9	931
31860008	10	31880008	10	10	7.5	991
31860009	11	31880009	11	11	8.1	1058
31860010	12	31880010	12	12	8.7	1126
31860011	13	31880011	13	13	9.3	1193
31860012	14	31880012	14	14	9.9	1260
31860013	15	31880013	15	15	10.6	1327
31860014	16	31880014	16	16	11.2	1395
31860015	17	31880015	17	17	11.8	1466
31860016	18	31880016	18	18	12.4	1533
31860017	19	31880017	19	19	13	1596
31860018	20	31880018	20	20	13.6	1664
31860019	21	31880019	21	21	14.2	1734
31860020	22	31880020	22	22	14.8	1801
31860021	23	31880021	23	23	15.4	1866
31860022	24	31880022	24	24	16	1933
31860023	25	31880023	25	25	16.6	2003
31860024	26	31880024	26	26	17.2	2071
31860025	27	31880025	27	27	17.8	2138
31860026	28	31880026	28	28	18.4	2202
31860027	29	31880027	29	29	19	2272
31860028	30	31880028	30	30	19.6	2339
31860029	31	31880029	31	31	20.2	2407
31860030	32	31880030	32	32	20.8	2474

Pump Outside Diameter: 8.62 inches

Standard Features: Carbon Steel Head, Base and Housing. Monel K500 Shaft.

Housing also available in 13 Chrome.

Heads and Bases also available in SST410 or 316L Stainless Steel.

All pumps are in Center Tandem Configuration.

To calculate shipping length, add shipping caps (0.06 feet upper / 0.30 feet lower) to component length.

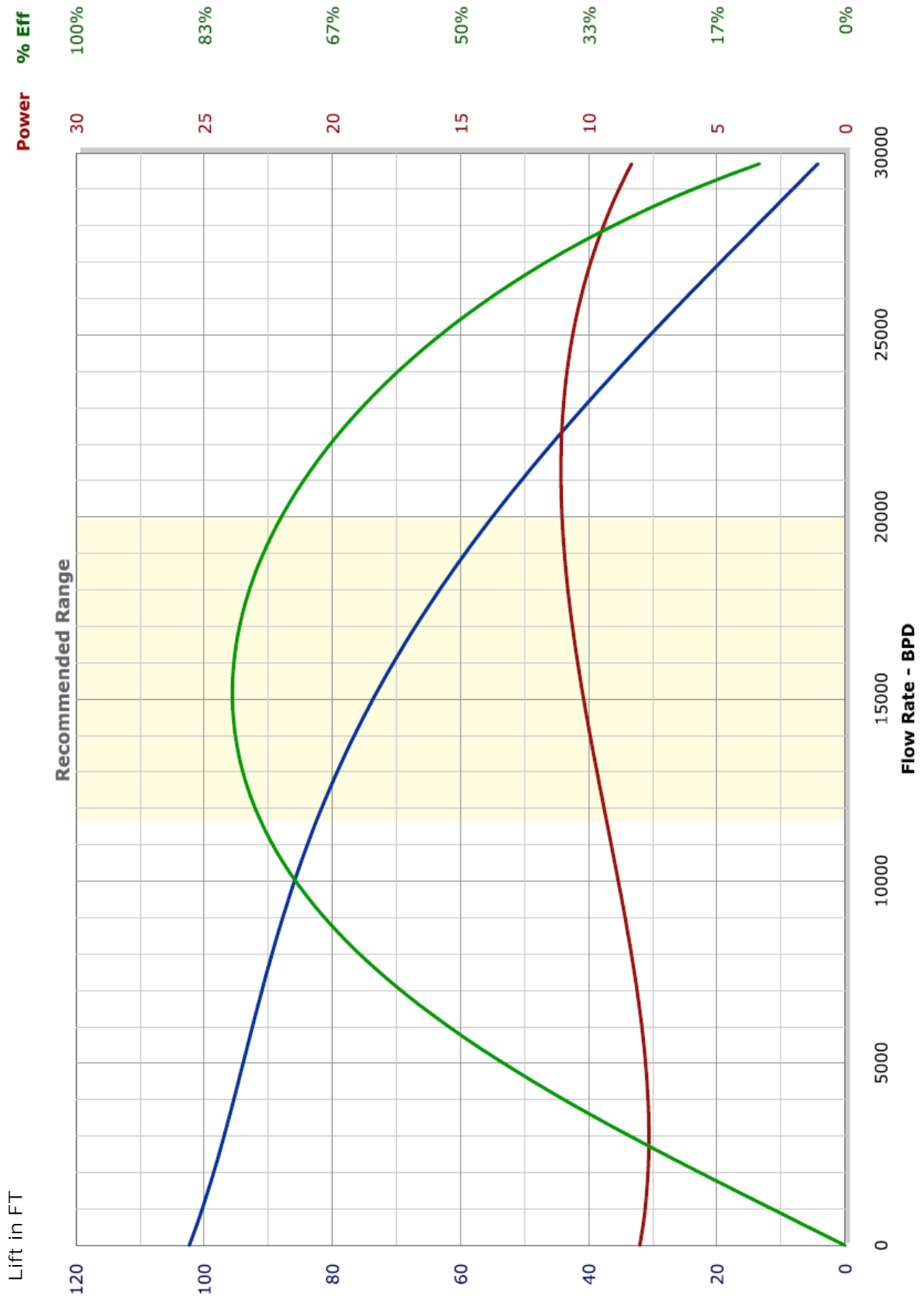


Pump Performance Curve

1 Stage TM-19000A

TP862 - 2917 RPM

Specific Gravity = 1.0





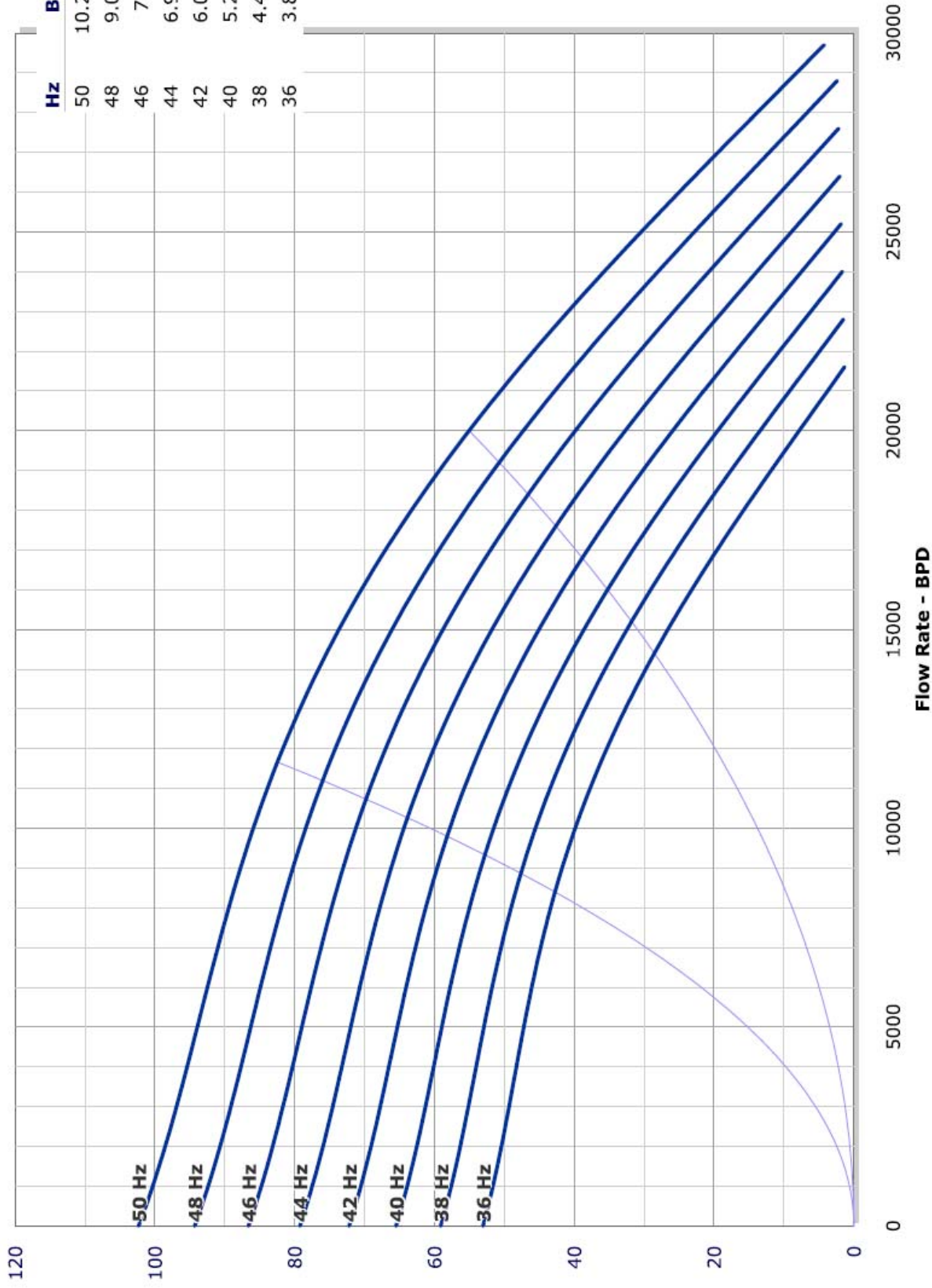
Pump Performance Curve

1 Stage TM-19000A

TP862 - Multi Hz

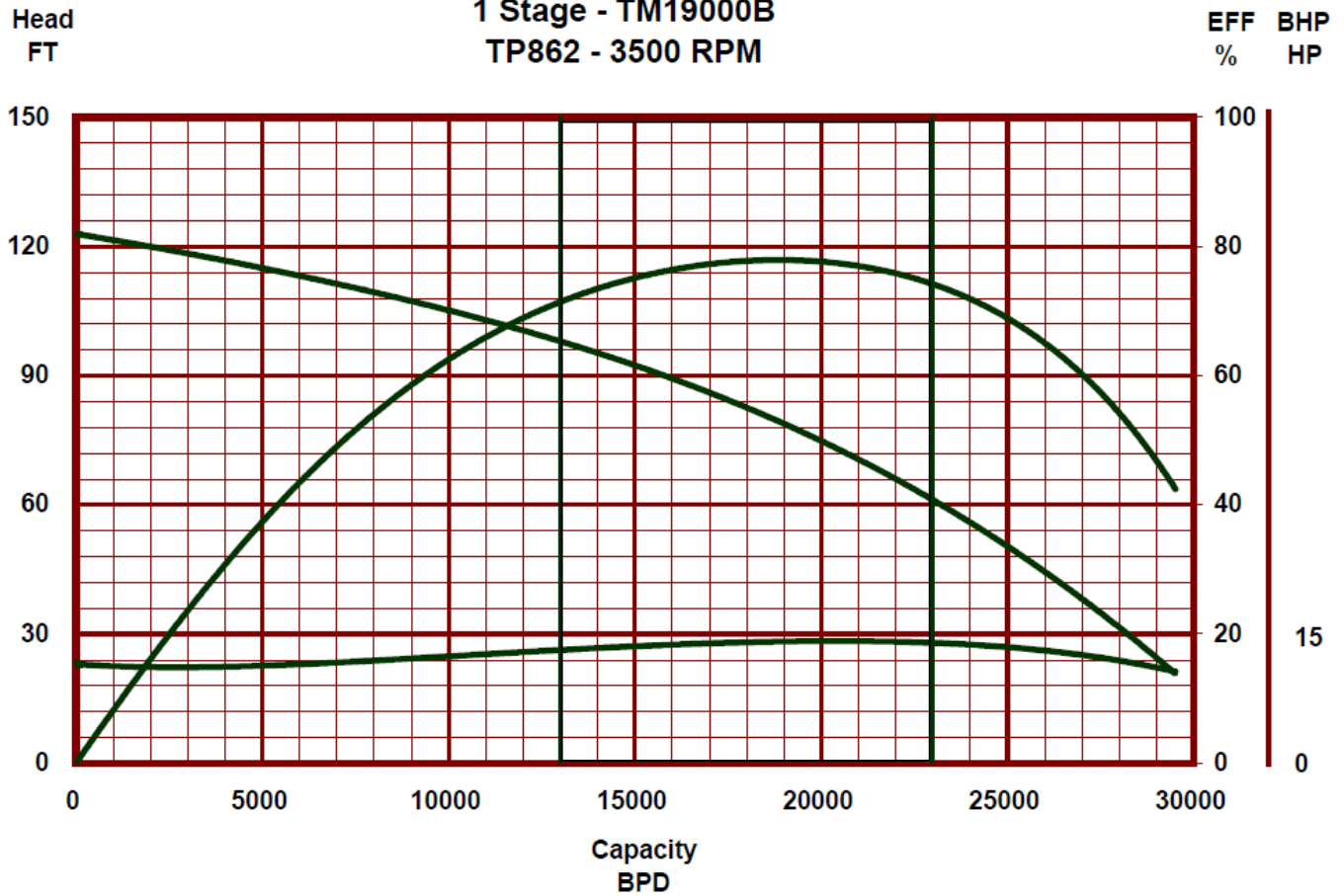
Specific Gravity = 1.0

Lift in FT



COSCO 862 Series Pumps

Pump Performance Curve
1 Stage - TM19000B
TP862 - 3500 RPM



This engineering performance curve represents nominal performance based on actual multi-stage testing and certification. All pumps supplied by COSCO will be tested and certified to perform within the acceptable limits for head, horsepower, and efficiency as defined in the "API RECOMMENDED PRACTICE(11S2) FOR ELECTRIC SUBMERSIBLE PUMP TESTING".

ENGINEERING DATA							
Housing Diameter		8.62 inches			Maximum Staging: Shaft		
Minimum Casing Size		10 3/4 Inches			Shaft Type	No of Stages @	
Fluid Specific Gravity for Pump Curves		1.0				50 Hz	60 Hz
Rotational Direction		CCW			Standard Shaft	64	44
Shaft Details					HSS	102	71
Shaft Diameter	1 3/16	1.1875	Inches		Housing Pressure Limit		
Shaft Area		1.107	Sq. Inches		2000 PSI		
Shaft Limits					Maximum Staging: Thrust Bearings (250F BHT)		
Shaft Limit in HP at:		50 Hz	60 Hz		Bearing Type	No of Stages @	
						50 Hz	60 Hz
Standard Shaft Limit		531	637		Standard Bearing		
High Strength (HSS)		849	1019		Hi Load Bearing		

COSCO 862 Series Pumps

TM19000B / 862 Series Pump

>>Minimum Casing Size 10 3/4 Inches

Maximum Bottom Hole Temperature: 250 F

STANDARD PUMP

COMPRESSION		COMPRESSION AR		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31860031	3	31880031	3	3	3.3	528
31860032	4	31880032	4	4	3.9	587
31860033	5	31880033	5	5	4.5	662
31860034	6	31880034	6	6	5.1	729
31860035	7	31880035	7	7	5.7	789
31860036	8	31880036	8	8	6.3	863
31860037	9	31880037	9	9	6.9	931
31860038	10	31880038	10	10	7.5	991
31860039	11	31880039	11	11	8.1	1058
31860040	12	31880040	12	12	8.7	1126
31860041	13	31880041	13	13	9.3	1193
31860042	14	31880042	14	14	9.9	1260
31860043	15	31880043	15	15	10.6	1327
31860044	16	31880044	16	16	11.2	1395
31860045	17	31880045	17	17	11.8	1466
31860046	18	31880046	18	18	12.4	1533
31860047	19	31880047	19	19	13	1596
31860048	20	31880048	20	20	13.6	1664
31860049	21	31880049	21	21	14.2	1734
31860050	22	31880050	22	22	14.8	1801
31860051	23	31880051	23	23	15.4	1866
31860052	24	31880052	24	24	16	1933
31860053	25	31880053	25	25	16.6	2003
31860054	26	31880054	26	26	17.2	2071
31860055	27	31880055	27	27	17.8	2138
31860056	28	31880056	28	28	18.4	2202
31860057	29	31880057	29	29	19	2272
31860058	30	31880058	30	30	19.6	2339
31860059	31	31880059	31	31	20.2	2407
31860060	32	31880060	32	32	20.8	2474

Pump Outside Diameter: 8.62 inches

Standard Features: Carbon Steel Head, Base and Housing. Monel K500 Shaft.

Housing also available in 13 Chrome.

Heads and Bases also available in SST410 or 316L Stainless Steel.

All pumps are in Center Tandem Configuration.

To calculate shipping length, add shipping caps (0.06 feet upper / 0.30 feet lower) to component length.

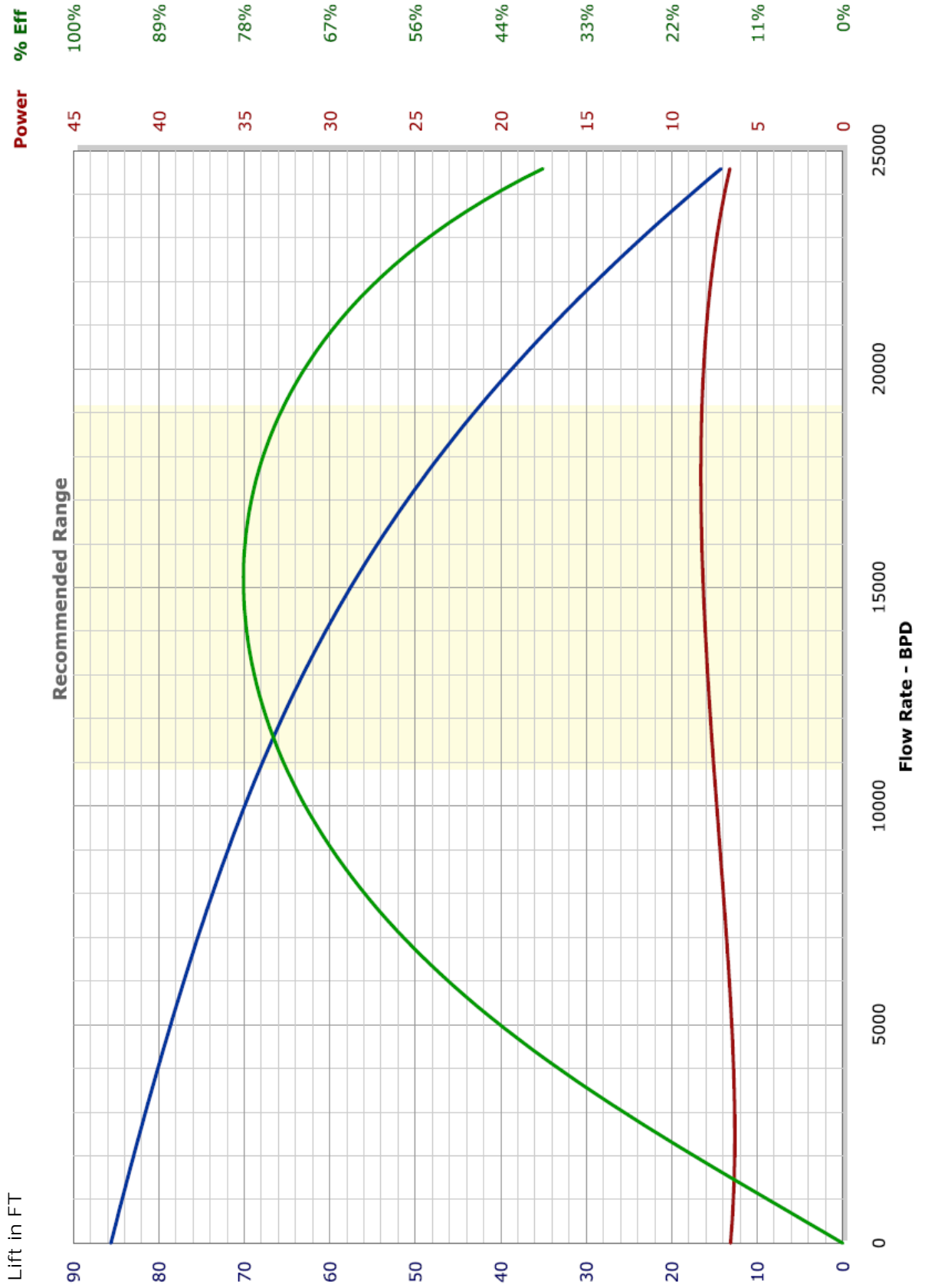


Pump Performance Curve

1 Stage TM-19000B

TP862 - 2917 RPM

Specific Gravity = 1.0



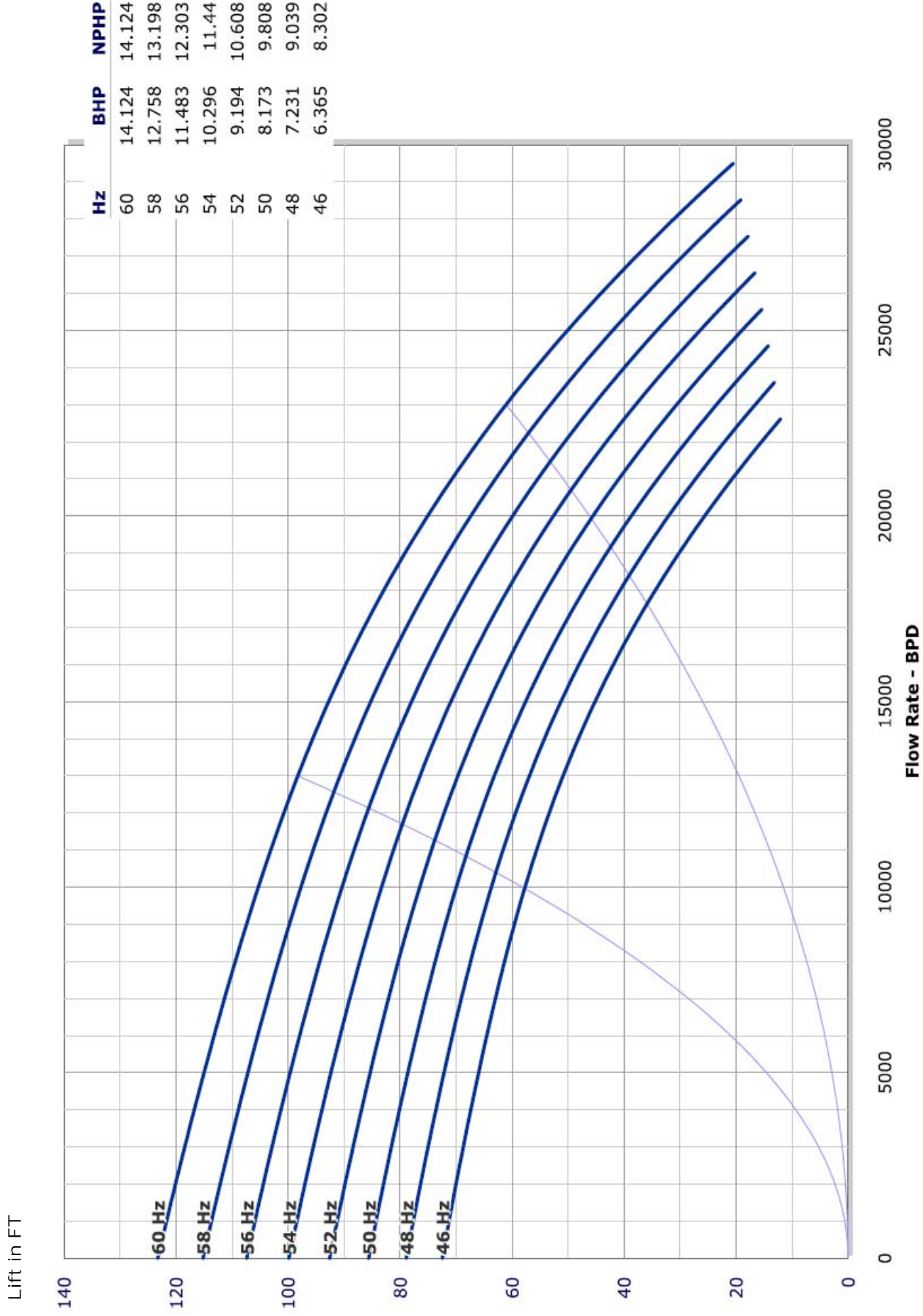


Pump Performance Curve

1 Stage TM-19000B

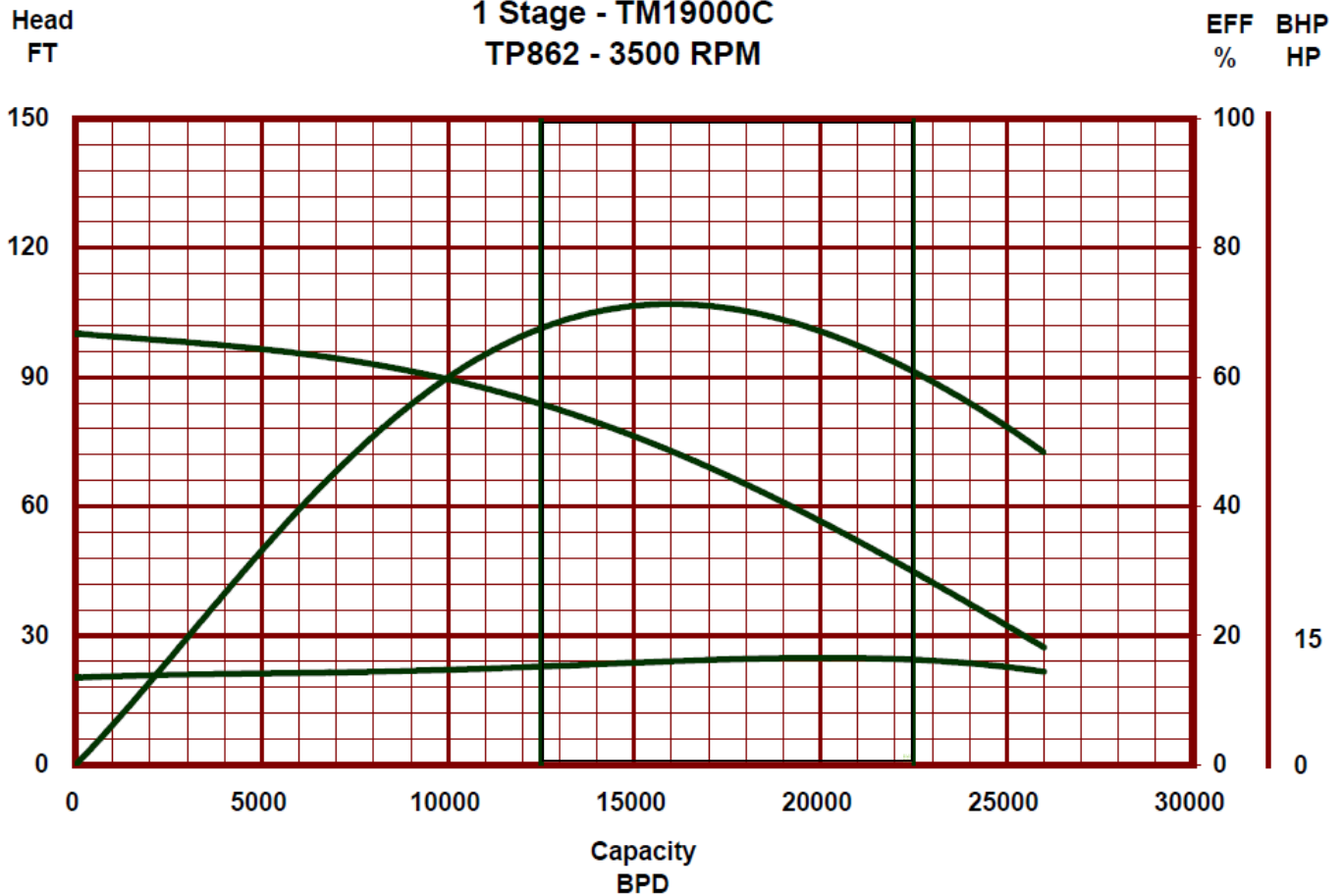
TP862 - Multi Hz

Specific Gravity = 1.0



COSCO 862 Series Pumps

Pump Performance Curve
1 Stage - TM19000C
TP862 - 3500 RPM



This engineering performance curve represents nominal performance based on actual multi-stage testing and certification. All pumps supplied by COSCO will be tested and certified to perform within the acceptable limits for head, horsepower, and efficiency as defined in the "API RECOMMENDED PRACTICE(11S2) FOR ELECTRIC SUBMERSIBLE PUMP TESTING".

ENGINEERING DATA				
Housing Diameter		8.62 inches		
Minimum Casing Size		10 3/4 Inches		
Fluid Specific Gravity for Pump Curves		1.0		
Rotational Direction		CCW		
Shaft Details				
Shaft Diameter	1 3/16	1.1875	Inches	
Shaft Area	1.107		Sq. Inches	
Shaft Limits				
Shaft Limit in HP at:		50 Hz	60 Hz	
Standard Shaft Limit		531	637	
High Strength (HSS)		849	1019	
Maximum Staging: Shaft				
Shaft Type	No of Stages @			
	50 Hz		60 Hz	
Standard Shaft	73		51	
HSS	117		81	
Housing Pressure Limit			2000 PSI	
Maximum Staging: Thrust Bearings (250F BHT)				
Bearing Type	No of Stages @			
	50 Hz		60 Hz	
Standard Bearing				
Hi Load Bearing				

COSCO 862 Series Pumps

TM19000C / 862 Series Pump

>>Minimum Casing Size 10 3/4 Inches

Maximum Bottom Hole Temperature: 250 F

STANDARD PUMP

COMPRESSION		COMPRESSION AR		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31860061	3	31880061	3	3	3.3	528
31860062	4	31880062	4	4	3.9	587
31860063	5	31880063	5	5	4.5	662
31860064	6	31880064	6	6	5.1	729
31860065	7	31880065	7	7	5.7	789
31860066	8	31880066	8	8	6.3	863
31860067	9	31880067	9	9	6.9	931
31860068	10	31880068	10	10	7.5	991
31860069	11	31880069	11	11	8.1	1058
31860070	12	31880070	12	12	8.7	1126
31860071	13	31880071	13	13	9.3	1193
31860072	14	31880072	14	14	9.9	1260
31860073	15	31880073	15	15	10.6	1327
31860074	16	31880074	16	16	11.2	1395
31860075	17	31880075	17	17	11.8	1466
31860076	18	31880076	18	18	12.4	1533
31860077	19	31880077	19	19	13	1596
31860078	20	31880078	20	20	13.6	1664
31860079	21	31880079	21	21	14.2	1734
31860080	22	31880080	22	22	14.8	1801
31860081	23	31880081	23	23	15.4	1866
31860082	24	31880082	24	24	16	1933
31860083	25	31880083	25	25	16.6	2003
31860084	26	31880084	26	26	17.2	2071
31860085	27	31880085	27	27	17.8	2138
31860086	28	31880086	28	28	18.4	2202
31860087	29	31880087	29	29	19	2272
31860088	30	31880088	30	30	19.6	2339
31860089	31	31880089	31	31	20.2	2407
31860090	32	31880090	32	32	20.8	2474

Pump Outside Diameter: 8.62 inches

Standard Features: Carbon Steel Head, Base and Housing. Monel K500 Shaft.

Housing also available in 13 Chrome.

Heads and Bases also available in SST410 or 316L Stainless Steel.

All pumps are in Center Tandem Configuration.

To calculate shipping length, add shipping caps (0.06 feet upper / 0.30 feet lower) to component length.

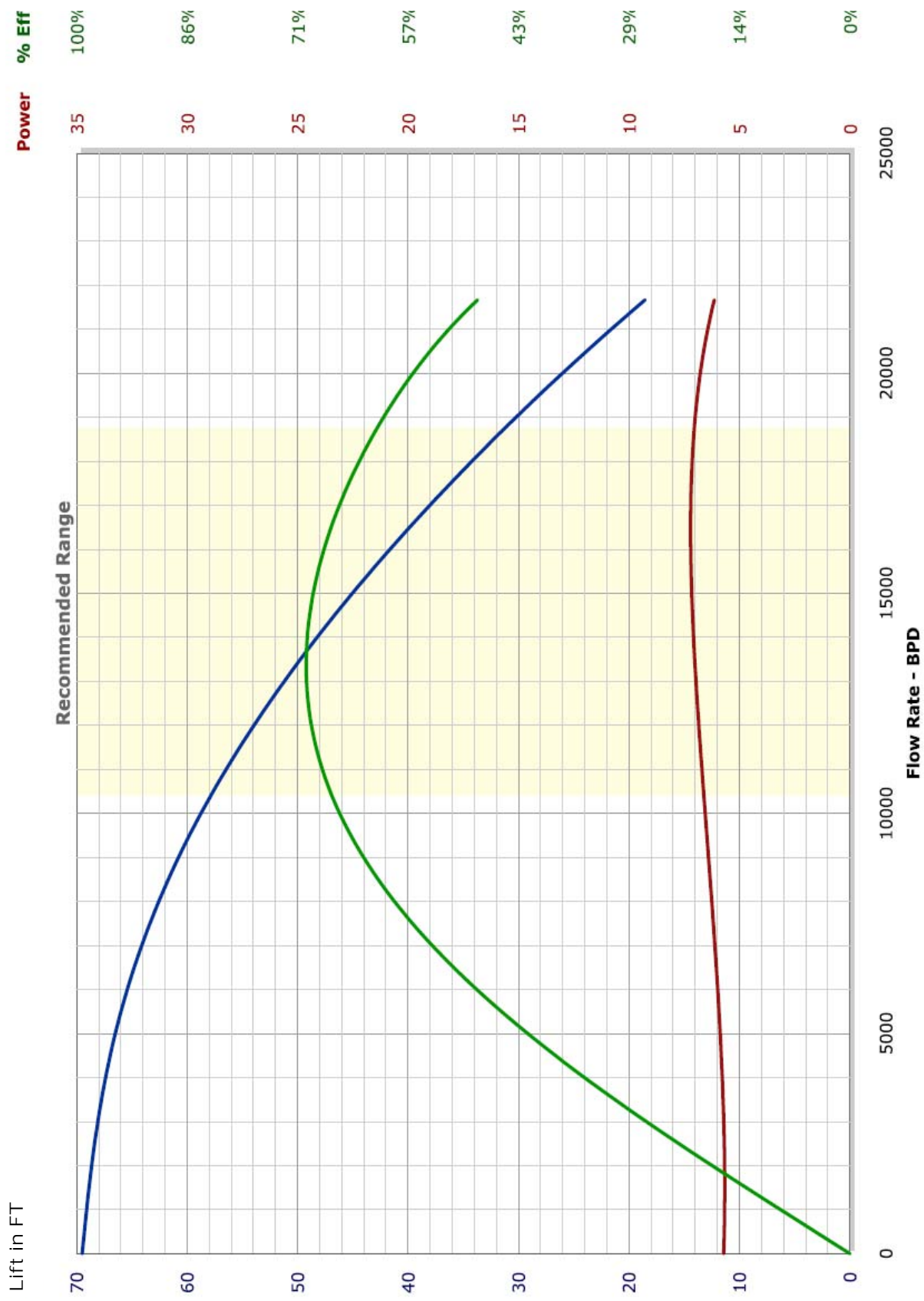


Pump Performance Curve

1 Stage TM-19000C

TP862 - 2917 RPM

Specific Gravity = 1.0



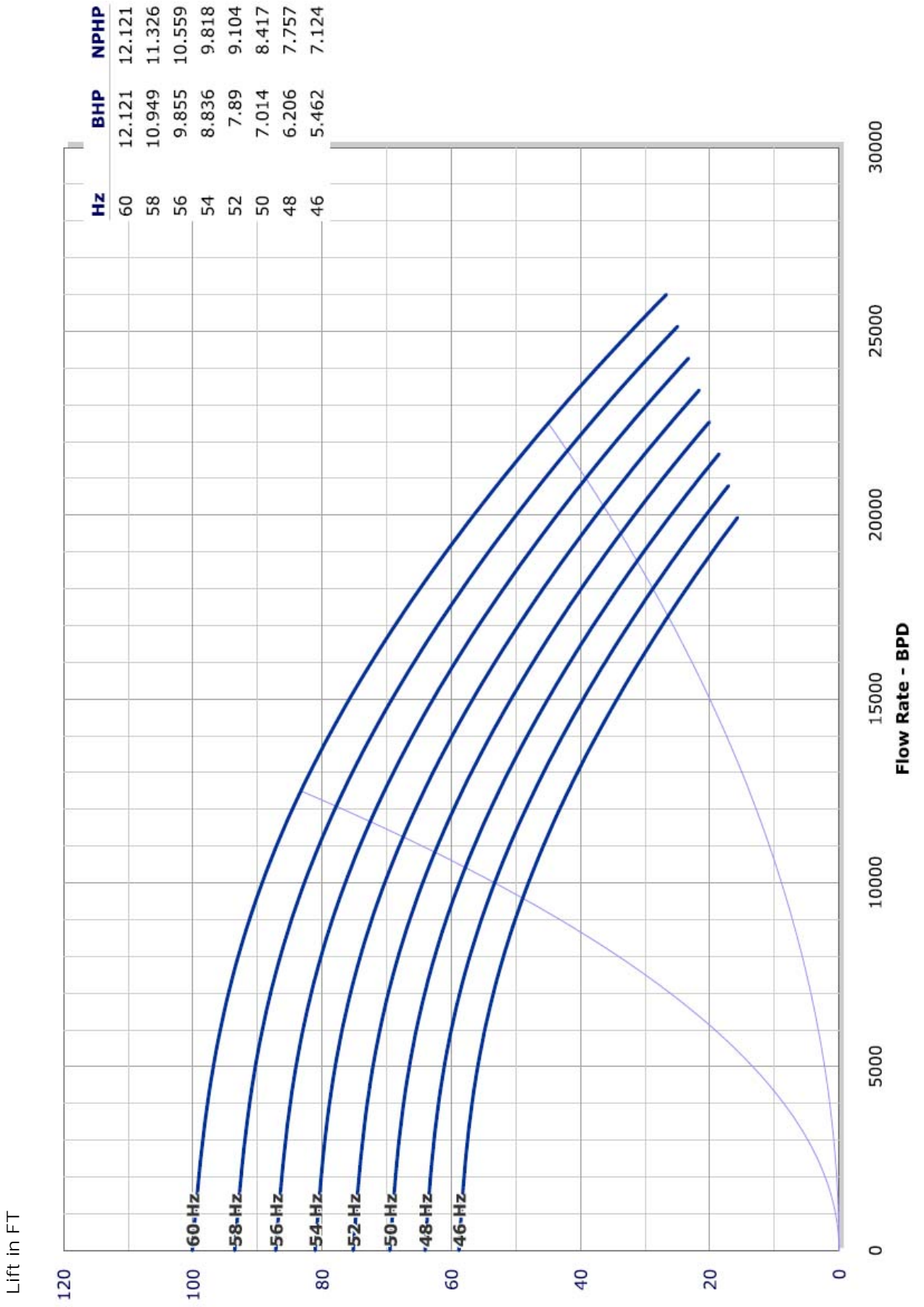


Pump Performance Curve

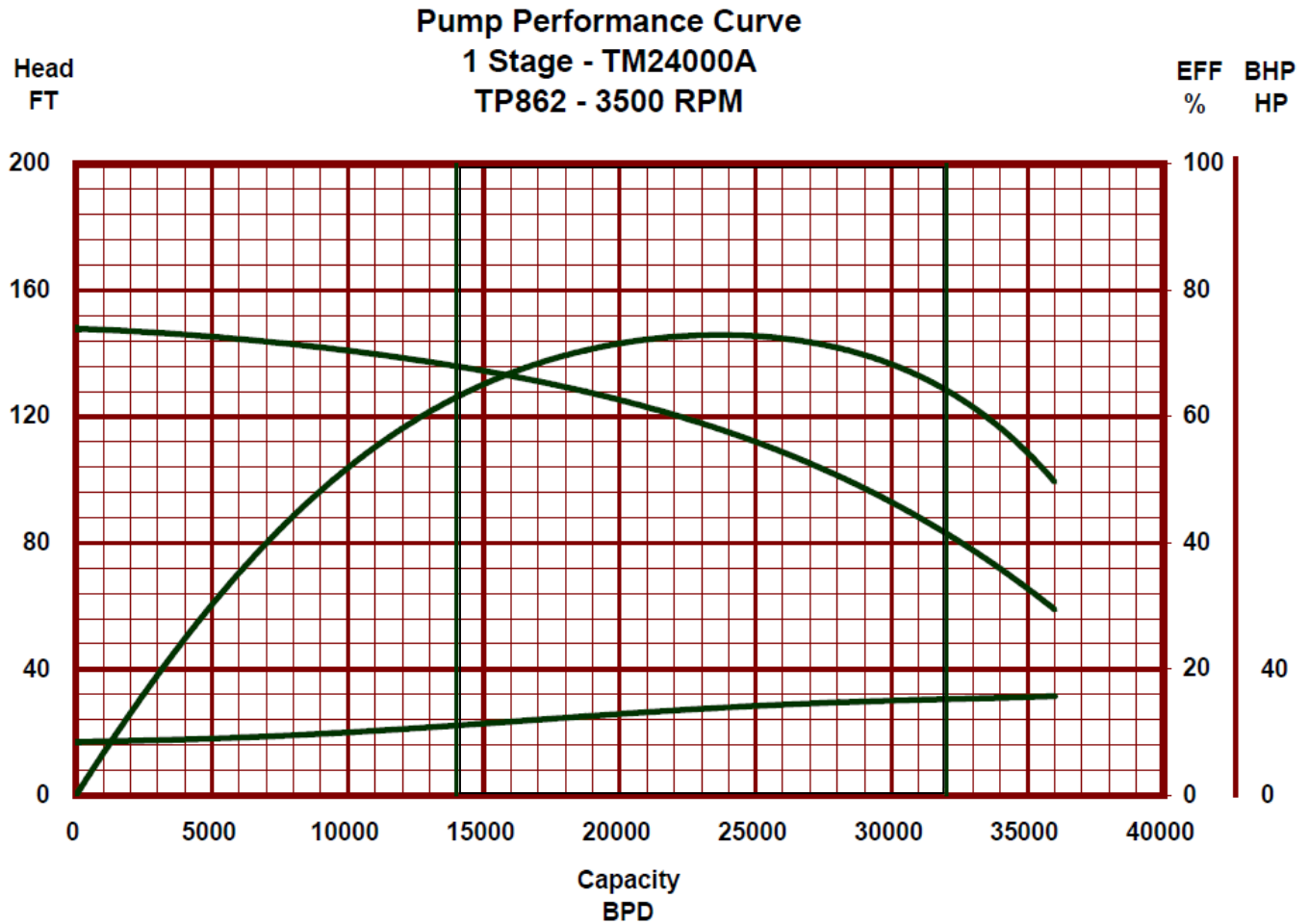
1 Stage TM-19000C

TP862 - Multi Hz

Specific Gravity = 1.0



COSCO 862 Series Pumps



This engineering performance curve represents nominal performance based on actual multi-stage testing and certification. All pumps supplied by COSCO will be tested and certified to perform within the acceptable limits for head, horsepower, and efficiency as defined in the "API RECOMMENDED PRACTICE(11S2) FOR ELECTRIC SUBMERSIBLE PUMP TESTING".

ENGINEERING DATA				
Housing Diameter		8.62 inches		
Minimum Casing Size		10 3/4 Inches		
Fluid Specific Gravity for Pump Curves		1.0		
Rotational Direction		CCW		
Shaft Details				
Shaft Diameter	1 3/16	1.1875	Inches	
Shaft Area	1.107		Sq. Inches	
Shaft Limits				
Shaft Limit in HP at:		50 Hz	60 Hz	
Standard Shaft Limit		531	637	
High Strength (HSS)		849	1019	
Maximum Staging: Shaft				
Shaft Type	No of Stages @			
	50 Hz	60 Hz		
Standard Shaft	28	19		
HSS	44	31		
Housing Pressure Limit			2300 PSI	
Maximum Staging: Thrust Bearings (250F BHT)				
Bearing Type	No of Stages @			
	50 Hz	60 Hz		
Standard Bearing				
Hi Load Bearing				

COSCO 862 Series Pumps

TM24000A / 862 Series Pump

>>Minimum Casing Size 10 3/4 Inches

Maximum Bottom Hole Temperature: 250 F

STANDARD PUMP

COMPRESSION		COMPRESSION AR		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31860091	3	31880091	3	3	3.3	528
31860092	4	31880092	4	4	3.9	587
31860093	5	31880093	5	5	4.5	662
31860094	6	31880094	6	6	5.1	729
31860095	7	31880095	7	7	5.7	789
31860096	8	31880096	8	8	6.3	863
31860097	9	31880097	9	9	6.9	931
31860098	10	31880098	10	10	7.5	991
31860099	11	31880099	11	11	8.1	1058
31860100	12	31880100	12	12	8.7	1126
31860101	13	31880101	13	13	9.3	1193
31860102	14	31880102	14	14	9.9	1260
31860103	15	31880103	15	15	10.6	1327
31860104	16	31880104	16	16	11.2	1395
31860105	17	31880105	17	17	11.8	1466
31860106	18	31880106	18	18	12.4	1533
31860107	19	31880107	19	19	13	1596
31860108	20	31880108	20	20	13.6	1664
31860109	21	31880109	21	21	14.2	1734
31860110	22	31880110	22	22	14.8	1801
31860111	23	31880111	23	23	15.4	1866
31860112	24	31880112	24	24	16	1933
31860113	25	31880113	25	25	16.6	2003
31860114	26	31880114	26	26	17.2	2071
31860115	27	31880115	27	27	17.8	2138
31860116	28	31880116	28	28	18.4	2202
31860117	29	31880117	29	29	19	2272
31860118	30	31880118	30	30	19.6	2339
31860119	31	31880119	31	31	20.2	2407
31860120	32	31880120	32	32	20.8	2474

Pump Outside Diameter: 8.62 inches

Standard Features: Carbon Steel Head, Base and Housing. Monel K500 Shaft.

Housing also available in 13 Chrome.

Heads and Bases also available in SST410 or 316L Stainless Steel.

All pumps are in Center Tandem Configuration.

To calculate shipping length, add shipping caps (0.06 feet upper / 0.30 feet lower) to component length.

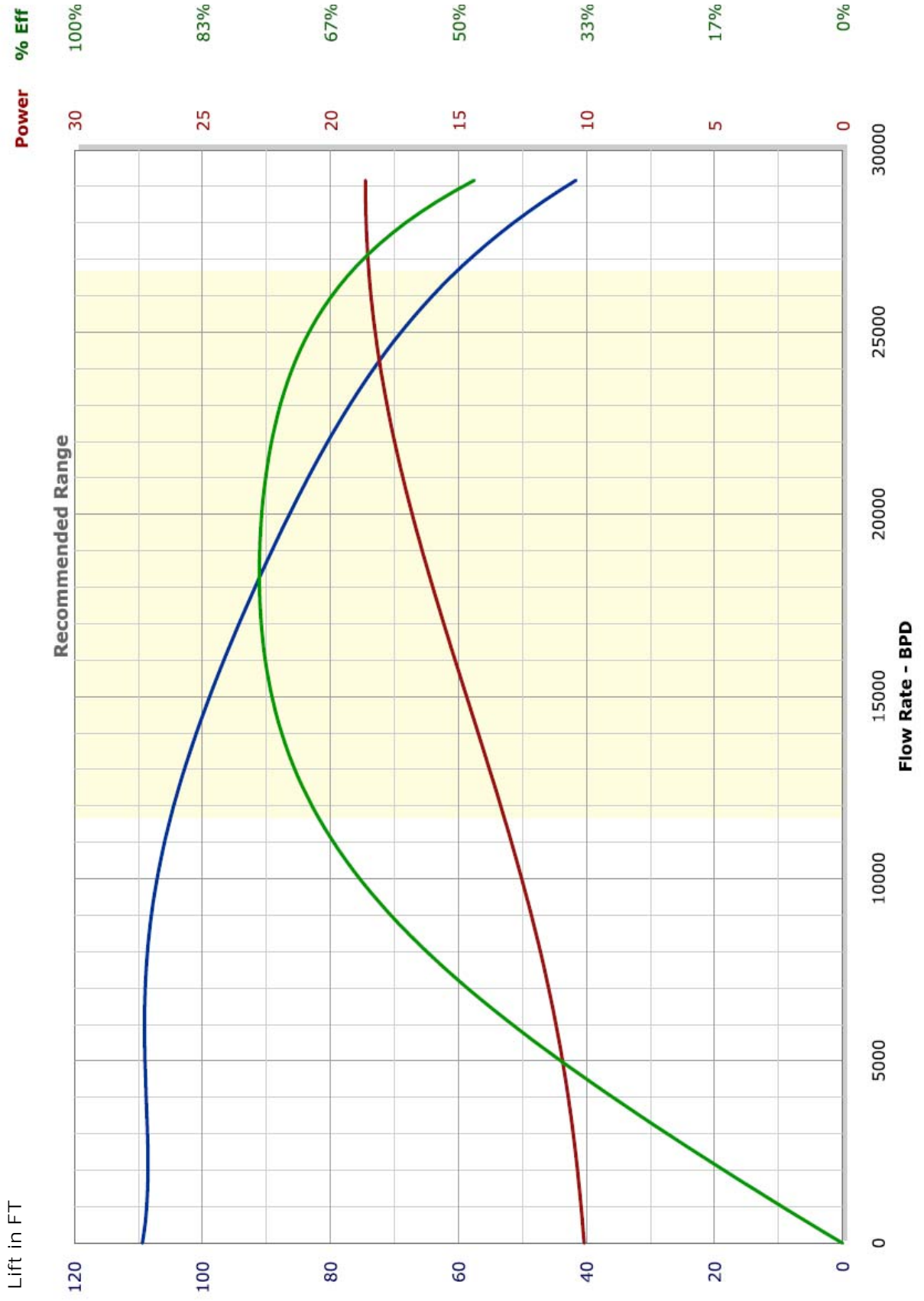


Pump Performance Curve

1 Stage TM-24000A

TP862 - 2917 RPM

Specific Gravity = 1.0



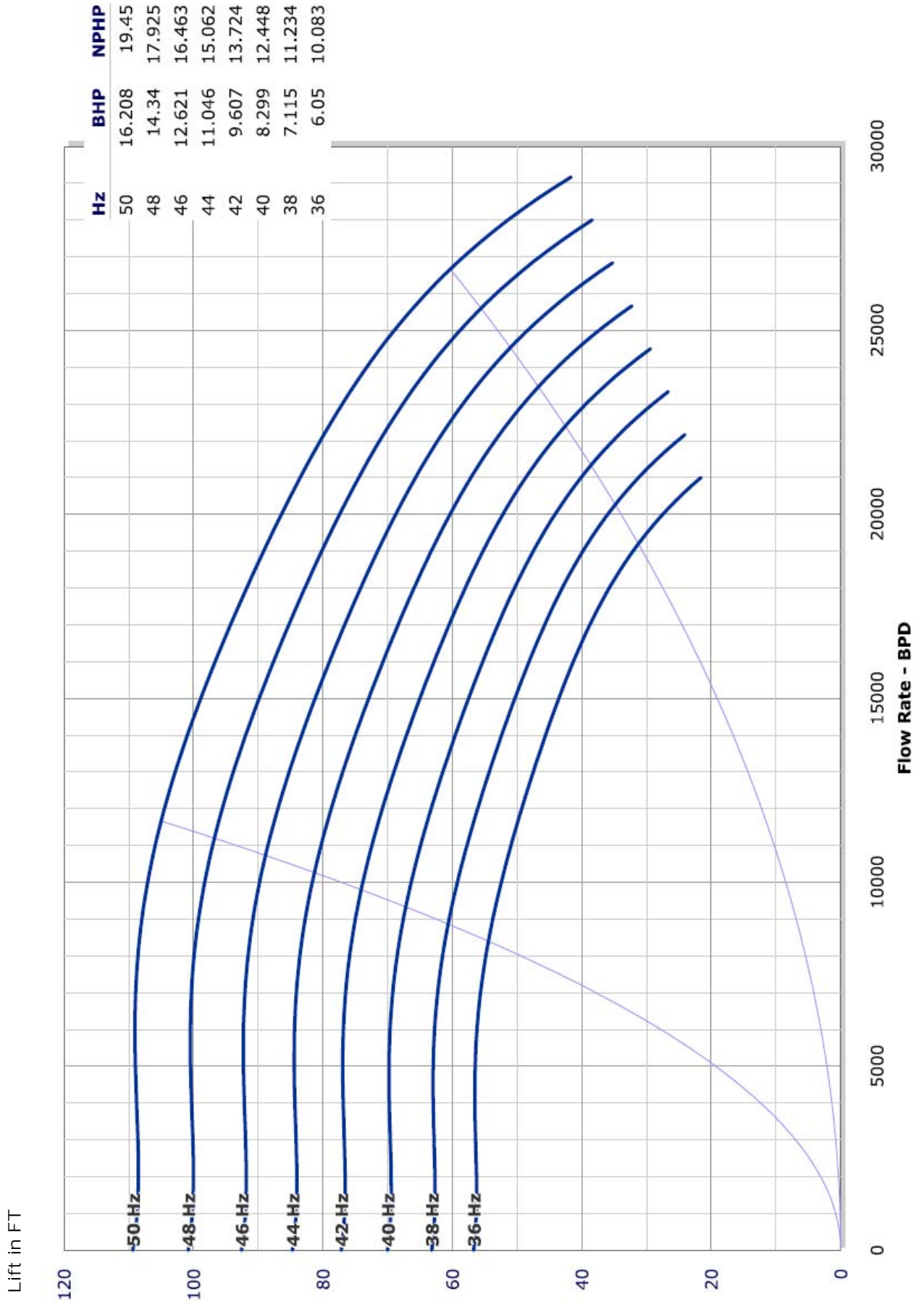


Pump Performance Curve

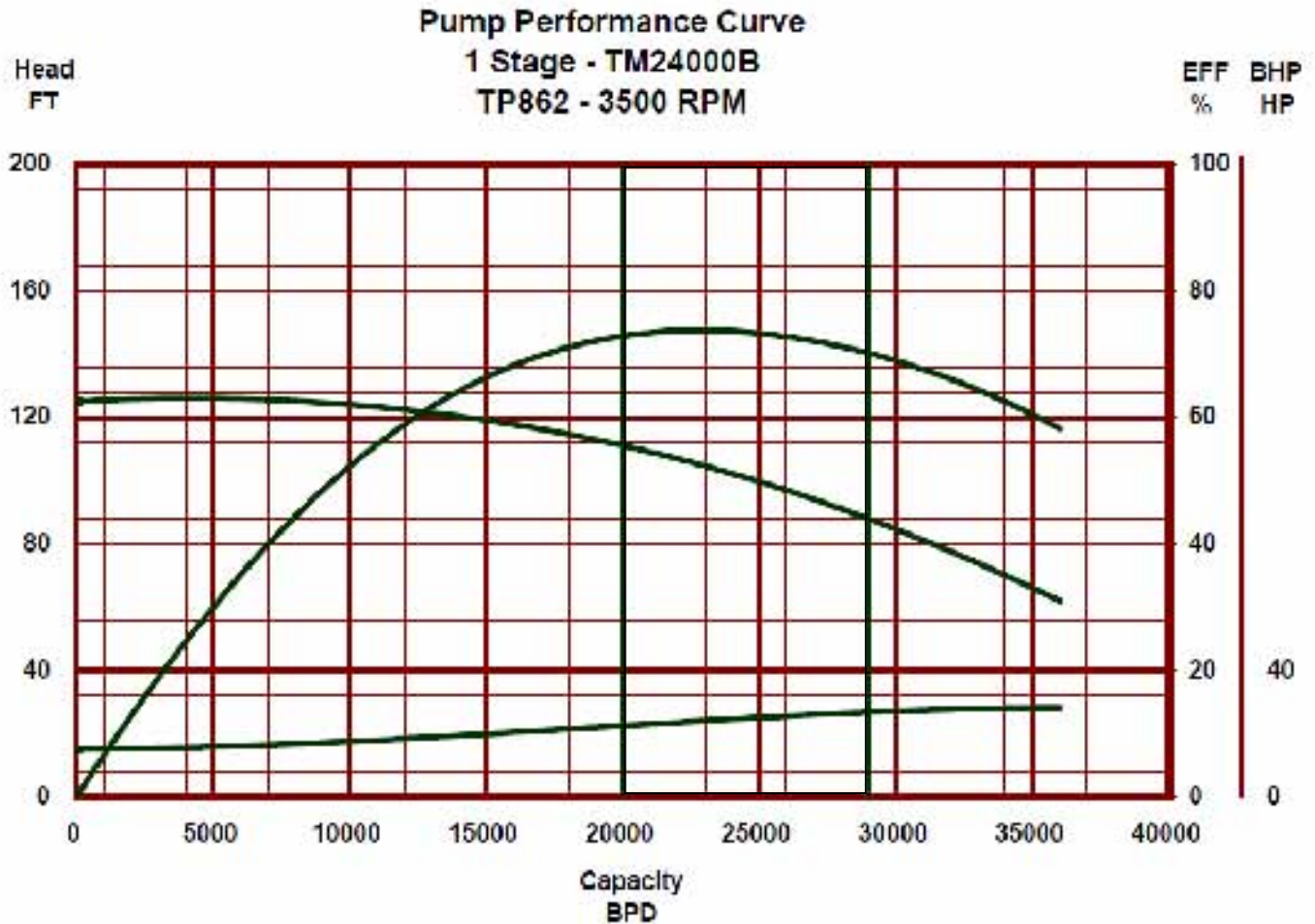
1 Stage TM-24000A

TP862 - Multi Hz

Specific Gravity = 1.0



COSCO 862 Series Pumps



This engineering performance curve represents nominal performance based on actual multi-stage testing and certification. All pumps supplied by COSCO will be tested and certified to perform within the acceptable limits for head, horsepower, and efficiency as defined in the "API RECOMMENDED PRACTICE(11S2) FOR ELECTRIC SUBMERSIBLE PUMP TESTING".

ENGINEERING DATA				
Housing Diameter		8.62 inches		
Minimum Casing Size		10 3/4 Inches		
Fluid Specific Gravity for Pump Curves		1.0		
Rotational Direction		CCW		
Shaft Details				
Shaft Diameter	1 3/16	1.1875	Inches	
Shaft Area	1.107		Sq. Inches	
Shaft Limits				
Shaft Limit in HP at:		50 Hz	60 Hz	
Standard Shaft Limit		531	637	
High Strength (HSS)		849	1019	
Maximum Staging: Shaft				
Shaft Type	No of Stages @			
	50 Hz	60 Hz		
Standard Shaft	31	22		
HSS	51	36		
Housing Pressure Limit			2000 PSI	
Maximum Staging: Thrust Bearings (250F BHT)				
Bearing Type	No of Stages @			
	50 Hz	60 Hz		
Standard Bearing				
Hi Load Bearing				

COSCO 862 Series Pumps

TM24000B / 862 Series Pump

>>Minimum Casing Size 10 3/4 Inches

Maximum Bottom Hole Temperature: 250 F

STANDARD PUMP

COMPRESSION		COMPRESSION AR		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31860121	3	31880121	3	3	3.3	528
31860122	4	31880122	4	4	3.9	587
31860123	5	31880123	5	5	4.5	662
31860124	6	31880124	6	6	5.1	729
31860125	7	31880125	7	7	5.7	789
31860126	8	31880126	8	8	6.3	863
31860127	9	31880127	9	9	6.9	931
31860128	10	31880128	10	10	7.5	991
31860129	11	31880129	11	11	8.1	1058
31860130	12	31880130	12	12	8.7	1126
31860131	13	31880131	13	13	9.3	1193
31860132	14	31880132	14	14	9.9	1260
31860133	15	31880133	15	15	10.6	1327
31860134	16	31880134	16	16	11.2	1395
31860135	17	31880135	17	17	11.8	1466
31860136	18	31880136	18	18	12.4	1533
31860137	19	31880137	19	19	13	1596
31860138	20	31880138	20	20	13.6	1664
31860139	21	31880139	21	21	14.2	1734
31860140	22	31880140	22	22	14.8	1801
31860141	23	31880141	23	23	15.4	1866
31860142	24	31880142	24	24	16	1933
31860143	25	31880143	25	25	16.6	2003
31860144	26	31880144	26	26	17.2	2071
31860145	27	31880145	27	27	17.8	2138
31860146	28	31880146	28	28	18.4	2202
31860147	29	31880147	29	29	19	2272
31860148	30	31880148	30	30	19.6	2339
31860149	31	31880149	31	31	20.2	2407
31860150	32	31880150	32	32	20.8	2474

Pump Outside Diameter: 8.62 inches

Standard Features: Carbon Steel Head, Base and Housing. Monel K500 Shaft.

Housing also available in 13 Chrome.

Heads and Bases also available in SST410 or 316L Stainless Steel.

All pumps are in Center Tandem Configuration.

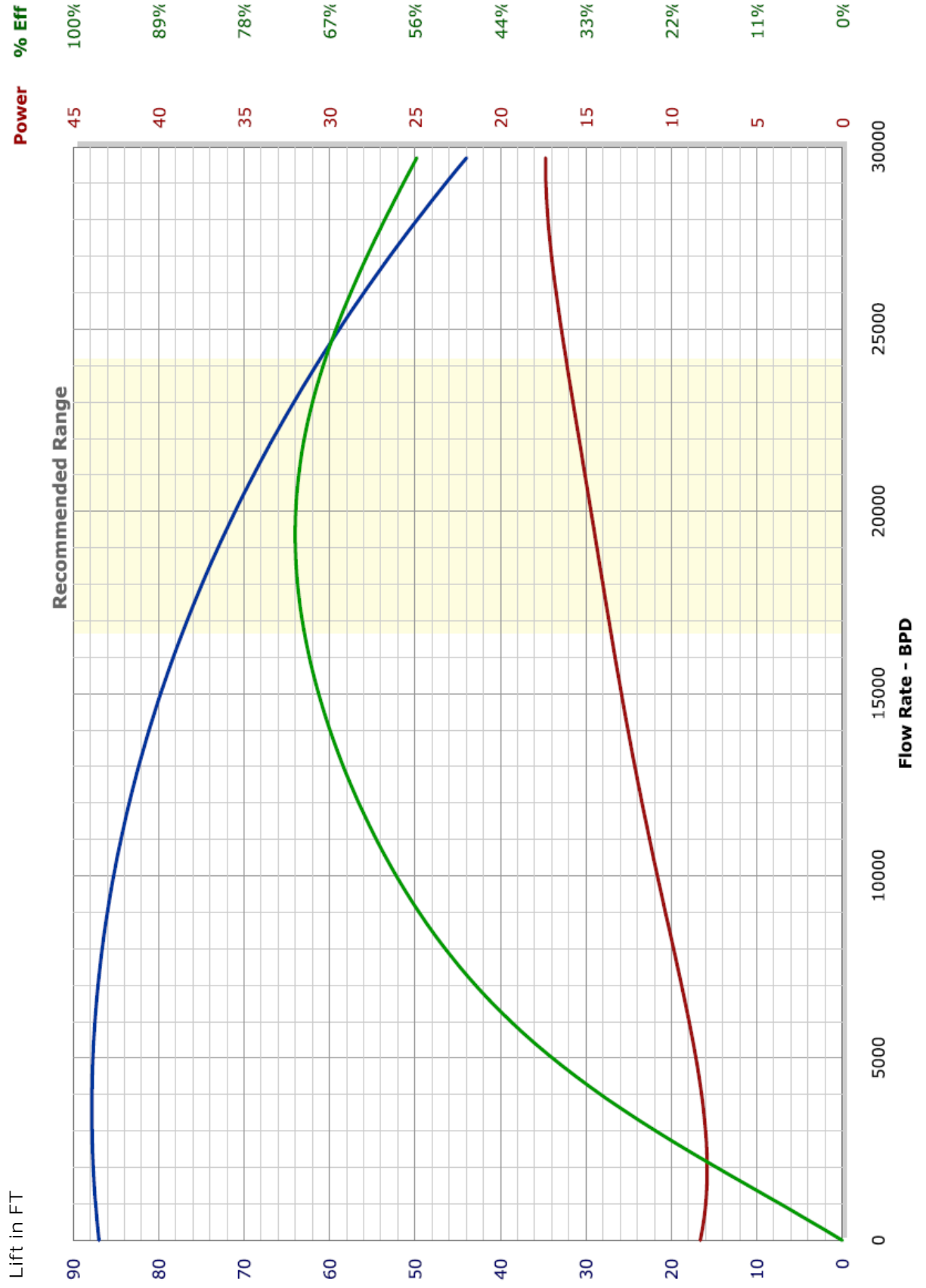
To calculate shipping length, add shipping caps (0.06 feet upper / 0.30 feet lower) to component length.



Pump Performance Curve

1 Stage TM-24000B
TP862 - 2917 RPM

Specific Gravity = 1.0





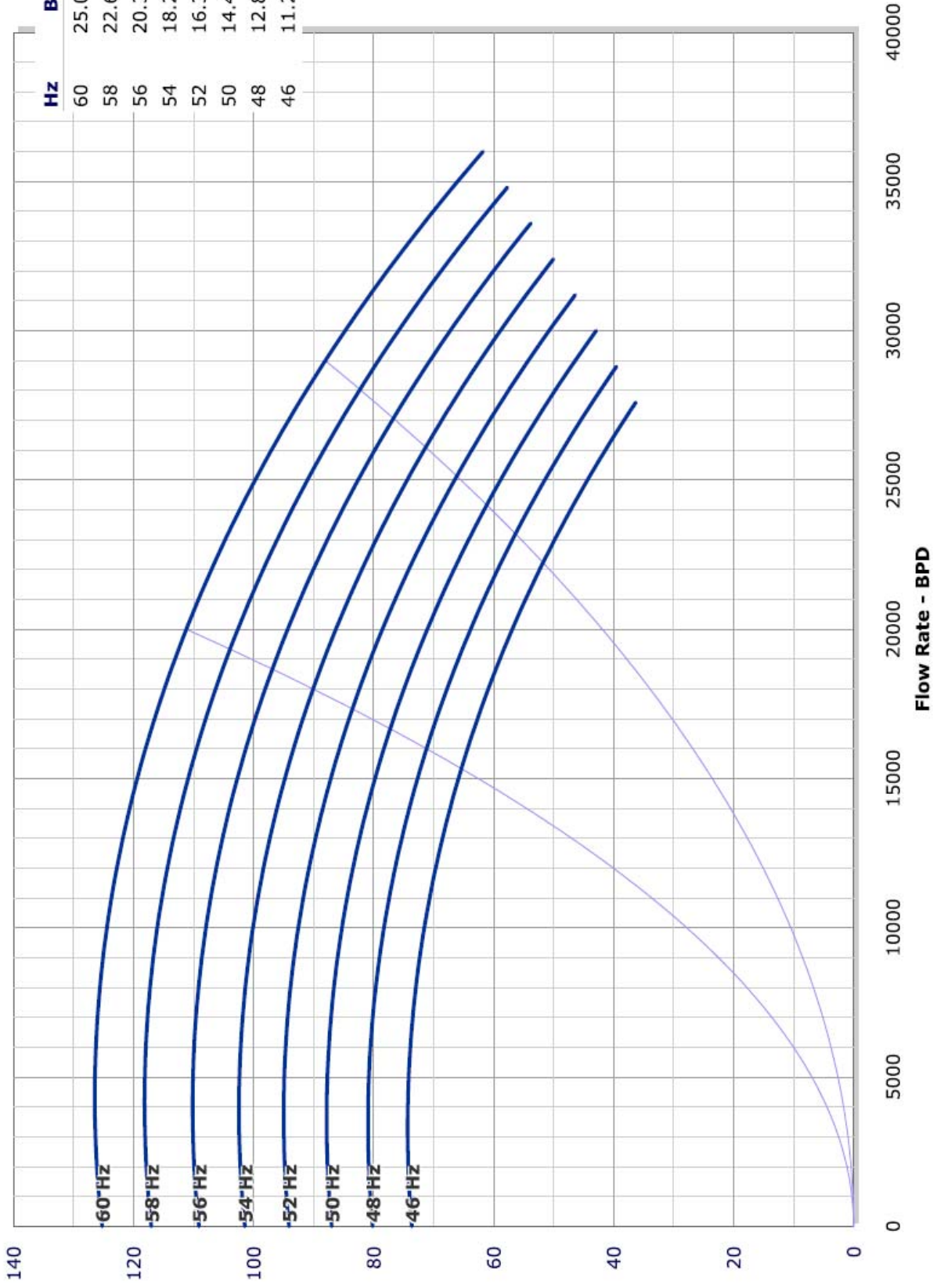
Pump Performance Curve

1 Stage TM-24000B

TP862 - Multi Hz

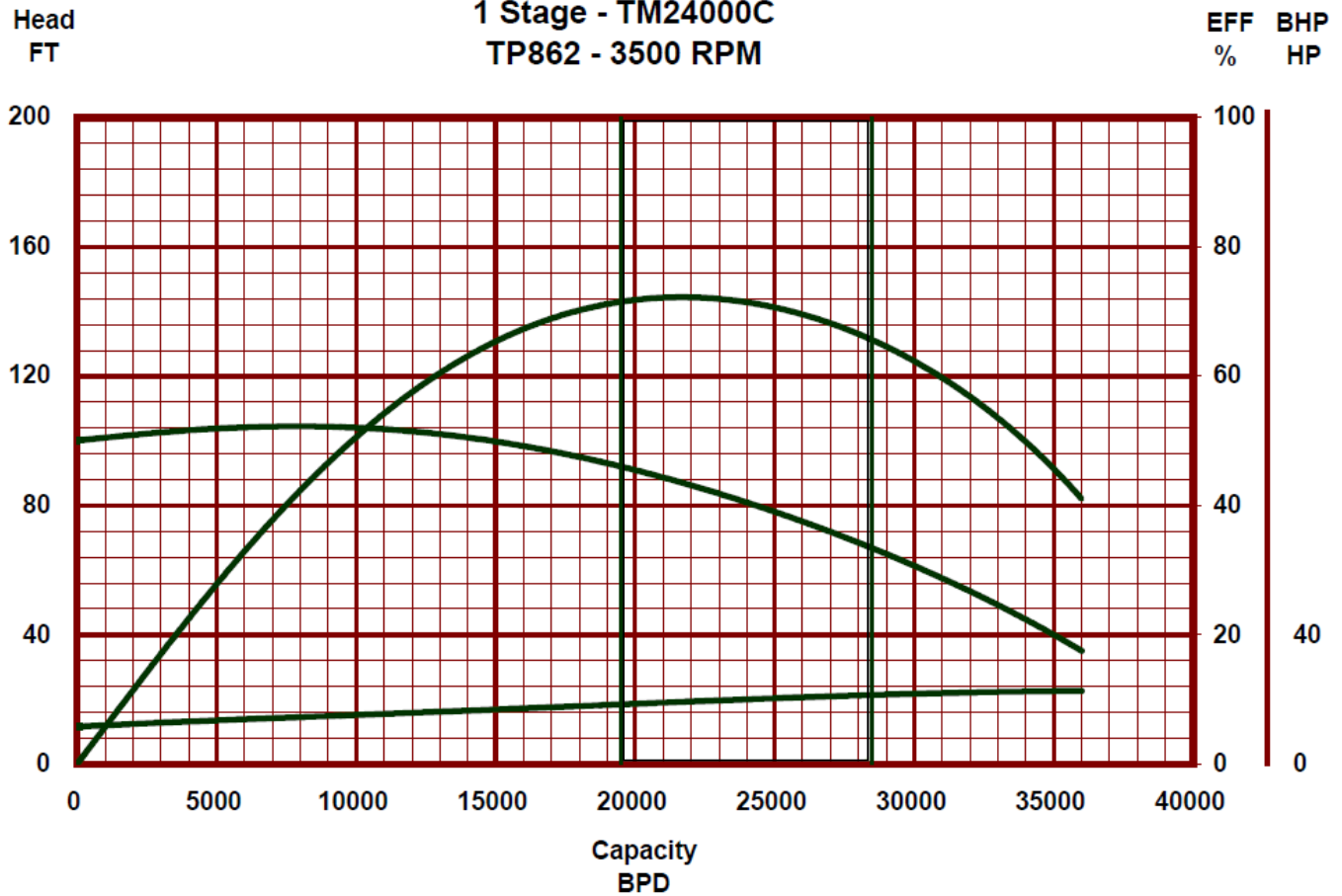
Specific Gravity = 1.0

Lift in FT



COSCO 862 Series Pumps

Pump Performance Curve
1 Stage - TM2400C
TP862 - 3500 RPM



This engineering performance curve represents nominal performance based on actual multi-stage testing and certification. All pumps supplied by COSCO will be tested and certified to perform within the acceptable limits for head, horsepower, and efficiency as defined in the "API RECOMMENDED PRACTICE(11S2) FOR ELECTRIC SUBMERSIBLE PUMP TESTING".

ENGINEERING DATA																		
Housing Diameter		8.62 inches			Maximum Staging: Shaft <table border="1"> <thead> <tr> <th rowspan="2">Shaft Type</th> <th colspan="2">No of Stages @</th> </tr> <tr> <th>50 Hz</th> <th>60 Hz</th> </tr> </thead> <tbody> <tr> <td>Standard Shaft</td> <td>40</td> <td>28</td> </tr> <tr> <td>HSS</td> <td>63</td> <td>44</td> </tr> </tbody> </table>			Shaft Type	No of Stages @		50 Hz	60 Hz	Standard Shaft	40	28	HSS	63	44
Shaft Type	No of Stages @																	
	50 Hz	60 Hz																
Standard Shaft	40	28																
HSS	63	44																
Minimum Casing Size		10 3/4 Inches																
Fluid Specific Gravity for Pump Curves		1.0																
Rotational Direction		CCW																
Shaft Details																		
Shaft Diameter	1 3/16	1.1875	Inches															
Shaft Area	1.107		Sq. Inches															
Shaft Limits																		
Shaft Limit in HP at:		50 Hz	60 Hz															
Standard Shaft Limit		531	637															
High Strength (HSS)		849	1019															
Housing Pressure Limit			2000 PSI		Maximum Staging: Thrust Bearings (250F BHT) <table border="1"> <thead> <tr> <th rowspan="2">Bearing Type</th> <th colspan="2">No of Stages @</th> </tr> <tr> <th>50 Hz</th> <th>60 Hz</th> </tr> </thead> <tbody> <tr> <td>Standard Bearing</td> <td></td> <td></td> </tr> <tr> <td>Hi Load Bearing</td> <td></td> <td></td> </tr> </tbody> </table>			Bearing Type	No of Stages @		50 Hz	60 Hz	Standard Bearing			Hi Load Bearing		
Bearing Type	No of Stages @																	
	50 Hz	60 Hz																
Standard Bearing																		
Hi Load Bearing																		
Maximum Staging: Thrust Bearings (250F BHT)																		
Bearing Type		No of Stages @																
		50 Hz	60 Hz															
Standard Bearing																		
Hi Load Bearing																		

COSCO 862 Series Pumps

TM24000C / 862 Series Pump

>>Minimum Casing Size 10 3/4 Inches

Maximum Bottom Hole Temperature: 250 F

STANDARD PUMP

COMPRESSION		COMPRESSION AR		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31860151	3	31880151	3	3	3.3	528
31860152	4	31880152	4	4	3.9	587
31860153	5	31880153	5	5	4.5	662
31860154	6	31880154	6	6	5.1	729
31860155	7	31880155	7	7	5.7	789
31860156	8	31880156	8	8	6.3	863
31860157	9	31880157	9	9	6.9	931
31860158	10	31880158	10	10	7.5	991
31860159	11	31880159	11	11	8.1	1058
31860160	12	31880160	12	12	8.7	1126
31860161	13	31880161	13	13	9.3	1193
31860162	14	31880162	14	14	9.9	1260
31860163	15	31880163	15	15	10.6	1327
31860164	16	31880164	16	16	11.2	1395
31860165	17	31880165	17	17	11.8	1466
31860166	18	31880166	18	18	12.4	1533
31860167	19	31880167	19	19	13	1596
31860168	20	31880168	20	20	13.6	1664
31860169	21	31880169	21	21	14.2	1734
31860170	22	31880170	22	22	14.8	1801
31860171	23	31880171	23	23	15.4	1866
31860172	24	31880172	24	24	16	1933
31860173	25	31880173	25	25	16.6	2003
31860174	26	31880174	26	26	17.2	2071
31860175	27	31880175	27	27	17.8	2138
31860176	28	31880176	28	28	18.4	2202
31860177	29	31880177	29	29	19	2272
31860178	30	31880178	30	30	19.6	2339
31860179	31	31880179	31	31	20.2	2407
31860180	32	31880180	32	32	20.8	2474

Pump Outside Diameter: 8.62 inches

Standard Features: Carbon Steel Head, Base and Housing. Monel K500 Shaft.

Housing also available in 13 Chrome.

Heads and Bases also available in SST410 or 316L Stainless Steel.

All pumps are in Center Tandem Configuration.

To calculate shipping length, add shipping caps (0.06 feet upper / 0.30 feet lower) to component length.

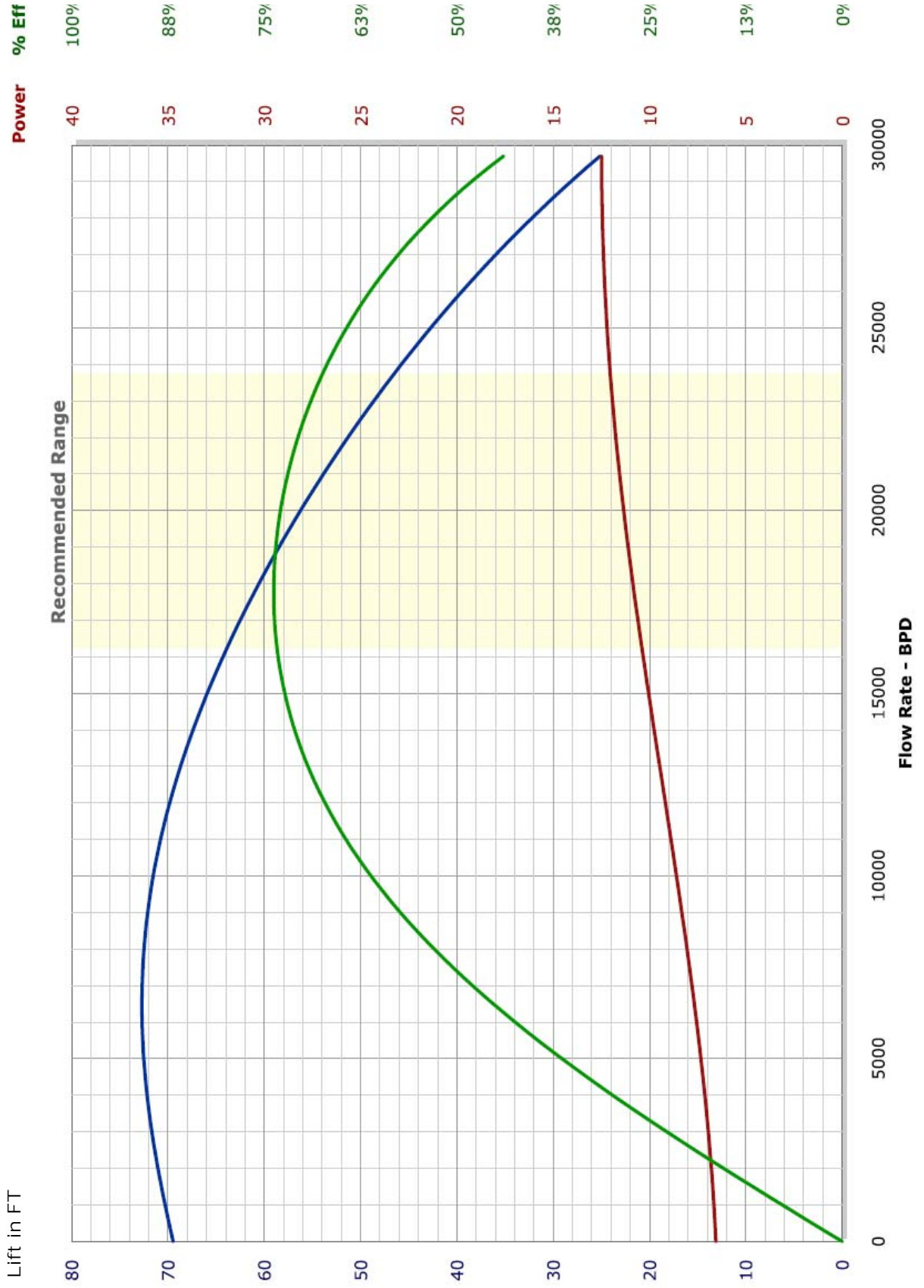


Pump Performance Curve

1 Stage TM-24000C

TP862 - 2917 RPM

Specific Gravity = 1.0



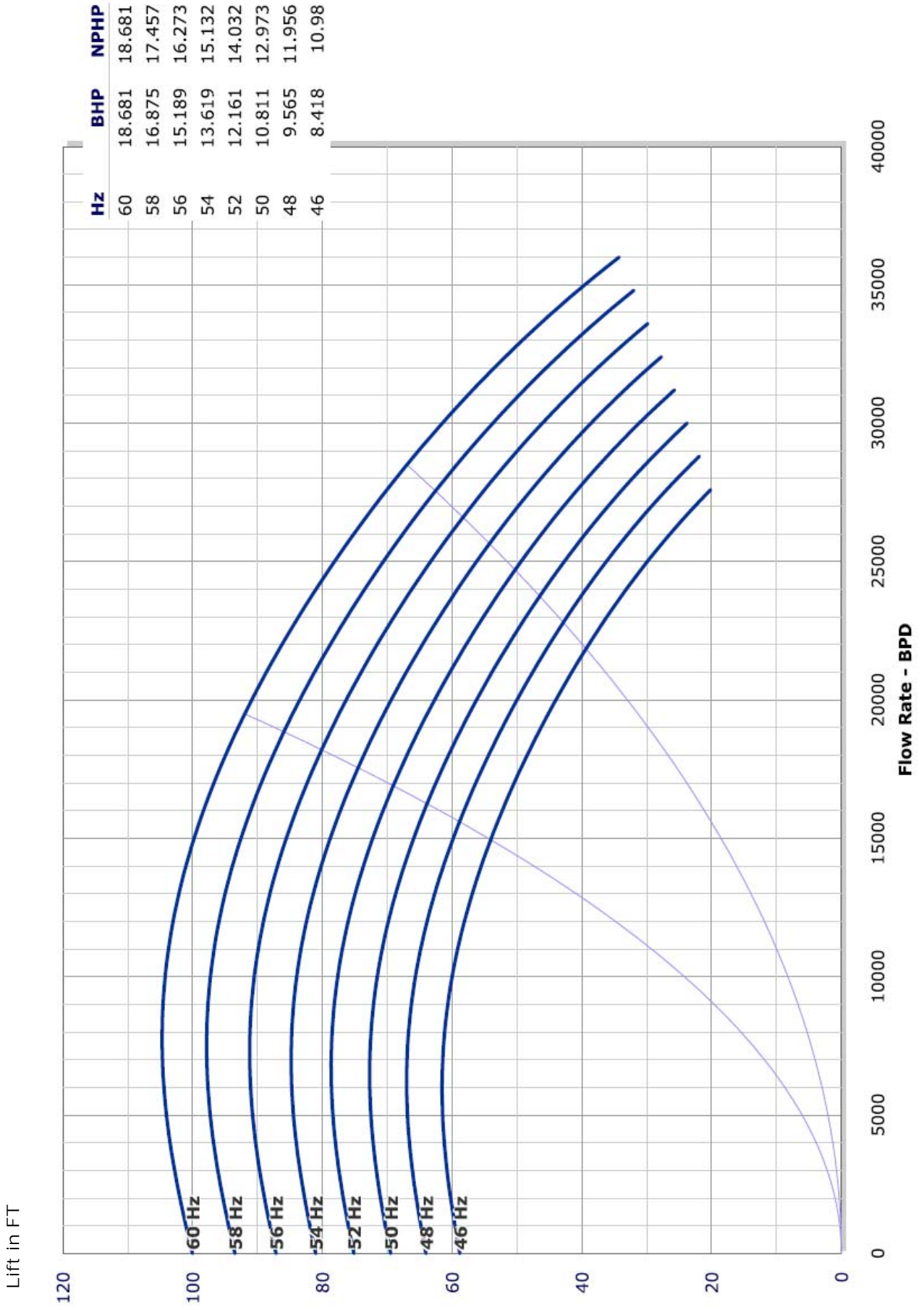


Pump Performance Curve

1 Stage TM-24000C

TP862 - Multi Hz

Specific Gravity = 1.0



COSCO 950 Series Pumps

950 Series Pumps Summary List

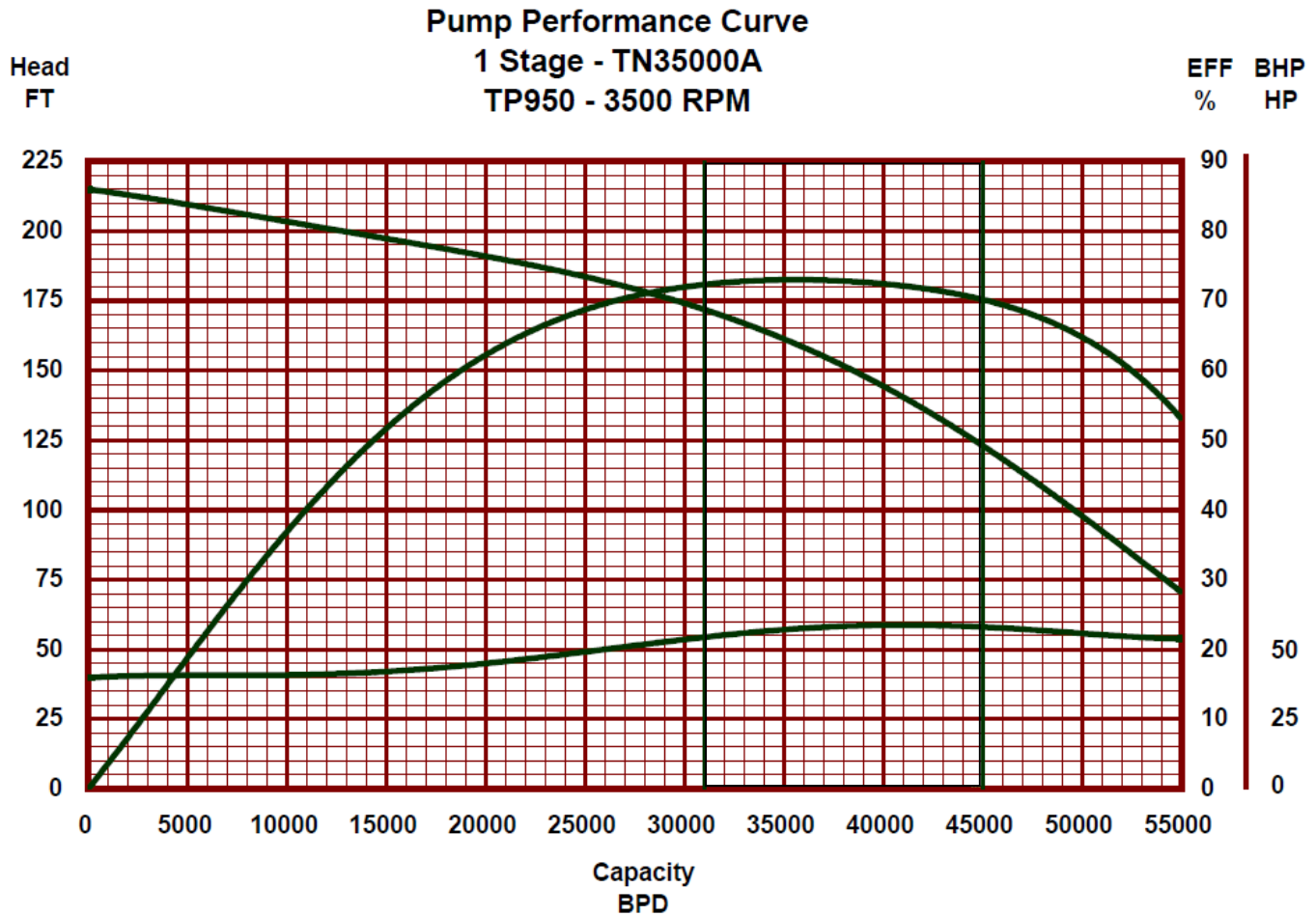
- Housing diameter - 9.50" (241 mm)
- Minimum casing size – 11 ¾" nominal OD

Pump Model	Shaft Diam. (in.)	Horsepower		Flow Capacity Recommended Range			
		Shaft Limit		50 Hz		60 Hz	
		STD	HSS	BPD	m ³ /PD	BPD	m ³ /PD
TN-35000A	1.500	1000	1600	25,833-37,502	4107-5962	31,000-45,000	4,928-7,154
TN-35000B	1.500	1000	1600	23,336-35,835	3710-5697	28,000-43,000	4,451-6,836
TN-35000C	1.500	1000	1600	21,248-32,501	3378-5167	25,500-39,000	4,054-6,200

Note: See the specific 50 Hz or 60 Hz performance curves for head capacity, pump efficiency any horsepower motor load.

Bolt on Discharge Head and Intake information are located at the back of the Pump Section.

COSCO 950 Series Pumps



This engineering performance curve represents nominal performance based on actual multi-stage testing and certification. All pumps supplied by COSCO will be tested and certified to perform within the acceptable limits for head, horsepower, and efficiency as defined in the "API RECOMMENDED PRACTICE(11S2) FOR ELECTRIC SUBMERSIBLE PUMP TESTING".

ENGINEERING DATA				
Housing Diameter		9.5 inches		
Minimum Casing Size		11 3/4 Inch		
Fluid Specific Gravity for Pump Curves		1.0		
Rotational Direction		CCW		
Shaft Details				
Shaft Diameter	1 1/2	1.500	Inches	
Shaft Area		1.767	Sq. Inches	
Shaft Limits				
Shaft Limit in HP at:		50 Hz	60 Hz	
Standard Shaft Limit		833	1000	
High Strength (HSS)		1333	1600	
Maximum Staging: Shaft				
Shaft Type	No of Stages @			
	50 Hz		60 Hz	
Standard Shaft	24		17	
HSS	39		27	
Housing Pressure Limit			2300 PSI	
Maximum Staging: Thrust Bearings (250F BHT)				
Bearing Type	No of Stages @			
	50 Hz		60 Hz	
Standard Bearing				
Hi Load Bearing				

COSCO 950 Series Pumps

TN35000A / 950 Series Pump

>>Minimum Casing Size 11 3/4 Inches

Maximum Bottom Hole Temperature: 250 F

STANDARD PUMP

COMPRESSION		COMPRESSION AR		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31960001	1	31980001	1	1	3.1	326
31960002	2	31980002	2	2	3.7	402
31960003	3	31980003	3	3	4.3	477
31960004	4	31980004	4	4	4.9	554
31960005	5	31980005	5	5	5.4	627
31960006	6	31980006	6	6	6	703
31960007	7	31980007	7	7	6.6	779
31960008	8	31980008	8	8	7.2	854
31960009	9	31980009	9	9	7.8	930
31960010	10	31980010	10	10	8.4	1003
31960011	11	31980011	11	11	8.9	1079
31960012	12	31980012	12	12	9.5	1155
31960013	13	31980013	13	13	10.1	1231
31960014	14	31980014	14	14	10.7	1307
31960015	15	31980015	15	15	11.3	1383
31960016	16	31980016	16	16	11.9	1459
31960017	17	31980017	17	17	12.4	1535
31960018	18	31980018	18	18	13	1611
31960019	19	31980019	19	19	13.6	1687
31960020	20	31980020	20	20	14.2	1763

Pump Outside Deameter: 9.50 inches.

Standard Features: Carbon Steel Head, Base and Housing. Monel K500 Shaft.

Housing also available in 13 Chrome.

Heads and Bases also available in SST410 or 316L Stainless Steel.

All pumps are in Single Tandem Configuration with Integral 7.00 8RD Casing Discharge Head and Intake.

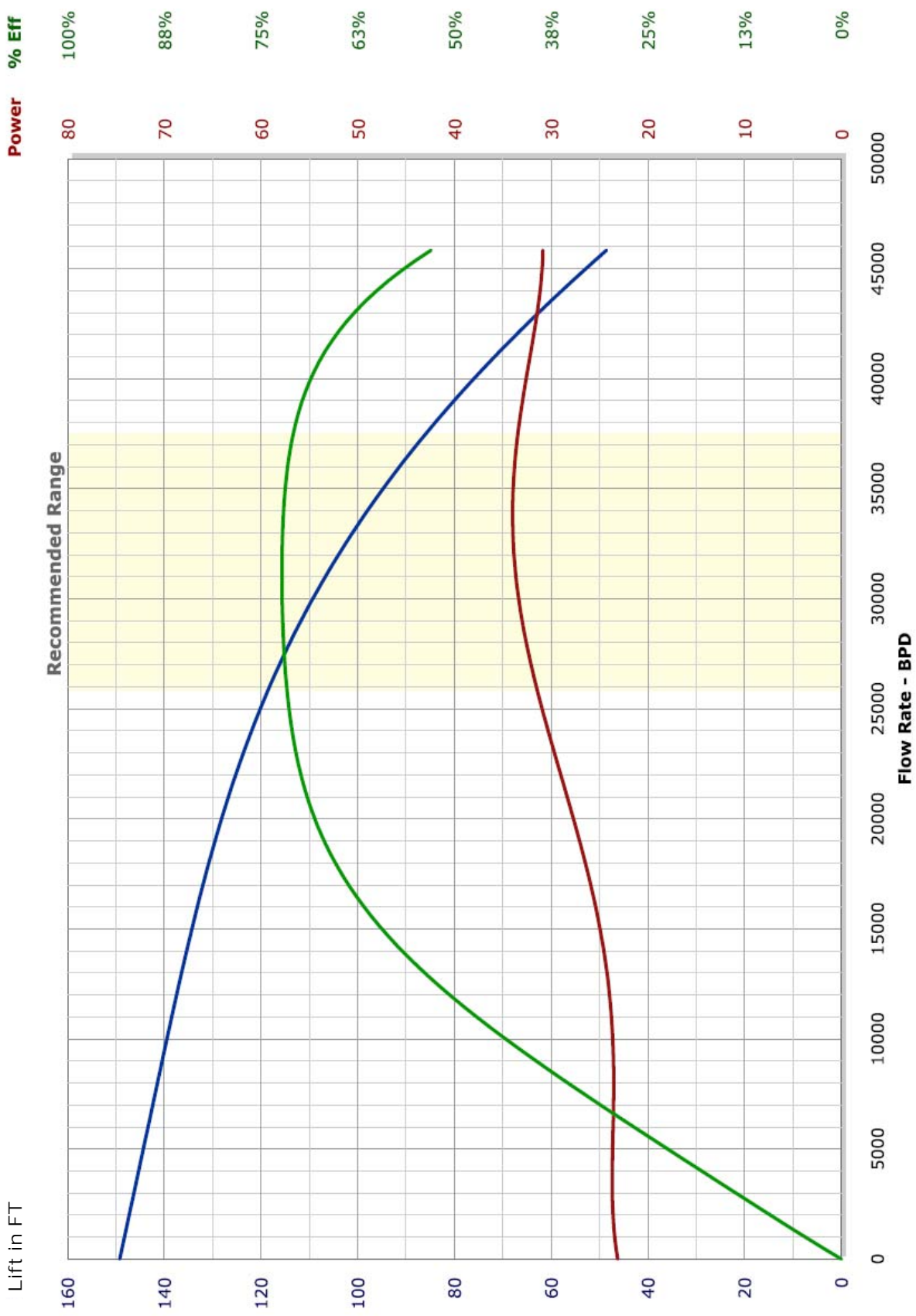
To calculate shipping length, add shipping caps (0.08 feet upper / 0.33 feet lower) to component length.



Pump Performance Curve

1 Stage TN-35000A
TP950 - 2917 RPM

Specific Gravity = 1.0



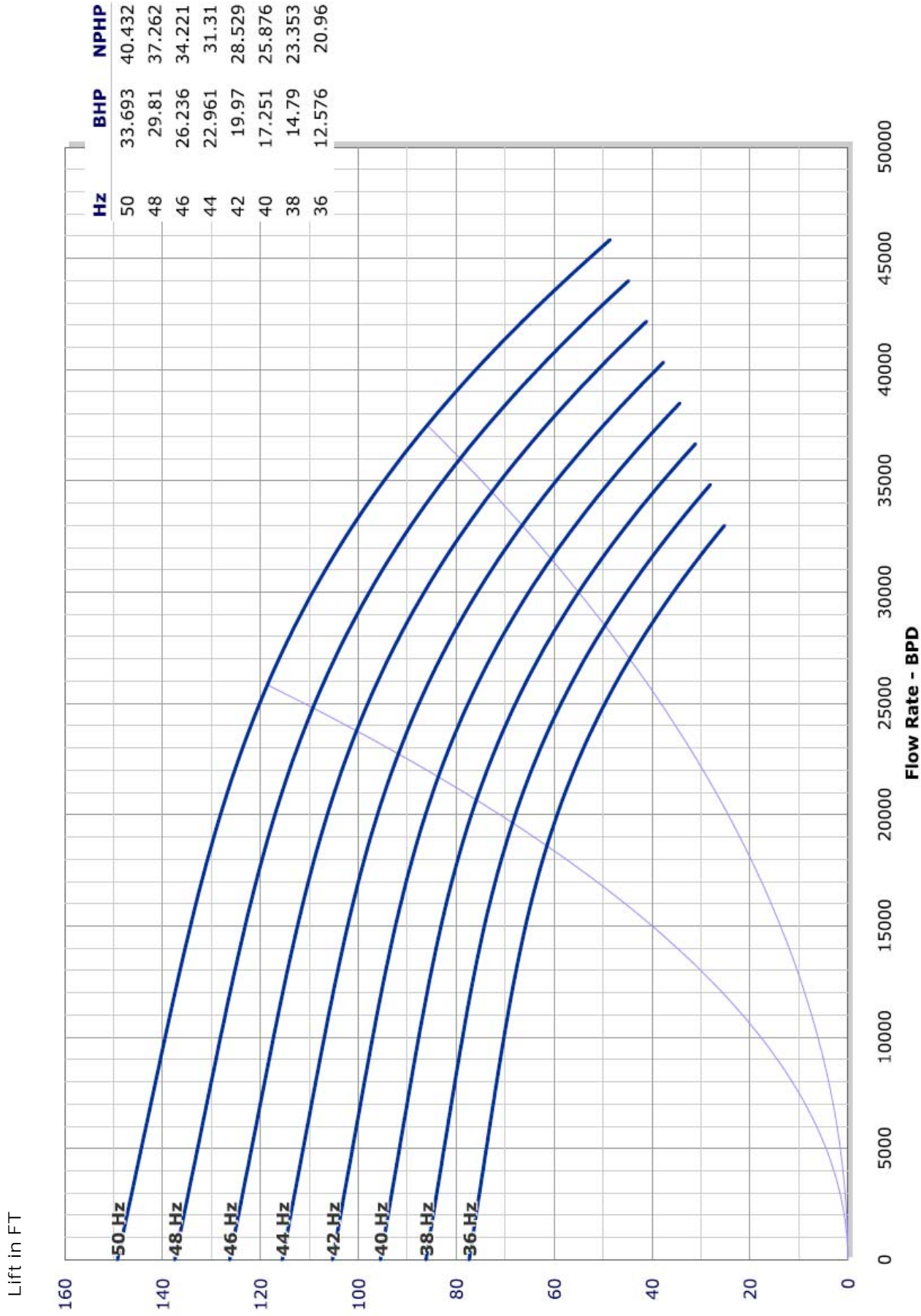


Pump Performance Curve

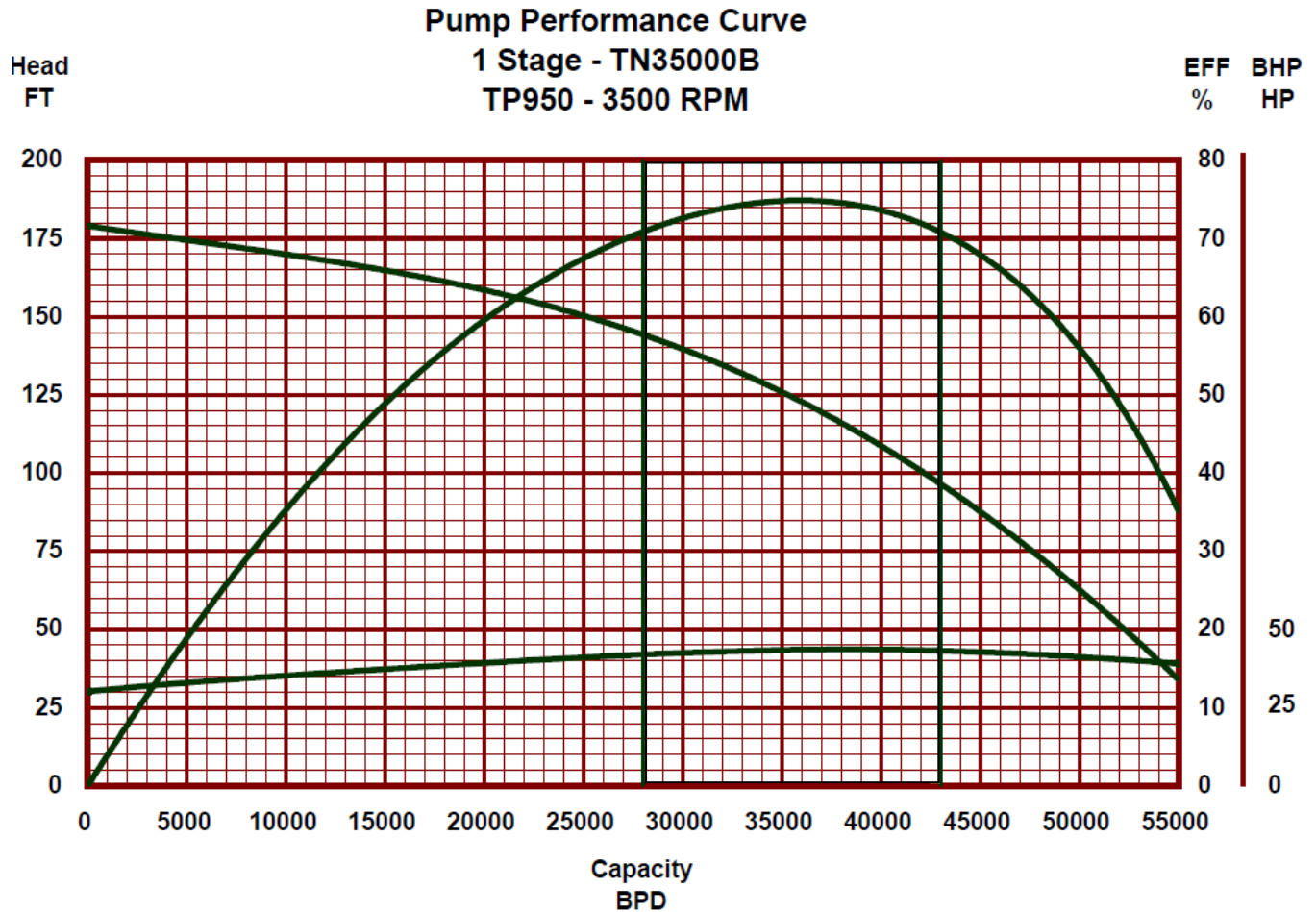
1 Stage TN-35000A

TP950 - Multi Hz

Specific Gravity = 1.0



COSCO 950 Series Pumps



This engineering performance curve represents nominal performance based on actual multi-stage testing and certification. All pumps supplied by COSCO will be tested and certified to perform within the acceptable limits for head, horsepower, and efficiency as defined in the "API RECOMMENDED PRACTICE(11S2) FOR ELECTRIC SUBMERSIBLE PUMP TESTING".

ENGINEERING DATA				
Housing Diameter		9.5 inches		
Minimum Casing Size		11 3/4 Inch		
Fluid Specific Gravity for Pump Curves		1.0		
Rotational Direction		CCW		
Shaft Details				
Shaft Diameter	1 1/2	1.500	Inches	
Shaft Area		1.767	Sq. Inches	
Shaft Limits				
Shaft Limit in HP at:		50 Hz	60 Hz	
Standard Shaft Limit		833	1000	
High Strength (HSS)		1333	1600	
Maximum Staging: Shaft				
Shaft Type	No of Stages @			
	50 Hz		60 Hz	
Standard Shaft	33		23	
HSS	52		36	
Housing Pressure Limit			2300 PSI	
Maximum Staging: Thrust Bearings (250F BHT)				
Bearing Type	No of Stages @			
	50 Hz		60 Hz	
Standard Bearing				
Hi Load Bearing				

COSCO 950 Series Pumps

TN35000B / 950 Series Pump

>>Minimum Casing Size 11 3/4 Inches

Maximum Bottom Hole Temperature: 250 F

STANDARD PUMP

COMPRESSION		COMPRESSION AR		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31960021	1	31980021	1	1	3.1	326
31960022	2	31980022	2	2	3.7	402
31960023	3	31980023	3	3	4.3	477
31960024	4	31980024	4	4	4.9	554
31960025	5	31980025	5	5	5.4	627
31960026	6	31980026	6	6	6	703
31960027	7	31980027	7	7	6.6	779
31960028	8	31980028	8	8	7.2	854
31960029	9	31980029	9	9	7.8	930
31960030	10	31980030	10	10	8.4	1003
31960031	11	31980031	11	11	8.9	1079
31960032	12	31980032	12	12	9.5	1155
31960033	13	31980033	13	13	10.1	1231
31960034	14	31980034	14	14	10.7	1307
31960035	15	31980035	15	15	11.3	1383
31960036	16	31980036	16	16	11.9	1459
31960037	17	31980037	17	17	12.4	1535
31960038	18	31980038	18	18	13	1611
31960039	19	31980039	19	19	13.6	1687
31960040	20	31980040	20	20	14.2	1763

Pump Outside Deameter: 9.50 inches.

Standard Features: Carbon Steel Head, Base and Housing. Monel K500 Shaft.

Housing also available in 13 Chrome.

Heads and Bases also available in SST410 or 316L Stainless Steel.

All pumps are in Single Tandem Configuration with Integral 7.00 8RD Casing Discharge Head and Intake.

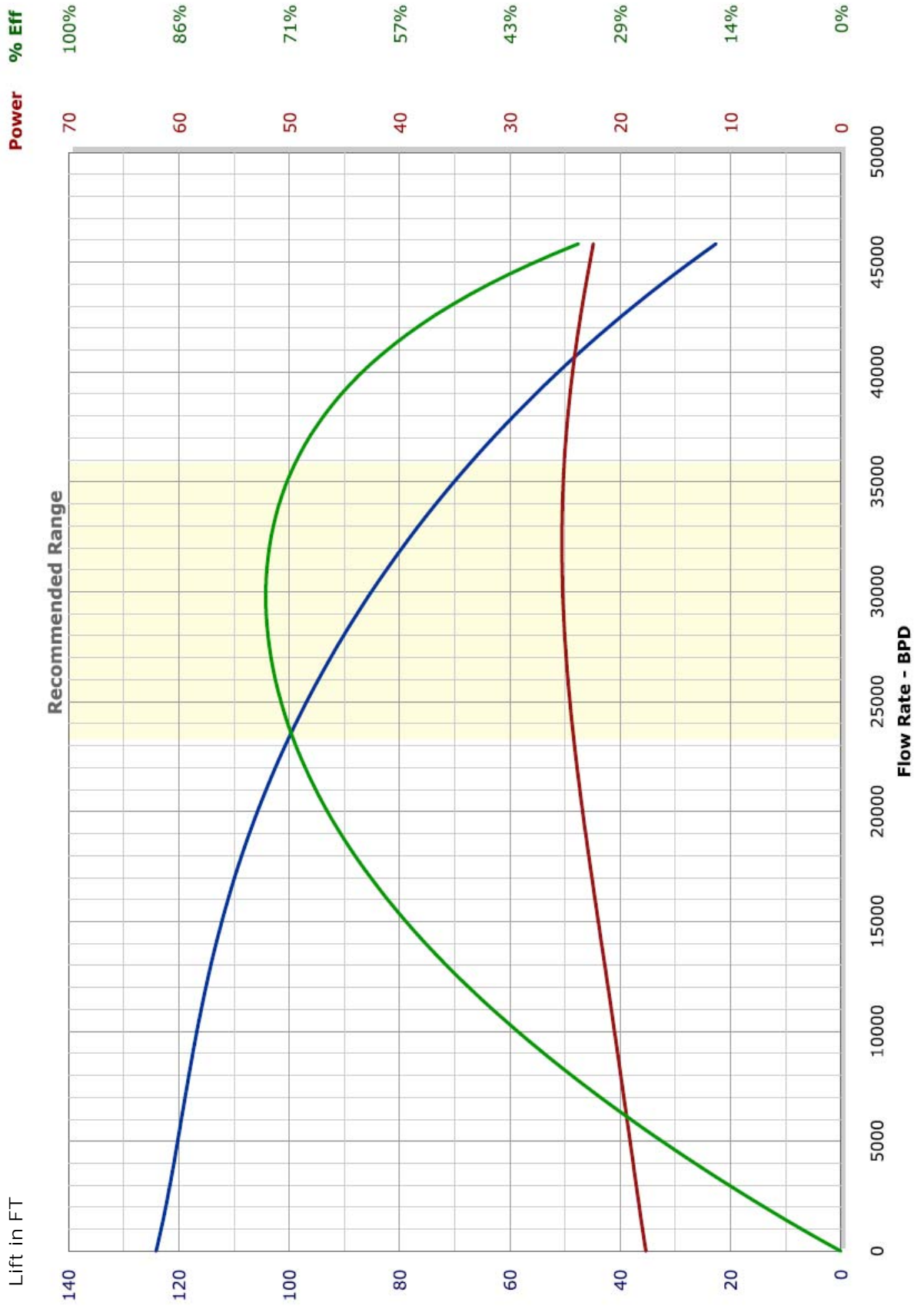
To calculate shipping length, add shipping caps (0.08 feet upper / 0.33 feet lower) to component length.



Pump Performance Curve

1 Stage TN-35000B
TP950 - 2917 RPM

Specific Gravity = 1.0



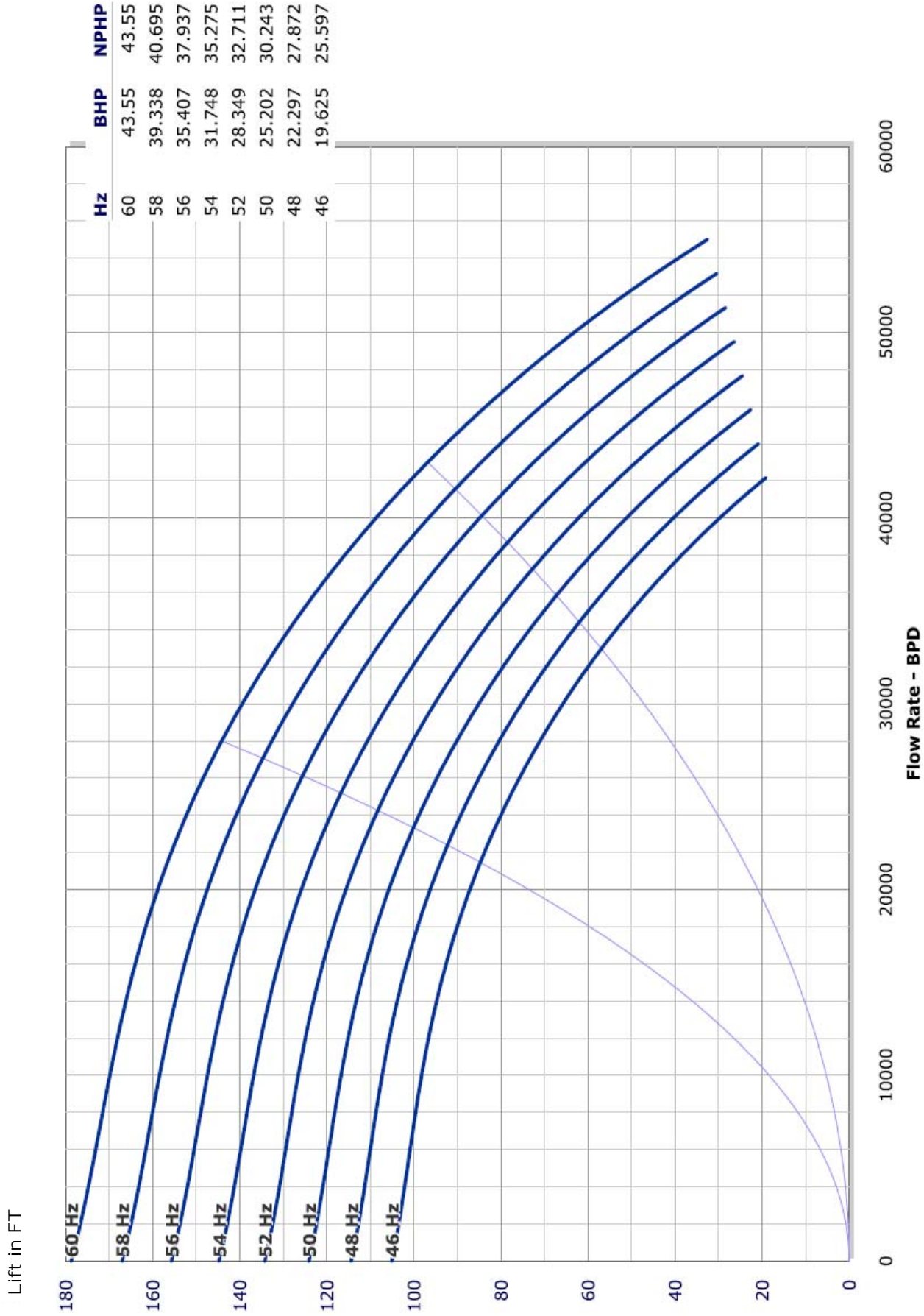


Pump Performance Curve

1 Stage TN-35000B

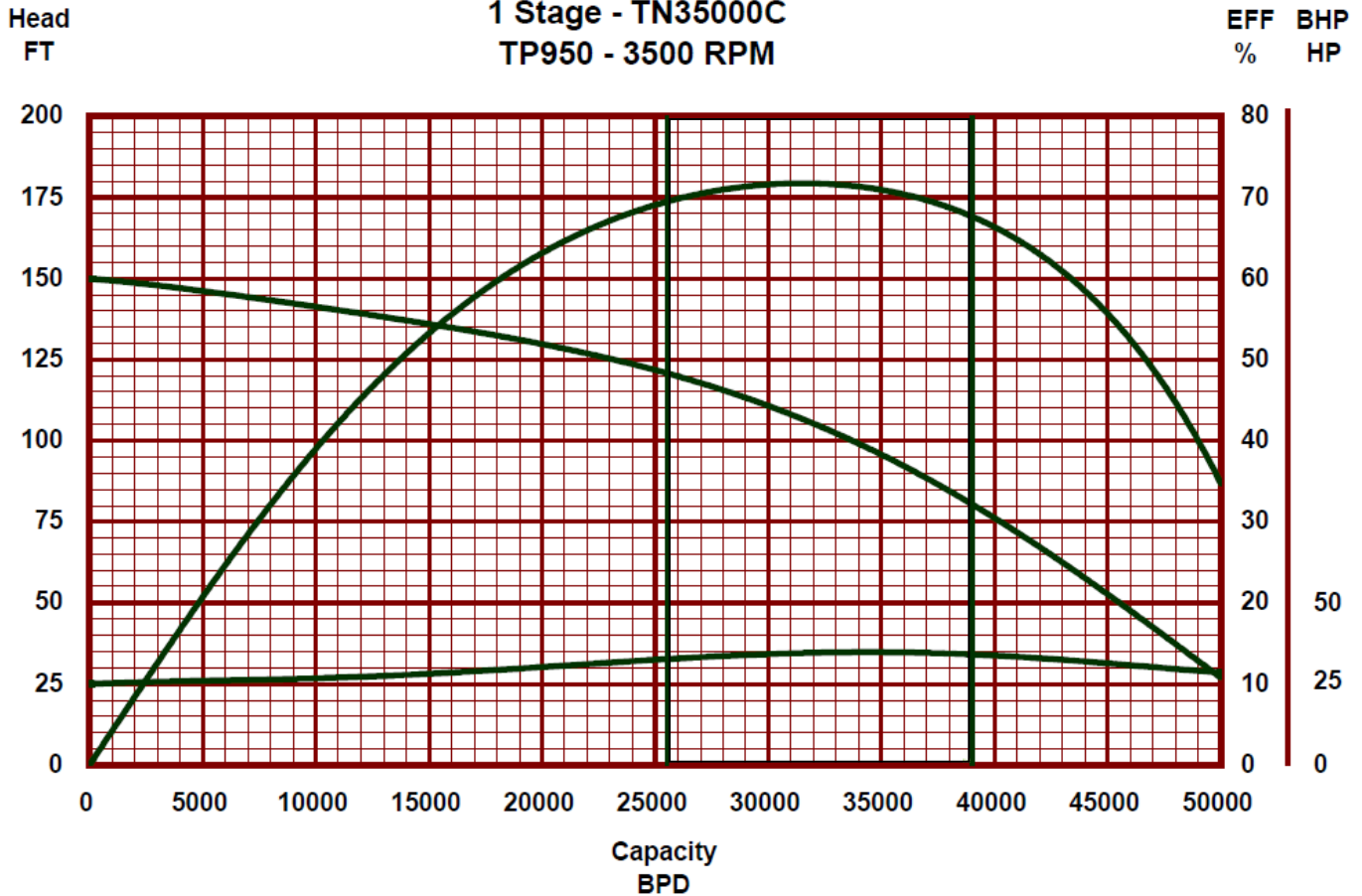
TP950 - Multi Hz

Specific Gravity = 1.0



COSCO 950 Series Pumps

Pump Performance Curve
1 Stage - TN3500C
TP950 - 3500 RPM



This engineering performance curve represents nominal performance based on actual multi-stage testing and certification. All pumps supplied by COSCO will be tested and certified to perform within the acceptable limits for head, horsepower, and efficiency as defined in the "API RECOMMENDED PRACTICE(11S2) FOR ELECTRIC SUBMERSIBLE PUMP TESTING".

ENGINEERING DATA				
Housing Diameter		9.5 inches		
Minimum Casing Size		11 3/4 Inch		
Fluid Specific Gravity for Pump Curves		1.0		
Rotational Direction		CCW		
Shaft Details				
Shaft Diameter	1 1/2	1.500	Inches	
Shaft Area	1.767		Sq. Inches	
Shaft Limits				
Shaft Limit in HP at:		50 Hz	60 Hz	
Standard Shaft Limit		833	1000	
High Strength (HSS)		1333	1600	
Maximum Staging: Shaft				
Shaft Type	No of Stages @			
	50 Hz	60 Hz		
Standard Shaft	42	29		
HSS	67	47		
Housing Pressure Limit			2300 PSI	
Maximum Staging: Thrust Bearings (250F BHT)				
Bearing Type	No of Stages @			
	50 Hz	60 Hz		
Standard Bearing				
Hi Load Bearing				

COSCO 950 Series Pumps

TN35000C / 950 Series Pump

>>Minimum Casing Size 11 3/4 Inches

Maximum Bottom Hole Temperature: 250 F

STANDARD PUMP

COMPRESSION		COMPRESSION AR		Housings	Length (ft.)	Weight (lb.)
Part Number	Stages	Part Number	Stages			
31960041	1	31980041	1	1	3.1	326
31960042	2	31980042	2	2	3.7	402
31960043	3	31980043	3	3	4.3	477
31960044	4	31980044	4	4	4.9	554
31960045	5	31980045	5	5	5.4	627
31960046	6	31980046	6	6	6	703
31960047	7	31980047	7	7	6.6	779
31960048	8	31980048	8	8	7.2	854
31960049	9	31980049	9	9	7.8	930
31960050	10	31980050	10	10	8.4	1003
31960051	11	31980051	11	11	8.9	1079
31960052	12	31980052	12	12	9.5	1155
31960053	13	31980053	13	13	10.1	1231
31960054	14	31980054	14	14	10.7	1307
31960055	15	31980055	15	15	11.3	1383
31960056	16	31980056	16	16	11.9	1459
31960057	17	31980057	17	17	12.4	1535
31960058	18	31980058	18	18	13	1611
31960059	19	31980059	19	19	13.6	1687
31960060	20	31980060	20	20	14.2	1763

Pump Outside Deameter: 9.50 inches.

Standard Features: Carbon Steel Head, Base and Housing. Monel K500 Shaft.

Housing also available in 13 Chrome.

Heads and Bases also available in SST410 or 316L Stainless Steel.

All pumps are in Single Tandem Configuration with Integral 7.00 8RD Casing Discharge Head and Intake.

To calculate shipping length, add shipping caps (0.08 feet upper / 0.33 feet lower) to component length.

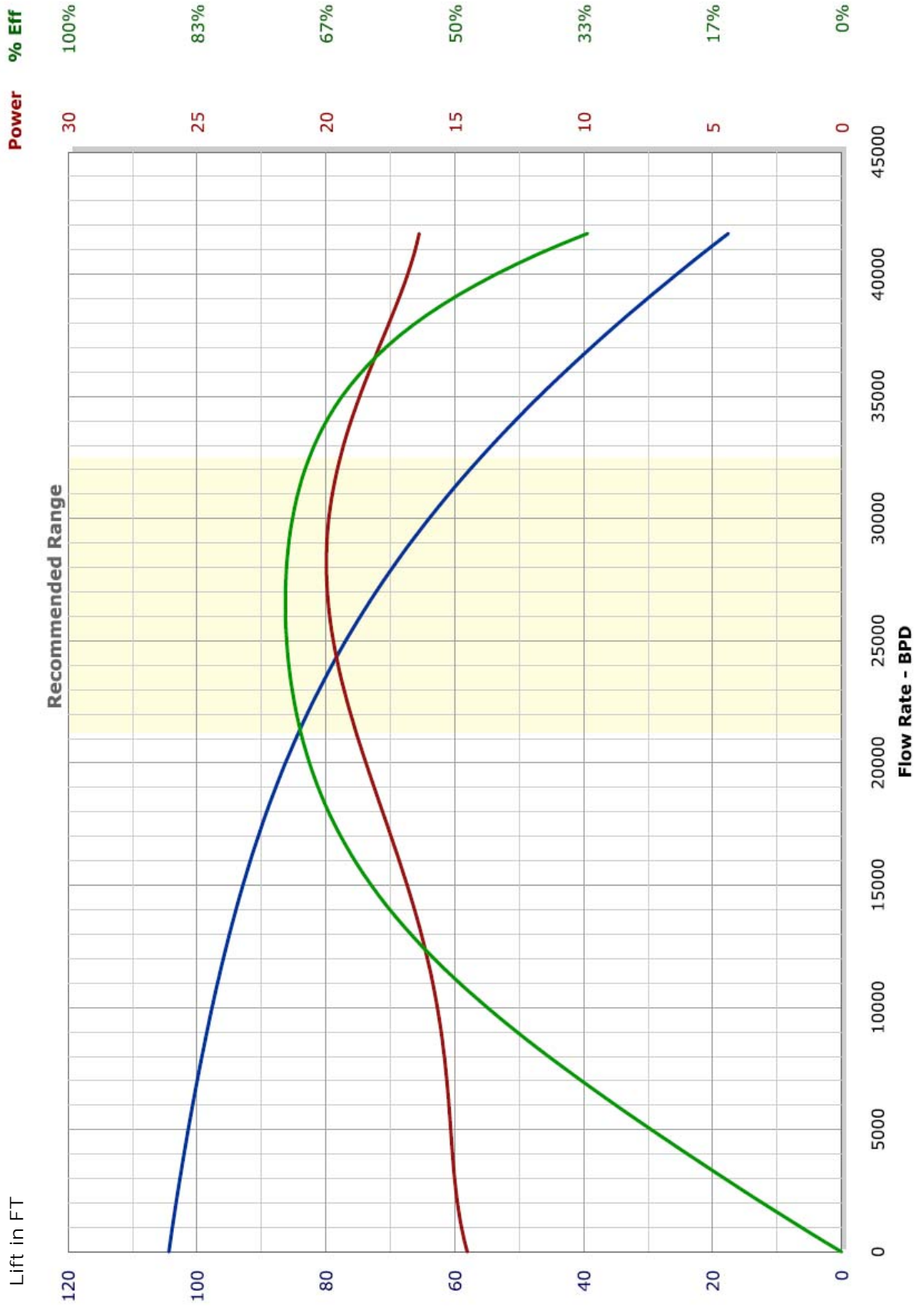


Pump Performance Curve

1 Stage TN-35000C

TP950 - 2917 RPM

Specific Gravity = 1.0



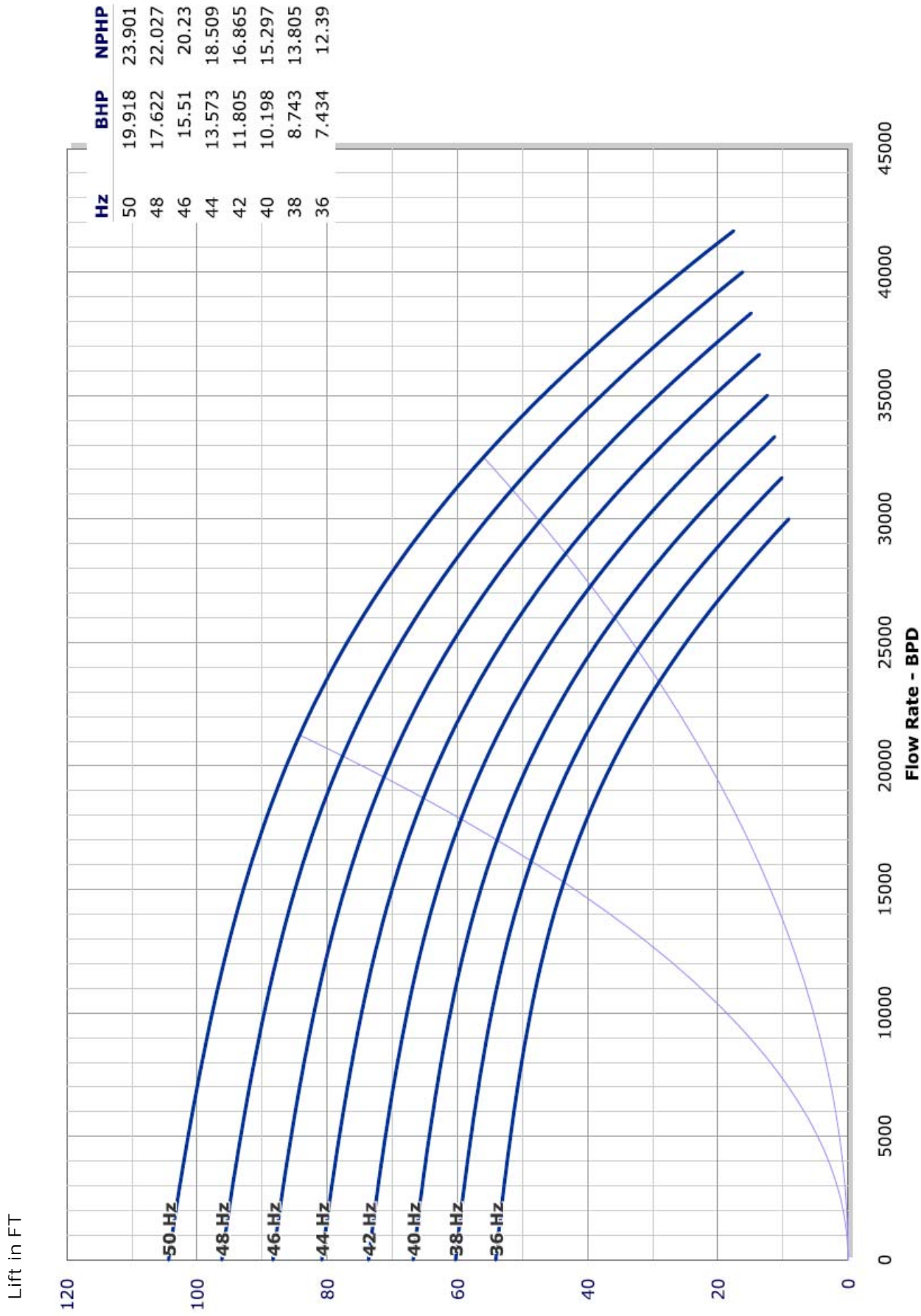


Pump Performance Curve

1 Stage TN-35000C

TP950 - Multi Hz

Specific Gravity = 1.0



COSCO Bolt-On Discharge Heads and Intakes

Bolt-On Discharge Head

Part Number	Description	Length (Feet)	Weight (Lbs.)
00940050	2 3/8" 8rd EUE 338 series.	0.6	8
00940023	2 3/8" 8rd EUE 400 series.	0.5	8
00940051	2 7/8" 8rd EUE 400 series.	0.5	8
00940021	2 7/8" 10rd NU 400 series.	0.5	8
00940120	2 7/8" 8rd EUE 540/538 series.	0.5	22
19668599	3 1/2" 10rd NU 540/538 series.	0.5	22
19668626	3 1/2" 8rd EUE 540/538 series.	0.5	22
00940203	5 1/2" 8rd EUE 675 series.	0.7	35
00940191	7" 8rd EUE 862 series.	1	50

Standard features: Carbon steel

Bolt-On Intake

Part Number	Description	Length (Feet)	Weight (Lbs.)	O.D. (Inch)	Shaft O.D (Inch)	Shaft (BHP) Max	
						50Hz	60Hz
34340002	TIN338/325 STD	0.8	25	3.38	0.875	213	256
34345002	TIN338/325 STD HSS	0.8	25	3.38	0.875	342	410
34440001	TIN400 STD	1	30	4	0.875	213	256
34445001	TIN400 STD HSS	1	30	4	0.875	342	410
34540001	TIN540 STD	1.2	51	5.13	1.187	531	637
34545001	TIN540 STD HSS	1.2	51	5.13	1.187	849	1019
34640001	TIN675/540 STD	1.2	63	6.75	1.187	531	637
34645001	TIN675/540 STD HSS	1.2	63	6.75	1.187	849	1019
34640002	TIN675/738 STD	1.2	65	7.38	1.187	531	637
34645002	TIN675/738 STD HSS	1.2	65	7.38	1.187	849	1019
34840001	TIN862 STD	1.2	75	8.62	1.187	531	637
34845001	TIN862 STD HSS	1.2	75	8.62	1.187	849	1019

Standard features: Carbon steel intake body. Monel K500 Shaft.

COSCO Rotary and Vortex Gas Separators

Rotary Gas Separator

Part Number	Description	Length (Feet)	Weight (Lbs.)	O.D. (Inch)	Shaft O.D (Inch)	Shaft (BHP) Max	
						50Hz	60Hz
34330003	RGS TS338/325 2B STD	2.5	40	3.38	0.875	213	256
34335003	RGS TS338/325 2B STD HSS	2.5	40	3.38	0.875	342	410
34330004	RGS TS338/325 3B STD	2.8	45	3.38	0.875	213	256
34335004	RGS TS338/325 3B STD HSS	2.8	45	3.38	0.875	342	410
34430001	RGS TS400 2B STD	2.6	55	4.00	0.875	213	256
34435001	RGS TS400 2B STD HSS	2.6	55	4.00	0.875	342	410
34430002	RGS TS400 3B STD	3	65	4.00	0.875	213	256
34435002	RGS TS400 3B STD HSS	3	65	4.00	0.875	342	410
34430003	RGS TS400 UT STD	2.3	50	4.00	0.875	213	256
34435003	RGS TS400 UT STD HSS	2.3	50	4.00	0.875	342	410
34530002	RGS TS540 3B STD	3.2	150	5.13	1.187	531	637
34535002	RGS TS540 3B STD HSS	3.2	150	5.13	1.187	849	1019
34530003	RGS TS540 UT STD	2.6	120	5.13	1.187	531	637
34535003	RGS TS540 UT STD HSS	2.6	120	5.13	1.187	849	1019

Standard features: Carbon steel Head, Base and Housing. Monel K500 Shaft.

Corrosion Resistant features (CR): Stainless steel Head, Base and Housing. Monel K500 Shaft.

High Strength Shaft (HSS): Inconel 718 available upon request.

Vortex Gas Separator

Part Number	Description	Length (Feet)	Weight (Lbs.)	O.D. (Inch)	Shaft O.D (Inch)	Shaft (BHP) Max	
						50Hz	60Hz
04450001	VGS TS400 STD	2.6	55	4	0.875	213	256
04455001	VGS TS400 STD HSS	2.6	55	4	0.875	342	410
04450002	VGS TS400 UT STD	2.3	50	4	0.875	213	256
04455002	VGS TS400 UT STD HSS	2.3	50	4	0.875	342	410
04550001	VGS TS538 STD	3.6	140	5.38	1.187	531	637
04555001	VGS TS538 STD HSS	3.6	140	5.38	1.187	849	1019
04550002	VGS TS538 UT STD	3.3	135	5.38	1.187	531	637
04555002	VGS TS538 UT STD HSS	3.3	135	5.38	1.187	849	1019

Standard features: Carbon steel Head, Base and Housing. Monel K500 Shaft.

Corrosion Resistant features (CR): Stainless steel Head, Base and Housing. Monel K500 Shaft.

High Strength Shaft (HSS): Inconel 718 available upon request.

COSCO Gas Pro Intake Pump

GasPro Intake Pump

Part Number	Description	Flow Rate (BPD)	Length (Feet)	Weight (Lbs.)	O.D. (Inch)	Shaft O.D (Inch)	Shaft (BHP) Max		Config.
							50Hz	60Hz	
04460001	GasPro D50	500 - 2000	6.3	134	4	0.688	125	200	FL
04460002	GasPro D175	2000 - 6000	6.3	134	4	0.875	213	256	COMP
04460003	GasPro D175	2000 - 6000	6.3	134	4	0.875	213	256	COMP AR
04560001	GasPro G125	2000 - 4000	6.3	271	5.13	1	375	600	FL
04560002	GasPro E200	4000 - 10000	7	284	5.38	1	375	600	COMP
04560003	GasPro E200	4000 - 10000	7	284	5.38	1	375	600	COMP AR

The GasPro Intake Pumps are designed for gassy wells with high gas oil ratio (GOR) and low intake pressure. They are typically installed below production pumps and/or above rotary or vortex gas separators. By reconditioning the liquid gas mixture into a single phase fluid before entering the production pump, production is significantly improved by preventing degradation of pump performance and gas locking. Compression and abrasive resistant construction improve reliability in wells containing abrasives.

COSCO 375 Series Motors

TM375 Series Motors

>> Minimum casing size 4 1/2 inches

Maximum operating temperature = 300F

50 Hz			60 Hz			Length (ft.)	Weight (lbs.)	Type	Part Number
HP	Volt	Amp	HP	Volt	Amp				
6.25	342	14	7.5	410	14	6.4	208	UT	32333001
8.75	325	20.5	10.5	390	20.5	8.3	270	UT	32333002
12.5	262	35.5	15	315	35.5	11.0	361	UT	32333003
						11.1	361	CT	32333004
12.5	333	28	15	400	28	11.0	361	UT	32333005
						11.1	361	CT	32333006
16.25	323	38	19.5	387	38	13.8	456	UT	32333007
						13.9	456	CT	32333008
16.25	525	23	19.5	630	23	13.8	456	UT	32333009
						13.9	456	CT	32333010
18.75	275	51.5	22.5	330	51.5	15.7	514	UT	32333011
						15.8	514	CT	32333012
18.75	367	38.5	22.5	440	38.5	15.7	514	UT	32333013
						15.8	514	CT	32333014
18.75	608	23	22.5	730	23	15.7	514	UT	32333015
						15.8	514	CT	32333016
21.25	308	51	25.5	370	51	17.6	660	UT	32333017
						17.7	660	CT	32333018
21.25	417	37	25.5	500	37	17.6	660	UT	32333019
						17.7	660	CT	32333020
21.25	525	30	25.5	630	30	17.6	660	UT	32333021
						17.7	660	CT	32333022

UT - Upper Tandem

CT - Center Tandem

Universal Motor Base

Description	Length (ft.)	Weight (lb.)	Part Number
Universal Motor Base, 375 Series	0.5	15.0	00910312

Bolt-on Motor Head

Description	Length (ft.)	Weight (lb.)	Part Number
Bolt-on Motor Head, 375 Series	1.5	35.2	00902460

COSCO 375 Series Motors

TM375 Titan Series Motors

>> Minimum casing size 4 1/2 inches

Maximum operating temperature = 300F

50 Hz			60 Hz			Length (ft.)	Weight (lbs.)	Type	Part Number
HP	Volt	Amp	HP	Volt	Amp				
33.5	433	57	40	520	58.5	14.2	466	UT	32334005
						14.3	466	CT	32334006
33.5	654	37.5	40	785	37.5	14.2	466	UT	32334007
						14.3	466	CT	32334008
37.5	367	76	45	440	76.5	16.1	524	UT	32334009
						16.2	524	CT	32334010
37.5	488	57	45	585	57.5	16.1	524	UT	32334011
						16.2	524	CT	32334012
37.5	813	34.5	45	975	34.5	16.1	524	UT	32334013
						16.2	524	CT	32334014
41.5	408	77	50	490	76.5	17.9	670	UT	32334015
						18.0	670	CT	32334016
41.5	542	57	50	650	57.5	17.9	670	UT	32334017
						18.0	670	CT	32334018
41.5	696	45	50	835	45	17.9	670	UT	32334019
						18.0	670	CT	32334020
50	488	77	60	585	76.5	20.8	770	UT	32334021
						20.9	770	CT	32334022
50	650	57.5	60	780	57.5	20.8	770	UT	32334023
						20.9	770	CT	32334024
50	825	45	60	990	45	20.8	770	UT	32334025
						20.9	770	CT	32334026

UT - Upper Tandem

CT - Center Tandem

Universal Motor Base

Description	Length (ft.)	Weight (lb.)	Part Number
Universal Motor Base, 375 Series Titan	0.5	15.0	00910635

Bolt-on Motor Head

Description	Length (ft.)	Weight (lb.)	Part Number
Bolt-on Motor Head, 375 Series Titan	1.5	35.2	00901542

COSCO 456 Series Motors

TM456 Series Motors

>> Minimum casing size 5 1/2 inches

Maximum operating temperature = 300F

50 Hz			60 Hz			Length (ft.)	Weight (lbs.)	Type	Part Number
HP	Volt	Amp	HP	Volt	Amp				
8.5	363	16	10	435	16	5.1	240	ST	32434001
						4.1	200	UT	32434002
12.5	363	23	15	435	23	6.3	288	ST	32434003
						5.3	248	UT	32434004
12.5	509	16	15	610	16	6.3	288	ST	32434005
						5.3	248	UT	32434006
16.5	375	28.5	20	450	28.5	7.5	345	ST	32434007
						6.5	305	UT	32434008
16.5	625	17	20	750	17	7.5	345	ST	32434009
						6.5	305	UT	32434010
21	340	39	25	410	39	8.7	402	ST	32434011
						7.7	362	UT	32434012
21	575	22	25	690	22	8.7	402	ST	32434013
						7.7	362	UT	32434014
21	675	20	25	810	20	8.7	402	ST	32434015
						7.7	362	UT	32434016
25	355	44.5	30	425	44.5	9.9	482	ST	32434017
						8.9	422	UT	32434018
25	625	25.5	30	750	25.5	9.9	482	ST	32434019
						8.9	422	UT	32434020
29.5	333	55	35	400	55	11.1	520	ST	32434021
						10.1	480	UT	32434022
29.5	563	33	35	675	33	11.1	520	ST	32434023
						10.1	480	UT	32434024
29.5	654	28	35	750	28	11.1	520	ST	32434025
						10.1	480	UT	32434026
33.5	358	59	40	430	59	12.3	578	ST	32434027
						11.3	538	UT	32434028
33.5	642	33	40	770	33	12.3	578	ST	32434029
						11.3	538	UT	32434030
33.5	733	29	40	880	29	12.3	578	ST	32434031
						11.3	538	UT	32434032
33.5	1080	20	40	1295	20	12.3	578	ST	32434033
						11.3	538	UT	32434034
41.5	563	47	50	675	47	14.7	695	ST	32434035
						13.7	655	UT	32434036
41.5	679	39	50	815	39	14.7	695	ST	32434037
						13.7	655	UT	32434038
41.5	796	33	50	955	33	14.7	695	ST	32434039
						13.7	655	UT	32434040
41.5	892	31	50	1070	31	14.7	695	ST	32434041
						13.7	655	UT	32434042
41.5	1007	27	50	1210	27	14.7	695	ST	32434043
						13.7	655	UT	32434044
50	533	59	60	640	59	17.5	700	ST	32434045
						16.5	660	UT	32434046
50	621	52	60	745	52	17.5	700	ST	32434047
						16.5	660	UT	32434048
50	675	47	60	810	47	17.5	700	ST	32434049
						16.5	660	UT	32434050

ST - Single Tandem

UT - Upper Tandem

CT - Center Tandem

COSCO 456 Series Motors

TM456 Series Motors

>> Minimum casing size 5 1/2

Maximum operating temperature = 300F

50 Hz			60 Hz			Length (ft.)	Weight (lbs.)	Type	Part Number
HP	Volt	Amp	HP	Volt	Amp				
50	808	39	60	970	39	17.5	700	ST	32434051
						16.5	660	UT	32434052
50	1108	29	60	1330	29	17.5	700	ST	32434053
						16.5	660	UT	32434054
58.5	450	82.5	70	540	82.5	19.4	886	ST	32434055
						18.4	846	UT	32434056
						18.9	846	CT	32434057
58.5	625	60	70	750	60	19.4	886	ST	32434058
						18.4	846	UT	32434059
						18.9	846	CT	32434060
58.5	788	47	70	945	47	19.4	886	ST	32434061
						18.4	846	UT	32434062
						18.9	846	CT	32434063
58.5	945	39	70	1135	39	19.4	886	ST	32434064
						18.4	846	UT	32434065
						18.9	846	CT	32434066
66.5	529	80	80	635	80	21.8	995	ST	32434067
						20.8	955	UT	32434068
						21.3	955	CT	32434069
66.5	717	60	80	860	60	21.8	995	ST	32434070
						20.8	955	UT	32434071
						21.3	955	CT	32434072
66.5	905	46	80	1085	46	21.8	995	ST	32434073
						20.8	955	UT	32434074
						21.3	955	CT	32434075
66.5	1090	39	80	1310	39	21.8	995	ST	32434076
						20.8	955	UT	32434077
						21.3	955	CT	32434078
75	591	81	90	710	81	24.2	1116	ST	32434079
						23.2	1076	UT	32434080
						23.7	1076	CT	32434081
75	800	59	90	960	59	24.2	1116	ST	32434082
						23.2	1076	UT	32434083
						23.7	1076	CT	32434084
75	945	50	90	1135	50	24.2	1116	ST	32434085
						23.2	1076	UT	32434086
						23.7	1076	CT	32434087
75	1016	46	90	1220	46	24.2	1116	ST	32434088
						23.2	1076	UT	32434089
						23.7	1076	CT	32434090
75	1216	39	90	1460	39	24.2	1116	ST	32434091
						23.2	1076	UT	32434092
75	1608	31	90	1930	31	24.2	1116	ST	32434093
						23.2	1076	UT	32434094
83.5	645	84	100	775	84	26.6	1236	ST	32434095
						25.6	1196	UT	32434096
						26.1	1196	CT	32434097
83.5	895	59	100	1075	59	26.6	1236	ST	32434098
						25.6	1196	UT	32434099
						26.1	1196	CT	32434100

ST - Single Tandem

UT - Upper Tandem

CT - Center Tandem

COSCO 456 Series Motors

TM456 Series Motors

>> Minimum casing size 5 1/2 inches

Maximum operating temperature = 300F

50 Hz			60 Hz			Length (ft.)	Weight (lbs.)	Type	Part Number
HP	Volt	Amp	HP	Volt	Amp				
83.5	1129	46	100	1355	46	26.6	1236	ST	32434101
						25.6	1196	UT	32434102
						26.1	1196	CT	32434103
83.5	1837	28.5	100	2205	28.5	26.6	1236	ST	32434104
						25.6	1196	UT	32434105
91.5	991	60	110	1190	60	29.0	1376	ST	32434106
						28.0	1336	UT	32434107
						28.5	1336	CT	32434108
91.5	1980	30	110	2380	30	29.0	1376	ST	32434109
						28.0	1336	UT	32434110
100	775	84	120	930	84	31.4	1500	ST	32434111
						30.4	1460	UT	32434112
						30.4	1460	CT	32434113
100	867	76	120	1040	76	31.4	1500	ST	32434114
						30.4	1460	UT	32434115
						30.4	1460	CT	32434116
100	937	70	120	1125	70	31.4	1500	ST	32434117
						30.4	1460	UT	32434118
						30.4	1460	CT	32434119
100	1080	59	120	1295	59	31.4	1500	ST	32434120
						30.4	1460	UT	32434121
						30.4	1460	CT	32434122
100	1870	35	120	2245	35	31.4	1500	ST	32434123
						30.4	1460	UT	32434124

ST - Single Tandem

UT - Upper Tandem

CT - Center Tandem

Universal Motor Base

Description	Length (ft.)	Weight (lb.)	Part Number
Universal Motor Base, 456 Series	1.0	23.0	00910315

Bolt-on Motor Head

Description	Length (ft.)	Weight (lb.)	Part Number
Bolt-on Motor Head, 456 Series	1.7	59.5	00902463

COSCO 540 Series Motors

TM540 Series Motors

>> Minimum casing size 6 5/8 inches

Maximum operating temperature = 300F

50 Hz			60 Hz			Length (ft.)	Weight (lbs.)	Type	Part Number
HP	Volt	Amp	HP	Volt	Amp				
16.5	367	29	20	440	29	6.0	300	ST	32534001
						4.8	260	UT	32534002
16.5	629	17	20	755	17	6.0	300	ST	32534003
						4.8	260	UT	32534004
25	362	45	30	435	45	7.3	390	ST	32534005
						6.2	350	UT	32534006
25	591	28	30	710	28	7.3	390	ST	32534007
						6.2	350	UT	32534008
25	1010	16	30	1215	16	7.3	390	ST	32534009
						6.2	350	UT	32534010
33.5	362	60	40	435	60	8.7	483	ST	32534011
						7.7	443	UT	32534012
33.5	609	36	40	730	36	8.7	483	ST	32534013
						7.7	443	UT	32534014
33.5	733	30	40	880	30	8.7	483	ST	32534015
						7.7	443	UT	32534016
33.5	1104	20	40	1325	20	8.7	483	ST	32534017
						7.7	443	UT	32534018
41.5	375	72	50	450	72	10.1	576	ST	32534019
						8.9	535	UT	32534020
41.5	604	45	50	725	45	10.1	576	ST	32534021
						8.9	535	UT	32534022
41.5	754	35	50	905	35	10.1	576	ST	32534023
						8.9	535	UT	32534024
41.5	1158	22	50	1375	22	10.1	576	ST	32534025
						8.9	535	UT	32534026
50	354	91	60	425	91	11.5	679	ST	32534027
						10.3	639	UT	32534028
50	537	59	60	645	59	11.5	679	ST	32534029
						10.3	639	UT	32534030
50	725	45	60	870	45	11.5	679	ST	32534031
						10.3	639	UT	32534032
50	808	40	60	970	40	11.5	679	ST	32534033
						10.3	639	UT	32534034
50	904	35	60	1085	35	11.5	679	ST	32534035
						10.3	639	UT	32534036
50	1100	30	60	1320	30	11.5	679	ST	32534037
						10.3	639	UT	32534038
58.5	629	60	70	755	60	12.8	771	ST	32534039
						11.7	731	UT	32534040
58.5	845	45	70	1015	45	12.8	771	ST	32534041
						11.7	731	UT	32534042
58.5	1053	35	70	1265	35	12.8	771	ST	32534043
						11.7	731	UT	32534044
66.5	720	60	80	865	60	14.2	863	ST	32534045
						13.0	823	UT	32534046
66.5	966	45	80	1160	45	14.2	863	ST	32534047
						13.0	823	UT	32534048

ST - Single Tandem

UT - Upper Tandem

CT - Center Tandem

COSCO 540 Series Motors

TM540 Series Motors

>> Minimum casing size 6 5/8 inches

Maximum operating temperature = 300F

50 Hz			60 Hz			Length (ft.)	Weight (lbs.)	Type	Part Number
HP	Volt	Amp	HP	Volt	Amp				
83.5	587	90	100	705	90	16.9	1048	ST	32534049
						15.8	1008	UT	32534050
83.5	695	76	100	835	76	16.9	1048	ST	32534051
						15.8	1008	UT	32534052
83.5	891	60	100	1070	60	16.9	1048	ST	32534053
						15.8	1008	UT	32534054
83.5	1045	50	100	1255	50	16.9	1048	ST	32534055
						15.8	1008	UT	32534056
83.5	1808	29	100	2170	29	16.9	1048	ST	32534057
						15.8	1008	UT	32534058
100	712	88	120	855	88	19.7	1233	ST	32534059
						18.5	1195	UT	32534060
						18.8	1195	CT	32534061
100	858	73	120	1030	73	19.7	1233	ST	32534062
						18.5	1195	UT	32534063
						18.8	1195	CT	32534064
100	1080	59	120	1295	59	19.7	1233	ST	32534065
						18.5	1195	UT	32534066
						18.8	1195	CT	32534067
100	1803	33	120	2165	33	19.7	1233	ST	32534068
						18.5	1195	UT	32534069
						21.0	1327	ST	32534070
108	770	88	130	925	88	19.9	1288	UT	32534071
						20.2	1288	CT	32534072
						21.0	1327	ST	32534073
108	937	67	130	1125	67	19.9	1288	UT	32534074
						20.2	1288	CT	32534075
						21.0	1327	ST	32534076
116.5	820	90	140	985	90	22.3	1420	ST	32534076
						21.2	1380	UT	32534077
						21.5	1380	CT	32534078
116.5	1038	71	140	1245	71	22.3	1420	ST	32534079
						21.2	1380	UT	32534080
						21.5	1380	CT	32534081
116.5	1680	44	140	2015	44	22.3	1420	ST	32534082
						21.2	1380	UT	32534083
125	895	87	150	1075	87	23.6	1515	ST	32534084
						22.6	1473	UT	32534085
						22.9	1473	CT	32534086
125	1033	76	150	1240	76	23.6	1515	ST	32534087
						22.6	1473	UT	32534088
						22.9	1473	CT	32534089
125	1755	44	150	2105	44	23.6	1515	ST	32534090
						22.6	1473	UT	32534091
133	687	122	160	825	122	25.2	1621	ST	32534092
						24.0	1581	UT	32534093
						24.3	1581	CT	32534094
133	929	88.5	160	1115	88.5	25.2	1621	ST	32534095
						24.0	1581	UT	32534096
						24.3	1581	CT	32534097

ST - Single Tandem

UT - Upper Tandem

CT - Center Tandem

COSCO 540 Series Motors

TM540 Series Motors

>> Minimum casing size 6 5/8 inches

Maximum operating temperature = 300F

50 Hz			60 Hz			Length (ft.)	Weight (lbs.)	Type	Part Number
HP	Volt	Amp	HP	Volt	Amp				
133	1820	46	160	2185	46	25.2	1621	ST	32534098
						24.0	1581	UT	32534099
150	787	120	180	945	120	27.9	1834	ST	32534100
						26.8	1794	UT	32534101
						27.0	1794	CT	32534102
150	1060	89	180	1275	89	27.9	1834	ST	32534103
						26.8	1794	UT	32534104
						27.0	1794	CT	32534105
150	1620	59	180	1945	59	27.9	1834	ST	32534106
						26.8	1794	UT	32534107
150	1883	50	180	2260	50	27.9	1834	ST	32534108
						26.8	1794	UT	32534109
167	920	115	200	1100	115	30.6	2019	ST	32534110
						29.5	1979	UT	32534111
						29.7	1979	CT	32534112
167	1783	54	200	2140	54	30.6	2019	ST	32534113
						29.5	1979	UT	32534114
187	945	127	225	1135	127	30.6	2019	ST	32534115
						29.5	1979	UT	32534116
						29.7	1979	CT	32534117
187	1862	84	225	2235	64	30.6	2019	ST	32534118
						29.5	1979	UT	32534119

ST - Single Tandem

UT - Upper Tandem

CT - Center Tandem

Universal Motor Base

Description	Length (ft.)	Weight (lb.)	Part Number
Universal Motor Base, 540 Series	1.0	33.0	00910318

Bolt-on Motor Head

Description	Length (ft.)	Weight (lb.)	Part Number
Bolt-on Motor Head, 540 Series	1.8	88.1	00902464

COSCO 560 Series Motors

TM560 Series Motors

>> Minimum casing size 7 inches

Maximum operating temperature = 300F

50 Hz			60 Hz			Length (ft.)	Weight (lbs.)	Type	Part Number
HP	Volt	Amp	HP	Volt	Amp				
50	413	73.5	60	495	73.5	7.7	340	ST	32634001
						6.8	340	UT	32634002
50	708	43	60	850	43	7.7	340	ST	32634003
						6.8	340	UT	32634004
50	1005	30	60	1205	30	7.7	340	ST	32634005
						6.8	340	UT	32634006
75	708	64	90	850	64	9.8	510	ST	32634007
						8.9	510	UT	32634008
75	975	46.5	90	1170	46.5	9.8	510	ST	32634009
						8.9	510	UT	32634010
75	1063	43	90	1275	43	9.8	510	ST	32634011
						8.9	510	UT	32634012
75	1150	39.5	90	1380	39.5	8.9	510	UT	32634013
75	1242	36.5	90	1490	36.5	9.8	510	ST	32634014
						8.9	510	UT	32634015
75	1771	25.5	90	2125	25.5	9.8	510	ST	32634016
						8.9	510	UT	32634017
100	708	85.5	120	850	85.5	11.9	680	ST	32634018
						10.9	680	UT	32634019
100	825	73.5	120	990	73.5	11.9	680	ST	32634020
						10.9	680	UT	32634021
100	1063	57	120	1275	57	11.9	680	ST	32634022
						10.9	680	UT	32634023
100	1179	51.5	120	1415	51.5	11.9	680	ST	32634024
						10.9	680	UT	32634025
100	2125	28.5	120	2550	28.5	11.9	680	ST	32634026
						10.9	680	UT	32634027
100	3467	17	120	4160	17	11.9	680	ST	32634028
						10.9	680	UT	32634029
125	738	102.5	150	885	102.5	14.0	850	ST	32634030
						13.1	850	UT	32634031
125	1033	73.5	150	1240	73.5	14.0	850	ST	32634032
						13.1	850	UT	32634033
125	1179	64	150	1415	64	14.0	850	ST	32634034
						13.1	850	UT	32634035
125	1921	39.5	150	2305	39.5	14.0	850	ST	32634036
						13.1	850	UT	32634037
125	2213	34	150	2655	34	14.0	850	ST	32634038
						13.1	850	UT	32634039
125	2658	28.5	150	3190	28.5	14.0	850	ST	32634040
						13.1	850	UT	32634041
125	3467	21.5	150	4160	21.5	14.0	850	ST	32634042
						13.1	850	UT	32634043
150	1063	85.5	180	1275	85.5	16.1	1020	ST	32634044
						15.1	1020	UT	32634045
150	2125	43	180	2550	43	16.1	1020	ST	32634046
						15.1	1020	UT	32634047
150	2658	34	180	3190	34	16.1	1020	ST	32634048
						15.1	1020	UT	32634049

ST - Single Tandem

UT - Upper Tandem

CT - Center Tandem

COSCO 560 Series Motors

TM560 Series Motors

>> Minimum casing size 7 inches

Maximum operating temperature = 300F

50 Hz			60 Hz			Length (ft.)	Weight (lbs.)	Type	Part Number
HP	Volt	Amp	HP	Volt	Amp				
175	1033	102.5	210	1240	102.5	17.2	1190	UT	32634050
175	2075	51.5	210	2490	51.5	18.2	1190	ST	32634051
						17.2	1190	UT	32634052
175	3100	34	210	3720	34	18.2	1190	ST	32634053
						17.2	1190	UT	32634054
200	1179	102.5	240	1415	102.5	20.3	1395	ST	32634055
						19.3	1395	UT	32634056
						19.5	1395	CT	32634057
200	2129	57	240	2550	57	20.3	1395	ST	32634058
						19.3	1395	UT	32634059
200	3542	34	240	4250	34	20.3	1395	ST	32634060
						19.3	1395	UT	32634061
225	1063	128.5	270	1275	128.5	22.4	1570	ST	32634062
						21.4	1570	UT	32634063
						21.5	1570	CT	32634064
225	1329	102.5	270	1595	102.5	22.4	1570	ST	32634065
						21.4	1570	UT	32634066
						21.5	1570	CT	32634067
225	2125	64	270	2550	64	22.4	1570	ST	32634068
						21.4	1570	UT	32634069
250	1029	147.5	300	1235	147.5	23.5	1600	UT	32634070
						23.6	1600	CT	32634071
250	1179	128.5	300	1415	128.5	24.5	1600	ST	32634072
						23.5	1600	UT	32634073
						23.6	1600	CT	32634074
250	1743	86.5	300	2091	86.5	23.5	1600	UT	32634075
						23.6	1600	CT	32634076
250	2067	73.5	300	2480	73.5	24.5	1600	ST	32634077
						23.5	1600	UT	32634078
250	3542	43	300	4250	43	24.5	1600	ST	32634079
						23.5	1600	UT	32634080
275	1300	128.5	330	1560	128.5	26.5	1840	ST	32634081
						25.6	1840	UT	32634082
						25.7	1840	CT	32634083
275	1625	102.5	330	1950	102.5	26.5	1840	ST	32634084
						25.6	1840	UT	32634085
						25.7	1840	CT	32634086
275	2271	73.5	330	2725	73.5	26.5	1840	ST	32634087
						25.6	1840	UT	32634088
275	2921	57	330	3505	57	26.5	1840	ST	32634089
						25.6	1840	UT	32634090
275	3246	51.5	330	3895	51.5	26.5	1840	ST	32634091
						25.6	1840	UT	32634092
275	1133	147.5	330	1360	147.5	25.7	1840	CT	32634093
300	1417	128.5	360	1700	128.5	28.6	2005	ST	32634094
						27.7	2005	UT	32634095
						27.8	2005	CT	32634096
300	1771	102.5	360	2125	102.5	27.7	2005	UT	32634097
						27.8	2005	CT	32634098

ST - Single Tandem

UT - Upper Tandem

CT - Center Tandem

COSCO 560 Series Motors

TM560 Series Motors

>> Minimum casing size 7 inches

Maximum operating temperature = 300F

50 Hz			60 Hz			Length (ft.)	Weight (lbs.)	Type	Part Number
HP	Volt	Amp	HP	Volt	Amp				
300	2125	85.5	360	2550	85.5	28.6	2005	ST	32634099
						27.7	2005	UT	32634100
300	2833	64	360	3400	64	28.6	2005	ST	32634101
						27.7	2005	UT	32634102
300	3542	51.5	360	4250	51.5	28.6	2005	ST	32634103
						27.7	2005	UT	32634104
325	1533	128.5	390	1840	128.5	30.7	2210	ST	32634105
						29.8	2210	UT	32634106
						29.9	2210	CT	32634107
325	1733	114	390	2080	114	29.9	2210	UT	32634108
						29.9	2210	CT	32634109
325	1917	102.5	390	2300	102.5	30.7	2210	ST	32634110
						29.8	2210	UT	32634111
325	2304	85.5	390	2765	85.5	30.7	2210	ST	32634112
						29.8	2210	UT	32634113
325	3071	64	390	3685	64	30.7	2210	ST	32634114
						29.8	2210	UT	32634115
350	2067	102.5	420	2480	102.5	32.8	2340	ST	32634116
						31.9	2340	UT	32634117
350	3479	85.5	420	2975	85.5	32.8	2340	ST	32634118
						31.9	2340	UT	32634119
350	2892	73.5	420	3470	73.5	32.8	2340	ST	32634120
						31.9	2340	UT	32634121
350	3304	64	420	3965	64	32.8	2340	ST	32634122
						31.9	2340	UT	32634123
375	1550	147	450	1860	147	34.0	2500	UT	32634124
						34.1	2500	CT	32634125
375	1771	128	450	2125	128	34.9	2500	ST	32634126
						34.0	2500	UT	32634127
						34.1	2500	CT	32634128
375	2213	102.5	450	2655	102.5	34.9	2500	ST	32634129
						34.0	2500	UT	32634130
						34.1	2500	CT	32634131
375	3100	73.5	450	3720	73.5	34.9	2500	ST	32634132
						34.0	2500	UT	32634133
375	3542	64	450	4250	64	34.9	2500	ST	32634134
						34.0	2500	UT	32634135

ST - Single Tandem

UT - Upper Tandem

CT - Center Tandem

Universal Motor Base

Description	Length (ft.)	Weight (lb.)	Part Number
Universal Motor Base, 560 Series	1.5	70.0	00910297

Bolt-on Motor Head

Description	Length (ft.)	Weight (lb.)	Part Number
Bolt-on Motor Head, 560 Series	1.8	96.9	00901164

COSCO 456 Series Motors

350F

TM456 Series Motors

>> Minimum casing size 5 1/2 inches

Maximum operating temperature = 350F

50 Hz			60 Hz			Length (ft.)	Weight (lbs.)	Type	Part Number
HP	Volt	Amp	HP	Volt	Amp				
8.5	363	16	10	435	16	5.1	240	ST	32435001
						4.1	200	UT	32435002
12.5	363	23	15	435	23	6.3	288	ST	32435003
						5.3	248	UT	32435004
12.5	509	16	15	610	16	6.3	288	ST	32435005
						5.3	248	UT	32435006
16.5	375	28.5	20	450	28.5	7.5	345	ST	32435007
						6.5	305	UT	32435008
16.5	625	17	20	750	17	7.5	345	ST	32435009
						6.5	305	UT	32435010
21	340	39	25	410	39	8.7	402	ST	32435011
						7.7	362	UT	32435012
21	575	22	25	690	22	8.7	402	ST	32435013
						7.7	362	UT	32435014
21	675	20	25	810	20	8.7	402	ST	32435015
						7.7	362	UT	32435016
25	355	44.5	30	425	44.5	9.9	482	ST	32435017
						8.9	422	UT	32435018
25	625	25.5	30	750	25.5	9.9	482	ST	32435019
						8.9	422	UT	32435020
29.5	333	55	35	400	55	11.1	520	ST	32435021
						10.1	480	UT	32435022
29.5	563	33	35	675	33	11.1	520	ST	32435023
						10.1	480	UT	32435024
29.5	654	28	35	750	28	11.1	520	ST	32435025
						10.1	480	UT	32435026
33.5	358	59	40	430	59	12.3	578	ST	32435027
						11.3	538	UT	32435028
33.5	642	33	40	770	33	12.3	578	ST	32435029
						11.3	538	UT	32435030
33.5	733	29	40	880	29	12.3	578	ST	32435031
						11.3	538	UT	32435032
33.5	1080	20	40	1295	20	12.3	578	ST	32435033
						11.3	538	UT	32435034
41.5	563	47	50	675	47	14.7	695	ST	32435035
						13.7	655	UT	32435036
41.5	679	39	50	815	39	14.7	695	ST	32435037
						13.7	655	UT	32435038
41.5	796	33	50	955	33	14.7	695	ST	32435039
						13.7	655	UT	32435040
41.5	892	31	50	1070	31	14.7	695	ST	32435041
						13.7	655	UT	32435042
41.5	1007	27	50	1210	27	14.7	695	ST	32435043
						13.7	655	UT	32435044
50	533	59	60	640	59	17.5	700	ST	32435045
						16.5	660	UT	32435046
50	621	52	60	745	52	17.5	700	ST	32435047
						16.5	660	UT	32435048
50	675	47	60	810	47	17.5	700	ST	32435049
						16.5	660	UT	32435050

ST - Single Tandem

UT - Upper Tandem

CT - Center Tandem

COSCO 456 Series Motors

350F

TM456 Series Motors

>> Minimum casing size 5 1/2 inches

Maximum operating temperature = 350F

50 Hz			60 Hz			Length (ft.)	Weight (lbs.)	Type	Part Number
HP	Volt	Amp	HP	Volt	Amp				
50	808	39	60	970	39	17.5	700	ST	32435051
						16.5	660	UT	32435052
50	1108	29	60	1330	29	17.5	700	ST	32435053
						16.5	660	UT	32435054
58.5	450	82.5	70	540	82.5	19.4	886	ST	32435055
						18.4	846	UT	32435056
						18.9	846	CT	32435057
58.5	625	60	70	750	60	19.4	886	ST	32435058
						18.4	846	UT	32435059
						18.9	846	CT	32435060
58.5	788	47	70	945	47	19.4	886	ST	32435061
						18.4	846	UT	32435062
						18.9	846	CT	32435063
58.5	945	39	70	1135	39	19.4	886	ST	32435064
						18.4	846	UT	32435065
						18.9	846	CT	32435066
66.5	529	80	80	635	80	21.8	995	ST	32435067
						20.8	955	UT	32435068
						21.3	955	CT	32435069
66.5	717	60	80	860	60	21.8	995	ST	32435070
						20.8	955	UT	32435071
						21.3	955	CT	32435072
66.5	905	46	80	1085	46	21.8	995	ST	32435073
						20.8	955	UT	32435074
						21.3	955	CT	32435075
66.5	1090	39	80	1310	39	21.8	995	ST	32435076
						20.8	955	UT	32435077
						21.3	955	CT	32435078
75	591	81	90	710	81	24.2	1116	ST	32435079
						23.2	1076	UT	32435080
						23.7	1076	CT	32435081
75	800	59	90	960	59	24.2	1116	ST	32435082
						23.2	1076	UT	32435083
						23.7	1076	CT	32435084
75	945	50	90	1135	50	24.2	1116	ST	32435085
						23.2	1076	UT	32435086
						23.7	1076	CT	32435087
75	1016	46	90	1220	46	24.2	1116	ST	32435088
						23.2	1076	UT	32435089
						23.7	1076	CT	32435090
75	1216	39	90	1460	39	24.2	1116	ST	32435091
						23.2	1076	UT	32435092
						23.7	1076	CT	32435093
75	1608	31	90	1930	31	24.2	1116	ST	32435093
						23.2	1076	UT	32435094
						23.7	1076	CT	32435095
83.5	645	84	100	775	84	26.6	1236	ST	32435095
						25.6	1196	UT	32435096
						26.1	1196	CT	32435097
83.5	895	59	100	1075	59	26.6	1236	ST	32435098
						25.6	1196	UT	32435099
						26.1	1196	CT	32435100

ST - Single Tandem

UT - Upper Tandem

CT - Center Tandem

TM456 Series Motors

>> Minimum casing size 5 1/2 inches

Maximum operating temperature = 350F

50 Hz			60 Hz			Length (ft.)	Weight (lbs.)	Type	Part Number
HP	Volt	Amp	HP	Volt	Amp				
83.5	1129	46	100	1355	46	26.6	1236	ST	32435101
						25.6	1196	UT	32435102
						26.1	1196	CT	32435103
83.5	1837	28.5	100	2205	28.5	26.6	1236	ST	32435104
						25.6	1196	UT	32435105
91.5	991	60	110	1190	60	29.0	1376	ST	32435106
						28.0	1336	UT	32435107
						28.5	1336	CT	32435108
91.5	1980	30	110	2380	30	29.0	1376	ST	32435109
						28.0	1336	UT	32435110
100	775	84	120	930	84	31.4	1500	ST	32435111
						30.4	1460	UT	32435112
						30.4	1460	CT	32435113
100	867	76	120	1040	76	31.4	1500	ST	32435114
						30.4	1460	UT	32435115
						30.4	1460	CT	32435116
100	937	70	120	1125	70	31.4	1500	ST	32435117
						30.4	1460	UT	32435118
						30.4	1460	CT	32435119
100	1080	59	120	1295	59	31.4	1500	ST	32435120
						30.4	1460	UT	32435121
						30.4	1460	CT	32435122
100	1870	35	120	2245	35	31.4	1500	ST	32435123
						30.4	1460	UT	32435124

ST - Single Tandem

UT - Upper Tandem

CT - Center Tandem

Universal Motor Base

Description	Length (ft.)	Weight (lb.)	Part Number
Universal Motor Base, 456 Series	1.0	23.0	00910315

COSCO 540 Series Motors

350F

TM540 Series Motors

>> Minimum casing size 6 5/8 inches

Maximum operating temperature = 350F

50 Hz			60 Hz			Length (ft.)	Weight (lbs.)	Type	Part Number
HP	Volt	Amp	HP	Volt	Amp				
16.5	367	29	20	440	29	6.0	300	ST	32535001
						4.8	260	UT	32535002
16.5	629	17	20	755	17	6.0	300	ST	32535003
						4.8	260	UT	32535004
25	362	45	30	435	45	7.3	390	ST	32535005
						6.2	350	UT	32535006
25	591	28	30	710	28	7.3	390	ST	32535007
						6.2	350	UT	32535008
25	1010	16	30	1215	16	7.3	390	ST	32535009
						6.2	350	UT	32535010
33.5	362	60	40	435	60	8.7	483	ST	32535011
						7.7	443	UT	32535012
33.5	609	36	40	730	36	8.7	483	ST	32535013
						7.7	443	UT	32535014
33.5	733	30	40	880	30	8.7	483	ST	32535015
						7.7	443	UT	32535016
33.5	1104	20	40	1325	20	8.7	483	ST	32535017
						7.7	443	UT	32535018
41.5	375	72	50	450	72	10.1	576	ST	32535019
						8.9	535	UT	32535020
41.5	604	45	50	725	45	10.1	576	ST	32535021
						8.9	535	UT	32535022
41.5	754	35	50	905	35	10.1	576	ST	32535023
						8.9	535	UT	32535024
41.5	1158	22	50	1375	22	10.1	576	ST	32535025
						8.9	535	UT	32535026
50	354	91	60	425	91	11.5	679	ST	32535027
						10.3	639	UT	32535028
50	537	59	60	645	59	11.5	679	ST	32535029
						10.3	639	UT	32535030
50	725	45	60	870	45	11.5	679	ST	32535031
						10.3	639	UT	32535032
50	808	40	60	970	40	11.5	679	ST	32535033
						10.3	639	UT	32535034
50	904	35	60	1085	35	11.5	679	ST	32535035
						10.3	639	UT	32535036
50	1100	30	60	1320	30	11.5	679	ST	32535037
						10.3	639	UT	32535038
58.5	629	60	70	755	60	12.8	771	ST	32535039
						11.7	731	UT	32535040
58.5	845	45	70	1015	45	12.8	771	ST	32535041
						11.7	731	UT	32535042
58.5	1053	35	70	1265	35	12.8	771	ST	32535043
						11.7	731	UT	32535044
66.5	720	60	80	865	60	14.2	863	ST	32535045
						13.0	823	UT	32535046
66.5	966	45	80	1160	45	14.2	863	ST	32535047
						13.0	823	UT	32535048

ST - Single Tandem

UT - Upper Tandem

CT - Center Tandem

TM540 Series Motors

>> Minimum casing size 6 5/8 inches

Maximum operating temperature = 350F

50 Hz			60 Hz			Length (ft.)	Weight (lbs.)	Type	Part Number
HP	Volt	Amp	HP	Volt	Amp				
83.5	587	90	100	705	90	16.9	1048	ST	32535049
						15.8	1008	UT	32535050
83.5	695	76	100	835	76	16.9	1048	ST	32535051
						15.8	1008	UT	32535052
83.5	891	60	100	1070	60	16.9	1048	ST	32535053
						15.8	1008	UT	32535054
83.5	1045	50	100	1255	50	16.9	1048	ST	32535055
						15.8	1008	UT	32535056
83.5	1808	29	100	2170	29	16.9	1048	ST	32535057
						15.8	1008	UT	32535058
100	712	88	120	855	88	19.7	1233	ST	32535059
						18.5	1195	UT	32535060
						18.8	1195	CT	32535061
100	858	73	120	1030	73	19.7	1233	ST	32535062
						18.5	1195	UT	32535063
						18.8	1195	CT	32535064
100	1080	59	120	1295	59	19.7	1233	ST	32535065
						18.5	1195	UT	32535066
						18.8	1195	CT	32535067
100	1803	33	120	2165	33	19.7	1233	ST	32535068
						18.5	1195	UT	32535069
108	770	88	130	925	88	21.0	1327	ST	32535070
						19.9	1288	UT	32535071
						20.2	1288	CT	32535072
108	937	67	130	1125	67	21.0	1327	ST	32535073
						19.9	1288	UT	32535074
						20.2	1288	CT	32535075
116.5	820	90	140	985	90	22.3	1420	ST	32535076
						21.2	1380	UT	32535077
						21.5	1380	CT	32535078
116.5	1038	71	140	1245	71	22.3	1420	ST	32535079
						21.2	1380	UT	32535080
						21.5	1380	CT	32535081
116.5	1680	44	140	2015	44	22.3	1420	ST	32535082
						21.2	1380	UT	32535083
125	895	87	150	1075	87	23.6	1515	ST	32535084
						22.6	1473	UT	32535085
						22.9	1473	CT	32535086
125	1033	76	150	1240	76	23.6	1515	ST	32535087
						22.6	1473	UT	32535088
						22.9	1473	CT	32535089
125	1755	44	150	2105	44	23.6	1515	ST	32535090
						22.6	1473	UT	32535091
133	687	122	160	825	122	25.2	1621	ST	32535092
						24.0	1581	UT	32535093
						24.3	1581	CT	32535094
133	929	88.5	160	1115	88.5	25.2	1621	ST	32535095
						24.0	1581	UT	32535096
						24.3	1581	CT	32535097

ST - Single Tandem

UT - Upper Tandem

CT - Center Tandem

COSCO 540 Series Motors

350F

TM540 Series Motors

>> Minimum casing size 6 5/8 inches

Maximum operating temperature = 350F

50 Hz			60 Hz			Length (ft.)	Weight (lbs.)	Type	Part Number
HP	Volt	Amp	HP	Volt	Amp				
133	1820	46	160	2185	46	25.2	1621	ST	32535098
						24.0	1581	UT	32535099
150	787	120	180	945	120	27.9	1834	ST	32535100
						26.8	1794	UT	32535101
						27.0	1794	CT	32535102
150	1060	89	180	1275	89	27.9	1834	ST	32535103
						26.8	1794	UT	32535104
						27.0	1794	CT	32535105
150	1620	59	180	1945	59	27.9	1834	ST	32535106
						26.8	1794	UT	32535107
150	1883	50	180	2260	50	27.9	1834	ST	32535108
						26.8	1794	UT	32535109
167	920	115	200	1100	115	30.6	2019	ST	32535110
						29.5	1979	UT	32535111
						29.7	1979	CT	32535112
167	1783	54	200	2140	54	30.6	2019	ST	32535113
						29.5	1979	UT	32535114
187	945	127	225	1135	127	30.6	2019	ST	32535115
						29.5	1979	UT	32535116
						29.7	1979	CT	32535117
187	1862	84	225	2235	64	30.6	2019	ST	32535118
						29.5	1979	UT	32535119

ST - Single Tandem

UT - Upper Tandem

CT - Center Tandem

Universal Motor Base

Description	Length (ft.)	Weight (lb.)	Part Number
Universal Motor Base, 540 Series	1.0	33.0	00910318

TM560 Series Motors

>> Minimum casing size 7 inches

Maximum operating temperature = 350F

50 Hz			60 Hz			Length (ft.)	Weight (lbs.)	Type	Part Number
HP	Volt	Amp	HP	Volt	Amp				
50	413	73.5	60	495	73.5	7.7	340	ST	32635001
						6.8	340	UT	32635002
50	708	43	60	850	43	7.7	340	ST	32635003
						6.8	340	UT	32635004
50	1005	30	60	1205	30	7.7	340	ST	32635005
						6.8	340	UT	32635006
75	708	64	90	850	64	9.8	510	ST	32635007
						8.9	510	UT	32635008
75	975	46.5	90	1170	46.5	9.8	510	ST	32635009
						8.9	510	UT	32635010
75	1063	43	90	1275	43	9.8	510	ST	32635011
						8.9	510	UT	32635012
75	1150	39.5	90	1380	39.5	8.9	510	UT	32635013
75	1242	36.5	90	1490	36.5	9.8	510	ST	32635014
						8.9	510	UT	32635015
75	1771	25.5	90	2125	25.5	9.8	510	ST	32635016
						8.9	510	UT	32635017
100	708	85.5	120	850	85.5	11.9	680	ST	32635018
						10.9	680	UT	32635019
100	825	73.5	120	990	73.5	11.9	680	ST	32635020
						10.9	680	UT	32635021
100	1063	57	120	1275	57	11.9	680	ST	32635022
						10.9	680	UT	32635023
100	1179	51.5	120	1415	51.5	11.9	680	ST	32635024
						10.9	680	UT	32635025
100	2125	28.5	120	2550	28.5	11.9	680	ST	32635026
						10.9	680	UT	32635027
100	3467	17	120	4160	17	11.9	680	ST	32635028
						10.9	680	UT	32635029
125	738	102.5	150	885	102.5	14.0	850	ST	32635030
						13.1	850	UT	32635031
125	1033	73.5	150	1240	73.5	14.0	850	ST	32635032
						13.1	850	UT	32635033
125	1179	64	150	1415	64	14.0	850	ST	32635034
						13.1	850	UT	32635035
125	1921	39.5	150	2305	39.5	14.0	850	ST	32635036
						13.1	850	UT	32635037
125	2213	34	150	2655	34	14.0	850	ST	32635038
						13.1	850	UT	32635039
125	2658	28.5	150	3190	28.5	14.0	850	ST	32635040
						13.1	850	UT	32635041
125	3467	21.5	150	4160	21.5	14.0	850	ST	32635042
						13.1	850	UT	32635043
150	1063	85.5	180	1275	85.5	16.1	1020	ST	32635044
						15.1	1020	UT	32635045
150	2125	43	180	2550	43	16.1	1020	ST	32635046
						15.1	1020	UT	32635047
150	2658	34	180	3190	34	16.1	1020	ST	32635048
						15.1	1020	UT	32635049

ST - Single Tandem

UT - Upper Tandem

CT - Center Tandem

TM560 Series Motors

>> Minimum casing size 7 inches

Maximum operating temperature = 350F

50 Hz			60 Hz			Length (ft.)	Weight (lbs.)	Type	Part Number
HP	Volt	Amp	HP	Volt	Amp				
175	1033	102.5	210	1240	102.5	17.2	1190	UT	32635050
175	2075	51.5	210	2490	51.5	18.2	1190	ST	32635051
						17.2	1190	UT	32635052
175	3100	34	210	3720	34	18.2	1190	ST	32635053
						17.2	1190	UT	32635054
200	1179	102.5	240	1415	102.5	20.3	1395	ST	32635055
						19.3	1395	UT	32635056
						19.5	1395	CT	32635057
200	2129	57	240	2550	57	20.3	1395	ST	32635058
						19.3	1395	UT	32635059
200	3542	34	240	4250	34	20.3	1395	ST	32635060
						19.3	1395	UT	32635061
225	1063	128.5	270	1275	128.5	22.4	1570	ST	32635062
						21.4	1570	UT	32635063
						21.5	1570	CT	32635064
225	1329	102.5	270	1595	102.5	22.4	1570	ST	32635065
						21.4	1570	UT	32635066
						21.5	1570	CT	32635067
225	2125	64	270	2550	64	22.4	1570	ST	32635068
						21.4	1570	UT	32635069
250	1029	147.5	300	1235	147.5	23.5	1600	UT	32635070
						23.6	1600	CT	32635071
250	1179	128.5	300	1415	128.5	24.5	1600	ST	32635072
						23.5	1600	UT	32635073
						23.6	1600	CT	32635074
250	1743	86.5	300	2091	86.5	23.5	1600	UT	32635075
						23.6	1600	CT	32635076
250	2067	73.5	300	2480	73.5	24.5	1600	ST	32635077
						23.5	1600	UT	32635078
250	3542	43	300	4250	43	24.5	1600	ST	32635079
						23.5	1600	UT	32635080
275	1300	128.5	330	1560	128.5	26.5	1840	ST	32635081
						25.6	1840	UT	32635082
						25.7	1840	CT	32635083
275	1625	102.5	330	1950	102.5	26.5	1840	ST	32635084
						25.6	1840	UT	32635085
						25.7	1840	CT	32635086
275	2271	73.5	330	2725	73.5	26.5	1840	ST	32635087
						25.6	1840	UT	32635088
275	2921	57	330	3505	57	26.5	1840	ST	32635089
						25.6	1840	UT	32635090
275	3246	51.5	330	3895	51.5	26.5	1840	ST	32635091
						25.6	1840	UT	32635092
275	1133	147.5	330	1360	147.5	25.7	1840	CT	32635093
300	1417	128.5	360	1700	128.5	28.6	2005	ST	32635094
						27.7	2005	UT	32635095
						27.8	2005	CT	32635096
300	1771	102.5	360	2125	102.5	27.7	2005	UT	32635097
						27.8	2005	CT	32635098

ST - Single Tandem

UT - Upper Tandem

CT - Center Tandem

COSCO 560 Series Motors

350F

TM560 Series Motors

>> Minimum casing size 7 inches

Maximum operating temperature = 350F

50 Hz			60 Hz			Length (ft.)	Weight (lbs.)	Type	Part Number
HP	Volt	Amp	HP	Volt	Amp				
300	2125	85.5	360	2550	85.5	28.6	2005	ST	32635099
						27.7	2005	UT	32635100
300	2833	64	360	3400	64	28.6	2005	ST	32635101
						27.7	2005	UT	32635102
300	3542	51.5	360	4250	51.5	28.6	2005	ST	32635103
						27.7	2005	UT	32635104
325	1533	128.5	390	1840	128.5	30.7	2210	ST	32635105
						29.8	2210	UT	32635106
						29.9	2210	CT	32635107
325	1733	114	390	2080	114	29.8	2210	UT	32635108
						29.9	2210	CT	32635109
325	1917	102.5	390	2300	102.5	30.7	2210	ST	32635110
						29.8	2210	UT	32635111
325	2304	85.5	390	2765	85.5	30.7	2210	ST	32635112
						29.8	2210	UT	32635113
325	3071	64	390	3685	64	30.7	2210	ST	32635114
						29.8	2210	UT	32635115
350	2067	102.5	420	2480	102.5	32.8	2340	ST	32635116
						31.9	2340	UT	32635117
350	3479	85.5	420	2975	85.5	32.8	2340	ST	32635118
						31.9	2340	UT	32635119
350	2892	73.5	420	3470	73.5	32.8	2340	ST	32635120
						31.9	2340	UT	32635121
350	3304	64	420	3965	64	32.8	2340	ST	32635122
						31.9	2340	UT	32635123
						34.0	2500	UT	32635124
375	1550	147	450	1860	147	34.0	2500	CT	32635125
						34.1	2500	CT	32635125
375	1771	128	450	2125	128	34.9	2500	ST	32635126
						34.0	2500	UT	32635127
						34.1	2500	CT	32635128
375	2213	102.5	450	2655	102.5	34.9	2500	ST	32635129
						34.0	2500	UT	32635130
						34.1	2500	CT	32635131
375	3100	73.5	450	3720	73.5	34.9	2500	ST	32635132
						34.0	2500	UT	32635133
375	3542	64	450	4250	64	34.9	2500	ST	32635134
						34.0	2500	UT	32635135

ST - Single Tandem

UT - Upper Tandem

CT - Center Tandem

Universal Motor Base

Description	Length (ft.)	Weight (lb.)	Part Number
Universal Motor Base, 560 Series	1.5	70.0	00910297

COSCO Protectors

375 Series Standard Shaft

Part Number	Description	Length (Feet)	Weight (Lbs.)	O.D. (Inch)	Shaft O.D (Inch)	Shaft (BHP) Max		Thrust (lbs.) Max	
						50Hz	60Hz	50Hz	60Hz
33320001	TPR325/375L	5.1	90	3.25	0.75	133	160	875	1000
33330001	TPR325/375SB	3.8	65	3.25	0.75	133	160	875	1000
33331001	TPR325/375SB HL	3.8	65	3.25	0.75	133	160	2650	3200
33320003	TPR325/338/375L	5.1	90	3.38	0.875	213	256	875	1000
33330004	TPR325/338/375SB	3.8	65	3.38	0.875	213	256	875	1000
33321003	TPR325/338/375L HL	5.1	90	3.38	0.875	213	256	2650	3200
33331003	TPR325/338/375SB HL	3.8	65	3.38	0.875	213	256	2650	3200
33350013	TPR325/338/375LSL	5.6	100	3.38	0.875	213	256	875	1000
33351013	TPR325/338/375LSL HL	5.6	100	3.38	0.875	213	256	2650	3200

400 Series Standard Shaft

Part Number	Description	Length (Feet)	Weight (Lbs.)	O.D. (Inch)	Shaft O.D (Inch)	Shaft (BHP) Max		Thrust (lbs.) Max	
						50Hz	60Hz	50Hz	60Hz
33420001	TPR400/456L	5.3	124	4	0.875	213	256	1000	1200
33430001	TPR400/456SB	3.5	82	4	0.875	213	256	1000	1200
33440001	TPR400/456DB	5.6	129	4	0.875	213	256	1000	1200
33431001	TPR400/456SB HL	3.5	82	4	0.875	213	256	5000	6000
33441001	TPR400/456DB HL	5.6	129	4	0.875	213	256	5000	6000
33450001	TPR400/456BPB	6.5	149	4	0.875	213	256	1000	1200
33450002	TPR400/456BSB	6.5	149	4	0.875	213	256	1000	1200
33450003	TPR400/456BSL	6.5	145	4	0.875	213	256	1000	1200
33450004	TPR400/456LSB	6.5	145	4	0.875	213	256	1000	1200
33450005	TPR400/456LSL	6.5	141	4	0.875	213	256	1000	1200
33450006	TPR400/456BPBSL	8.9	205	4	0.875	213	256	1000	1200
33450007	TPR400/456LSBPB	8.9	205	4	0.875	213	256	1000	1200
33450008	TPR400/456LSLSL	8.9	187	4	0.875	213	256	1000	1200
33451001	TPR400/456BPB HL	6.5	149	4	0.875	213	256	5000	6000
33451002	TPR400/456BSB HL	6.5	149	4	0.875	213	256	5000	6000
33451003	TPR400/456BSL HL	6.5	145	4	0.875	213	256	5000	6000
33451004	TPR400/456LSB HL	6.5	145	4	0.875	213	256	5000	6000
33451005	TPR400/456LSL HL	6.5	141	4	0.875	213	256	5000	6000
33451006	TPR400/456BPBSL HL	8.9	205	4	0.875	213	256	5000	6000
33451007	TPR400/456LSBPB HL	8.9	205	4	0.875	213	256	5000	6000
33451008	TPR400/456LSLSL HL	8.9	187	4	0.875	213	256	5000	6000

COSCO Protectors

540 Series Standard Shaft

Part Number	Description	Length (Feet)	Weight (Lbs.)	O.D. (Inch)	Shaft O.D (Inch)	Shaft (BHP) Max		Thrust (lbs.) Max	
						50Hz	60Hz	50Hz	60Hz
33520001	TPR540L	5.8	190	5.13	1.187	531	637	2000	2400
33530001	TPR540SB	4.1	131	5.13	1.187	531	637	2000	2400
33540001	TPR540DB	6.3	256	5.13	1.187	531	637	2000	2400
33531001	TPR540SB HL	4.1	131	5.13	1.187	531	637	10000	11000
33541001	TPR540DB HL	6.3	256	5.13	1.187	531	637	10000	11000
33550001	TPR540BPB	6.5	277	5.13	1.187	531	637	2000	2400
33550002	TPR540BSB	6.5	277	5.13	1.187	531	637	2000	2400
33550003	TPR540BSL	6.5	271	5.13	1.187	531	637	2000	2400
33550004	TPR540LSB	6.5	271	5.13	1.187	531	637	2000	2400
33550005	TPR540LSL	6.5	265	5.13	1.187	531	637	2000	2400
33550006	TPR540BPBSL	8.9	372	5.13	1.187	531	637	2000	2400
33550007	TPR540LSBPB	8.9	372	5.13	1.187	531	637	2000	2400
33550008	TPR540LSLSL	8.9	360	5.13	1.187	531	637	2000	2400
33551001	TPR540BPB HL	6.5	277	5.13	1.187	531	637	10000	11000
33551002	TPR540BSB HL	6.5	277	5.13	1.187	531	637	10000	11000
33551003	TPR540BSL HL	6.5	271	5.13	1.187	531	637	10000	11000
33551004	TPR540LSB HL	6.5	271	5.13	1.187	531	637	10000	11000
33551005	TPR540LSL HL	6.5	265	5.13	1.187	531	637	10000	11000
33551006	TPR540BPBSL HL	8.9	372	5.13	1.187	531	637	10000	11000
33551007	TPR540LSBPB HL	8.9	372	5.13	1.187	531	637	10000	11000
33551008	TPR540LSLSL HL	8.9	360	5.13	1.187	531	637	10000	11000

Standard features (STD): Carbon steel Head, Base and Housing. Monel K500 Shaft.

Abrasion Resistant features (AR): Tunsteng Carbide Bushings and Sleeves, Sand Discharge Holes.

Corrosion Resistant features (CR): Stainless steel Head, Base and Housing. Monel K500 Shaft.

High Strength Shaft (HSS): Inconel 718 available upon request.

PROTECTOR NOMENCLATURE

HL = HIGH-LOAD THRUST BEARING

L = LABYRINTH

SB = SINGLE BAG

BPB = MODULAR BAG - PARALLEL - BAG

BSL = MODULAR BAG - SERIES - LABYRINTH

LSL = MODULAR LABYRINTH - SERIES - LABYRINTH

BPBSL = MODULAR BAG - PARALLEL - BAG - SERIES - LABYRINTH

LSBPB = MODULAR LABYRINTH - SERIES - BAG - PARALLEL - BAG

LSLSL = MODULAR LABYRINTH - SERIES - LABYRINTH - SERIES - LABYRINTH

HSS = HIGH-STRENGTH SHAFT

PF = PRE-FILLED

DB = DOUBLE BAG

BSB = MODULAR BAG - SERIES - BAG

LSB = MODULAR LABYRINTH - SERIES - BAG

COSCO Protectors

375 Series High Strength Shaft

Part Number	Description	Length (Feet)	Weight (Lbs.)	O.D. (Inch)	Shaft O.D (Inch)	Shaft (BHP) Max		Thrust (lbs.) Max	
						50Hz	60Hz	50Hz	60Hz
33325001	TPR325/375L HSS	5.1	90	3.25	0.75	213	256	875	1000
33335001	TPR325/375SB HSS	3.8	65	3.25	0.75	213	256	875	1000
33336001	TPR325/375SB HL HSS	3.8	65	3.25	0.75	213	256	2650	3200
33325003	TPR325/338/375L HSS	5.1	90	3.38	0.875	342	410	875	1000
33335004	TPR325/338/375SB HSS	3.8	65	3.38	0.875	342	410	875	1000
33326003	TPR325/338/375L HL HSS	5.1	90	3.38	0.875	342	410	2650	3200
33336003	TPR325/338/375SB HL HSS	3.8	65	3.38	0.875	342	410	2650	3200
33355013	TPR325/338/375LSL HSS	5.6	100	3.38	0.875	342	410	875	1000
33356013	TPR325/338/375LSL HL HSS	5.6	100	3.38	0.875	342	410	2650	3200

400 Series High Strength Shaft

Part Number	Description	Length (Feet)	Weight (Lbs.)	O.D. (Inch)	Shaft O.D (Inch)	Shaft (BHP) Max		Thrust (lbs.) Max	
						50Hz	60Hz	50Hz	60Hz
33425001	TPR400/456L HSS	5.3	124	4	0.875	342	410	1000	1200
33435001	TPR400/456SB HSS	3.5	82	4	0.875	342	410	1000	1200
33445001	TPR400/456DB HSS	5.6	129	4	0.875	342	410	1000	1200
33436001	TPR400/456SB HL HSS	3.5	82	4	0.875	342	410	5000	6000
33446001	TPR400/456DB HL HSS	5.6	129	4	0.875	342	410	5000	6000
33455001	TPR400/456BPB HSS	6.5	149	4	0.875	342	410	1000	1200
33455002	TPR400/456BSB HSS	6.5	149	4	0.875	342	410	1000	1200
33455003	TPR400/456BSL HSS	6.5	145	4	0.875	342	410	1000	1200
33455004	TPR400/456LSB HSS	6.5	145	4	0.875	342	410	1000	1200
33455005	TPR400/456LSL HSS	6.5	141	4	0.875	342	410	1000	1200
33455006	TPR400/456BPBSL HSS	8.9	205	4	0.875	342	410	1000	1200
33455007	TPR400/456LSBPB HSS	8.9	205	4	0.875	342	410	1000	1200
33455008	TPR400/456LSLSL HSS	8.9	187	4	0.875	342	410	1000	1200
33456001	TPR400/456BPB HL HSS	6.5	149	4	0.875	342	410	5000	6000
33456002	TPR400/456BSB HL HSS	6.5	149	4	0.875	342	410	5000	6000
33456003	TPR400/456BSL HL HSS	6.5	145	4	0.875	342	410	5000	6000
33456004	TPR400/456LSB HL HSS	6.5	145	4	0.875	342	410	5000	6000
33456005	TPR400/456LSL HL HSS	6.5	141	4	0.875	342	410	5000	6000
33456006	TPR400/456BPBSL HL HSS	8.9	205	4	0.875	342	410	5000	6000
33456007	TPR400/456LSBPB HL HSS	8.9	205	4	0.875	342	410	5000	6000
33456008	TPR400/456LSLSL HL HSS	8.9	187	4	0.875	342	410	5000	6000

COSCO Protectors

540 Series High Strength Shaft

Part Number	Description	Length (Feet)	Weight (Lbs.)	O.D. (Inch)	Shaft O.D (Inch)	Shaft (BHP) Max		Thrust (lbs.) Max	
						50Hz	60Hz	50Hz	60Hz
33525001	TPR540L HSS	5.8	190	5.13	1.187	849	1019	2000	2400
33535001	TPR540SB HSS	4.1	131	5.13	1.187	849	1019	2000	2400
33545001	TPR540DB HSS	6.3	256	5.13	1.187	849	1019	2000	2400
33536001	TPR540SB HL HSS	4.1	131	5.13	1.187	849	1019	10000	11000
33546001	TPR540DB HL HSS	6.3	256	5.13	1.187	849	1019	10000	11000
33555001	TPR540BPB HSS	6.5	277	5.13	1.187	849	1019	2000	2400
33555002	TPR540BSB HSS	6.5	277	5.13	1.187	849	1019	2000	2400
33555003	TPR540BSL HSS	6.5	271	5.13	1.187	849	1019	2000	2400
33555004	TPR540LSB HSS	6.5	271	5.13	1.187	849	1019	2000	2400
33555005	TPR540LSL HSS	6.5	265	5.13	1.187	849	1019	2000	2400
33555006	TPR540BPBSL HSS	8.9	372	5.13	1.187	849	1019	2000	2400
33555007	TPR540LSBPB HSS	8.9	372	5.13	1.187	849	1019	2000	2400
33555008	TPR540LSLSL HSS	8.9	360	5.13	1.187	849	1019	2000	2400
33556001	TPR540BPB HL HSS	6.5	277	5.13	1.187	849	1019	10000	11000
33556002	TPR540BSB HL HSS	6.5	277	5.13	1.187	849	1019	10000	11000
33556003	TPR540BSL HL HSS	6.5	271	5.13	1.187	849	1019	10000	11000
33556004	TPR540LSB HL HSS	6.5	271	5.13	1.187	849	1019	10000	11000
33556005	TPR540LSL HL HSS	6.5	265	5.13	1.187	849	1019	10000	11000
33556006	TPR540BPBSL HL HSS	8.9	372	5.13	1.187	849	1019	10000	11000
33556007	TPR540LSBPB HL HSS	8.9	372	5.13	1.187	849	1019	10000	11000
33556008	TPR540LSLSL HL HSS	8.9	360	5.13	1.187	849	1019	10000	11000

Standard features (STD): Carbon steel Head, Base and Housing. Monel K500 Shaft.

Abrasion Resistant features (AR): Tunsteng Carbide Bushings and Sleeves, Sand Discharge Holes.

Corrosion Resistant features (CR): Stainless steel Head, Base and Housing. Monel K500 Shaft.

High Strength Shaft (HSS): Inconel 718 available upon request.

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BSL = MODULAR BAG - SERIES - LABYRINTH

LSL = MODULAR LABYRINTH - SERIES - LABYRINTH

BPBSL = MODULAR BAG - PARALLEL - BAG - SERIES - LABYRINTH

LSBPB = MODULAR LABYRINTH - SERIES - BAG - PARALLEL - BAG

LSLSL = MODULAR LABYRINTH - SERIES - LABYRINTH - SERIES -LABYRINTH

HSS = HIGH-STRENGTH SHAFT

PF = PRE-FILLED

DB = DOUBLE BAG

BSB = MODULAR BAG - SERIES - BAG

LSB = MODULAR LABYRINTH - SERIES - BAG

COSCO Motor Controller

Controller Package

Model	Product Description
VMC-100	Vortex Motor Controller (Requires Instrument transformer VPT-100 to activate voltage unbalance feature)
VMC-101	Motor Controller Display Unit
VMC-102	Controller Display Cable

Backspin / Ground Fault Package

Model	Product Description
VBG-105	Backspin / Ground Fault Relay
VBP-112	Backspin Probes 400-1500VAC, Set of 3
VBP-113	Backspin Probes 1500-3000VAC, Set of 3
VBP-115	Backspin Probes 700-2400VAC, Set of 3

Control and Instrument Transformers

Model	Product Description
VPT-100	100 VA Multi Tap Instrument Potential Transformer (One required for VMC100) Primary voltage range from 800 through to 3000V. Secondary voltage is 120V complete with surge suppressor VSS-130.
VPT-500	500 VA Multi Tap Control Potential Transformer. Primary voltage range from 800 through to 3000V. Secondary voltage is 120V complete with surge suppressor VSS-130.

Fuse Block for Control and Instrument Transformers

Model	Product Description
VPF-1500	Primary fuse block, complete with three 1500V fuse.
VPF-3000	Primary fuse block, complete with three 3000V fuse.
VPF-100	Secondary fuse block for VPT-100, complete with fuse
VPF-500	Secondary fuse block for VPT-500, complete with fuse.

Controller Spare Parts

Model	Product Description
VMC-100-BD	Motor Controller-circuit board for VMC-100
VMC-100-BOX	Motor Controller-wired enclosure for VMC-100
VMF-38A	3/8 amp fuse for VMC 100 or VBG 105
VSS-130	Surge suppressor for VMC 100 or VBG 105

COSCO Motor Controller (cont.)

Equipment Selection

- The standard Control package consists of the VMC-100, VMC-101, VDC-102 and VPT-100. The VMC-100 is available with or without the Backspin / Ground fault feature. This feature can be added at any time.
- To add the Backspin / Ground fault detection feature, include the VBG--105 and select the Backspin Probes with the proper voltage range (VBP-112 for a 700 to 1500V range or VBP-113 for a 700 to 2500V range).
- All COSCO controller orders come complete with manuals in both English and the customers language, wiring diagrams, transformer tap arrangement and display parameter list.

Control and Instrument Transformer Protection

- For transformer primary protection, use primary fuse block VPF-1500 for a primary voltage maximum of 1500V or VPF-3000 for a primary voltage maximum of 3000V.
- For transformer secondary protection, use the VSF-100 for the 100VA (VPT-100 transformer, or the VSF-500 for the 500VA (VPT-500) transformer.

COSCO Switchboards

Switchboards

Part Number	Switchboard Specifications
120300	Voltage Maximum -600V, 3 phase,50/60Hz Amp Load Maximum-135A Horse Power-80 hp kVA Maximum-140 kVA
120400	Voltage Maximum-600V, 3 phase, 50/60Hz Amp Load Maximum-160A Horse Power-150 hp kVA Maximum-166 kVA
120500	Voltage Maximum-600V, 3 phase,50/60Hz Amp Load Maximum-320A Horse Power-300 hp kVA Maximum 332 kVA
121500-1	Voltage Maximum-1500V, 3 phase, 50/60 Hz Amp Load Maximum-160A Horse Power-400 hp kVA Maximum-415 kVA
121500-2	Voltage Maximum-1500V, 3 phase, 50/60Hz Amp Load Maximum-320A Horse Power-900 hp kVA Maximum - 830 kVA
123300-1	Voltage Maximum-3300V, 3 phase, 50/60Hz Amp Load Maximum-160A Horse Power-700 hp kVA Maximum-914 kVA
123300-2	Voltage Maximum-3300V, 3 phase, 50/60Hz Amp Load Maximum-320A Horse Power-1500 hp kVA Maximum-1829 kVA
124200-1	Voltage Maximum-4200V, 3 phase, 50/60Hz Amp Load Maximum-400A Horse Power-3000 hp kVA Maximum-2,882 kVA

COSCO Switchboard Features

COSCO Switchboard Standard Features:

- Weatherproof enclosure Nema 3R, welded construction, 12 gauge steel.
- White epoxy powder coat finish for outstanding corrosion protection.
- Separate low voltage and high voltage compartments. (1500V series and higher)
- Main isolation switch, load break type, spring loaded with operating handle.
- Vortex Motor controller Model VMC-100. The Vortex Motor Controller is microprocessor based and is renowned for its reliability in protection and control of submersible pumps. The Vortex Motor Controller lists 116 parameters of readings and set points. Commissioning startups are simplified, as the Vortex automatically addresses the initial ten parameters. Refer to the COSCO Vortex Motor Controller Manual for more details.
- Vortex Display Unit Model VMC-101 complete with VDC-102 control display cable.
- Current limiting fuses for heavy fault current protection.
- Vacuum Contractor. (1500 volt series and higher)
- Recording ammeter with two speed 24 hour / 7 day chart drive.
- Control and instrument potential transformers tapped for appropriate primary voltage range, protected with three primary high voltage fuses and two secondary fuses.
- Current transformers (CTs) multi-tapped 300:5, 200:5, 100:5, and 50:5 and wired to terminal strips. (This ration multi-tap system eliminates the wrapping of heavy conductor around CTs)
- Hand / Off / Auto selector switch and Start push button.
- Control lights: red, amber and green indicating "manual", "auto start" and "run".
- Mechanical / electrical door interlock.
- Labels showing all transformer taps and external terminations.
- Wiring diagrams, display parameter and warning labels.
- Functionality tests of all features.
- Hi-pot test to ensure dielectric strength.
- Manufactured to Canadian Standards Association (CSA) Standard CSA Z-299.3.
- Prime source manufacturer is ISO 9002 certified.



COSCO Switchboard Features (cont.)

COSCO Switchboard Optional Features:

- Vortex Backspin / Ground Fault Relay (VGB-105) with blue control light for Backspin indication.
- External mount run light.
- Lighting and surge arrestors.
- Chemical pump package:
 - i) Chemical pump circuit breaker or fuse.
 - ii) Chemical pump motor starter with thermal overloads.
 - iii) Chemical pump operation auto on/off simultaneously with submersible pump.
- 120 AC accessory outlet with circuit breaker or fuse.
- Cold climate package:
 - i) Space heater.
 - ii) Thermostatic control.
 - iii) Insulated enclosure.
- Nema 4 enclosure.
- Separate cable entry compartment.
- Wiring for control devices other than Vortex Motor Controller.
- Hubs for main cables, pressure cable and chemical pump cable.
- Sun shade.
- Export crating.



COSCO Switchboard Accessories

Recording Ammeter Charts

24 Hour

Part Number	Product Description
CRA-25	Bristol #3800 5 Amp
CRA-250	Bristol #3809 50 Amp
CRA-275	Bristol #3810 75 Amp
CRA-2100	Bristol #3811 100 Amp
CRA-2150	Bristol #3812 150 Amp
CRA-2200	Bristol #3813 200 Amp
CRA-2250	Bristol #3804 250 Amp

7 Day

Part Number	Product Description
CRA-75	Bristol #3802 5 Amp
CRA-750	Bristol #3801 50 Amp
CRA-775	Bristol #3830 75 Amp
CRA-7100	Bristol #3831 100 Amp
CRA-7150	Bristol #3822 150 Amp
CRA-7200	Bristol #3837 200 Amp
CRA-7250	Bristol #3817 250 Amp

Recording Ammeter Chart Drives

Part Number	Product Description
CRA-247	Two speed 24hr/7day chart drive for CRA-430 Bristol chart recorder. Wind up type c/w key, chart bracket and chart hub.
CRA-248	Chart hub and allen key for use with CRA-247 chart drive.

Recording Ammeter Pen

Part Number	Product Description
CRA-31	Red plastic recording pen
CRA-32	Blue plastic recording pen

Junction Box

Part Number	Product Description
140100	5kV Vented Junction Box, prevents gas migration from entering the switchboard. Nema 3, 12 gauge cold rolled steel enclosure with white epoxy powder coat finish Dimensions: 20 " x 20" x 10" Weight: 22 lbs

ESP Distribution Transformers

Canadian Oilwell Systems (COSCO) offers innovative design and quality manufacturing for your transformer requirements. All COSCO transformers are designed, built and tested to Canadian Standards Association (CSA) Standards C0-M1991 and ANSI standards. The prime source manufacturer is ISO 9001 certified.

The COSCO Distribution transformer is designed with the following **Standard Equipment**:

- All copper internal windings (Aluminum as option)
- Vacuum oil filled, nitrogen topped, ONAN (Oil Natural, Air Natural cooling)
- Covered or exposed bushings with clamp type connectors for #6 to 4/0 AWG cable (covered bushings are an option)
- Completely sealed tank with tandem side mount heat exchangers for cooling
- Off circuit tap arrangement of up to 25 taps for accurate secondary voltage supply to the submersible system
- Channel iron skid base and lifting lugs on upper corners
- Tank ground boss with connector for #6 –2/0 cable
- Fill hole (1" pipe fitting with SS plug)
- Nitrogen fill point
- Pressure relief valve (1/4" NPT)
- Oil temperature gauge (maximum indicating type)
- Oil level gauge
- Name plate including tap positions and all pertinent technical data
- Coated with epoxy paint for corrosion protection

All transformers are custom designed and built to suit specific applications. Please complete the following "ESP Transformer Design Data" form and send via fax or email.



Transformer Design Data

Customer: _____

Load (Surface Power required): _____ kVA

Primary Voltage: _____ V

Primary Vector: wye delta

Secondary Voltage: _____ V (see note 1)

Secondary Vector: wye delta

Frequency: 50Hz 60Hz

Number of Taps: _____ (see note 2)

% Increments / tap: _____ %

Voltage increments / tap: _____ V

Number of taps above neutral: _____

Number of taps below neutral: _____

Temperature Rise: _____ °C / °F (see note 3)

Ambient Temperature: _____ °C / °F (see note 3)

Primary Bushings

Location: Top Side

Covered? yes no

Secondary Bushings

Location: Top Side

Covered? yes no

Optional Gauges: Pressure Vacuum

VSD: yes no (see note 4)

Additional Information: _____

- Note 1: The standard voltage range, for Submersible Pumps, is (750 to 2500 V) and (1000 to 3000 V).
- Note 2: Tap Examples: (A) 4 taps x 2.5% increments/tap, 2 above and 2 below neutral. OR (B) Secondary Voltage Range of 750-2500V, 25 taps at 70 V increments / tap.
- Note 3: The total of Temperature Rise and Ambient Temperature should not exceed 105 Deg.C.
- Note 4: For variable speed drive (VSD) applications please include harmonics data if possible.



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COSCO Electrical Connector Systems

COSCO offers a complete line of rugged Electric Feed-through Systems for wellheads used in Electrical Submersible Pump Applications. COSCO connector systems represent the utmost in reliability, simplicity, versatility, and convenience. They are adaptable to any application, onshore or offshore under any condition.

Reliability

The lower connector is the key to the reliability of COSCO Connector Systems. Its unique design eliminates the need for a connection in the annulus, thereby eliminating a weak spot. Corrosion resistant stainless steel is used for the housing and flange of the connector. The compound used to insulate the electric conductors and provide the pressure seal inside the body of the connector is not susceptible to swelling or breakdown caused by wellbore fluids. The unique construction of the connector includes a Torlon face block to protect against pressure damage.

Ease of Installation

The lower connector bolts to the bottom of the tubing hanger by means of a flange. The upper connector bolts to the top of the tubing hanger and the connection between the upper and lower connectors is made within the electrical connection port of the tubing hanger. The lower connector pigtail is spliced to the down hole power cable. No special tools are required for installation.

Versatility

Several different configurations are available to meet any need:

- Two-piece 90-degree top entry
- Three-piece 90-degree top entry
- Side entry systems
- Fail safe systems

A variety of pigtail cable types and sizes are available to meet any application or service.

Low Profile Design

All COSCO connector systems allow a lower profile tree assembly. The side entry system is specifically designed for applications where low tree profiles are critical, such as offshore applications.

Existing Wellheads

COSCO connectors can be installed in most existing wellhead equipment to convert for use with submersible pumps or to replace other types of electric feed-through systems.

Two Piece 90° Top Entry Connector Systems

Top entry connector systems are used to convert existing wellheads for use with electrical submersible pumps or to replace existing electric feed-through systems. COSCO "Universal" tubing head adapters also use the top entry system.

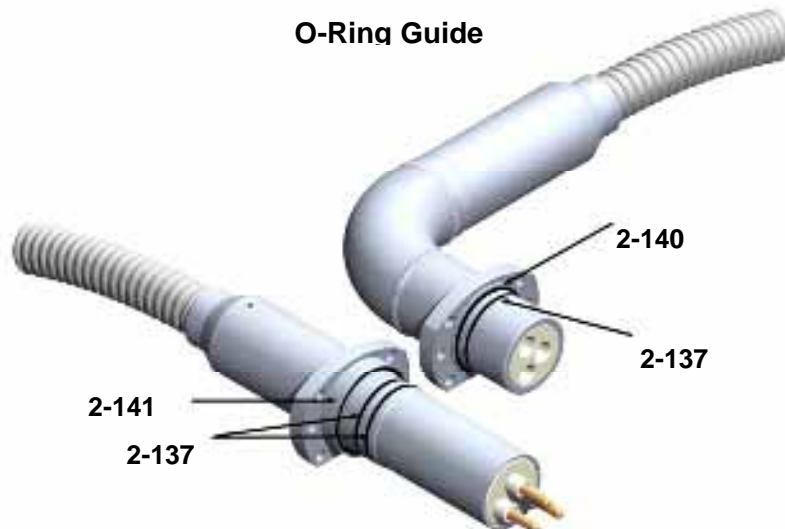
The two piece, top entry system is used where a tubing adapter (bonnet) is not required. It consists of a 90-degree upper connector and a lower connector.

The lower connector bolts to the bottom of the tubing hanger and the upper connector bolts to the top of the tubing hanger. The connection between the two connectors is made within the electrical connection port of the tubing hanger. In this configuration, the tubing hanger remains exposed in the top of the tubing head spool.

To convert existing wellheads to the two piece, top entry system, it is required to change out the tubing hanger.

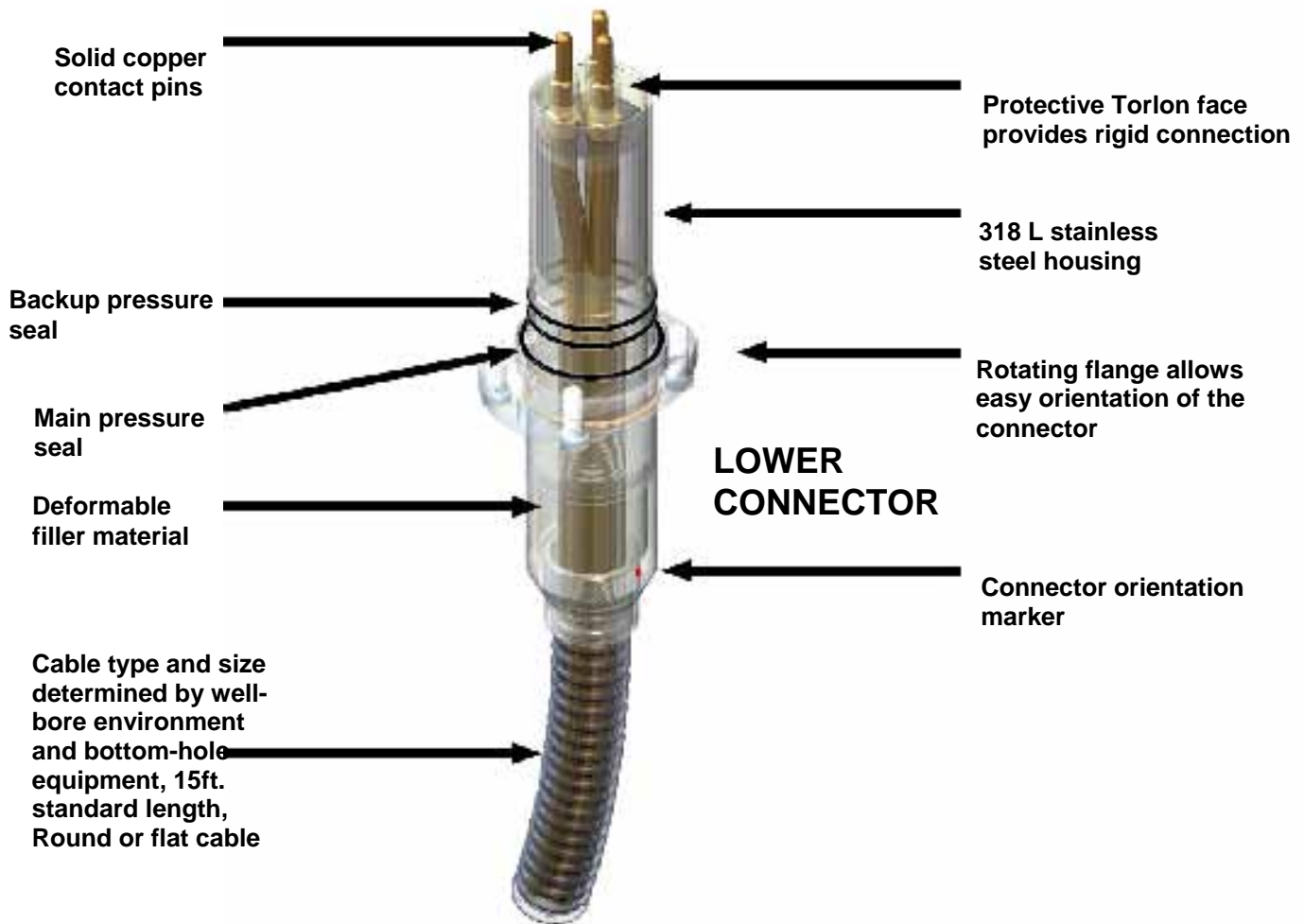
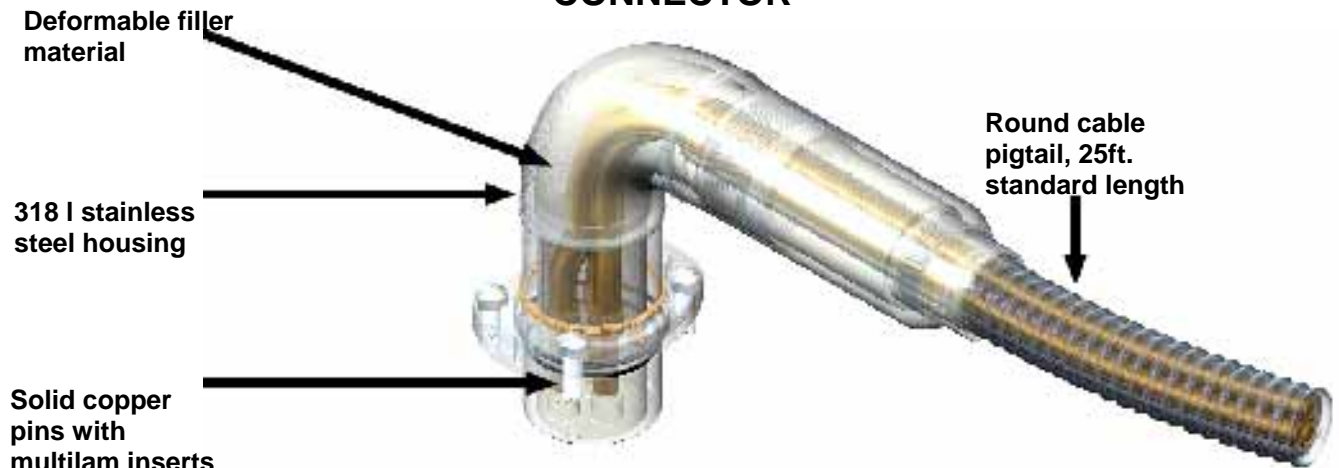


O-Ring Guide



Two Piece 90° Top Entry Connector Systems (cont.)

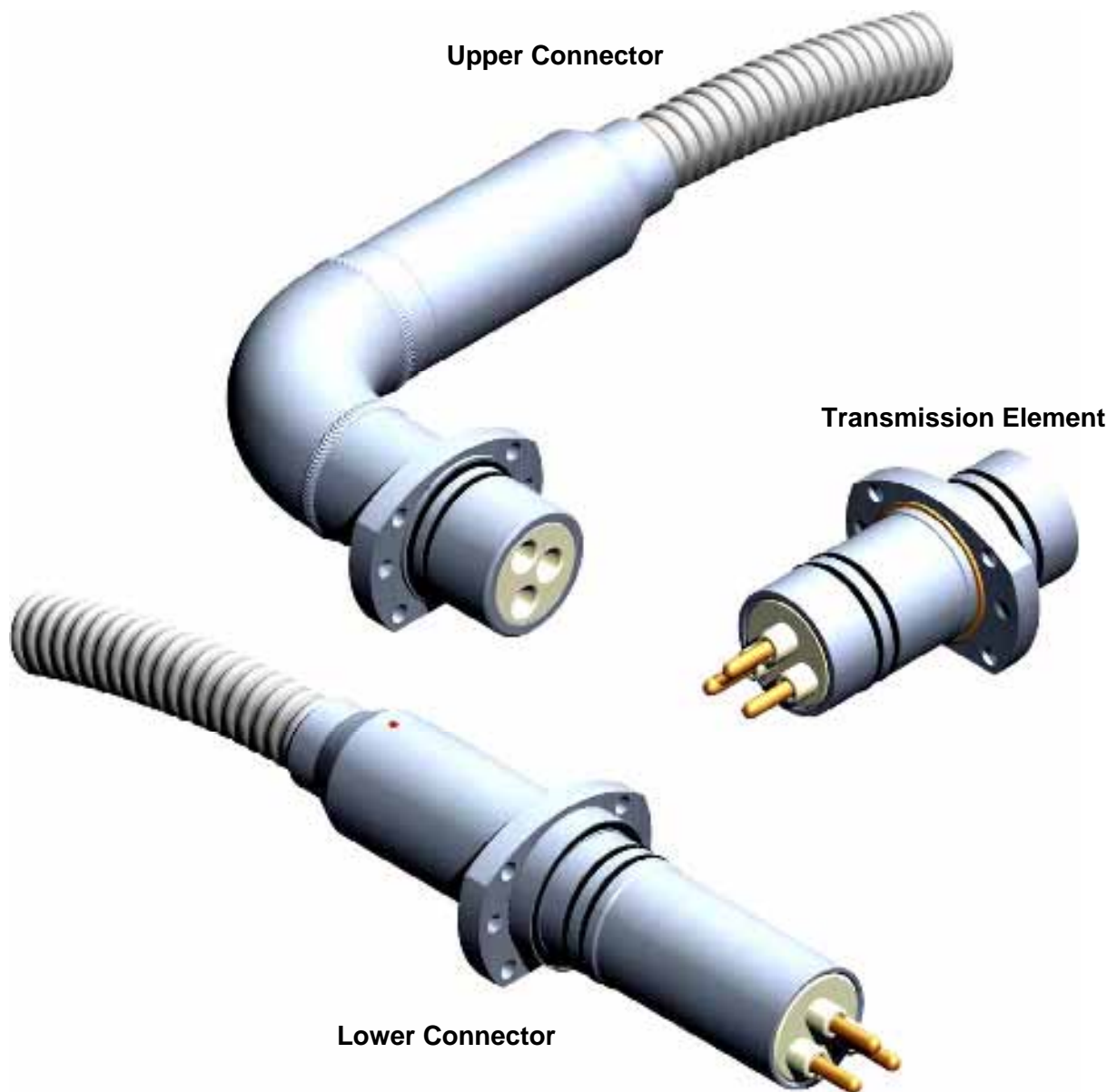
UPPER CONNECTOR



Three Piece 90° Top Entry Connector Systems

The three piece, top entry system is used where a tubing adapter (bonnet) is required. In addition to the upper and lower connectors, a transmission element is used to provide the required extra length to extend through the bonnet (as shown to the right).

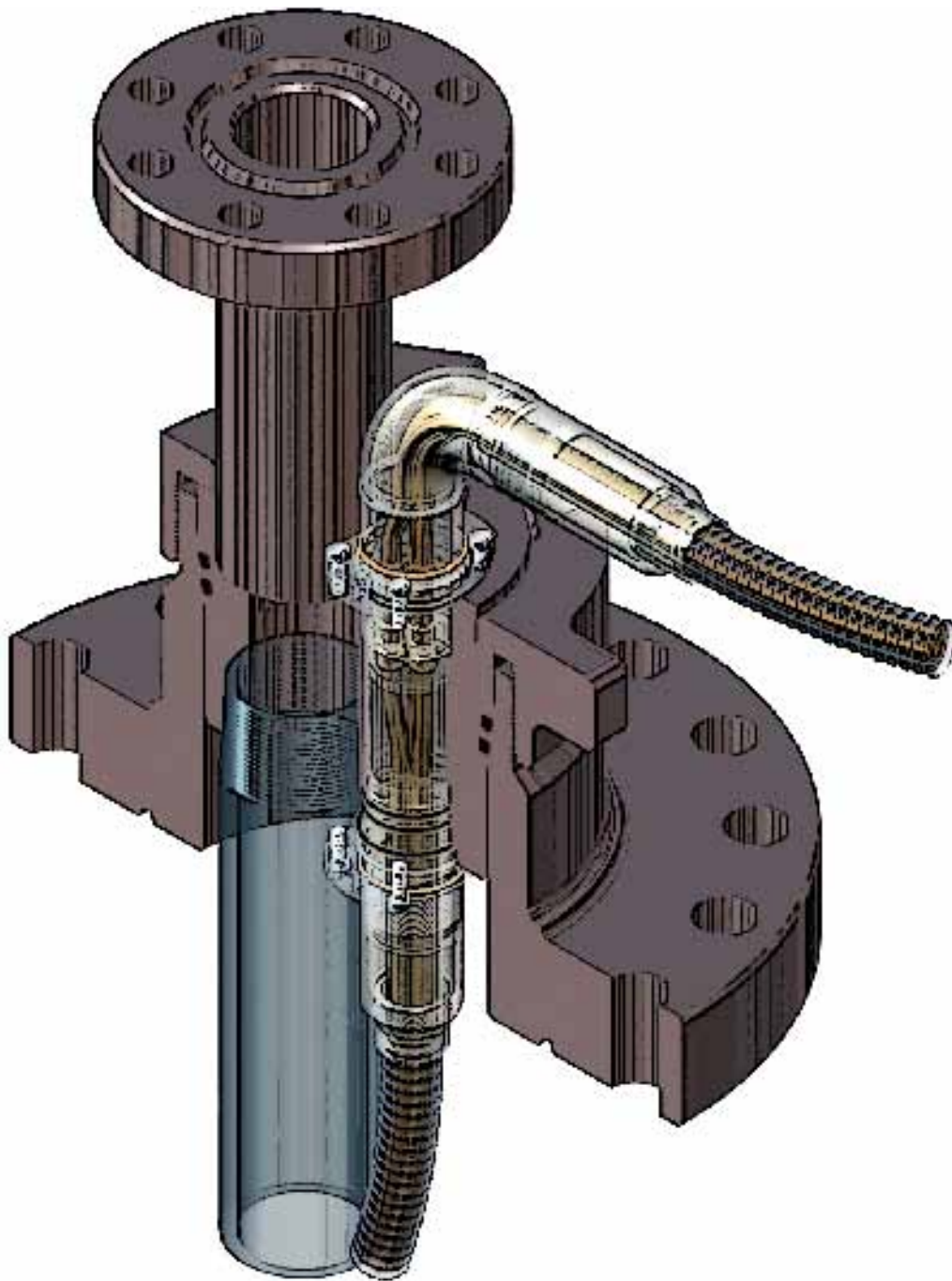
To convert existing wellheads to the three piece, top entry system, it is required to change out the tubing hanger and bonnet.



COSCO Universal Tubing Head Adapters

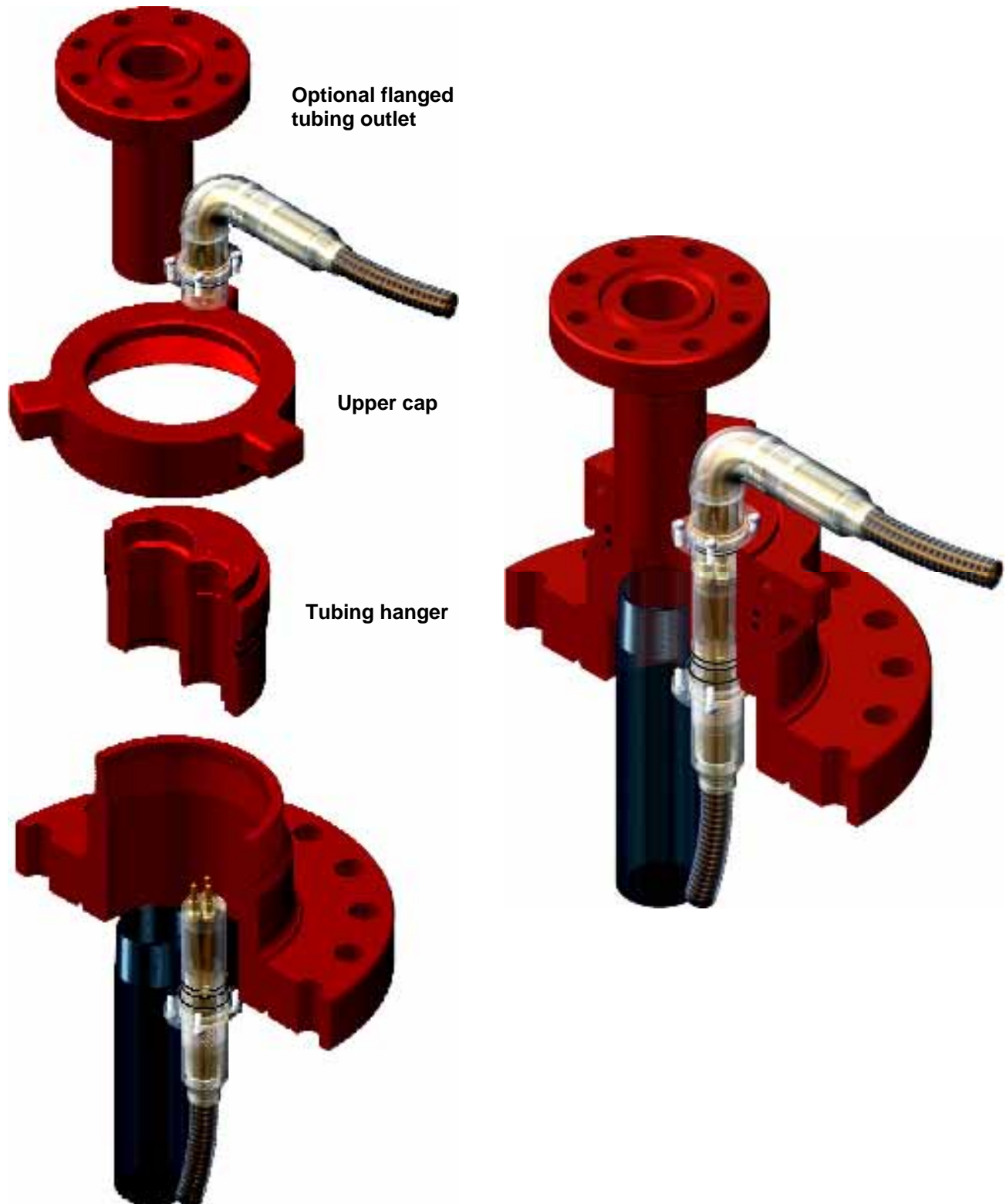
The COSCO “Universal” tubing head adapters are designed to install on top of existing wellhead equipment to convert for use with submersible pumps. Four types of adapters are available in a variety of sizes. All are configured for a top entry electrical system.

- **Type SA “Universal Adapter (shown below)**
- **Type FA Flanged “Universal” Adapter Spools**
- **Type A Flanged “Universal” Adapter Spools**
- **COSCO SAPA Packoff Tubing Head Adapter**



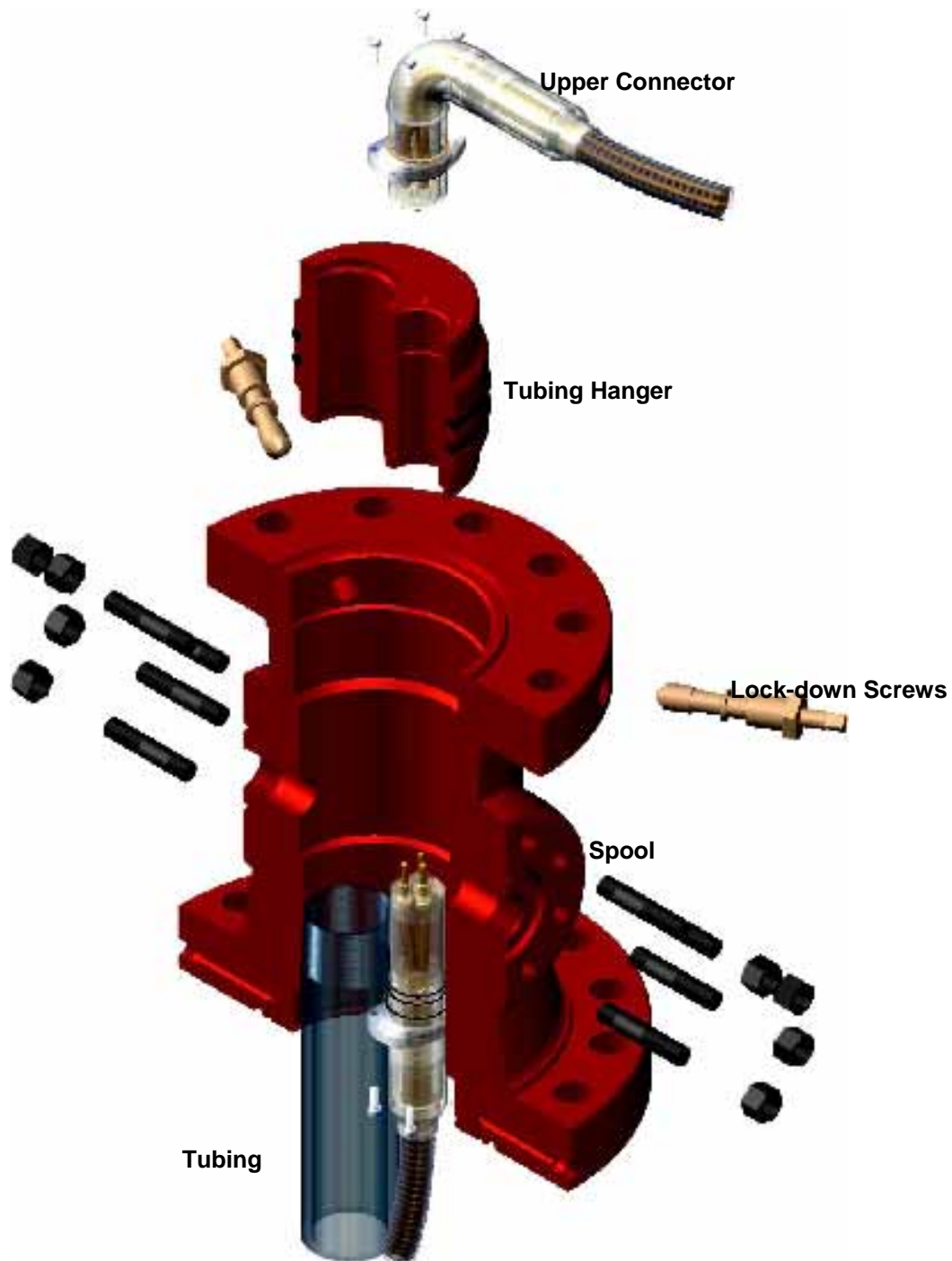
COSCO Type SA Universal Tubing Head Adapters

- Specify flat or round lower pigtail cable.
- The upper cap is 8-5/8" RD thread suitable for a BOP adapter.
- Standard cable conductor size #4 AWG. Other sizes available on request.



COSCO Type FA Universal Tubing Head Adapters

- Allow use of 3-1/2" tubing.
- Upper flange complete with 4 lockscrews.
- Standard adapters do not have side outlets. Side outlets are available in threaded or studded configuration. Specify size and type of side outlets, when ordering.
- Specify round or flat lower pigtail cable.
- Standard cable conductor size #4 AWG. Other sizes available on request.

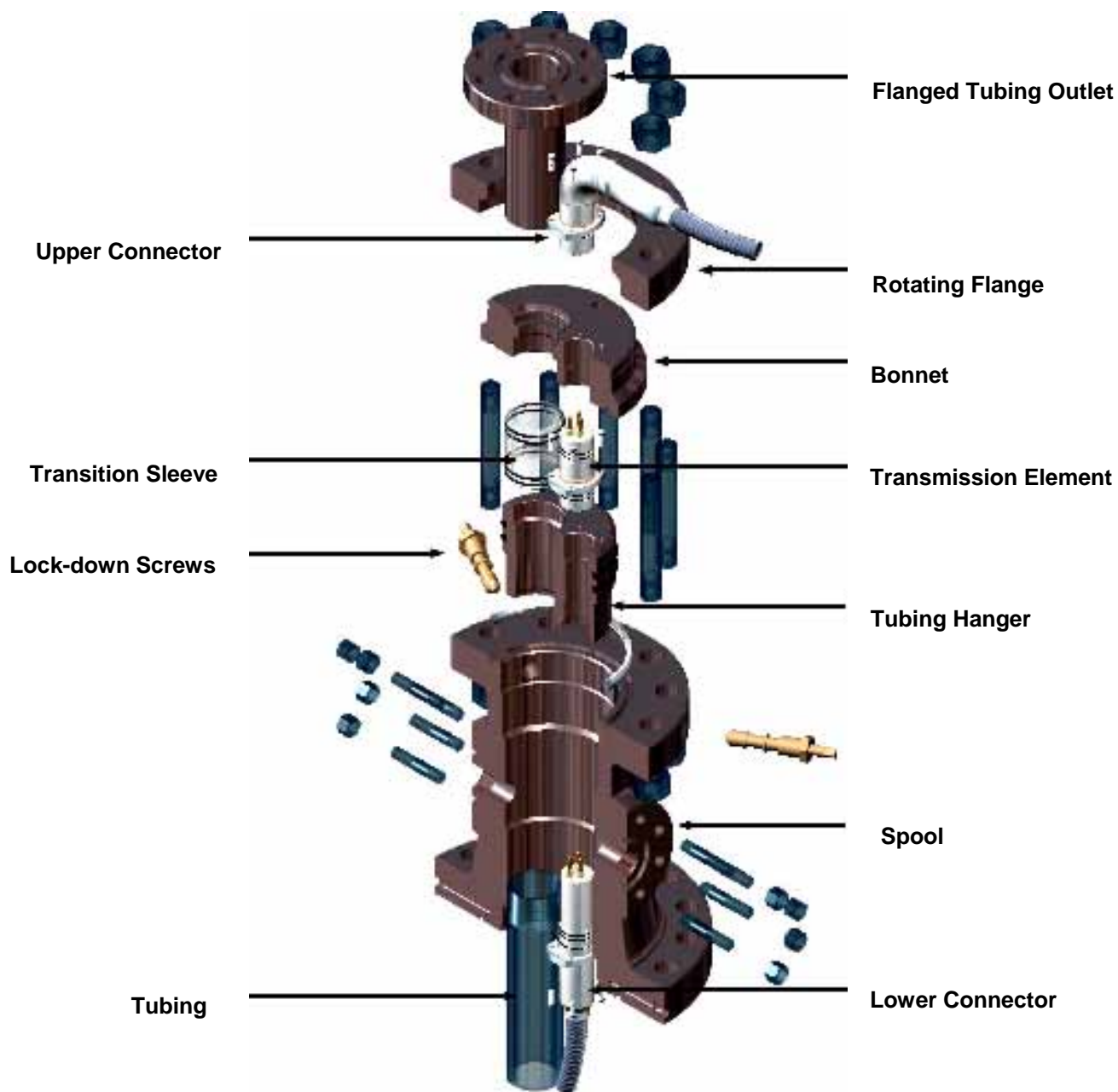


Cut-away view of Type FA Universal Tubing Head Adapter.

COSCO Type A Universal Tubing Head Adapters

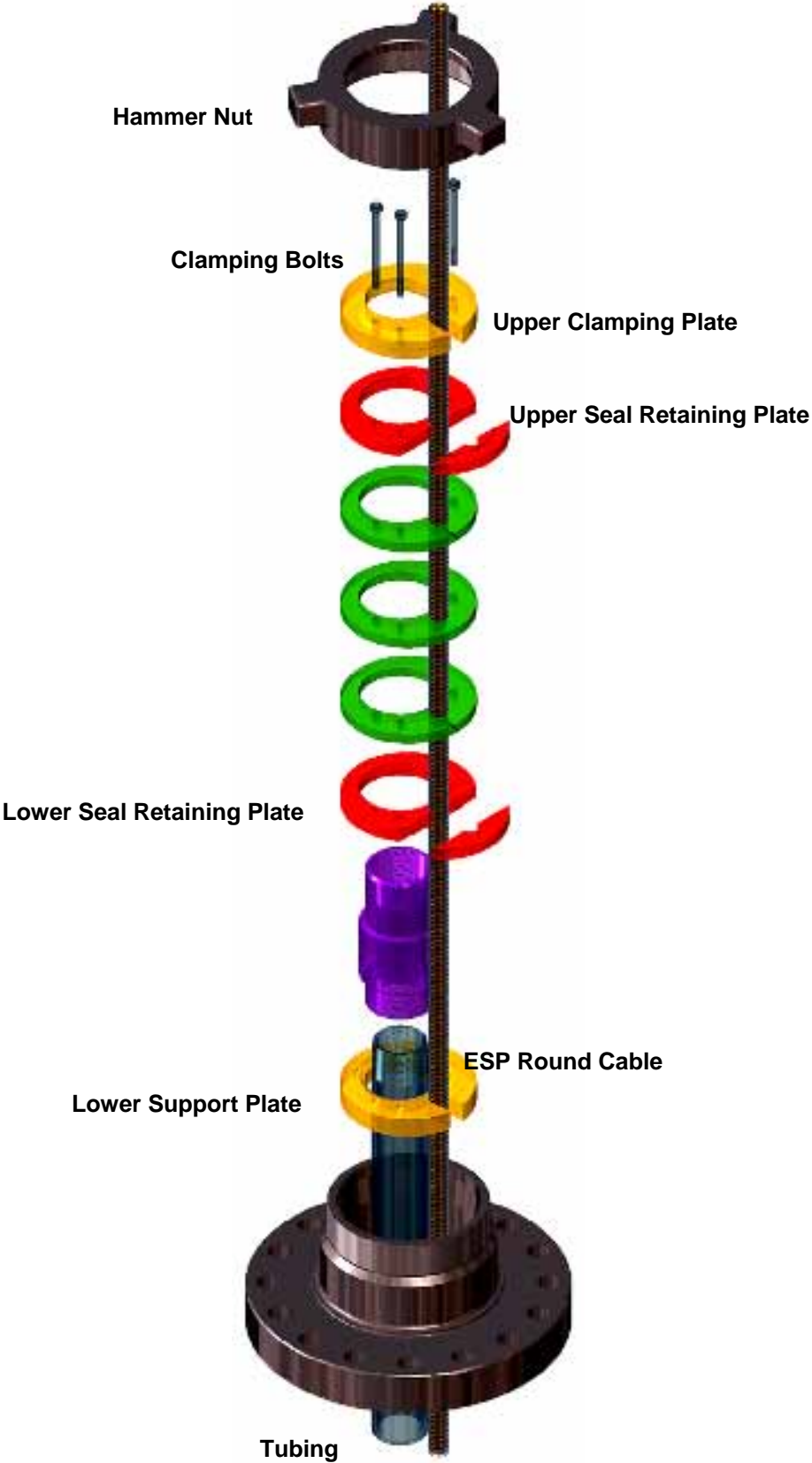
Type A adapter spools are used in conjunction with 3-piece electrical systems when a tubing adapter (bonnet) is required. When ordering, specify adapter spools part number or size and tubing adapter (bonnet) style. (threaded or flanged upper tubing connection).

- Allow use of 3-1/2" tubing.
- Upper flange complete with 4 lock-screws.
- Standard adapters do not have side outlets. Side outlets are available in threaded or studed configuration. Specify size and type of side outlets, when ordering.
- Specify round or flat lower pigtail cable.
- Standard cable conductor size #4 AWG. Other sizes available on request.
- Unique bonnet configuration does not require alignment slot for tubing hanger.



Cut-away exploded view of Type A Universal Tubing Head Adapter.

COSCO SAPA Packoff Tubing Head Adapter



Power Cable

Type A - High Density Polyethylene Construction

3kV Round 180 °F / 82 °C Maximum

Type	AWG	Wire Type	Insulation	Jacket	Armour	Weight		Dimensions	
						lbs/ft	kg/metre	in.	mm
PE	1	STR	PE	HDPE	None	1.20	1.66	1.19	30.2
PE	2	STR	PE	HDPE	None	1.00	1.38	1.12	28.4
PE	4	SLD	PE	HDPE	None	0.69	0.95	0.94	23.9
PE	6	SLD	PE	HDPE	None	0.49	0.68	0.85	21.6
PE	8	SLD	PE	HDPE	None	0.35	0.48	0.76	19.3

Type B - Polypropylene Ethylene and Nitrile Construction

4kV Round 210 °F / 99 °C Maximum

Type	AWG	Wire Type	Insulation	Jacket	Armour	Weight		Dimensions	
						lbs/ft	kg/metre	in.	mm
PPEO	1	STR	PPE	Nitrile	Galv	1.75	2.42	1.37	34.8
PPEO	2	STR	PPE	Nitrile	Galv	1.57	2.17	1.31	33.3
PPEO	4	SLD	PPE	Nitrile	Galv	1.13	1.56	1.16	29.5
PPEO	6	SLD	PPE	Nitrile	Galv	0.85	1.18	1.01	25.7

Type	AWG	Wire Type	Insulation	Jacket	Armour	Weight		Dimensions	
						lbs/ft	kg/metre	in.	mm
PPEO	1	STR	PPE	Nitrile	Monel	1.75	2.42	1.37	34.8
PPEO	2	STR	PPE	Nitrile	Monel	1.57	2.17	1.31	33.3
PPEO	4	SLD	PPE	Nitrile	Monel	1.13	1.56	1.16	29.5
PPEO	6	SLD	PPE	Nitrile	Monel	0.85	1.18	1.01	25.7

4kV Flat 210 °F / 99 °C Maximum

Type	AWG	Wire Type	Insulation	Jacket	Armour	Weight		Dimensions	
						lbs/ft	kg/metre	in.	mm
PPEO	1	STR	PPE	Nitrile	Galv	1.60	2.21	1.89-72	48-18
PPEO	2	STR	PPE	Nitrile	Galv	1.40	1.94	1.79-68	46-17
PPEO	4	SLD	PPE	Nitrile	Galv	1.07	1.48	1.62-62	41-16

Type	AWG	Wire Type	Insulation	Jacket	Armour	Weight		Dimensions	
						lbs/ft	kg/metre	in.	mm
PPEO	1	STR	PPE	Nitrile	Monel	1.60	2.21	1.89-72	48-18
PPEO	2	STR	PPE	Nitrile	Monel	1.40	1.94	1.79-68	46-17
PPEO	4	SLD	PPE	Nitrile	Monel	1.07	1.48	1.62-62	41-16

Power Cable

Type C - Double Ethylene Propylene Diene Methylene (EPDM) Construction

4kV Round 350 °F / 176 °C Maximum

Type	AWG	Wire Type	Insulation	Jacket	Armour	Weight		Dimensions	
						lbs/ft	kg/metre	in	mm
EE	1	STR	EPDM	EPDM	Galv	1.85	2.56	1.37	34.8
EE	2	STR	EPDM	EPDM	Galv	1.57	2.17	1.31	33.3
EE	4	SLD	EPDM	EPDM	Galv	1.20	1.66	1.16	29.5

4kV Flat 350 °F / 176 °C Maximum

Type	AWG	Wire Type	Insulation	Jacket	Armour	Weight		Dimensions	
						lbs/ft	kg/metre	Inches	mm
EE	1	STR	EPDM	EPDM	Galv	1.60	2.21	1.89-72	48-18
EE	2	STR	EPDM	EPDM	Galv	1.40	1.94	1.79-68	46-17
EE	4	SLD	EPDM	EPDM	Galv	1.07	1.48	1.62-62	41-16

Type D - Polypropylene Ethylene and Lead with Braid Construction

4kV Flat 400 °F / 204 °C Maximum

Type	AWG	Wire Type	Insulation	Jacket	Armour	Weight		Dimensions	
						lbs/ft	kg/metre	Inches	mm
ELB	1	STR	EPR	PB	Galv	2.37	3.28	1.7-0.76	44-17
ELB	2	STR	EPR	PB	Galv	2.16	2.99	1.6-0.63	42-16
ELB	4	SLD	EPR	PB	Galv	1.52	2.10	1.3-0.52	34-13
ELB	6	SLD	EPR	PB	Galv	1.25	1.73	1.2-0.48	31-12

Type	AWG	Wire Type	Insulation	Jacket	Armour	Weight		Dimensions	
						lbs/ft	kg/metre	Inches	mm
ELB	1	STR	EPR	PB	Monel	2.37	3.28	1.7-0.76	44-17
ELB	2	STR	EPR	PB	Monel	2.16	2.99	1.6-0.63	42-16
ELB	4	SLD	EPR	PB	Monel	1.52	2.10	1.3-0.52	34-13
ELB	6	SLD	EPR	PB	Monel	1.25	1.73	1.2-0.48	31-12

- PPEO-** Polypropylene Ethylene Insulation, Oil resistant jacket
- ELB-** Ethylene Propylene Rubber Insulation / Lead jacket / Braid
- STR-** Stranded Conductor
- SLD-** Solid Conductor
- PPE-** Polypropylene Ethylene
- EPR-** Ethylene Propylene Rubber
- EPDM-** Ethylene Propylene Diene Methylene
- PE-** Polyethylene
- HDPE-** High Density Polyethylene
- PB-** Lead

Cable Accessories

Cable Reels-Steel

Normal size		50"	60"	78"	85"	90"
Flange Diameter	Inches	50	66	78	85	90
	mm	1270	1676	1981	2159	2286
Drum Diameter	inches	30	36	42	42	42
	mm	762	914	1067	1067	1067
Traverse Width	inches	40	40	57	57	57
	mm	1016	1016	1448	1448	1448
Overall Width	inches	46	46	64	64	64
	mm	1168	1168	1626	1626	1626
Weight	lbs	335	460	811	975	1064
	kg	152	209	368	442	483

Cable Clamps Saddles

Cable Type	Length		Weight	
	Inches	mm	lbs	kg's
#6 Armour -#8 NO Armour	2	51	0.06	0.03
#4 Armour -#6 NO Armour	2	51	0.08	0.04
#2 Armour -#4 NO Armour	2	51	0.09	0.04
#1 Armour -#2 NO Armour	2	51	0.10	0.05

Flat Cable Guard

Material	Length		Weight	
	Feet	Metres	lbs	kg's
Galvanized Carbon Steel	9.6	3	8	3.4

Flat Cable Extensions

456 Series

Description	Size	Armor	Length	Weight
KELB 6LG4KV	#6	Galv	30	33
KELB 6LG4KV	#6	Galv	40	44
KELB 6LG4KV	#6	Galv	55	60
KELB 6LG4KV	#6	Galv	70	77
KELB 6LG4KV	#6	Galv	90	100
KELB 6LG4KV	#6	Galv	110	122
KELB 6LG4KV	#6	Galv	120	133

540 Series

Description	Size	Armor	Length	Weight
KELB 4LM4KV	#4	Monel	30	39
KELB 4LM4KV	#4	Monel	40	52
KELB 4LM4KV	#4	Monel	55	72
KELB 4LM4KV	#4	Monel	70	91
KELB 4LM4KV	#4	Monel	90	118
KELB 4LM4KV	#4	Monel	110	144
KELB 4LM4KV	#4	Monel	120	157

Description	Size	Armor	Length	Weight
KELB 4LG4KV	#4	Galv	30	41
KELB 4LG4KV	#4	Galv	40	54
KELB 4LG4KV	#4	Galv	55	74
KELB 4LG4KV	#4	Galv	70	94
KELB 4LG4KV	#4	Galv	90	121
KELB 4LG4KV	#4	Galv	110	147
KELB 4LG4KV	#4	Galv	120	157

Check Valves / Bleeders

Common construction is carbon steel. Check and Bleeder valves are available in corrosion resistant metals such as stainless steel and Monel.

Please inquire for prices and delivery information.

Check Valves

Type/Size	Part Number	Length		Weight	
		mm	in.	kg	lb
2"OD 10rd EUE tubing		15	6	3	6
2 3/8"OD 8rd EUE tubing		18	7	4	8
2 3/8" OD 10rd reg tubing		18	7	4	8
2 7/8" OD 8rd EUE tubing		18	7	5	12
3 1/2" OD 8rd EUE tubing		20	8	8	18
3 1/2" OD 10rd reg tubing		20	8	8	18
4 1/2" OD 8rd EUE tubing		20	8	11	24
4 1/2" OD 8rd reg tubing		20	8	11	24
5 1/2" OD 8rd casing		33	13	14	30
6 5/8" OD 8rd casing		36	14	20	45
7" OD 8rd casing		51	20	37	81

Bleeder Valves

Type/Size	Part Number	Length		Weight	
		mm	in.	kg	lb
2 7/8" OD 8rd EUE tubing		15	6	3	6
2 7/8" OD 10rd EUE tubing		18	7	4	8
3 1/2" OD 8rd EUE tubing		18	7	4	8
3 1/2" OD 10rd reg tubing		18	7	5	12

Check and Bleeder Valves

Type/Size	Part Number	Length		Weight	
		mm	in.	kg	lb
2 3/8" OD 8rd EUE tubing		15	6	3	6
2 7/8" OD 8 rd EUE tubing		18	7	4	8
3 1/2" OD 8rd EUE tubing		18	7	4	8
4 1/2" OD 8d EUE tubing		18	7	5	12
4 1/2" OD 8rd reg tubing		20	8	8	18
5 1/2" OD 8rd casing		20	8	8	18
6 5/8" OD 8rd casing		20	8	11	24
7" OD 8rd casing		20	8	11	24
8 5/8" 8rd casing		33	13	14	30

For 3.5 E.U.E. 8 RD

- Every check Valve and Drain Valve comes with a Quality Assurance sheet with 100% tracability on all manufactured parts.
- Tracability is direct to the mill. Mill specs can be provided.
- All E.U.E. 8RD Threads are gauged to API Spec 5b with certified guages.
- Valve Bodies are of a 4130 HR Steel. Internal components are a 303 Stainless Steel. The Monel Break-off Plug is a K- 400 specification.
- All Check and Drain Valves are Phosphate Coated for added corrosion resistance.
- Drain valves come standard with Brass Break-off Plugs.
- All parts are manufactured in Canada and meet NACE Specifications.
- All Check and Drain Valves come with Thread Protection.

COSCO Pump Accessories

Reducing Nipples

Description	Length		Weight	
	mm	in.	kg	lb
2 3/8" 8 RD x 2 7/8" 8 RD (EUE)	203	8	1	3
2 3/8" 8 RD x 3 1/2" 8 RD (EUE)	203	8	4	2
2 7/8" 8 RD x 3 1/2" 8 RD (EUE)	203	8	4	8
3 1/2" 8 RD x 4 1/2" 8 RD (EUE)	254	10	12	5

Standing Valve - Reverse Flow Regulator

Surface Wireline Retrievable

Description	Length		Weight	
	mm	Inches	Kg's	Lbs
2 3/8" Standing Valve	480	18.7	4.5	10
2 3/8" Landing Nipple	235	9.3	5.9	13
2 7/8" Standing Valve	480	18.7	5.5	12
2 7/8" Landing Nipple	235	9.3	6.4	14
3 1/2" Standing Valve	480	18.7	6.8	15
3 1/2" Landing Nipple	235	9.3	6.8	15
4 1/2" Landing Nipple	480	18.7	7.7	17
2" JDC Pulling Tool	235	9.3	7.3	16
(for 2 3/8" and 2 7/8" Valve)	445	17.5	6.4	14
2 1/2" JDC Pulling Tool (for 3 1/2" and 4 1/2" Valve)	457	18	6.8	15

- All valves equipped with Teflon MOLY 'V' packing rings.
- All valves are stainless steel. (316)
- Nipples available in stainless steel or L-80 phosphate steel.

" WJ" Standing Valve

A. Retrieve Procedure:

Standard wireline tools (stem & jars)

1. Use appropriate pull tool:
 - 2" reg. - 2" Camco JDC or Otis SB
 - 2 1/2" reg. - 2" Camco JDC or Otis SB
 - 3" reg. - 2 1/2" Camco JDC or Otis SB
 - 4 1/2" reg. - 3" Camco JDC or Otis SB

2. Latch onto fish neck c/w proper wireline tools.
Pull equalizing stem off seat and hold until valve is equalized. Pull valve to surface.

B. To Service Regulator:

Body built in three sections: top, center, lower.

1. Break top section to check valve and seat surface.
2. Break lower section replace packing.

C. Running Procedure

1. Using proper sized JDC or Otis SB running-pulling tool and wireline tool string; run onto well-bore, jar into WJ seating nipple and shear off.

NOTE:

- Standard "WJ" valve manufactured from 316 SS.
- Standard "WJ" seating nipple manufactured from C-75 or L-80 material.
- Other materials such as Monel K-500 or Incoloy 925 on request.

