



PROUDLY ENGINEERED
IN THE U.S.A. SINCE 1951.

SIMFLO®

**VERTICAL LINESHAFT
+
SUBMERSIBLE TURBINE
PUMPS**

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or the location of your nearest SIMFLO distributor,
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Garden City, KS 67846
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www.SIMFLO.com

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General Policy

Terms and conditions

SIMFLO is herein referred to as the “SELLER” and the customer or entity purchasing goods (Goods) from the Seller is referred to as the “BUYER”. The Terms and Conditions herein set forth and the Seller’s Response, hereafter “QUOTATION” to Buyer’s purchase order to which a copy of these Terms and Conditions are attached and incorporated in the Quotation constitutes the complete and exclusive statement of the Terms and Conditions upon which Seller is agreeing to sell to Buyer the goods described in the Quotation. Any terms and conditions set forth in Buyer’s purchase order which are different or inconsistent with the Quotation, including Seller’s Terms and Conditions of the sale, are rejected. Buyer will furnish written confirmation (electronic, computer or other commercially accepted communication) of acceptance of the conditions of the sale as set forth in the Quotation to Seller. Seller reserves the right in its sole discretion to refuse any order.

1. **PRICES**: Prices for Goods are subject to change without notice based on the following: Any change in price will be adjusted to reflect subsequent changes in the cost to Seller of sub-suppliers materials, supplies or other increases and will be based on prices in effect at the time of the requested shipment date and each shipment will be invoiced at such price. All prices are exclusive of and do not include taxes, transportation or insurance costs; all such costs are the responsibility of and shall be paid by Buyer.
2. **TAXES**: Any current or future tax or government charge (or increase in same) affecting Seller’s costs of production sale, or delivery or shipment, or which seller is otherwise required to pay or collect in connection with the sale, purchase, delivery, storage, processing, use of consumption of Goods, shall be for Buyer’s account and shall be added to the price or billed to Buyer separately, at Seller’s election.
3. **ARBITRATION**: Seller And Buyer agree that any controversy or claim, excluding collections and past due accounts, arising out of or relating to the agreement to sell Goods or the breach thereof, shall be submitted to mandatory arbitration in accordance with the Commercial Arbitration Rules of the American Arbitration Association and the arbitration Award or Dispositive Order shall be final and binding and may be entered in any court of competent jurisdiction in the State of Arizona. The exclusive place of arbitration shall be within Cochise County, State of Arizona and the parties submit to such jurisdiction. Collections and past due accounts may be filed in the appropriate court located in Cochise County, Arizona, and Buyer submits to the exclusive venue and jurisdiction of said Cochise County, Arizona.
4. **TERMS OF PAYMENT**: Unless otherwise specified by Seller, terms are net thirty (30) days from date of Seller’s invoice in U.S. currency. Seller may at its option, require copies of pertinent contracts, financial statements and other documents relative to any given sale in order to evaluate Buyer’s credit status or the credit status of any third party with whom Buyer has a contractual relationship concerning the Goods to be furnished to buyer. Failure or delay in delivery of this information will postpone production release and may bring about price escalation. Seller shall have the right, among other remedies, either to terminate this agreement or suspend further performances under this and/or other agreements with Buyer in the event Buyer fails to make any payment when due, which other agreements Buyer and Seller hereby amend accordingly. Buyer shall be liable for all expenses, including attorneys’ fees, relating to the collection of past due amounts. If any payment owed to Seller is not paid when due, it shall bear interest, at a rate to be determined by Seller, which shall not exceed the maximum rate permitted by law, from the date on which it is due until it is paid. Should Buyer’s financial responsibility become unsatisfactory to Seller, cash payments or security satisfaction to Seller may be required by Seller for future deliveries and for the Goods sold to Buyer by Seller, which security interest shall continue until all such Goods are fully paid for in cash, and Buyer, upon Seller’s demand, will execute and deliver to Seller such instruments as Seller requests to protect and perfect such security interest. Payment by Buyer shall not be conditional upon Buyer receiving payment from any third party.
5. **SHIPMENT AND DELIVERY**: While Seller will use all responsible commercial effort to maintain the delivery date(s) acknowledged or quoted by Seller, all shipping dates are proximate and not guaranteed. Shipment dates are best estimates only at time of proposal and subject to change based on manufacturing load and sub-supplier schedules at Sellers date of order and/or full release to manufacture. Seller reserves the right to make partial shipments. Seller, at its option, shall not be bound to tender delivery of any Goods postponed or delayed by Buyer for any reason. Buyer agrees to reimburse Seller for any and all storage costs and other additional expenses resulting therefrom. Risk of loss and legal title to the Goods shall transfer to Buyer for sales in which the end destination of the Goods is outside the United States immediately after the Goods have passed beyond the territorial limits of the United States. For all other shipments, risk of loss for damage and responsibility shall pass from Seller to Buyer upon delivery to and receipt by carrier at Seller’s shipping point. All shipments are F.O.B. Seller’s shipping point. Any claims for shortages or

General Policy

damages suffered in transit are the responsibility of the Buyer and shall be submitted by Buyer directly to the carrier. Shortages or damages must be identified and signed for at the time of delivery. Seller is not responsible for any such shortages or loss.

6. **LIMITED WARRANTY:** Subject to the limitations of Section 7, Seller warrants that the Goods manufactured by Seller will be free from defects in material and workmanship and meet Seller's published specifications at the time of shipment under normal use and regular service and maintenance for a period of eighteen months from the date of shipment of the Goods by Seller, or one year from start-up whichever occurs first, unless otherwise specified by Seller in writing. Products and Special Coating Applications purchased by the Seller from a third party for resale to Buyer ("Resale Products") shall carry only the warranty extended by the original manufacturer or supplier. ANY ITEM OF THE PRODUCT(S) WHICH IS NOT MANUFACTURED OR APPLIED BY SELLER IS NOT WARRANTED BY SELLER and shall be covered only by the express warranty, if any, of the manufacturer or applicator thereof. **THE WARRANTY SET FORTH IN THIS SECTION 6 AND THE WARRANTY SET FORTH IN SECTION 7, ARE THE SOLE AND EXCLUSIVE WARRANTIES GIVEN BY SELLER WITH RESPECT TO THE GOODS AND ARE IN LIEU OF AND EXCLUDE ALL OTHER WARRANTIES, EXPRESS OR IMPLIED ARISING BY OPERATION OF LAW OR OTHERWISE, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WHETHER OR NOT THE PURPOSE OR USE HAD BEEN DISCLOSED TO SELLER IN SPECIFICATIONS, DRAWINGS OR OTHERWISE, AND WHETHER OR NOT SELLER'S PRODUCTS ARE SPECIFICALLY DESIGNED AND/OR MANUFACTURED BY SELLER FOR BUYER'S USE OR PURPOSE.**

This warranty does not extend to any losses or damages due to misuse, accident, abuse, neglect, normal wear and tear, negligence (other than Seller's), unauthorized modification or alteration, use beyond rated capacity, unsuitable power sources or environmental conditions, improper installation, repair, handling, maintenance or application or any other cause not the fault of the Seller. To the extent that Buyer or its agents has supplied specifications, information, representation of operating conditions or other conditions or other data to Seller in the selection or design of the Goods and the preparation of Seller's quotation, or in the event that actual operating conditions or other conditions differ from those represented by Buyer, any warranties or other provisions contained herein which are affected by such conditions shall be null and void. Equipment performance is not warranted unless separately agreed to by the Seller. Seller manufactures engineered to order products based on the design point specified by the buyer. Warranty on performance results will be based on laboratory tests performed at Sellers location. Due to the inaccuracies of field testing, any conflicts between the results of field testing conducted and laboratory tests, laboratory tests will control. No equipment will be furnished on the results of field testing. (See Section 13)

If within thirty (30) days after Buyer's discovery of any claimed warranty defects within warranty period, Buyer notifies Seller thereof in writing; Seller shall, at its option and as Buyer's exclusive remedy, repair, correct, replace or refund the purchase price for, that portion of the Goods found by Seller to be defective. Failure by Buyer to give such written notice within the applicable time period shall be deemed absolute and unconditional waiver of Buyer's claims for such defects. Seller shall have the right to require the Buyer to deliver the Goods to Seller's designated repair center or manufacturing facility. All responsibility and expense associated with removal, dismantling, reinstallation and transportation to and from Seller's designated repair center or manufacturing facility and the time and expense of Seller's personnel and representatives for site travel and diagnosis under this warranty shall be borne by the Buyer. Goods repaired or replaced during the warranty period shall be covered by the foregoing warranty for the remainder of the original warranty period or ninety (90) days from the date of shipment, whichever is longer. Buyer assumes all other responsibility for any loss, damage, or injury to persons or property arising out of, connected with, or resulting from the use of Goods, whether alone or in combination with other products/components.

Section 6 & 7 apply to any entity or person, who may buy, acquire or use the Goods, including entity or person who obtain Goods from Buyer, and shall be bound by limitations therein. Buyer agrees to provide such subsequent transferee conspicuous, written notice of the provisions of Section 6 and 7.

7. **LIMITATION OF REMEDY AND LIABILITY: THE SOLE AND EXCLUSIVE REMEDY FOR BREACH OF ANY WARRANTY HEREUNDER SHALL BE LIMITED TO REPAIR, CORRECTION OR REPLACEMENT, OR REFUND OF THE PURCHASE PRICE UNDER SECTION 6.**

SELLER SHALL NOT BE LIABLE FOR DAMAGES CAUSED BY DELAY IN PERFORMANCE AND THE REMEDIES OF BUYER SET FORTH IN THIS AGREEMENT ARE EXCLUSIVE. IN NO EVENT, REGARDLESS OF THE FORM OF THE CLAIM OR CAUSE OF ACTION (WHETHER BASED IN CONTRACT, INFRINGEMENT, NEGLIGENCE, STRICT LIABILITY, OTHER TORT OR OTHERWISE), SHALL SELLER'S LIABILITY TO BUYER AND/OR ITS CUSTOMERS EXCEED THE PRICE PAID BY

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BUYER FOR THE SPECIFIC GOODS PROVIDED BY SELLER GIVING RISE TO THE CLAIM OR CAUSE OF ACTION. BUYER AGREES THAT IN NO EVENT SHALL SELLER'S LIABILITY TO BUYER AND/OR ITS CUSTOMERS EXTEND TO INCLUDE INCIDENTAL, CONSEQUENTIAL OR PUNITIVE DAMAGES.

The term "consequential damages" shall include but not be limited to, loss of anticipated profits, business interruption, loss of use, revenue, liquidated damages, production impacts, loss of production or progress of construction, reputation and data, cost incurred, included without limitation, for capital fuel power and loss or damage to property or equipment,

It is expressly understood that any technical advice furnished by Seller with respect to the use of the Goods is given without charge, and Seller assumes no obligation or liability for the advice given, or result obtained, all such advice being given and accepted at Buyer's risk.

8. **EXCUSE OF PERFORMANCE:** Seller shall not be liable for delays in performance or for non-performance due to acts of God; acts of Buyer; war; fire; flood; weather; sabotage; strikes; or labor disputes; civil disturbances or riots; governmental requests, restrictions, allocations, laws, regulations, orders or actions; unavailability of or delays in transportation; default of suppliers; or unforeseen circumstances or any events or causes beyond Seller's reasonable control. Deliveries or other performances may be suspended for an appropriate period of time or canceled by Seller upon notice to Buyer in the event of any occurrence of the foregoing, but the balance of the agreement shall otherwise remain unaffected as a result of the foregoing.
If Seller determines that its ability to supply the total demand for the Goods or to obtain material used directly or indirectly in the manufacture of the Goods, is hindered, limited or made impracticable due to causes set forth in the preceding paragraph, Seller may allocate its available supply of the Goods or such material (without obligation to acquire other supplies of any such Goods or material) among itself and its Buyers on such a basis as Seller determines to be equitable without liability for any failure of performance which may result therefore.
9. **CANCELLATION:** Buyer may cancel orders only upon reasonable advance written notice and upon payment to Seller of Seller's cancellation charges, which include, among other things, all cost and expenses incurred, including cost of commitments made, by the Seller and a reasonable profit thereon. Seller's determination of such termination charges shall be conclusive.
10. **CHANGES:** Buyer may request changes or additions to the Goods consistent with the Seller's specifications and criteria. In the event Seller accepts such changes or additions, Seller may revise the price and dates of delivery. Seller reserves the right to change design and specifications for the Goods without prior notice to the Buyer, except with respect to Goods being made-to-order for Buyer. Seller shall have no obligation to install or make such change in any Goods manufactured prior to the date of such change.
11. **NUCLEAR/FIRE/MEDICAL:** GOODS SOLD HEREUNDER ARE NOT FOR USE IN CONNECTION WITH ANY NUCLEAR, FIRE SYSTEMS, MEDICAL, LIFE-SUPPORT AND RELATED APPLICATIONS. Buyer accepts Goods with the foregoing understanding, agrees to communicate the same in writing to any subsequent purchasers or users and to defend, indemnify and hold harmless Seller for any claims, losses, suits, judgments and damages, including incidental and consequential damages, arising from such use, whether the cause be based in tort, contract or otherwise, including allegations that the Seller's liability is based on negligence or strict liability.
12. **ASSIGNMENT:** Buyer shall not assign its rights or delegate its duties hereunder or any interest herein without the prior written consent of Seller, and any such assignment, without such consent, shall be void.
13. **INSPECTION/TESTING:** Buyer at its option and expense may inspect and observe the testing by Seller of the Goods for compliance with Seller's standard test procedures prior to shipment, which inspection and testing shall be conducted at Seller's plant at such reasonable time as is specified by Seller. Any rejection of the Goods must be made promptly by Buyer before shipment. Test shall be deemed to be satisfactorily completed and the test fully met when the Goods meet Seller's criteria for such procedures. Acceptance by Buyer or Buyer's representative of any witnessed testing or coatings will preclude any future rejection.
14. **STANDARD, TOLERANCE:** Except in particulars specified by the Buyer expressly agreed to in a writing signed by Seller, the goods furnished hereunder are produced in accordance with the standard manufacturing practices at the country of origin. All materials are subject to mill tolerances and variations, consistent with normal manufacturing practice with respect to dimension, weight, straightness, section, composition and mechanical properties, normal

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variations in surface and internal conditions and in quality to deviations in tolerances and variations consistent with practical testing and Seller is not responsible for any deterioration in quality.

15. **DRAWINGS:** Seller's prints and drawings (including without limitation, the underlying technology) furnished by Seller to Buyer in connection with Seller's Quotation are the property of Seller and Seller retains all rights, including without limitation, exclusive rights of use, license, and Buyer shall return all copies (in whatever medium) of such prints or drawings to Seller immediately upon request therefore.
16. **EXPORT/IMPORT:** Buyer agrees that all applicable import and export control laws, regulations, orders and requirements, including without limitation those of the United States and European Union, and the jurisdictions in which the Seller and Buyer are established or from which the Goods may be supplied, will apply to their receipt and use, in no event shall Buyer use, transfer, release, import, export, Goods in violation of such applicable laws, regulations, orders or requirements.
17. **GENERAL PROVISIONS:** These terms and conditions supersede all other communications, negotiations, and prior oral or written statements regarding the subject matter of these terms and conditions. No change, modification, rescission, discharge, abandonment, or waiver of these terms and conditions shall be binding upon the Seller unless made in writing and signed on its behalf by a duly authorized officer of Seller. No conditions, usage of trade, course of dealing or performance, understanding or agreement purporting to modify, vary, explain, or supplement these terms and conditions shall be binding unless hereafter made in writing and signed by the party to be bound, and no modification or additional terms shall be applicable to this agreement by Seller's receipt, acknowledgement, or acceptance of purchase orders, shipping instruction forms, or other documentation containing terms at variance with or in addition to those set forth herein. Any such modifications or additional terms are specifically rejected and deemed a material alteration hereof. If this document shall be deemed an acceptance of a prior offer by Buyer, such acceptance is expressly conditional upon Buyer's assent to any additional or different term set forth herein. There is no waiver by either party with respect to any other breach or default or of any other right or remedy, unless such waiver be expressed in writing and signed by the party to be bound. All typographical or clerical errors made by Seller in any quotation, acknowledgement or publication are subject to correction. The validity, performance, and all other matters relating to the interpretation and effect of this agreement shall be governed by the laws of the State of Arizona without regard to its conflicts of law principles. No action, regardless of form, arising out of transactions relating to this contract, may be brought by either party more than two years after the cause of action has accrued. The U.N convention on contracts for the International Sales of Goods shall not apply to this agreement.
18. **TITLE AND INSURANCE:** Title to the Goods and risk of loss or damage shall pass to Buyer at the f.o.b. point, except that a security interest in the Goods and proceeds and any replacement shall remain in Seller, regardless of method of attachment to realty or other property, until the full price has been paid in cash. Buyer agrees to do all acts necessary to perfect and maintain said security interest, and to protect Seller's interest by adequately insuring the Goods against loss or damage from any external cause with Seller named as insured or co-insured. Seller and Buyer agree to maintain liability insurance in commercially reasonable amounts covering claims of any kind or nature for damage to property or personal injury including death made by anyone that may arise from activities performed or facilitated by this contract, whether these activities are performed by that company, its employees, agents, or anyone directly engaged or employed by that party or its agents. Evidence of an in force policy of liability insurance will be exchanged by the parties prior to shipment of the goods.

Pump Model Designation and Cross Reference

SIMFLO	Simmons Pump	Simflo Pump
SP5XXL	SM5XXL	---
SP5XL	SM5xL	SM5C
SP5L	SM5L	SP5C
SM5M	SM5M	SR5C
SM5H	SM5H	SS5C
SP5LO	SP5LO	SN5S
SP6LL	SM6L	---
SP6L	SH6L	SG6C
SP6M	SM6M	SM6C
SP6H	SM6H	SP6C
SP6LO	SP6LO	---
SP6MO	SP6MO	---
SK6HH	---	---
SP7L	SP7L	SD7C
SP7H	SP7H	SE7C
SK7L	SF7L	SJ7C
SK7M	SF7M	SL7C
SK7H	SF7H	SP7C
SM7M	SM7M	SG7C
SP8L	SP8L	SF8C
SP8M	SP8M	SG8C
SP8H	SP8H	SH8C
SM8H	S800	SL8C
SR8MO	S807	---
SR8HO	S805	SJ8S
SK8H	SK8H	SR8C
SP9L	SP9L	SC10C
SP9M	SP9M	SE10C
SM9L	SM9L	SA10C
SM9M	SM9M	SB10C
SL9H	SL9H	SL9C
SF9H	SL10H	SI10C
SK9M	SK10M	SV10C
SK9H	SK10H	---

SIMFLO	Simmons Pump	Simflo Pump
SP10L	SP10L	SD10C
SP10M	SP10M	SF10C
SP10H	SP10H	SH10C
SM10MO	---	---
SM10HO	S1000	SP10S
SM10M	SM10M	SJ10C
SM10H	SM10H	SR10C
SM11M	SM11	SL10C
SM11H	SM03	SU10C
SL11H	SL11H	SW10C
SR11MO	SR13M	SN12S
SR11HO	SR13H	ST12S
SP11L	SM13L	SP12C
SP11M	SM13M	SR12C
SP11H	SM13H	SV12C
SW12L	SW12L	SC12C
SW12M	SW12M	SD12C
SP12M	SP12M	SH12C
SP12H	SP12H	SJ12C
SL12M	SL12M	SI12C
SL12H	SK12C	SK12C
SJ12M	SJ12M	SS12C
SJ12H	SJ12H	SU12C
SM14LL	SM14LL	SD14C
SM14L	SM14L	SG14C
SM14M	SM14M	SJ14C
SM14H	SM14H	SR14C
SM14HH	SM14HH	SU14C
SM16MO	SW16MS	SG16S
SM16HO	SW16HS	SP16S
SM16M	SW16MC	SK16C
SM16H	SW16HC	SR16C
SM20M	SW20M	SK20C
SM20H	SW20H	SR20C
SM24M	SW24M	SK24C
SM24H	SW24H	SR24C
SM28H	SW28H	SR28C

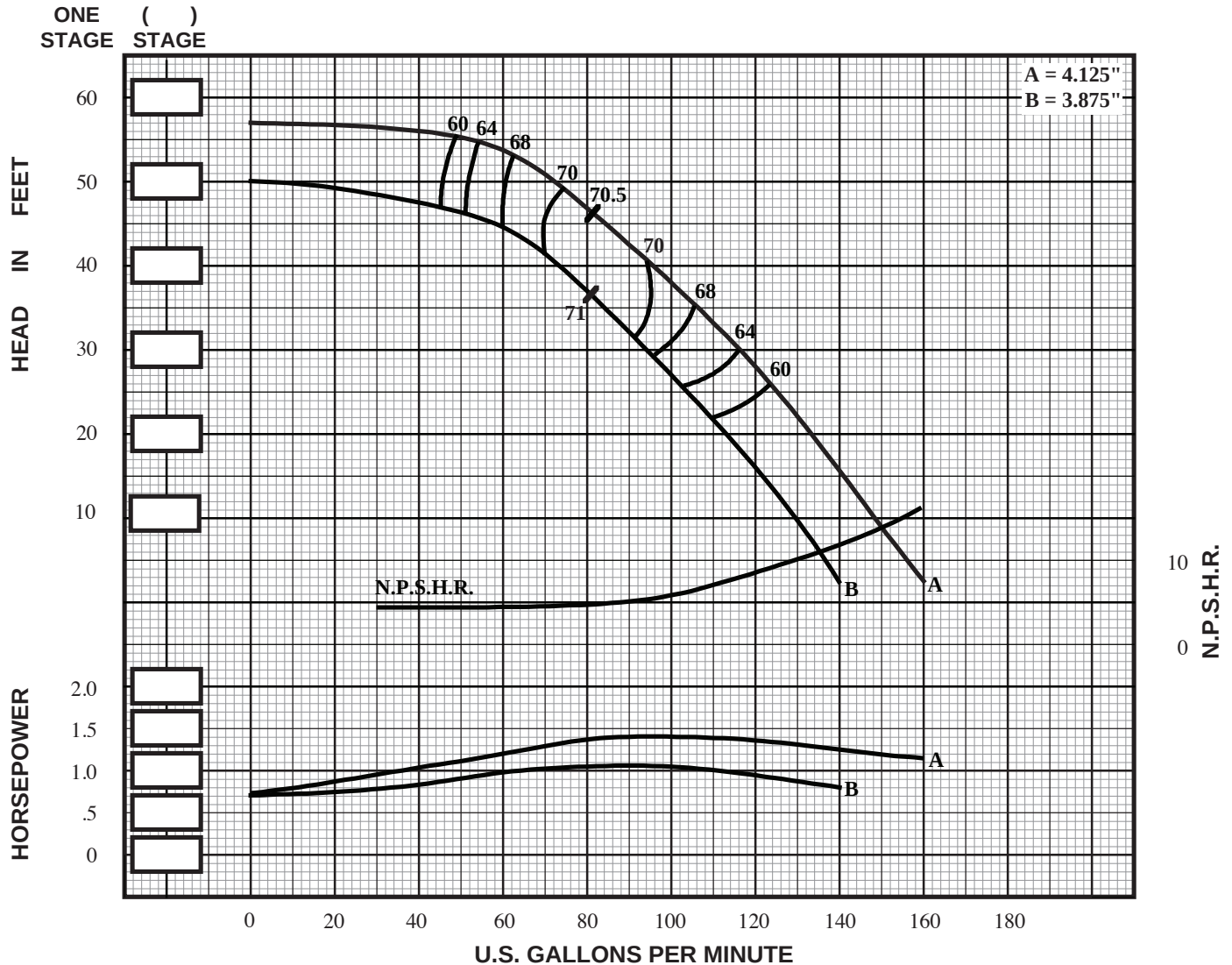
v18.2

In January 2018, Simmons Pump and Simflo Pumps, Inc. merged to become SIMFLO. The charts above provide a cross reference for model designations from before and after the merger.

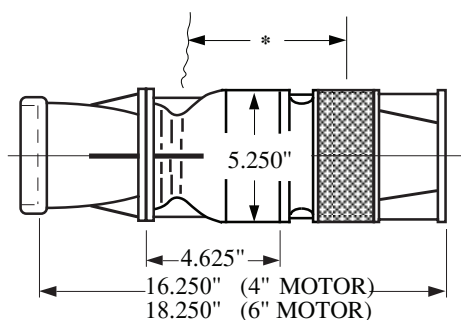
3450 RPM Selection Chart

Model Number	Bowl Dia. (in.)	Peak Eff. (full dia.)	BEP Flow (gpm)	BEP Head (ft./ stage)	BEP NPSHr (full dia.)	POR (gpm)	Ns	Nss
SP5XXL	5.25	70.5	81.4	46.1	4.88	57-98	1759	9480
SP5XL	5.25	78.0	104	51.5	8.43	73-125	1830	7112
SP5L	5.25	76.0	129	59.2	11.1	90-155	1836	6443
SM5M	5.25	78.0	202	30.4	11.0	141-242	3787	8118
SM5H	5.25	78.0	270	37.9	20.3	189-324	3711	5928
SP5LO	5.25	76.5	95.0	48.5	8.59	67-114	1830	6702
SP6LL	6.00	72.0	104	45.8	8.50	73-125	1998	7068
SP6L	6.00	74.0	138	63.3	10.3	97-166	1806	7049
SP6M	6.00	74.0	150	67.0	10.7	105-180	1804	7142
SP6H	6.00	77.0	212	80.7	13.9	148-254	1866	6978
SP6LO	6.00	76.0	160	60.0	16.5	112-192	2024	5330
SP6MO	6.00	75.0	179	63.9	15.5	125-215	2042	5909
SK6HH	5.50	78.0	427	42.7	24.0	299-512	4268	6575
SP7L	7.19	82.0	359	100	14.9	251-431	2067	8619
SP7H	7.19	82.0	450	113	18.3	315-540	2112	8272
SK7L	6.56	79.0	395	60.1	21.5	277-474	3177	6867
SK7M	6.56	78.0	452	60.6	6.87	316-542	3377	17285
SK7H	6.56	78.0	567	68.8	10.5	397-680	3439	14048
SM7M	7.38	77.0	522	61.8	22.5	365-626	3576	7630
SP8L	7.88	76.0	277	109	15.3	194-332	1702	7422
SP8M	7.88	77.0	315	106	12.9	221-378	1854	8996
SP8H	7.88	78.5	354	125	17.1	248-425	1736	7719
SM8H	7.69	78.0	556	109	20.6	389-667	2411	8413
SR8HO	7.69	78.0	582	100	25.9	407-698	2632	7249
SK8H	7.50	78.0	1140	83.4	65.9	798-1368	4221	5036
SP9L	9.50	84.0	576	199	26.5	403-691	1563	7089
SP9M	9.50	85.0	646	226	31.4	452-775	1504	6611
SM9L	9.50	75	626	182	29.7	438-751	1742	6785
SM9M	9.50	77.5	725	201	41.8	508-870	1740	5651
SL9H	9.00	79.5	1035	165	42.7	725-1242	2411	6645
SF9H	9.50	81.0	1194	200	67.4	836-1433	2242	5068
SK9M	9.44	80.0	1810	129	39.9	1267-2172	3835	9245
SP10L	10.19	76.0	685	158	64.4	480-822	2026	3972
SP10M	10.19	79.5	763	186	33.0	534-916	1892	6921
SP10H	10.19	81.0	922	212	35.6	645-1106	1886	7188
SM10MO	10.19	79.7	1240	196	40.0	868-1488	2319	7638
SM10HO	10.19	77.8	1496	189	50.7	1028-1763	2618	7023
SM10M	10.19	81.5	1324	174	35.6	927-1589	2620	8613
SM10H	10.19	80.0	1496	193	40.8	1047-1795	2577	8266
SM11M	10.63	79.0	1378	194	78.1	965-1654	2464	4875
SL11H	10.88	82.0	1980	246	25.2	1386-2376	2471	13649

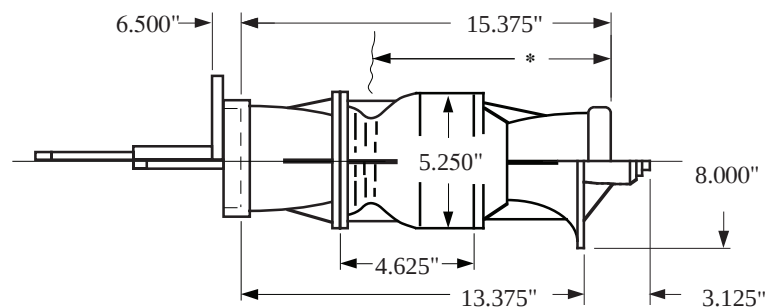
SP5XXL 3450 RPM



IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = .875"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP5XXL	MAX. SHAFT DIA. = .875"				
IMPELLER WT. - LBS. = 1.85	STD. LATERAL = 0.30"	1	-4	IMP. - C.I.	Δ
ONE STAGE WT. - LBS. = 50.0	DISCHARGE SIZES = 3" / 4"	2	-3	IMP. - NI-RI	Δ
ADD'L STAGE WT. - LBS. = 14.0	SUCTION SIZES = 4" / BELL	3	-2	IMP. - S.S.	Δ
MAX. SPHERE SIZE = .34"	ONE STAGE WR ² = .014	4	-1	BOWL - BRZ.	Δ
MIN. SUBMERGENCE = 10"	K FACTOR (max) = 1.78	5	0	BOWL - NI-RI	Δ
Δ CONSULT FACTORY		v18.1		BOWL - S.S.	Δ

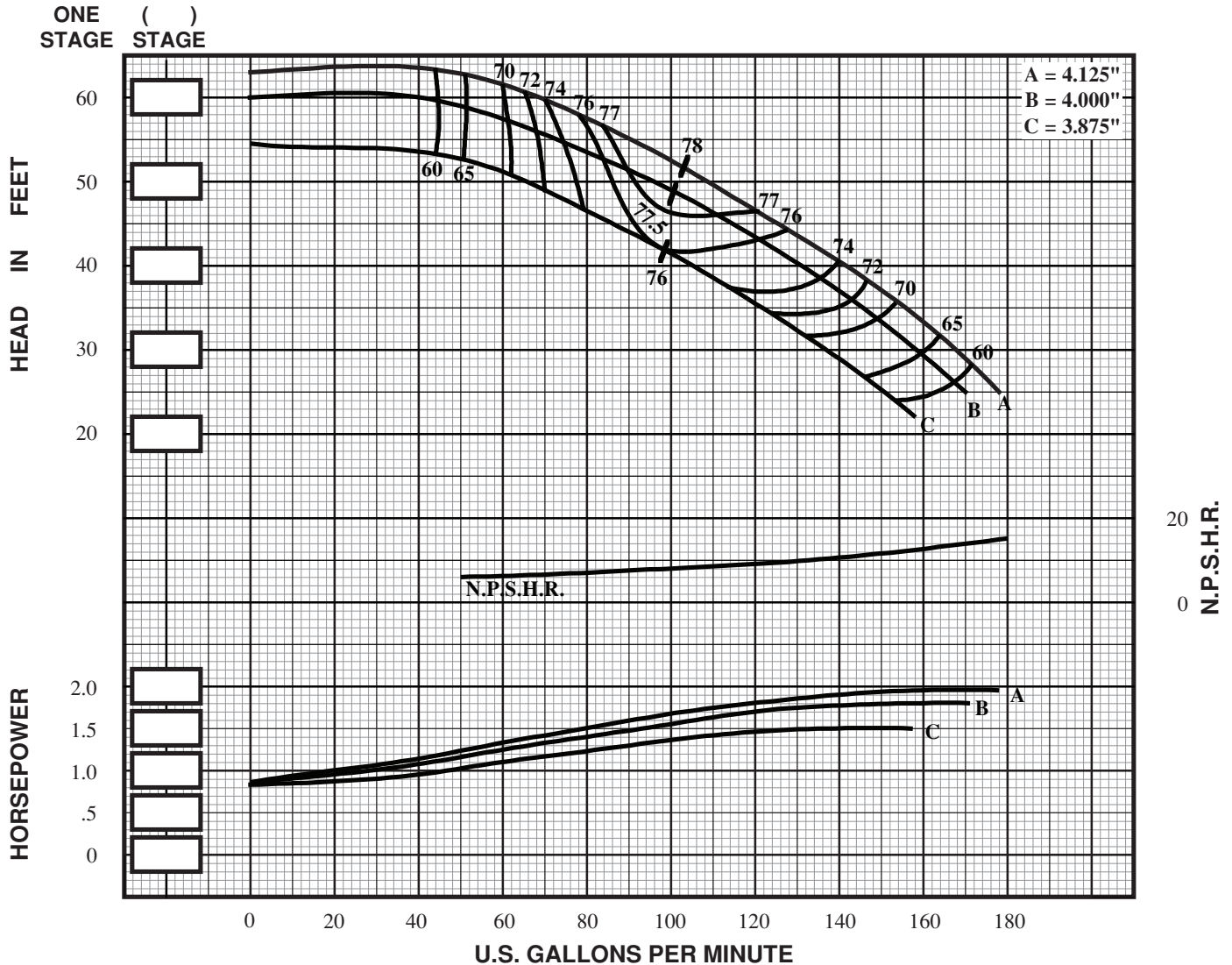


SUBMERSIBLE TURBINE

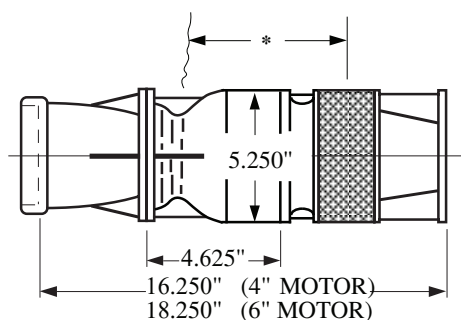


LINESHAFT TURBINE

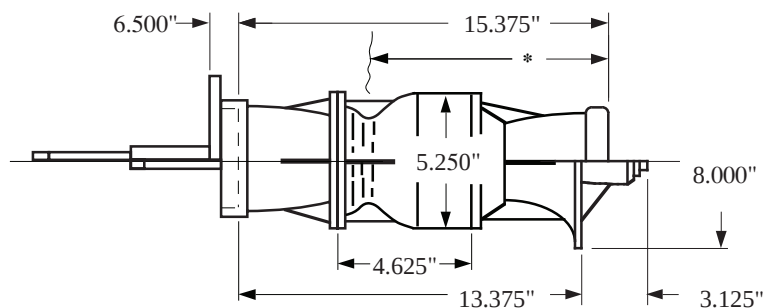
SP5XL 3450 RPM



IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = .875"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP5XL	MAX. SHAFT DIA. = .875"				
IMPELLER WT. - LBS. = 1.70	STD. LATERAL = .30"	1	-4	IMP. - C.I.	Δ
ONE STAGE WT. - LBS. = 50.0	DISCHARGE SIZES = 3"/4"	2	-3	IMP. - NI-RI	Δ
ADD'L STAGE WT. - LBS. = 14.0	SUCTION SIZES = 4"/BELL	3	-2	IMP. - S.S.	Δ
MAX. SPHERE SIZE = .38"	ONE STAGE WR ² = .015	4	-1	BOWL - BRZ.	Δ
MIN. SUBMERGENCE = 10"	K FACTOR, MAX = 2.30	5	0	BOWL - NI-RI	Δ
Δ CONSULT FACTORY	v18.1			BOWL - S.S.	Δ

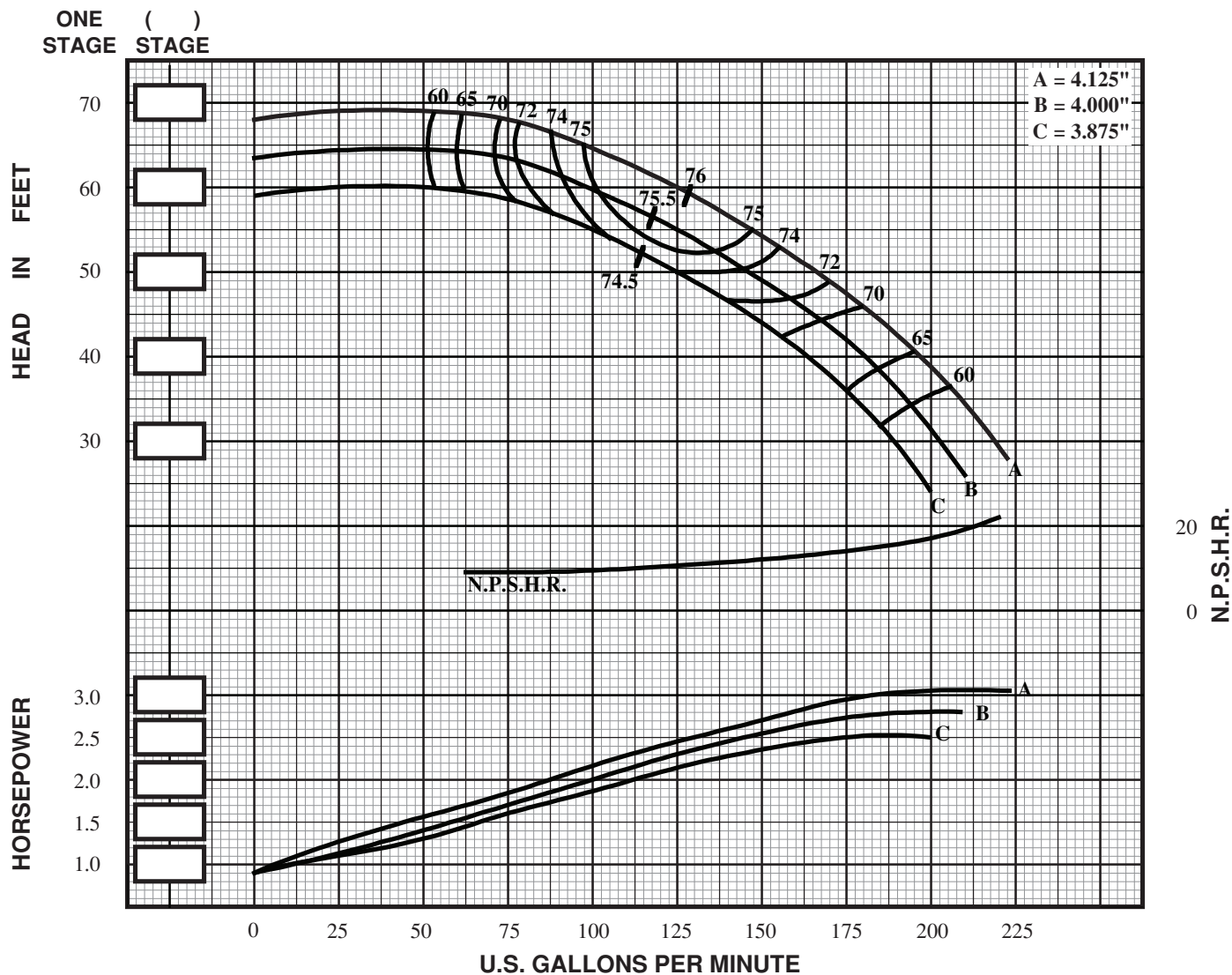


SUBMERSIBLE TURBINE

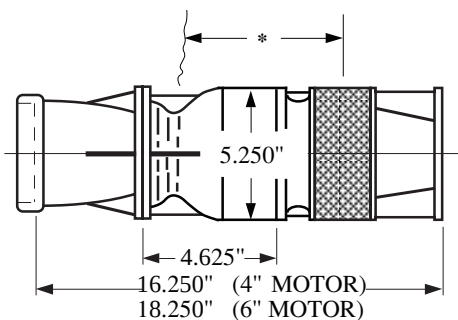


LINESHAFT TURBINE

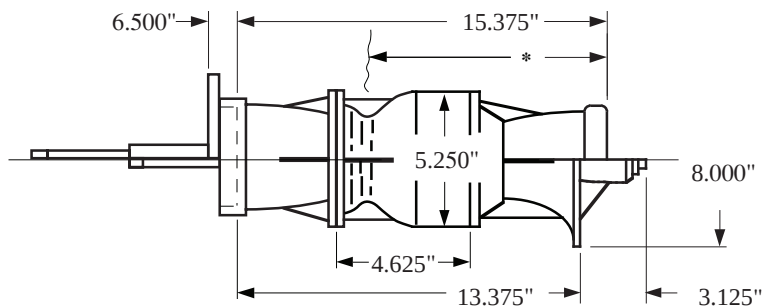
SP5L 3450 RPM



IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = .875"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP5L	MAX. SHAFT DIA. = .875"				
IMPELLER WT. - LBS. = 1.75	STD. LATERAL = .30"	1	-4	IMP. - C.I.	Δ
ONE STAGE WT. - LBS. = 50.0	DISCHARGE SIZES = 3" / 4"	2	-3	IMP. - NI-RI	Δ
ADD'L STAGE WT. - LBS. = 14.0	SUCTION SIZES = 4" / BELL	3	-2	IMP. - S.S.	Δ
MAX. SPHERE SIZE = .38"	ONE STAGE WR ² = .015	4	-1	BOWL - BRZ.	Δ
MIN. SUBMERGENCE = 10"	K FACTOR, MAX = 2.40	5	0	BOWL - NI-RI	Δ
Δ CONSULT FACTORY		v18.1		BOWL - S.S.	Δ

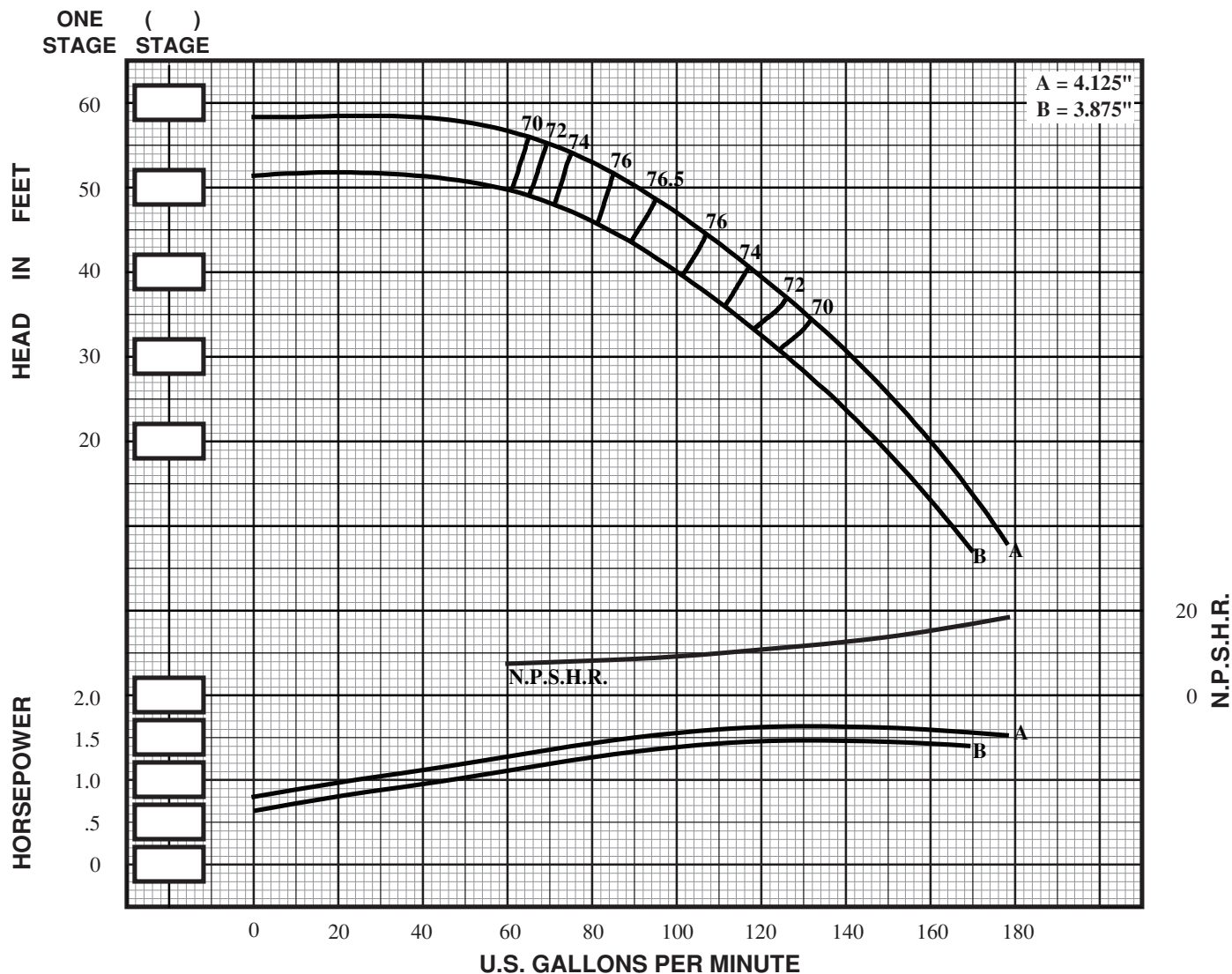


SUBMERSIBLE TURBINE

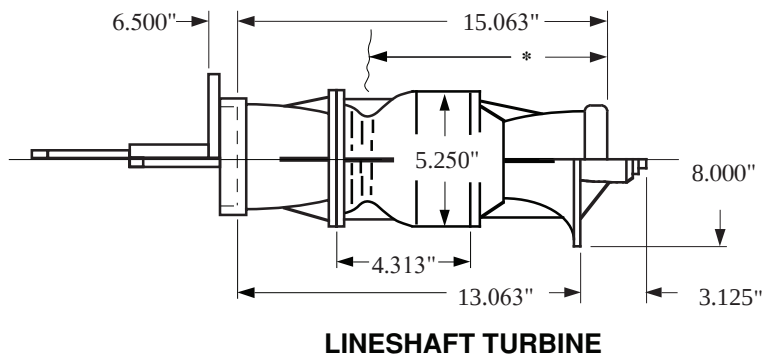
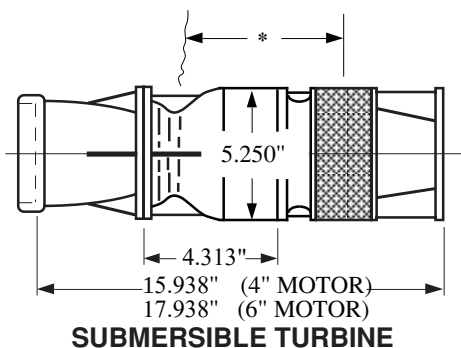


LINESHAFT TURBINE

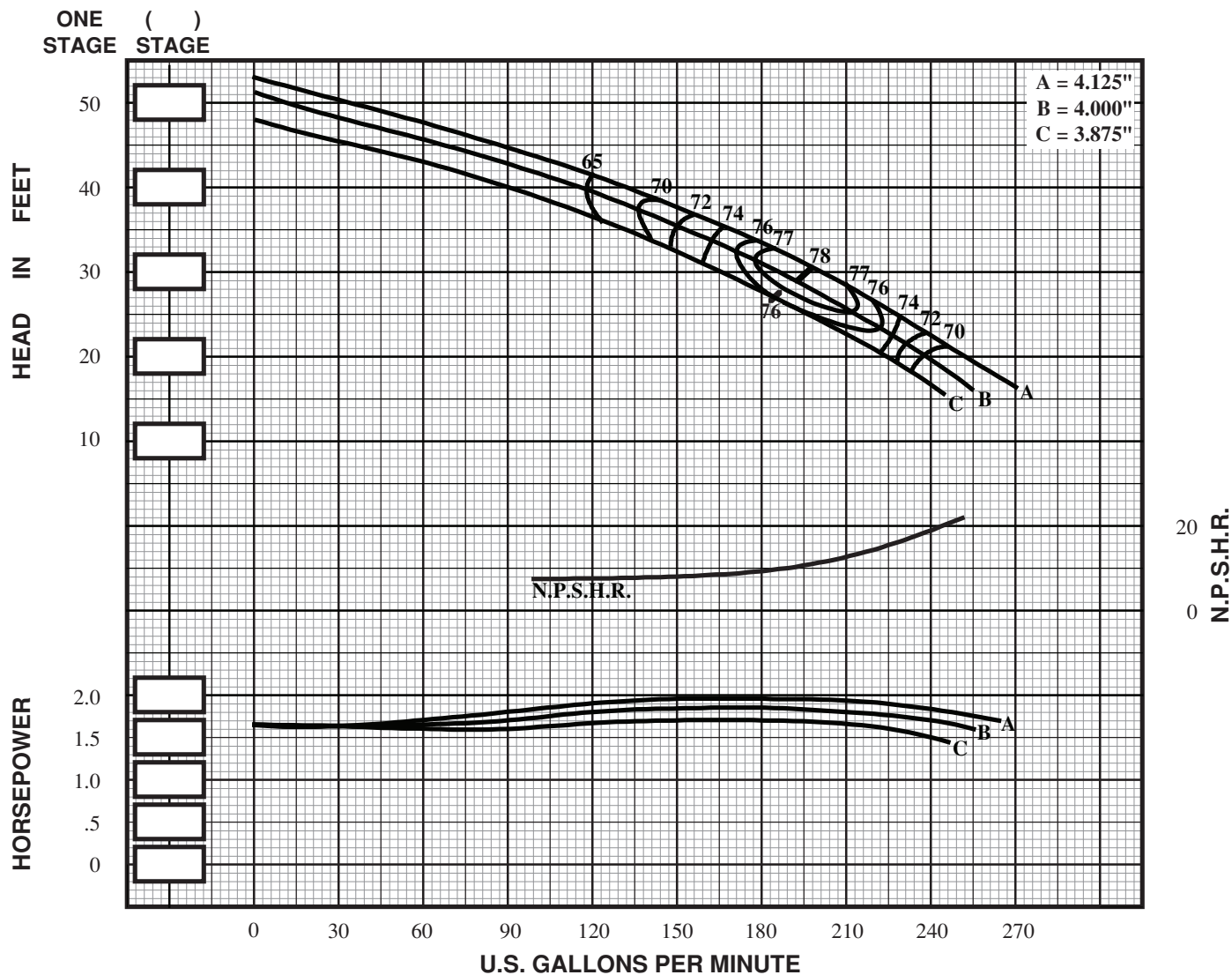
SP5LO 3450 RPM



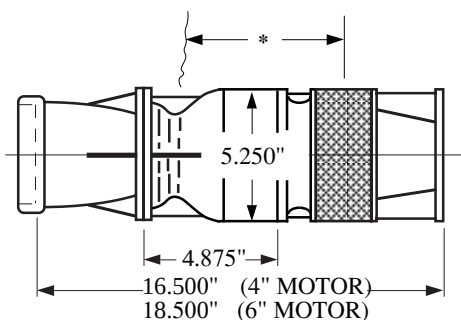
IMPELLER TYPE = SEMI - OPEN	STD. SHAFT DIA. = .875"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP5LO	MAX. SHAFT DIA. = .875"				
IMPELLER WT. - LBS. = 1.40	STD. LATERAL = .16"	1	-6	IMP. - C.I.	Δ
ONE STAGE WT. - LBS. = 50.0	DISCHARGE SIZES = 3" / 4"	2	-4	IMP. - NI-RI	Δ
ADD'L STAGE WT. - LBS. = 14.0	SUCTION SIZES = 4" / BELL	3	-3	IMP. - S.S.	Δ
MAX. SPHERE SIZE = .31"	ONE STAGE WR ² = .014	4	-1.5	BOWL - BRZ.	Δ
MIN. SUBMERGENCE = 10"	K FACTOR, MAX = 4.70	5	0	BOWL - NI-RI	Δ
Δ CONSULT FACTORY		v18.1		BOWL - S.S.	Δ



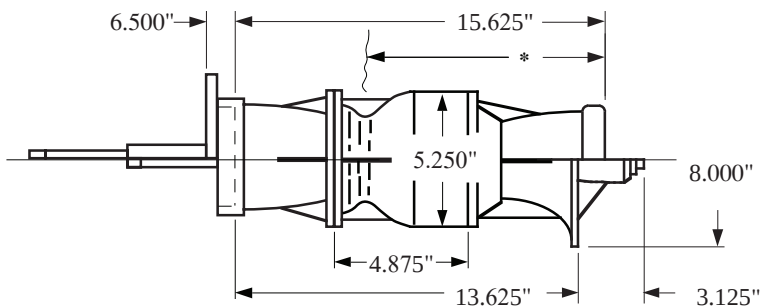
SM5M 3450 RPM



IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = .875"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SM5M	MAX. SHAFT DIA. = .875"				
IMPELLER WT. - LBS. = 1.85	STD. LATERAL = .55"	1	-4	IMP. - C.I.	Δ
ONE STAGE WT. - LBS. = 50.0	DISCHARGE SIZES = 3" / 4"	2	-3	IMP. - NI-RI	Δ
ADD'L STAGE WT. - LBS. = 14.0	SUCTION SIZES = 4" / BELL	3	-2	IMP. - S.S.	Δ
MAX. SPHERE SIZE = .63"	ONE STAGE WR ² = .015	4	-1	BOWL - BRZ.	Δ
MIN. SUBMERGENCE = 10"	K FACTOR, MAX = 2.50	5	0	BOWL - NI-RI	Δ
Δ CONSULT FACTORY		v18.1		BOWL - S.S.	Δ

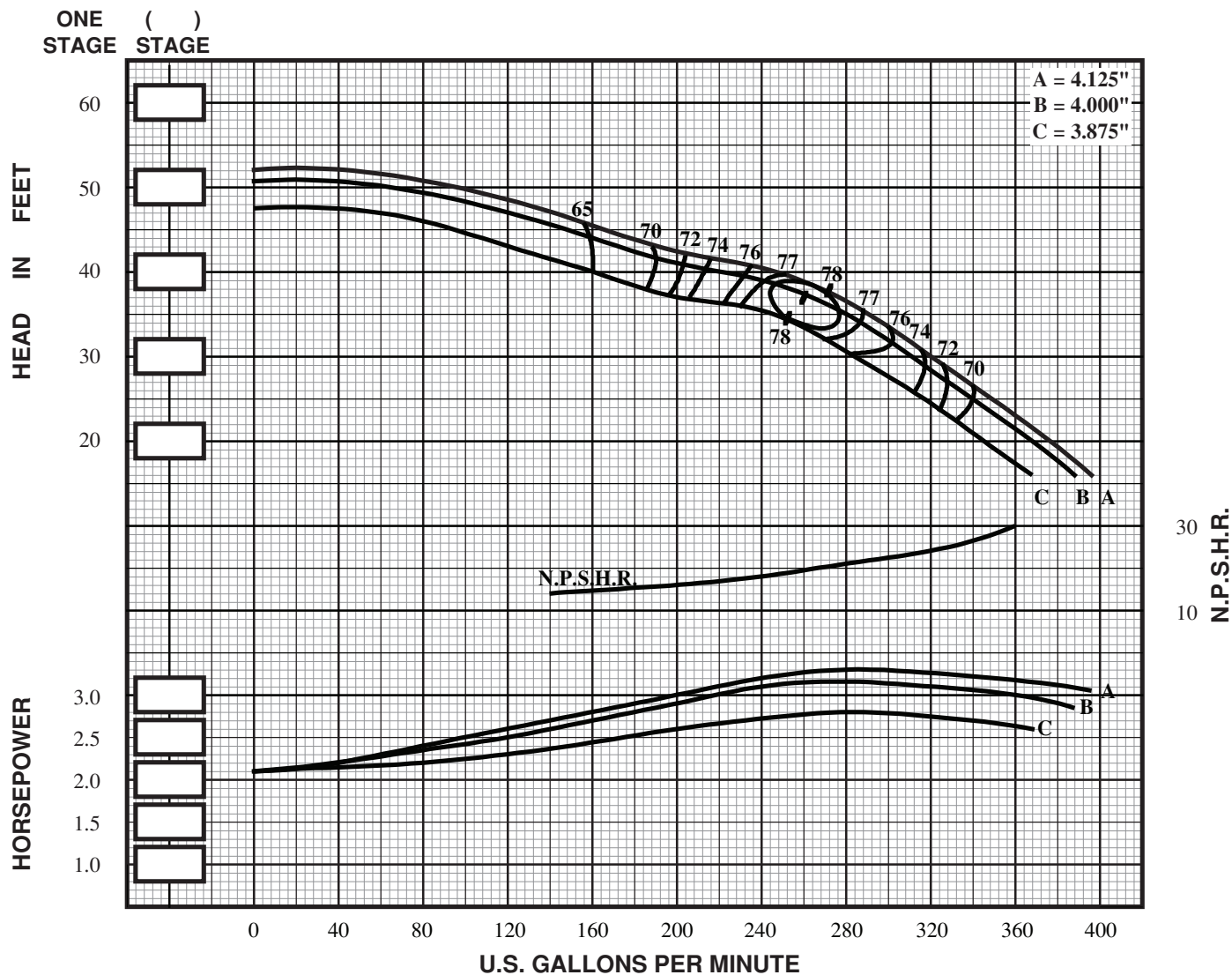


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

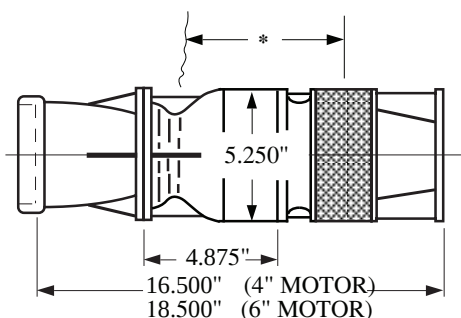
SM5H 3450 RPM



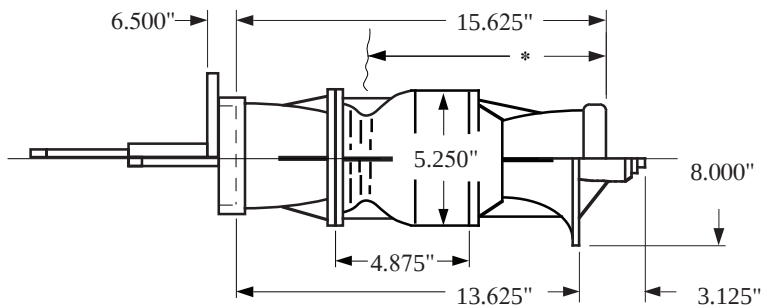
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = .875"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SM5H	MAX. SHAFT DIA. = .875"				
IMPELLER WT. - LBS. = 1.95	STD. LATERAL = .55"	1	-4	IMP. - C.I.	Δ
ONE STAGE WT. - LBS. = 50.0	DISCHARGE SIZES = 3" / 4"	2	-3	IMP. - NI-RI	Δ
ADD'L STAGE WT. - LBS. = 14.0	SUCTION SIZES = 4" / BELL	3	-2	IMP. - S.S.	Δ
MAX. SPHERE SIZE = .50"	ONE STAGE WR ² = .015	4	-1	BOWL - BRZ.	Δ
MIN. SUBMERGENCE = 10"	K FACTOR, MAX = 2.50	5	0	BOWL - NI-RI	Δ
				BOWL - S.S.	Δ

Δ CONSULT FACTORY

v18.1

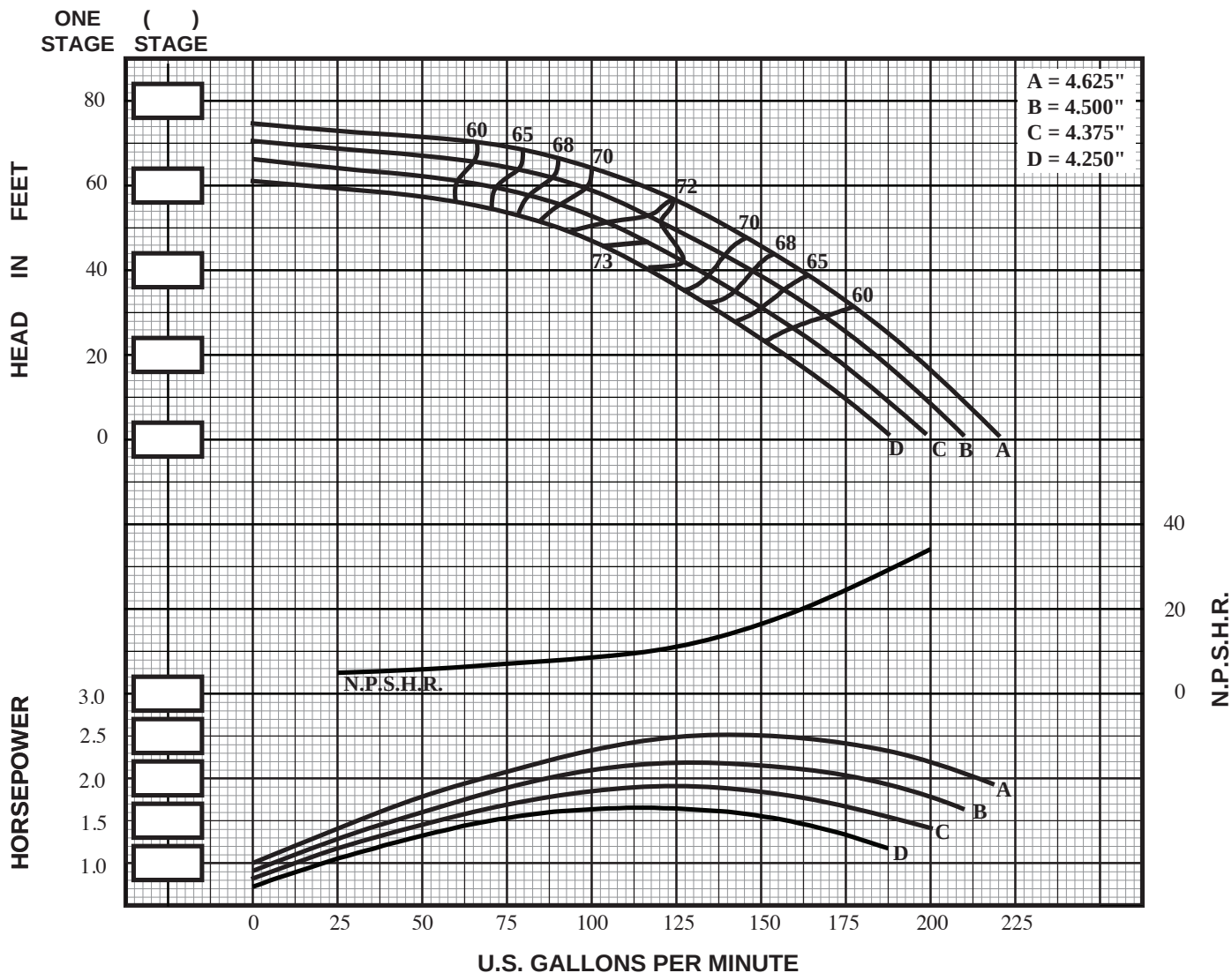


SUBMERSIBLE TURBINE

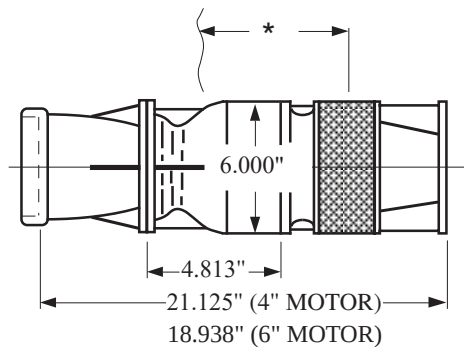


LINESHAFT TURBINE

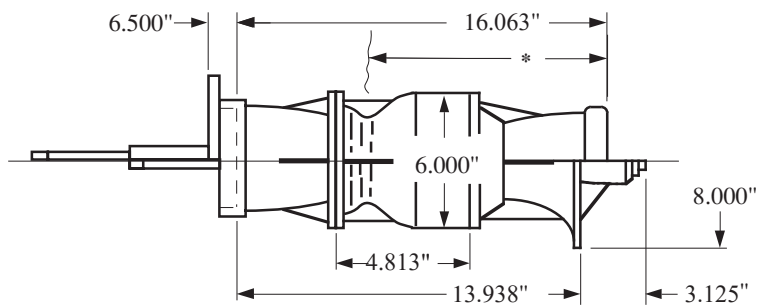
SP6LL 3450 RPM



IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.000"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP6LL	MAX. SHAFT DIA. = 1.000"				
IMPELLER WT. - LBS. = 2.60	STD. LATERAL = .66"	1	-4	IMP. - C.I.	Δ
ONE STAGE WT. - LBS. = 55.0	DISCHARGE SIZES = 3" / 4"	2	-3	IMP. - NI-RI	Δ
ADD'L STAGE WT. - LBS. = 18.5	SUCTION SIZES = 4" / BELL	3	-2	IMP. - S.S.	Δ
MAX. SPHERE SIZE = .38"	ONE STAGE WR ² = .037	4	-1	BOWL - BRZ.	Δ
MIN. SUBMERGENCE* = 11"	K-FACTOR, MAX = 2.70	5	0	BOWL - NI-RI	Δ
Δ CONSULT FACTORY		v18.2		BOWL - S.S.	Δ

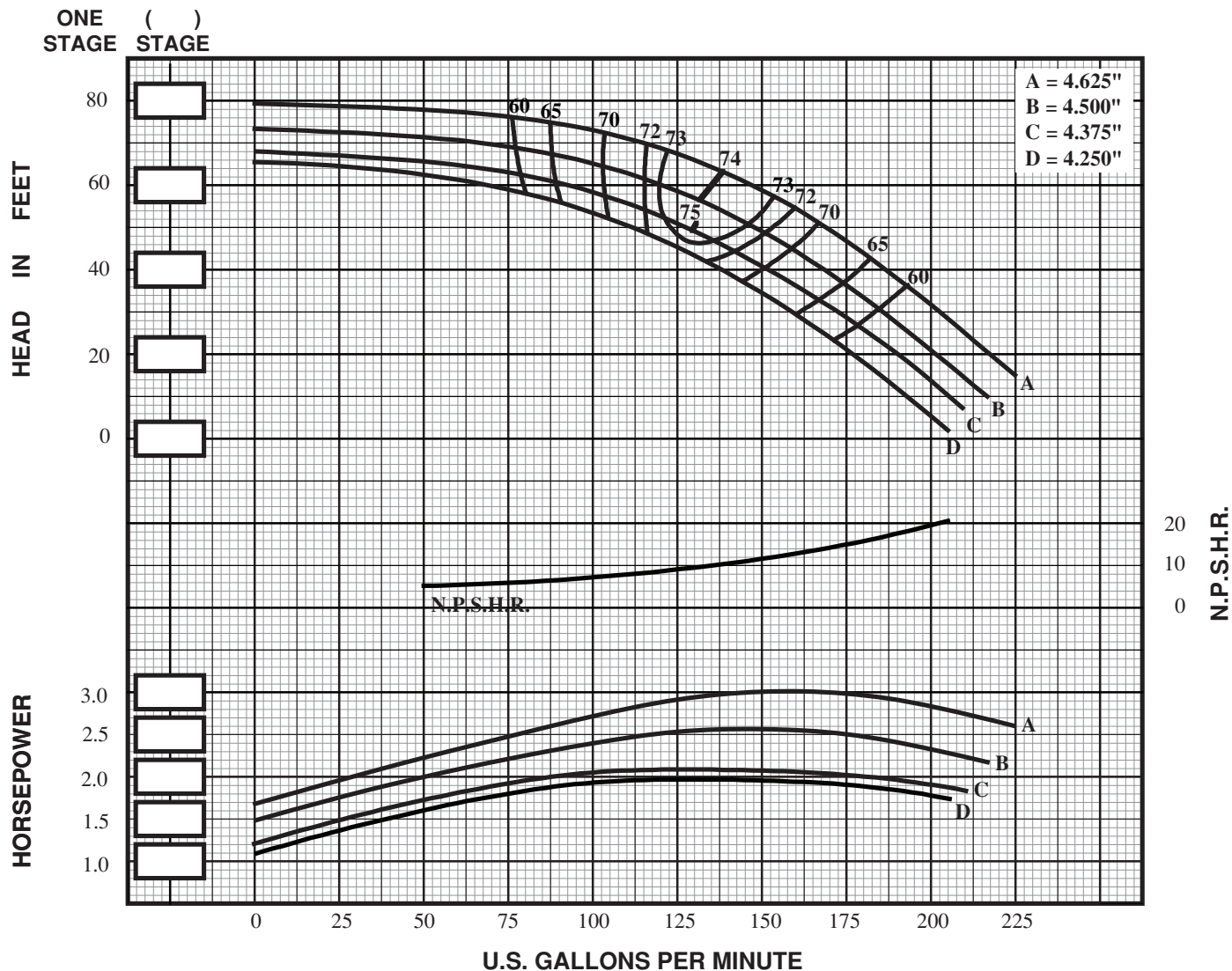


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

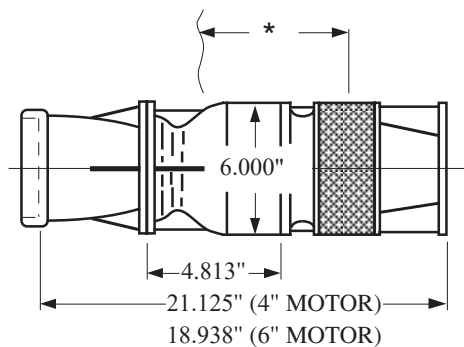
SP6L 3450 RPM



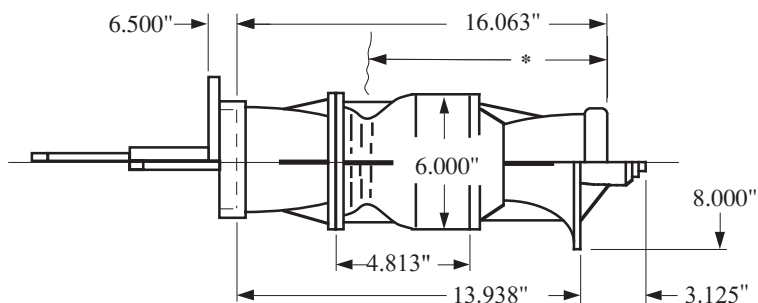
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.000"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP6L	MAX. SHAFT DIA. = 1.000"	1	-4	IMP. - C.I.	-3
IMPELLER WT. - LBS. = 2.60	STD. LATERAL = .54"	2	-3	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 55.0	DISCHARGE SIZES = 3" / 4"	3	-2	IMP. - S.S.	-4
ADD'L STAGE WT. - LBS. = 18.5	SUCTION SIZES = 4" / BELL	4	-1	BOWL - BRZ.	-3
MAX. SPHERE SIZE = .38"	ONE STAGE WR ² = .033	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 11"	K-FACTOR, MAX = 2.30			BOWL - S.S.	-4

Δ CONSULT FACTORY

v18.2

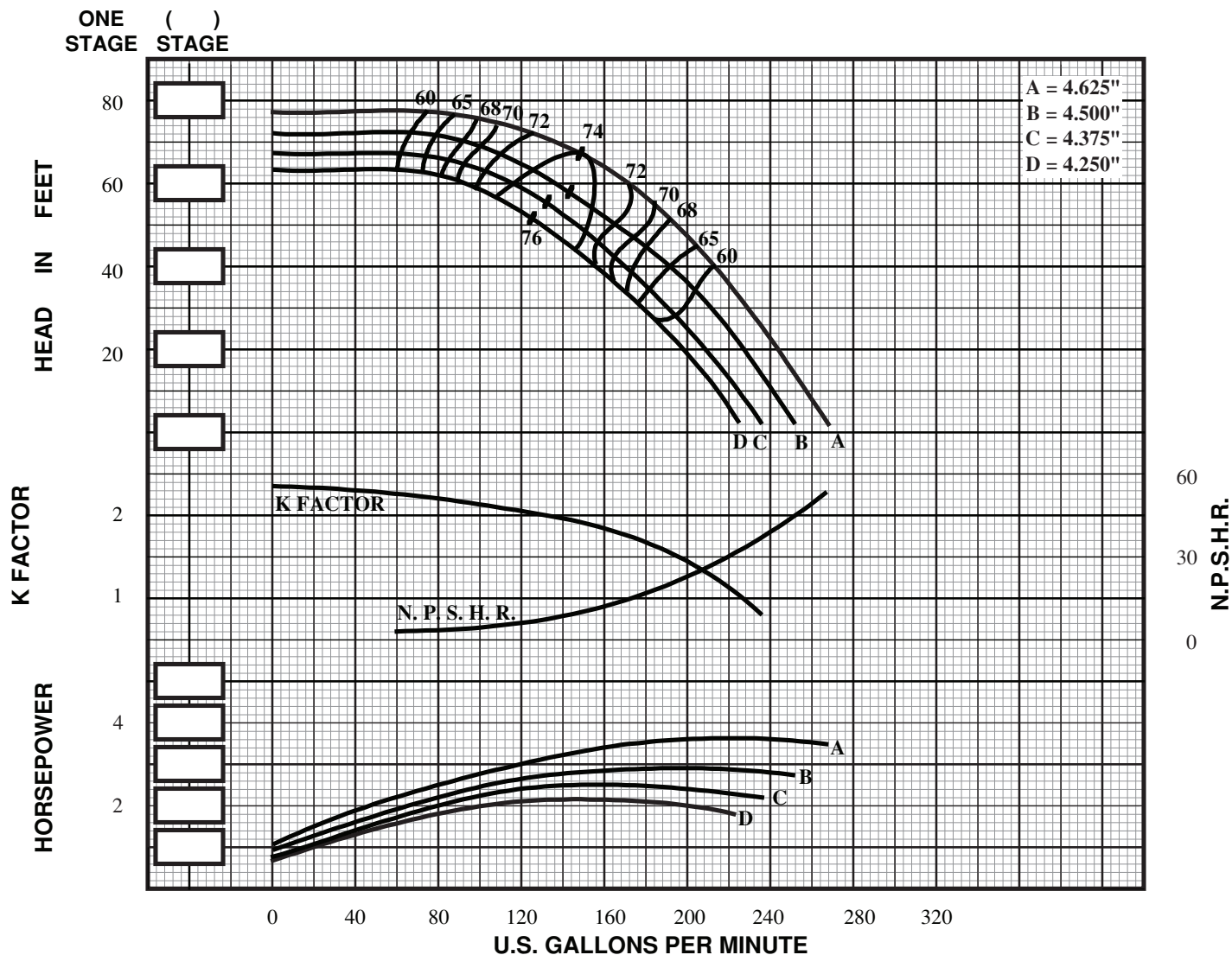


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

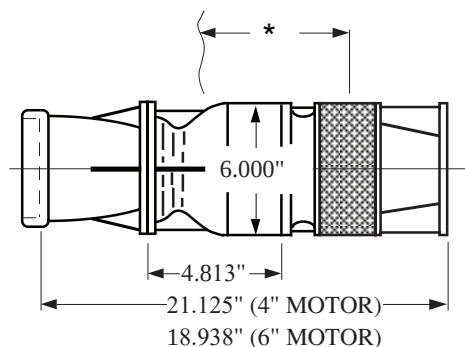
SP6M 3450 RPM



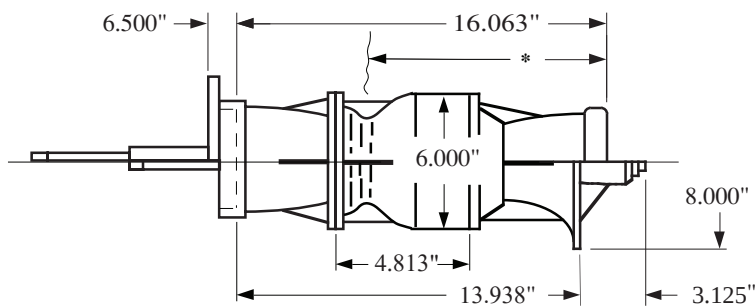
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.000"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP6M	MAX. SHAFT DIA. = 1.000"	1	-4	IMP. - C.I.	-3
IMPELLER WT. - LBS. = 2.95	STD. LATERAL = .41"	2	-3	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 56.0	DISCHARGE SIZES = 3" / 4"	3	-2	IMP. - S.S.	-4
ADD'L STAGE WT. - LBS. = 19.0	SUCTION SIZES = 4" / BELL	4	-1	BOWL - BRZ.	-3
MAX. SPHERE SIZE = .31"	ONE STAGE WR ² = .037	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 11"				BOWL - S.S.	-4

Δ CONSULT FACTORY

v18.2

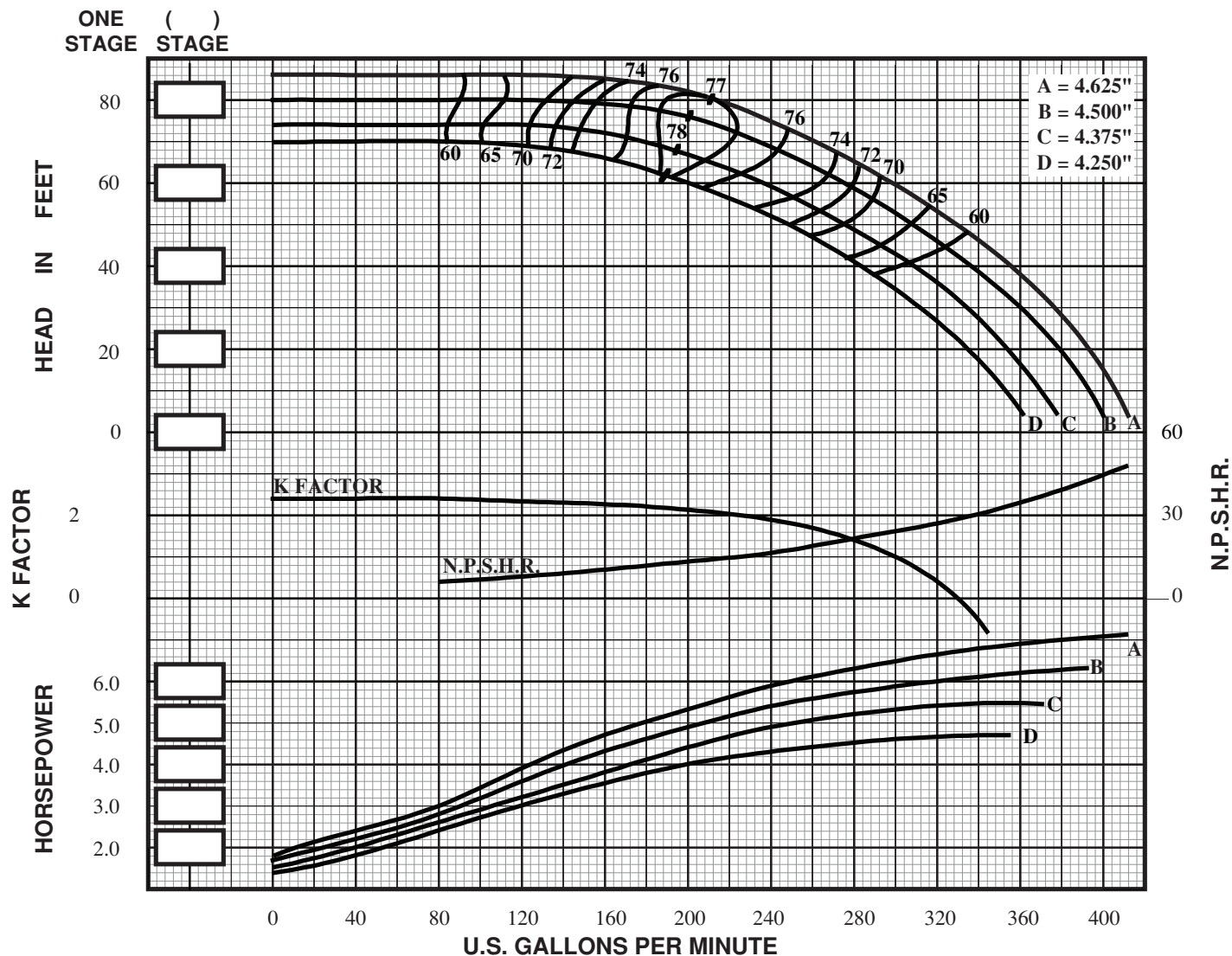


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

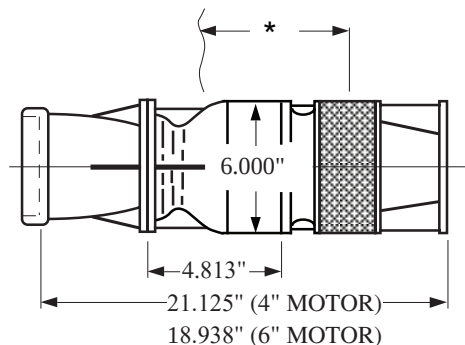
SP6H 3450 RPM



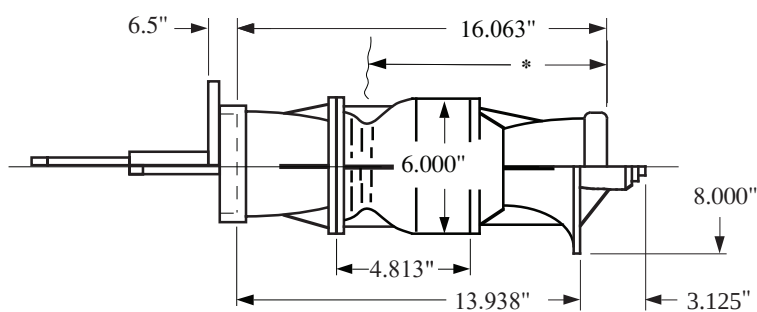
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.000"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP6H	MAX. SHAFT DIA. = 1.000"				
IMPELLER WT. - LBS. = 2.75	STD. LATERAL = .28"	1	-4	IMP. - C.I.	-3
ONE STAGE WT. - LBS. = 55.0	DISCHARGE SIZES = 3" / 4"	2	-3	IMP. - NI-RI	-2
ADD'L STAGE WT. - LBS. = 18.7	SUCTION SIZES = 4" / BELL	3	-2	IMP. - S.S.	-4
MAX. SPHERE SIZE = .38"	ONE STAGE WR ² = .034	4	-1	BOWL - BRZ.	-3
MIN. SUBMERGENCE* = 11"		5	0	BOWL - NI-RI	-1
				BOWL - S.S.	-4

Δ CONSULT FACTORY

v18.2

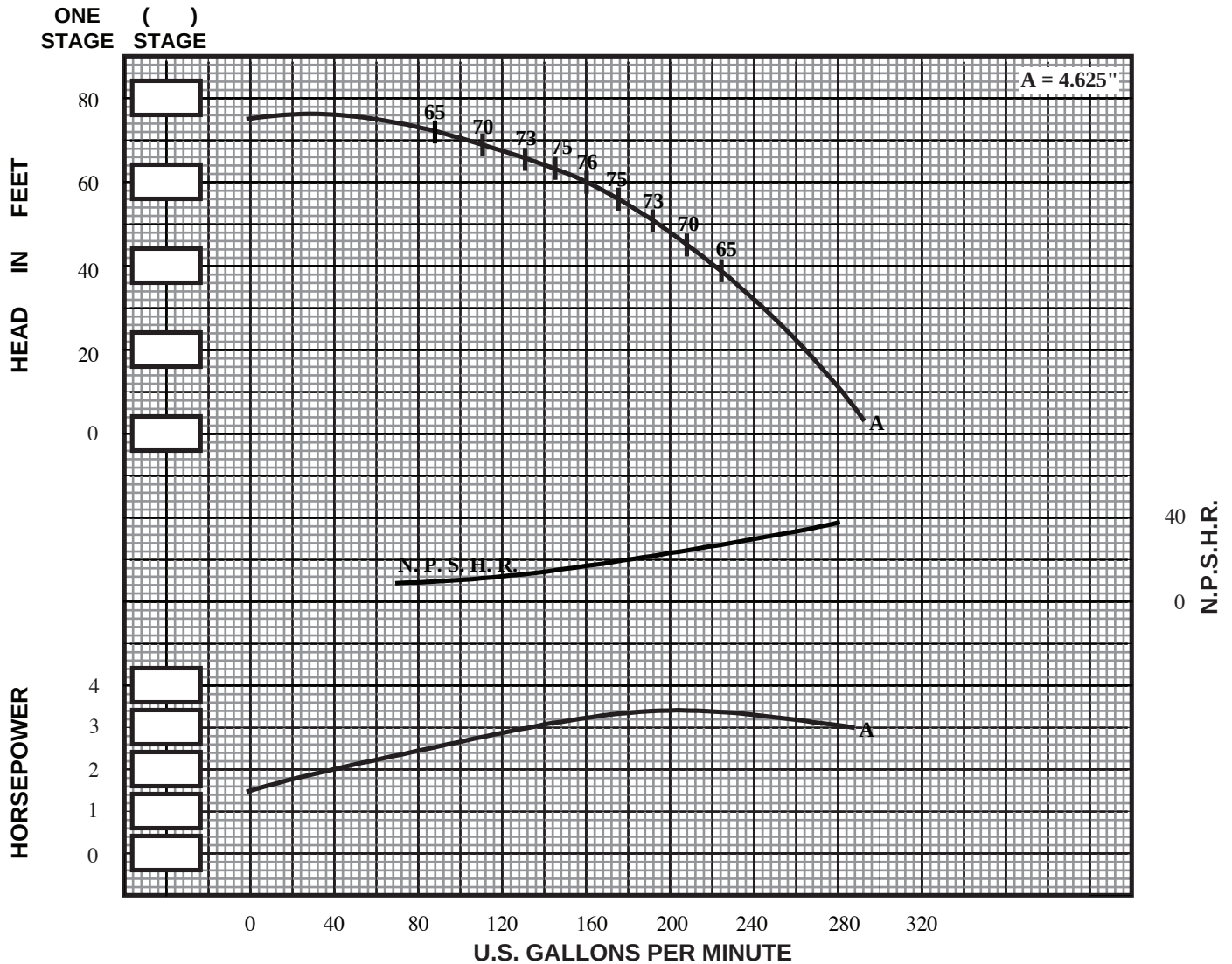


SUBMERSIBLE TURBINE



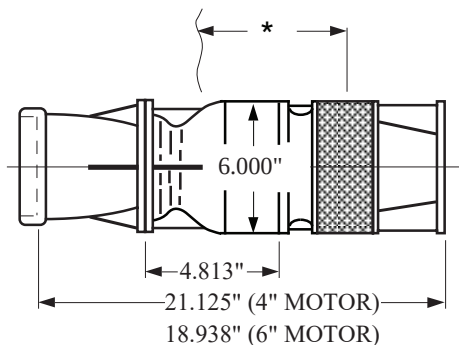
LINESHAFT TURBINE

SP6LO 3450 RPM

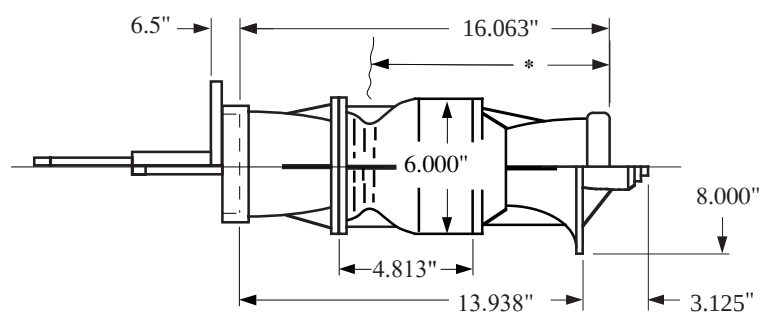


IMPELLER TYPE = SEMI - OPEN	STD. SHAFT DIA. = 1.000"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP6LO	MAX. SHAFT DIA. = 1.000"	1	-5.5	IMP. - C.I.	Δ
IMPELLER WT. - LBS. = 1.60	STD. LATERAL = .70"	2	-4	IMP. - NI-RI	Δ
ONE STAGE WT. - LBS. = 53.0	DISCHARGE SIZES = 3" / 4"	3	-3	IMP. - S.S.	Δ
ADD'L STAGE WT. - LBS. = 17.7	SUCTION SIZES = 4" / BELL	4	-1.5	BOWL - BRZ.	Δ
MAX. SPHERE SIZE = .44"	ONE STAGE WR ² = .019	5	0	BOWL - NI-RI	Δ
MIN. SUBMERGENCE* = 11"	K-FACTOR, MAX. = 3.4			BOWL - S.S.	Δ

Δ CONSULT FACTORY v18.2



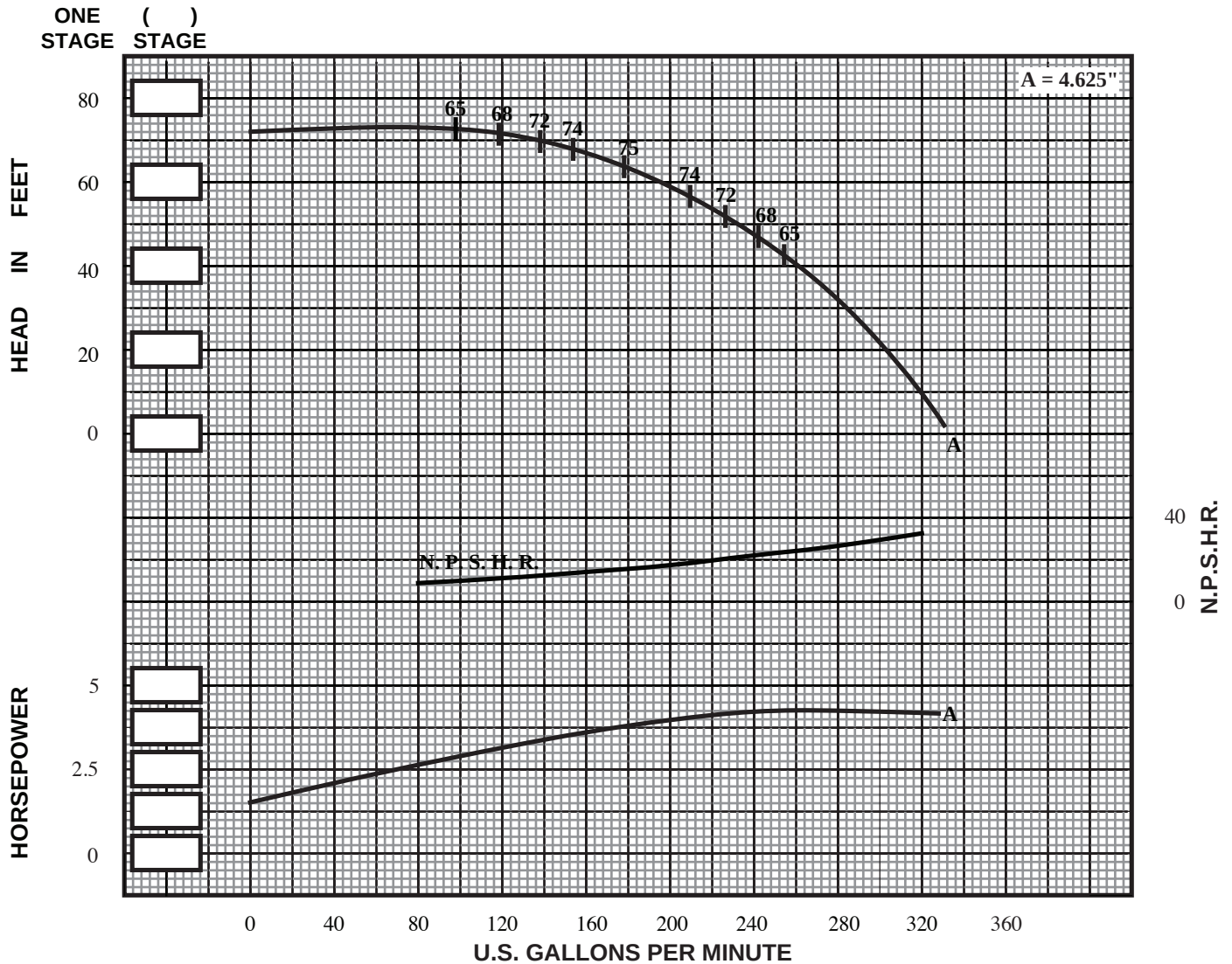
SUBMERSIBLE TURBINE



LINESHAFT TURBINE

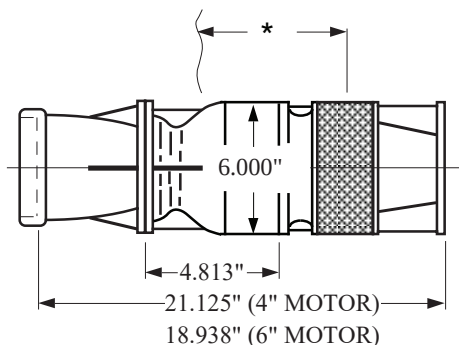
SP6M0

3450 RPM

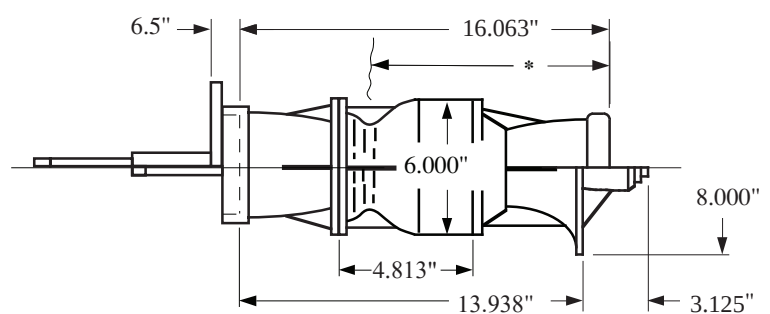


IMPELLER TYPE = SEMI - OPEN	STD. SHAFT DIA. = 1.000"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP6M0	MAX. SHAFT DIA. = 1.000"	1	-5	IMP. - C.I.	Δ
IMPELLER WT. - LBS. = 1.40	STD. LATERAL = .56"	2	-4	IMP. - NI-RI	Δ
ONE STAGE WT. - LBS. = 53.0	DISCHARGE SIZES = 3" / 4"	3	-3	IMP. - S.S.	Δ
ADD'L STAGE WT. - LBS. = 17.5	SUCTION SIZES = 4" / BELL	4	-1.5	BOWL - BRZ.	Δ
MAX. SPHERE SIZE = .34"	ONE STAGE WR ² = .018	5	0	BOWL - NI-RI	Δ
MIN. SUBMERGENCE* = 11"	K-FACTOR, MAX. = 5.0			BOWL - S.S.	Δ

Δ CONSULT FACTORY v18.2

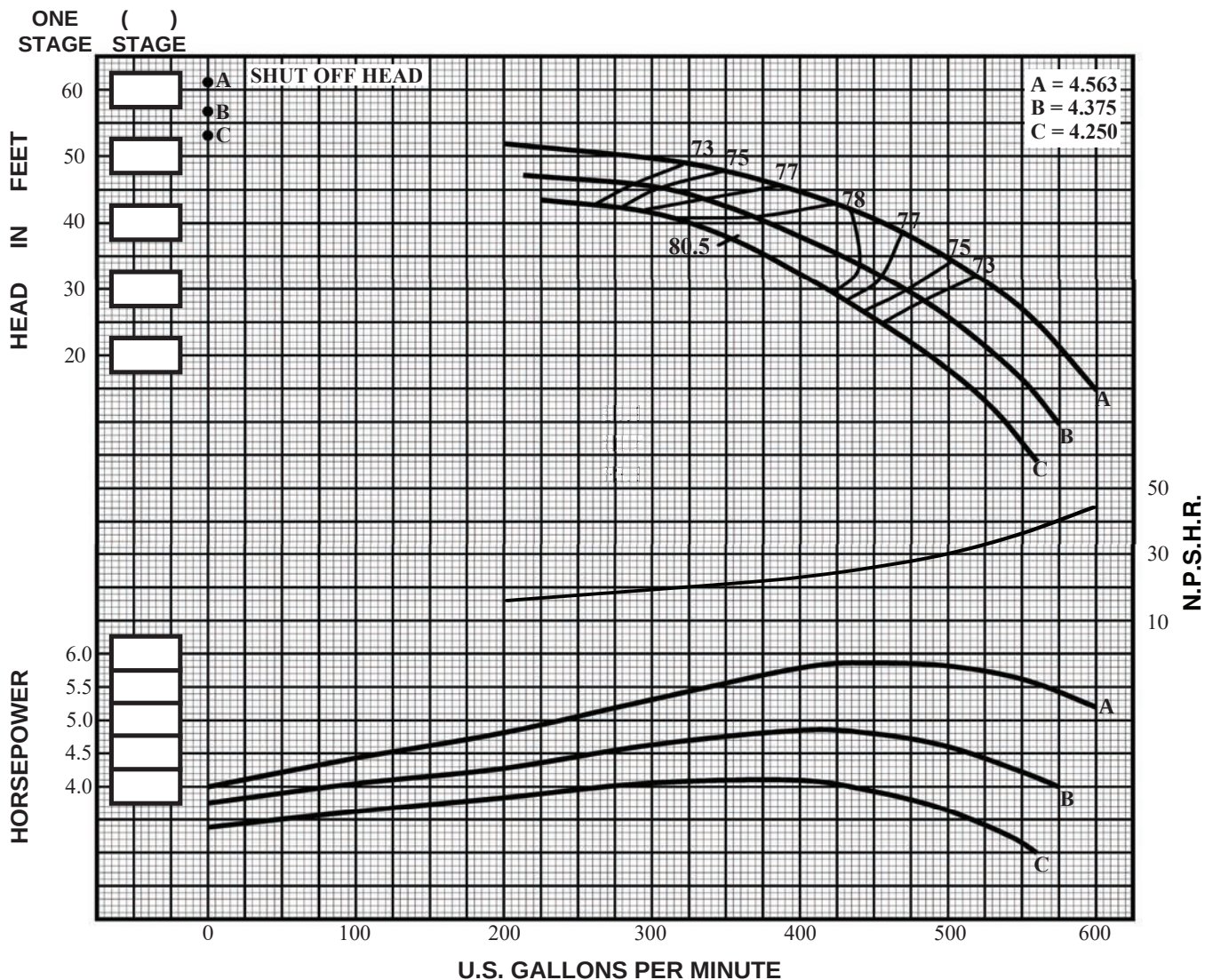


SUBMERSIBLE TURBINE

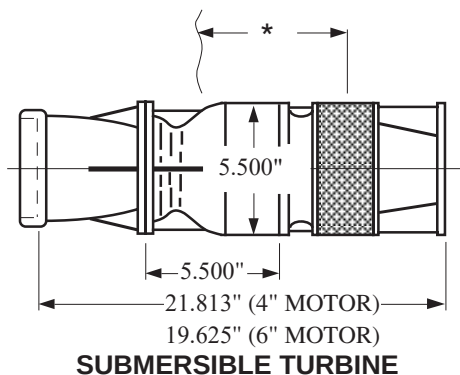


LINESHAFT TURBINE

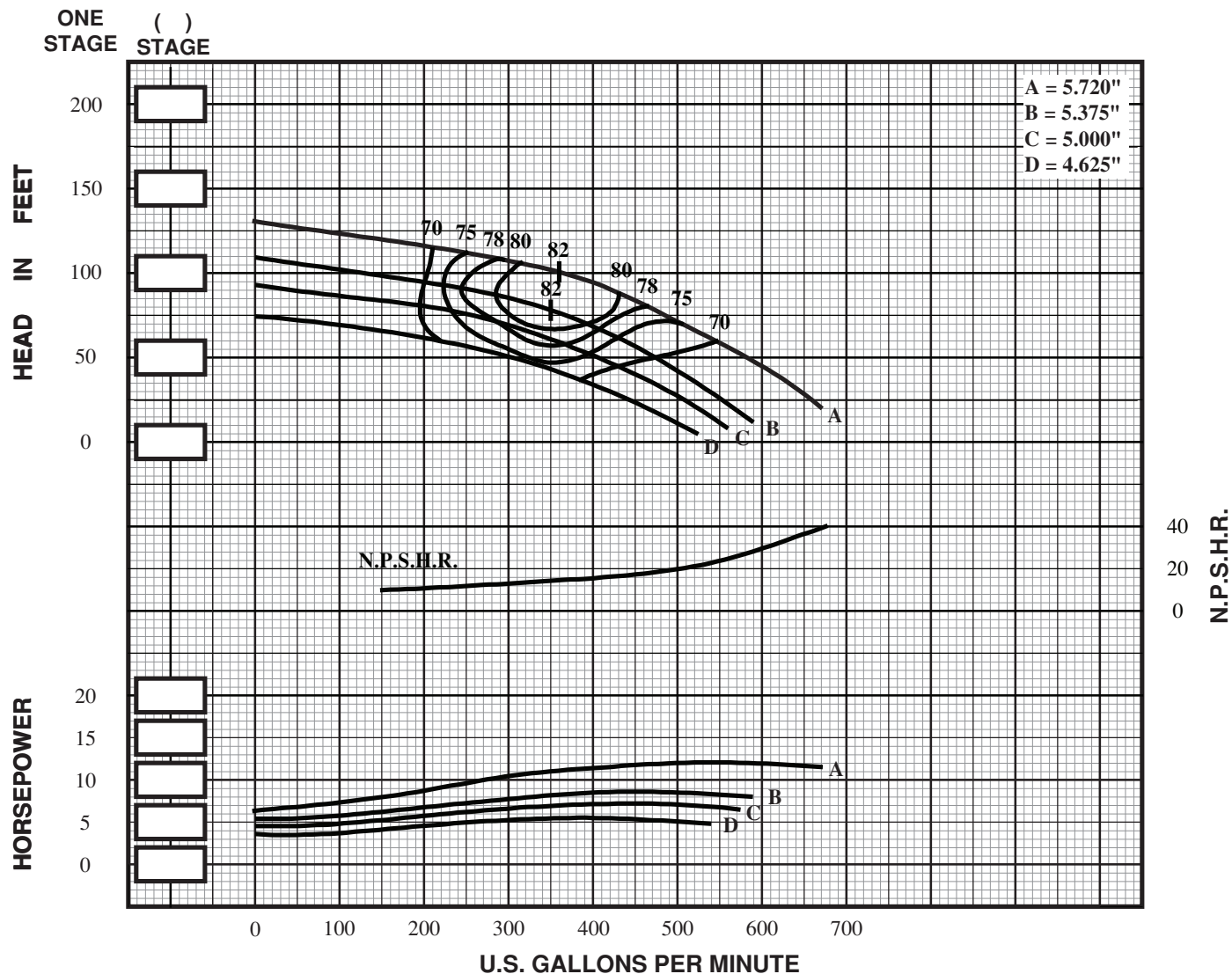
SK6HH 3450 RPM



IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.000"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SK6HH	MAX. SHAFT DIA. = 1.000"				
IMPELLER WT. - LBS. = 2.90	STD. LATERAL = .25"	1	-2	IMP. - C.I.	Δ
ONE STAGE WT. - LBS. = 51.3	DISCHARGE SIZES = 3" / 4"	2	-1.5	IMP. - NI-RI	Δ
ADD'L STAGE WT. - LBS. = 15.8	SUCTION SIZES = SUB	3	-1	IMP. - S.S.	Δ
MAX. SPHERE SIZE = .50"	ONE STAGE WR ² = .031	4	0	BOWL - BRZ.	Δ
MIN. SUBMERGENCE* = 23"	K-FACTOR, MAX = 5.5	5	0	BOWL - NI-RI	Δ
Δ CONSULT FACTORY	v19.1			BOWL - S.S.	Δ



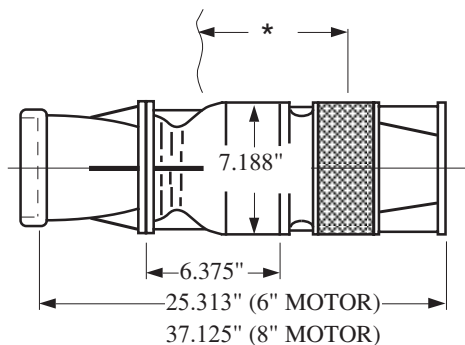
SP7L 3450 RPM



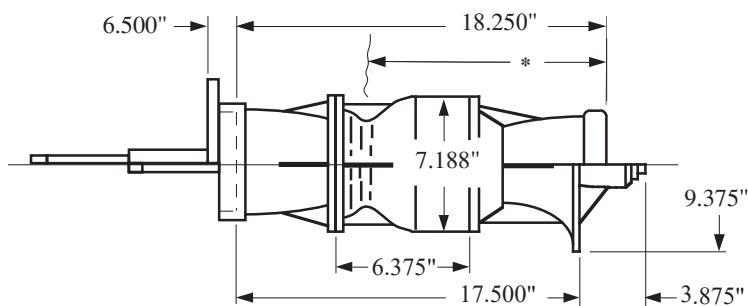
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.250"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP7L	MAX. SHAFT DIA. = 1.250"	1	-4	IMP. - C.I.	-2
IMPELLER WT. - LBS. = 4.05	STD. LATERAL = .59"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 100.0	DISCHARGE SIZES = 4"/5"/6"	3	0	IMP. - S.S.	-5
ADD'L STAGE WT. - LBS. = 34.0	SUCTION SIZES = 5" / BELL	4	0	BOWL - BRZ.	-2
MAX. SPHERE SIZE = .53"	ONE STAGE WR ² = .073	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 11"	K-FACTOR, MAX = 4.20			BOWL - S.S.	-4

Δ CONSULT FACTORY

v18.1

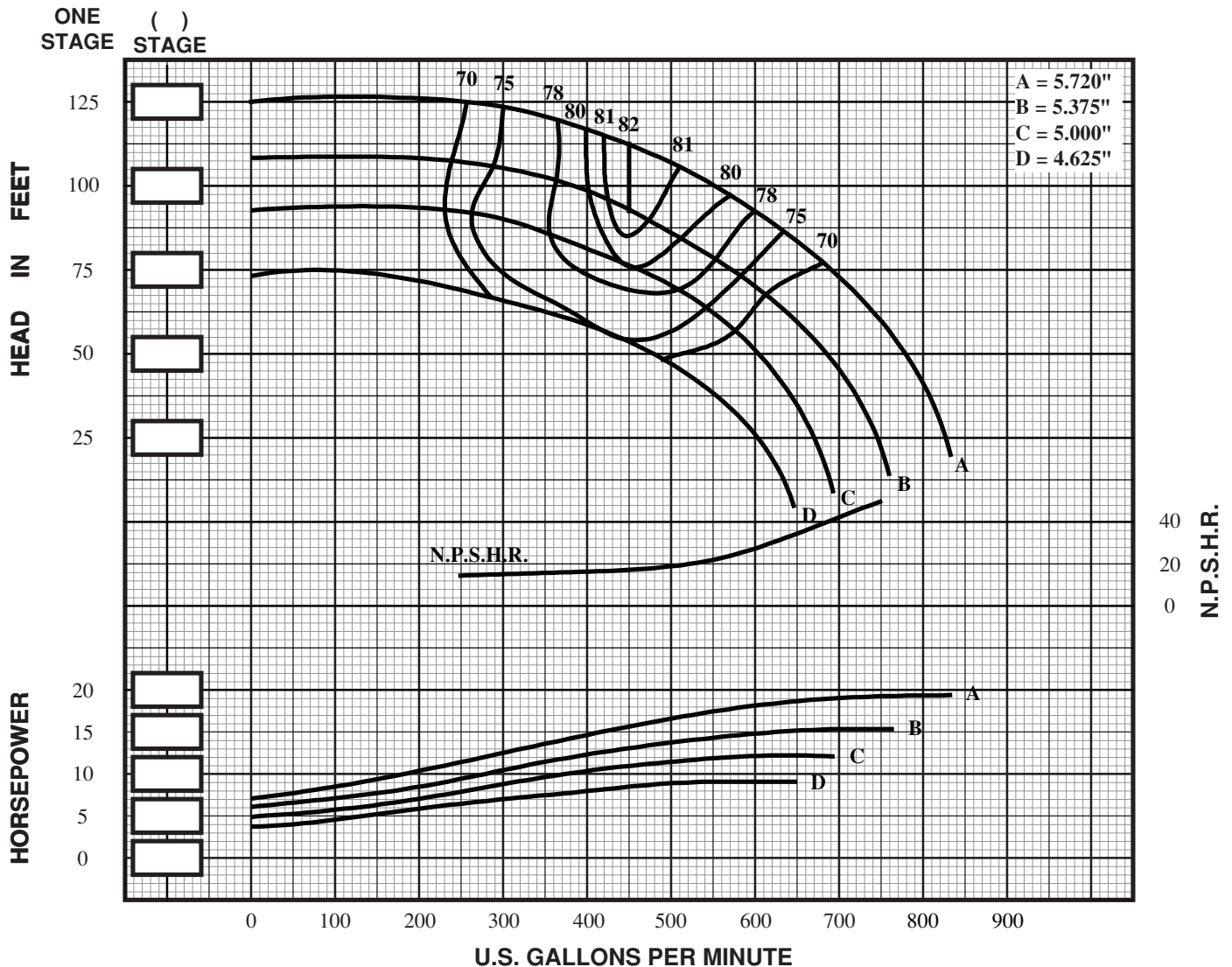


SUBMERSIBLE TURBINE

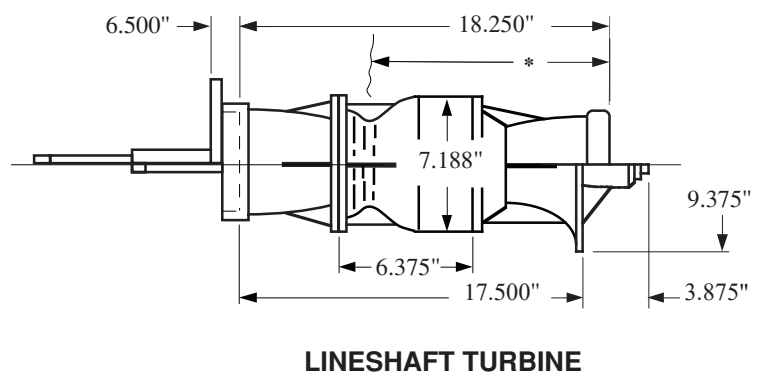
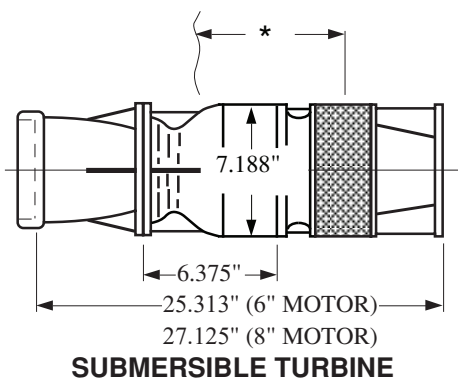


LINESHAFT TURBINE

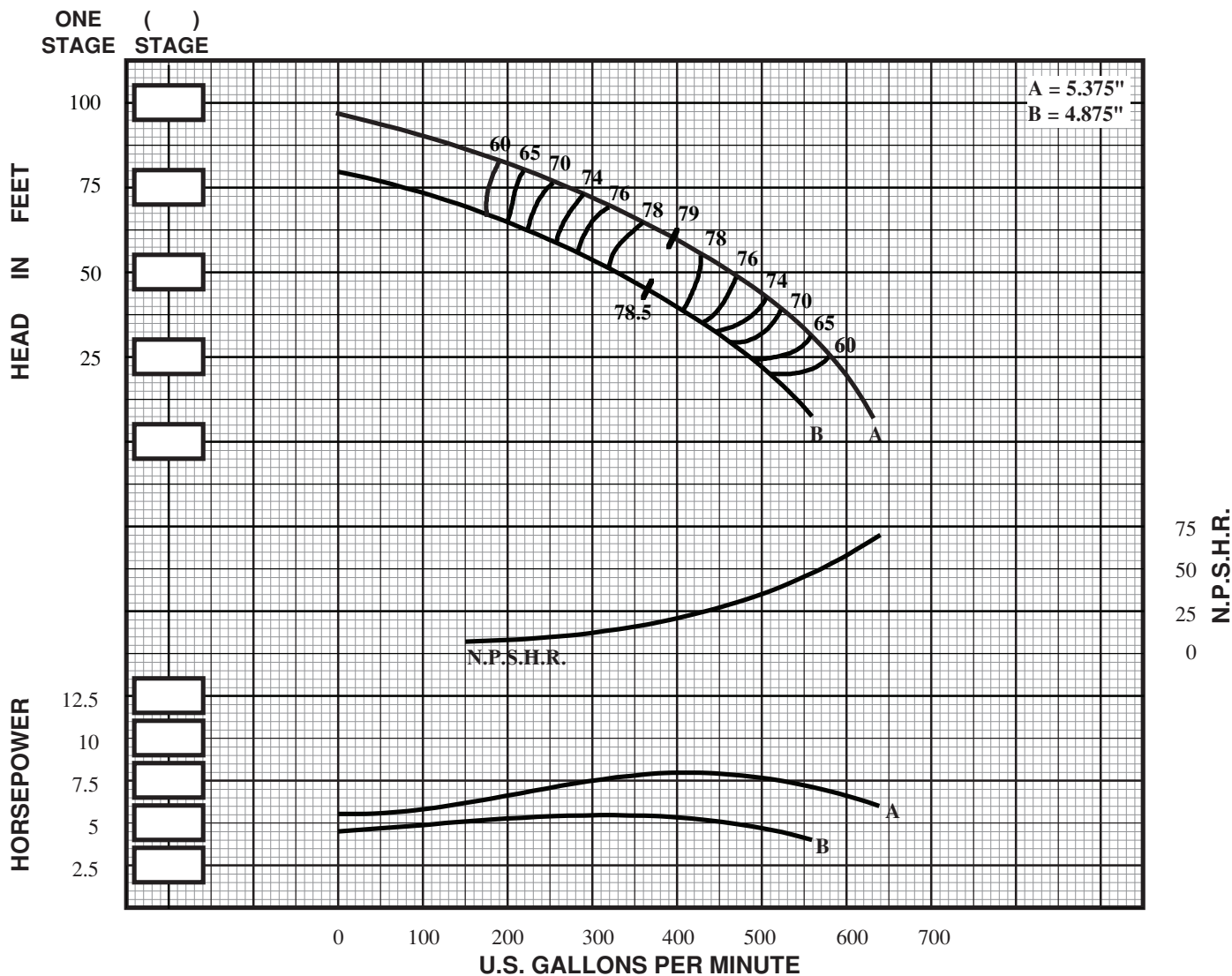
SP7H 3450 RPM



IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.250"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP7H	MAX. SHAFT DIA. = 1.250"				
IMPELLER WT. - LBS. = 4.00	STD. LATERAL = .59"	1	-3	IMP. - C.I.	-2
ONE STAGE WT. - LBS. = 100.0	DISCHARGE SIZES = 4"/ 5"/ 6"	2	-1	IMP. - NI-RI	-2
ADD'L STAGE WT. - LBS. = 34.0	SUCTION SIZES = 5"/ BELL	3	0	IMP. - S.S.	-5
MAX. SPHERE SIZE = .53"	ONE STAGE WR ² = .072	4	0	BOWL - BRZ.	-2
MIN. SUBMERGENCE* = 11"	K-FACTOR, MAX = 4.30	5	0	BOWL - NI-RI	-1
Δ CONSULT FACTORY		v18.1		BOWL - S.S.	-4

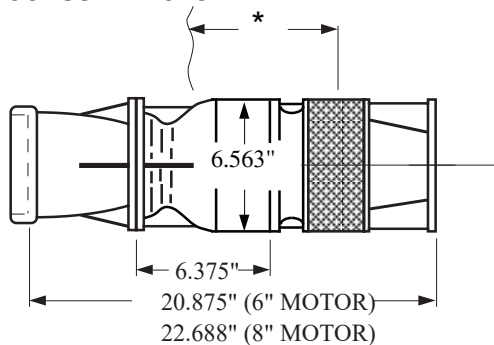


SK7L 3450 RPM

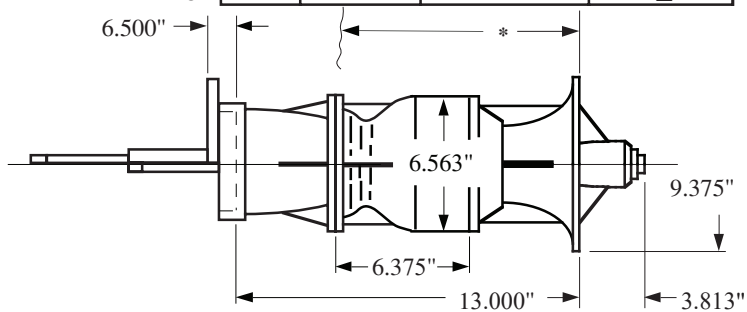


IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.000"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SK7L	MAX. SHAFT DIA. = 1.000"	1	-3.5	IMP. - C.I.	Δ
IMPELLER WT. - LBS. = 3.35	STD. LATERAL = .94"	2	-2.0	IMP. - NI-RI	Δ
ONE STAGE WT. - LBS. = 61.0	DISCHARGE SIZES = 4" / 5"	3	-1.0	IMP. - S.S.	Δ
ADD'L STAGE WT. - LBS. = 22.0	SUCTION SIZES = BELL	4	-0.5	BOWL - BRZ.	Δ
MAX. SPHERE SIZE = .44"	ONE STAGE WR ² = .051	5	0.0	BOWL - NI-RI	Δ
MIN. SUBMERGENCE* = 20"	K FACTOR = 4.49			BOWL - S.S.	Δ

Δ CONSULT FACTORY

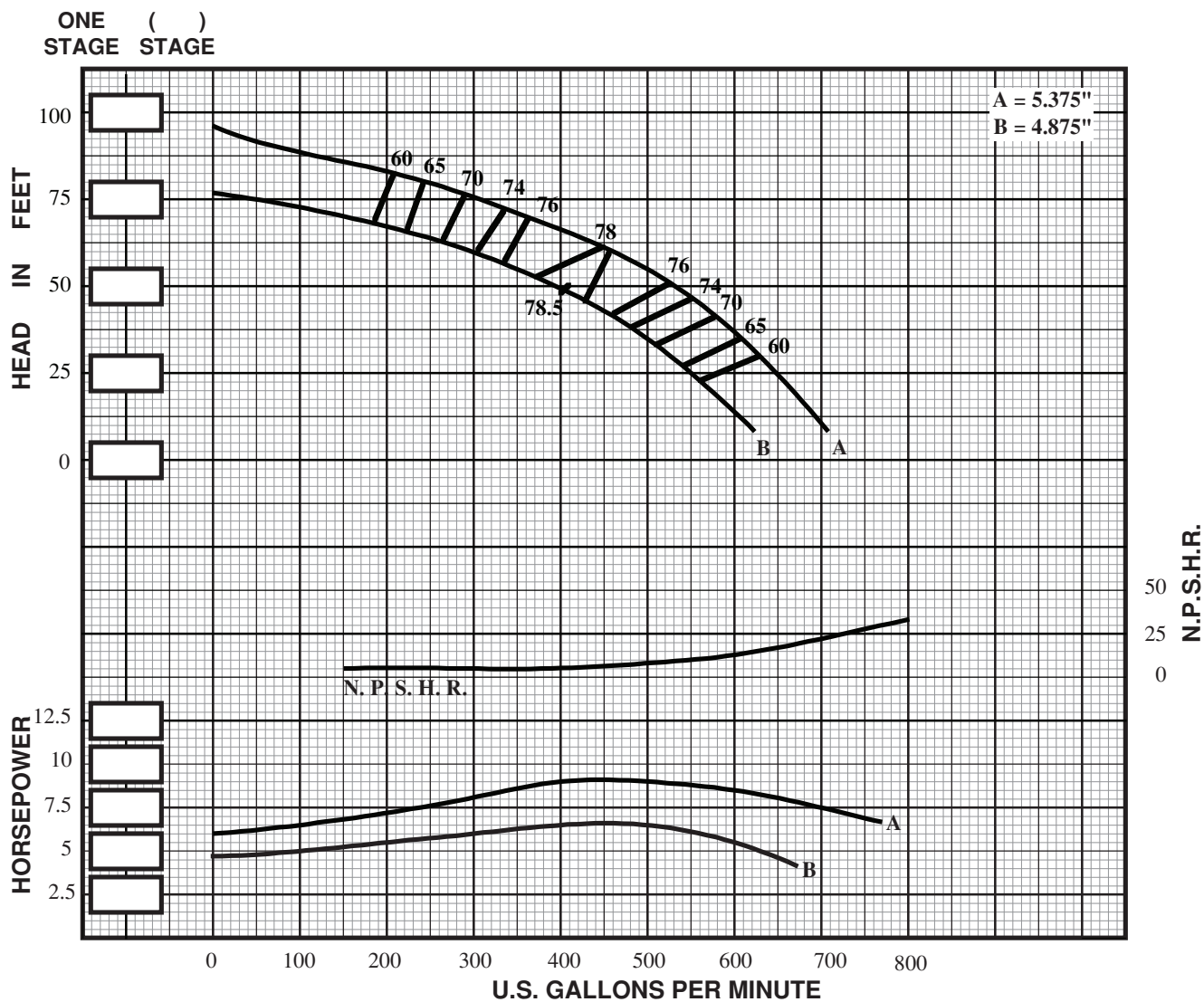


SUBMERSIBLE TURBINE

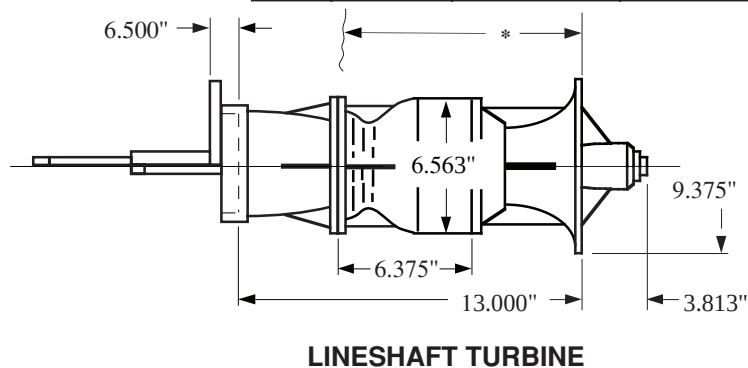
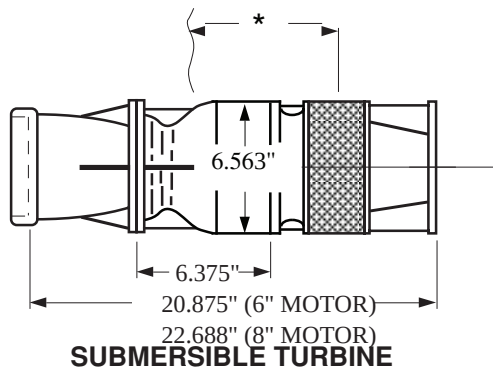


LINESHAFT TURBINE

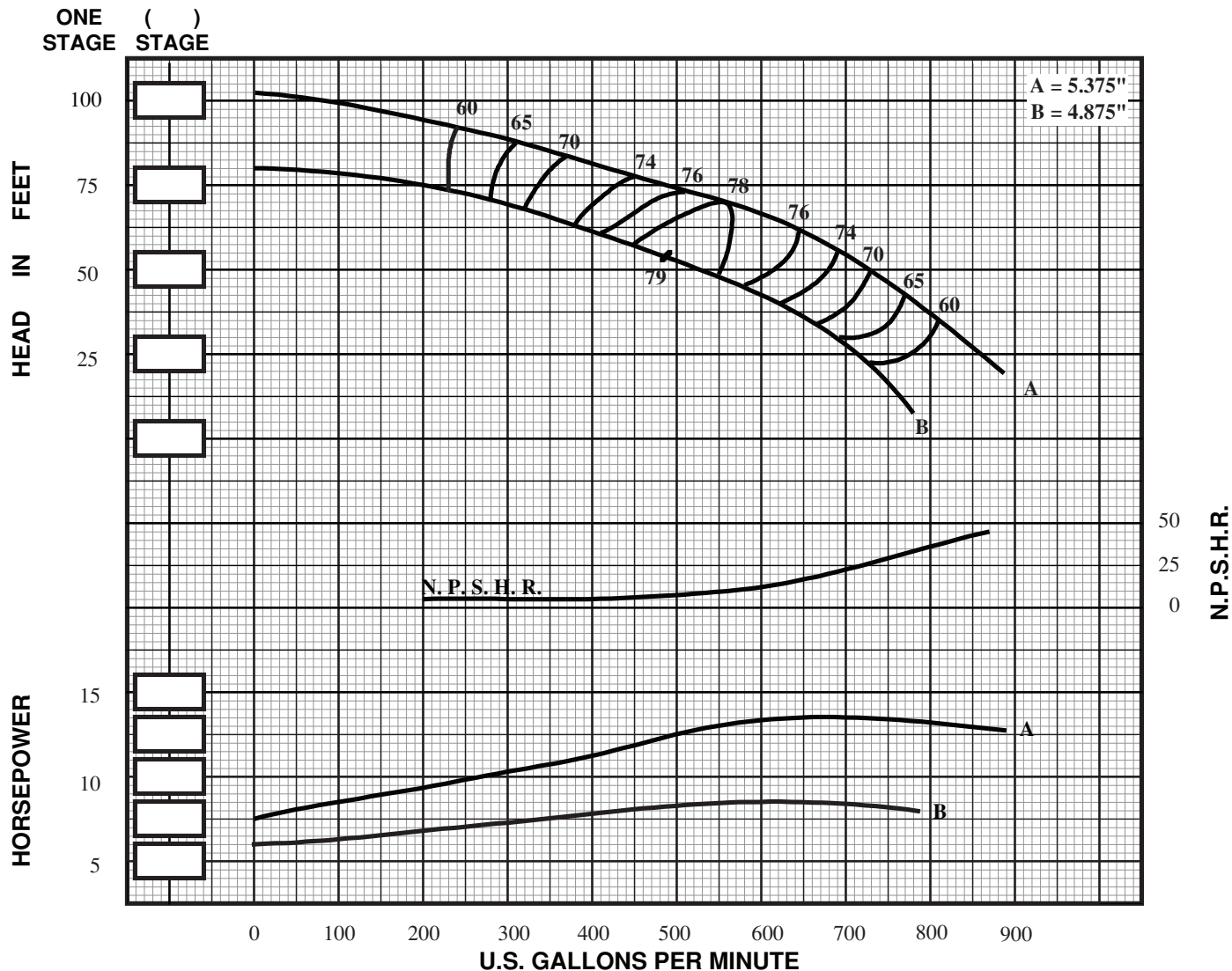
SK7M 3450 RPM



IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.000"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SK7M	MAX. SHAFT DIA. = 1.000"				
IMPELLER WT. - LBS. = 2.90	STD. LATERAL = .75"	1	-3.5	IMP. - C.I.	Δ
ONE STAGE WT. - LBS. = 59.0	DISCHARGE SIZES = 4" / 5"	2	-2.0	IMP. - NI-RI	Δ
ADD'L STAGE WT. - LBS. = 20.0	SUCTION SIZES = BELL	3	-1.0	IMP. - S.S.	Δ
MAX. SPHERE SIZE = .56"	ONE STAGE WR ² = .046	4	-0.5	BOWL - BRZ.	Δ
MIN. SUBMERGENCE* = 20"	K FACTOR = 4.29	5	0.0	BOWL - NI-RI	Δ
Δ CONSULT FACTORY	v18.1			BOWL - S.S.	Δ

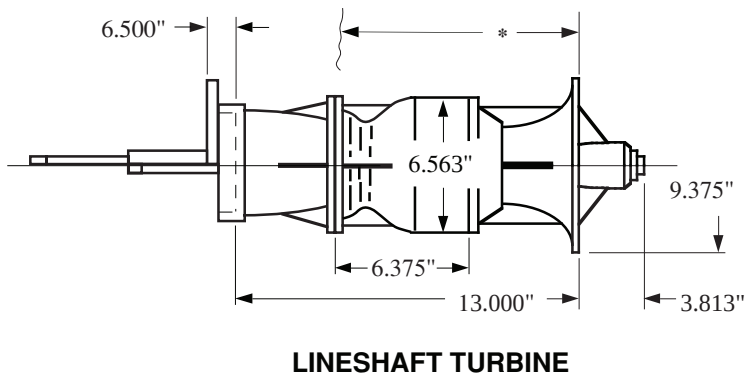
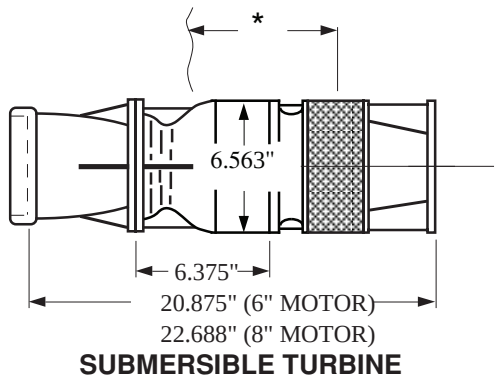


SK7H 3450 RPM

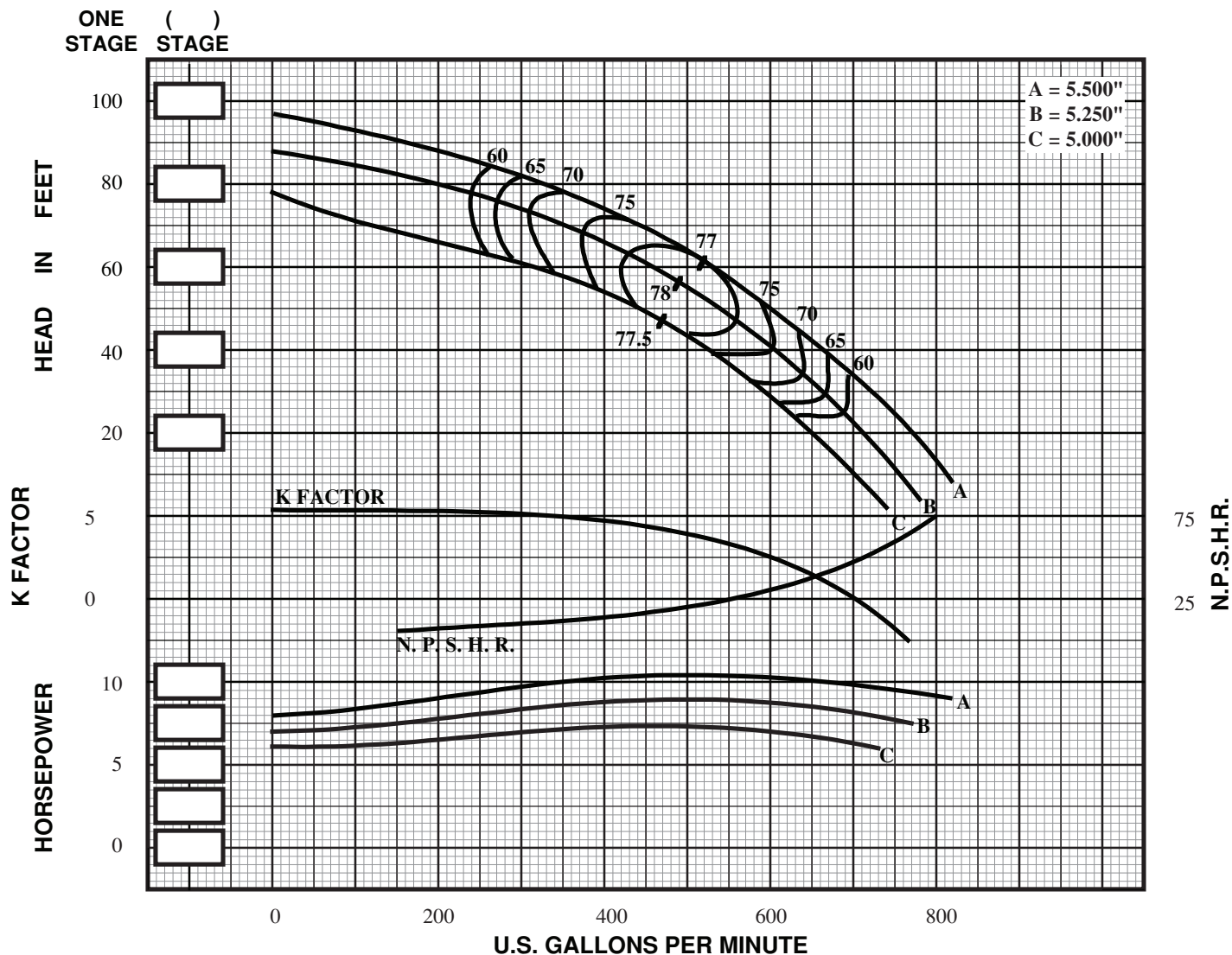


IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.000"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SK7H	MAX. SHAFT DIA. = 1.000"				
IMPELLER WT. - LBS. = 3.25	STD. LATERAL = .75"	1	-3.5	IMP. - C.I.	Δ
ONE STAGE WT. - LBS. = 60.0	DISCHARGE SIZES = 4" / 5"	2	-2.0	IMP. - NI-RI	Δ
ADD'L STAGE WT. - LBS. = 21.0	SUCTION SIZES = BELL	3	-1.0	IMP. - S.S.	Δ
MAX. SPHERE SIZE = .56"	ONE STAGE WR ² = .050	4	-0.5	BOWL - BRZ.	Δ
MIN. SUBMERGENCE* = 20"	K FACTOR = 4.27	5	0.0	BOWL - NI-RI	Δ
				BOWL - S.S.	Δ

Δ CONSULT FACTORY



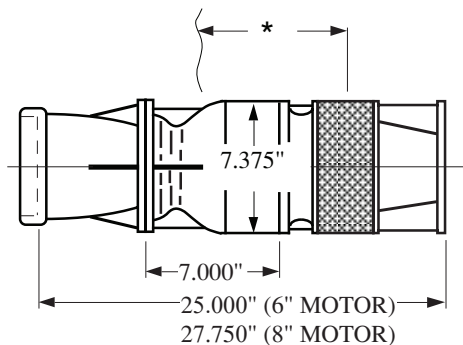
SM7M 3450 RPM



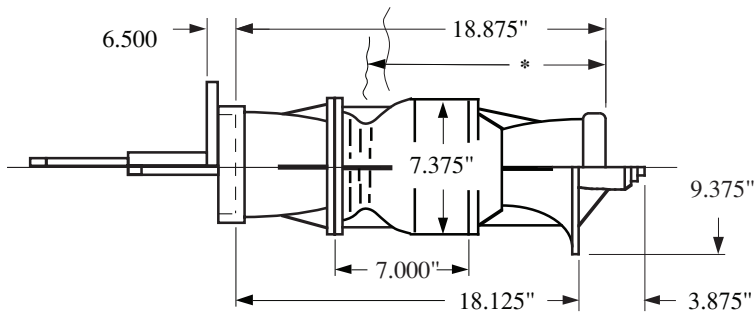
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.250"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SM7M	MAX. SHAFT DIA. = 1.250"	1	-3	IMP. - C.I.	-2
IMPELLER WT. - LBS. = 6.2	STD. LATERAL = .94"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 100.0	DISCHARGE SIZES = 4" / 5" / 6"	3	-1	IMP. - S.S.	-5
ADD'L STAGE WT. - LBS. = 40.0	SUCTION SIZES = 5" / BELL	4	0	BOWL - BRZ.	-3
MAX. SPHERE SIZE = .50"	ONE STAGE WR ² = .100	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 12"				BOWL - S.S.	-5

Δ CONSULT FACTORY

v18.1

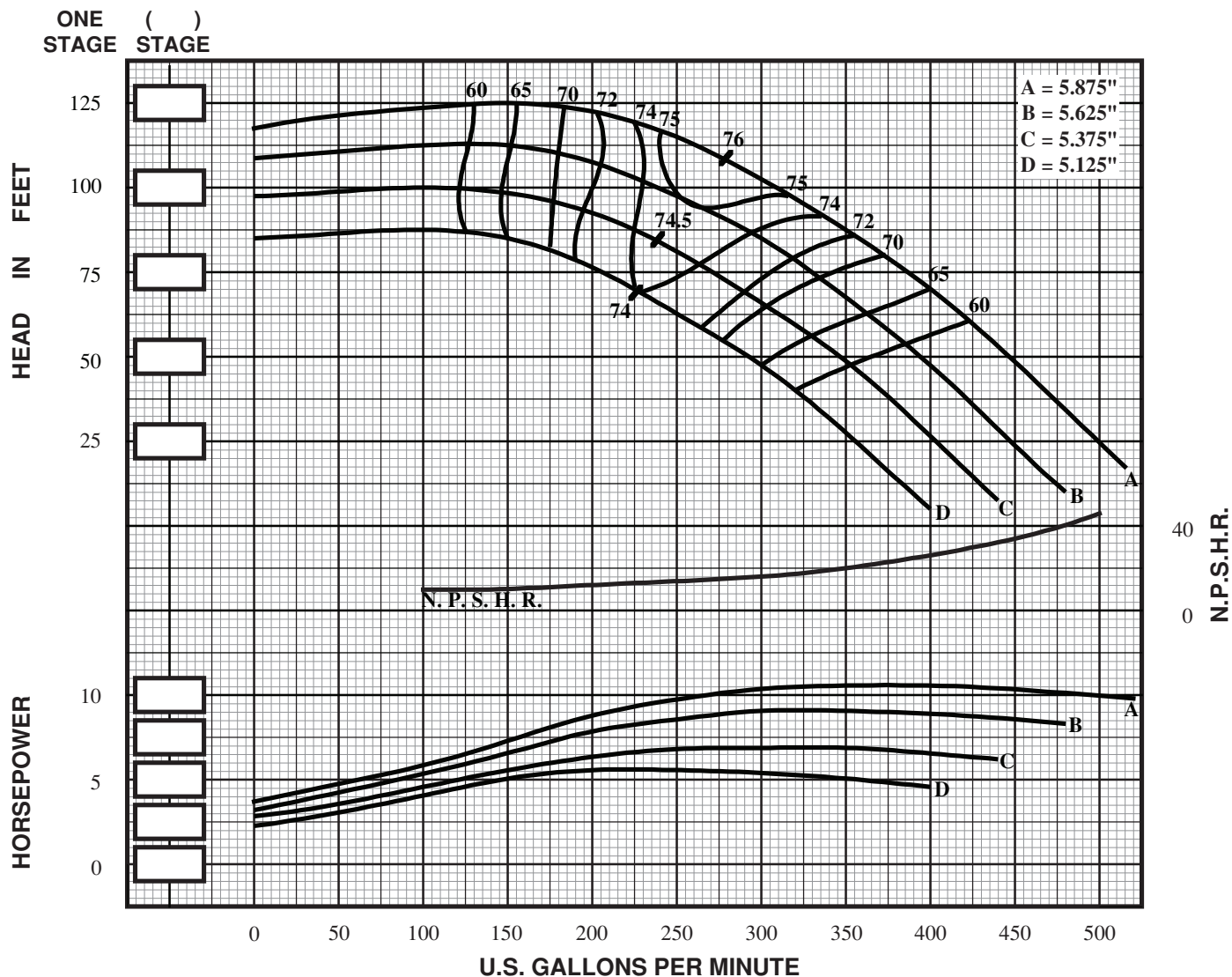


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

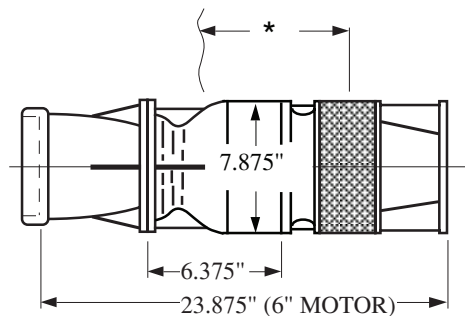
SP8L 3450 RPM



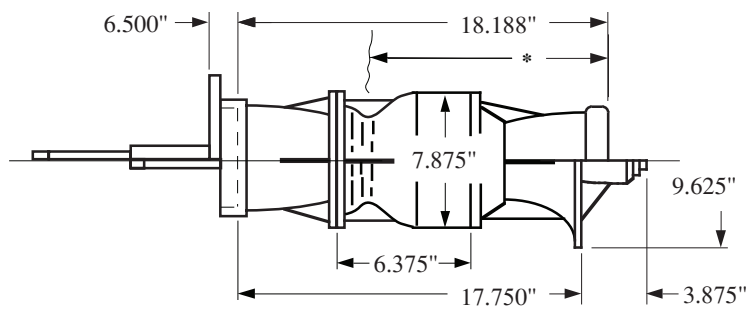
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.250"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP8L	MAX. SHAFT DIA. = 1.250"				
IMPELLER WT. - LBS. = 5.40	STD. LATERAL = .88"	1	-4	IMP. - C.I.	Δ
ONE STAGE WT. - LBS. = 122.0	DISCHARGE SIZES = 4"/5"/6"	2	-3	IMP. - NI-RI	Δ
ADD'L STAGE WT. - LBS. = 40.0	SUCTION SIZES = 5"/ BELL	3	-2	IMP. - S.S.	Δ
MAX. SPHERE SIZE = .31"	ONE STAGE WR ² = .108	4	-1	BOWL - BRZ.	Δ
MIN. SUBMERGENCE* = 11"	K-FACTOR, MAX. = 3.60	5	0	BOWL - NI-RI	Δ
				BOWL - S.S.	Δ

Δ CONSULT FACTORY

v18.1

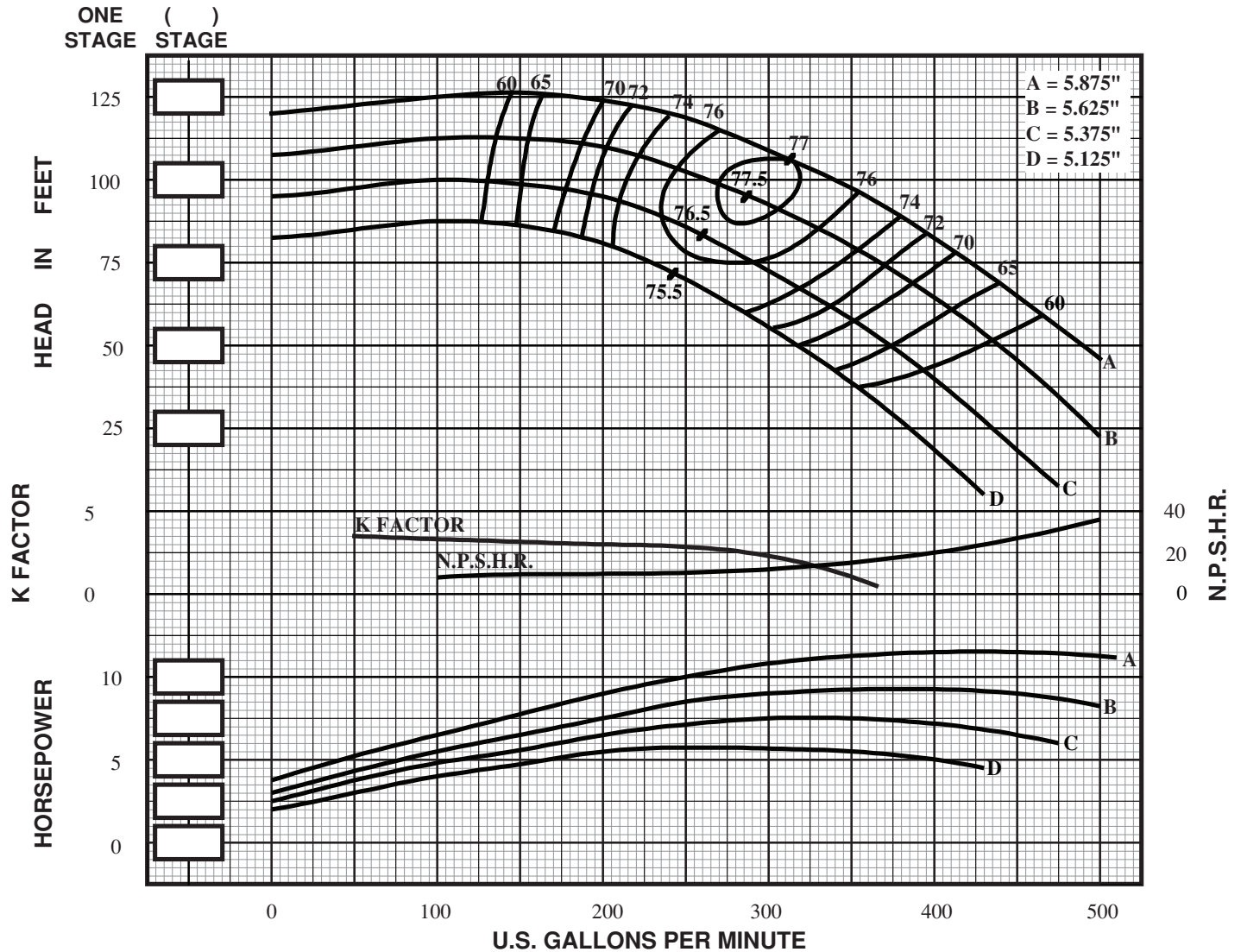


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

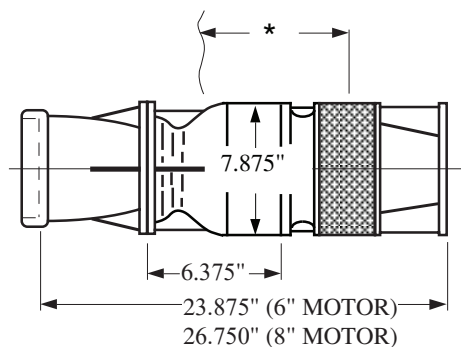
SP8M 3450 RPM



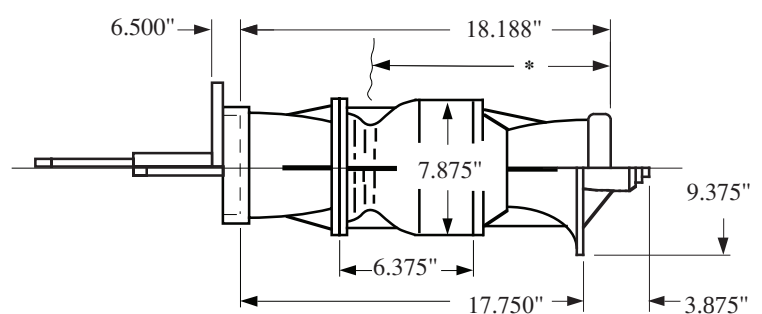
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.250"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP8M	MAX. SHAFT DIA. = 1.250"	1	-4	IMP. - C.I.	-2
IMPELLER WT. - LBS. = 5.15	STD. LATERAL = .75"	2	-3	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 100.0	DISCHARGE SIZES = 4"/5"/6"	3	-2	IMP. - S.S.	-4
ADD'L STAGE WT. - LBS. = 40.0	SUCTION SIZES = 5" / BELL	4	-1	BOWL - BRZ.	-2
MAX. SPHERE SIZE = .56"	ONE STAGE WR ² = .105	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 11"				BOWL - S.S.	-3

Δ CONSULT FACTORY

v18.1

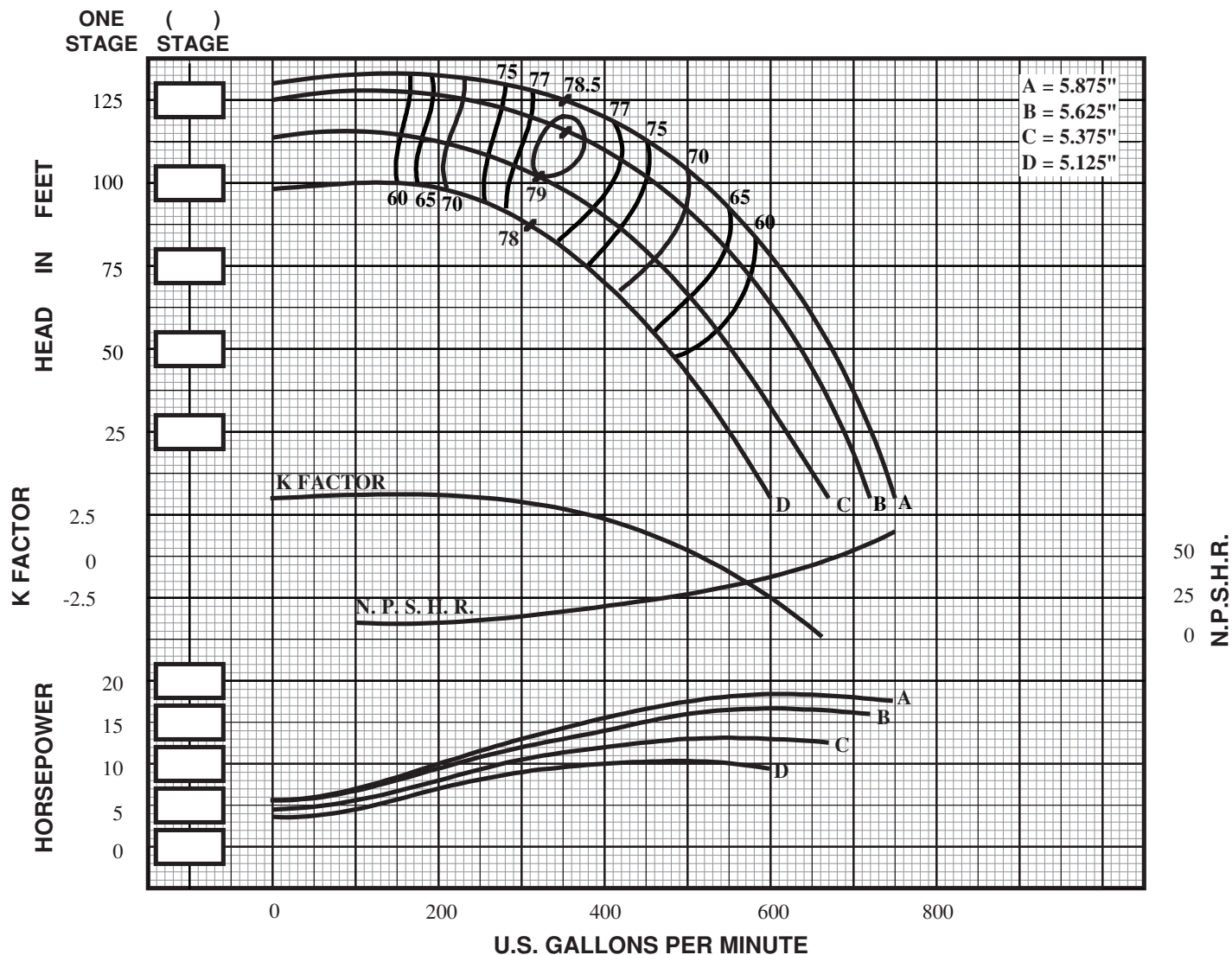


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

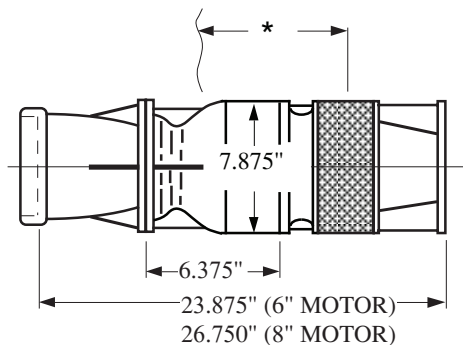
SP8H 3450 RPM



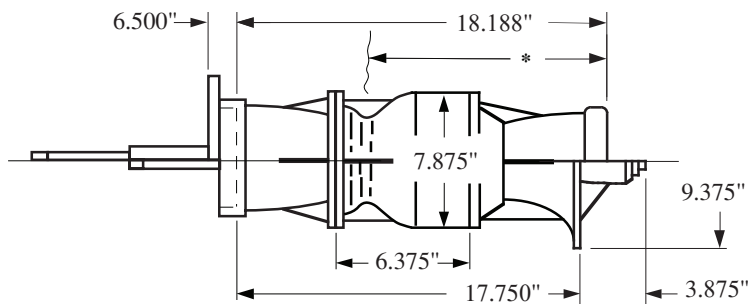
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.250"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP8H	MAX. SHAFT DIA. = 1.250"	1	-4	IMP. - C.I.	-2
IMPELLER WT. - LBS. = 5.20	STD. LATERAL = .56"	2	-3	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 100.0	DISCHARGE SIZES = 4"/5"/6"	3	-2	IMP. - S.S.	-4
ADD'L STAGE WT. - LBS. = 40.0	SUCTION SIZES = 5" / BELL	4	-1	BOWL - BRZ.	-2
MAX. SPHERE SIZE = .75"	ONE STAGE WR ² = .105	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 11"				BOWL - S.S.	-3

Δ CONSULT FACTORY

v18.1

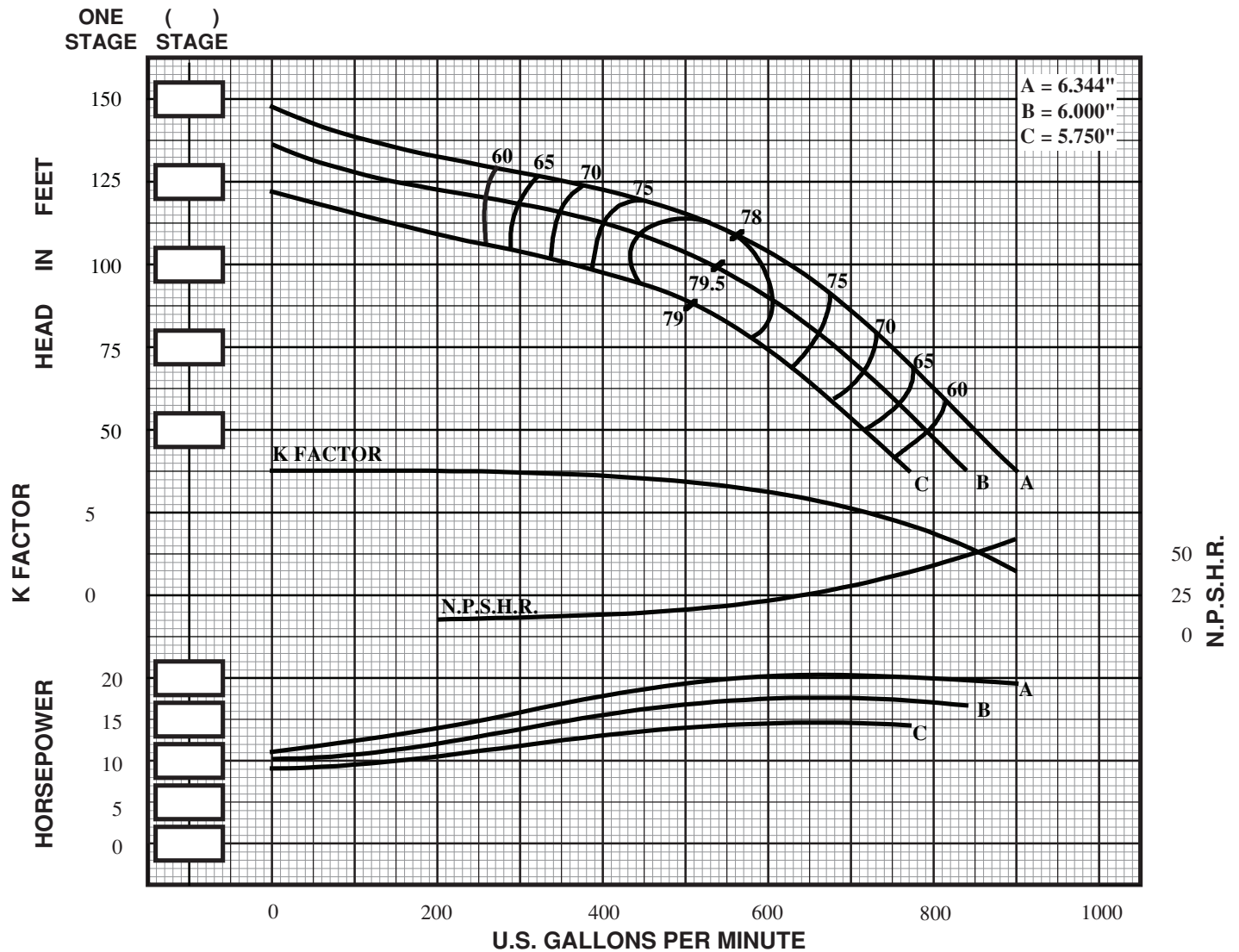


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

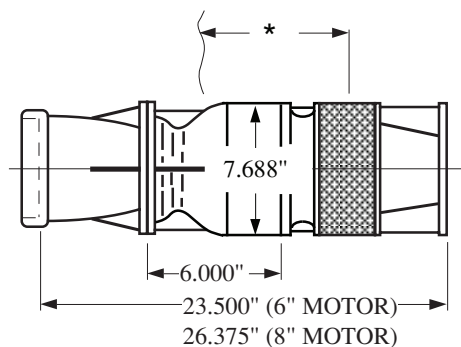
SM8H 3450 RPM



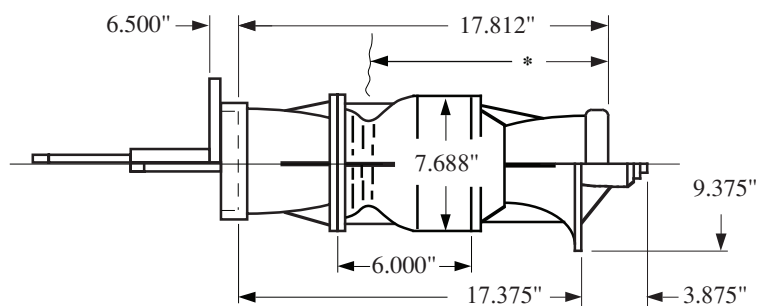
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.250"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SM8H	MAX. SHAFT DIA. = 1.250"				
IMPELLER WT. - LBS. = 7.3	STD. LATERAL = .58"	1	-4	IMP. - C.I.	-2
ONE STAGE WT. - LBS. = 100.0	DISCHARGE SIZES = 4"/ 5"/ 6"	2	-3	IMP. - NI-RI	-2
ADD'L STAGE WT. - LBS. = 40.0	SUCTION SIZES = 5"/ BELL	3	-2	IMP. - S.S.	-4
MAX. SPHERE SIZE = .66"	ONE STAGE WR ² = .158	4	-1	BOWL - BRZ.	-2
MIN. SUBMERGENCE* = 11"		5	0	BOWL - NI-RI	-1
				BOWL - S.S.	-3

Δ CONSULT FACTORY

v18.1

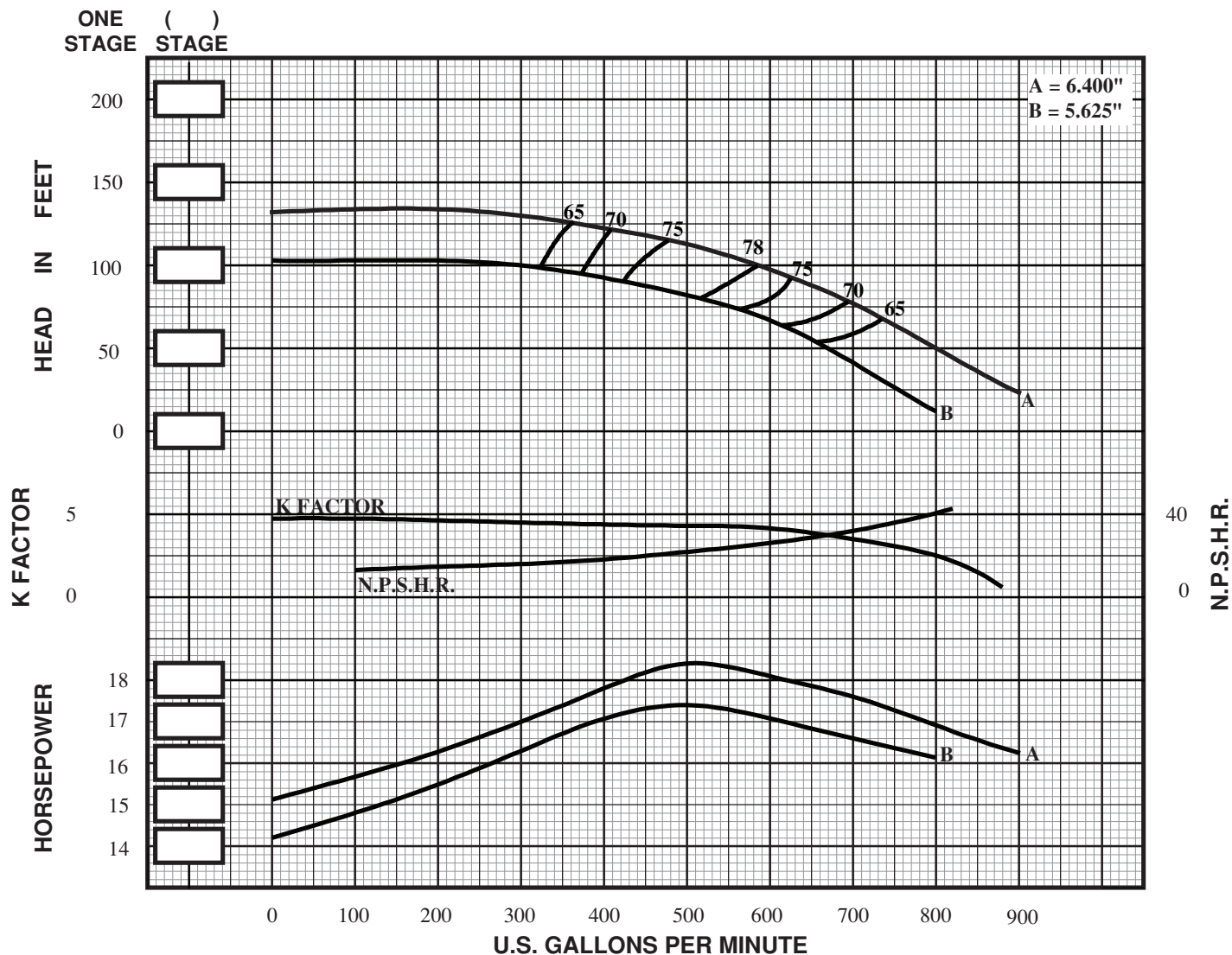


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

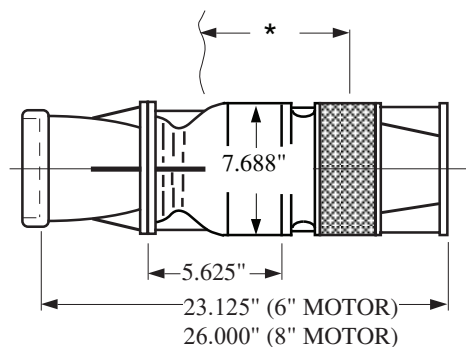
SR8H0 3450 RPM



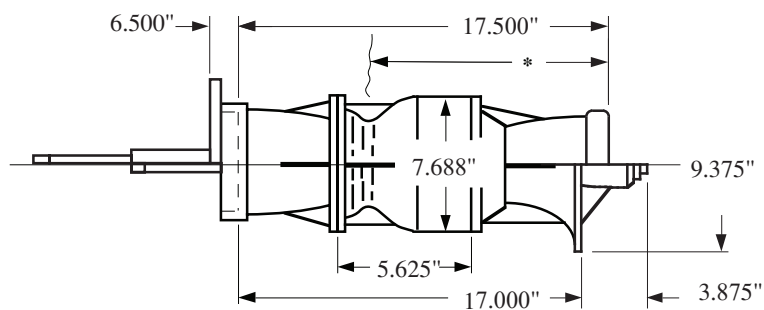
IMPELLER TYPE = SEMI-OPEN	STD. SHAFT DIA. = 1.250"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SR8H0	MAX. SHAFT DIA. = 1.250"	1	-4	IMP. - C.I.	-4
IMPELLER WT. - LBS. = 5.00	STD. LATERAL = .61"	2	-3	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 100.0	DISCHARGE SIZES = 4"/ 5"/ 6"	3	-2	IMP. - S.S.	NOT RECOM.
ADD'L STAGE WT. - LBS. = 40.0	SUCTION SIZES = 5"/ BELL	4	-1	BOWL - BRZ.	-2
MAX. SPHERE SIZE = .59"	ONE STAGE WR ² = .112	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 11"				BOWL - S. S.	-3

Δ CONSULT FACTORY

v18.1

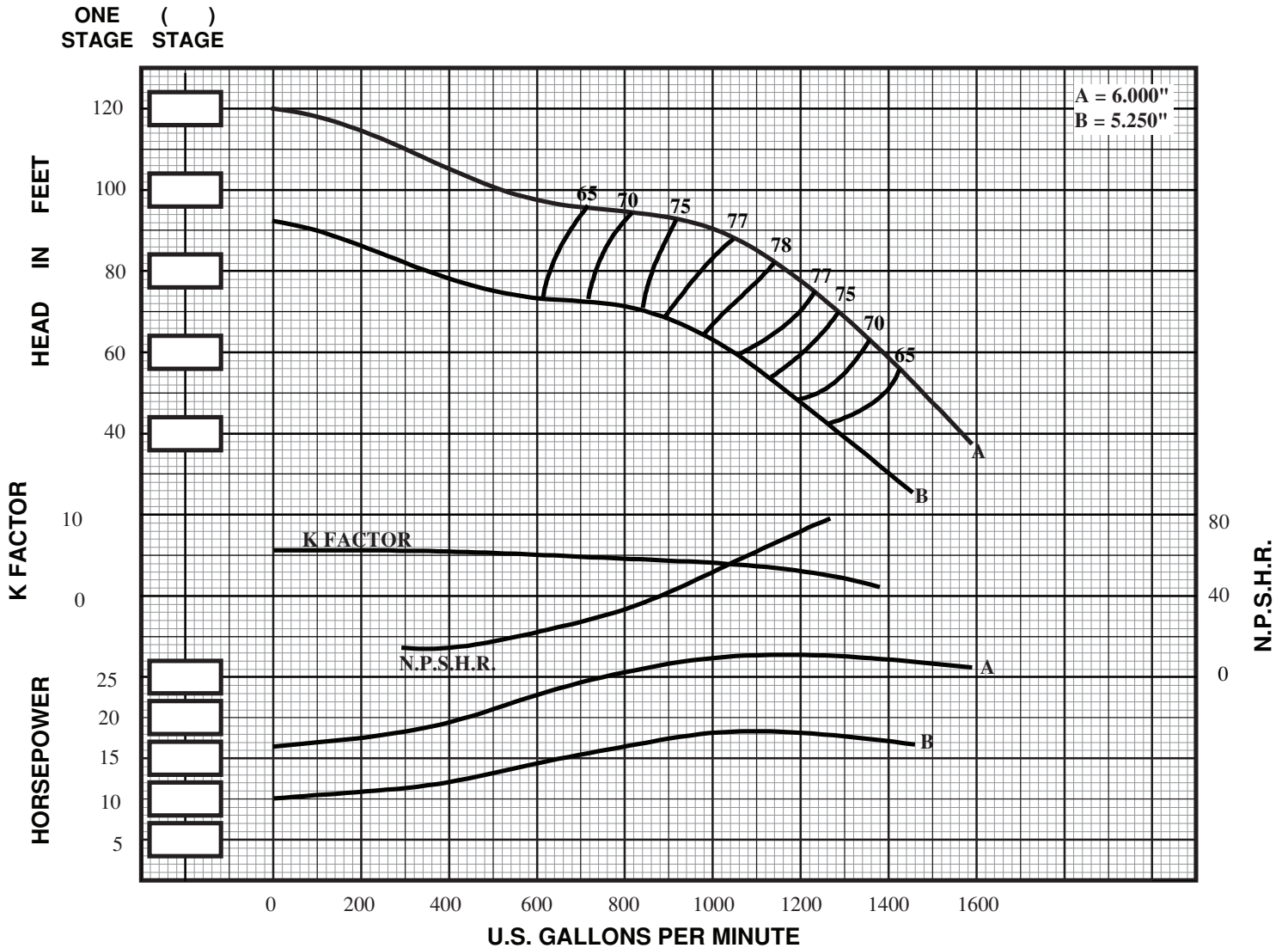


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

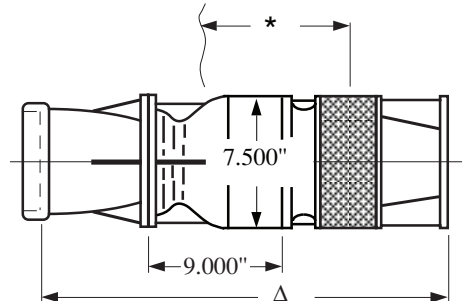
SK8H 3450 RPM



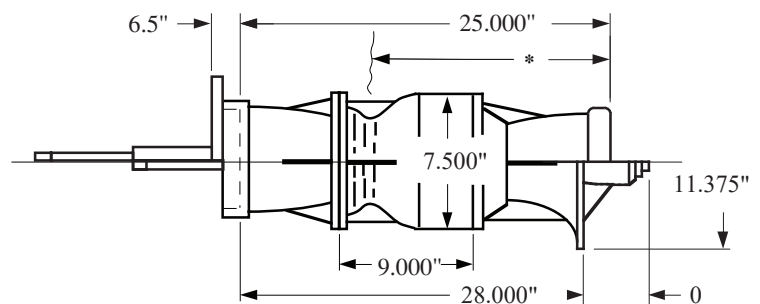
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.500"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SK8H	MAX. SHAFT DIA. = 1.500"	1	-4	IMP. - C.I.	-5
IMPELLER WT. - LBS. = 6.6	STD. LATERAL = 1.00"	2	-3	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 180.0	DISCHARGE SIZES = 6"	3	-2	IMP. - S.S.	NOT RECOM.
ADD'L STAGE WT. - LBS. = 60.0	SUCTION SIZES = 6"	4	-1	BOWL - BRZ.	-3
MAX. SPHERE SIZE = .75"	ONE STAGE WR ² = .133	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 16"				BOWL - S.S.	-4

Δ CONSULT FACTORY

v18.1

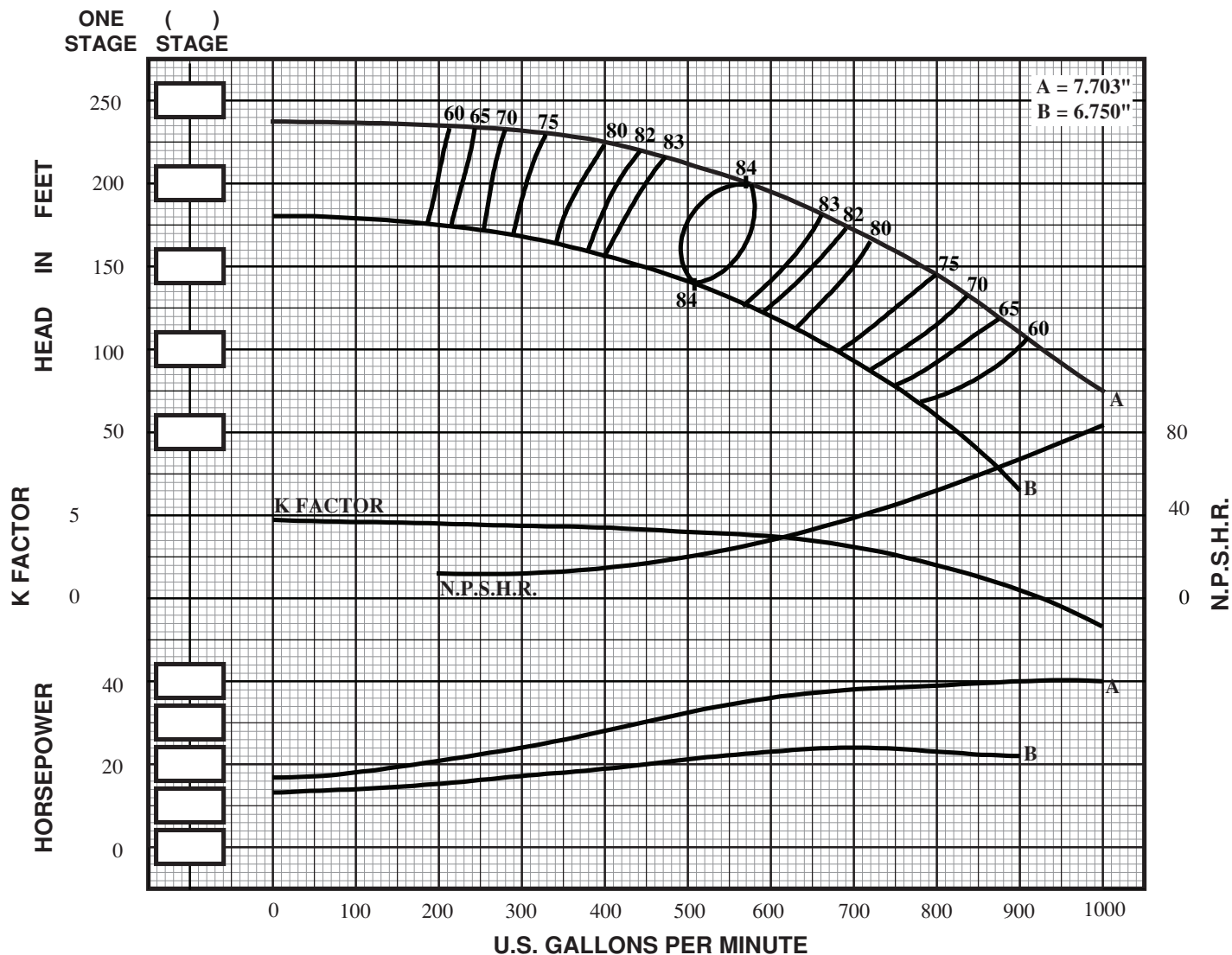


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

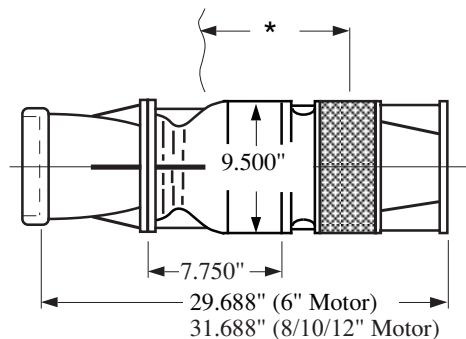
SP9L 3450 RPM



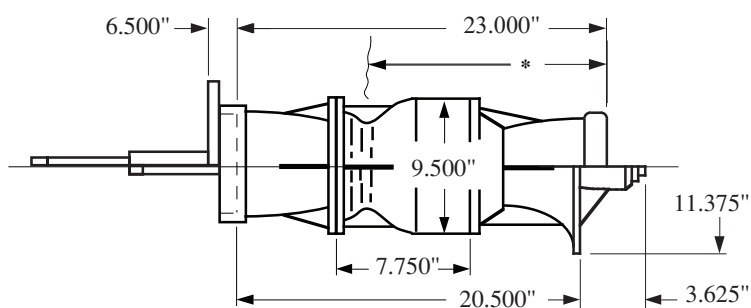
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.500"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP9L	MAX. SHAFT DIA. = 1.500"	1	-3	IMP. - C.I.	-2
IMPELLER WT. - LBS. = 9.0	STD. LATERAL = 1.19"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 150.0	DISCHARGE SIZES = 6" / 8"	3	-1	IMP. - S.S.	-3
ADD'L STAGE WT. - LBS. = 60.0	SUCTION SIZES = 6" / BELL	4	0	BOWL - BRZ.	-2
MAX. SPHERE SIZE = .53"	ONE STAGE WR ² = .286	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 15"				BOWL - S.S.	-3

Δ CONSULT FACTORY

v18.2

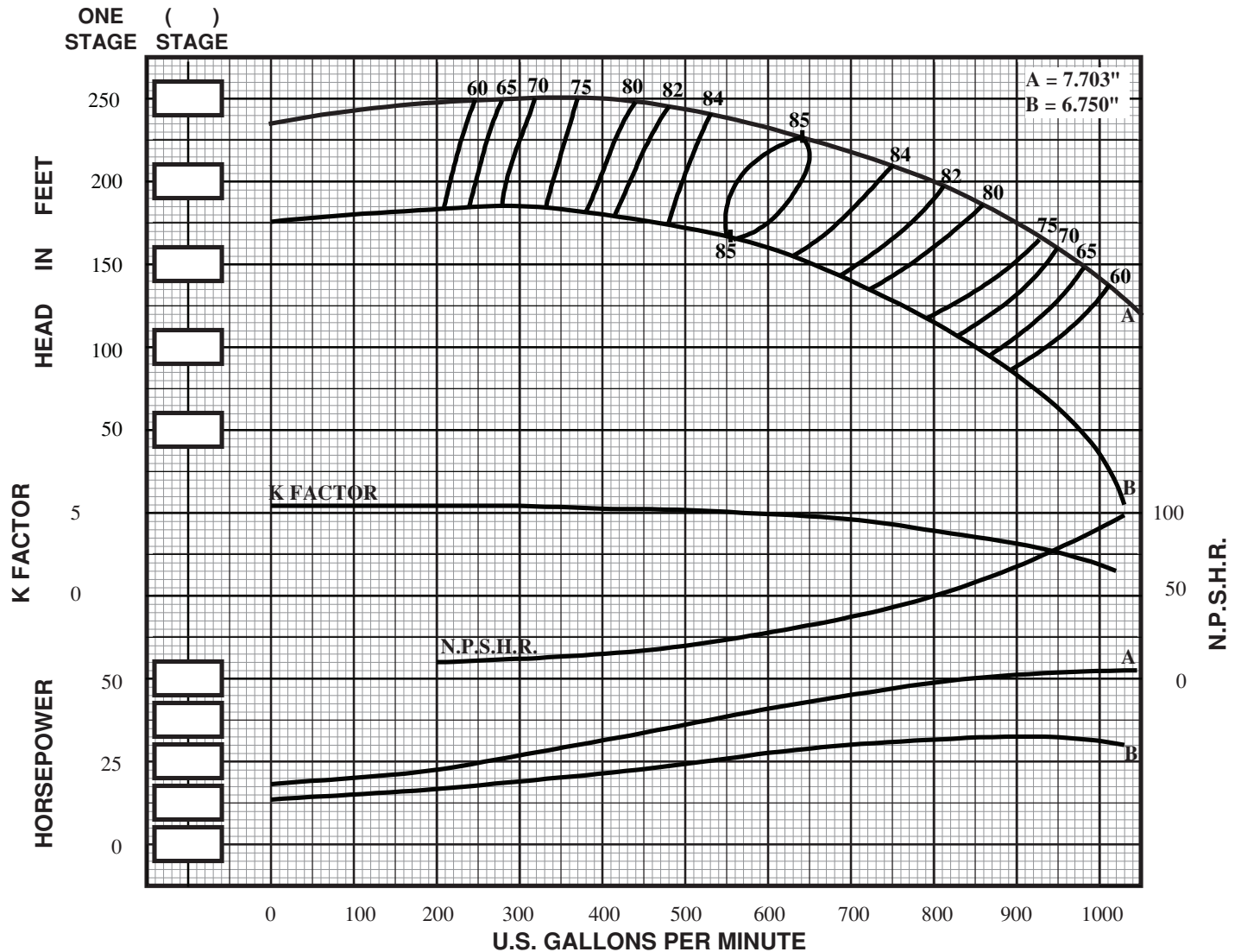


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

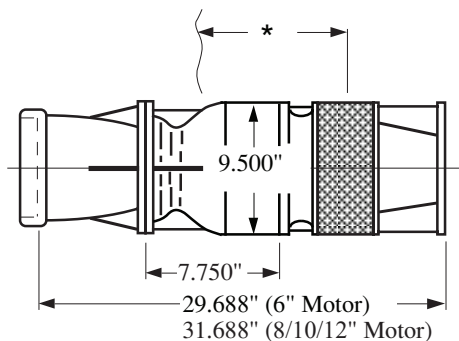
SP9M 3450 RPM



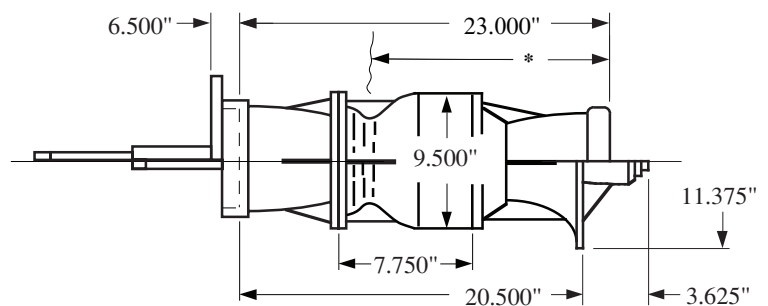
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.500"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP9M	MAX. SHAFT DIA. = 1.500"	1	-3	IMP. - C.I.	-2
IMPELLER WT. - LBS. = 9.5	STD. LATERAL = 1.19"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 150.0	DISCHARGE SIZES = 6" / 8"	3	-1	IMP. - S.S.	-3
ADD'L STAGE WT. - LBS. = 60.0	SUCTION SIZES = 6" / BELL	4	0	BOWL - BRZ.	-2
MAX. SPHERE SIZE = .53"	ONE STAGE WR ² = .303	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 15"				BOWL - S.S.	-3

Δ CONSULT FACTORY

v18.2

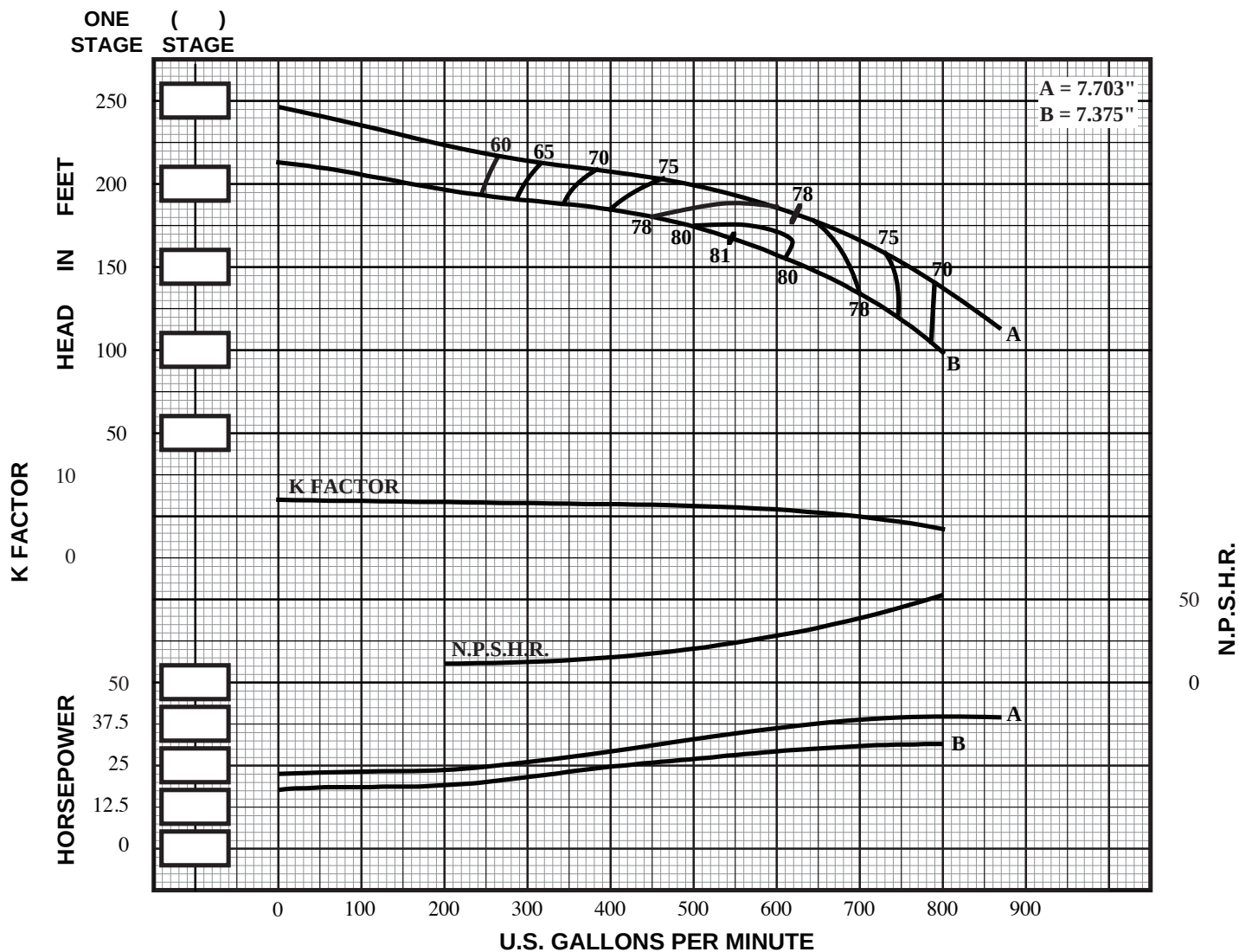


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

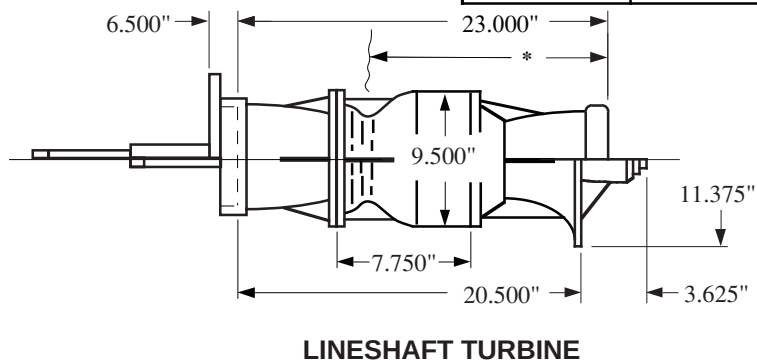
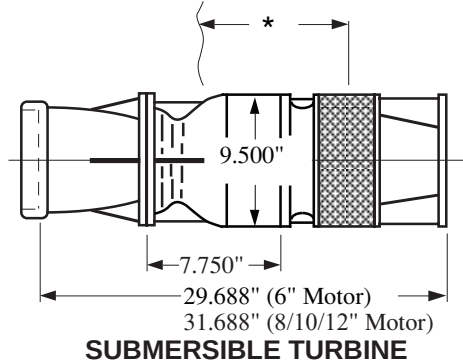
SM9L 3450 RPM



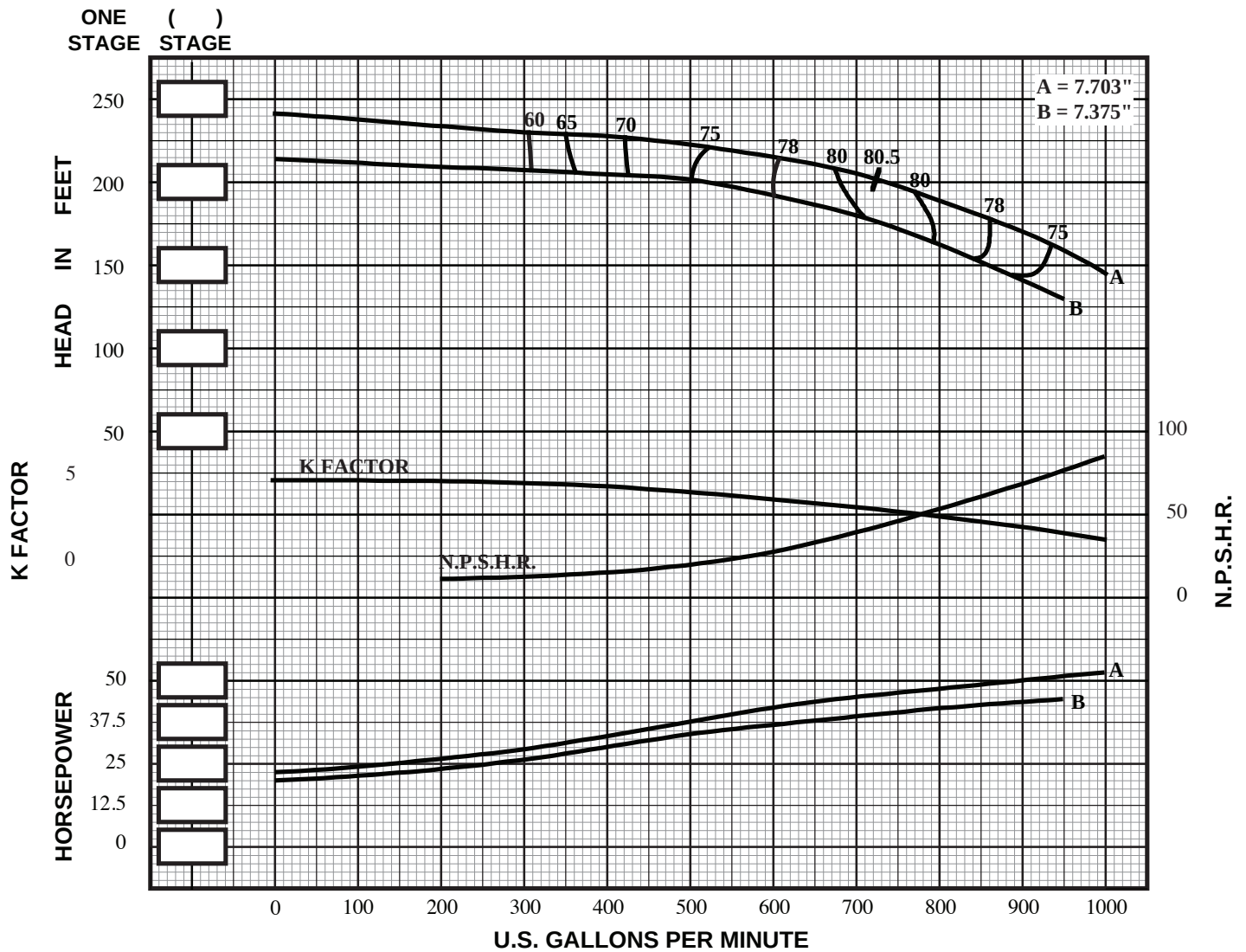
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.500"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP9L	MAX. SHAFT DIA. = 1.500"	1	-3	IMP. - C.I.	-2
IMPELLER WT. - LBS. = 9.0	STD. LATERAL = 1.13"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 150.0	DISCHARGE SIZES = 6" / 8"	3	-1	IMP. - S.S.	-3
ADD'L STAGE WT. - LBS. = 60.0	SUCTION SIZES = 6" / BELL	4	0	BOWL - BRZ.	-2
MAX. SPHERE SIZE = .53"	ONE STAGE WR ² = .286	5	0	BOWL - NI-RI	-1
* MIN. SUBMERGENCE = 15"				BOWL - S.S.	-3

Δ CONSULT FACTORY

v18.1



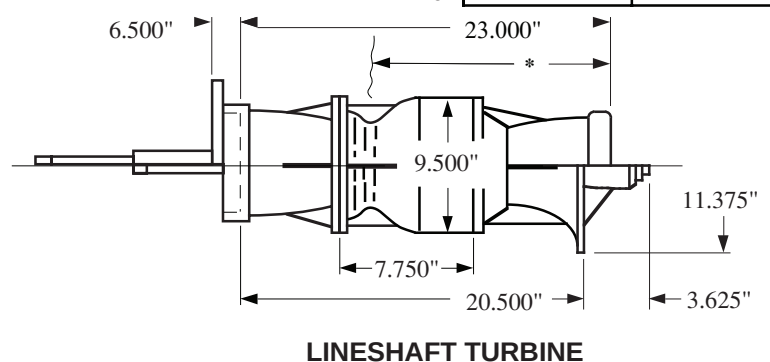
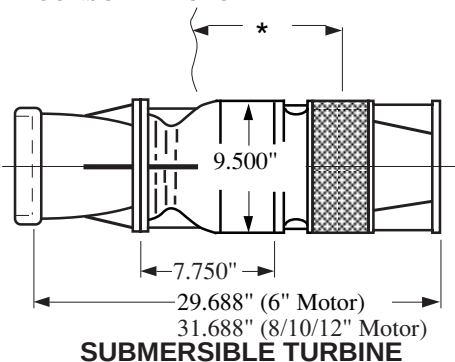
SM9M 3450 RPM



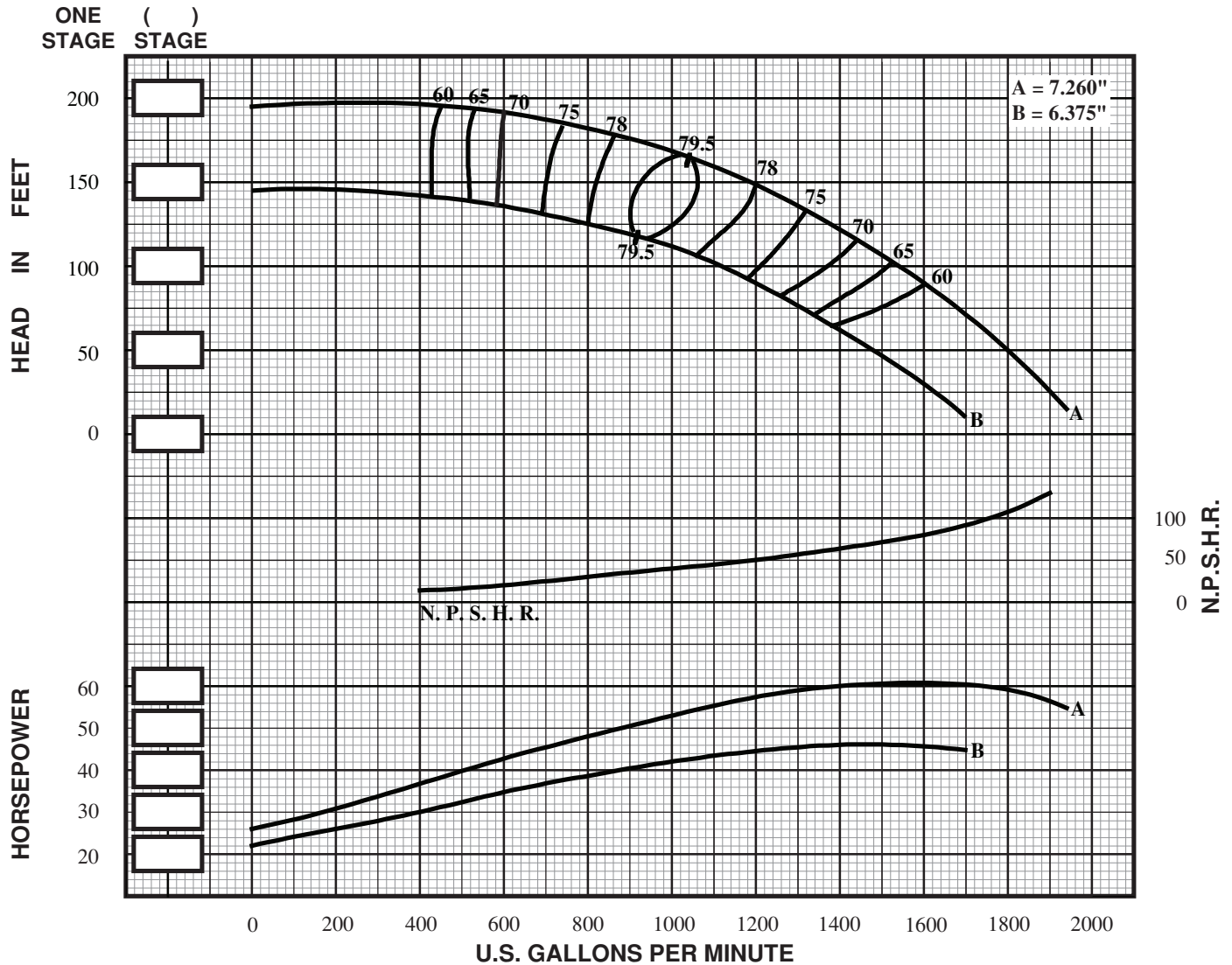
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.500"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP9M	MAX. SHAFT DIA. = 1.500"	1	-3	IMP. - C.I.	-2
IMPELLER WT. - LBS. = 9.5	STD. LATERAL = 1.13"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 150.0	DISCHARGE SIZES = 6" / 8"	3	-1	IMP. - S.S.	-3
ADD'L STAGE WT. - LBS. = 60.0	SUCTION SIZES = 6" / BELL	4	0	BOWL - BRZ.	-2
MAX. SPHERE SIZE = .53"	ONE STAGE WR ² = .303	5	0	BOWL - NI-RI	-1
* MIN. SUBMERGENCE = 15"				BOWL - S.S.	-3

Δ CONSULT FACTORY

v18.2



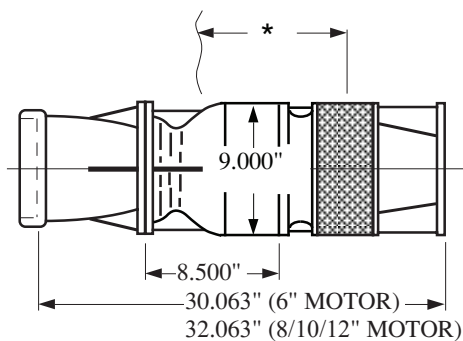
SL9H 3450 RPM



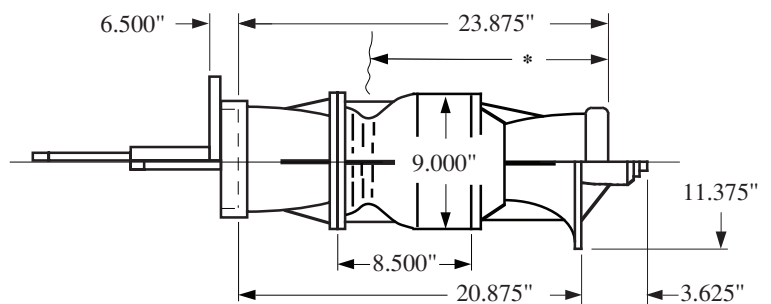
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.500"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SL9H	MAX. SHAFT DIA. = 1.500"	1	-3	IMP. - C.I.	-2
IMPELLER WT. - LBS. = 8.7	STD. LATERAL = .94"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 135.0	DISCHARGE SIZES = 6" / 8"	3	-1	IMP. - S.S.	-3
ADD'L STAGE WT. - LBS. = 53.0	SUCTION SIZES = 6" / BELL	4	0	BOWL - BRZ.	-2
MAX. SPHERE SIZE = .88"	ONE STAGE WR ² = .248	5	0	BOWL - NI-RI	-2
MIN. SUBMERGENCE* = 15"	K-FACTOR, MAX. = 5.70			BOWL - S.S.	-3

Δ CONSULT FACTORY

v18.1

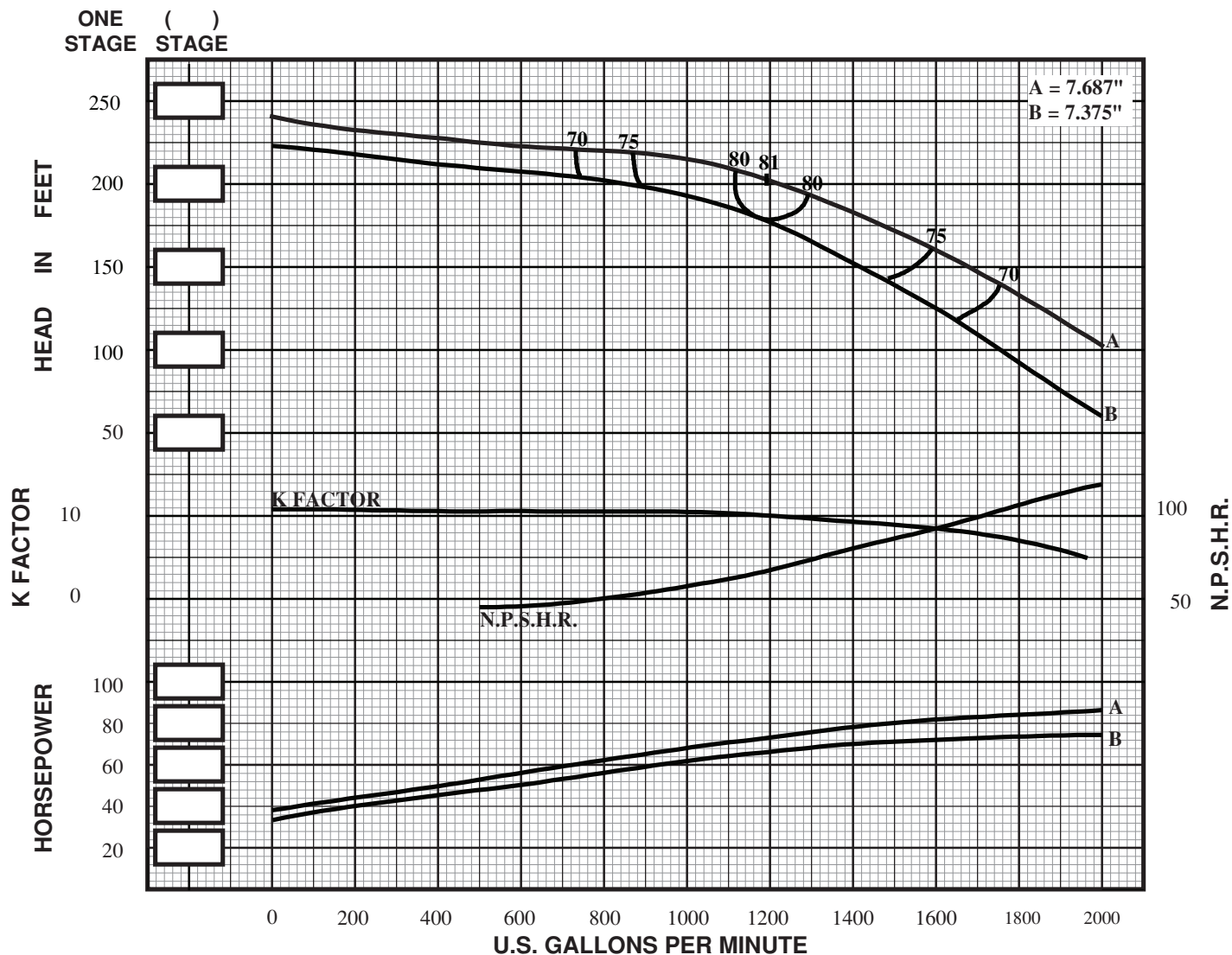


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

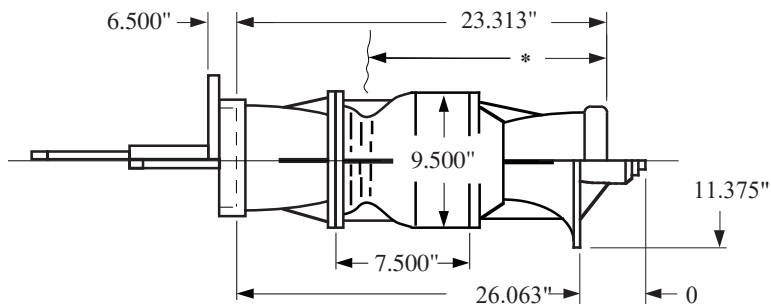
SF9H 3450 RPM



IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.500"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SF9H	MAX. SHAFT DIA. = 1.500"	1	-3	IMP. - C.I.	-2
IMPELLER WT. - LBS. = 9.0	STD. LATERAL = .94"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 185.0	DISCHARGE SIZES = 6"/ 8"	3	-1	IMP. - S.S.	-3
ADD'L STAGE WT. - LBS. = 67.0	SUCTION SIZES = 6"	4	0	BOWL - BRZ.	-2
MAX. SPHERE SIZE = .88"	ONE STAGE WR ² = .291	5	0	BOWL - NI-RI	-2
MIN. SUBMERGENCE* = 15"				BOWL - S.S.	-3

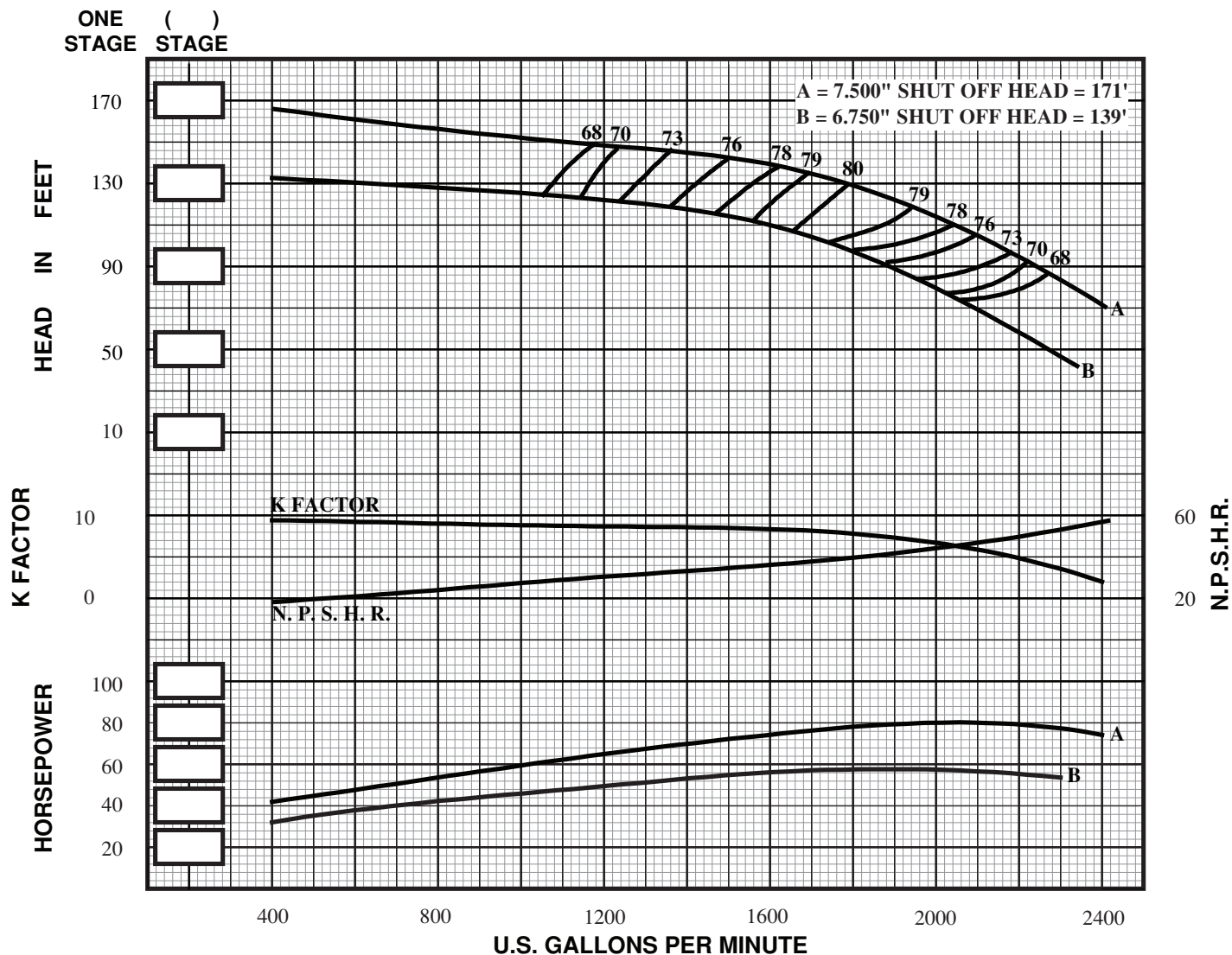
Δ CONSULT FACTORY

v18.1



LINESHAFT TURBINE

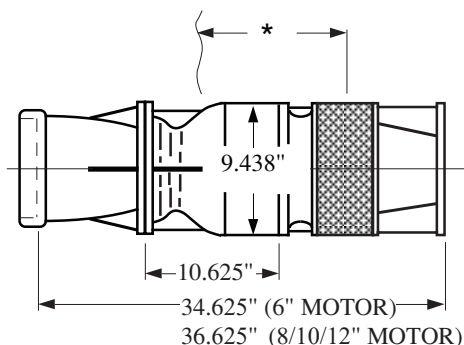
SK9M 3450 RPM



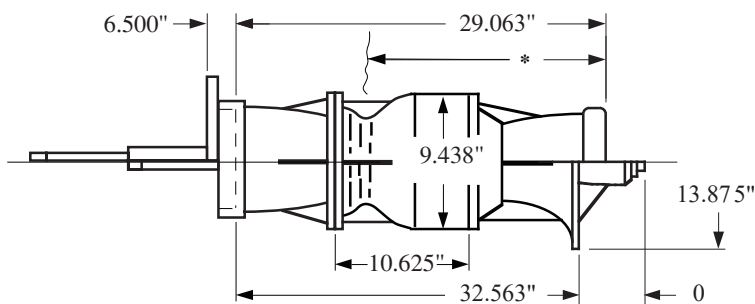
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.688"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SK9M	MAX. SHAFT DIA. = 1.688"	1	-4	IMP. - C.I.	-3
IMPELLER WT. - LBS. = 14.9	STD. LATERAL = 1.44"	2	-3	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 250.0	DISCHARGE SIZES = 8"	3	-2	IMP. - S.S.	NOT RECOM.
ADD'L STAGE WT. - LBS. = 85.0	SUCTION SIZES = 8"	4	-1	BOWL - BRZ.	-2
MAX. SPHERE SIZE = 1.13"	ONE STAGE WR ² = .462	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 18"				BOWL - S.S.	-3

Δ CONSULT FACTORY

v18.1

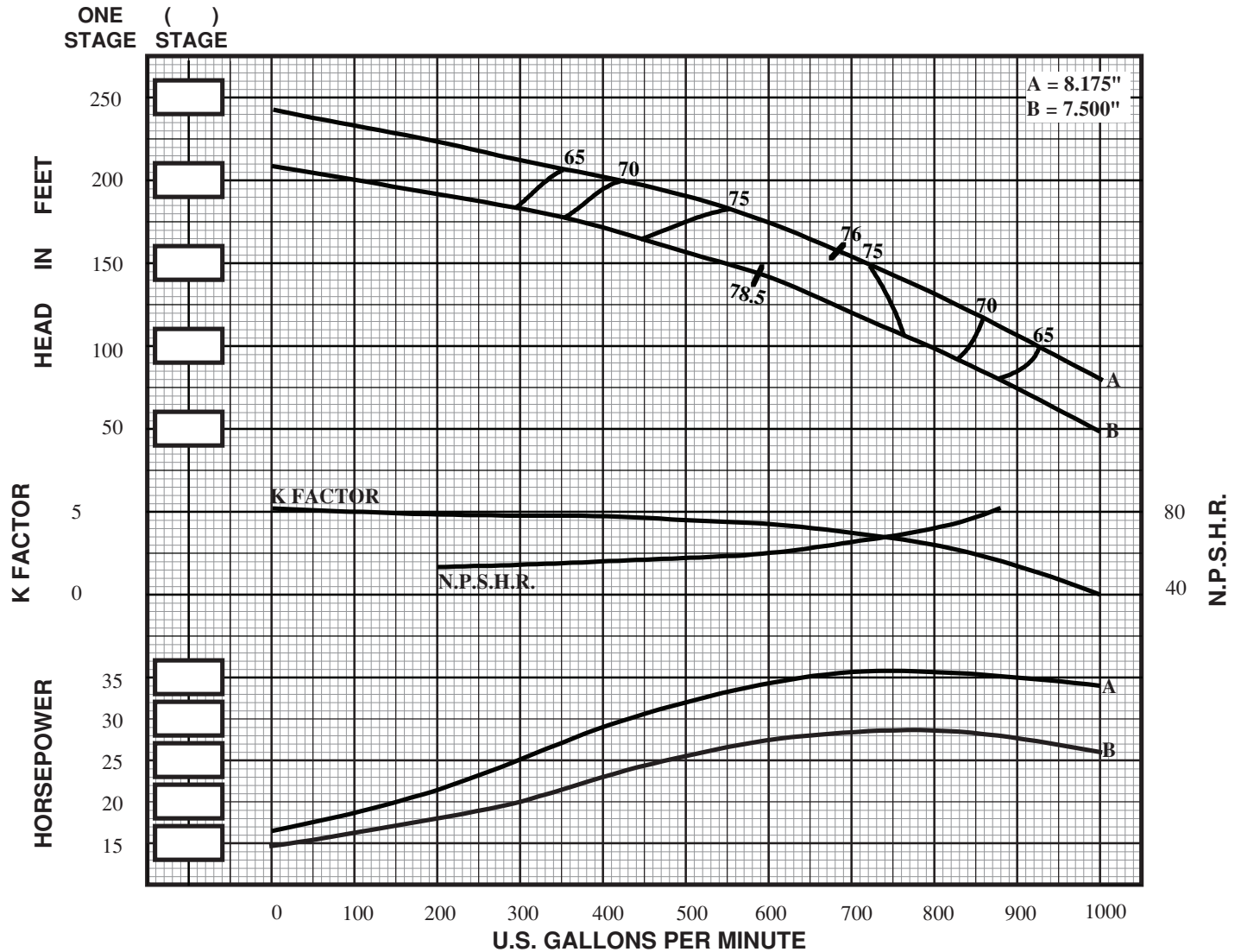


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

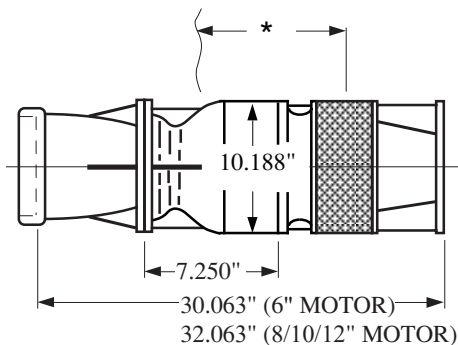
SP10L 3450 RPM



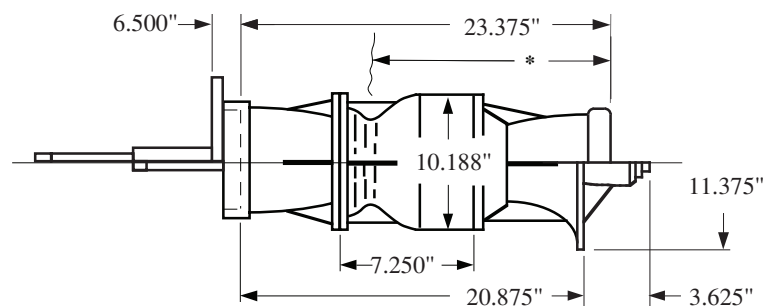
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.500"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP10L	MAX. SHAFT DIA. = 1.500"				
IMPELLER WT. - LBS. = 8.1	STD. LATERAL = .94"	1	-4	IMP. - C.I.	-3
ONE STAGE WT. - LBS. = 190.0	DISCHARGE SIZES = 6" / 8"	2	-3	IMP. - NI-RI	-2
ADD'L STAGE WT. - LBS. = 75.0	SUCTION SIZES = 6" / BELL	3	-2	IMP. - S.S.	-3
MAX. SPHERE SIZE = .50"	ONE STAGE WR ² = .295	4	-1	BOWL - BRZ.	-2
MIN. SUBMERGENCE* = 14"		5	0	BOWL - NI-RI	-1
				BOWL - S.S.	-3

Δ CONSULT FACTORY

v18.1



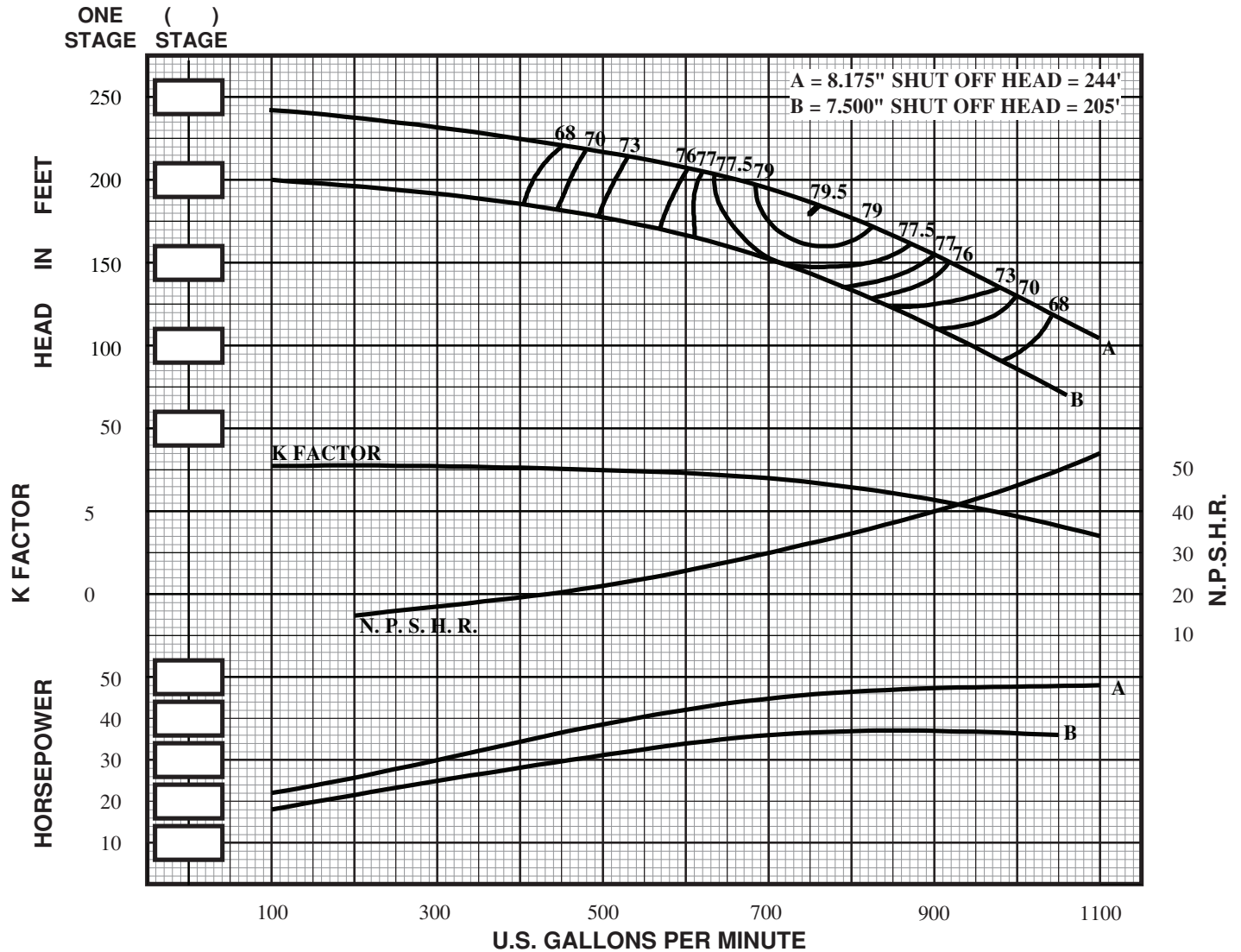
SUBMERSIBLE TURBINE



LINESHAFT TURBINE

SP10M

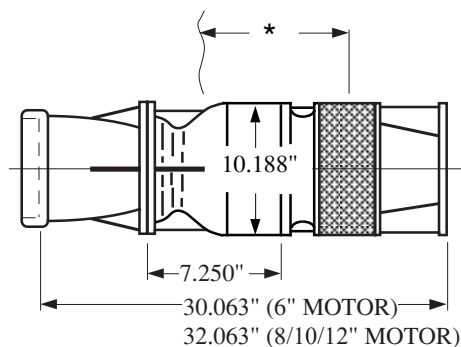
3450 RPM



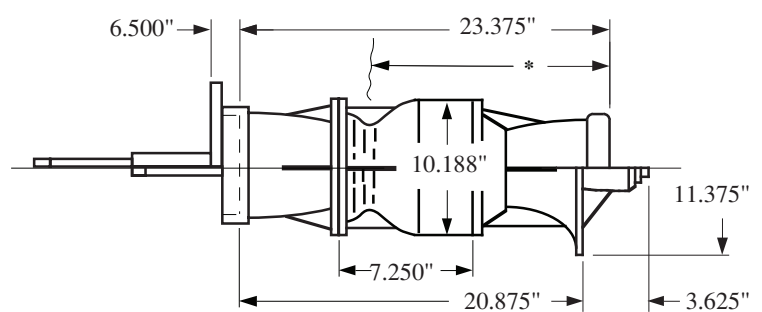
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.500"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP10M	MAX. SHAFT DIA. = 1.500"	1	-3	IMP. - C.I.	-3
IMPELLER WT. - LBS. = 8.9	STD. LATERAL = .94"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 190.0	DISCHARGE SIZES = 6" / 8"	3	-1	IMP. - S.S.	-3
ADD'L STAGE WT. - LBS. = 75.0	SUCTION SIZES = 6" / BELL	4	0	BOWL - BRZ.	-2
MAX. SPHERE SIZE = .50"	ONE STAGE WR ² = .324	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 14"				BOWL - S.S.	-3

Δ CONSULT FACTORY

v18.1

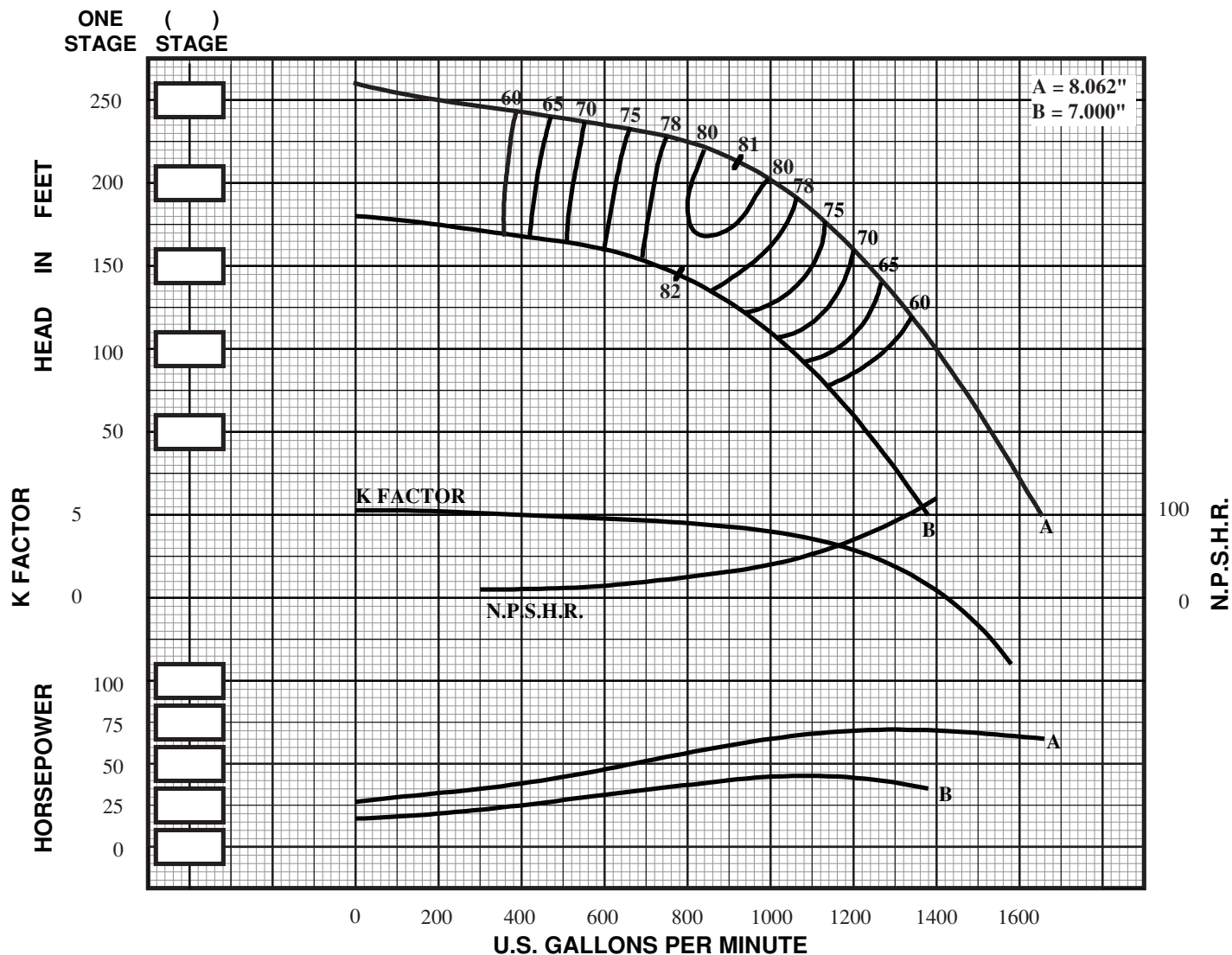


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

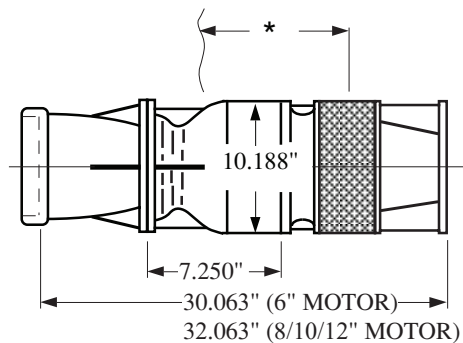
SP10H 3450 RPM



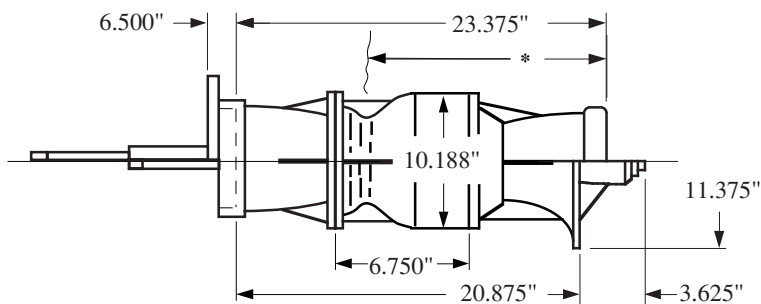
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.500"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP10H	MAX. SHAFT DIA. = 1.500"				
IMPELLER WT. - LBS. = 9.0	STD. LATERAL = .63"	1	-4	IMP. - C.I.	-3
ONE STAGE WT. - LBS. = 190.0	DISCHARGE SIZES = 6" / 8"	2	-3	IMP. - NI-RI	-2
ADD'L STAGE WT. - LBS. = 75.0	SUCTION SIZES = 6" / BELL	3	-2	IMP. - S.S.	-2
MAX. SPHERE SIZE = .63"	ONE STAGE WR ² = .315	4	-1	BOWL - BRZ.	-3
MIN. SUBMERGENCE* = 14"		5	0	BOWL - NI-RI	-1
				BOWL - S.S.	-3

Δ CONSULT FACTORY

v18.1

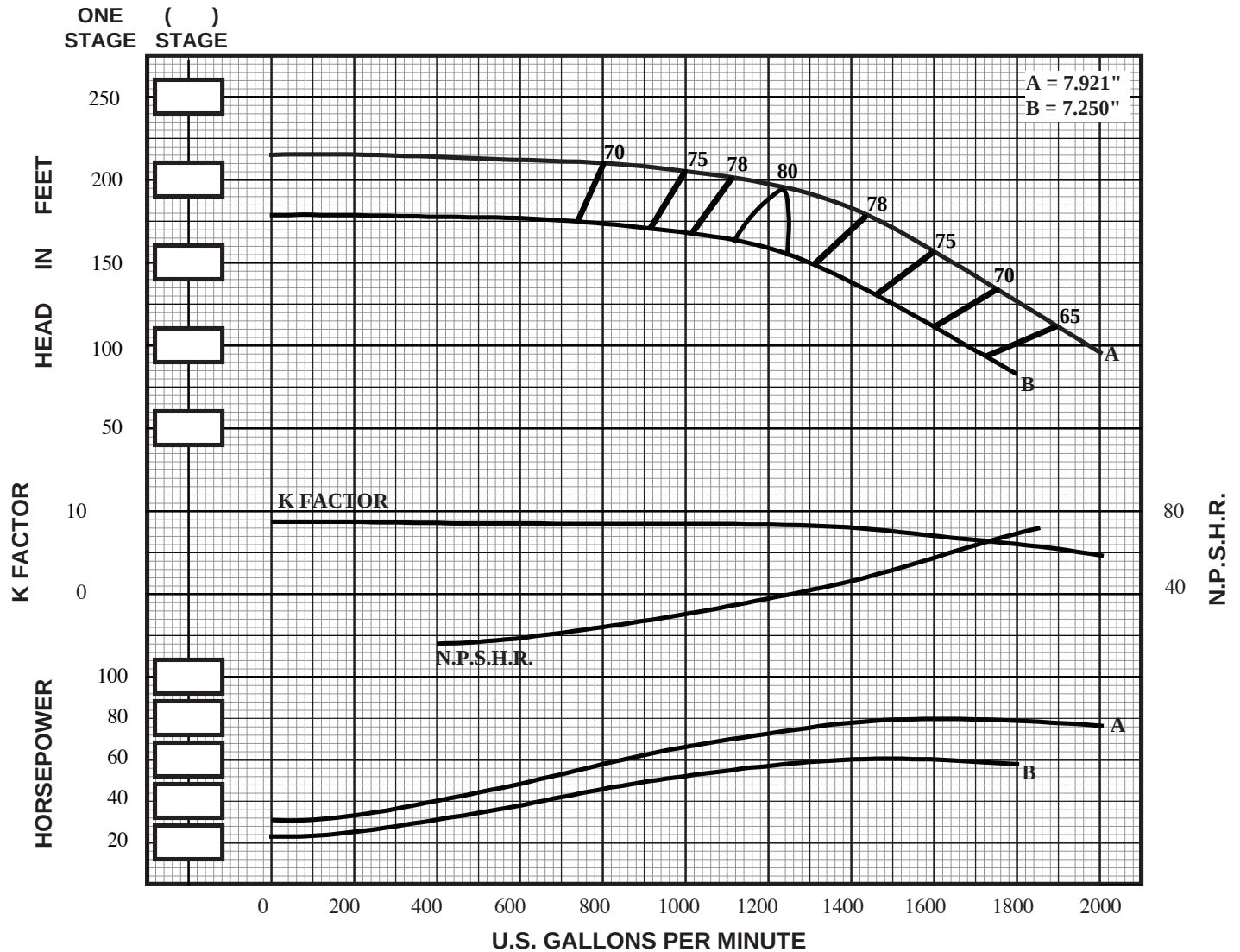


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

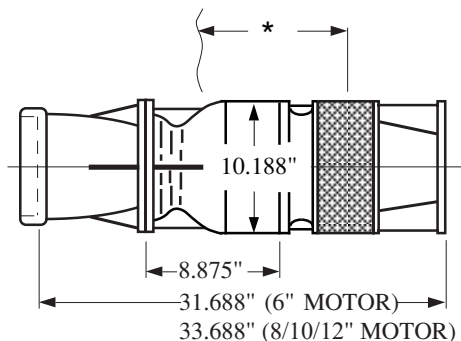
SM10MO 3450 RPM



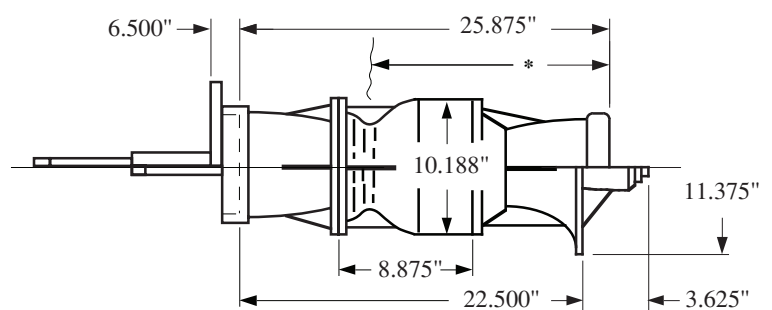
IMPELLER TYPE = SEMI-OPEN	STD. SHAFT DIA. = 1.500"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SM10MO	MAX. SHAFT DIA. = 1.500"	1	-4	IMP. - C.I.	-4
IMPELLER WT. - LBS. = 6.1	STD. LATERAL = 1.00"	2	-3	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 190.0	DISCHARGE SIZES = 6" / 8"	3	-2	IMP. - S.S.	NOT RECOM.
ADD'L STAGE WT. - LBS. = 75.0	SUCTION SIZES = 6" / BELL	4	-1	BOWL - BRZ.	-2
MAX. SPHERE SIZE = .81"	ONE STAGE WR ² = .217	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 16"				BOWL - S.S.	-3

Δ CONSULT FACTORY

v18.1



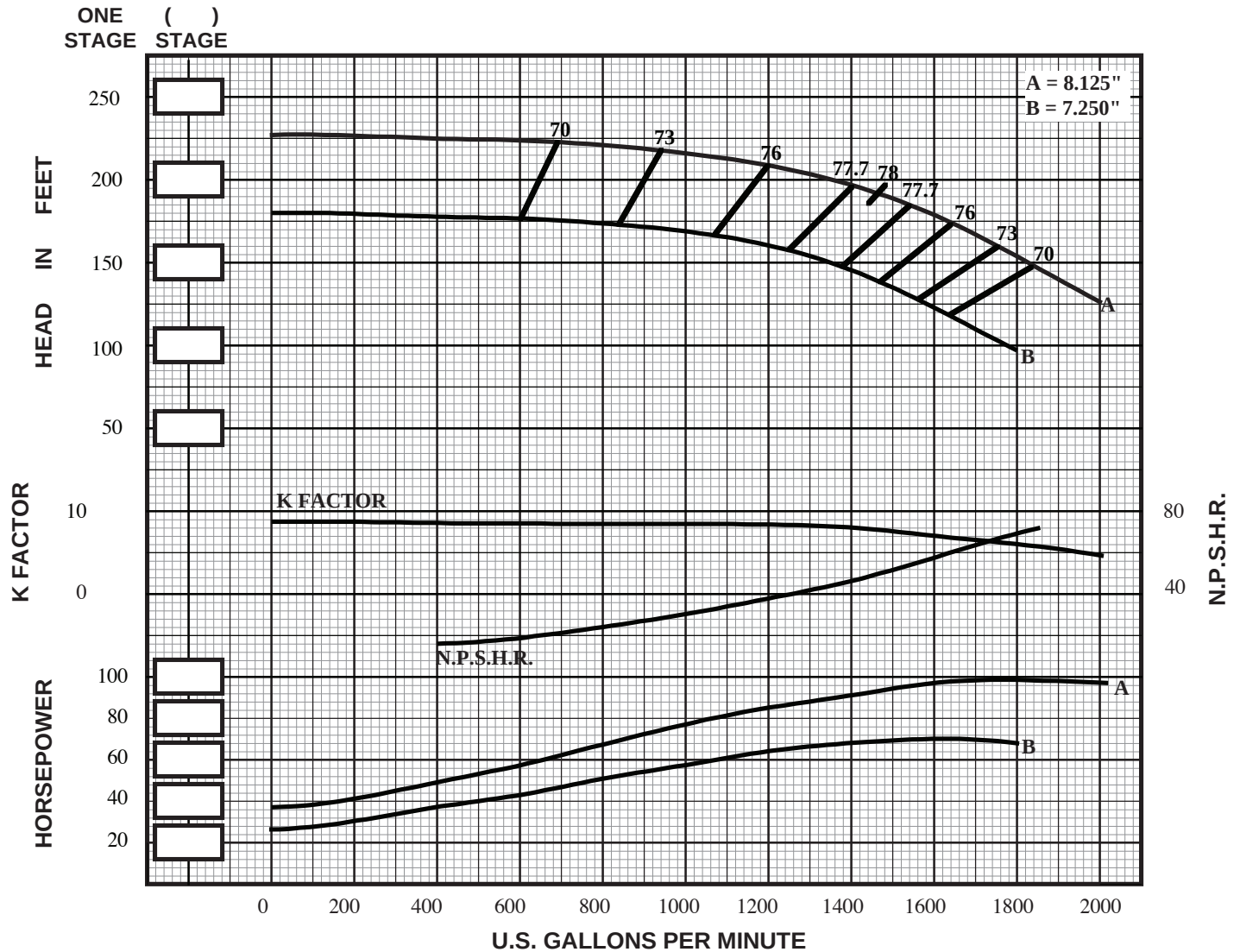
SUBMERSIBLE TURBINE



LINESHAFT TURBINE

SM10HO

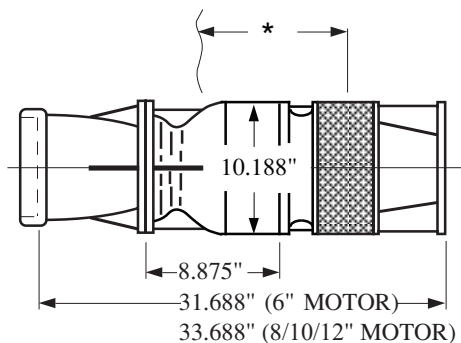
3450 RPM



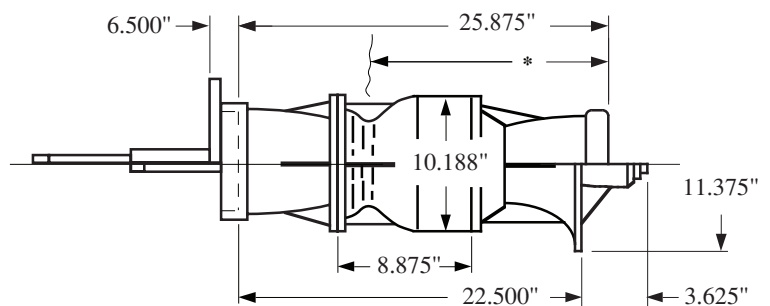
IMPELLER TYPE = SEMI-OPEN	STD. SHAFT DIA. = 1.500"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SM10HO	MAX. SHAFT DIA. = 1.500"	1	-4	IMP. - C.I.	-4
IMPELLER WT. - LBS. = 6.1	STD. LATERAL = 1.31"	2	-3	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 190.0	DISCHARGE SIZES = 6" / 8"	3	-2	IMP. - S.S.	NOT RECOM.
ADD'L STAGE WT. - LBS. = 75.0	SUCTION SIZES = 6" / BELL	4	-1	BOWL - BRZ.	-2
MAX. SPHERE SIZE = .81"	ONE STAGE WR ² = .217	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 16"				BOWL - S.S.	-3

Δ CONSULT FACTORY

v18.1

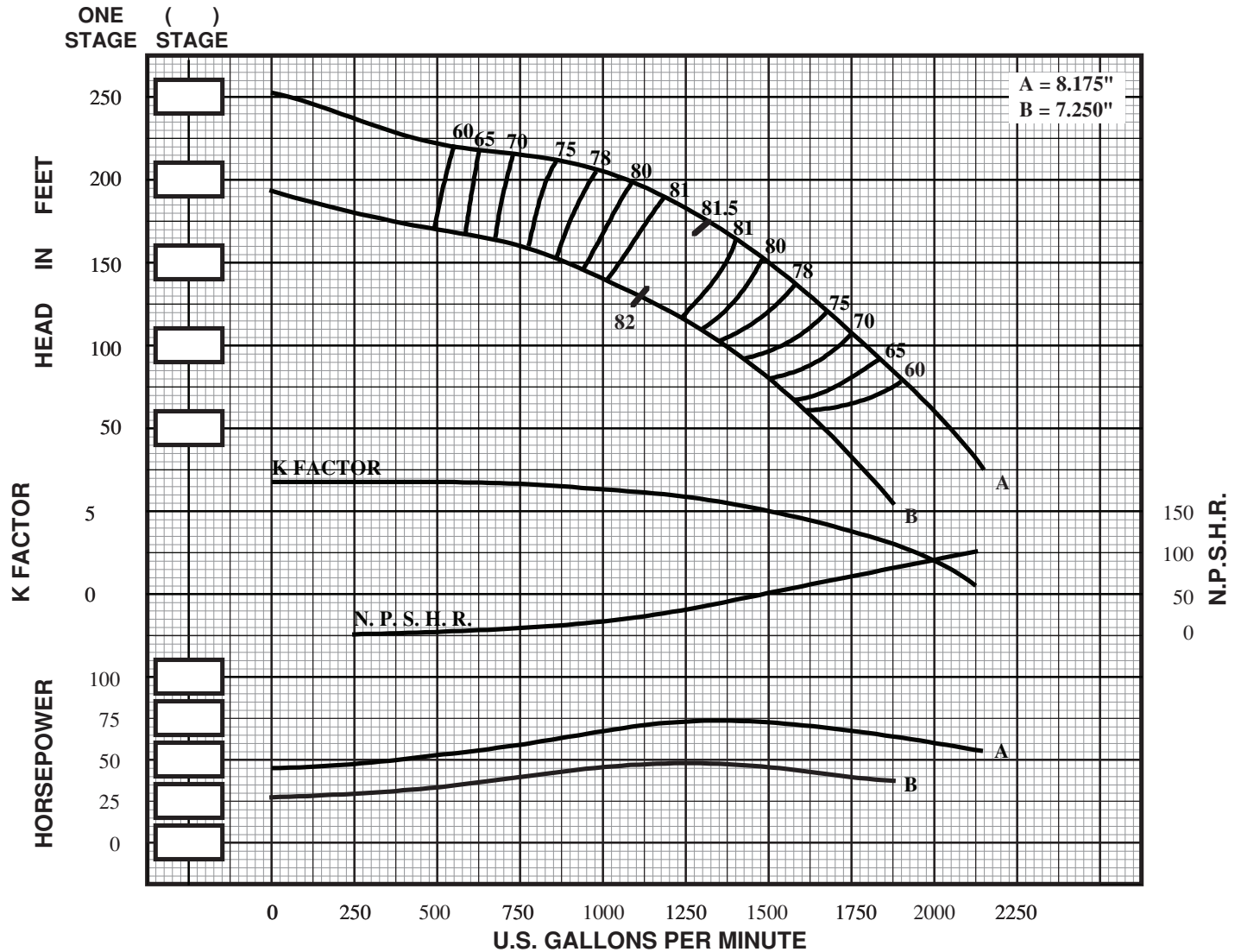


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

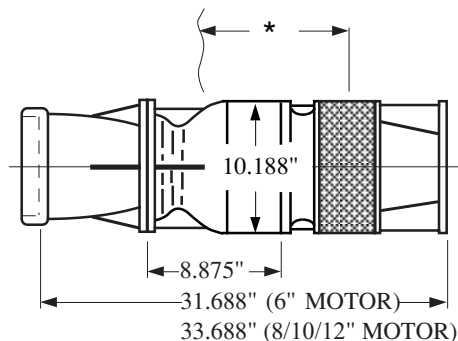
SM10M 3450 RPM



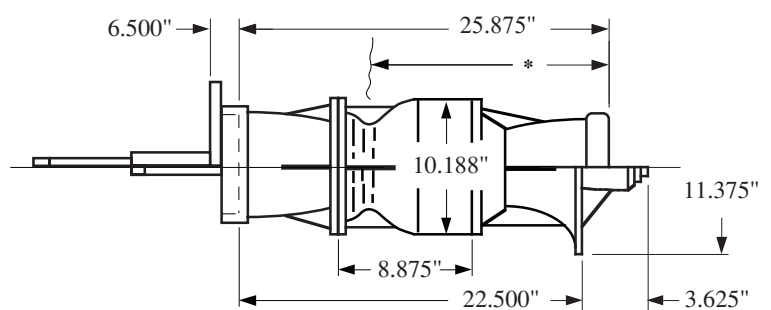
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.500"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SM10M	MAX. SHAFT DIA. = 1.500"	1	-4	IMP. - C.I.	-3
IMPELLER WT. - LBS. = 9.7	STD. LATERAL = .81"	2	-3	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 195.0	DISCHARGE SIZES = 6" / 8"	3	-2	IMP. - S.S.	-4
ADD'L STAGE WT. - LBS. = 75.0	SUCTION SIZES = 6" / BELL	4	-1	BOWL - BRZ.	-2
MAX. SPHERE SIZE = .88"	ONE STAGE WR ² = .347	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 16"				BOWL - S.S.	-2

Δ CONSULT FACTORY

v18.1

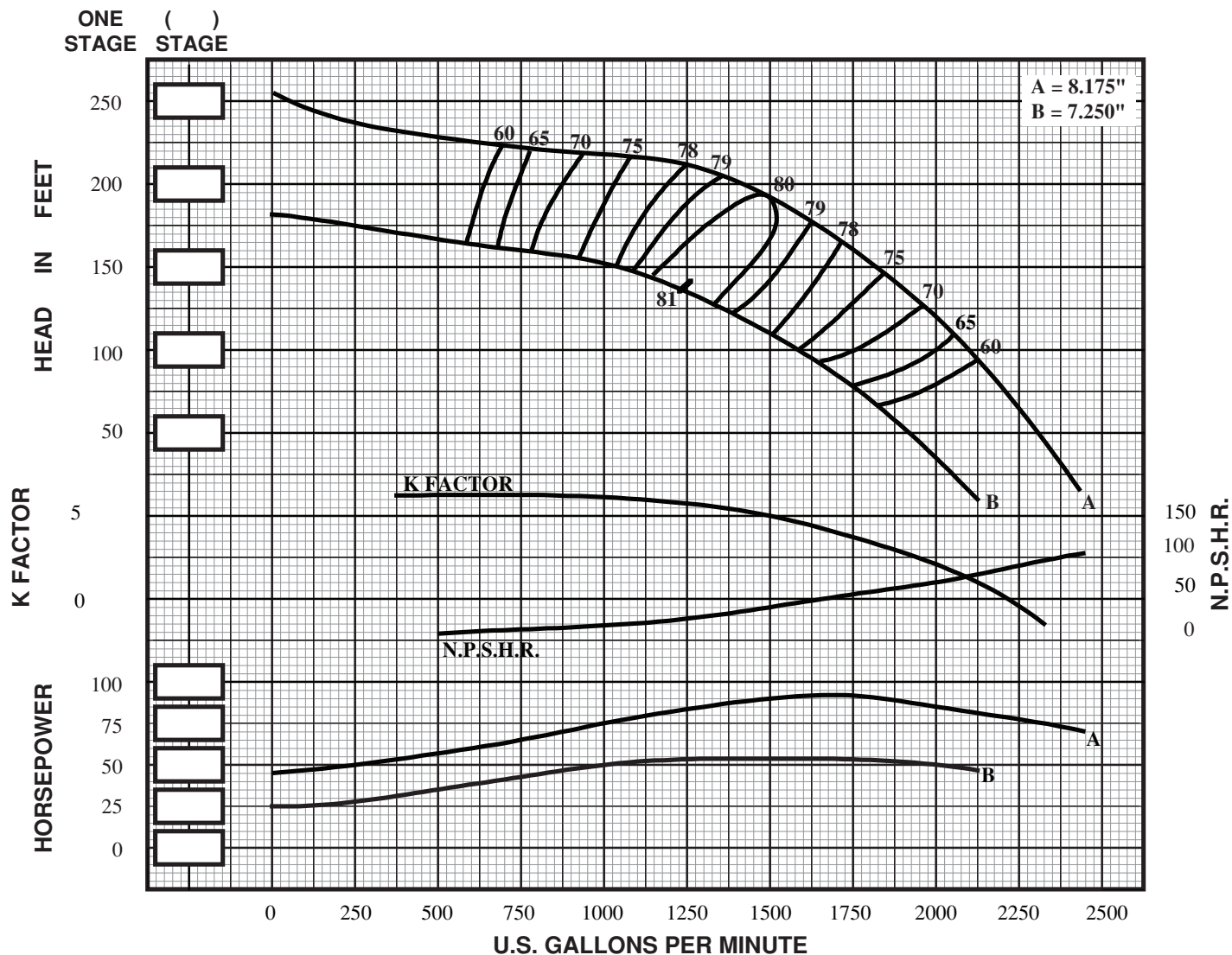


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

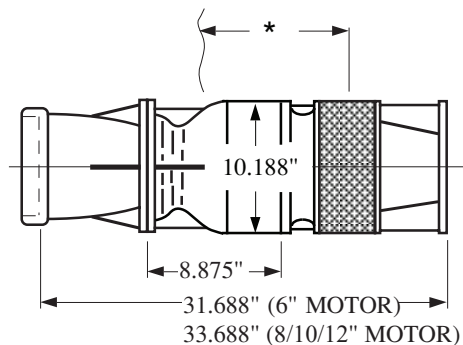
SM10H 3450 RPM



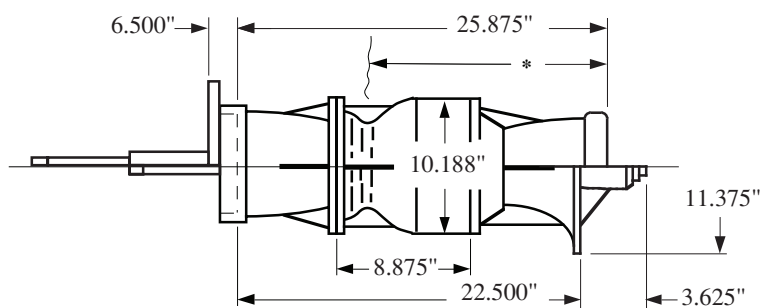
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.500"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SM10H	MAX. SHAFT DIA. = 1.500"	1	-4	IMP. - C.I.	-3
IMPELLER WT. - LBS. = 10.8	STD. LATERAL = .81"	2	-3	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 240.0	DISCHARGE SIZES = 6" / 8"	3	-2	IMP. - S.S.	-4
ADD'L STAGE WT. - LBS. = 76.0	SUCTION SIZES = 6" / BELL	4	-1	BOWL - BRZ.	-2
MAX. SPHERE SIZE = .88"	ONE STAGE WR ² = .386	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 16"				BOWL - S.S.	-2

Δ CONSULT FACTORY

v18.1

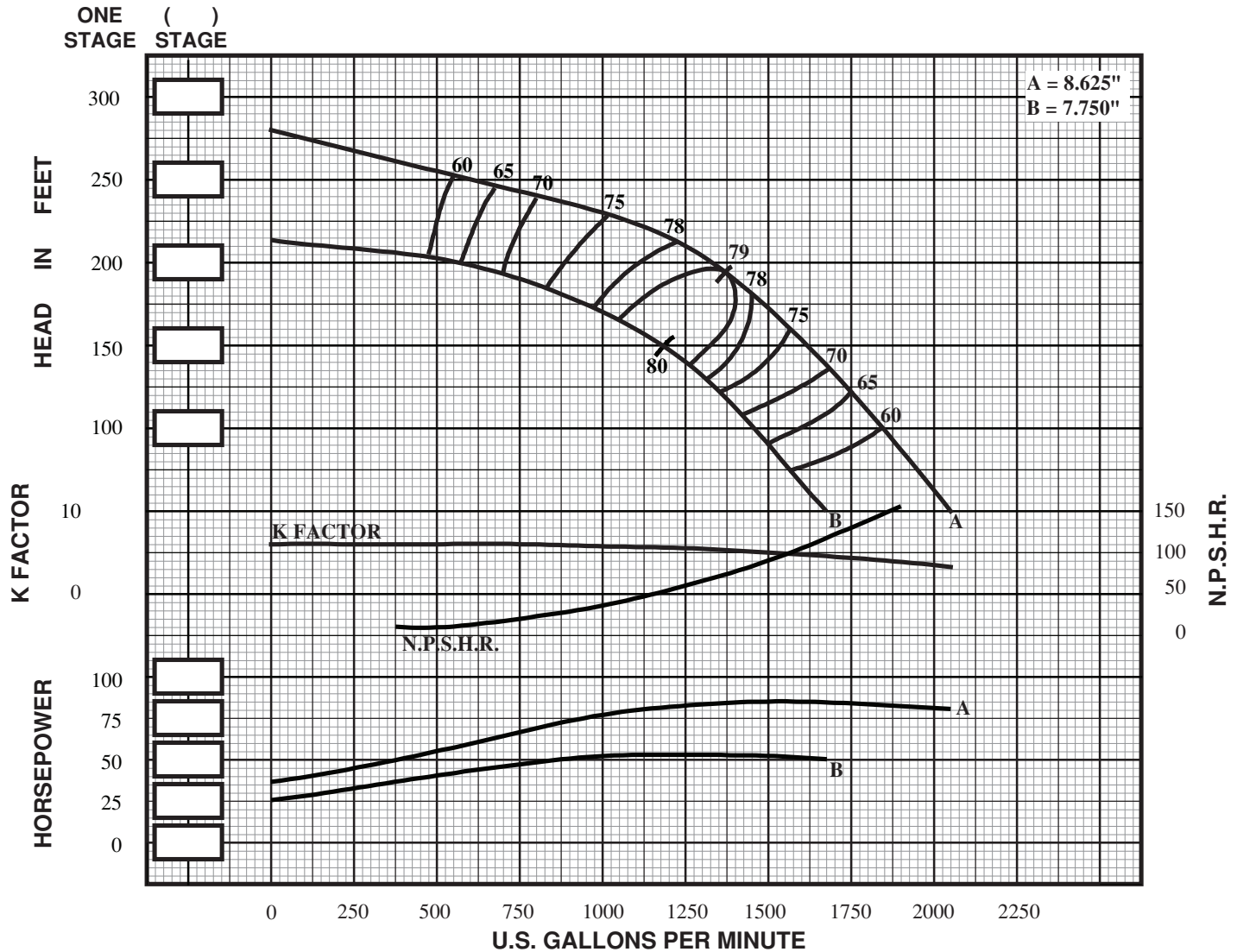


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

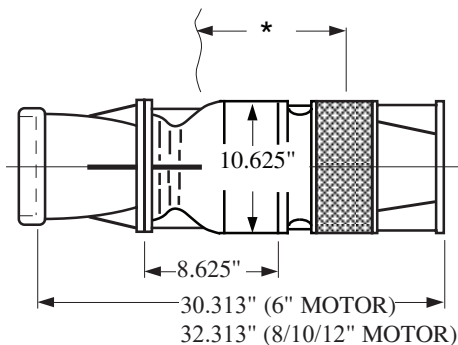
SM11M 3450 RPM



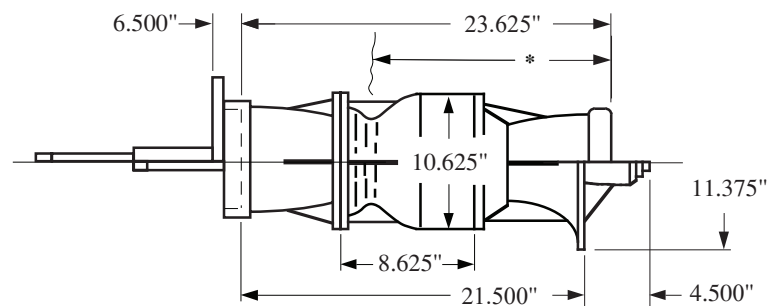
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.500"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SM11M	MAX. SHAFT DIA. = 1.500"				
IMPELLER WT. - LBS. = 9.5	STD. LATERAL = .88"	1	-3	IMP. - C.I.	-3
ONE STAGE WT. - LBS. = 195.0	DISCHARGE SIZES = 6"/ 8"/ 10"	2	-2	IMP. - NI-RI	-2
ADD'L STAGE WT. - LBS. = 75.0	SUCTION SIZES = 6"/ BELL	3	-1	IMP. - S.S.	-4
MAX. SPHERE SIZE = .81"	ONE STAGE WR ² = .382	4	0	BOWL - BRZ.	-2
MIN. SUBMERGENCE* = 14"		5	0	BOWL - NI-RI	-1
				BOWL - S.S.	-3

Δ CONSULT FACTORY

v18.1

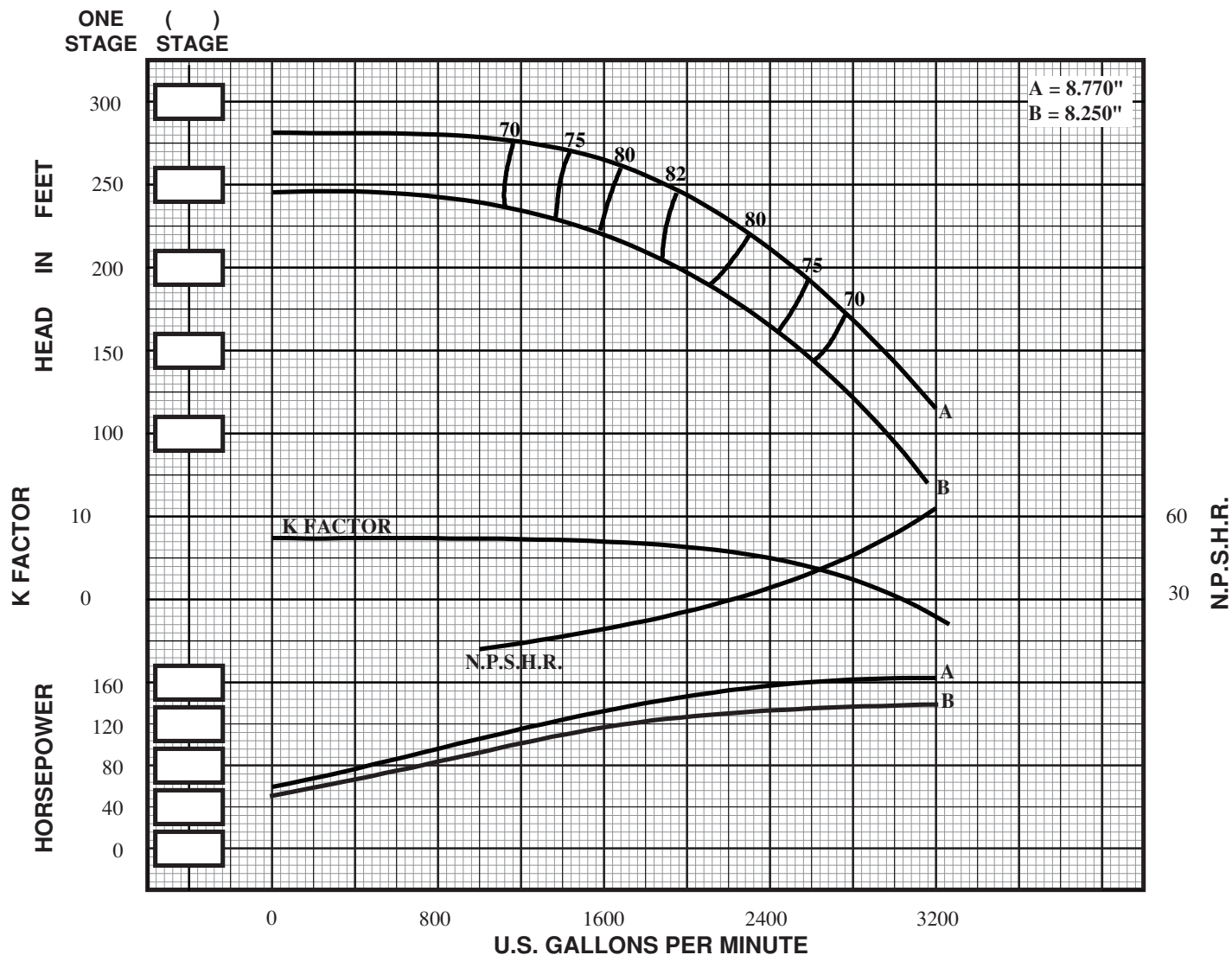


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

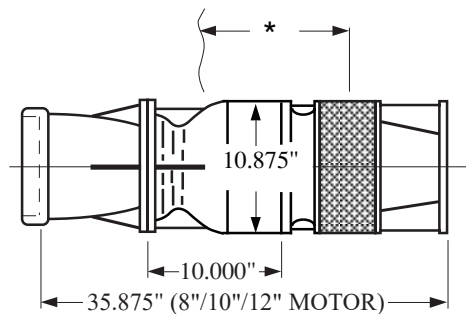
SL11H 3450 RPM



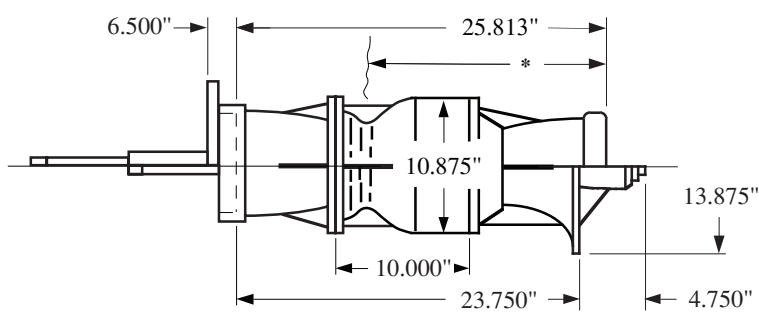
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.688"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SL11H	MAX. SHAFT DIA. = 1.688"				
IMPELLER WT. - LBS. = 13.0	STD. LATERAL = 1.44"	1	-3	IMP. - C.I.	-2
ONE STAGE WT. - LBS. = 200.0	DISCHARGE SIZES = 6" / 8" / 10"	2	-2	IMP. - NI-RI	-2
ADD'L STAGE WT. - LBS. = 81.0	SUCTION SIZES = 8" / BELL	3	-1	IMP. - S.S.	-3
MAX. SPHERE SIZE = .88"	ONE STAGE WR ² = .532	4	0	BOWL - BRZ.	-2
MIN. SUBMERGENCE* = 15"		5	0	BOWL - NI-RI	-1
				BOWL - S.S.	-2

Δ CONSULT FACTORY

v18.1



SUBMERSIBLE TURBINE



LINESHAFT TURBINE

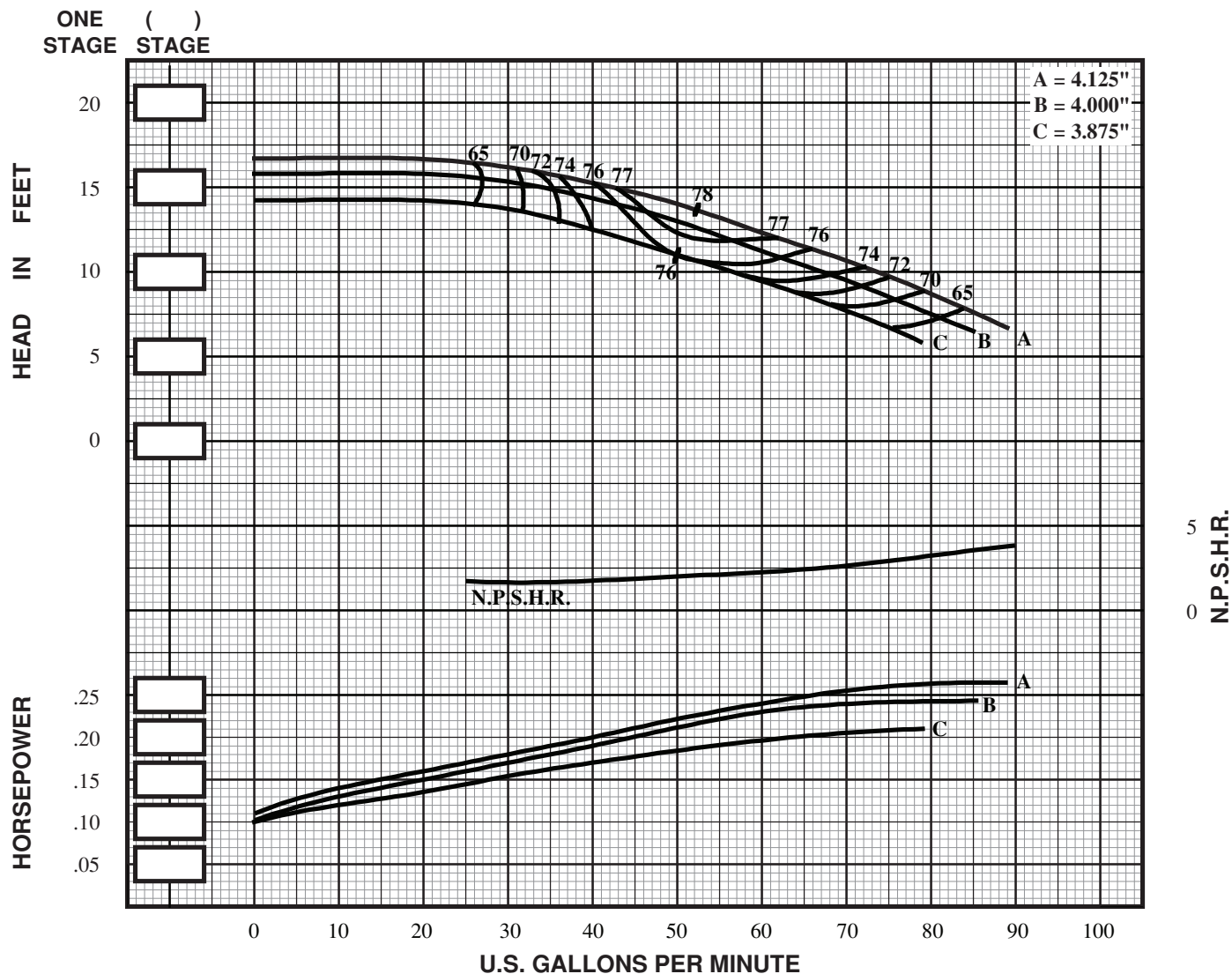
1770 RPM Selection Chart

Model Number	Bowl Dia. (in.)	Peak Efficiency (full dia.)	BEP Flow (gpm)	BEP Head (ft. / stage)	BEP NPSH _r (full dia.)	POR (gpm)	N _s	N _{ss}
SP5XL	5.25	78.0	52.4	13.7	2.07	37-63	1799	7424
SP5L	5.25	76.0	66.7	15.5	2.16	47-80	1850	8113
SM5M	5.25	78.0	101	7.86	3.42	71-121	3789	7073
SM5H	5.25	78.0	141	9.60	4.54	99-169	3854	6758
SP5LO	5.25	76.5	48.8	12.8	2.22	34-59	1827	6799
SP6LL	6.00	73.0	65.0	13.4	4.28	46-78	2038	4796
SP6L	6.00	74.0	71.1	17.3	2.87	50-85	1759	6769
SP6M	6.00	74.0	83.5	17.8	3.99	58-100	1866	5729
SP6H	6.00	78.0	120	20.3	15.4	84-144	2027	2494
SP7L	7.19	80.0	206	24.9	3.79	144-247	2279	9352
SP7H	7.19	82.0	273	28.5	5.86	191-328	2371	7765
SK7L	6.56	78.0	204	17.8	7.71	143-245	2917	5464
SK7M	6.56	78.0	230	16.2	2.46	161-276	3324	13666
SK7H	6.56	78.0	287	18.5	2.75	201-344	3362	14042
SM7M	7.38	78.0	287	16.8	4.35	201-344	3614	9955
SP8L	7.88	76.0	142	28.9	9.72	99-170	1692	3831
SP8M	7.88	78.0	162	29.9	3.41	113-194	1762	8978
SP8H	7.88	78.0	202	32.0	6.28	141-242	1870	6341
SM8H	7.69	80.0	290	28.8	10.3	203-348	2425	5243
SR8MO	7.69	76.5	248	26.2	6.54	174-298	2407	6816
SR8HO	7.69	78.0	299	25.7	7.01	209-359	2681	7104
SK8H	7.50	78.0	579	22.1	18.9	405-695	4178	4699
SP9L	9.50	86.0	280	54.5	4.72	196-336	1477	9249
SP9M	9.50	85.0	312	60.4	5.94	218-374	1443	8217
SM9L	9.50	84.0	299	49.6	5.69	209-359	1638	8308
SM9M	9.50	86.0	338	55.2	7.37	237-406	1607	7275
SL9H	9.00	78.5	529	43.6	11.6	370-635	2399	6477
SF9H	9.50	81.0	611	52.5	17.3	428-733	2243	5158
SK9M	9.44	80.0	904	36.4	11.1	633-1085	3591	8751
SK9H	9.44	77.5	1094	37.5	16.5	766-1313	3863	7151
SP10L	10.19	76.0	353	41.7	18.1	247-424	2027	3790
SP10M	10.19	80.0	401	47.8	9.05	281-481	1950	6793
SP10H	10.19	83.0	499	54.3	9.03	349-599	1977	7590
SM10MO	10.19	80.5	620	51.7	10.5	434-744	2286	7556
SM10HO	10.19	78.0	670	53.2	11.6	469-804	2326	7289
SM10M	10.19	84.5	673	48.6	11.0	471-808	2495	7602
SM10H	10.19	82.0	809	50.4	13.2	566-971	2661	7270

1770 RPM Selection Chart

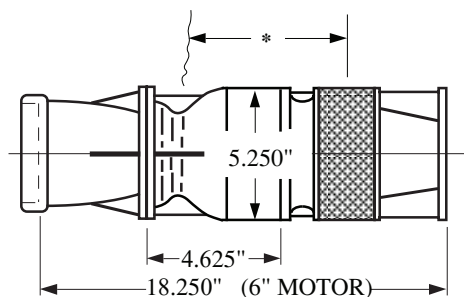
Model Number	Bowl Dia. (in.)	Peak Efficiency (full dia.)	BEP Flow (gpm)	BEP Head (ft. / stage)	BEP NPSHr (full dia.)	POR (gpm)	Ns	Nss
SM11M	10.63	81.5	661	55.5	12.2	463-793	2238	6971
SM11H	10.63	82.0	798	60.5	19.2	559-958	2305	5451
SL11H	10.88	82.0	1012	64.9	7.30	708-1214	2463	12679
SR11MO	11.50	81.0	993	64.5	18.8	695-1192	2451	6178
SR11HO	11.50	83.0	1201	74.5	19.5	841-1441	2428	6635
SP11L	11.25	84.5	1129	54.4	11.8	790-1355	2969	9341
SP11M	11.25	85.0	1193	58.2	10.2	835-1432	2901	10711
SP11H	11.25	83.7	1580	58.0	17.9	1106-1896	3348	8085
SW12L	11.63	85.0	486	72.1	8.28	340-583	1577	7994
SW12M	11.63	86.0	596	84.1	9.43	417-715	1556	8030
SP12M	11.88	82.0	750	88.7	11.2	525-900	1677	7918
SP12H	11.88	81.0	801	92.7	12.0	561-961	1677	7770
SL12M	11.75	86.0	885	61.8	10.2	620-1062	2389	9226
SL12H	11.75	86.0	984	79.4	9.11	689-1181	2087	10588
SJ12M	12.00	85.0	1196	69.7	16.7	837-1435	2538	7410
SJ12H	12.00	82.0	1391	80.6	21.6	974-1669	2454	6589
SM14LL	14.00	81.5	1798	74.2	15.7	1259-2158	2969	9516
SM14L	14.00	83.4	2108	64.8	18.5	1476-2530	3558	9110
SM14M	14.00	84.5	2255	83.0	19.2	1579-2706	3057	9164
SM14H	14.00	85.0	2648	87.8	23.6	1854-3178	3175	8506
SM14HH	14.00	83.5	2970	90.2	24.2	2079-3564	3296	8841
SM16MO	15.25	86.0	3708	96.5	22.9	2596-4450	3501	10296
SM16HO	15.25	86.0	4351	103	28.5	3046-5221	3611	9465
SM16M	15.25	85.0	4020	95.0	22.9	2814-4824	3688	10720
SM16H	15.25	85.0	4548	109	28.6	3184-5458	3538	9652
SM20M	19.25	85.0	6195	158	47.1	4337-7434	3126	7749
SM20H	19.25	85.0	6859	167	63.3	4801-8231	3155	6532

SP5XL 1770 RPM

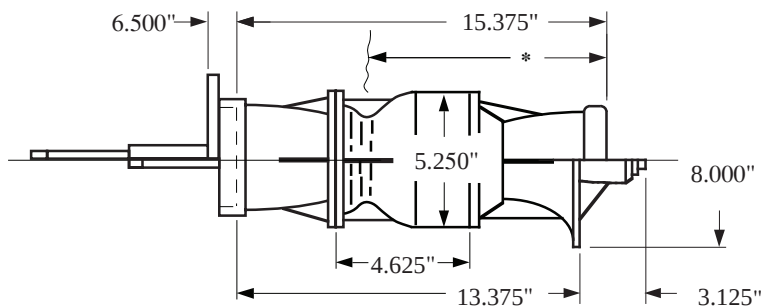


IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = .875"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP5XL	MAX. SHAFT DIA. = .875"	1	-4	IMP. - C.I.	Δ
IMPELLER WT. - LBS. = 1.70	STD. LATERAL = .30"	2	-3	IMP. - NI-RI	Δ
ONE STAGE WT. - LBS. = 50.0	DISCHARGE SIZES = 3"/4"	3	-2	IMP. - S.S.	Δ
ADD'L STAGE WT. - LBS. = 14.0	SUCTION SIZES = 4"/BELL	4	-1	BOWL - BRZ.	Δ
MAX. SPHERE SIZE = .38"	ONE STAGE WR ² = .015	5	0	BOWL - NI-RI	Δ
MIN. SUBMERGENCE = 10"	K FACTOR (max) = 2.30			BOWL - S.S.	Δ

Δ CONSULT FACTORY

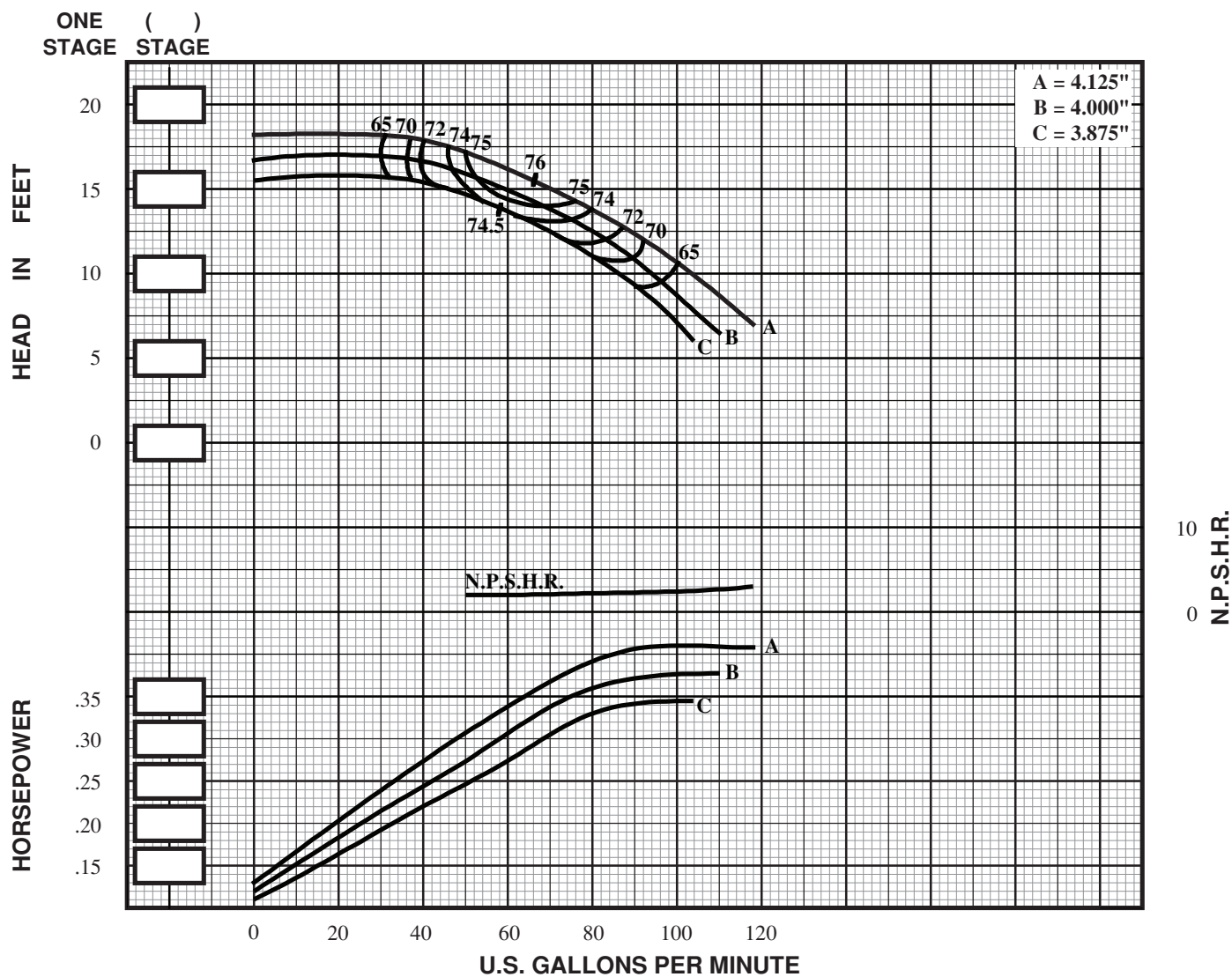


SUBMERSIBLE TURBINE



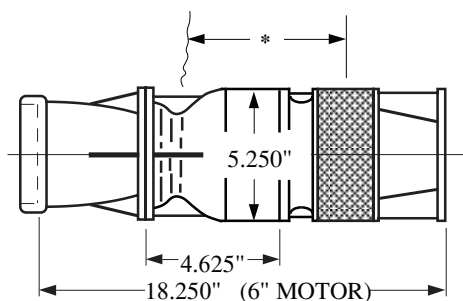
LINESHAFT TURBINE

SP5L 1770 RPM

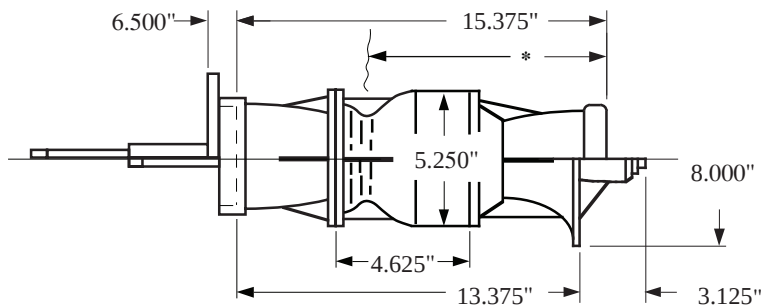


IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = .875"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP5L	MAX. SHAFT DIA. = .875"	1	-4	IMP. - C.I.	Δ
IMPELLER WT. - LBS. = 1.75	STD. LATERAL = .30"	2	-3	IMP. - NI-RI	Δ
ONE STAGE WT. - LBS. = 50.0	DISCHARGE SIZES = 3"/4"	3	-2	IMP. - S.S.	Δ
ADD'L STAGE WT. - LBS. = 14.0	SUCTION SIZES = 4"/BELL	4	-1	BOWL - BRZ.	Δ
MAX. SPHERE SIZE = .38"	ONE STAGE WR ² = .015	5	0	BOWL - NI-RI	Δ
MIN. SUBMERGENCE = 10"	K FACTOR (max) = 2.40			BOWL - S.S.	Δ

Δ CONSULT FACTORY

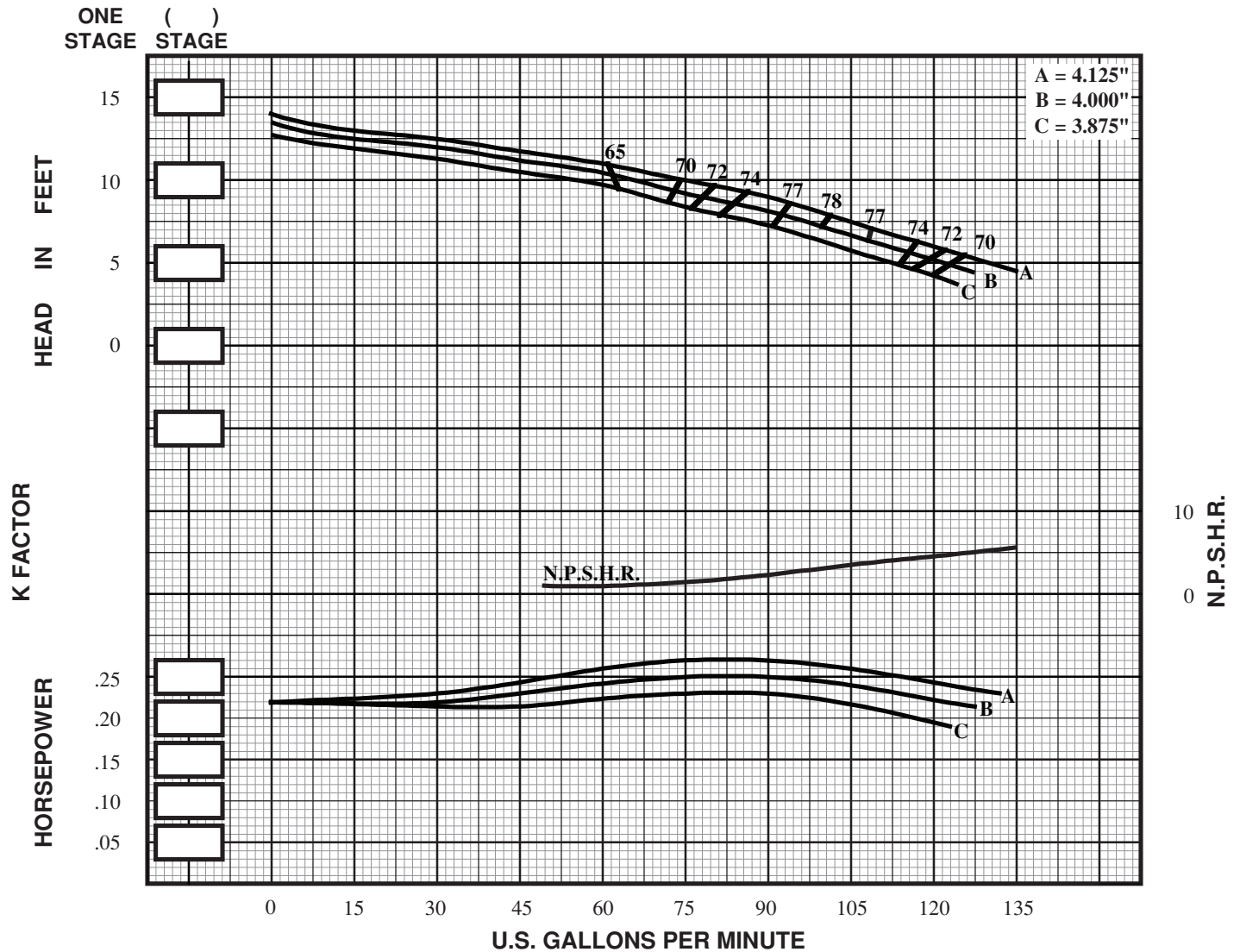


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

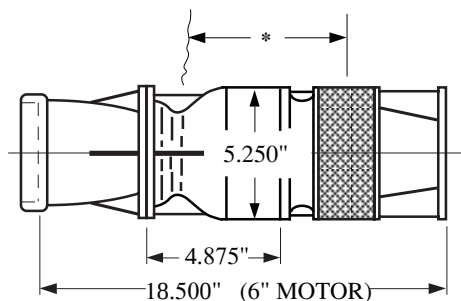
SM5M 1770 RPM



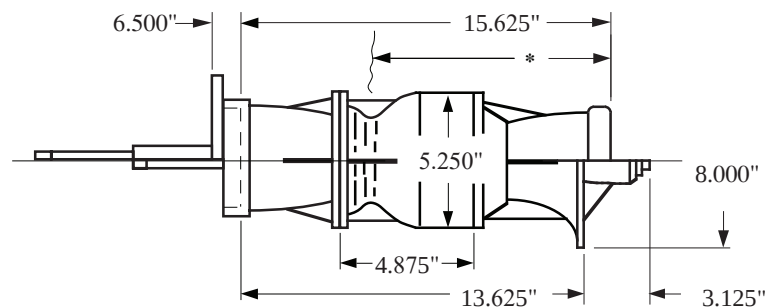
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = .875"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SM5M	MAX. SHAFT DIA. = .875"				
IMPELLER WT. - LBS. = 1.85	STD. LATERAL = .55"	1	-4	IMP. - C.I.	Δ
ONE STAGE WT. - LBS. = 50.0	DISCHARGE SIZES = 3" / 4"	2	-3	IMP. - NI-RI	Δ
ADD'L STAGE WT. - LBS. = 14.0	SUCTION SIZES = 4" / BELL	3	-2	IMP. - S.S.	Δ
MAX. SPHERE SIZE = .63"	ONE STAGE WR ² = .015	4	-1	BOWL - BRZ.	Δ
MIN. SUBMERGENCE = 10"	K FACTOR (max) = 2.50	5	0	BOWL - NI-RI	Δ
				BOWL - S.S.	Δ

Δ CONSULT FACTORY

v18.1

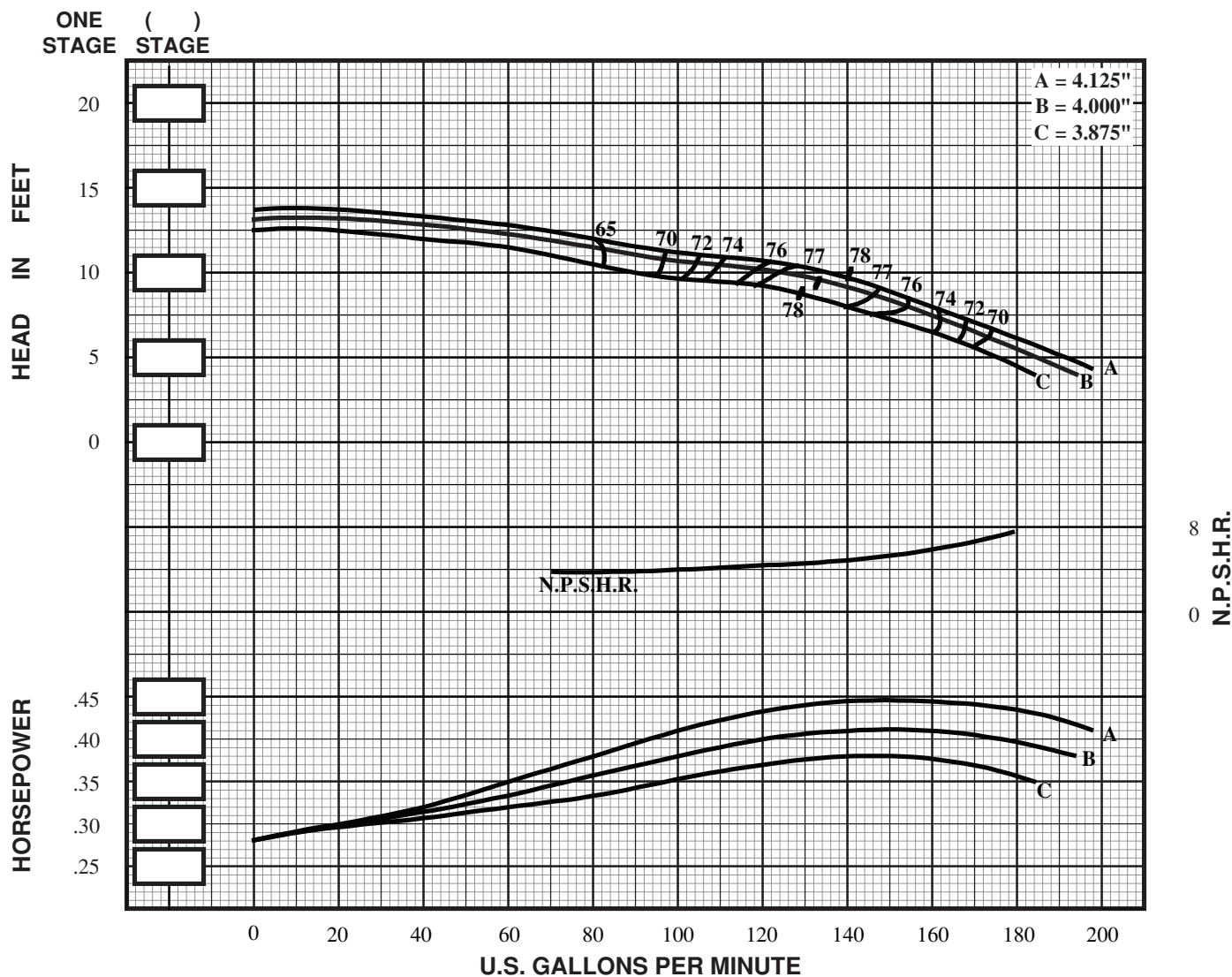


SUBMERSIBLE TURBINE

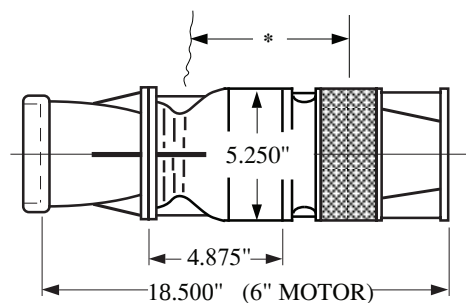


LINESHAFT TURBINE

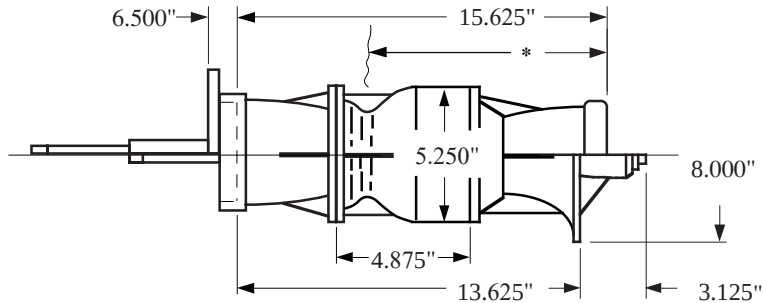
SM5H 1770 RPM



IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = .875"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SM5H	MAX. SHAFT DIA. = .875"				
IMPELLER WT. - LBS. = 1.95	STD. LATERAL = .55"	1	-4	IMP. - C.I.	Δ
ONE STAGE WT. - LBS. = 50.0	DISCHARGE SIZES = 3"/ 4"	2	-3	IMP. - NI-RI	Δ
ADD'L STAGE WT. - LBS. = 14.0	SUCTION SIZES = 4"/ BELL	3	-2	IMP. - S.S.	Δ
MAX. SPHERE SIZE = .50"	ONE STAGE WR ² = .015	4	-1	BOWL - BRZ.	Δ
MIN. SUBMERGENCE = 10"	K FACTOR (max) = 2.50	5	0	BOWL - NI-RI	Δ
Δ CONSULT FACTORY		v18.1		BOWL - S.S.	Δ

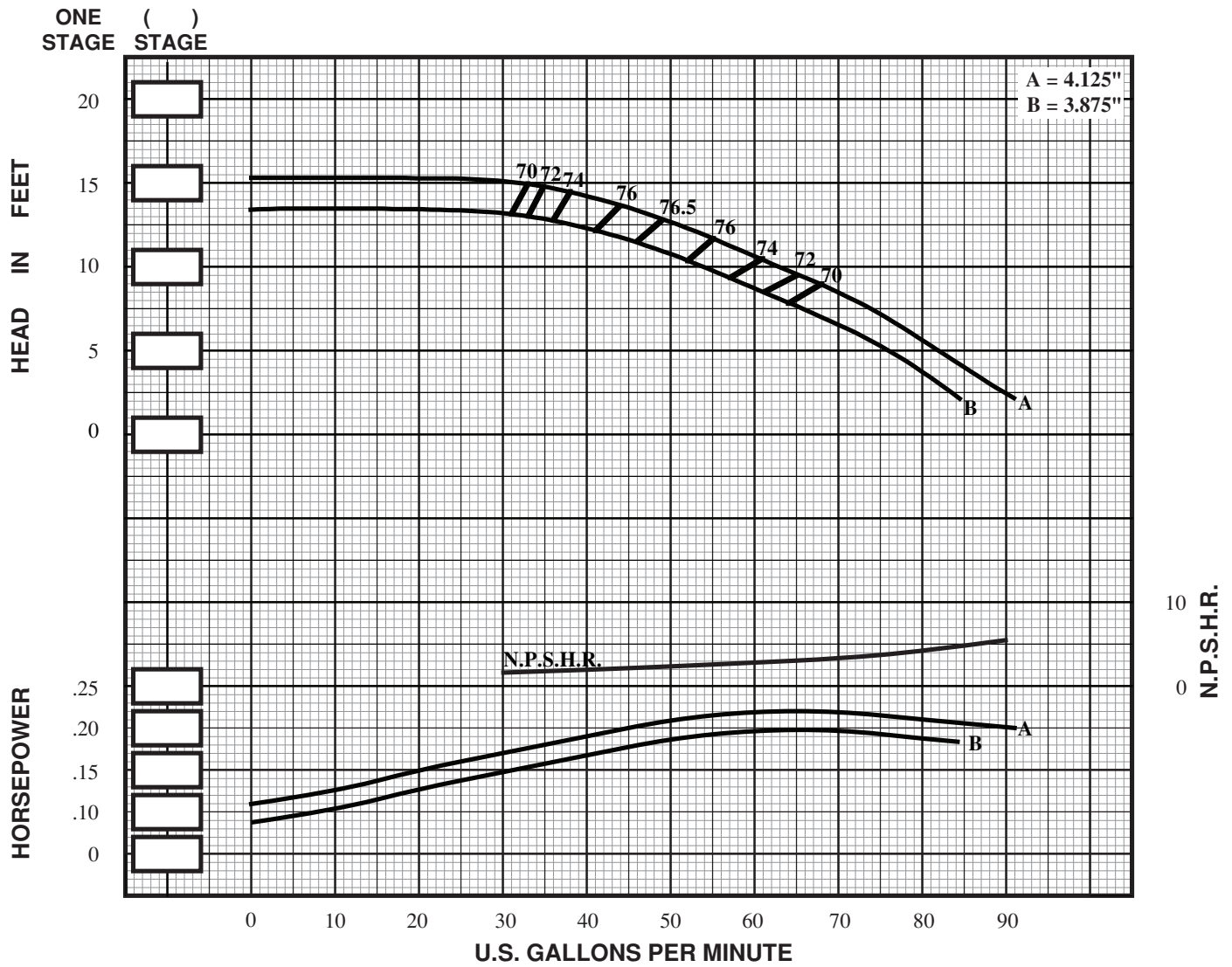


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

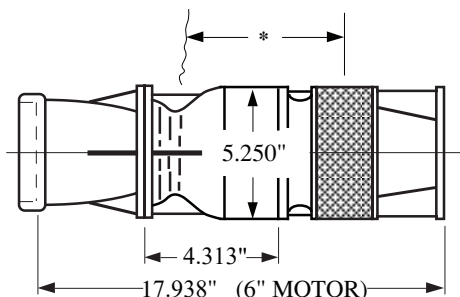
SP5LO 1770 RPM



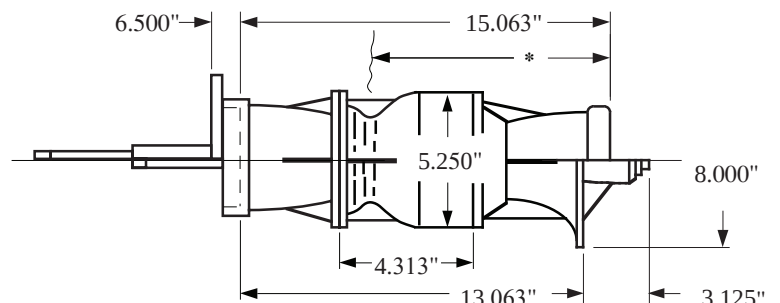
IMPELLER TYPE = SEMI-OPEN	STD. SHAFT DIA. = .875"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP5LO	MAX. SHAFT DIA. = .875"				
IMPELLER WT. - LBS. = 1.40	STD. LATERAL = .16"	1	-6	IMP. - C.I.	Δ
ONE STAGE WT. - LBS. = 50.0	DISCHARGE SIZES = 3" / 4"	2	-4	IMP. - NI-RI	Δ
ADD'L STAGE WT. - LBS. = 14.0	SUCTION SIZES = 4" / BELL	3	-3	IMP. - S.S.	Δ
MAX. SPHERE SIZE = .31"	ONE STAGE WR ² = .014	4	-1.5	BOWL - BRZ.	Δ
MIN. SUBMERGENCE = 10"	K FACTOR (max) = 4.70	5	0	BOWL - NI-RI	Δ
				BOWL - S.S.	Δ

Δ CONSULT FACTORY

v18.1

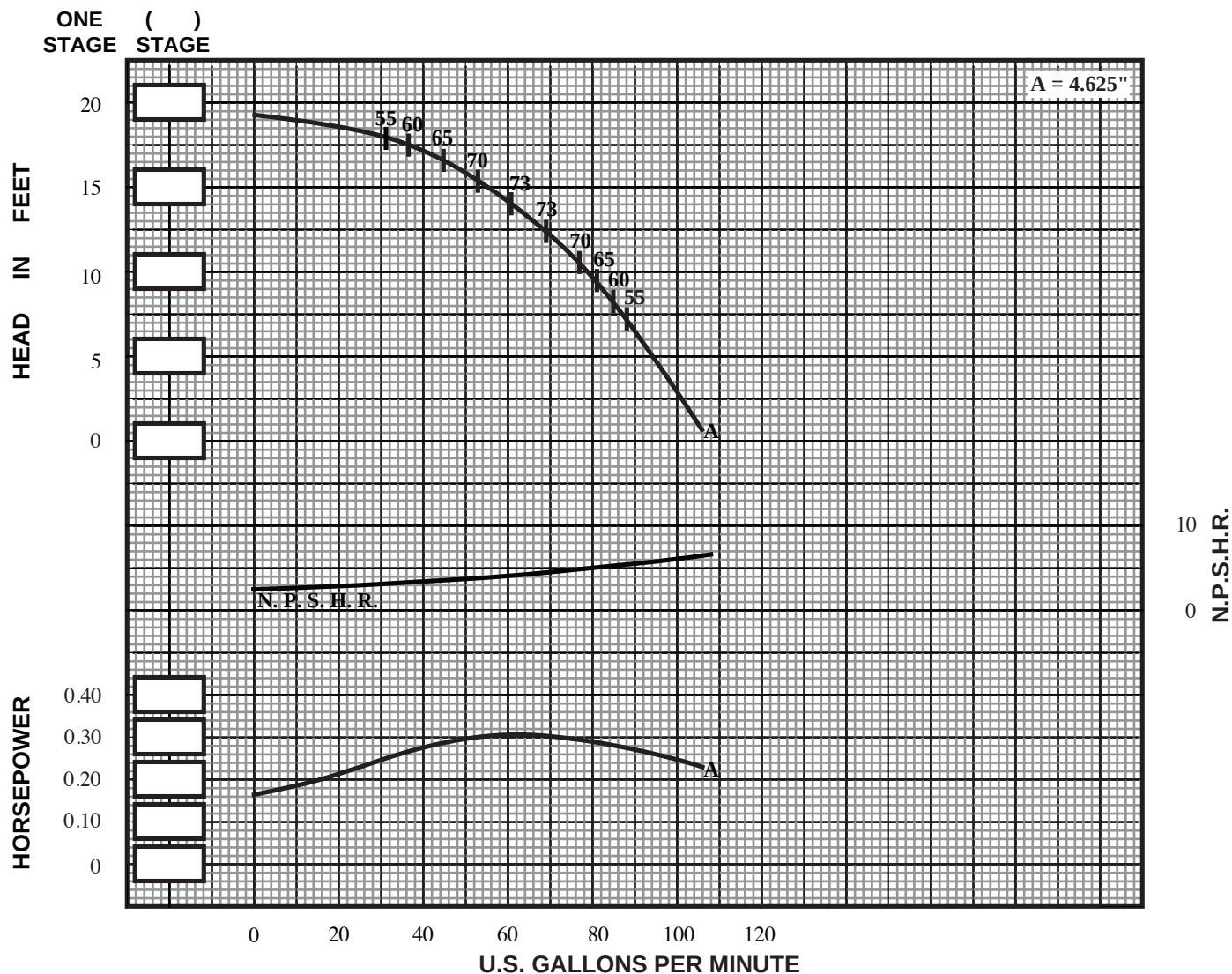


SUBMERSIBLE TURBINE

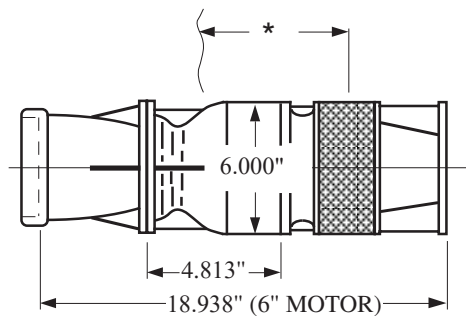


LINESHAFT TURBINE

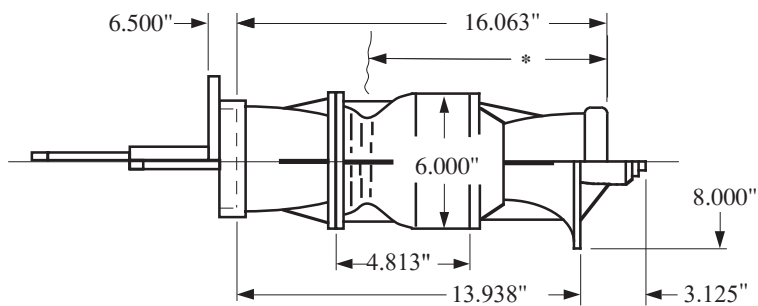
SP6LL 1770 RPM



IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.000"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP6LL	MAX. SHAFT DIA. = 1.000"				
IMPELLER WT. - LBS. = 2.60	STD. LATERAL = .66"	1	-5	IMP. - C.I.	Δ
ONE STAGE WT. - LBS. = 55.0	DISCHARGE SIZES = 3" / 4"	2	-4	IMP. - NI-RI	Δ
ADD'L STAGE WT. - LBS. = 18.5	SUCTION SIZES = 4" / BELL	3	-3	IMP. - S.S.	Δ
MAX. SPHERE SIZE = .38"	ONE STAGE WR ² = .037	4	-1	BOWL - BRZ.	Δ
MIN. SUBMERGENCE* = 11"	K-FACTOR, MAX = 2.70	5	0	BOWL - NI-RI	Δ
Δ CONSULT FACTORY		v18.2		BOWL - S.S.	Δ

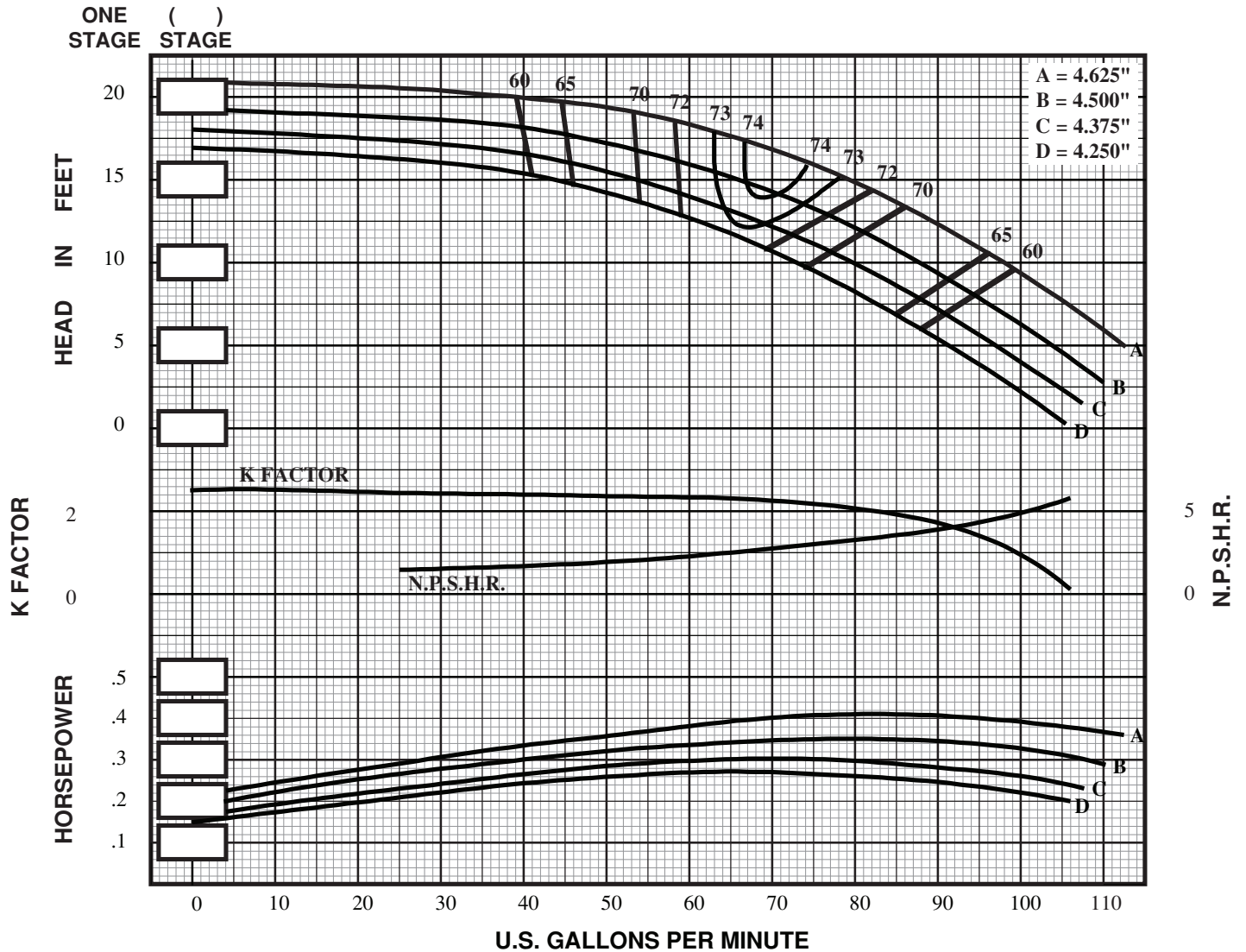


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

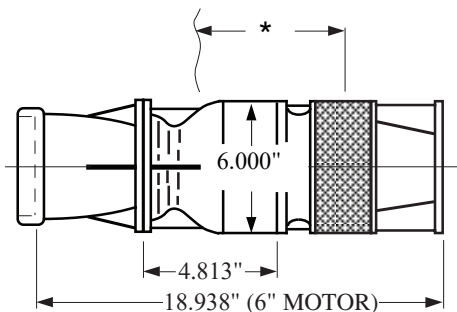
SP6L 1770 RPM



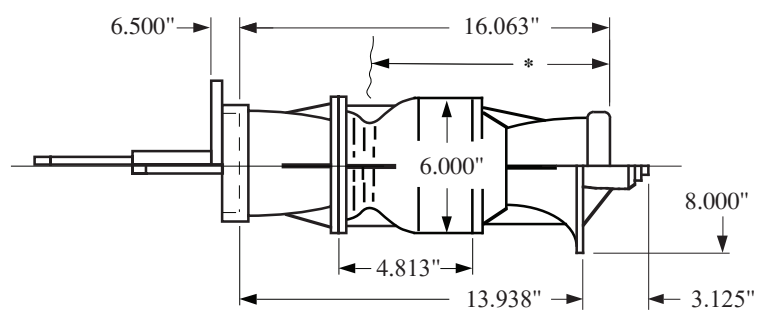
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.000"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP6L	MAX. SHAFT DIA. = 1.000"	1	-4	IMP. - C.I.	-3
IMPELLER WT. - LBS. = 2.60	STD. LATERAL = .54"	2	-3	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 55.0	DISCHARGE SIZES = 3"/4"	3	-2	IMP. - S.S.	-4
ADD'L STAGE WT. - LBS. = 18.5	SUCTION SIZES = 4"/BELL	4	-1	BOWL - BRZ.	-3
MAX. SPHERE SIZE = .38"	ONE STAGE WR ² = .033	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 11"				BOWL - S.S.	-4

Δ CONSULT FACTORY

v18.2

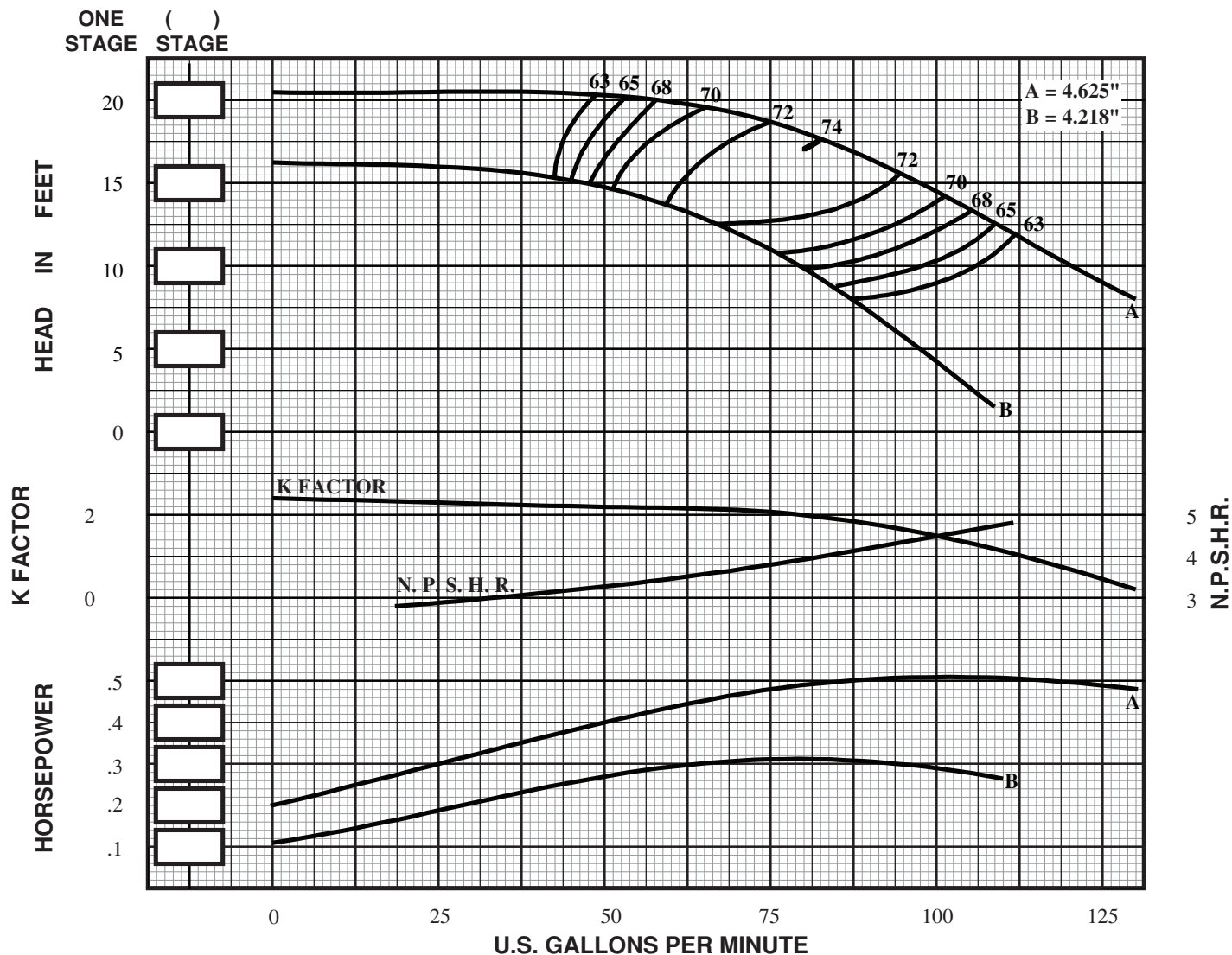


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

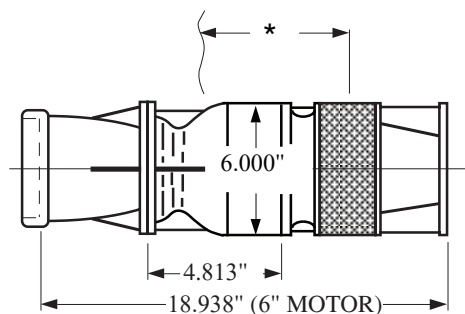
SP6M 1770 RPM



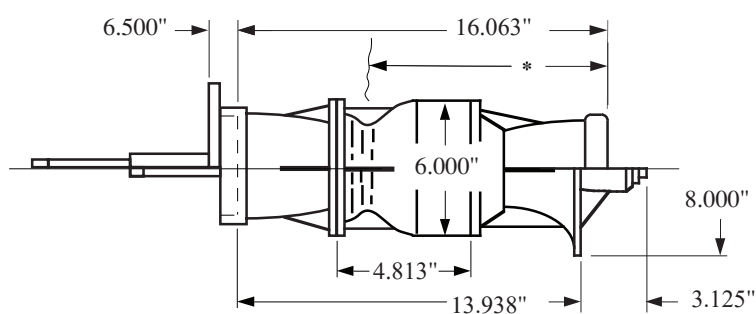
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.000"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP6M	MAX. SHAFT DIA. = 1.000"	1	-4	IMP. - C.I.	-3
IMPELLER WT. - LBS. = 2.95	STD. LATERAL = .41"	2	-3	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 60.0	DISCHARGE SIZES = 3"/4"	3	-2	IMP. - S.S.	-4
ADD'L STAGE WT. - LBS. = 20.0	SUCTION SIZES = 4"/BELL	4	-1	BOWL - BRZ.	-3
MAX. SPHERE SIZE = .31"	ONE STAGE WR ² = .037	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 11"				BOWL - S.S.	-4

Δ CONSULT FACTORY

v18.2

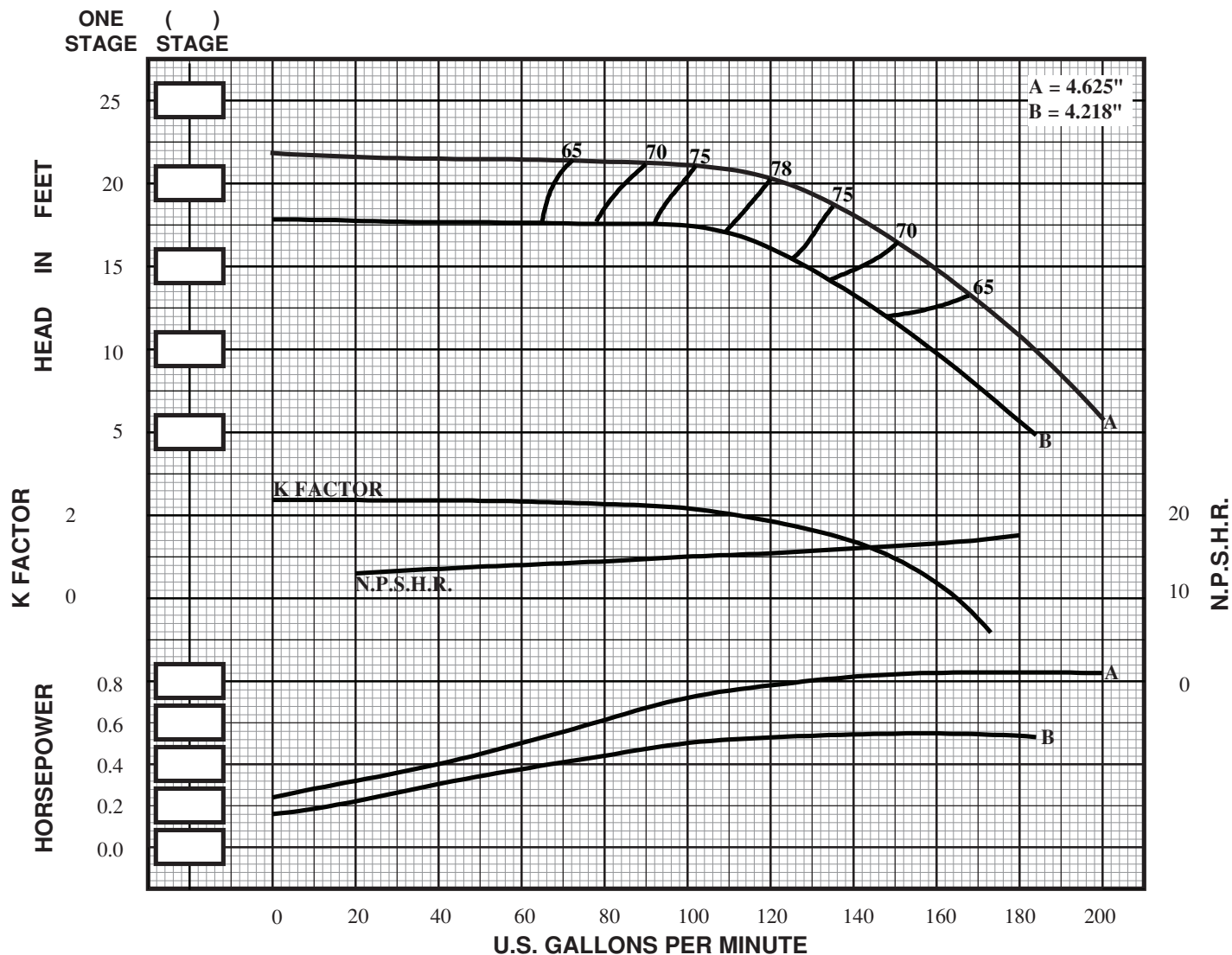


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

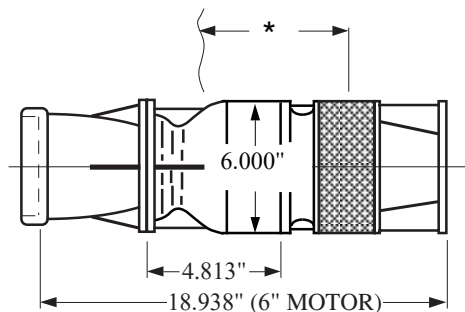
SP6H 1770 RPM



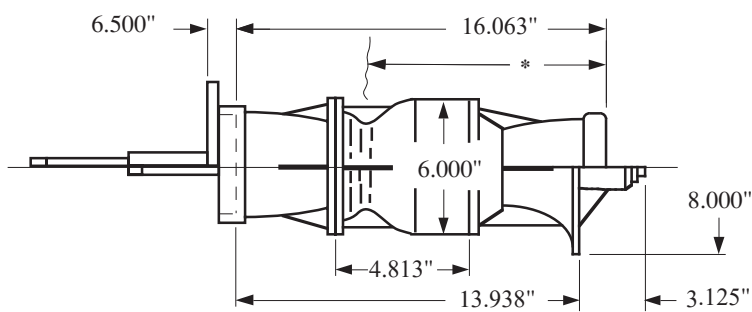
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.000"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP6H	MAX. SHAFT DIA. = 1.000"	1	-4	IMP. - C.I.	-3
IMPELLER WT. - LBS. = 2.75	STD. LATERAL = .28"	2	-3	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 60.0	DISCHARGE SIZES = 3"/4"	3	-2	IMP. - S.S.	-4
ADD'L STAGE WT. - LBS. = 20.0	SUCTION SIZES = 4"/BELL	4	-1	BOWL - BRZ.	-3
MAX. SPHERE SIZE = .38"	ONE STAGE WR ² = .034	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 11"				BOWL - S.S.	-4

Δ CONSULT FACTORY

v18.2

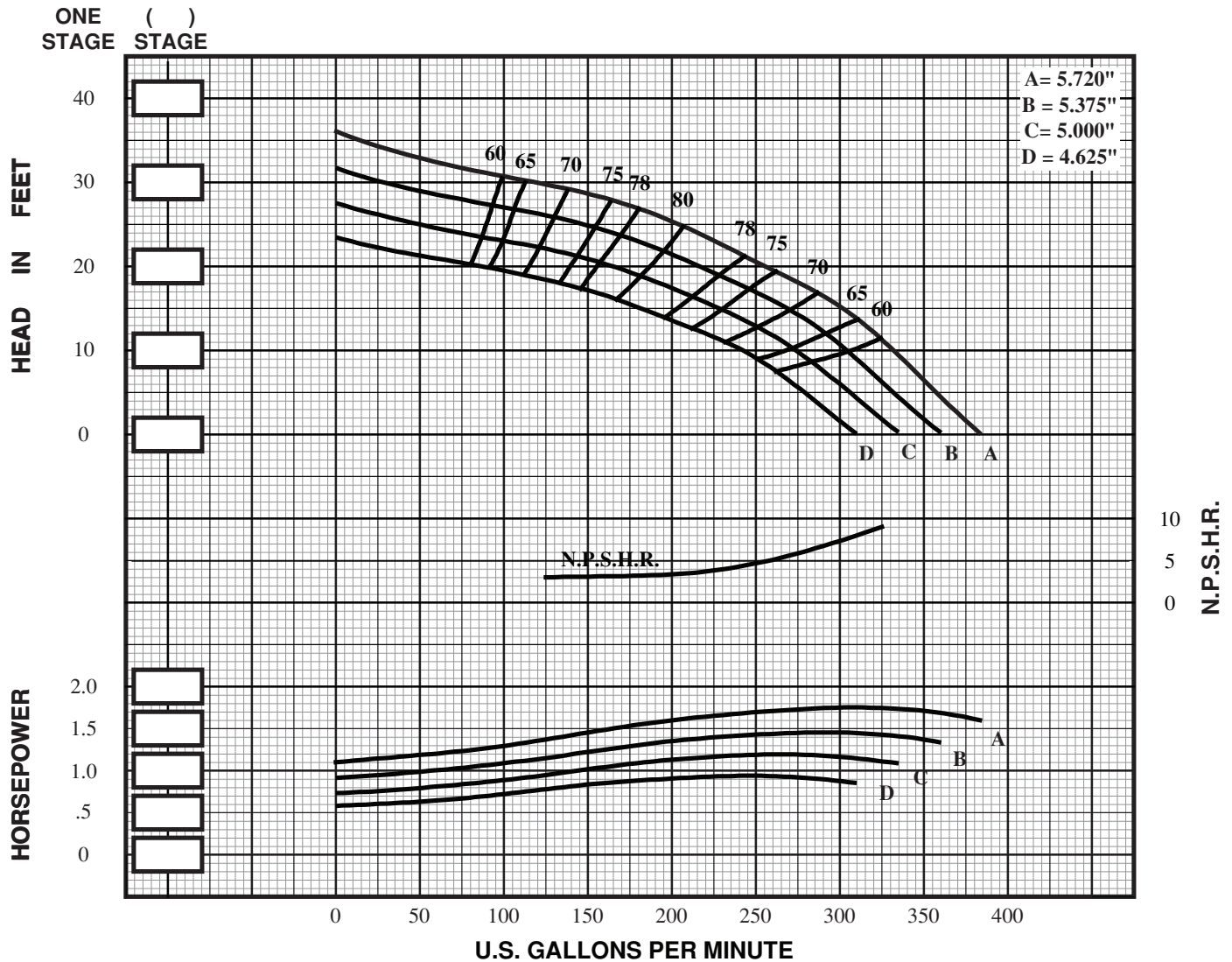


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

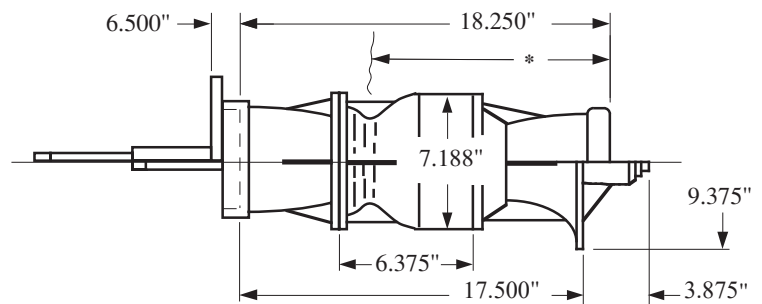
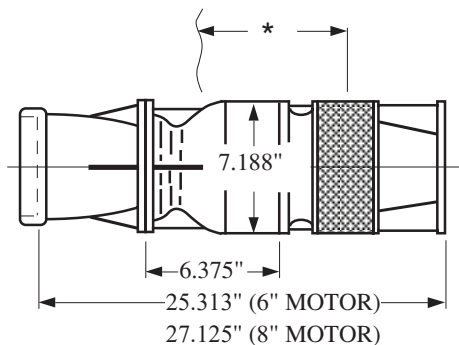
SP7L 1770 RPM



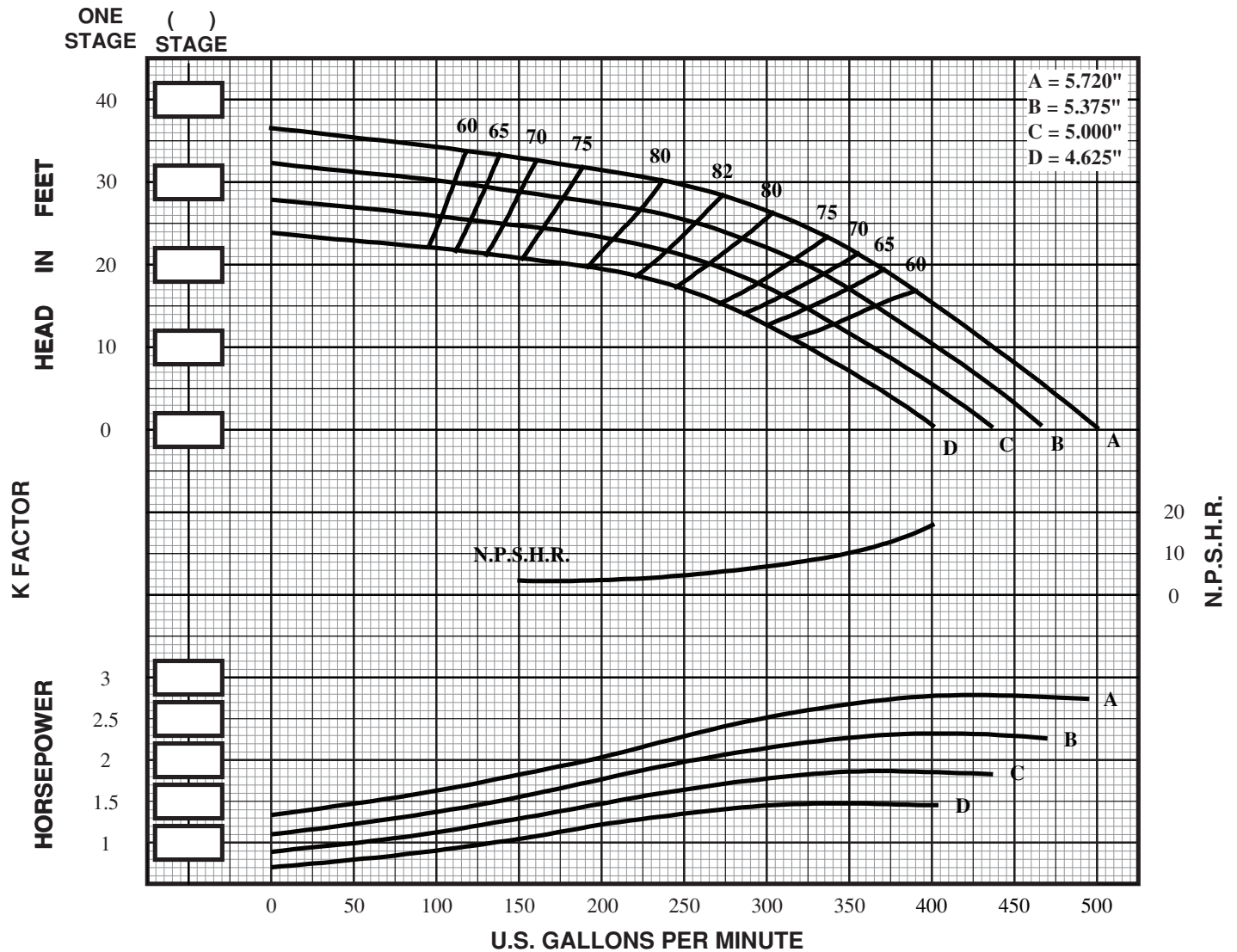
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.250"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP7L	MAX. SHAFT DIA. = 1.250"	1	-4	IMP. - C.I.	-2
IMPELLER WT. - LBS. = 4.05	STD. LATERAL = .59"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 100.0	DISCHARGE SIZES = 4"/ 5"/ 6"	3	0	IMP. - S.S.	-5
ADD'L STAGE WT. - LBS. = 34.0	SUCTION SIZES = 5"/ BELL	4	0	BOWL - BRZ.	-2
MAX. SPHERE SIZE = .53"	ONE STAGE WR ² = .073	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 11"	K-FACTOR, MAX = 4.20			BOWL - S.S.	-4

Δ CONSULT FACTORY

v18.1



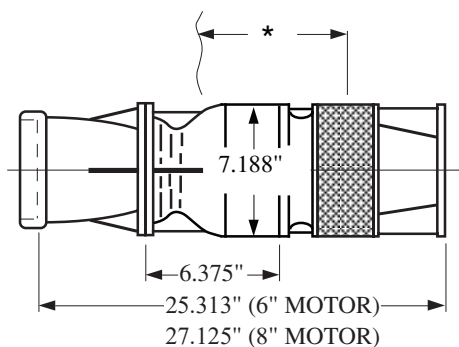
SP7H 1770 RPM



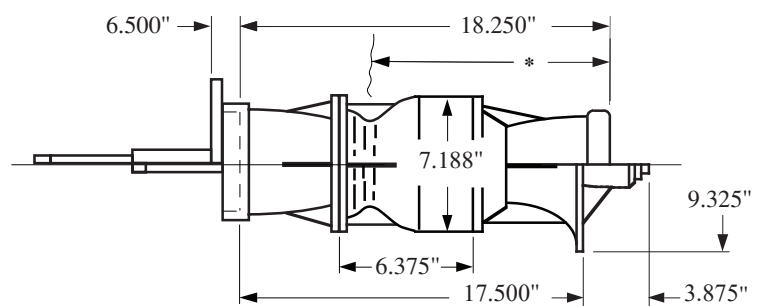
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.250"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP7H	MAX. SHAFT DIA. = 1.250"	1	-3	IMP. - C.I.	-2
IMPELLER WT. - LBS. = 4.00	STD. LATERAL = .59"	2	-1	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 100.0	DISCHARGE SIZES = 4"/ 5"/ 6"	3	0	IMP. - S.S.	-5
ADD'L STAGE WT. - LBS. = 34.0	SUCTION SIZES = 5"/ BELL	4	0	BOWL - BRZ.	-2
MAX. SPHERE SIZE = .53"	ONE STAGE WR ² = .072	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 11"	K-FACTOR, MAX = 4.30			BOWL - S.S.	-4

Δ CONSULT FACTORY

v18.1

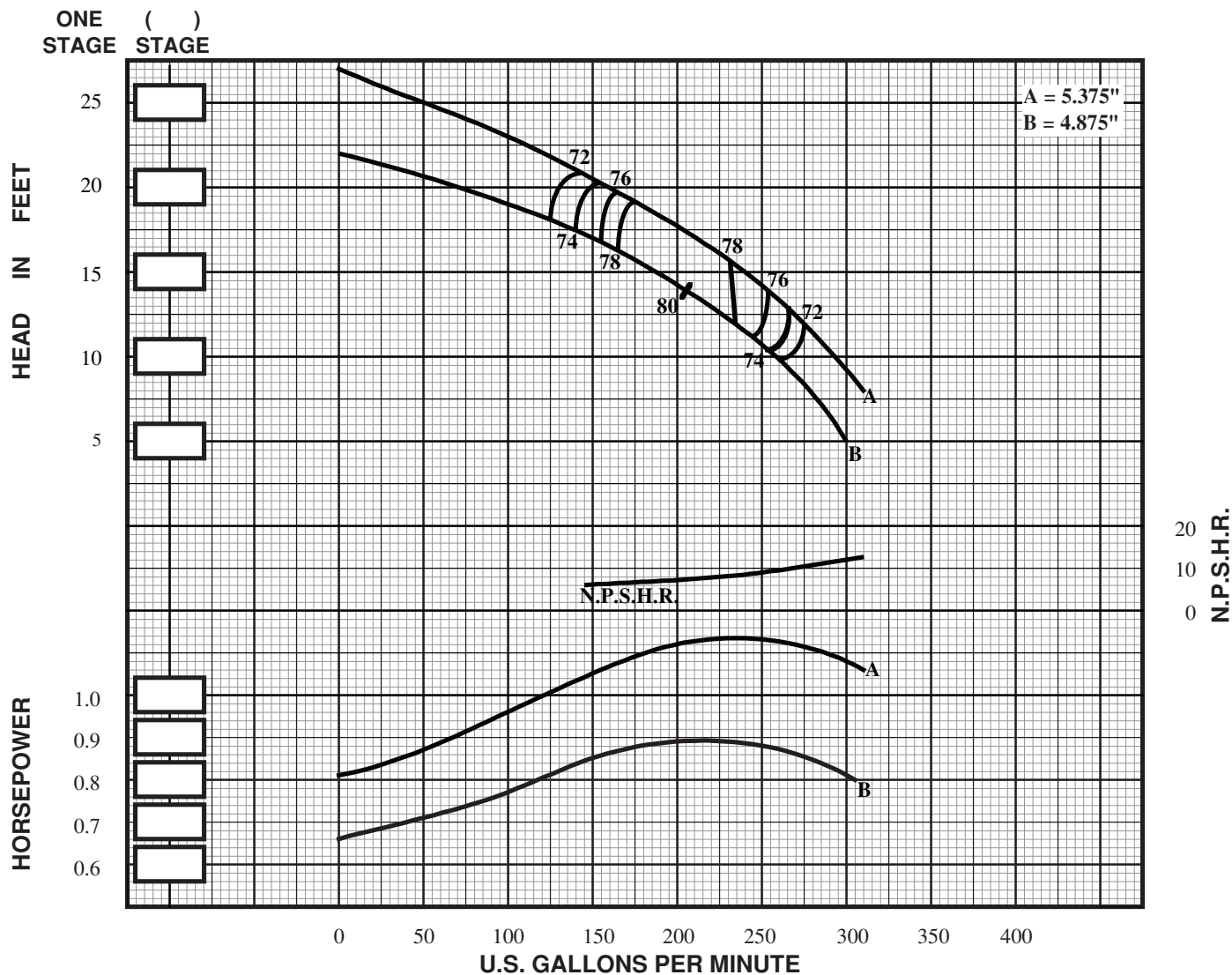


SUBMERSIBLE TURBINE



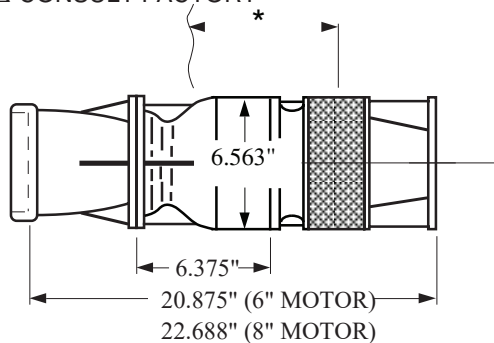
LINESHAFT TURBINE

SK7L 1770 RPM

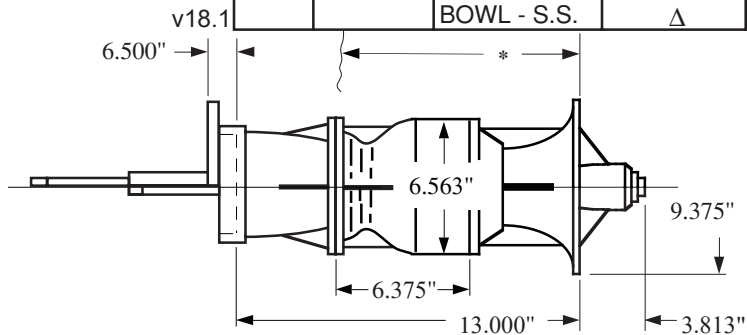


IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.000"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SK7L	MAX. SHAFT DIA. = 1.000"				
IMPELLER WT. - LBS. = 3.35	STD. LATERAL = .94"	1	-3.5	IMP. - C.I.	Δ
ONE STAGE WT. - LBS. = 61.0	DISCHARGE SIZES = 4"/5"	2	-2.0	IMP. - NI-RI	Δ
ADD'L STAGE WT. - LBS. = 22.0	SUCTION SIZES = BELL	3	-1.0	IMP. - S.S.	Δ
MAX. SPHERE SIZE = .44"	ONE STAGE WR ² = .051	4	-0.5	BOWL - BRZ.	Δ
MIN. SUBMERGENCE* = 20"	K FACTOR = 4.49	5	0.0	BOWL - NI-RI	Δ
				BOWL - S.S.	Δ

Δ CONSULT FACTORY

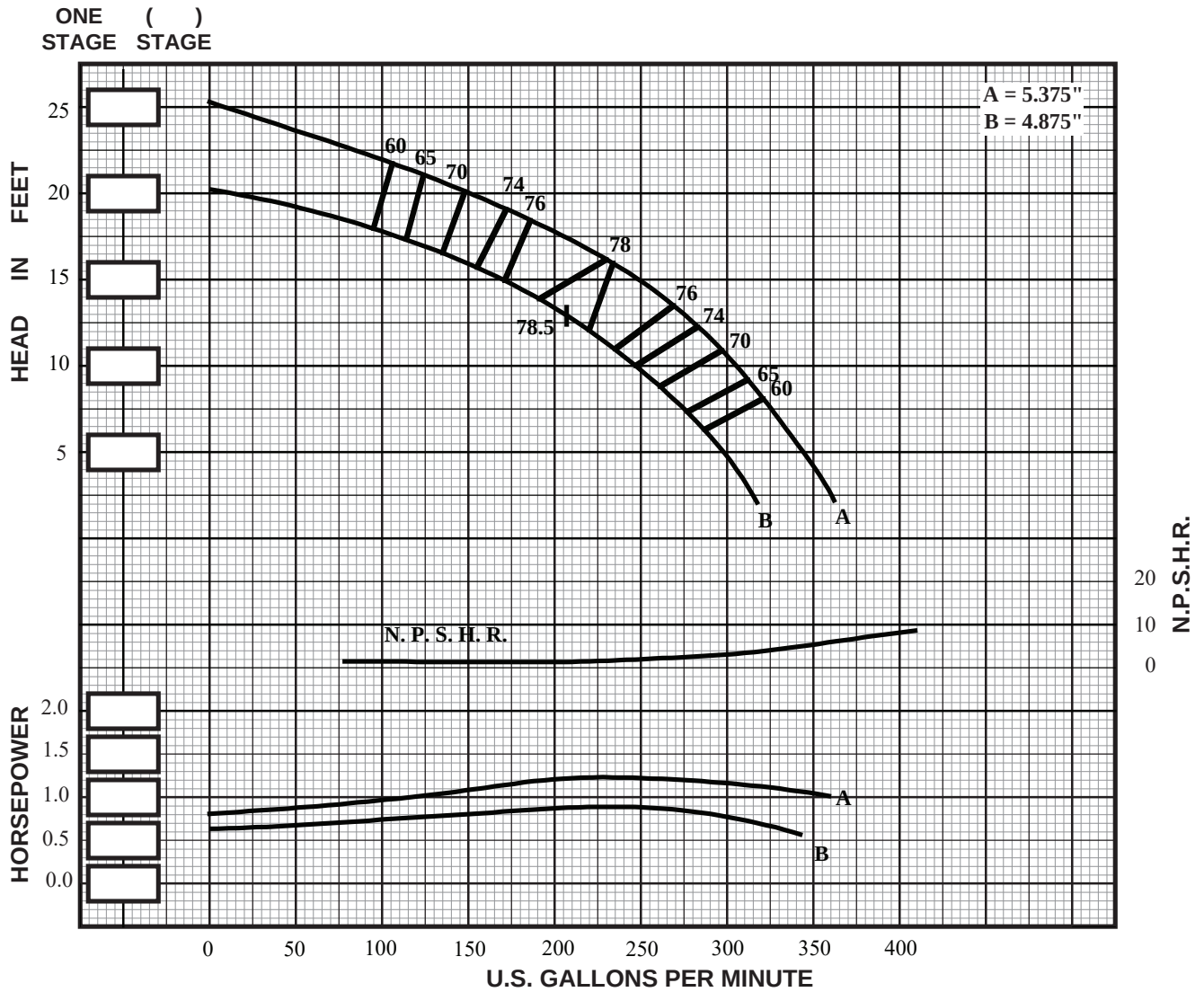


SUBMERSIBLE TURBINE

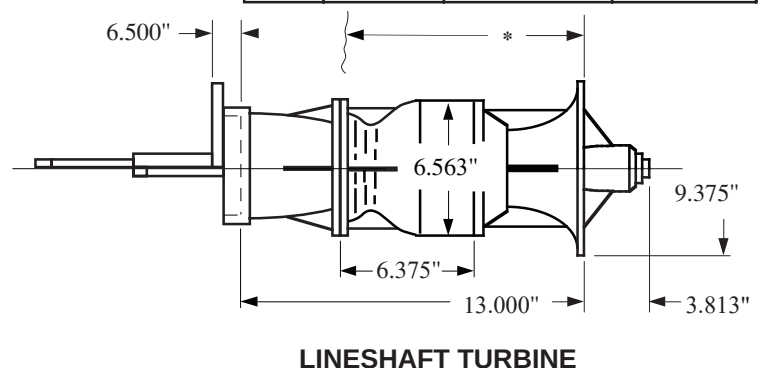
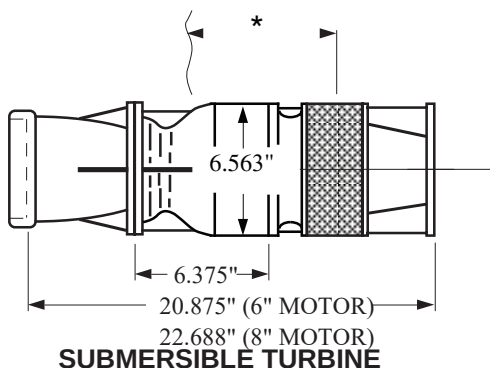


LINESHAFT TURBINE

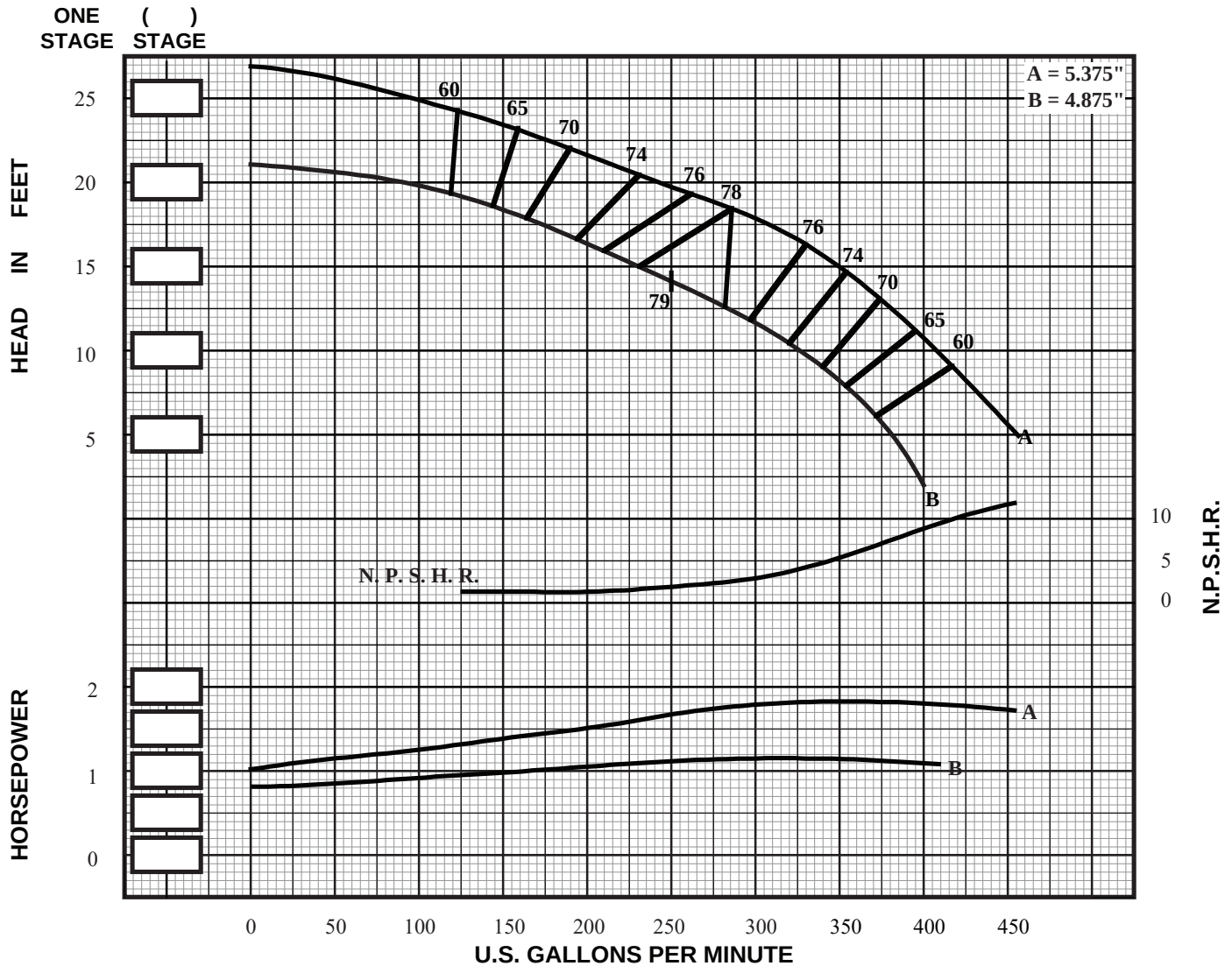
SK7M 1770 RPM



IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.000"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SK7M	MAX. SHAFT DIA. = 1.000"	1	-3.5	IMP. - C.I.	Δ
IMPELLER WT. - LBS. = 2.90	STD. LATERAL = .75"	2	-2.0	IMP. - NI-RI	Δ
ONE STAGE WT. - LBS. = 59.0	DISCHARGE SIZES = 4"/5"	3	-1.0	IMP. - S.S.	Δ
ADD'L STAGE WT. - LBS. = 20.0	SUCTION SIZES = BELL	4	-0.5	BOWL - BRZ.	Δ
MAX. SPHERE SIZE = .56"	ONE STAGE WR ² = .046	5	0.0	BOWL - NI-RI	Δ
MIN. SUBMERGENCE* = 20"	K FACTOR = 4.29			BOWL - S.S.	Δ
Δ CONSULT FACTORY		v18.1			



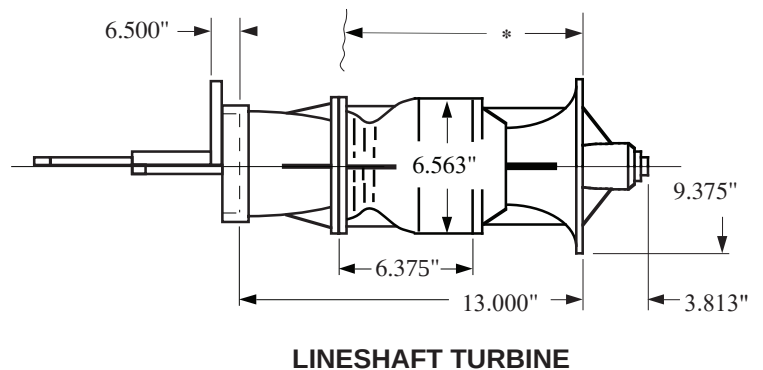
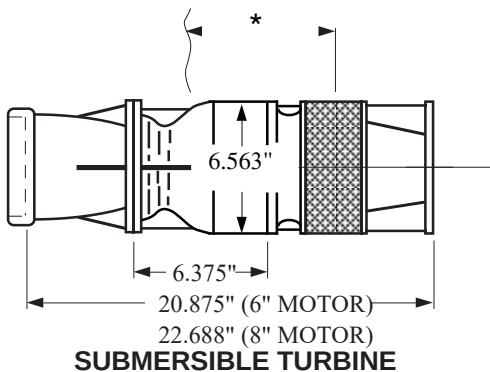
SK7H 1770 RPM



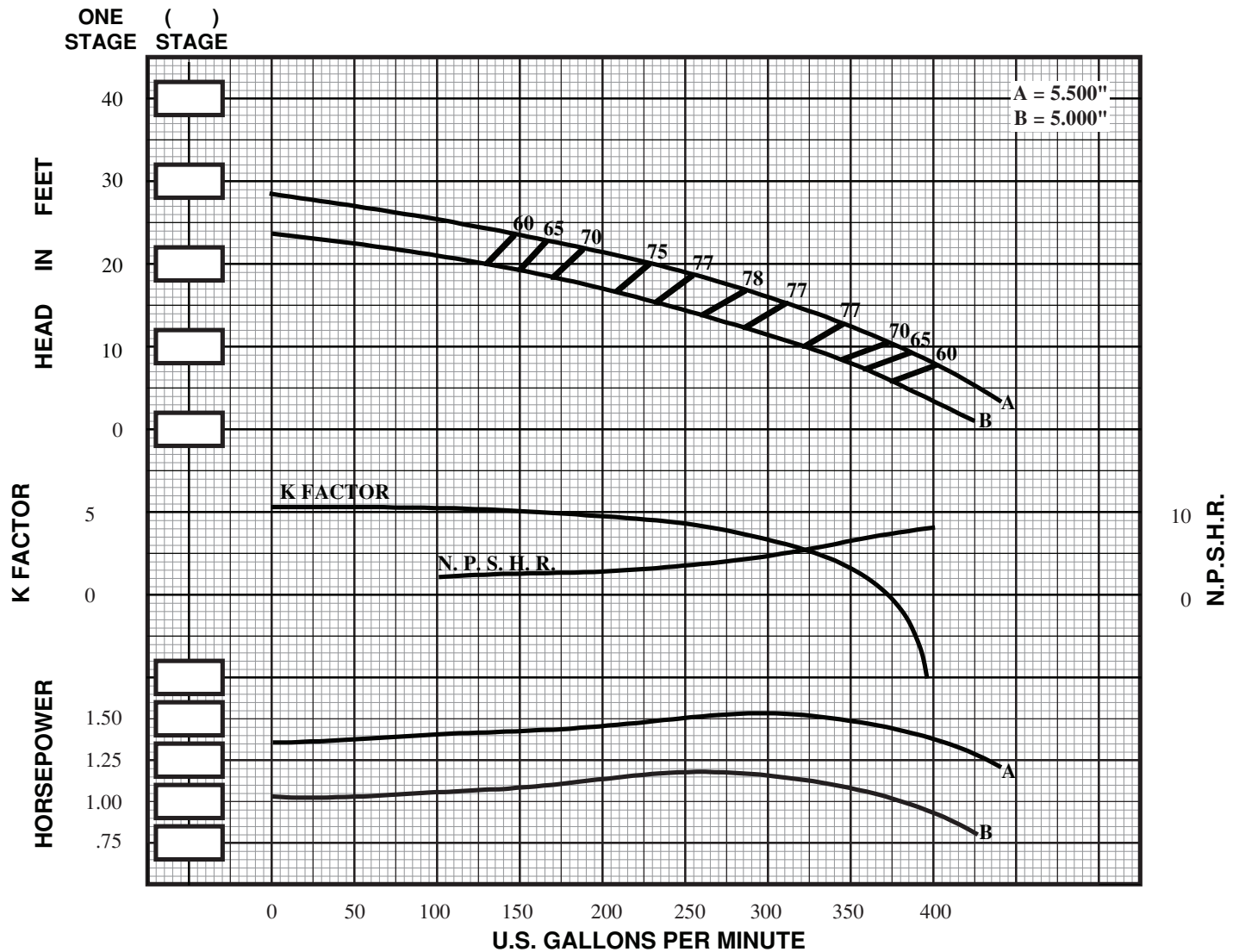
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.000"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SK7H	MAX. SHAFT DIA. = 1.000"	1	-3.5	IMP. - C.I.	Δ
IMPELLER WT. - LBS. = 3.25	STD. LATERAL = .75"	2	-2.0	IMP. - NI-RI	Δ
ONE STAGE WT. - LBS. = 60.0	DISCHARGE SIZES = 4"/5"	3	-1.0	IMP. - S.S.	Δ
ADD'L STAGE WT. - LBS. = 21.0	SUCTION SIZES = BELL	4	-0.5	BOWL - BRZ.	Δ
MAX. SPHERE SIZE = .56"	ONE STAGE WR ² = .050	5	0.0	BOWL - NI-RI	Δ
MIN. SUBMERGENCE* = 20"	K FACTOR = 4.27			BOWL - S.S.	Δ

Δ CONSULT FACTORY

v18.1



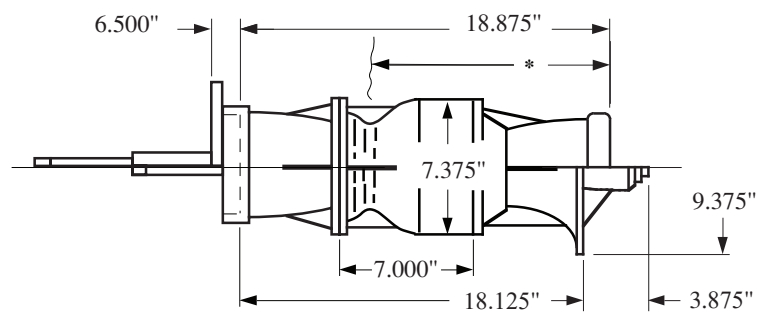
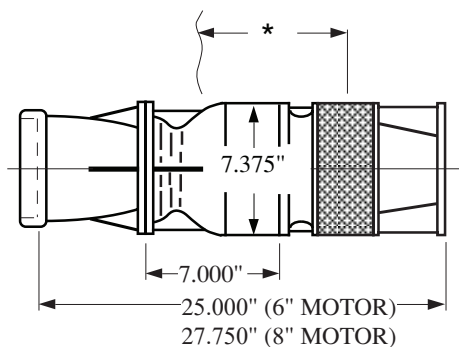
SM7M 1770 RPM



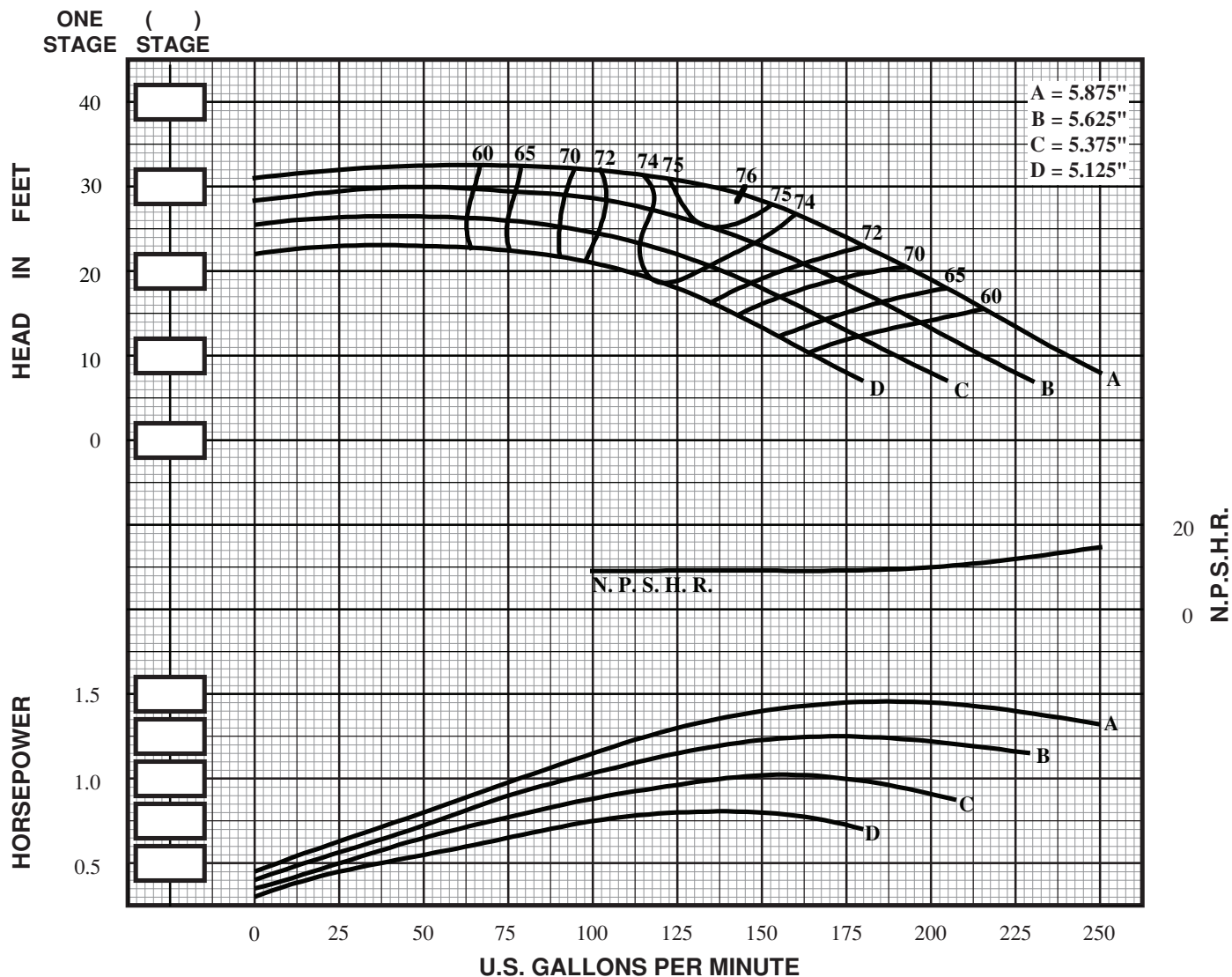
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.250"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SM7M	MAX. SHAFT DIA. = 1.250"	1	-3	IMP. - C.I.	-2
IMPELLER WT. - LBS. = 6.2	STD. LATERAL = .94"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 100.0	DISCHARGE SIZES = 4"/5"/6"	3	-1	IMP. - S.S.	-5
ADD'L STAGE WT. - LBS. = 40.0	SUCTION SIZES = 5"/BELL	4	0	BOWL - BRZ.	-3
MAX. SPHERE SIZE = .50"	ONE STAGE WR ² = .100	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 12"				BOWL - S.S.	-5

Δ CONSULT FACTORY

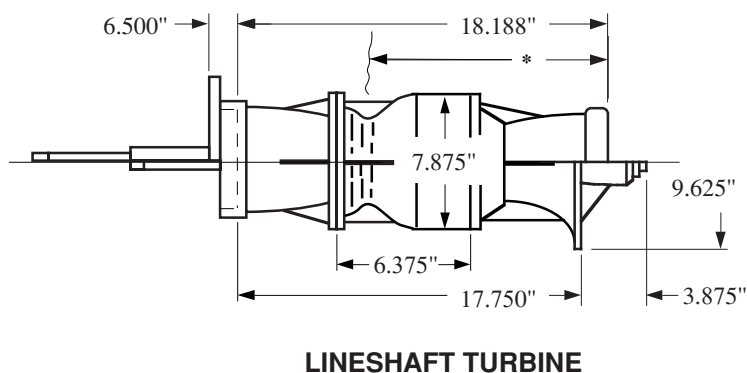
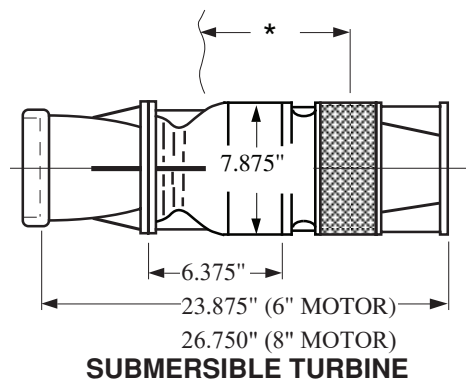
v18.1



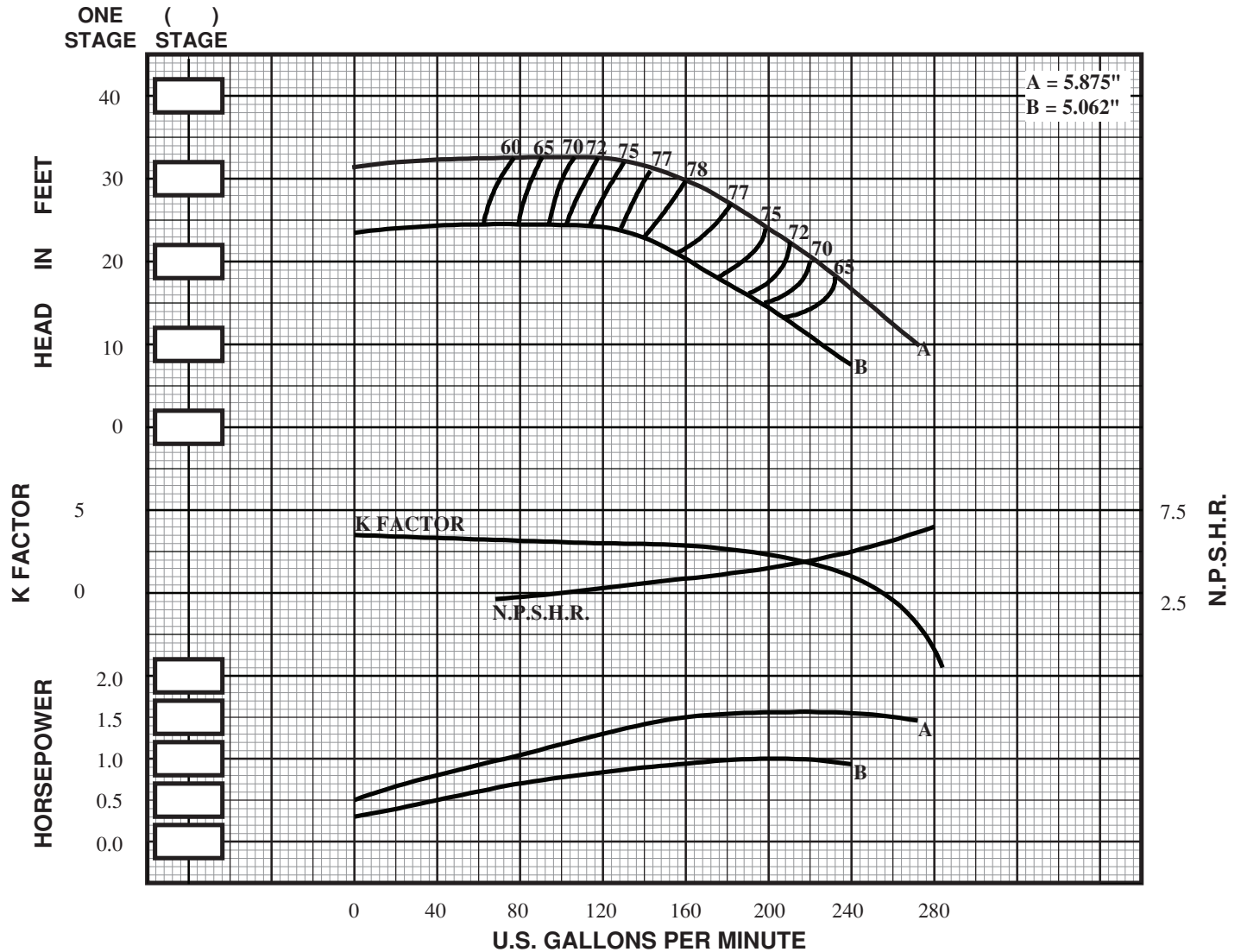
SP8L 1770 RPM



IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.250"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP8L	MAX. SHAFT DIA. = 1.250"				
IMPELLER WT. - LBS. = 5.40	STD. LATERAL = .88"	1	-4	IMP. - C.I.	Δ
ONE STAGE WT. - LBS. = 122.0	DISCHARGE SIZES = 4"/ 5"/ 6"	2	-3	IMP. - NI-RI	Δ
ADD'L STAGE WT. - LBS. = 40.0	SUCTION SIZES = 5"/ BELL	3	-2	IMP. - S.S.	Δ
MAX. SPHERE SIZE = .31"	ONE STAGE WR ² = .108	4	-1	BOWL - BRZ.	Δ
MIN. SUBMERGENCE* = 11"	K-FACTOR, MAX. = 3.60	5	0	BOWL - NI-RI	Δ
Δ CONSULT FACTORY	v18.1			BOWL - S.S.	Δ



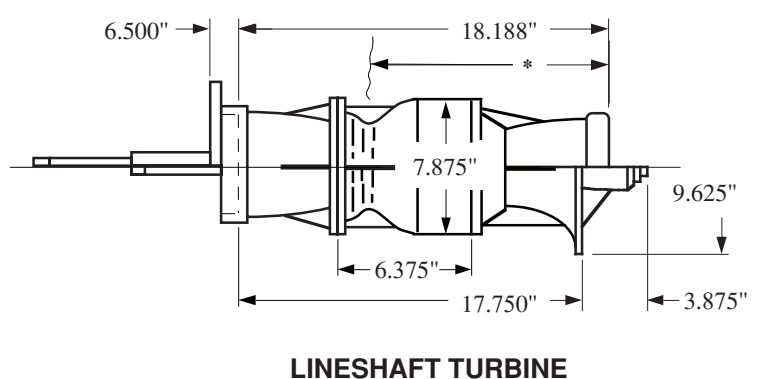
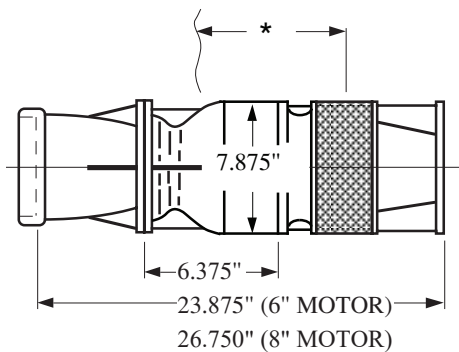
SP8M 1770 RPM



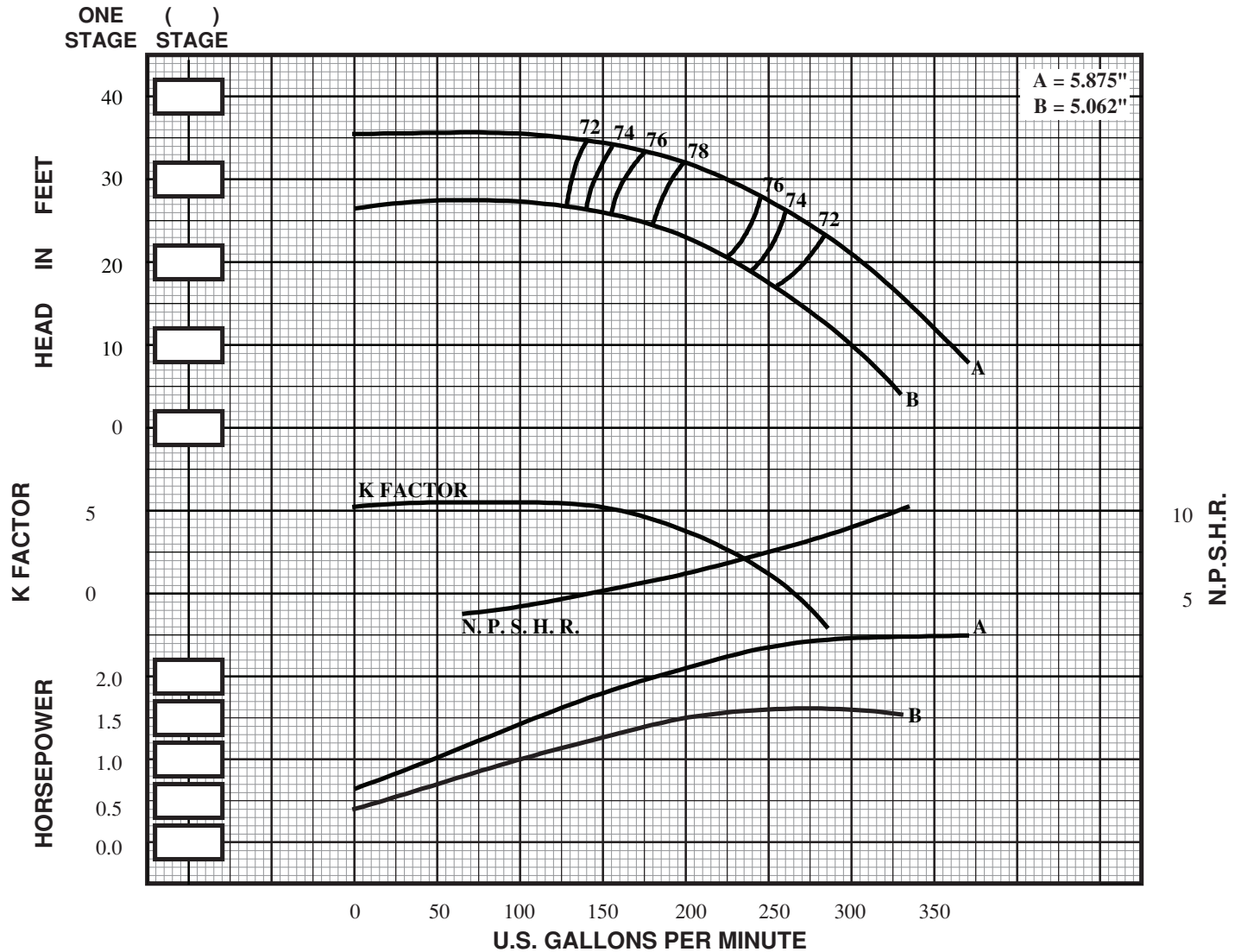
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.250"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP8M	MAX. SHAFT DIA. = 1.250"	1	-4	IMP. - C.I.	-2
IMPELLER WT. - LBS. = 5.15	STD. LATERAL = .75"	2	-3	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 100.0	DISCHARGE SIZES = 4"/5"/6"	3	-2	IMP. - S.S.	-4
ADD'L STAGE WT. - LBS. = 40.0	SUCTION SIZES = 5"/BELL	4	-1	BOWL - BRZ.	-2
MAX. SPHERE SIZE = .56"	ONE STAGE WR ² = .105	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 11"				BOWL - S.S.	-3

Δ CONSULT FACTORY

v18.1



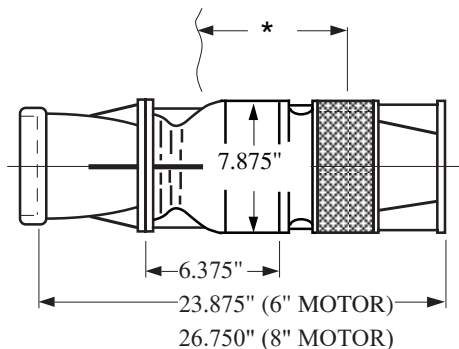
SP8H 1770 RPM



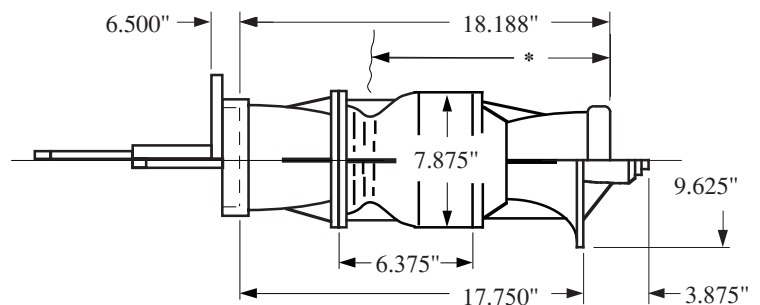
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.250"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP8H	MAX. SHAFT DIA. = 1.250"	1	-4	IMP. - C.I.	-2
IMPELLER WT. - LBS. = 5.20	STD. LATERAL = .56"	2	-3	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 100.0	DISCHARGE SIZES = 4"/ 5"/ 6"	3	-2	IMP. - S.S.	-4
ADD'L STAGE WT. - LBS. = 40.0	SUCTION SIZES = 5"/ BELL	4	-1	BOWL - BRZ.	-2
MAX. SPHERE SIZE = .75"	ONE STAGE WR ² = .105	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 11"				BOWL - S.S.	-3

Δ CONSULT FACTORY

v18.1

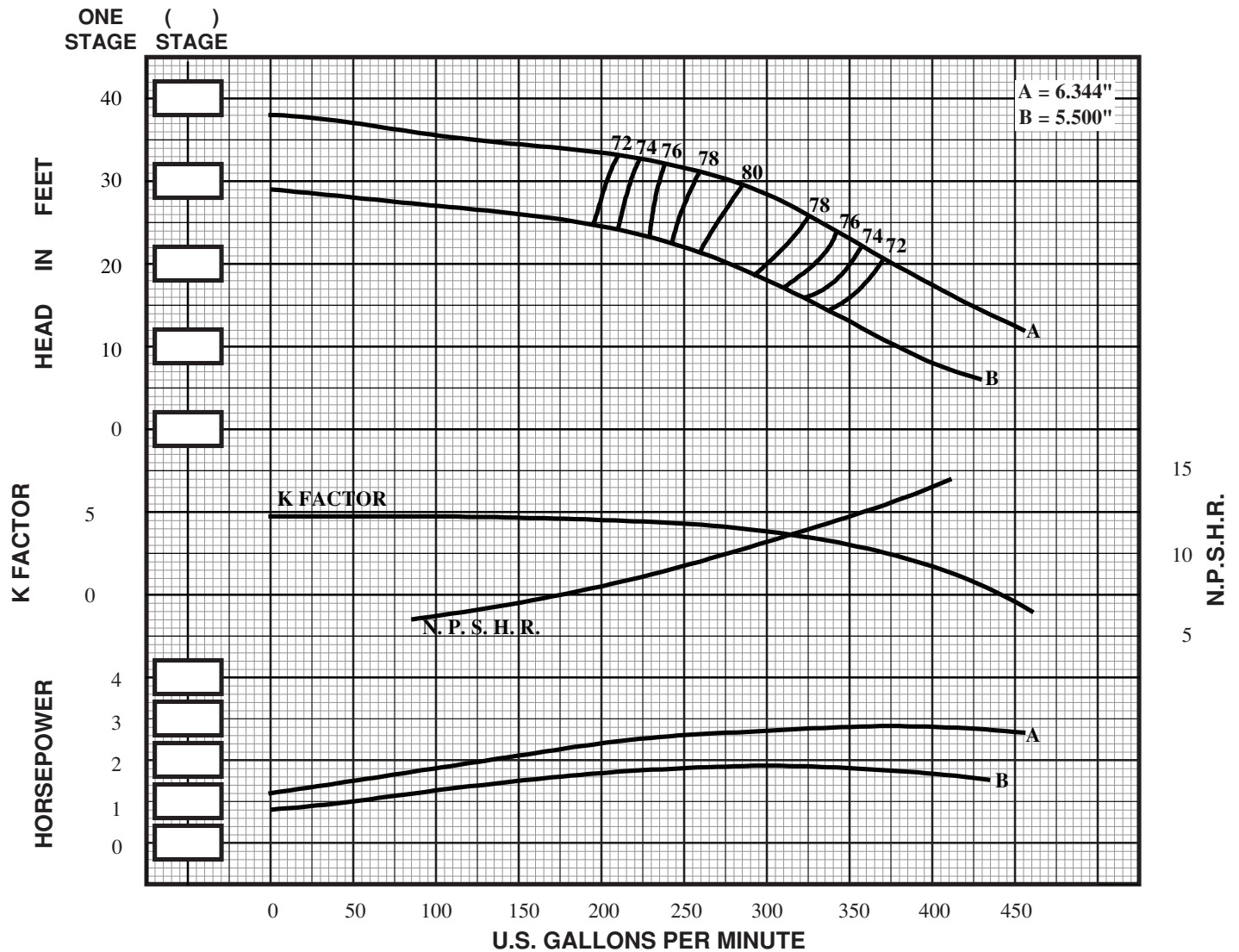


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

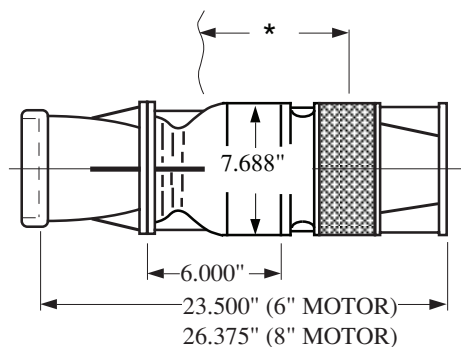
SM8H 1770 RPM



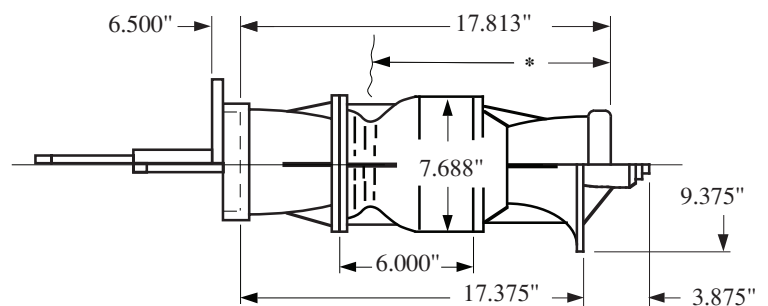
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.250"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SM8H	MAX. SHAFT DIA. = 1.250"	1	-4	IMP. - C.I.	-2
IMPELLER WT. - LBS. = 7.3	STD. LATERAL = .58"	2	-3	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 100.0	DISCHARGE SIZES = 4"/5"/6"	3	-2	IMP. - S.S.	-4
ADD'L STAGE WT. - LBS. = 40.0	SUCTION SIZES = 5"/BELL	4	-1	BOWL - BRZ.	-2
MAX. SPHERE SIZE = .66"	ONE STAGE WR ² = .158	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 11"				BOWL - S.S.	-3

Δ CONSULT FACTORY

v18.1

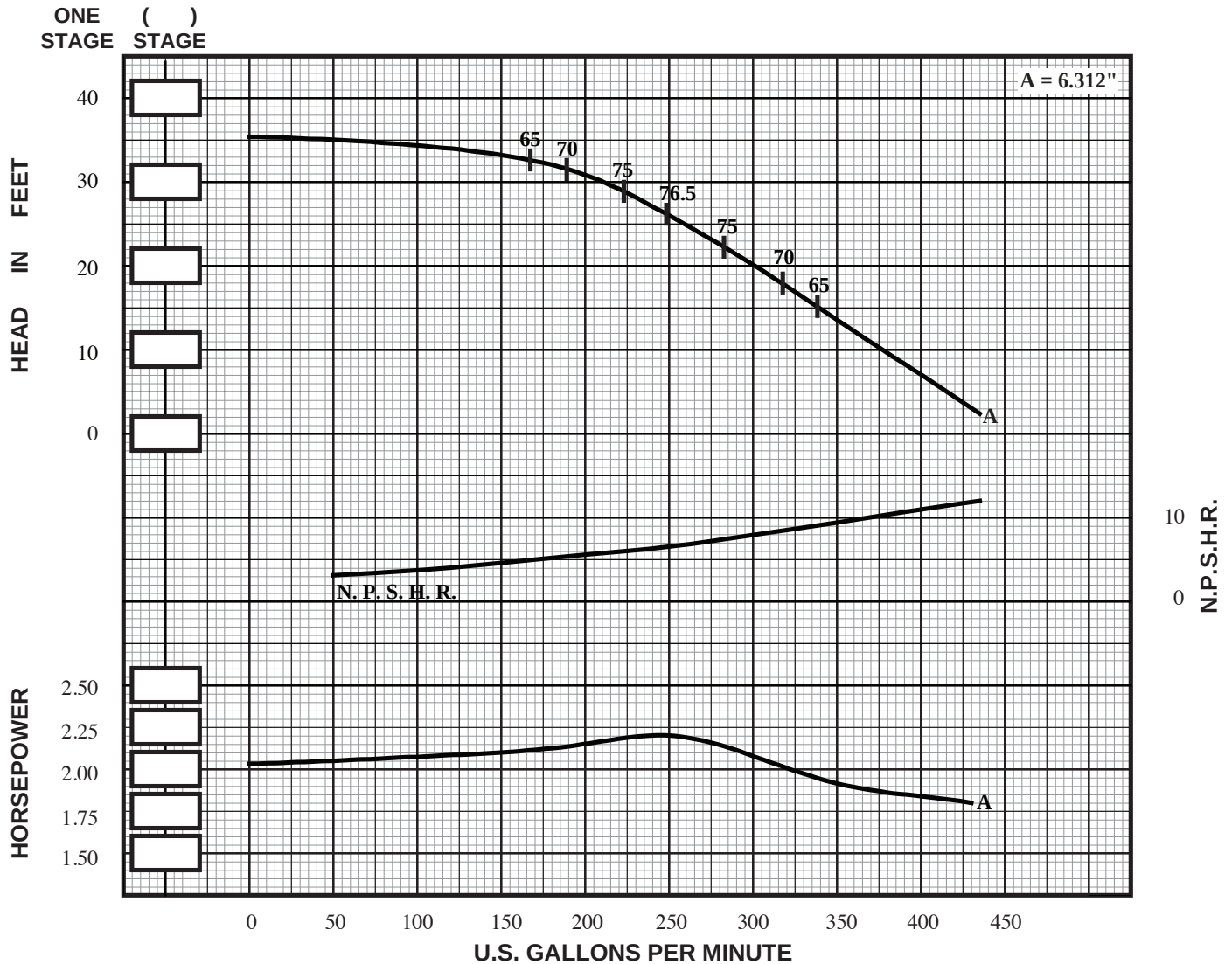


SUBMERSIBLE TURBINE



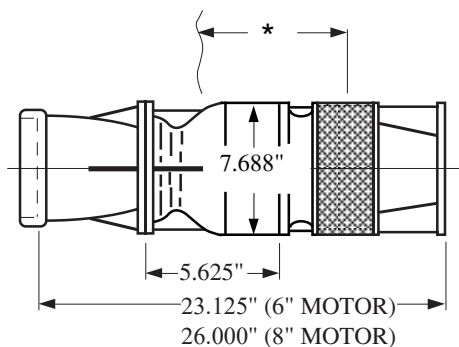
LINESHAFT TURBINE

SR8MO 1770 RPM

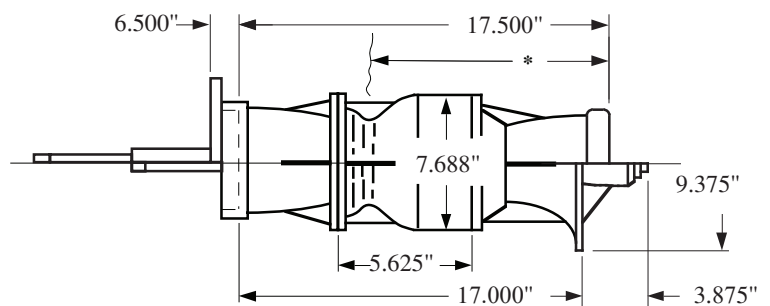


IMPELLER TYPE = SEMI-OPEN	STD. SHAFT DIA. = 1.250"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SR8MO	MAX. SHAFT DIA. = 1.250"	1	-4	IMP. - C.I.	-4
IMPELLER WT. - LBS. = 4.80	STD. LATERAL = .83"	2	-3	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 100.0	DISCHARGE SIZES = 4"/ 5"/ 6"	3	-2	IMP. - S.S.	NOT RECOM.
ADD'L STAGE WT. - LBS. = 40.0	SUCTION SIZES = 5" / BELL	4	-1	BOWL - BRZ.	-2
MAX. SPHERE SIZE = .44"	ONE STAGE WR ² = .107	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 11"	K-FACTOR, MAX. = 6.1			BOWL - S.S.	-3

Δ CONSULT FACTORY v18.1

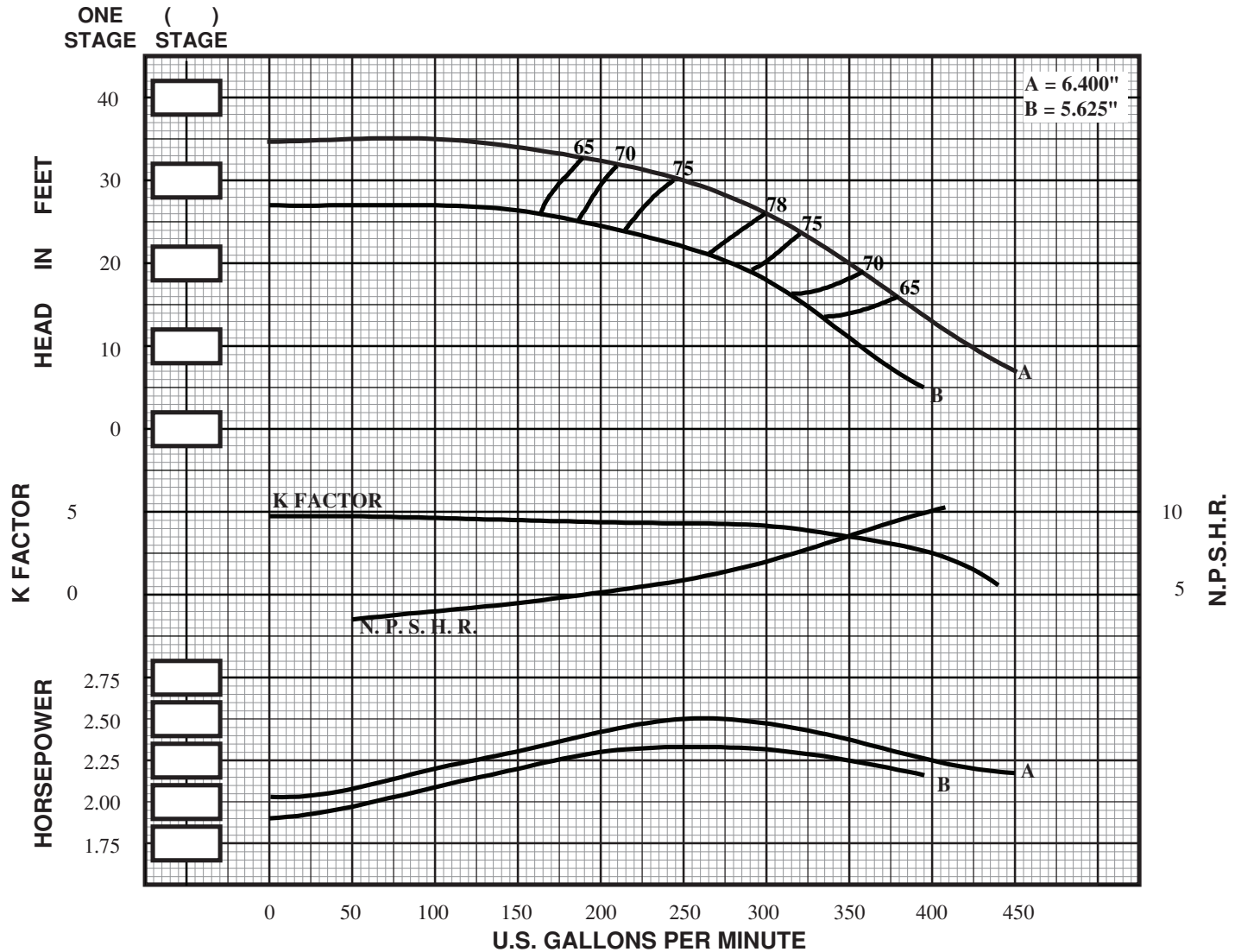


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

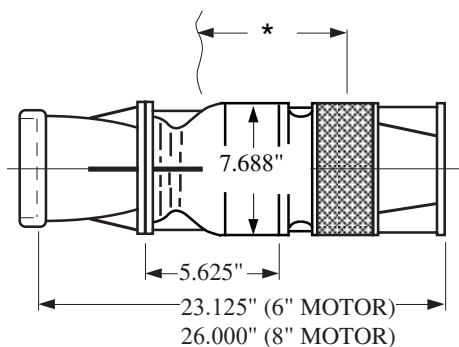
SR8HO 1770 RPM



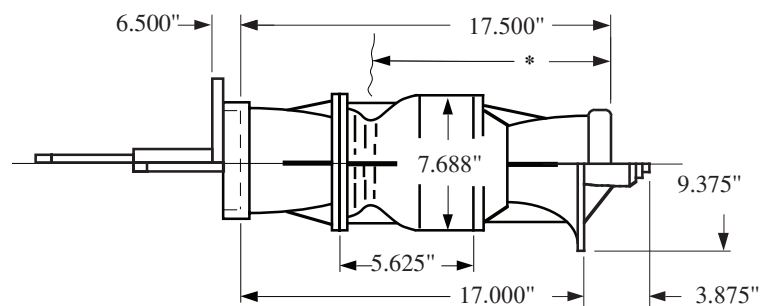
IMPELLER TYPE = SEMI-OPEN	STD. SHAFT DIA. = 1.250"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SR8HO	MAX. SHAFT DIA. = 1.250"	1	-4	IMP. - C.I.	-4
IMPELLER WT. - LBS. = 5.00	STD. LATERAL = .61"	2	-3	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 100.0	DISCHARGE SIZES = 4"/5"/6"	3	-2	IMP. - S.S.	NOT RECOM.
ADD'L STAGE WT. - LBS. = 40.0	SUCTION SIZES = 5"/BELL	4	-1	BOWL - BRZ.	-2
MAX. SPHERE SIZE = .59"	ONE STAGE WR ² = .112	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 11"				BOWL - S.S.	-3

Δ CONSULT FACTORY

v18.1

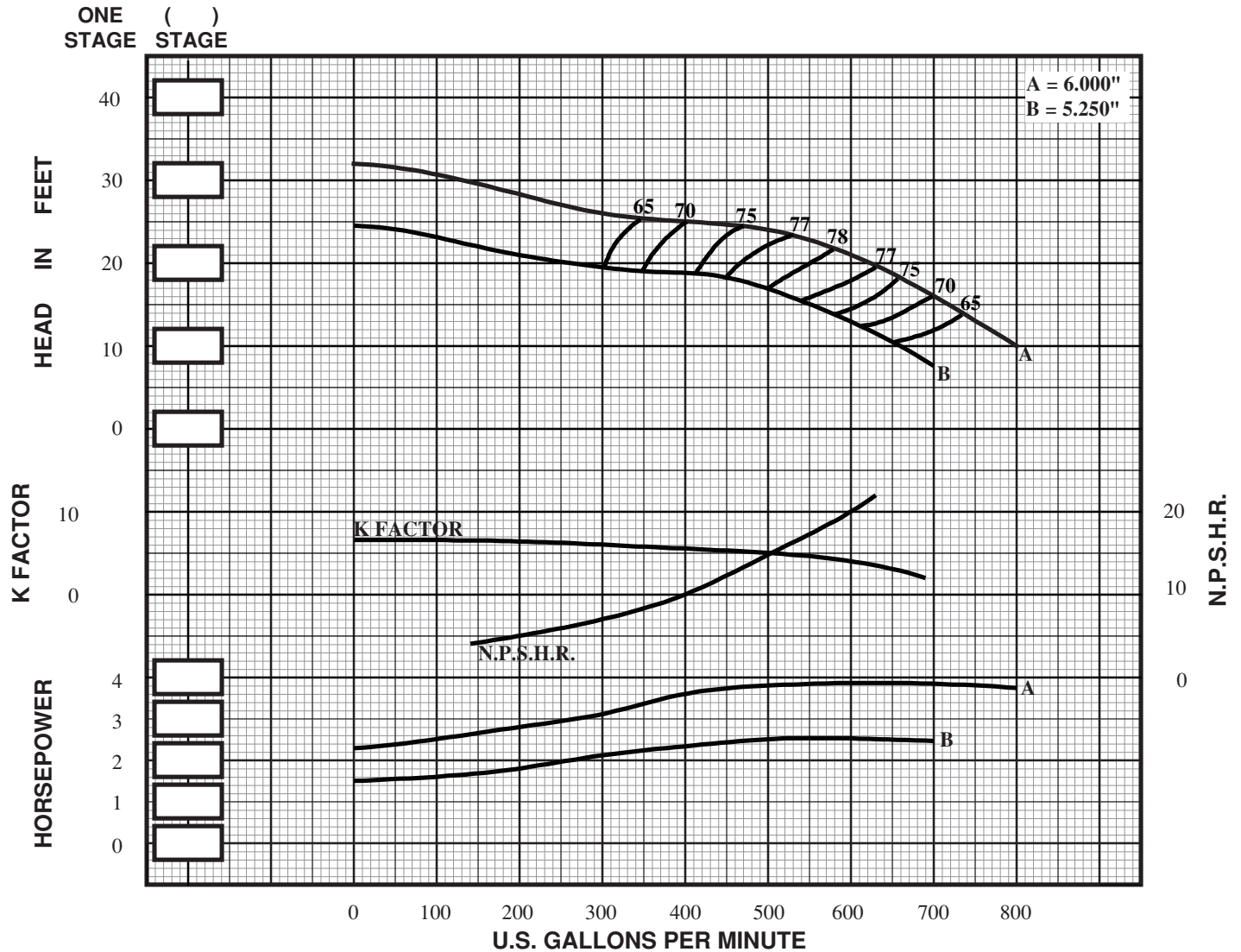


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

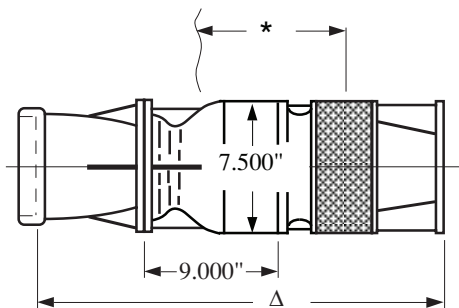
SK8H 1770 RPM



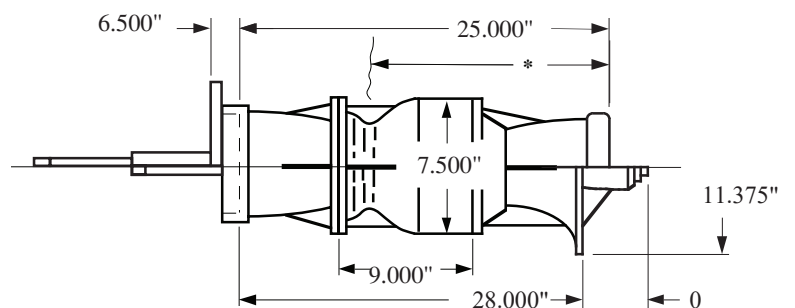
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.500"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SK8H	MAX. SHAFT DIA. = 1.500"				
IMPELLER WT. - LBS. = 6.6	STD. LATERAL = 1.00"	1	-4	IMP. - C.I.	-5
ONE STAGE WT. - LBS. = 180.0	DISCHARGE SIZES = 6"	2	-3	IMP. - NI-RI	-2
ADD'L STAGE WT. - LBS. = 60.0	SUCTION SIZES = 6"	3	-2	IMP. - S.S.	NOT RECOM.
MAX. SPHERE SIZE = .75"	ONE STAGE WR ² = .133	4	-1	BOWL - BRZ.	-3
MIN. SUBMERGENCE* = 16"		5	0	BOWL - NI-RI	-1
				BOWL - S.S.	-4

Δ CONSULT FACTORY

v18.1

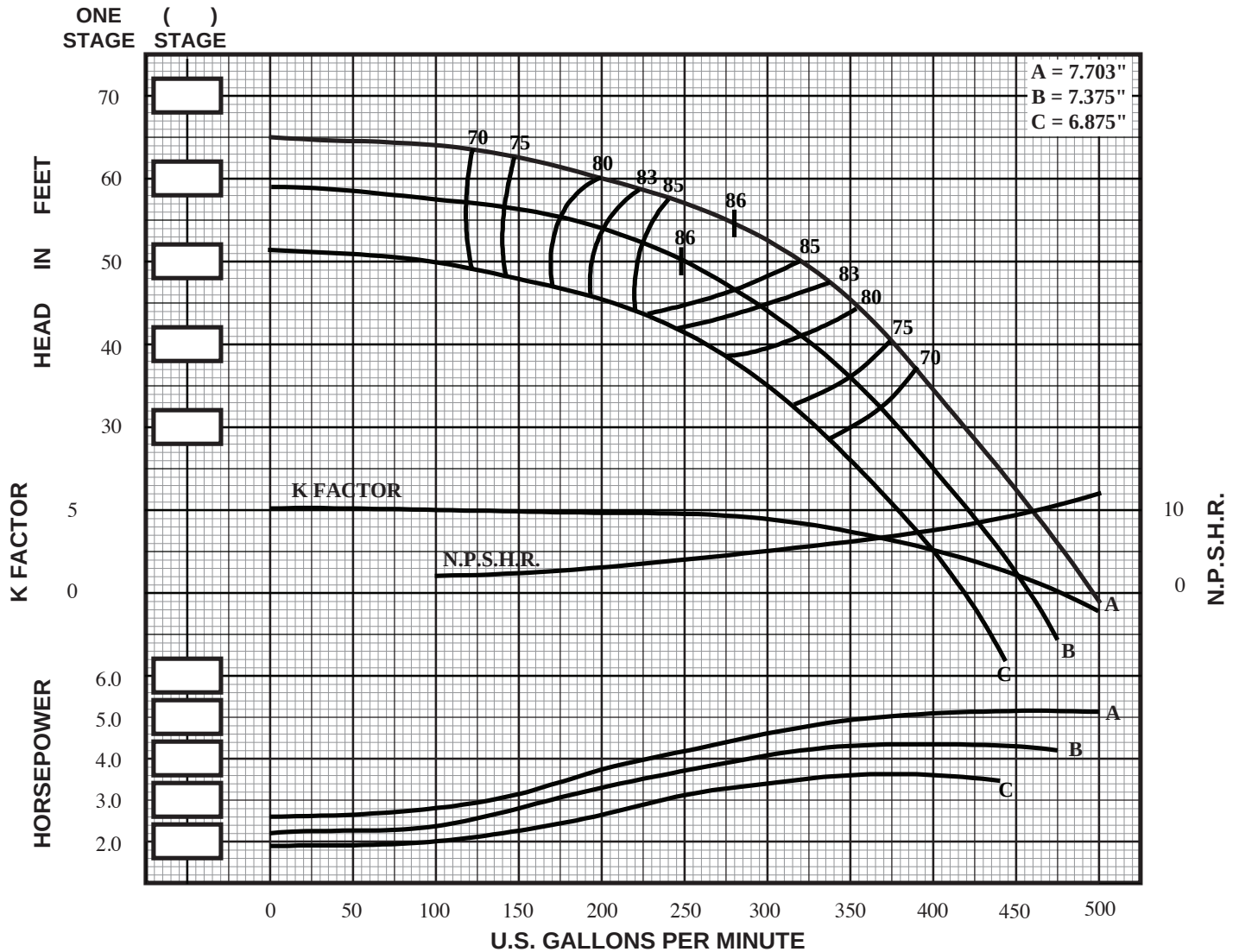


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

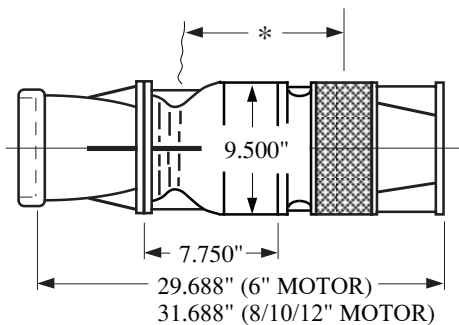
SP9L 1770 RPM



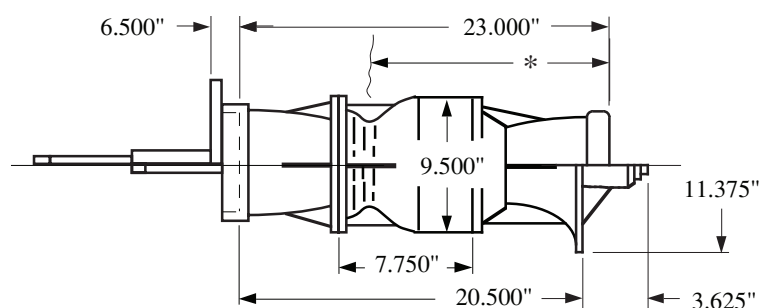
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.500"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP9L	MAX. SHAFT DIA. = 1.500"	1	-3	IMP. - C.I.	-2
IMPELLER WT. - LBS. = 9.0	STD. LATERAL = 1.19"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 150.0	DISCHARGE SIZES = 6" / 8"	3	-1	IMP. - S.S.	-3
ADD'L STAGE WT. - LBS. = 60.0	SUCTION SIZES = 6" / BELL	4	0	BOWL - BRZ.	-2
MAX. SPHERE SIZE = .53"	ONE STAGE WR ² = .286	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 15"				BOWL - S.S.	-3

Δ CONSULT FACTORY

v18.2

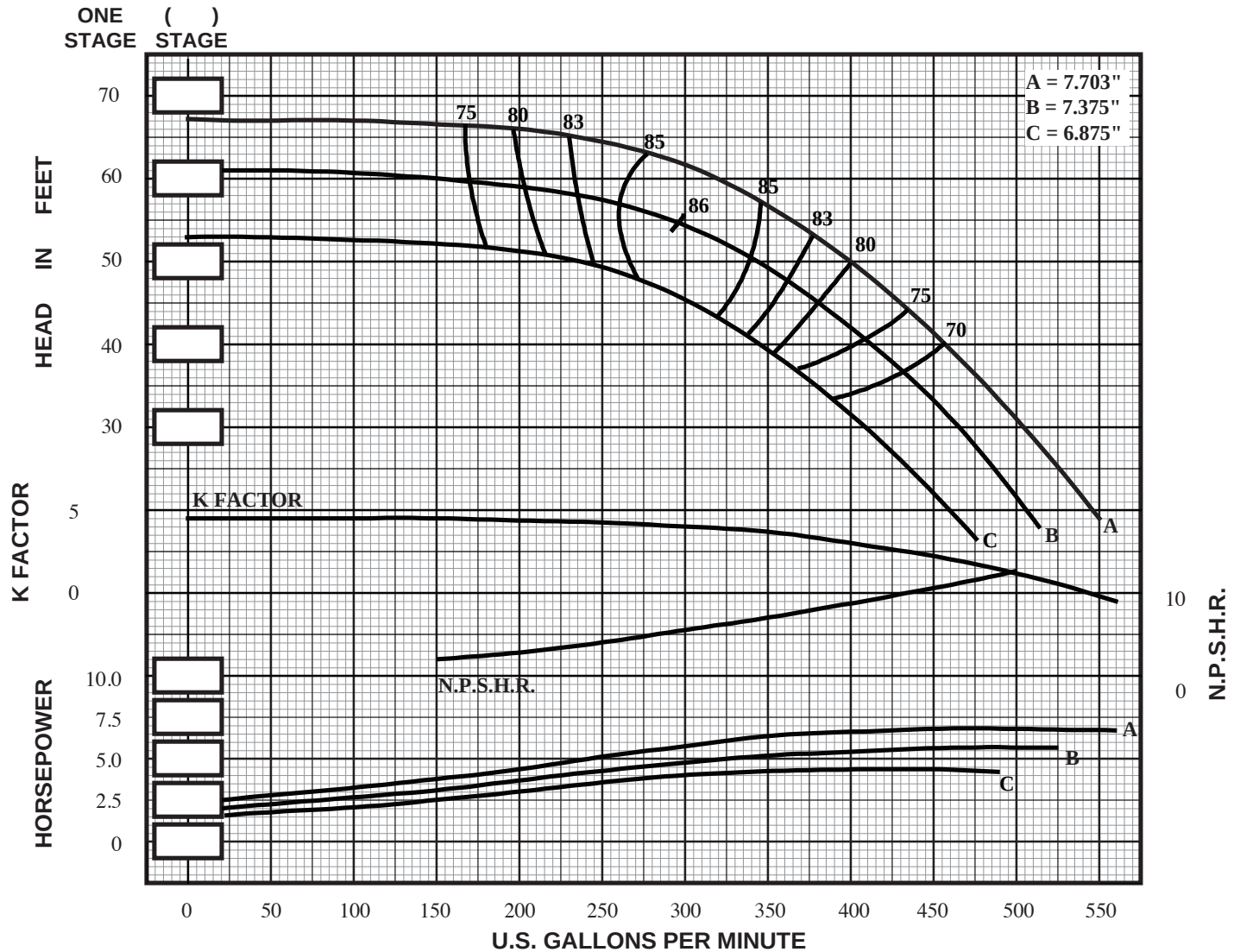


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

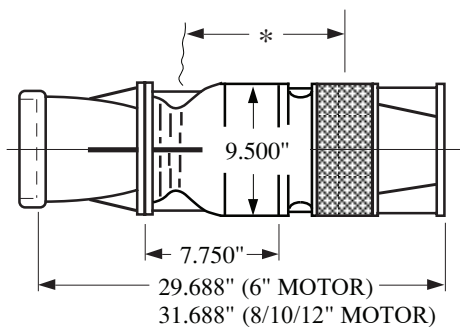
SP9M 1770 RPM



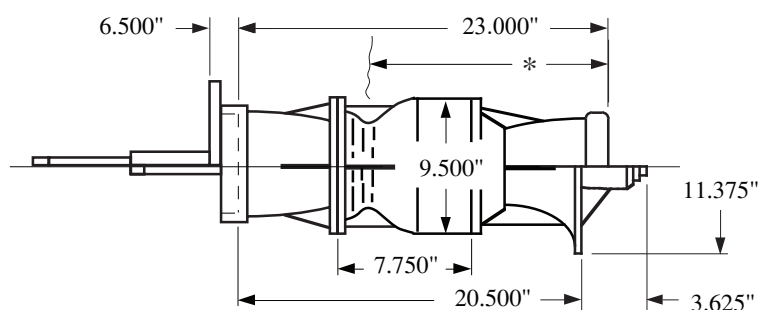
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.500"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP9M	MAX. SHAFT DIA. = 1.500"	1	-3	IMP. - C.I.	-2
IMPELLER WT. - LBS. = 9.5	STD. LATERAL = 1.19"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 150.0	DISCHARGE SIZES = 6" / 8"	3	-1	IMP. - S.S.	-3
ADD'L STAGE WT. - LBS. = 60.0	SUCTION SIZES = 6" / BELL	4	0	BOWL - BRZ.	-2
MAX. SPHERE SIZE = .53"	ONE STAGE WR ² = .303	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 15"				BOWL - S.S.	-3

Δ CONSULT FACTORY

v18.2

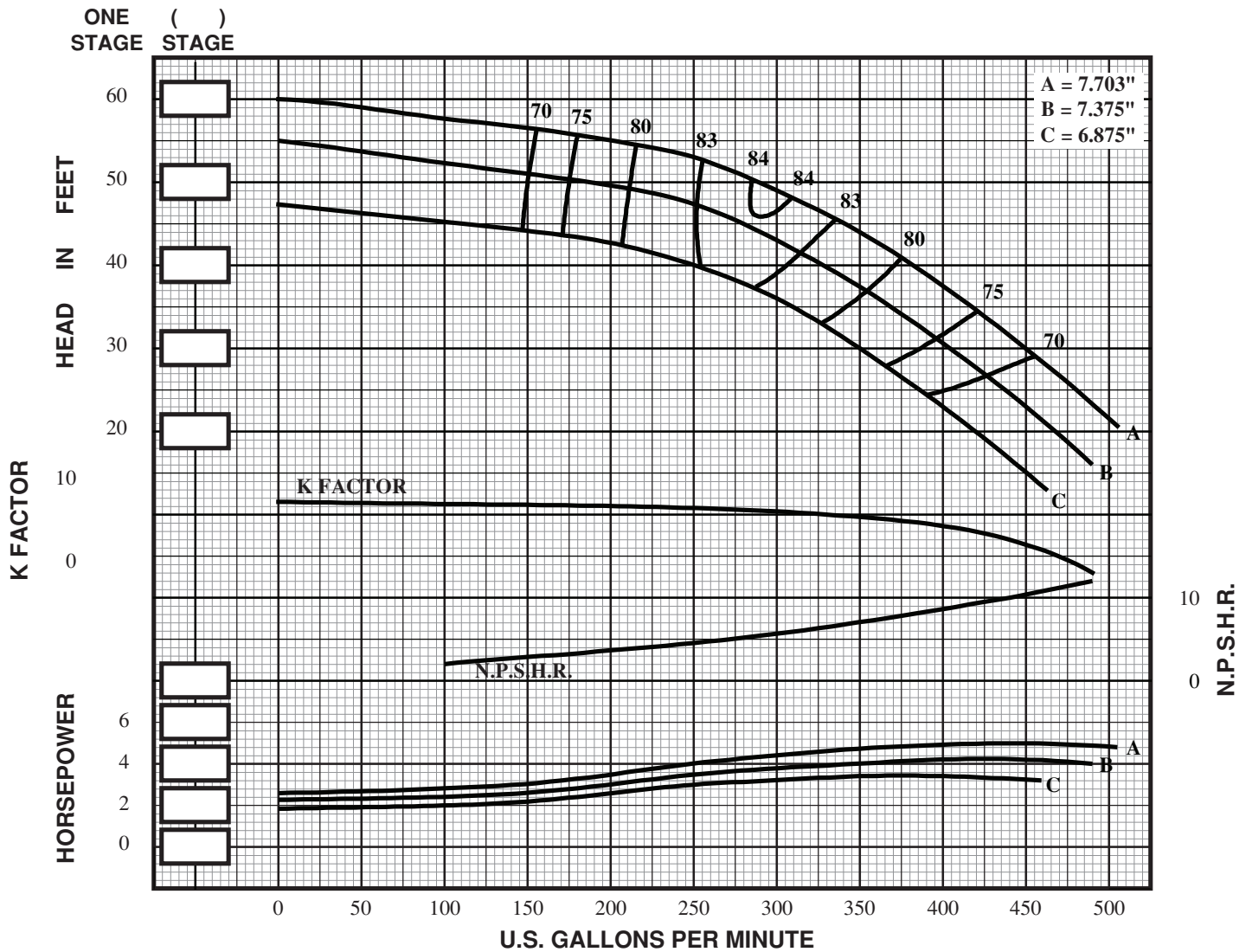


SUBMERSIBLE TURBINE



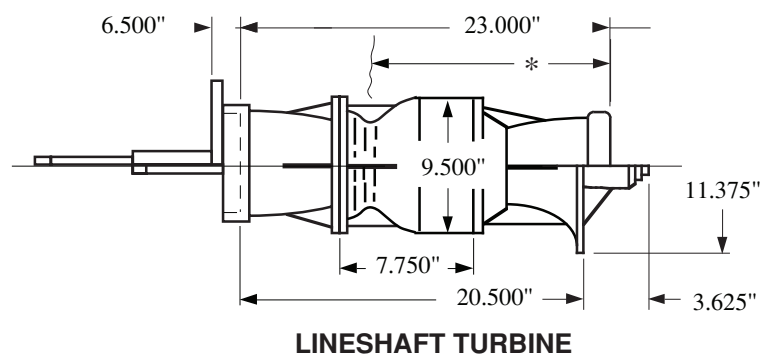
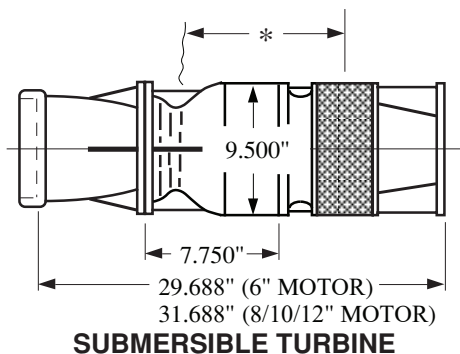
LINESHAFT TURBINE

SM9L 1770 RPM

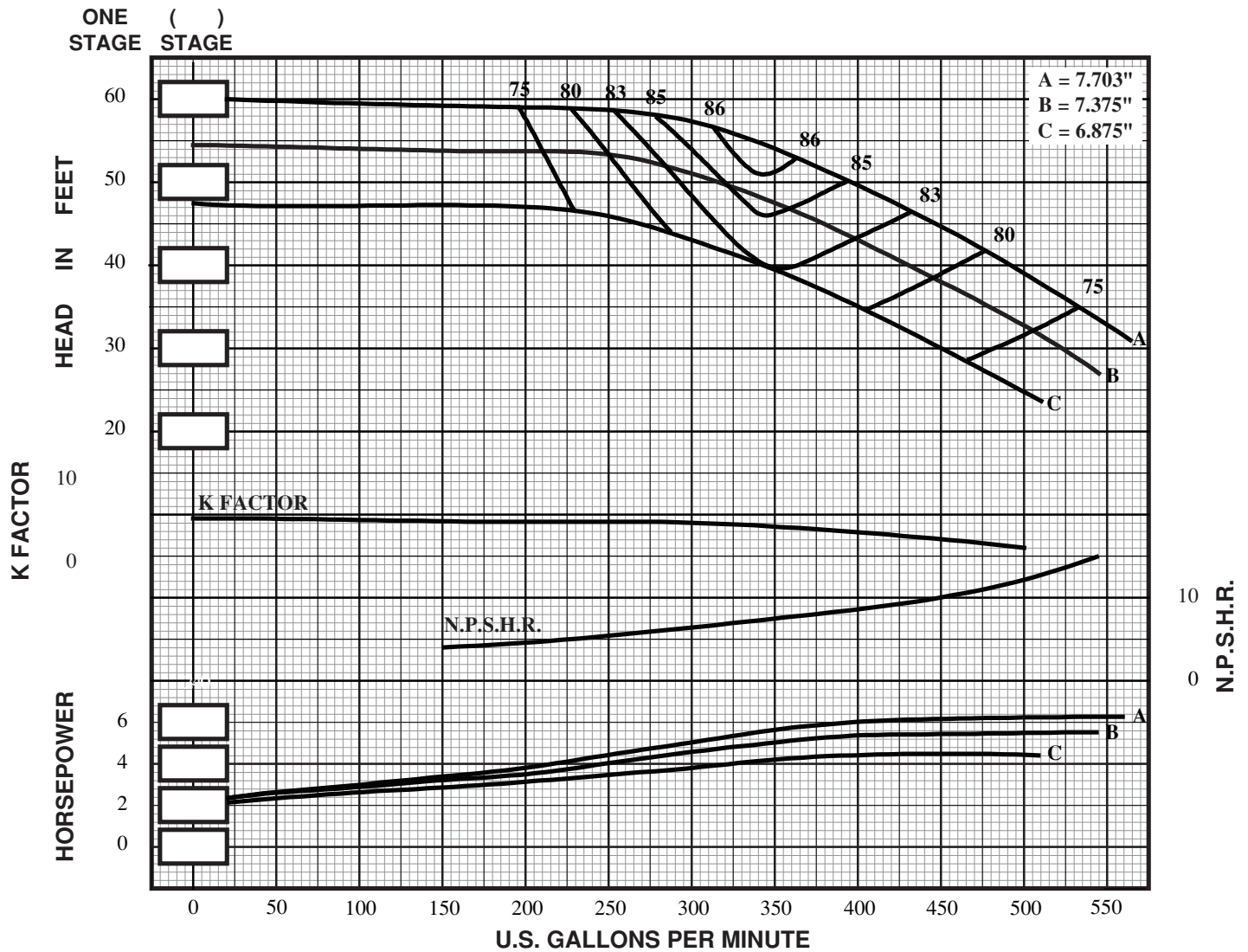


IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.500"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP9L	MAX. SHAFT DIA. = 1.500"	1	-3	IMP. - C.I.	-2
IMPELLER WT. - LBS. = 9.0	STD. LATERAL = 1.13"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 150.0	DISCHARGE SIZES = 6" / 8"	3	-1	IMP. - S.S.	-3
ADD'L STAGE WT. - LBS. = 60.0	SUCTION SIZES = 6" / BELL	4	0	BOWL - BRZ.	-2
MAX. SPHERE SIZE = .53"	ONE STAGE WR ² = .286	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE * = 15"				BOWL - S.S.	-3

Δ CONSULT FACTORY v18.2



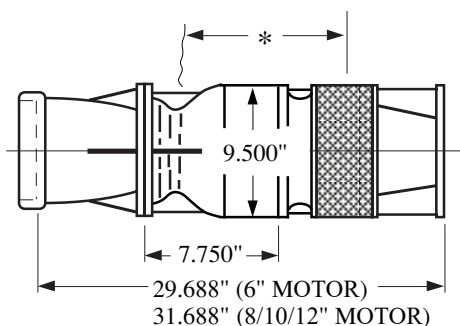
SM9M 1770 RPM



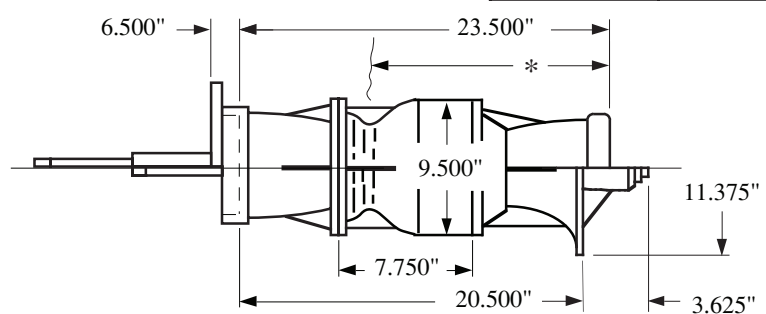
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.500"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP9M	MAX. SHAFT DIA. = 1.500"	1	-3	IMP. - C.I.	-2
IMPELLER WT. - LBS. = 9.5	STD. LATERAL = 1.13"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 150.0	DISCHARGE SIZES = 6"/ 8"	3	-1	IMP. - S.S.	-3
ADD'L STAGE WT. - LBS. = 60.0	SUCTION SIZES = 6"/ BELL	4	0	BOWL - BRZ.	-2
MAX. SPHERE SIZE = .53"	ONE STAGE WR ² = .303	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 15"				BOWL - S.S.	-3

Δ CONSULT FACTORY

v18.2

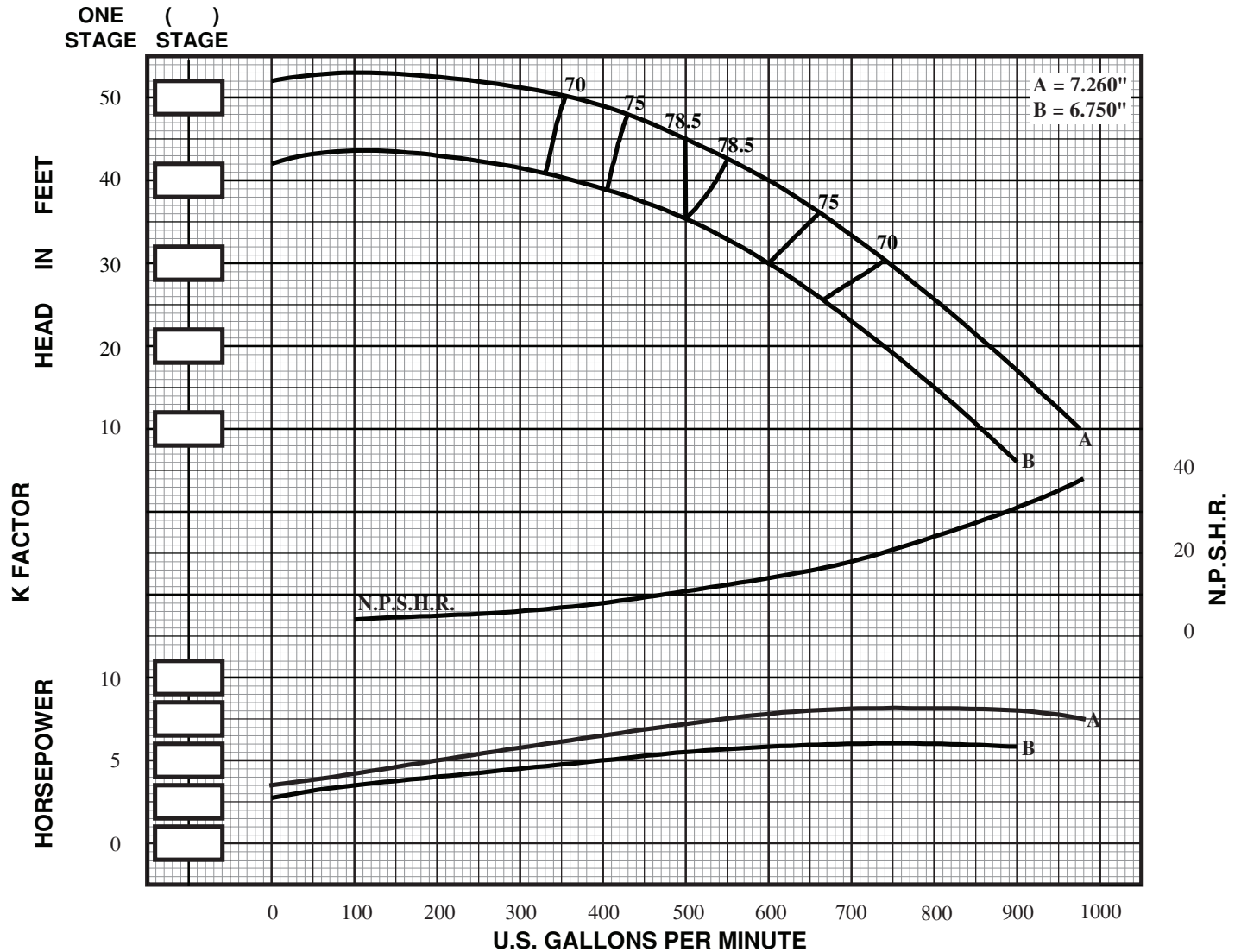


SUBMERSIBLE TURBINE



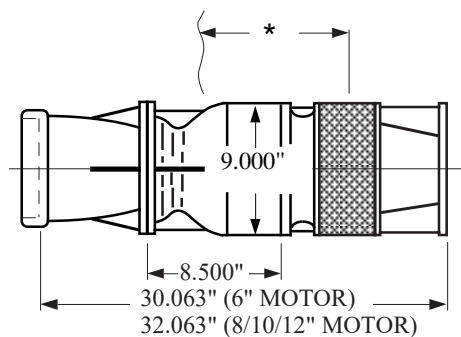
LINESHAFT TURBINE

SL9H 1770 RPM

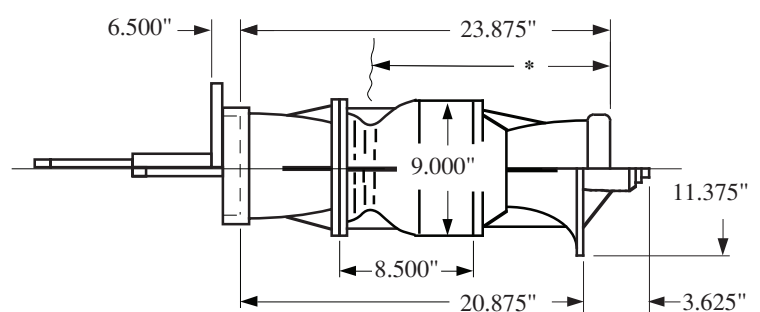


IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.500"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SL9H	MAX. SHAFT DIA. = 1.500"	1	-3	IMP. - C.I.	-2
IMPELLER WT. - LBS. = 8.7	STD. LATERAL = .94"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 135.0	DISCHARGE SIZES = 6"/8"	3	-1	IMP. - S.S.	-3
ADD'L STAGE WT. - LBS. = 53.0	SUCTION SIZES = 6"/BELL	4	0	BOWL - BRZ.	-2
MAX. SPHERE SIZE = .88"	ONE STAGE WR ² = .248	5	0	BOWL - NI-RI	-2
MIN. SUBMERGENCE* = 15"	K-FACTOR, MAX. = 5.70			BOWL - S.S.	-3

Δ CONSULT FACTORY

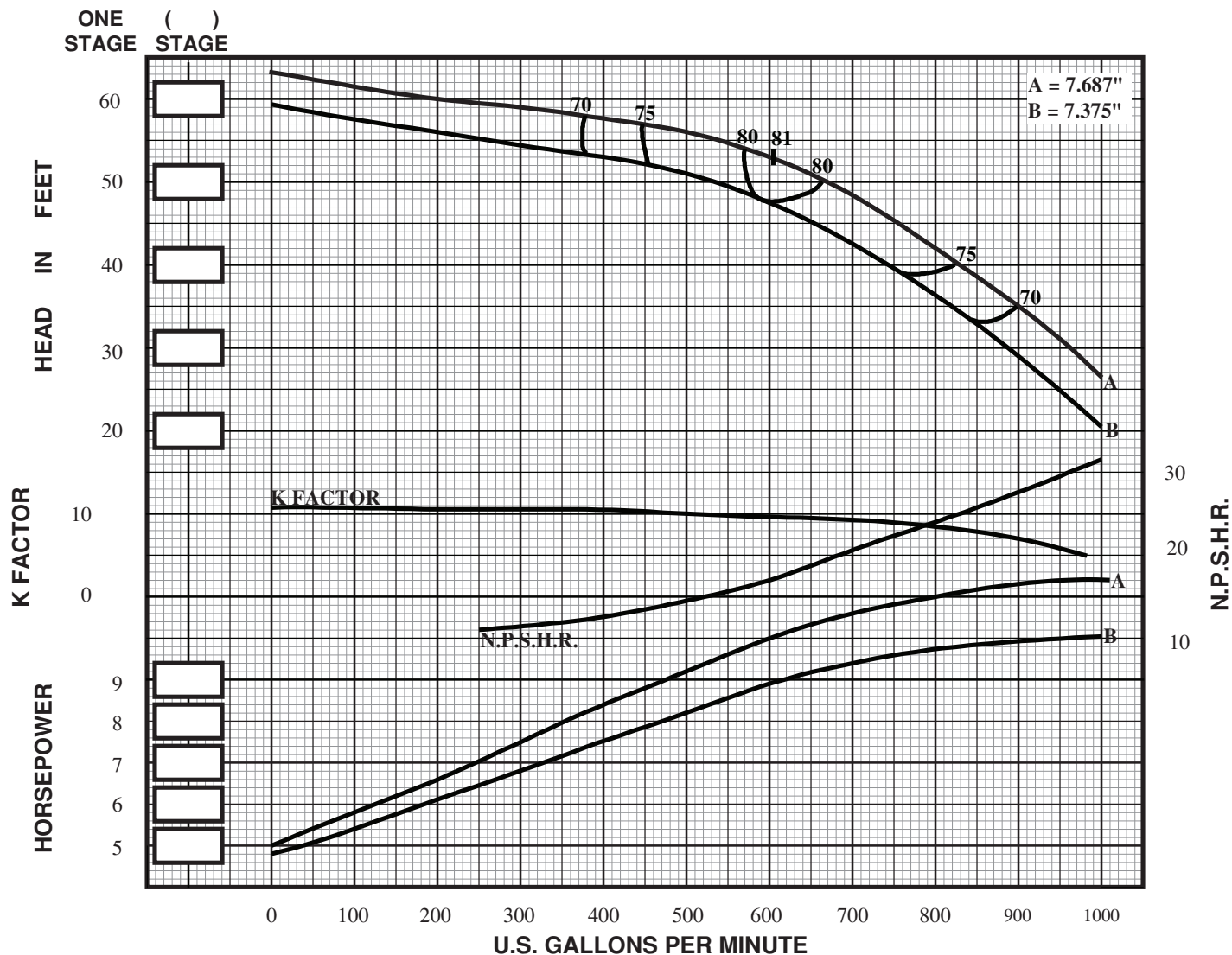


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

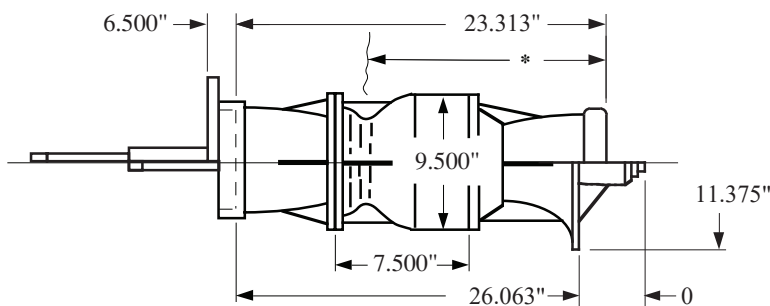
SF9H 1770 RPM



IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.500"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SF9H	MAX. SHAFT DIA. = 1.500"	1	-3	IMP. - C.I.	-2
IMPELLER WT. - LBS. = 9.0	STD. LATERAL = .94"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 185.0	DISCHARGE SIZES = 6"/ 8"	3	-1	IMP. - S.S.	-3
ADD'L STAGE WT. - LBS. = 67.0	SUCTION SIZES = 6"	4	0	BOWL - BRZ.	-2
MAX. SPHERE SIZE = .88"	ONE STAGE WR ² = .291	5	0	BOWL - NI-RI	-2
MIN. SUBMERGENCE* = 15"				BOWL - S.S.	-3

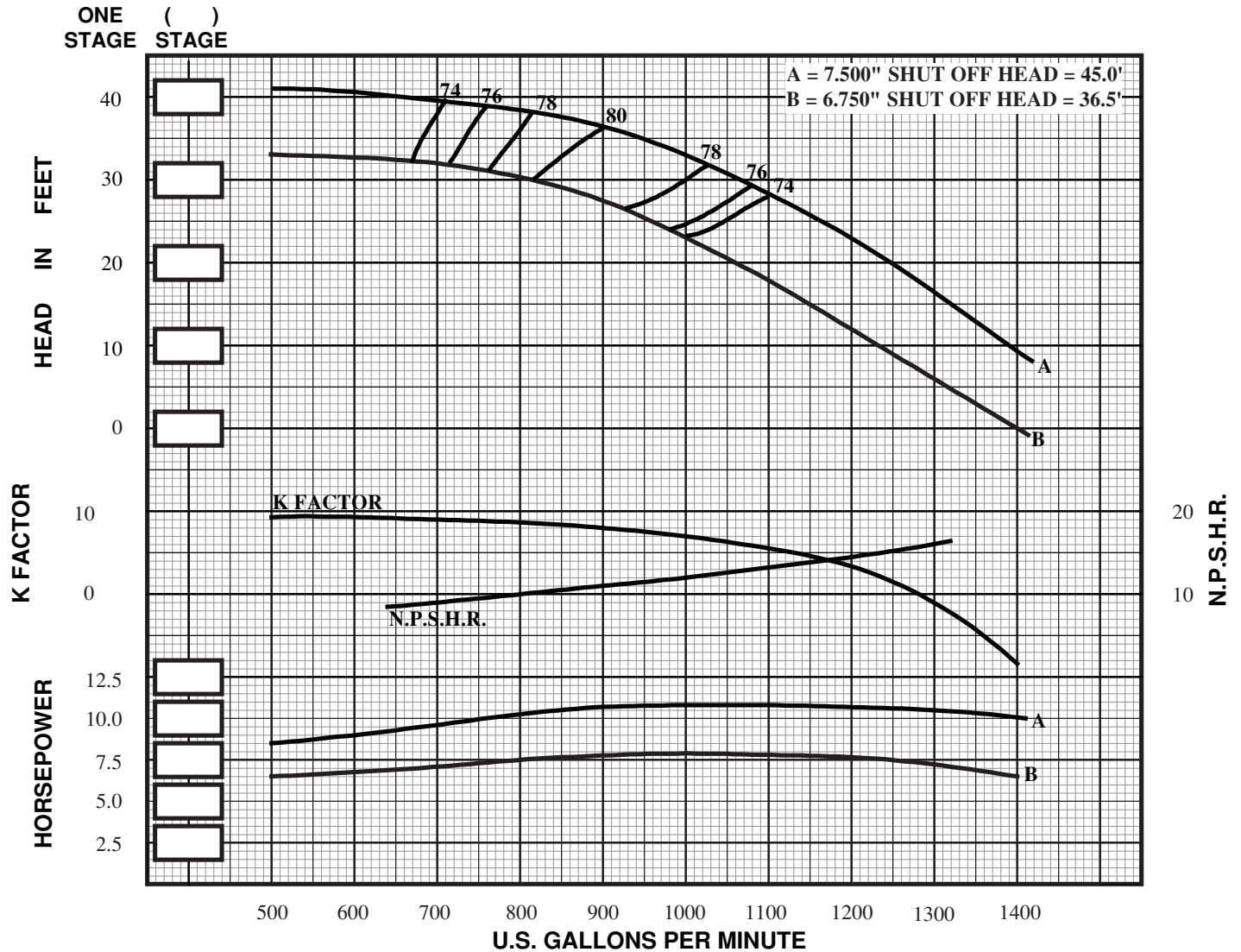
Δ CONSULT FACTORY

v18.1



LINESHAFT TURBINE

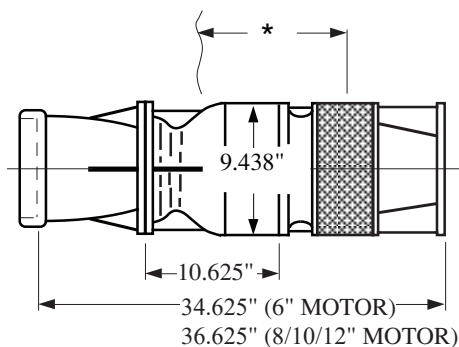
SK9M 1770 RPM



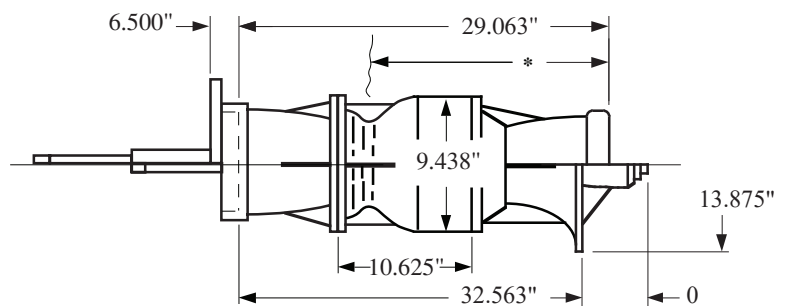
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.688"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SK9M	MAX. SHAFT DIA. = 1.688"				
IMPELLER WT. - LBS. = 14.9	STD. LATERAL = 1.44"	1	-4	IMP. - C.I.	-3
ONE STAGE WT. - LBS. = 250.0	DISCHARGE SIZES = 8"	2	-3	IMP. - NI-RI	-2
ADD'L STAGE WT. - LBS. = 85.0	SUCTION SIZES = 8"	3	-2	IMP. - S.S.	NOT RECOM.
MAX. SPHERE SIZE = 1.13"	ONE STAGE WR ² = .462	4	-1	BOWL - BRZ.	-2
MIN. SUBMERGENCE* = 18"		5	0	BOWL - NI-RI	-1
				BOWL - S.S.	-3

Δ CONSULT FACTORY

v18.1

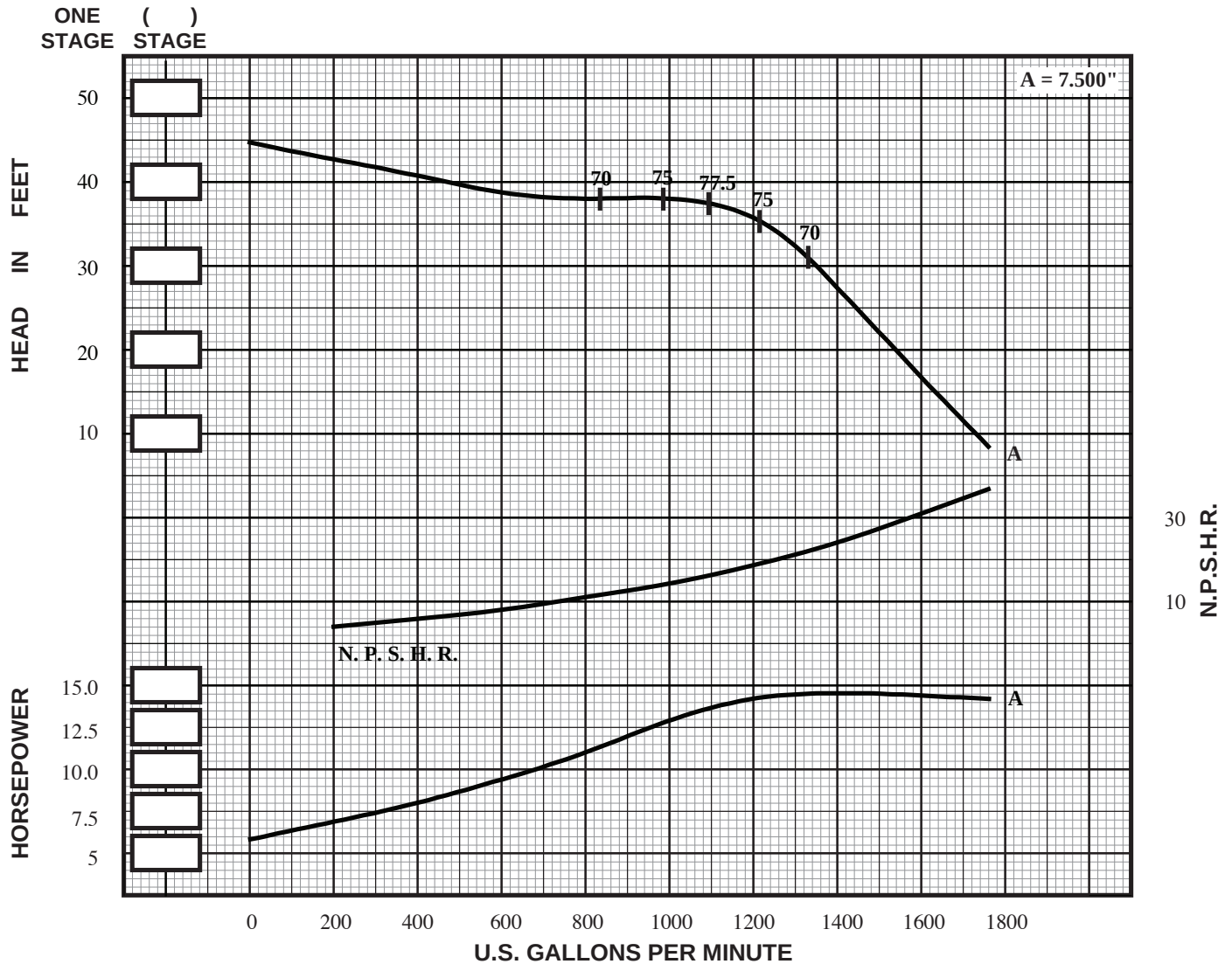


SUBMERSIBLE TURBINE



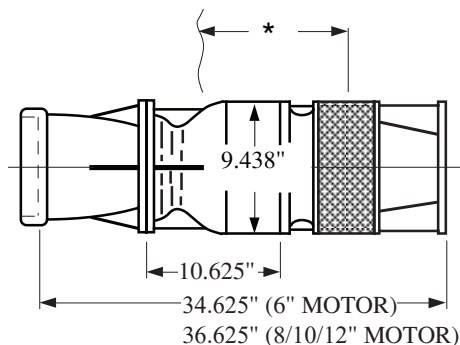
LINESHAFT TURBINE

SK9H 1770 RPM

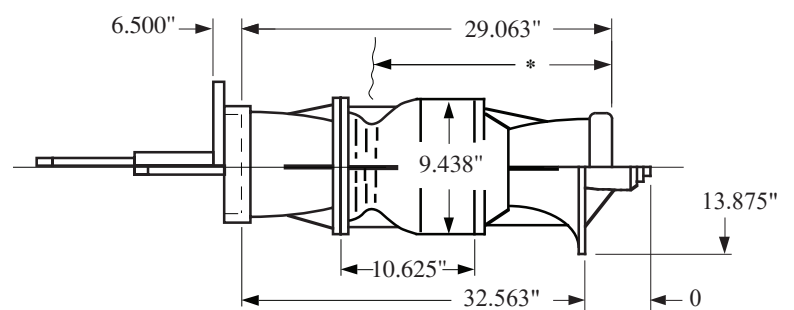


IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.688"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SK9H	MAX. SHAFT DIA. = 1.688"	1	-3	IMP. - C.I.	-3
IMPELLER WT. - LBS. = 13.1	STD. LATERAL = 1.00"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 250.0	DISCHARGE SIZES = 8"	3	-1	IMP. - S.S.	NOT RECOM.
ADD'L STAGE WT. - LBS. = 85.0	SUCTION SIZES = 8"	4	-1	BOWL - BRZ.	-2
MAX. SPHERE SIZE = 1.13"	ONE STAGE WR ² = .421	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 18"	K-FACTOR, MAX. = 9.9			BOWL - S.S.	-3

Δ CONSULT FACTORY v18.1

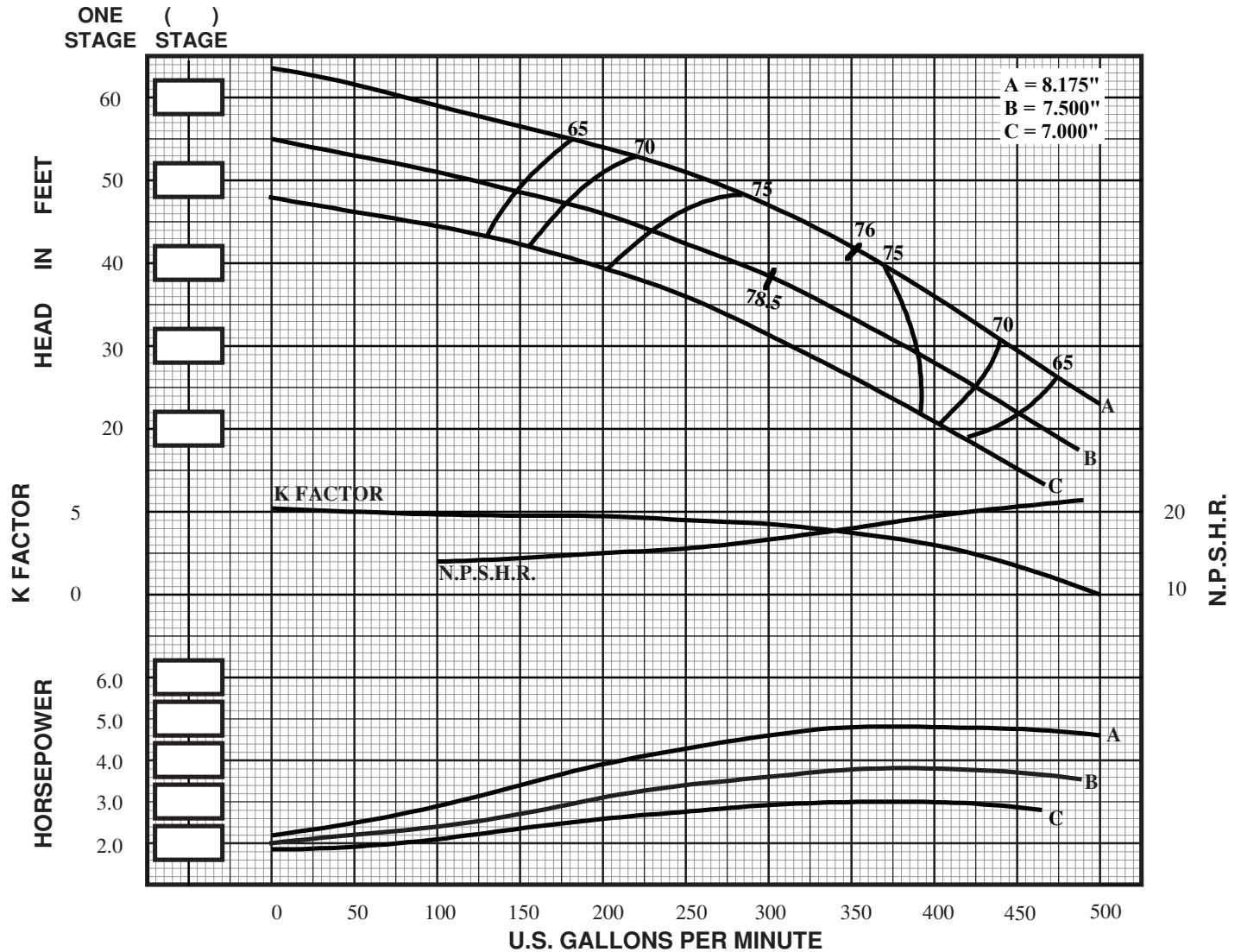


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

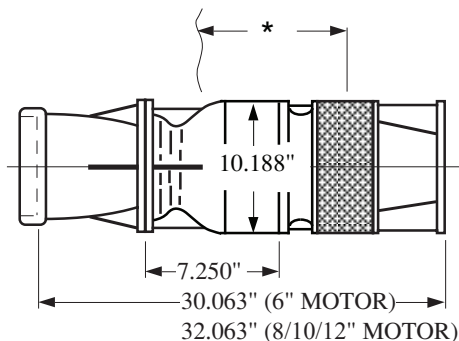
SP10L 1770 RPM



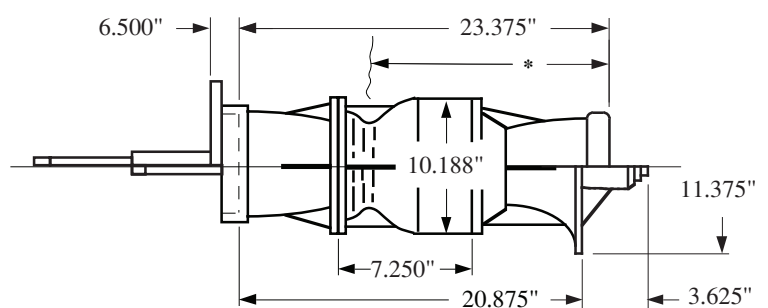
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IMPELLER NO. = SP10L	MAX. SHAFT DIA. = 1.500"	1	-4	IMP. - C.I.	-3
IMPELLER WT. - LBS. = 8.1	STD. LATERAL = .94"	2	-3	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 190.0	DISCHARGE SIZES = 6"/8"	3	-2	IMP. - S.S.	-3
ADD'L STAGE WT. - LBS. = 75.0	SUCTION SIZES = 6"/BELL	4	-1	BOWL - BRZ.	-2
MAX. SPHERE SIZE = .50"	ONE STAGE WR ² = .295	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 14"				BOWL - S.S.	-3

Δ CONSULT FACTORY

v18.1



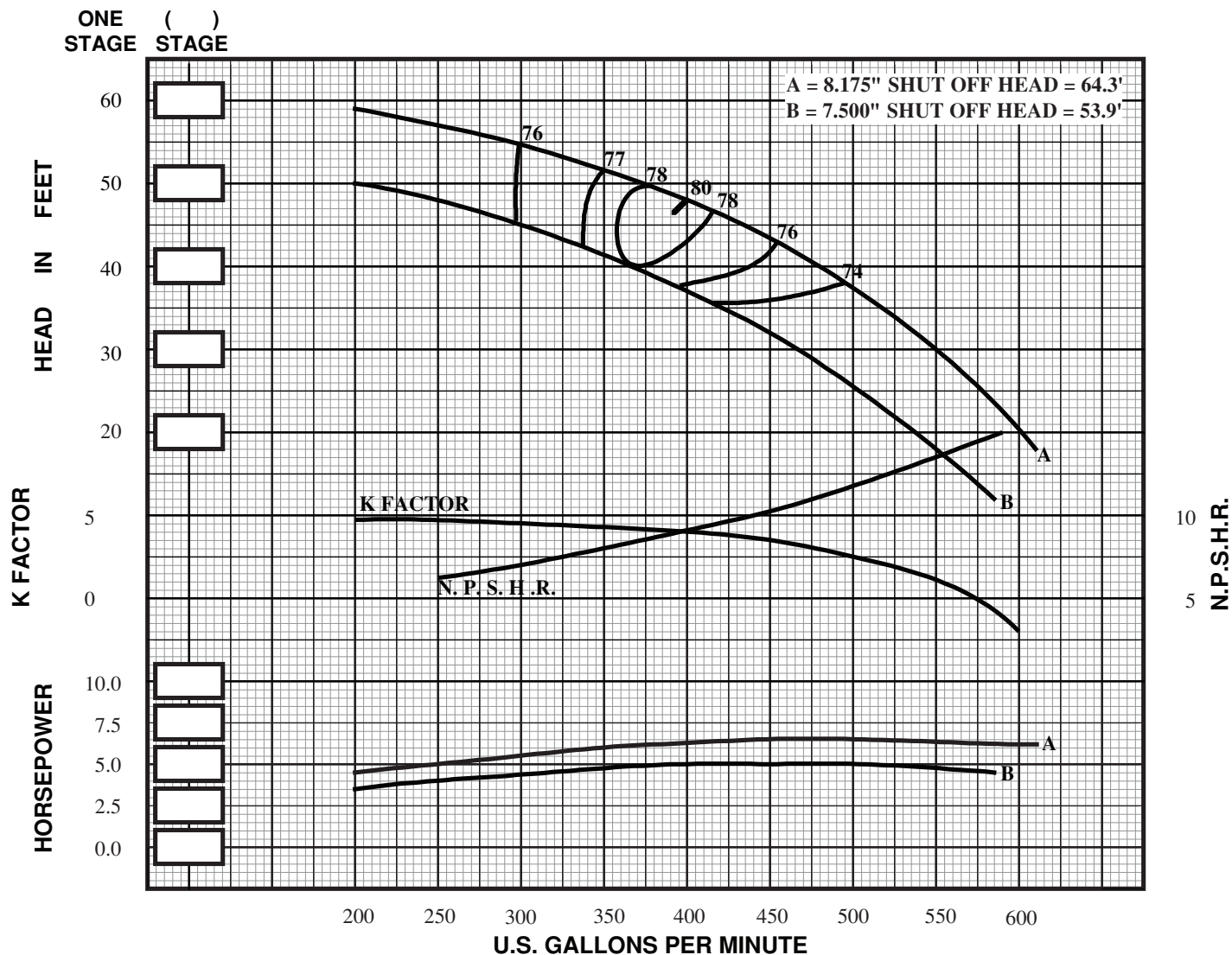
SUBMERSIBLE TURBINE



LINESHAFT TURBINE

SP10M

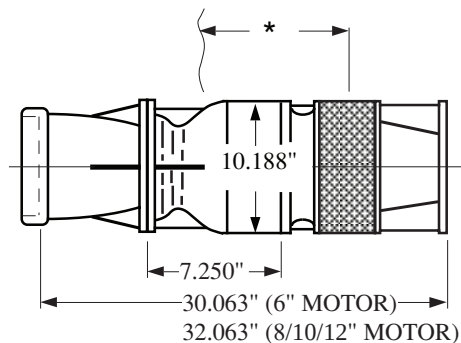
1770 RPM



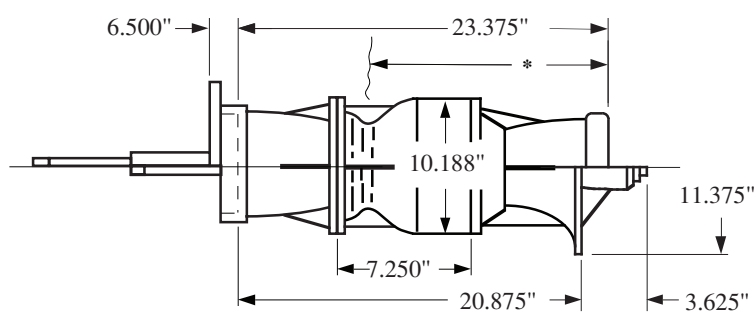
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.500"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP10M	MAX. SHAFT DIA. = 1.500"	1	-3	IMP. - C.I.	-3
IMPELLER WT. - LBS. = 8.9	STD. LATERAL = .94"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 190.0	DISCHARGE SIZES = 6"/ 8"	3	-1	IMP. - S.S.	-3
ADD'L STAGE WT. - LBS. = 75.0	SUCTION SIZES = 6"/ BELL	4	0	BOWL - BRZ.	-2
MAX. SPHERE SIZE = .50"	ONE STAGE WR ² = .324	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 14"				BOWL - S.S.	-3

Δ CONSULT FACTORY

v18.1



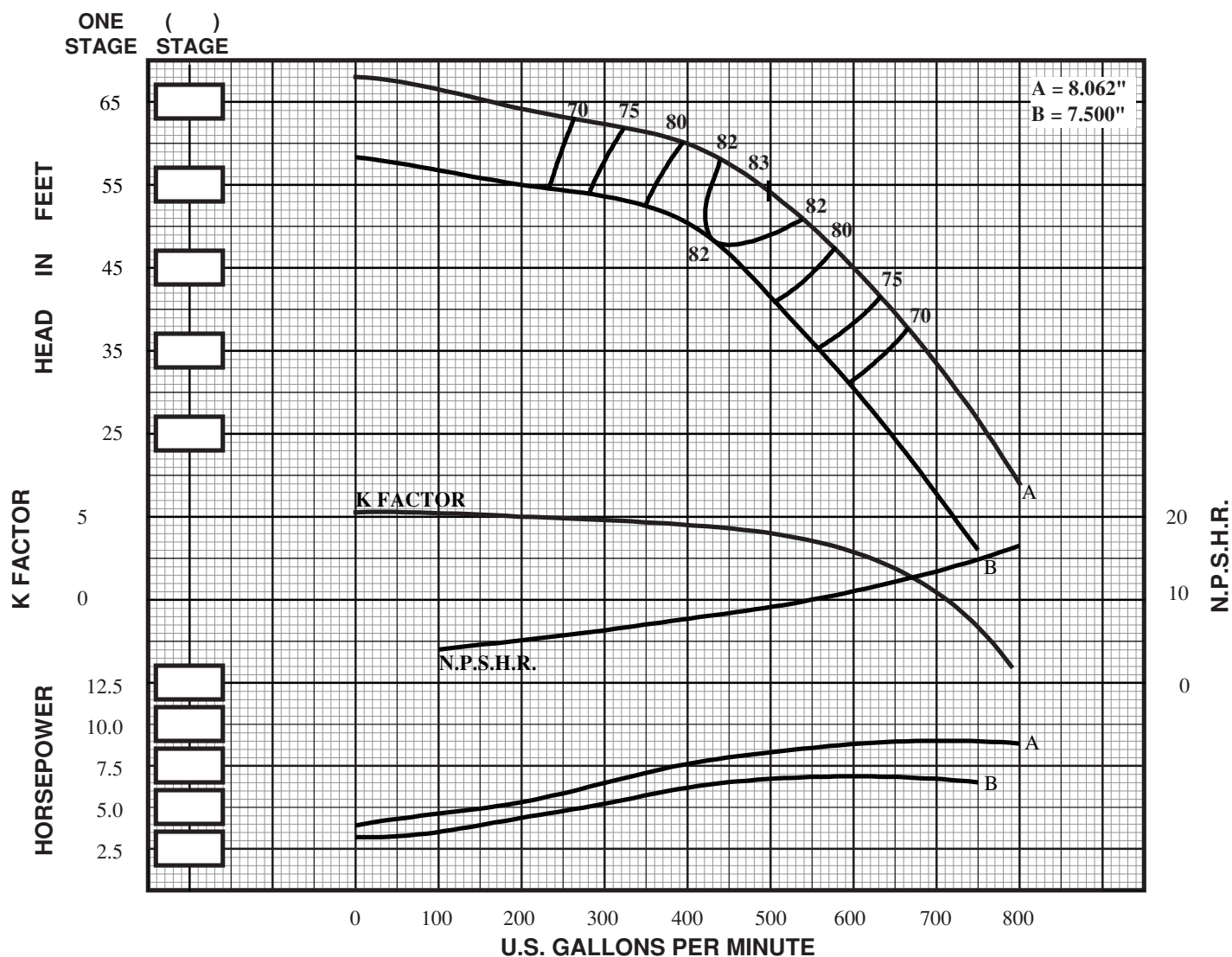
SUBMERSIBLE TURBINE



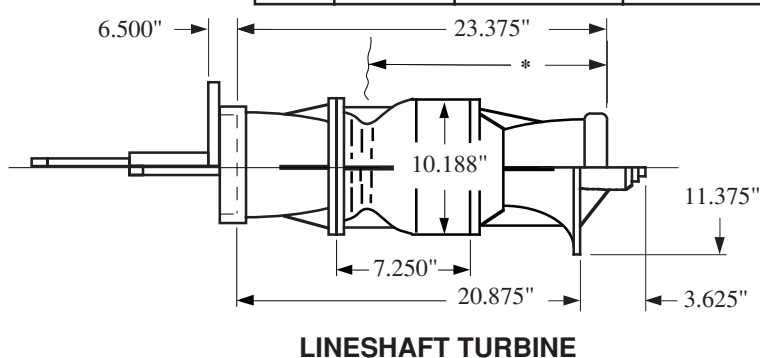
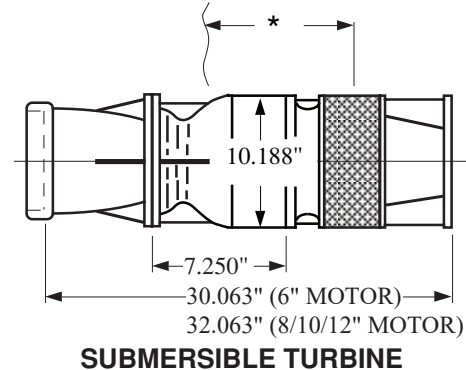
LINESHAFT TURBINE

SP10H

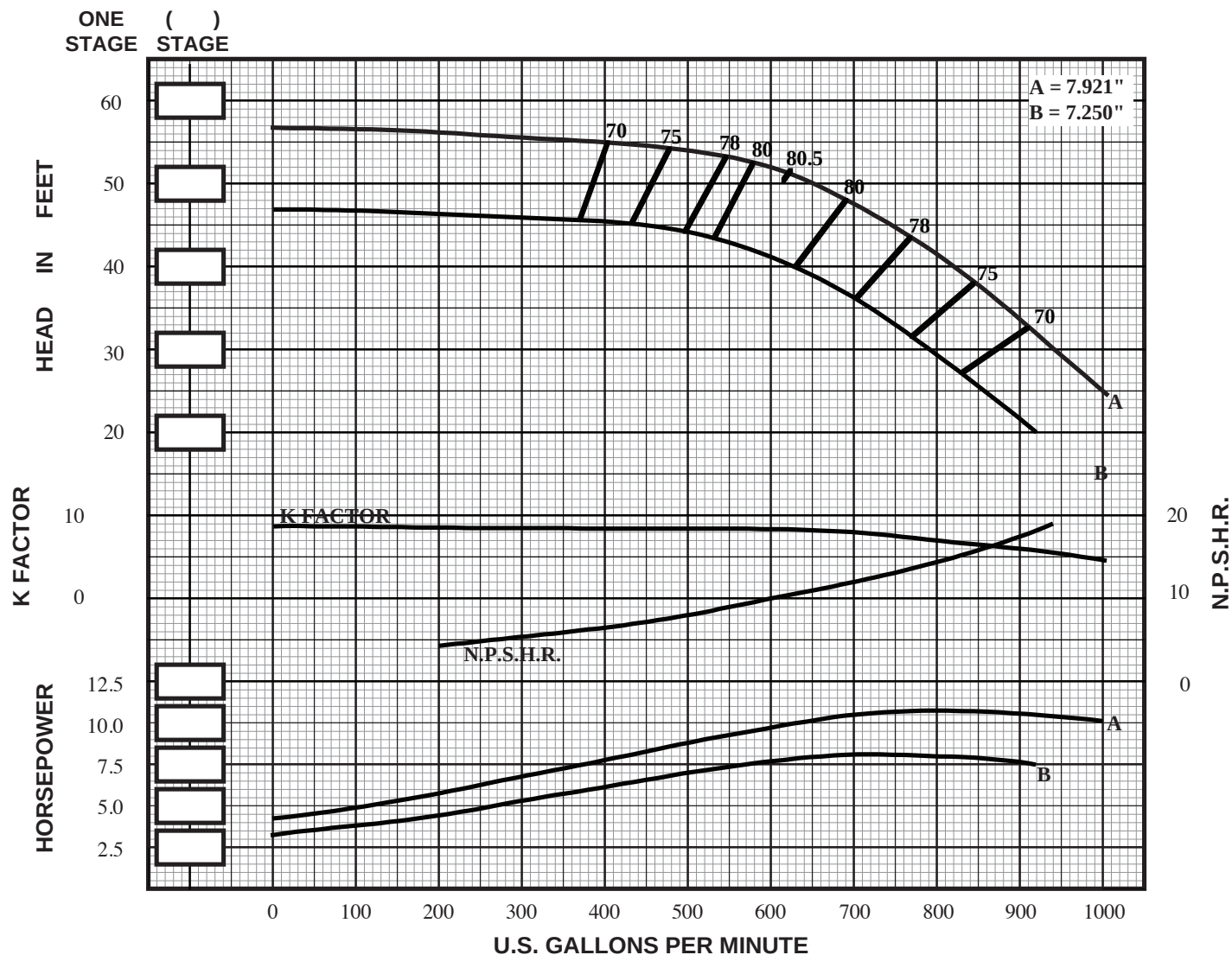
1770 RPM



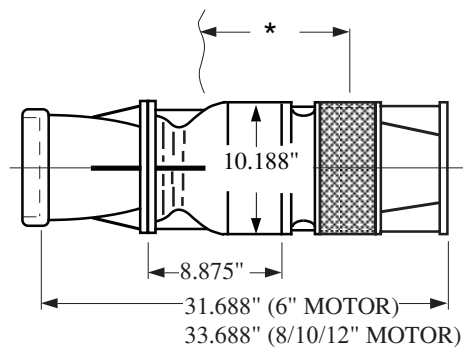
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.500"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP10H	MAX. SHAFT DIA. = 1.500"	1	-4	IMP. - C.I.	-3
IMPELLER WT. - LBS. = 9.0	STD. LATERAL = .63"	2	-3	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 190.0	DISCHARGE SIZES = 6"/8"	3	-2	IMP. - S.S.	-2
ADD'L STAGE WT. - LBS. = 75.0	SUCTION SIZES = 6"/BELL	4	-1	BOWL - BRZ.	-3
MAX. SPHERE SIZE = .63"	ONE STAGE WR ² = .315	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 14"				BOWL - S.S.	-3



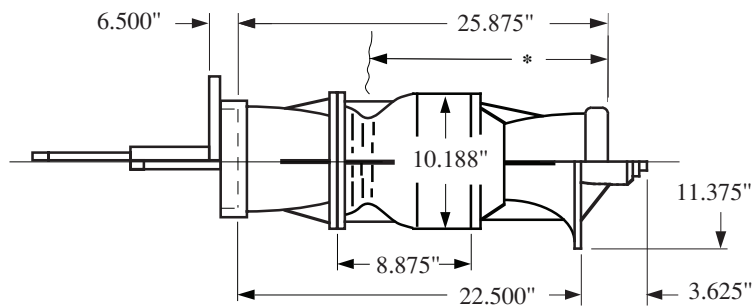
SM10MO
1770 RPM



IMPELLER TYPE = SEMI-OPEN	STD. SHAFT DIA. = 1.500"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SM10MO	MAX. SHAFT DIA. = 1.500"				
IMPELLER WT. - LBS. = 6.1	STD. LATERAL = 1.00"	1	-4	IMP. - C.I.	-4
ONE STAGE WT. - LBS. = 190.0	DISCHARGE SIZES = 6" / 8"	2	-3	IMP. - NI-RI	-2
ADD'L STAGE WT. - LBS. = 75.0	SUCTION SIZES = 6" / BELL	3	-2	IMP. - S.S.	NOT RECOM
MAX. SPHERE SIZE = .81"	ONE STAGE WR ² = .217	4	-1	BOWL - BRZ.	-2
MIN. SUBMERGENCE* = 16"	=	5	0	BOWL - NI-RI	-1
Δ CONSULT FACTORY	v18.1			BOWL - S.S.	-3

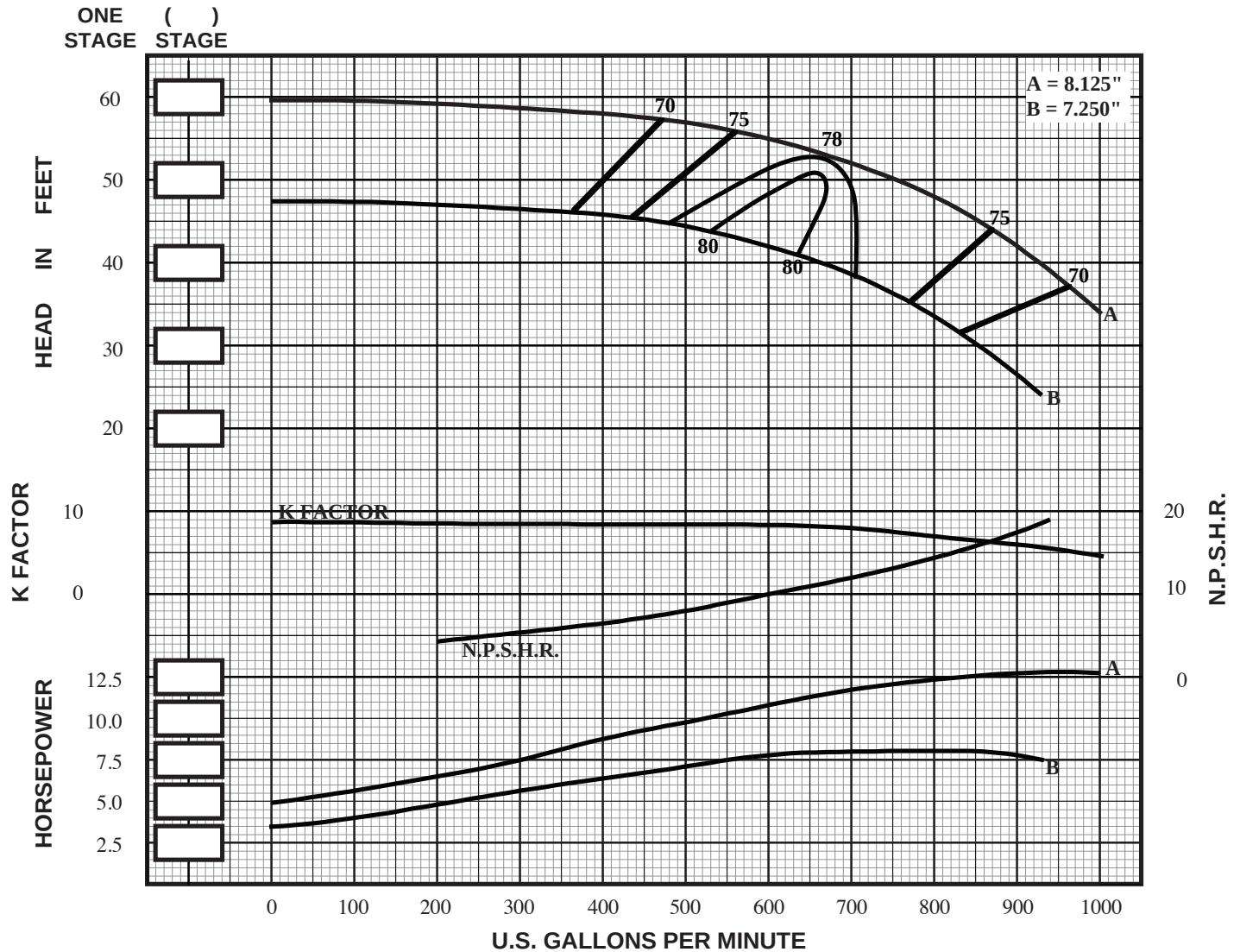


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

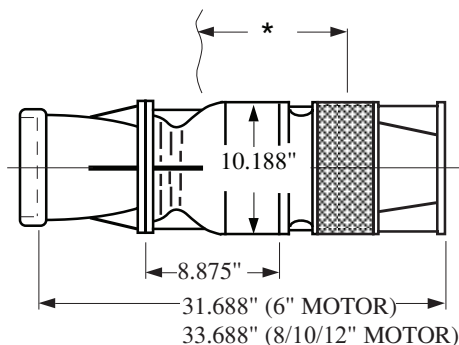
SM10HO 1770 RPM



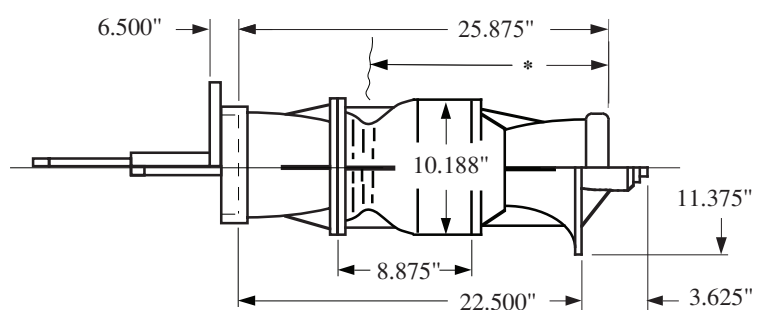
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IMPELLER NO. = SM10HO	MAX. SHAFT DIA. = 1.500"	1	-4	IMP. - C.I.	-4
IMPELLER WT. - LBS. = 6.1	STD. LATERAL = 1.31"	2	-3	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 190.0	DISCHARGE SIZES = 6" / 8"	3	-2	IMP. - S.S.	NOT RECOM.
ADD'L STAGE WT. - LBS. = 75.0	SUCTION SIZES = 6" / BELL	4	-1	BOWL - BRZ.	-2
MAX. SPHERE SIZE = .81"	ONE STAGE WR ² = .217	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 16"				BOWL - S.S.	-3

Δ CONSULT FACTORY

v18.1

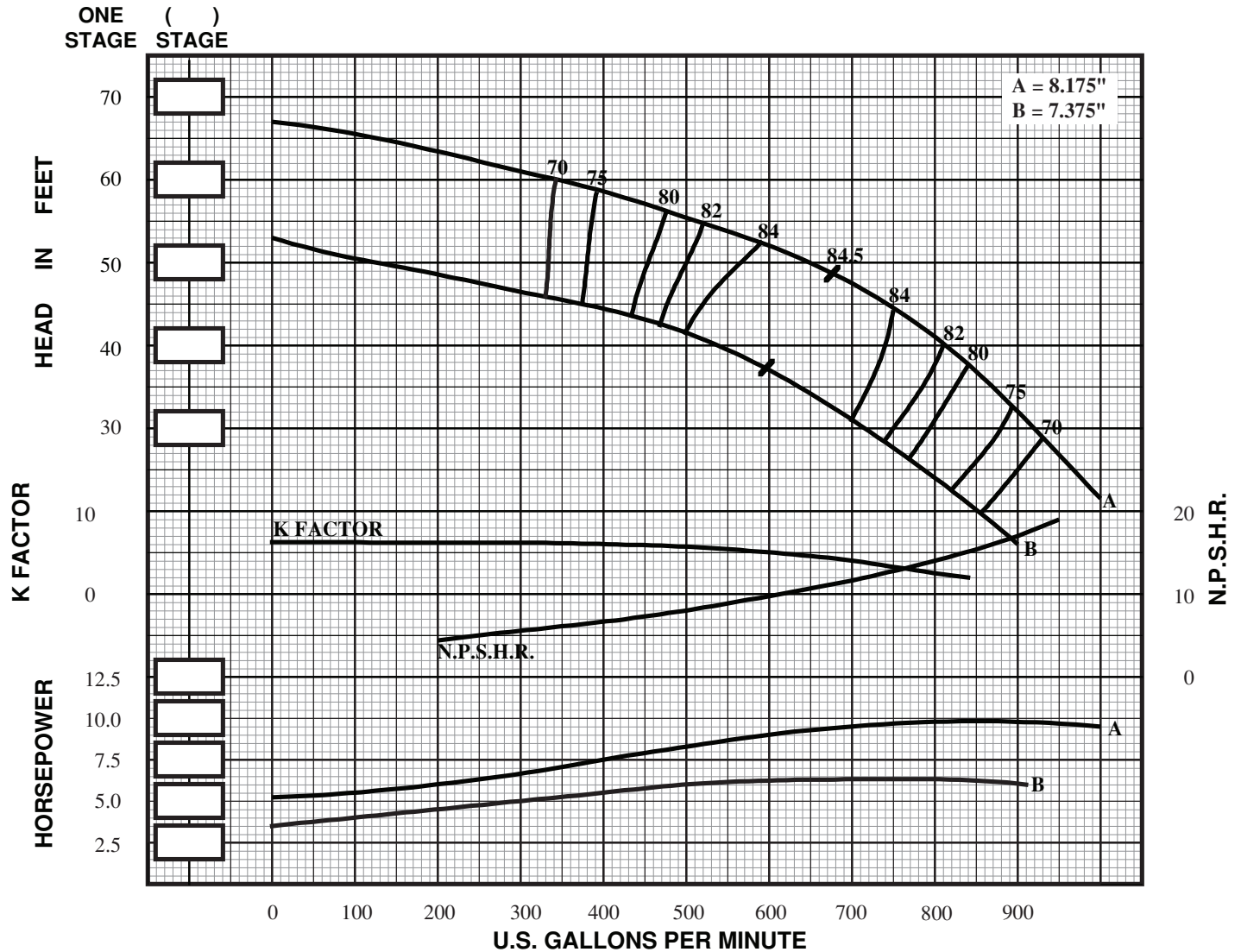


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

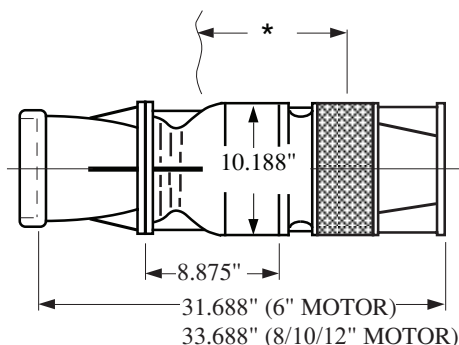
SM10M 1770 RPM



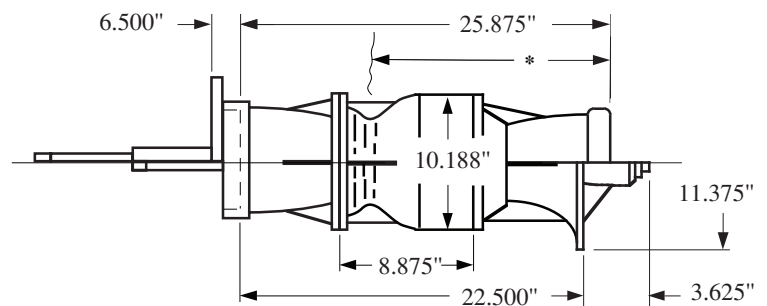
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.500"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SM10M	MAX. SHAFT DIA. = 1.500"	1	-4	IMP. - C.I.	-3
IMPELLER WT. - LBS. = 9.7	STD. LATERAL = .81"	2	-3	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 195.0	DISCHARGE SIZES = 6"/ 8"	3	-2	IMP. - S.S.	-4
ADD'L STAGE WT. - LBS. = 75.0	SUCTION SIZES = 6"/ BELL	4	-1	BOWL - BRZ.	-2
MAX. SPHERE SIZE = .88"	ONE STAGE WR ² = .347	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 16"				BOWL - S.S.	-2

Δ CONSULT FACTORY

v18.1

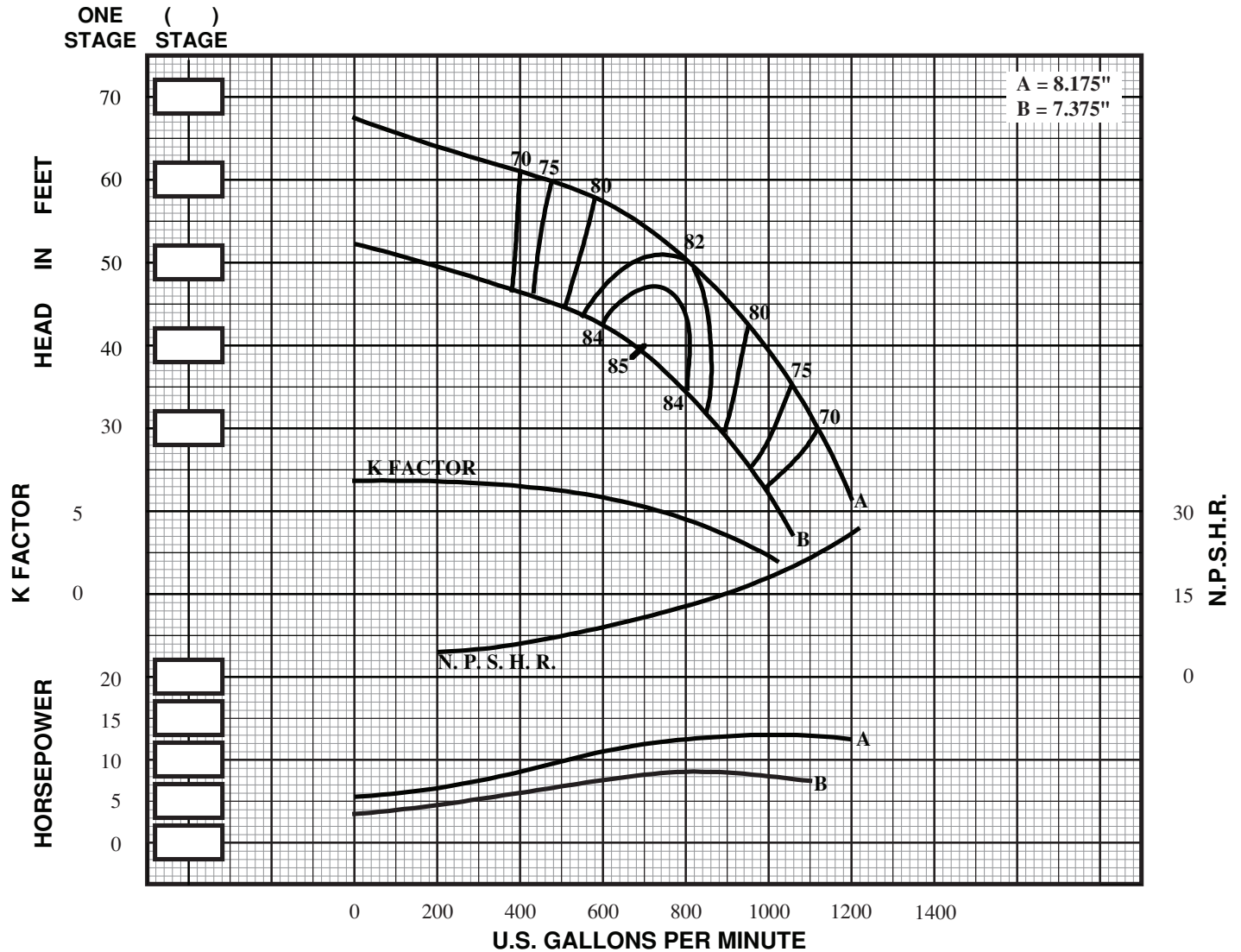


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

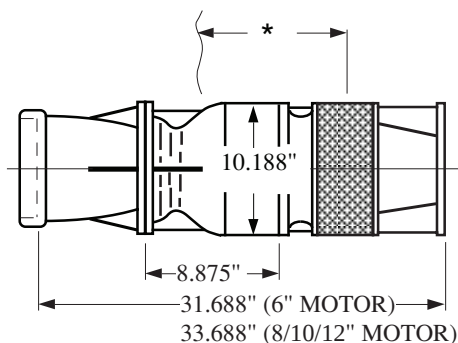
SM10H 1770 RPM



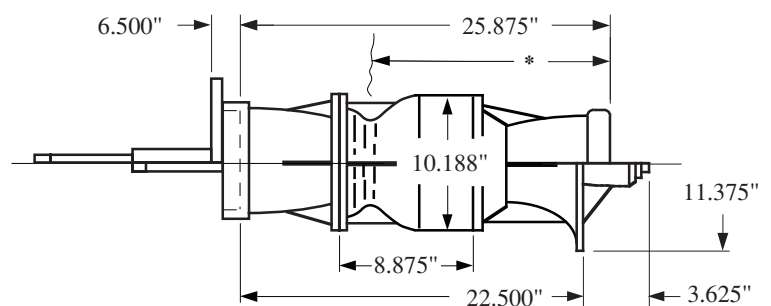
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IMPELLER NO. = SM10H	MAX. SHAFT DIA. = 1.500"	1	-4	IMP. - C.I.	-3
IMPELLER WT. - LBS. = 10.8	STD. LATERAL = .81"	2	-3	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 195.0	DISCHARGE SIZES = 6"/ 8"	3	-2	IMP. - S.S.	-4
ADD'L STAGE WT. - LBS. = 75.0	SUCTION SIZES = 6"/ BELL	4	-1	BOWL - BRZ.	-2
MAX. SPHERE SIZE = .88"	ONE STAGE WR ² = .386	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 16"				BOWL - S.S.	-2

Δ CONSULT FACTORY

v18.1

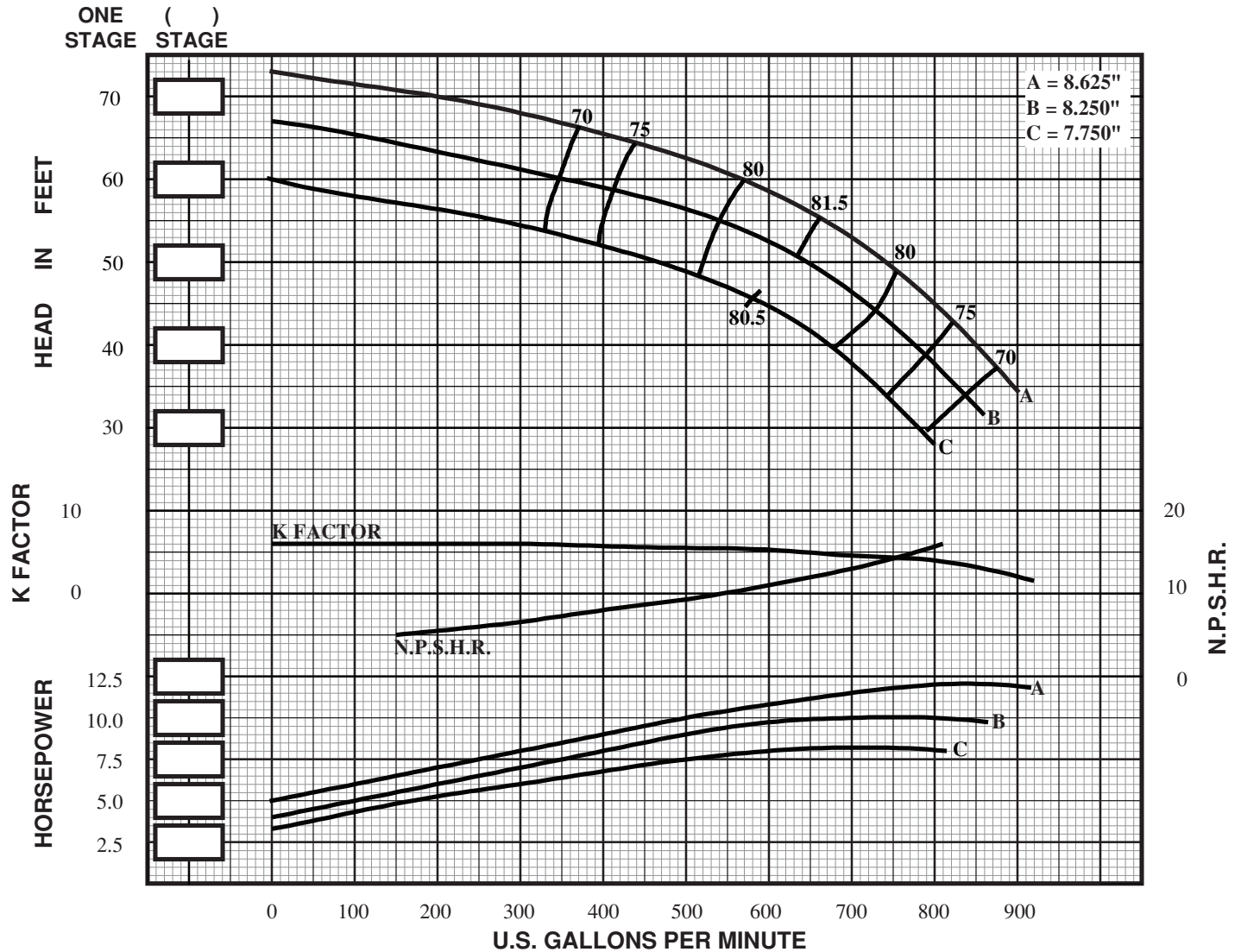


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

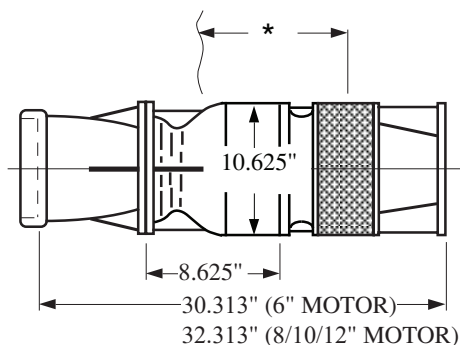
SM11M 1770 RPM



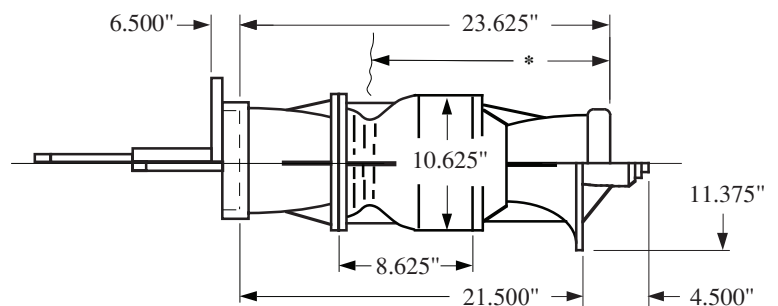
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IMPELLER NO. = SM11M	MAX. SHAFT DIA. = 1.500"	1	-3	IMP. - C.I.	-3
IMPELLER WT. - LBS. = 9.5	STD. LATERAL = .88"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 195.0	DISCHARGE SIZES = 6"/ 8"/ 10"	3	-1	IMP. - S.S.	-4
ADD'L STAGE WT. - LBS. = 75.0	SUCTION SIZES = 6"/ BELL	4	0	BOWL - BRZ.	-2
MAX. SPHERE SIZE = .81"	ONE STAGE WR ² = .382	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 14"				BOWL - S.S.	-3

Δ CONSULT FACTORY

v18.1

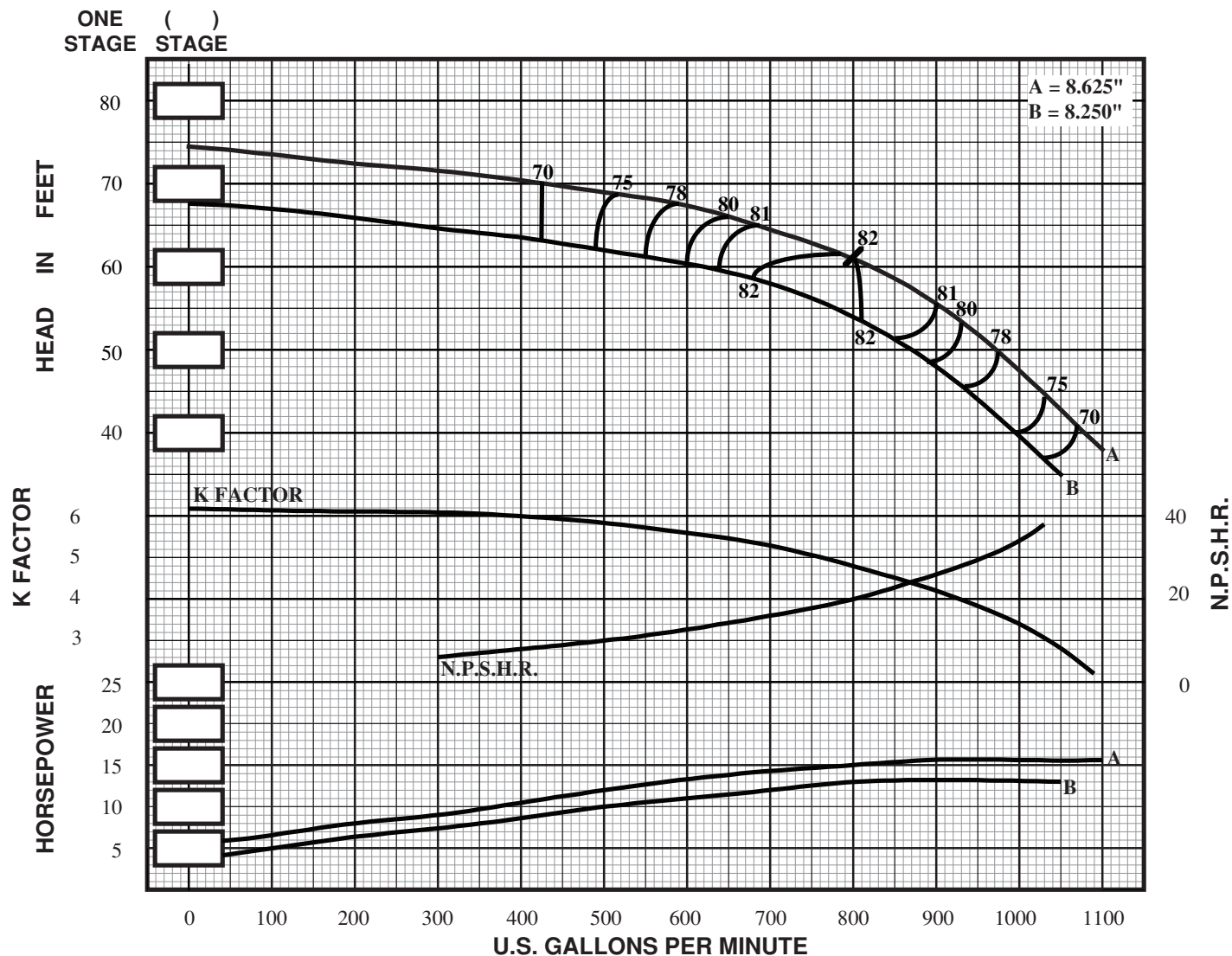


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

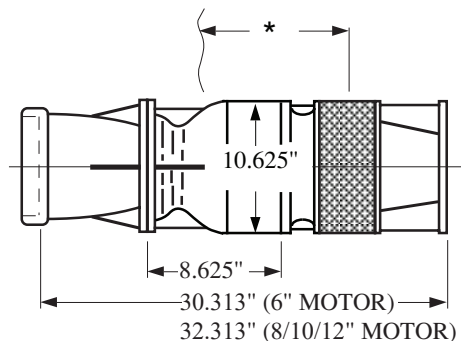
SM11H 1770 RPM



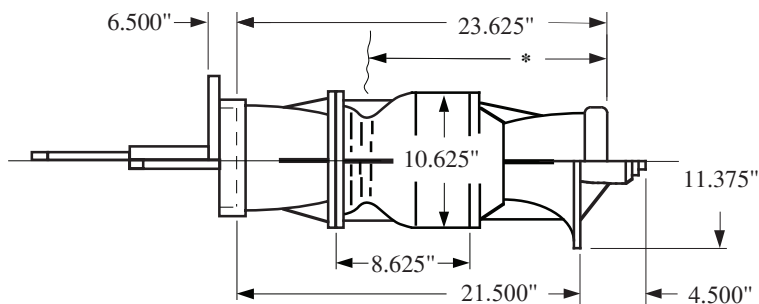
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.500"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SM11H	MAX. SHAFT DIA. = 1.500"	1	-3	IMP. - C.I.	-3
IMPELLER WT. - LBS. = 11.0	STD. LATERAL = .94"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 195.0	DISCHARGE SIZES = 6"/ 8"/ 10"	3	-1	IMP. - S.S.	-4
ADD'L STAGE WT. - LBS. = 75.0	SUCTION SIZES = 6"/ BELL	4	0	BOWL - BRZ.	-2
MAX. SPHERE SIZE = .81"	ONE STAGE WR ² = .450	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 14"				BOWL - S.S.	-3

Δ CONSULT FACTORY

v18.1

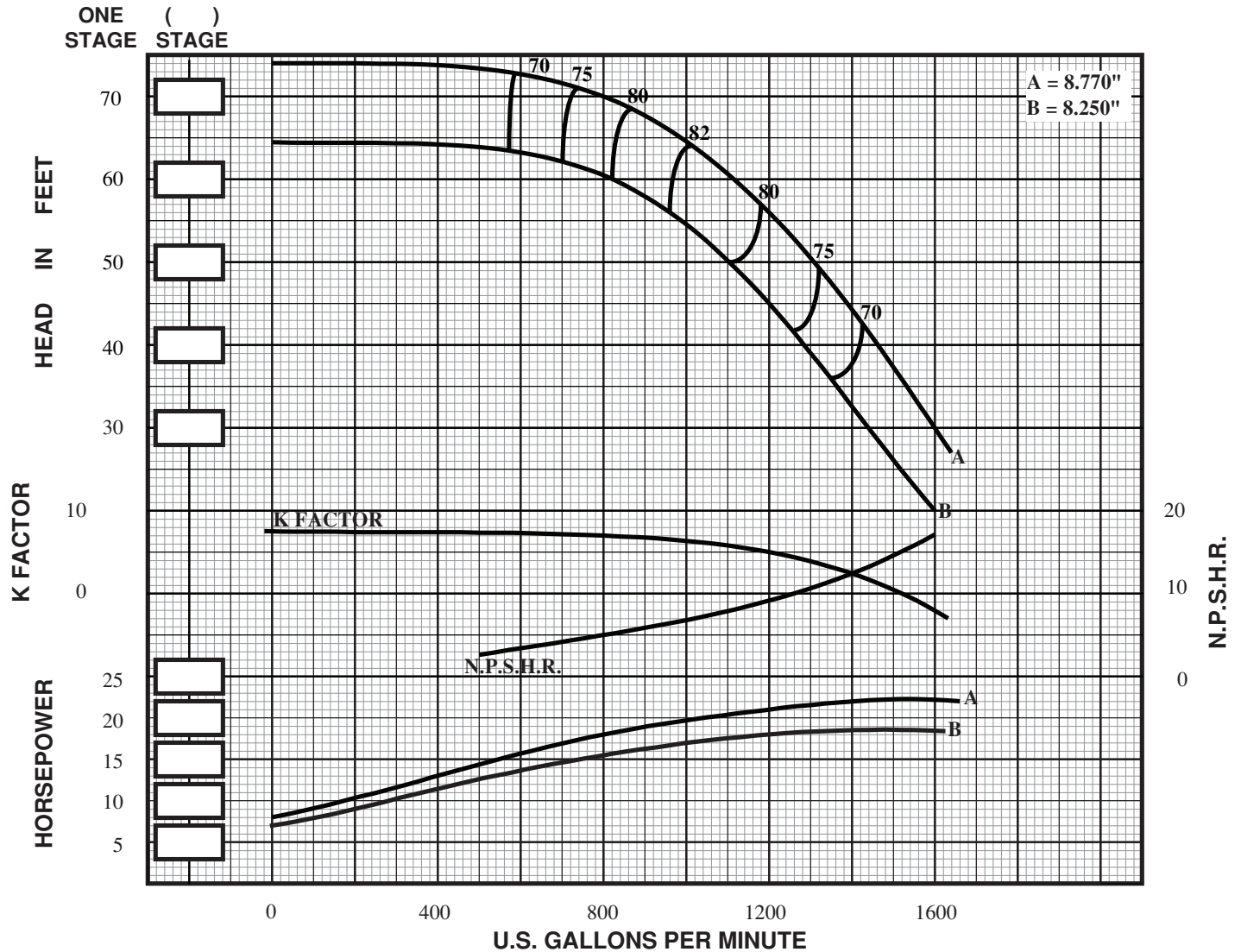


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

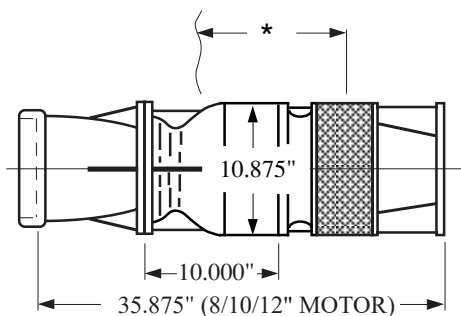
SL11H 1770 RPM



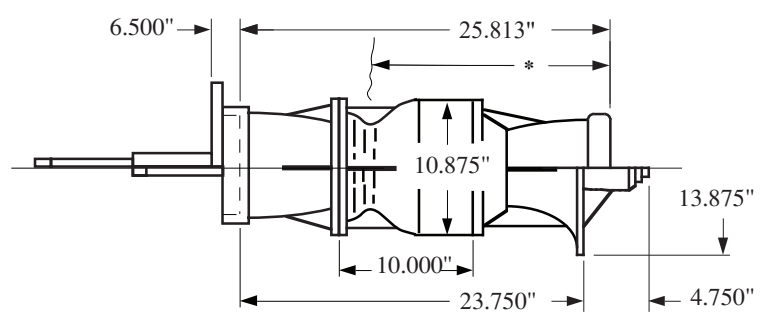
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.688"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SL11H	MAX. SHAFT DIA. = 1.688"	1	-3	IMP. - C.I.	-2
IMPELLER WT. - LBS. = 13.0	STD. LATERAL = 1.44"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 200.0	DISCHARGE SIZES = 6"/8"/10"	3	-1	IMP. - S.S.	-3
ADD'L STAGE WT. - LBS. = 81.0	SUCTION SIZES = 8"/BELL	4	0	BOWL - BRZ.	-2
MAX. SPHERE SIZE = .88"	ONE STAGE WR ² = .532	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 15"				BOWL - S.S.	-2

Δ CONSULT FACTORY

v18.1

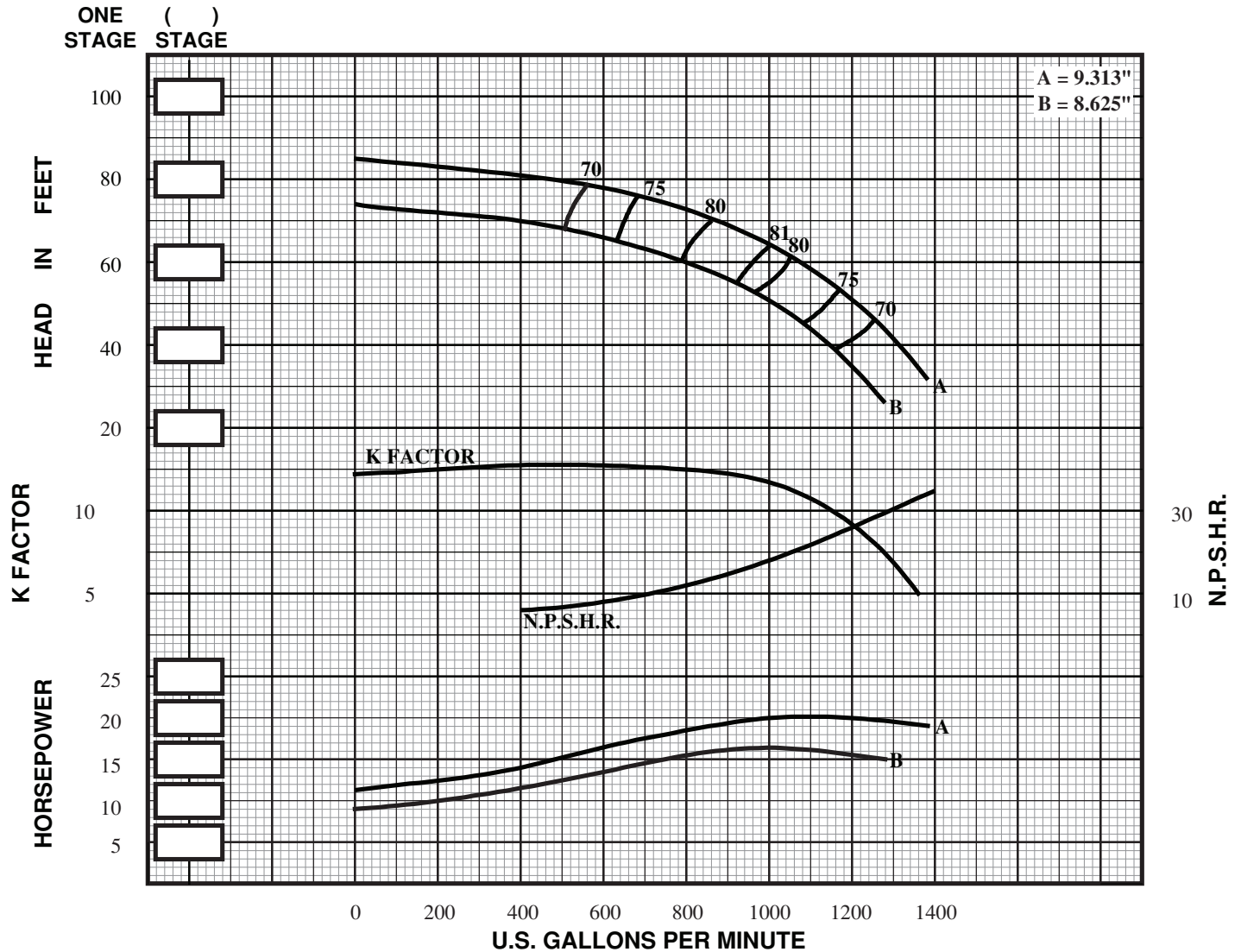


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

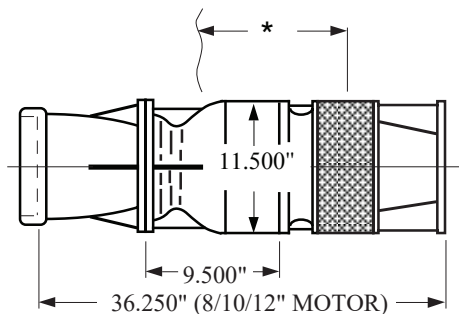
SR11MO 1770 RPM



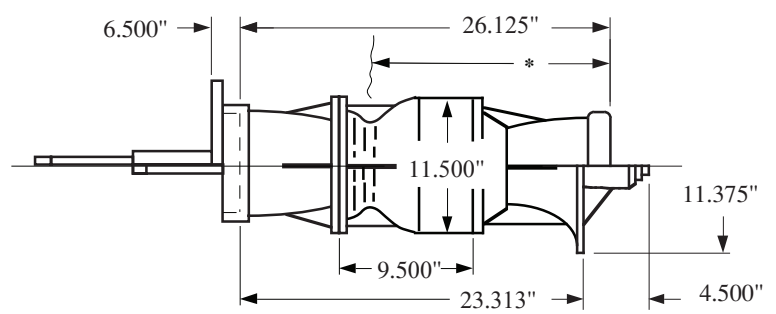
IMPELLER TYPE = SEMI-OPEN	STD. SHAFT DIA. = 1.687"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SR11MO	MAX. SHAFT DIA. = 1.687"	1	-3	IMP. - C.I.	-1
IMPELLER WT. - LBS. = 8.0	STD. LATERAL = 1.13"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 270.0	DISCHARGE SIZES = 8" / 10"	3	-1	IMP. - S.S.	NOT RECOM.
ADD'L STAGE WT. - LBS. = 100.0	SUCTION SIZES = 8" / BELL	4	0	BOWL - BRZ.	-1
MAX. SPHERE SIZE = .75"	ONE STAGE WR ² = .375	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 15"				BOWL - S.S.	-2

Δ CONSULT FACTORY

v18.1

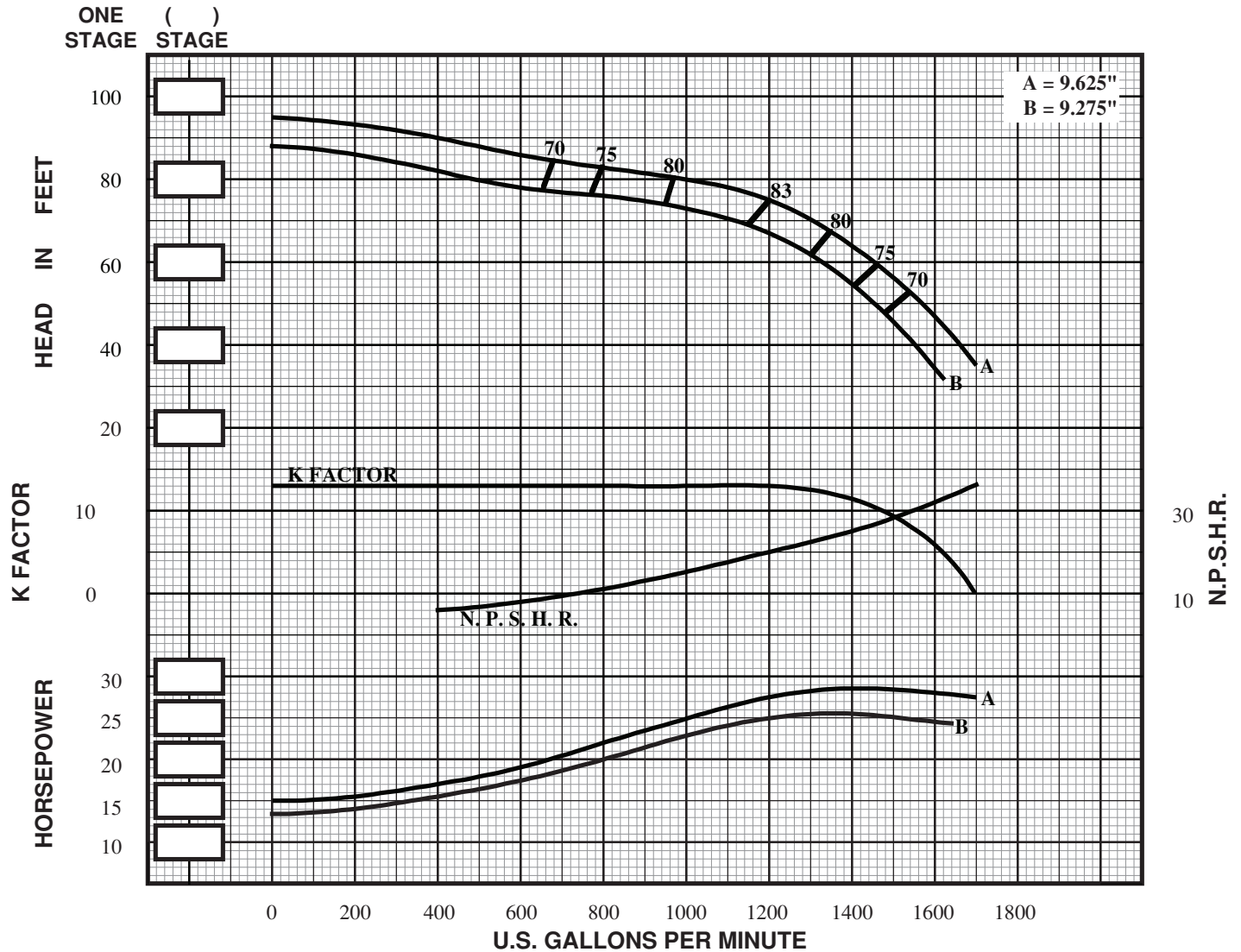


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

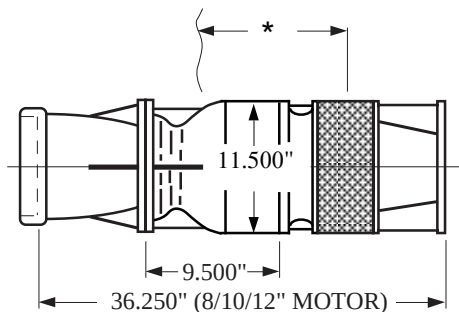
SR11H0 1770 RPM



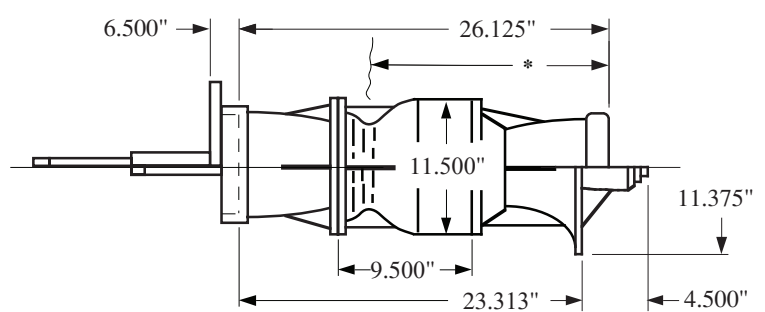
IMPELLER TYPE = SEMI-OPEN	STD. SHAFT DIA. = 1.687"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SR11H0	MAX. SHAFT DIA. = 1.687"	1	-3	IMP. - C.I.	0
IMPELLER WT. - LBS. = 8.35	STD. LATERAL = .72"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 270.0	DISCHARGE SIZES = 8" / 10"	3	-1	IMP. - S.S.	NOT RECOM.
ADD'L STAGE WT. - LBS. = 100.0	SUCTION SIZES = 8" / BELL	4	0	BOWL - BRZ.	-1
MAX. SPHERE SIZE = .75"	ONE STAGE WR ² = .411	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 15"				BOWL - S.S.	-2

Δ CONSULT FACTORY

v18.1

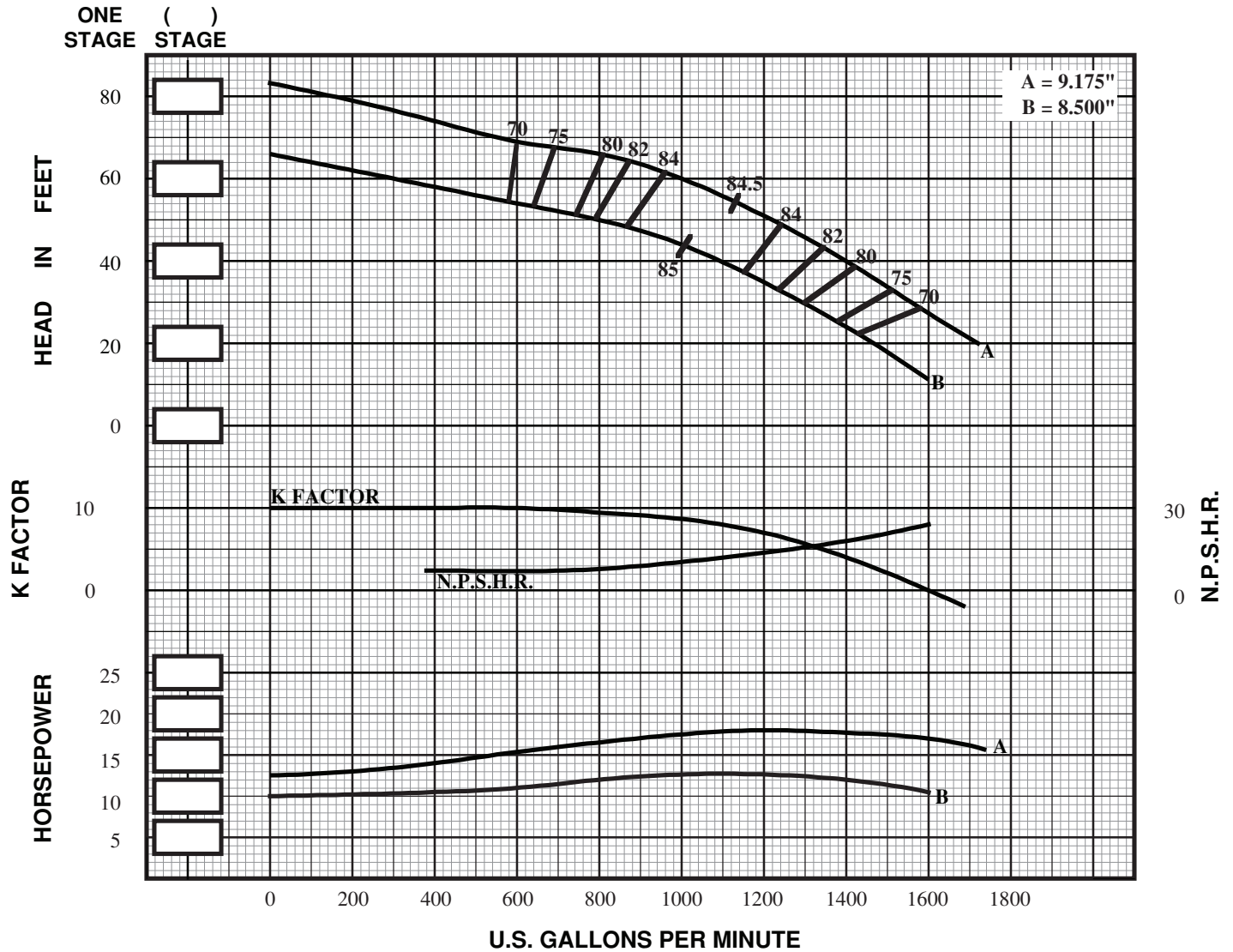


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

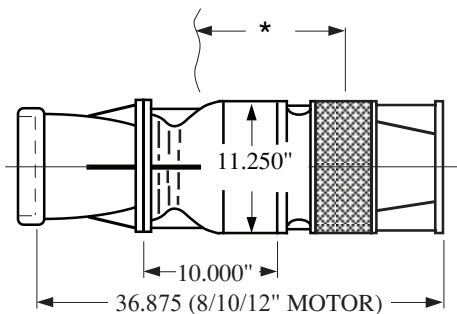
SP11L 1770 RPM



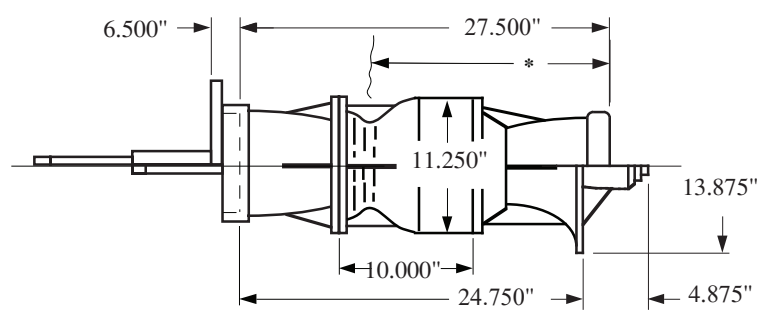
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.937"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP11L	MAX. SHAFT DIA. = 1.937"	1	-4	IMP. - C.I.	0
IMPELLER WT. - LBS. = 16.4	STD. LATERAL = 1.13"	2	-3	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 290.0	DISCHARGE SIZES = 8"/ 10"	3	-2	IMP. - S.S.	-1
ADD'L STAGE WT. - LBS. = 105.0	SUCTION SIZES = 8"/ BELL	4	-1	BOWL - BRZ.	-1
MAX. SPHERE SIZE = 1.19"	ONE STAGE WR ² = .754	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 18"				BOWL - S.S.	-2

Δ CONSULT FACTORY

v18.1

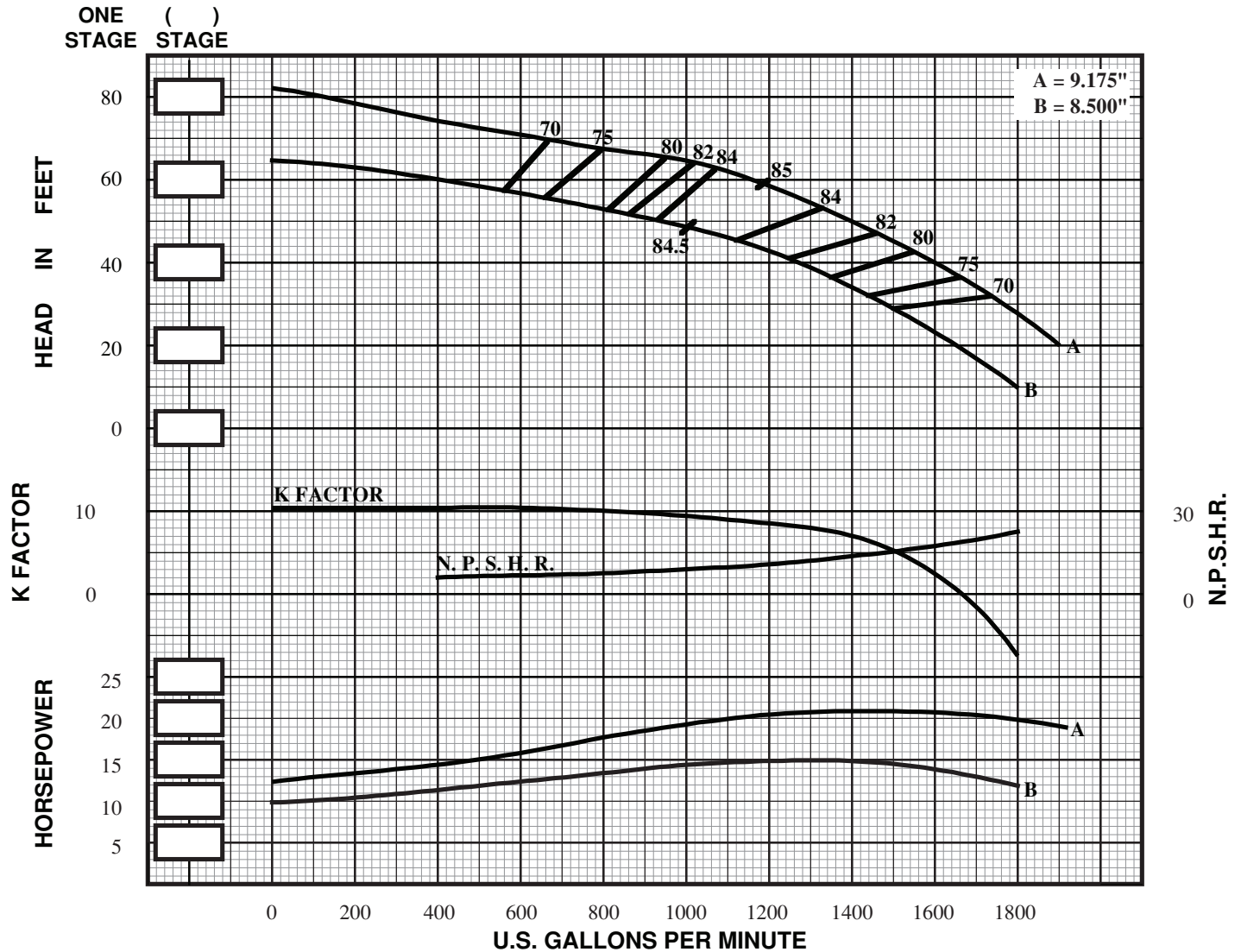


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

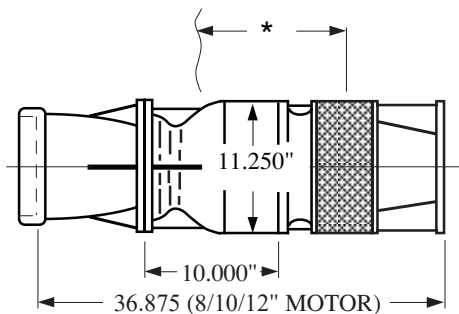
SP11M 1770 RPM



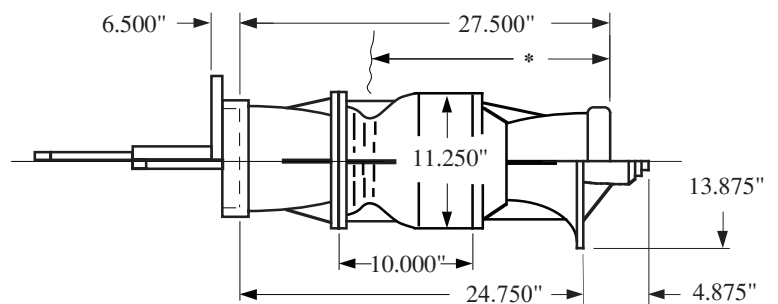
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.937"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP11M	MAX. SHAFT DIA. = 1.937"	1	-3	IMP. - C.I.	0
IMPELLER WT. - LBS. = 14.3	STD. LATERAL = 1.13"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 290.0	DISCHARGE SIZES = 8"/ 10"	3	-1	IMP. - S.S.	-2
ADD'L STAGE WT. - LBS. = 105.0	SUCTION SIZES = 8"/ BELL	4	0	BOWL - BRZ.	-1
MAX. SPHERE SIZE = 1.19"	ONE STAGE WR ² = .670	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 18"				BOWL - S.S.	-2

Δ CONSULT FACTORY

v18.1

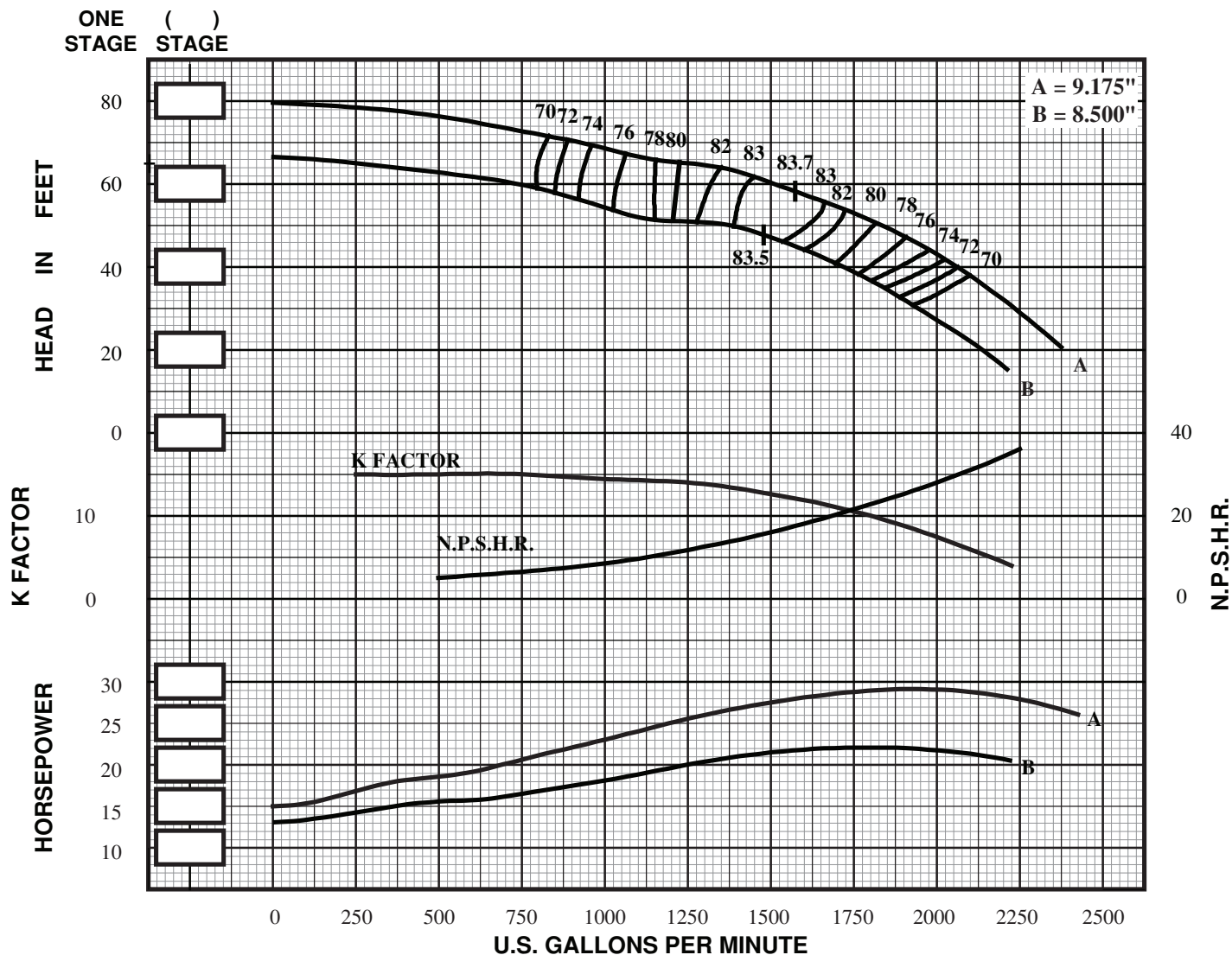


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

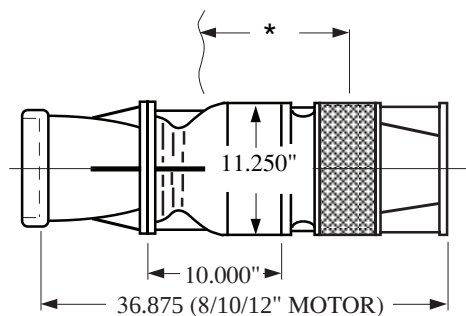
SP11H
1770 RPM



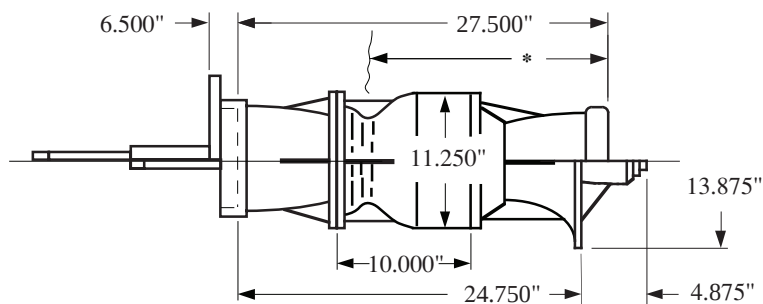
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.937"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP11H	MAX. SHAFT DIA. = 1.937"				
IMPELLER WT. - LBS. = 14.9	STD. LATERAL = 1.13"	1	-3	IMP. - C.I.	0
ONE STAGE WT. - LBS. = 290.0	DISCHARGE SIZES = 8" / 10"	2	-2	IMP. - NI-RI	-2
ADD'L STAGE WT. - LBS. = 105.0	SUCTION SIZES = 8" / BELL	3	-1	IMP. - S.S.	-2
MAX. SPHERE SIZE = 1.19"	ONE STAGE WR ² = .718	4	0	BOWL - BRZ.	-1
MIN. SUBMERGENCE* = 18"	=	5	0	BOWL - NI-RI	-1
Δ CONSULT FACTORY v18.1				BOWL - S.S.	-2

Δ CONSULT FACTORY

v18.1

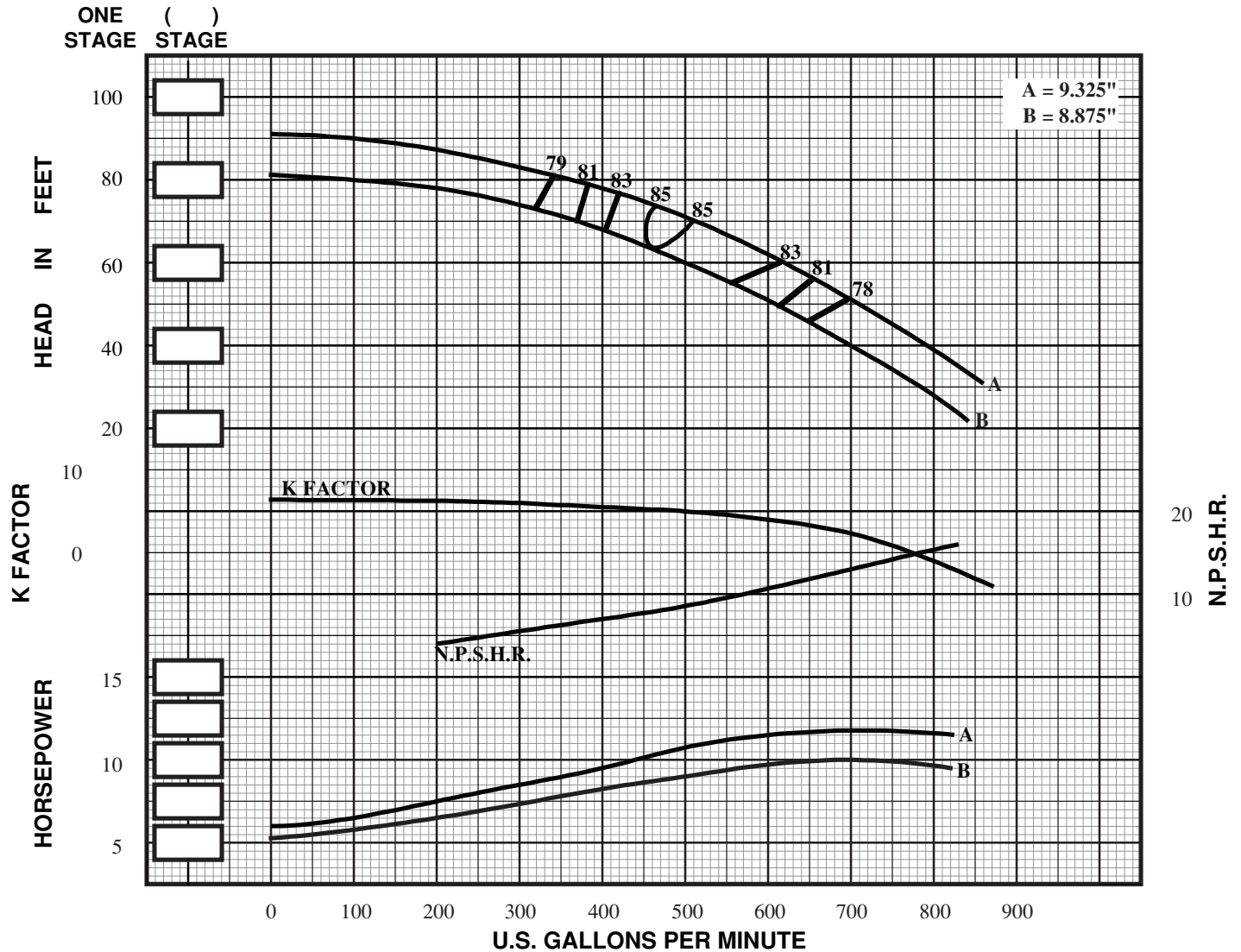


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

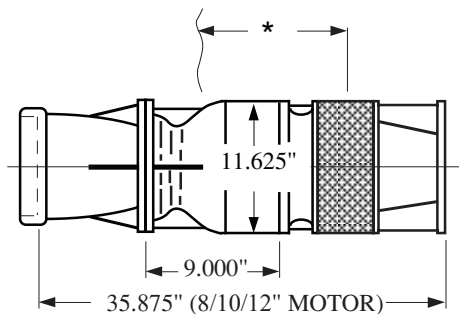
SW12L 1770 RPM



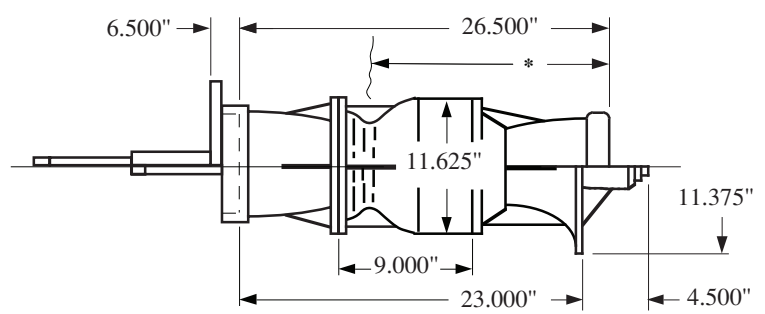
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.687"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SW12L	MAX. SHAFT DIA. = 1.687"	1	-3	IMP. - C.I.	-2
IMPELLER WT. - LBS. = 13.8	STD. LATERAL = 1.13"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 235.0	DISCHARGE SIZES = 6"/ 8"/ 10"	3	-1	IMP. - S.S.	-3
ADD'L STAGE WT. - LBS. = 105.0	SUCTION SIZES = 6"/ BELL	4	0	BOWL - BRZ.	-2
MAX. SPHERE SIZE = .66"	ONE STAGE WR ² = .642	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 16"				BOWL - S.S.	-4

Δ CONSULT FACTORY

v18.1

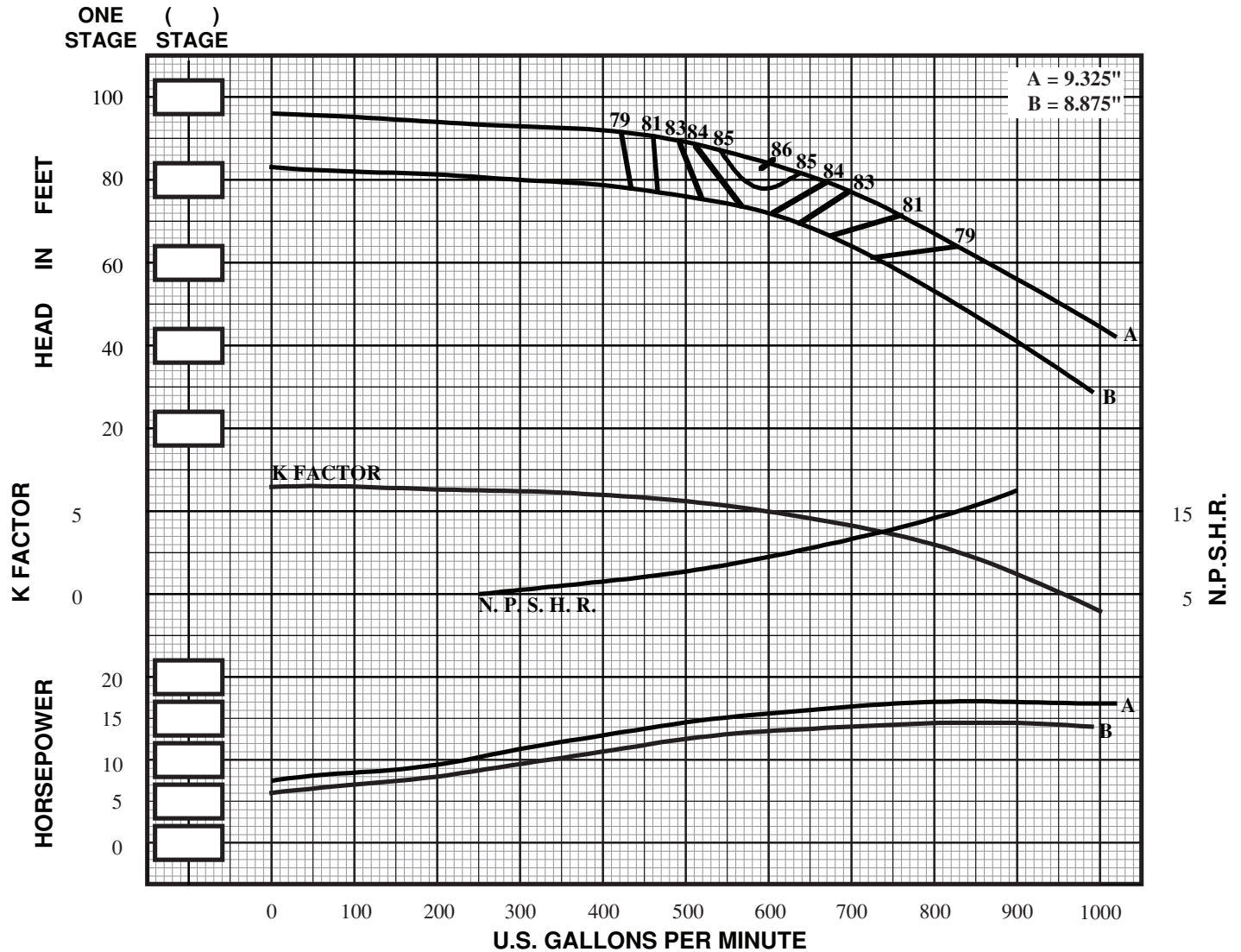


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

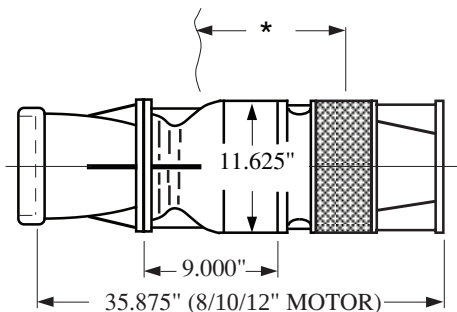
SW12M 1770 RPM



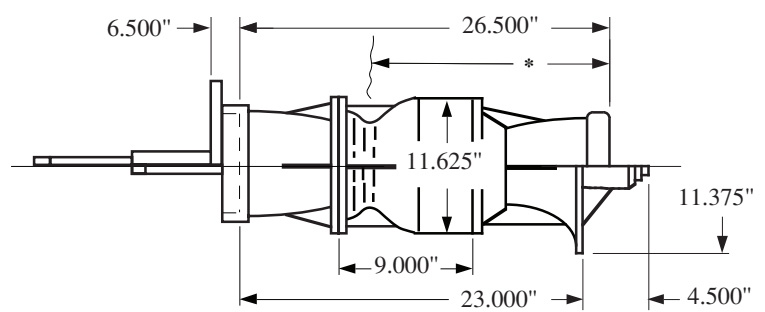
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.687"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SW12M	MAX. SHAFT DIA. = 1.687"	1	-3	IMP. - C.I.	-2
IMPELLER WT. - LBS. = 14.5	STD. LATERAL = 1.13"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 235.0	DISCHARGE SIZES = 6"/ 8"/ 10"	3	-1	IMP. - S.S.	-3
ADD'L STAGE WT. - LBS. = 105.0	SUCTION SIZES = 6"/ BELL	4	0	BOWL - BRZ.	-2
MAX. SPHERE SIZE = .66"	ONE STAGE WR ² = .673	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 16"				BOWL - S.S.	-4

Δ CONSULT FACTORY

v18.1

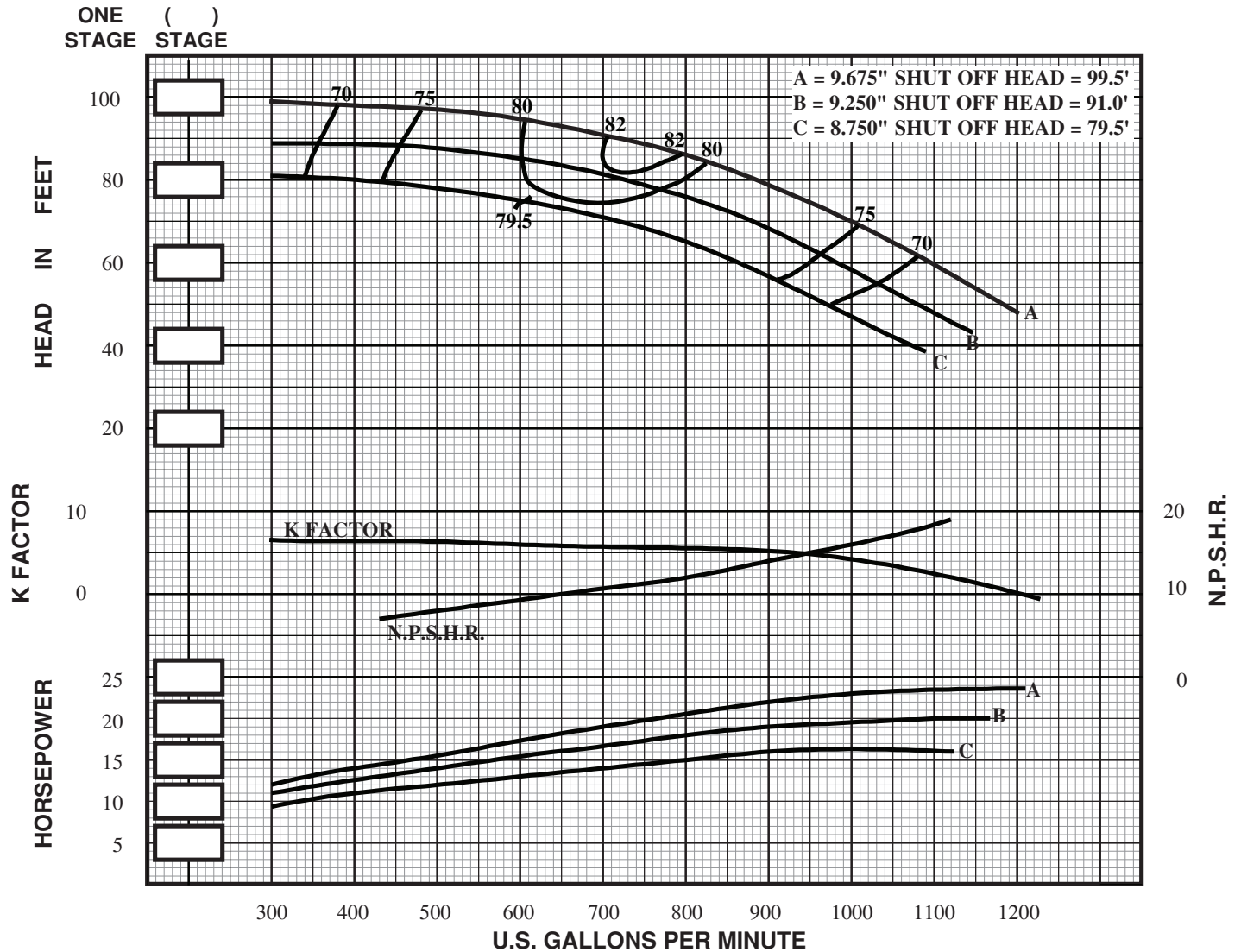


SUBMERSIBLE TURBINE



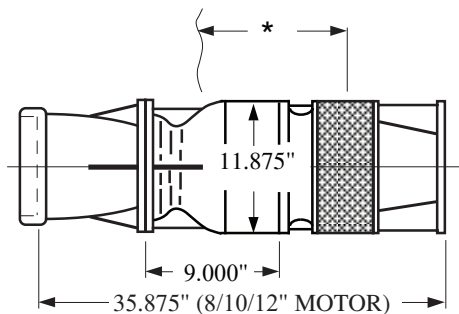
LINESHAFT TURBINE

SP12M 1770 RPM

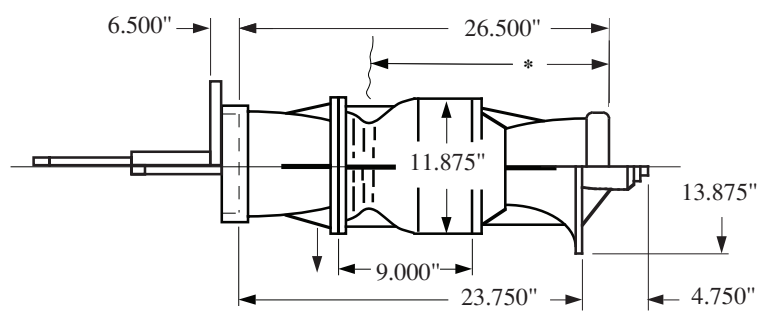


IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.687"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP12M	MAX. SHAFT DIA. = 1.687"	1	-3	IMP. - C.I.	-1
IMPELLER WT. - LBS. = 15.0	STD. LATERAL = 1.00"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 260.0	DISCHARGE SIZES = 6"/ 8"/ 10"	3	-1	IMP. - S.S.	-2
ADD'L STAGE WT. - LBS. = 120.0	SUCTION SIZES = 8"/ BELL	4	0	BOWL - BRZ.	-1
MAX. SPHERE SIZE = .81"	ONE STAGE WR ² = .746	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 16"				BOWL - S.S.	-2

Δ CONSULT FACTORY v18.1

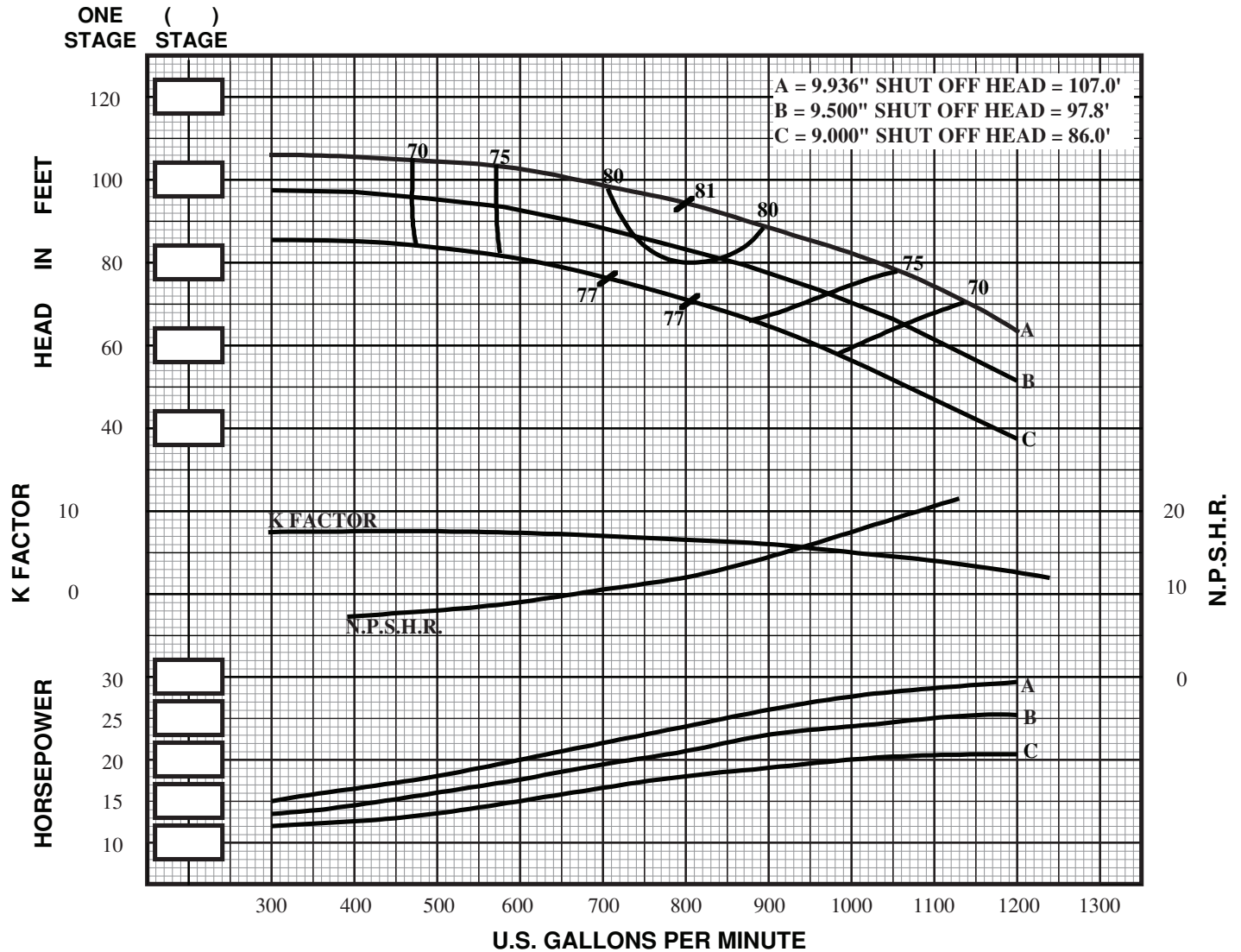


SUBMERSIBLE TURBINE



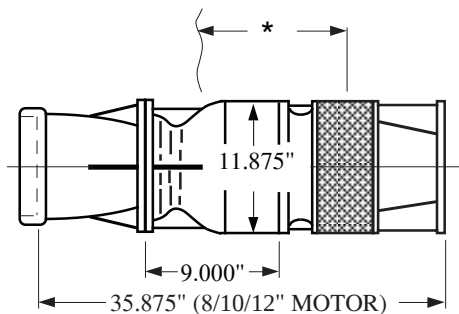
LINESHAFT TURBINE

SP12H 1770 RPM

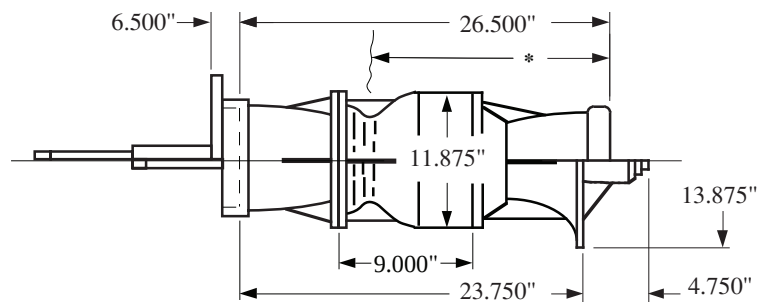


IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.687"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP12H	MAX. SHAFT DIA. = 1.687"	1	-3	IMP. - C.I.	-1
IMPELLER WT. - LBS. = 15.9	STD. LATERAL = 1.00"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 260.0	DISCHARGE SIZES = 6"/ 8"/ 10"	3	-1	IMP. - S.S.	-2
ADD'L STAGE WT. - LBS. = 120.0	SUCTION SIZES = 8"/ BELL	4	0	BOWL - BRZ.	-1
MAX. SPHERE SIZE = .75"	ONE STAGE WR ² = .790	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 16"				BOWL - S.S.	-2

Δ CONSULT FACTORY v18.1

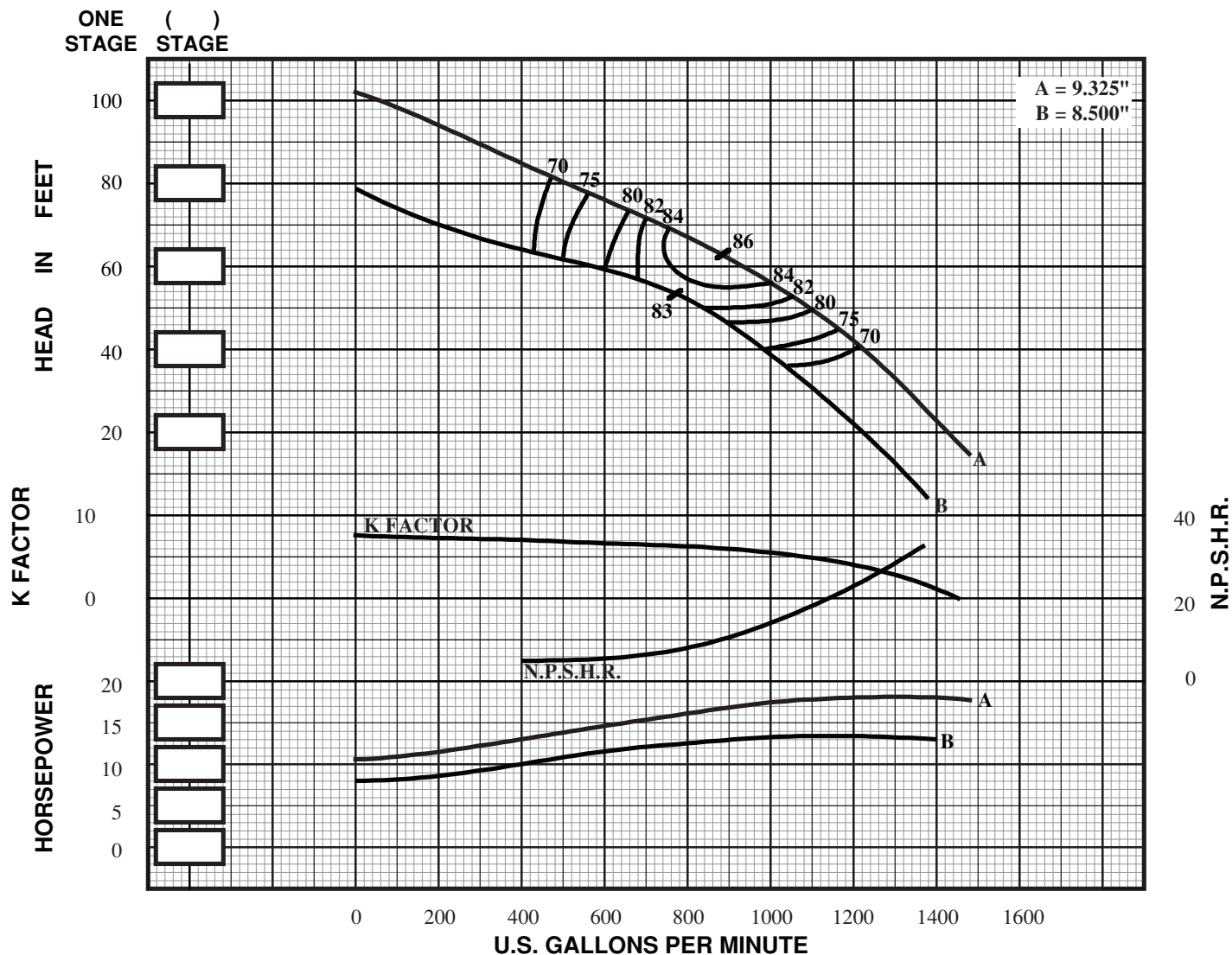


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

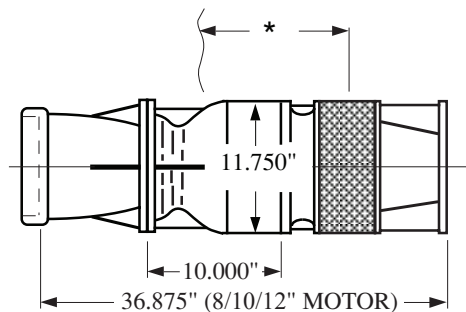
SL12M 1770 RPM



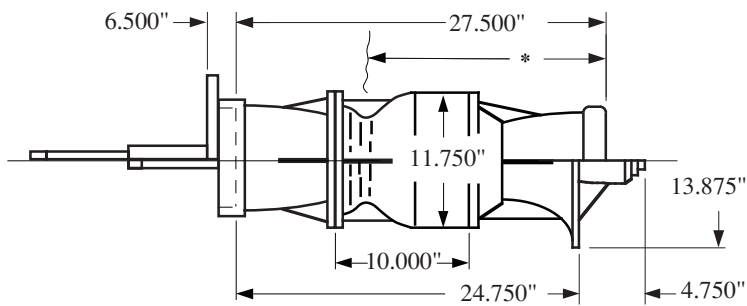
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.687"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SL12M	MAX. SHAFT DIA. = 1.687"	1	-3.5	IMP. - C.I.	-3
IMPELLER WT. - LBS. = 13.2	STD. LATERAL = 1.13"	2	-2	IMP. - NI-RI	-3
ONE STAGE WT. - LBS. = 250.0	DISCHARGE SIZES = 6"/ 8"/ 10"	3	-1	IMP. - S.S.	-4
ADD'L STAGE WT. - LBS. = 107.0	SUCTION SIZES = 8"/ BELL	4	0	BOWL - BRZ.	-2
MAX. SPHERE SIZE = .88"	ONE STAGE WR ² = .670	5	0	BOWL - NI-RI	-2
MIN. SUBMERGENCE* = 17"				BOWL - S.S.	-3

Δ CONSULT FACTORY

v18.1

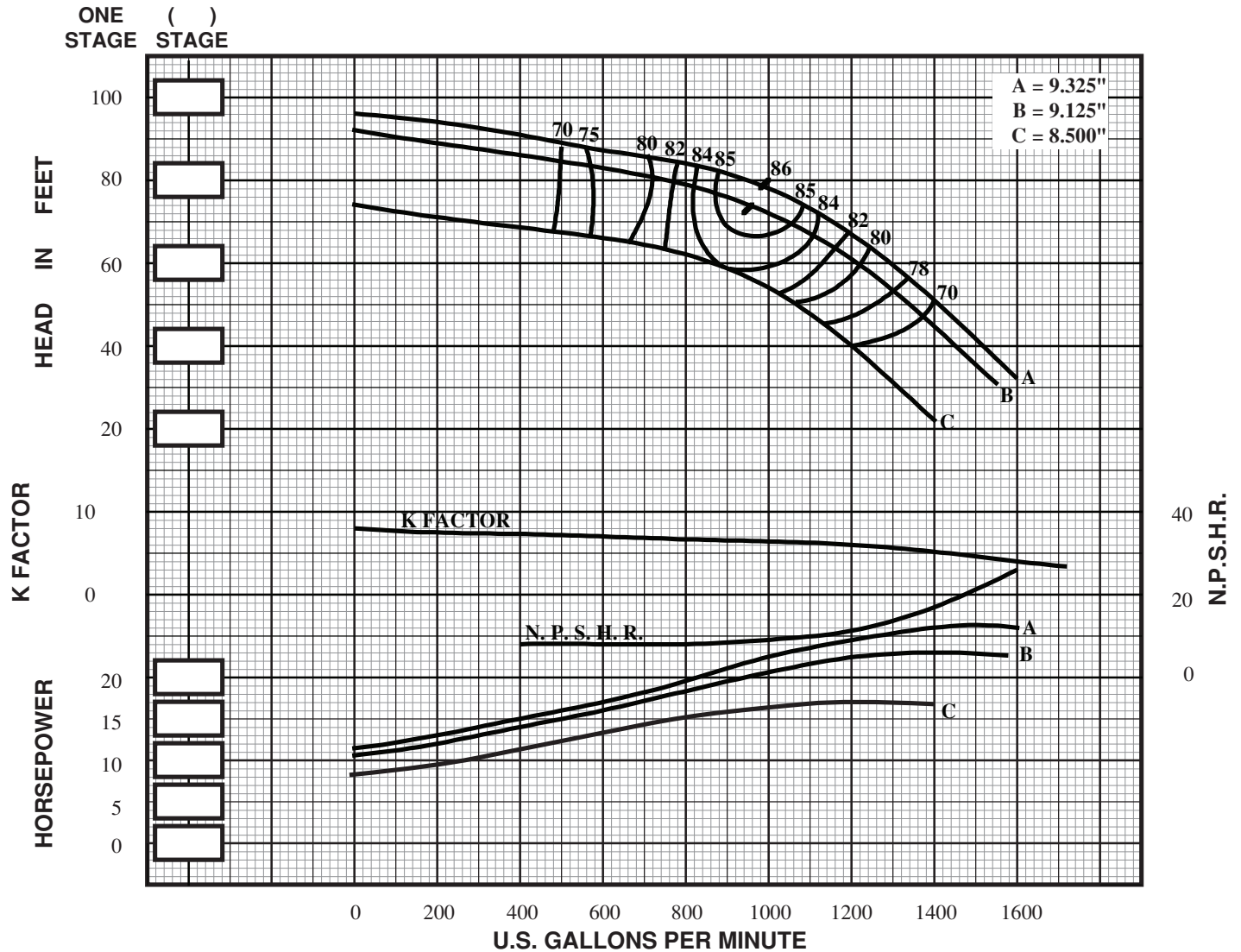


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

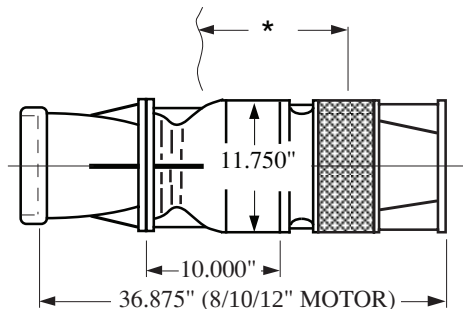
SL12H 1770 RPM



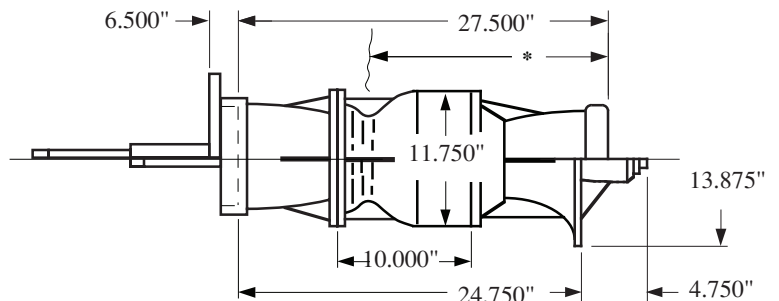
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.687"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SL12H	MAX. SHAFT DIA. = 1.687"	1	-3.5	IMP. - C.I.	-3
IMPELLER WT. - LBS. = 13.5	STD. LATERAL = 1.13"	2	-2	IMP. - NI-RI	-3
ONE STAGE WT. - LBS. = 250.0	DISCHARGE SIZES = 6"/ 8"/ 10"	3	-1	IMP. - S.S.	Not Recom.
ADD'L STAGE WT. - LBS. = 107.0	SUCTION SIZES = 8"/ BELL	4	0	BOWL - BRZ.	-2
MAX. SPHERE SIZE = .88"	ONE STAGE WR ² = .673	5	0	BOWL - NI-RI	-2
MIN. SUBMERGENCE* = 17"				BOWL - S.S.	-3

Δ CONSULT FACTORY

v18.1



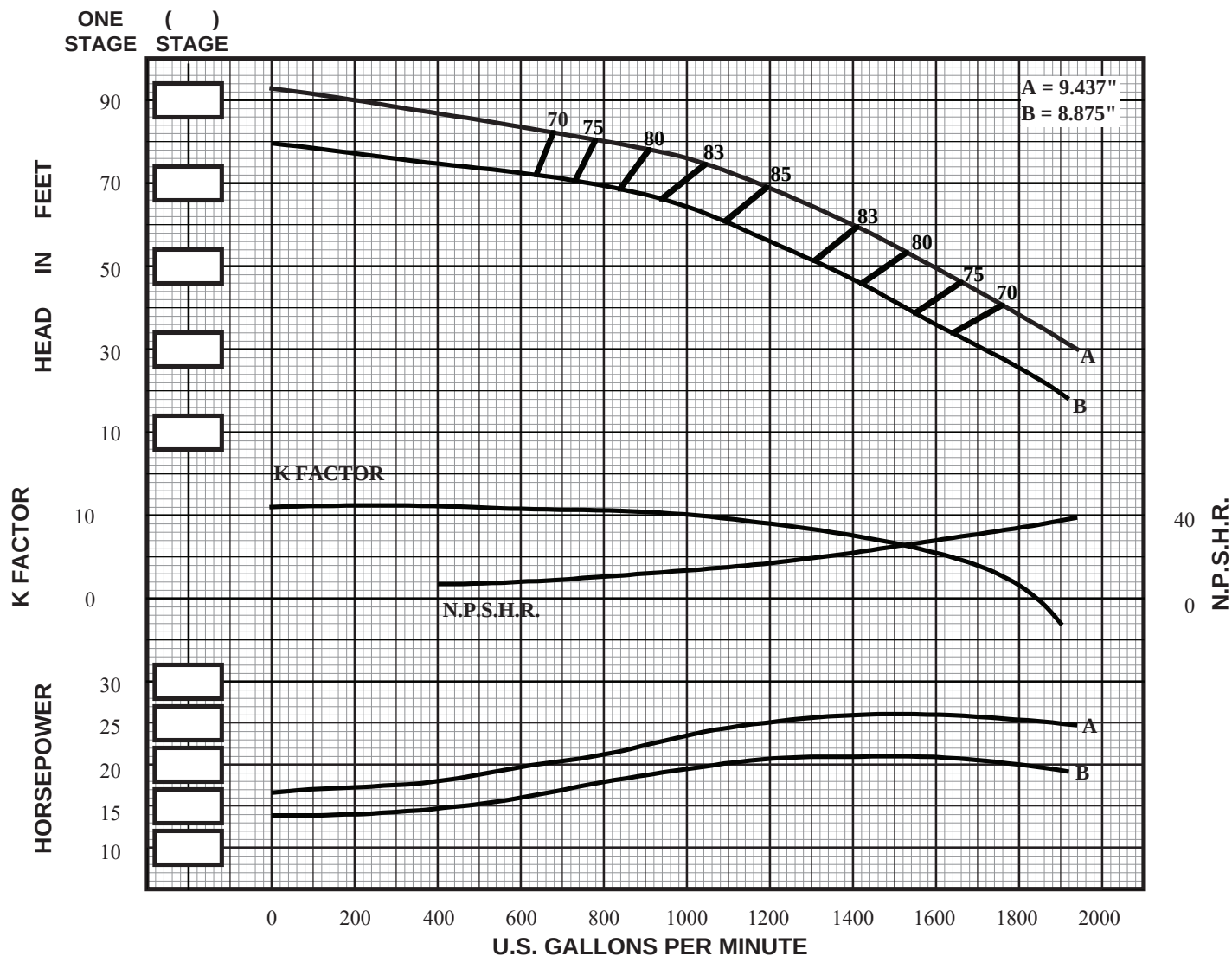
SUBMERSIBLE TURBINE



LINESHAFT TURBINE

SJ12M

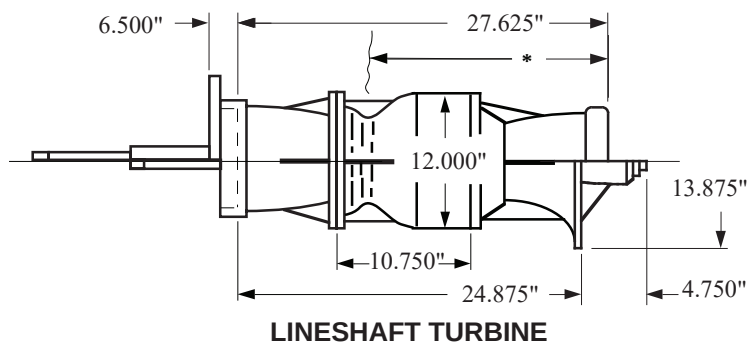
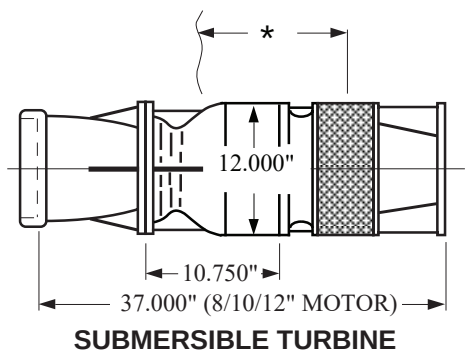
1770 RPM



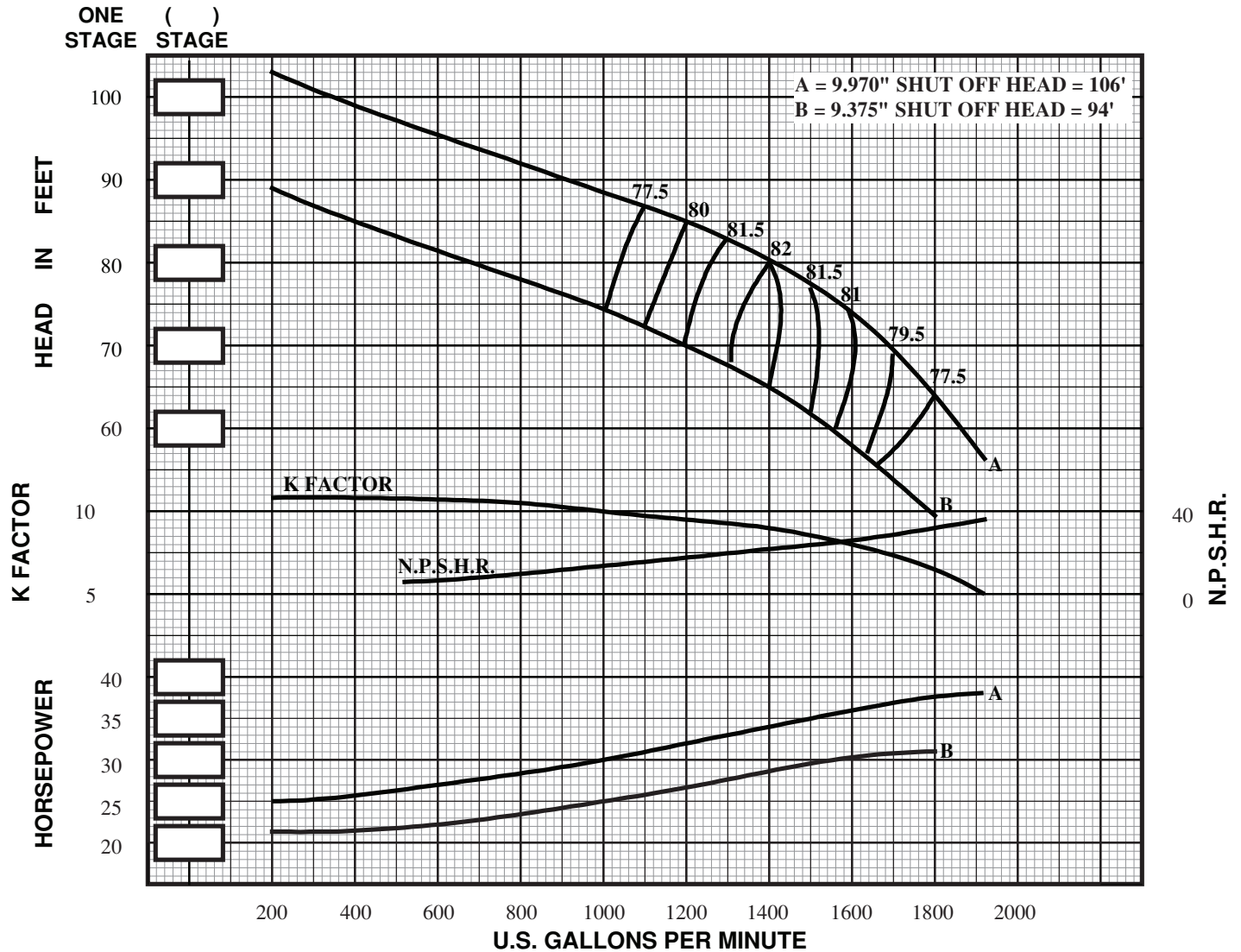
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.687"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SJ12M	MAX. SHAFT DIA. = 1.687"				
IMPELLER WT. - LBS. = 17.0	STD. LATERAL = 1.19"	1	-2	IMP. - C.I.	0
ONE STAGE WT. - LBS. = 270.0	DISCHARGE SIZES = 8"/ 10"	2	-1	IMP. - NI-RI	-2
ADD'L STAGE WT. - LBS. = 110.0	SUCTION SIZES = 8"/ BELL	3	0	IMP. - S.S.	-1
MAX. SPHERE SIZE = .88"	ONE STAGE WR ² = .804	4	0	BOWL - BRZ.	-1
MIN. SUBMERGENCE* = 16"		5	0	BOWL - NI-RI	-1
				BOWL - S.S.	-2

Δ CONSULT FACTORY

v18.1



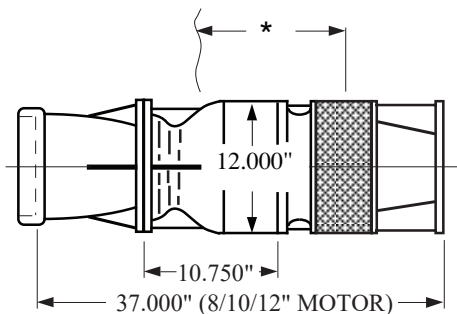
SJ12H 1770 RPM



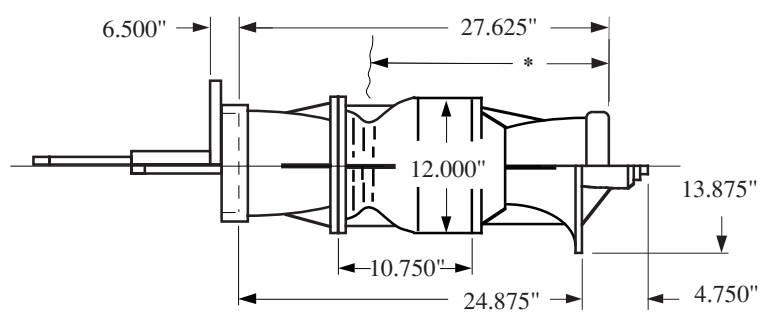
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.687"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SJ12H	MAX. SHAFT DIA. = 1.687"	1	-1	IMP. - C.I.	0
IMPELLER WT. - LBS. = 15.2	STD. LATERAL = 1.19"	2	0	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 270.0	DISCHARGE SIZES = 8"/ 10"	3	0	IMP. - S.S.	-1
ADD'L STAGE WT. - LBS. = 110.0	SUCTION SIZES = 8"/ BELL	4	0	BOWL - BRZ.	-1
MAX. SPHERE SIZE = .88"	ONE STAGE WR ² = .744	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 16"				BOWL - S.S.	-2

Δ CONSULT FACTORY

v18.1

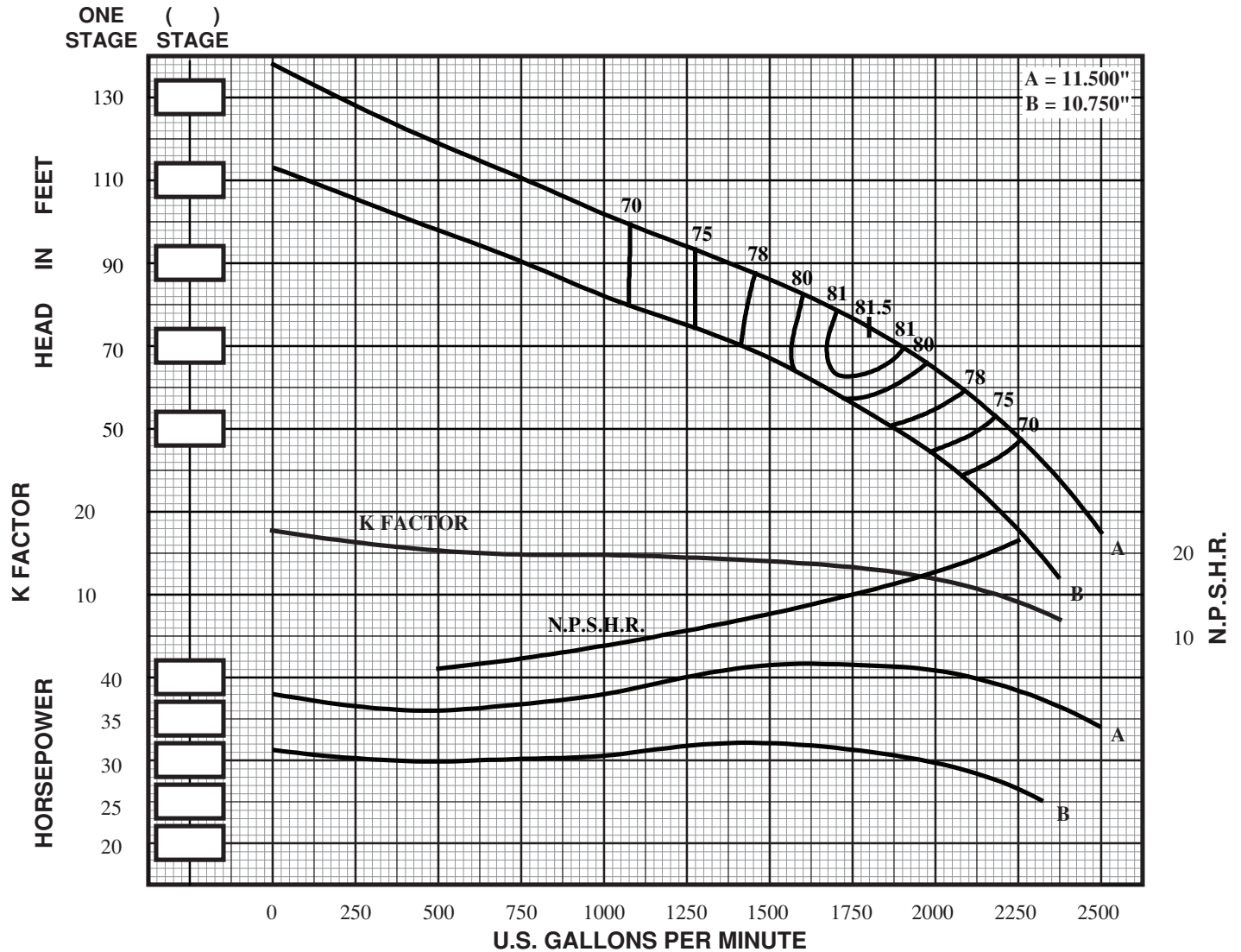


SUBMERSIBLE TURBINE



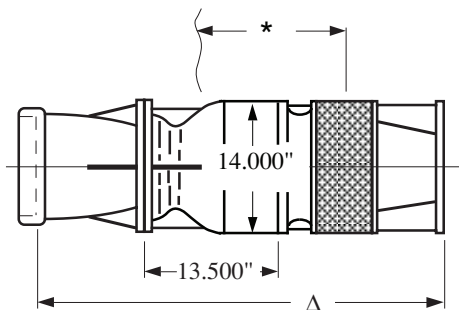
LINESHAFT TURBINE

SM14LL 1770 RPM

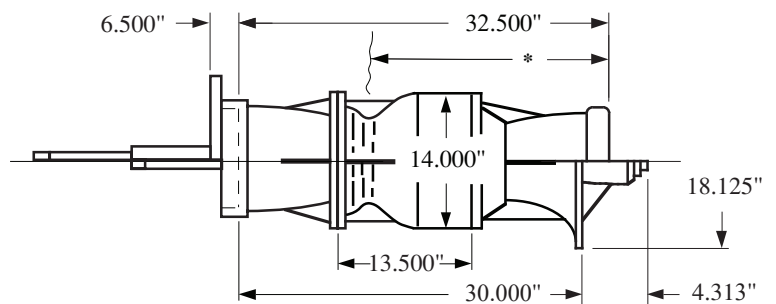


IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 2.187"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SM14LL	MAX. SHAFT DIA. = 2.187"	1	-3	IMP. - C.I.	0
IMPELLER WT. - LBS. = 31.0	STD. LATERAL = 1.31"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 550.0	DISCHARGE SIZES = 10"/ 12"	3	-1	IMP. - S.S.	-2
ADD'L STAGE WT. - LBS. = 235.0	SUCTION SIZES = 10"/ BELL	4	0	BOWL - BRZ.	-1
MAX. SPHERE SIZE = 1.44"	ONE STAGE WR ² = 2.211	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 19"	=			BOWL - S.S.	-2

Δ CONSULT FACTORY v18.1



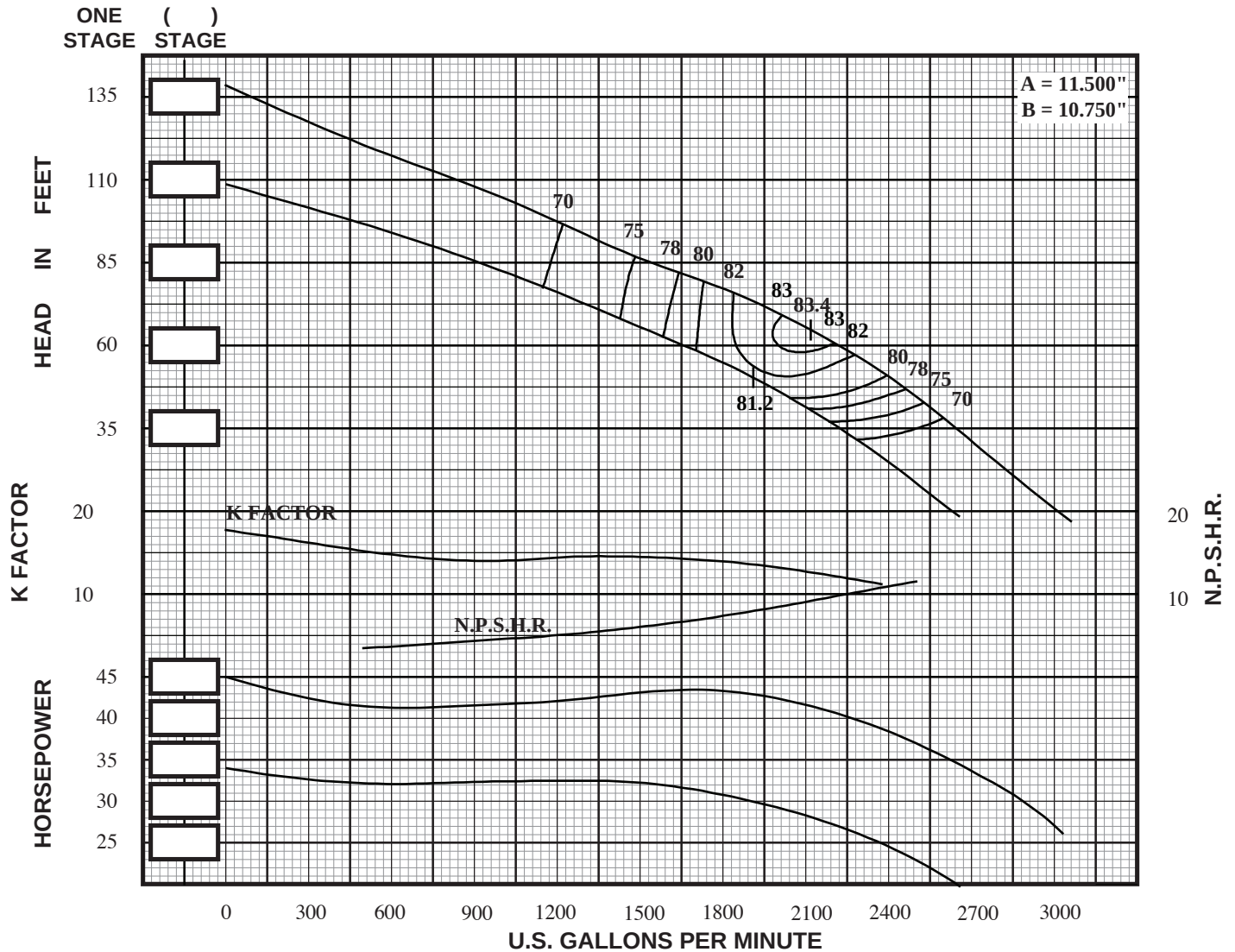
SUBMERSIBLE TURBINE



LINESHAFT TURBINE

SM14L

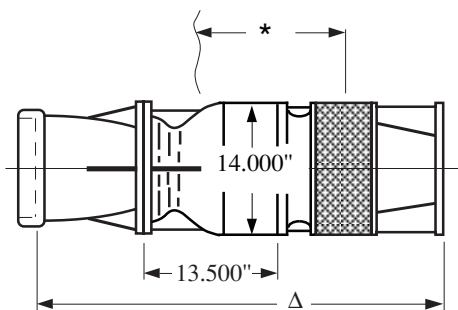
1770 RPM



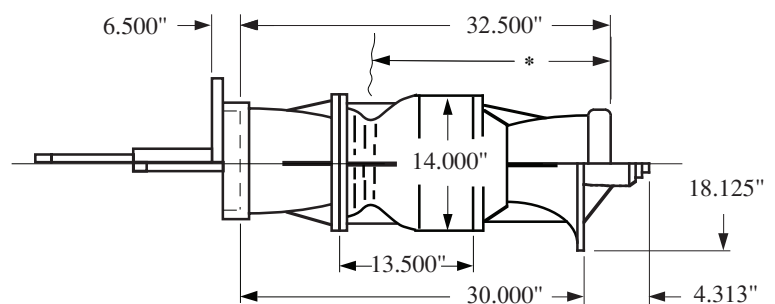
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 2.187"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SM14L	MAX. SHAFT DIA. = 2.187"	1	-3	IMP. - C.I.	0
IMPELLER WT. - LBS. = 27.4	STD. LATERAL = 1.31"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 540.0	DISCHARGE SIZES = 10"/12"	3	-1	IMP. - S.S.	-2
ADD'L STAGE WT. - LBS. = 225.0	SUCTION SIZES = 10"/BELL	4	0	BOWL - BRZ.	-1
MAX. SPHERE SIZE = 1.31"	ONE STAGE WR ² = 1.933	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 19"				BOWL - S.S.	-2

Δ CONSULT FACTORY

v18.1

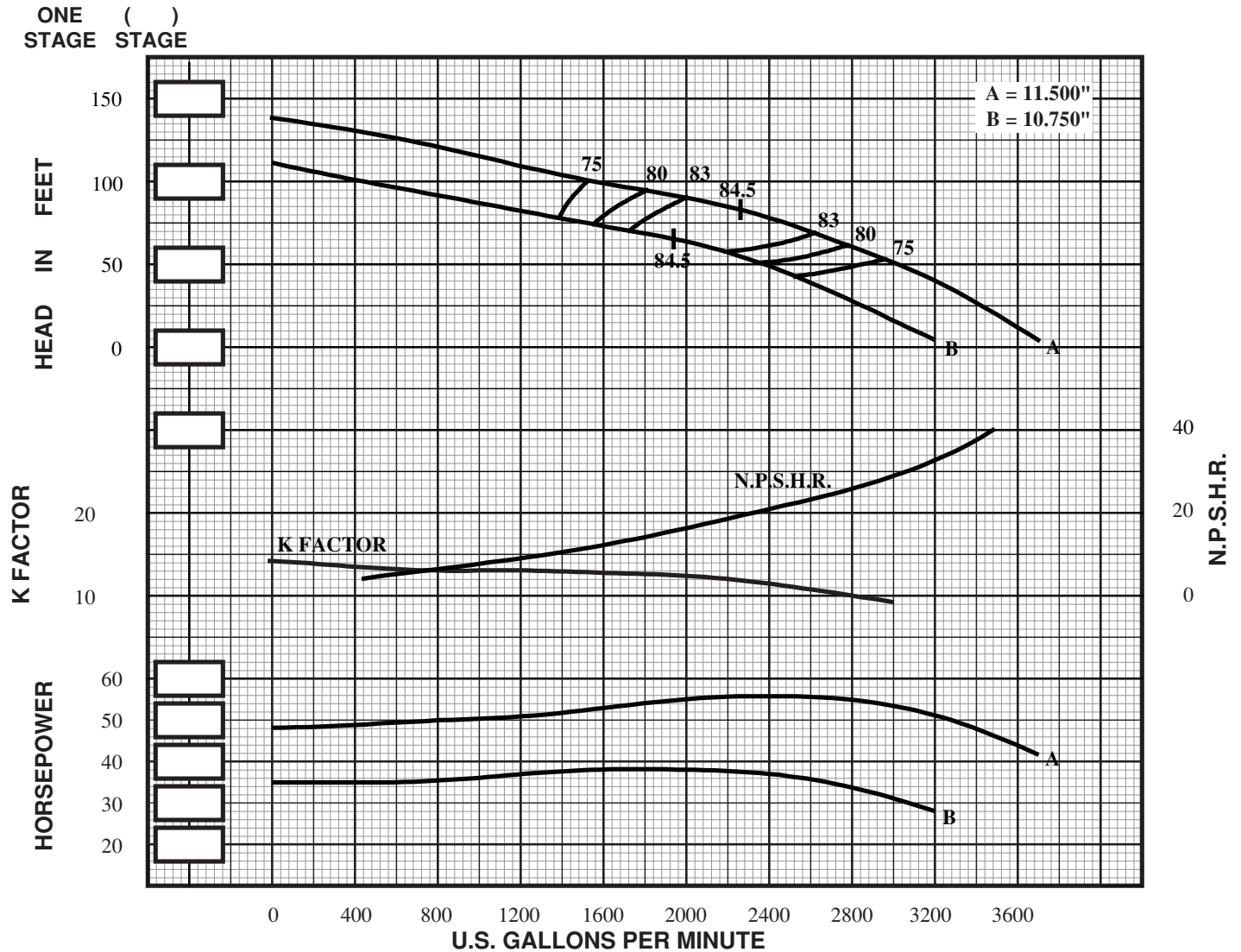


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

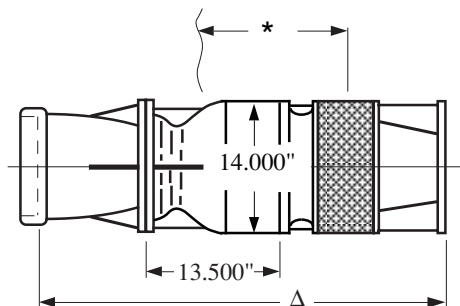
SM14M 1770 RPM



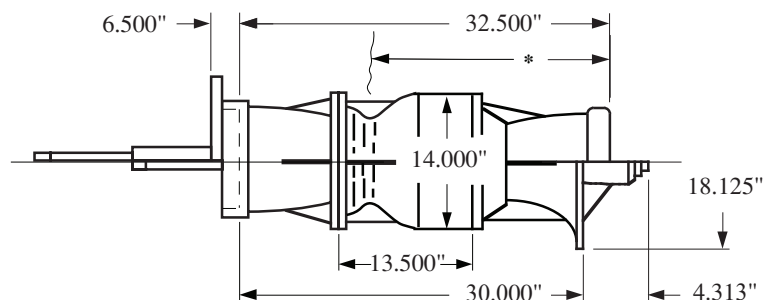
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 2.187"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SM14M	MAX. SHAFT DIA. = 2.187"	1	-3	IMP. - C.I.	0
IMPELLER WT. - LBS. = 31.7	STD. LATERAL = 1.31"	2	-1	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 550.0	DISCHARGE SIZES = 10"/12"	3	0	IMP. - S.S.	-2
ADD'L STAGE WT. - LBS. = 235.0	SUCTION SIZES = 10"/BELL	4	0	BOWL - BRZ.	-2
MAX. SPHERE SIZE = 1.31"	ONE STAGE WR ² = 2.182	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 19"	=			BOWL - S.S.	-2

Δ CONSULT FACTORY

v18.1

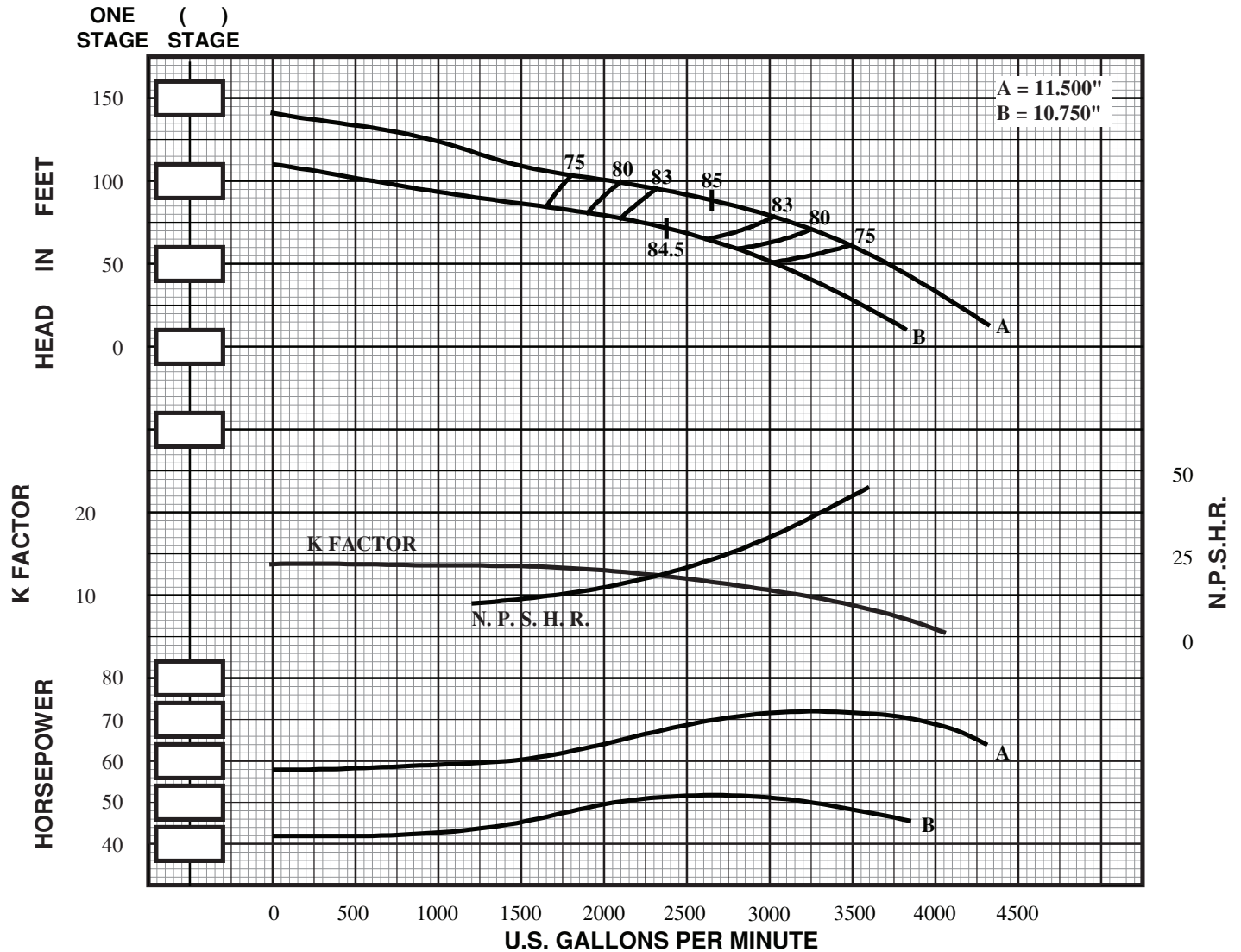


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

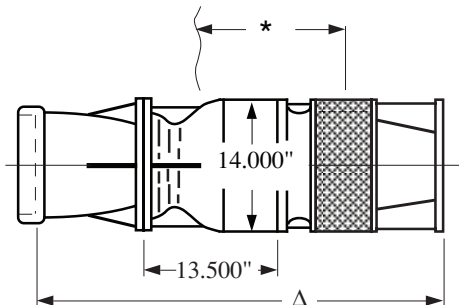
SM14H 1770 RPM



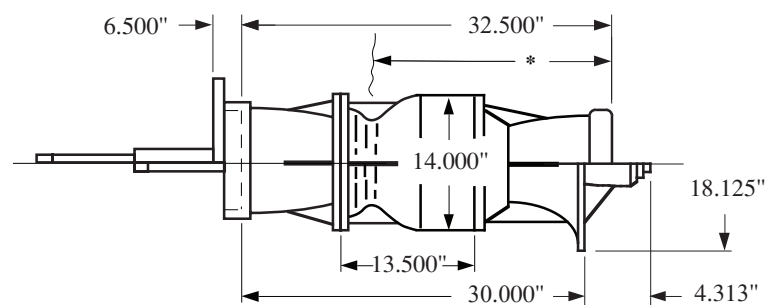
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IMPELLER NO. = SM14H	MAX. SHAFT DIA. = 2.187"	1	-2	IMP. - C.I.	0
IMPELLER WT. - LBS. = 29.0	STD. LATERAL = 1.31"	2	-1	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 550.0	DISCHARGE SIZES = 10"/ 12"	3	0	IMP. - S.S.	-2
ADD'L STAGE WT. - LBS. = 235.0	SUCTION SIZES = 10"/ BELL	4	0	BOWL - BRZ.	-1
MAX. SPHERE SIZE = 1.56"	ONE STAGE WR ² = 2.023	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 19"				BOWL - S.S.	-2

Δ CONSULT FACTORY

v18.1



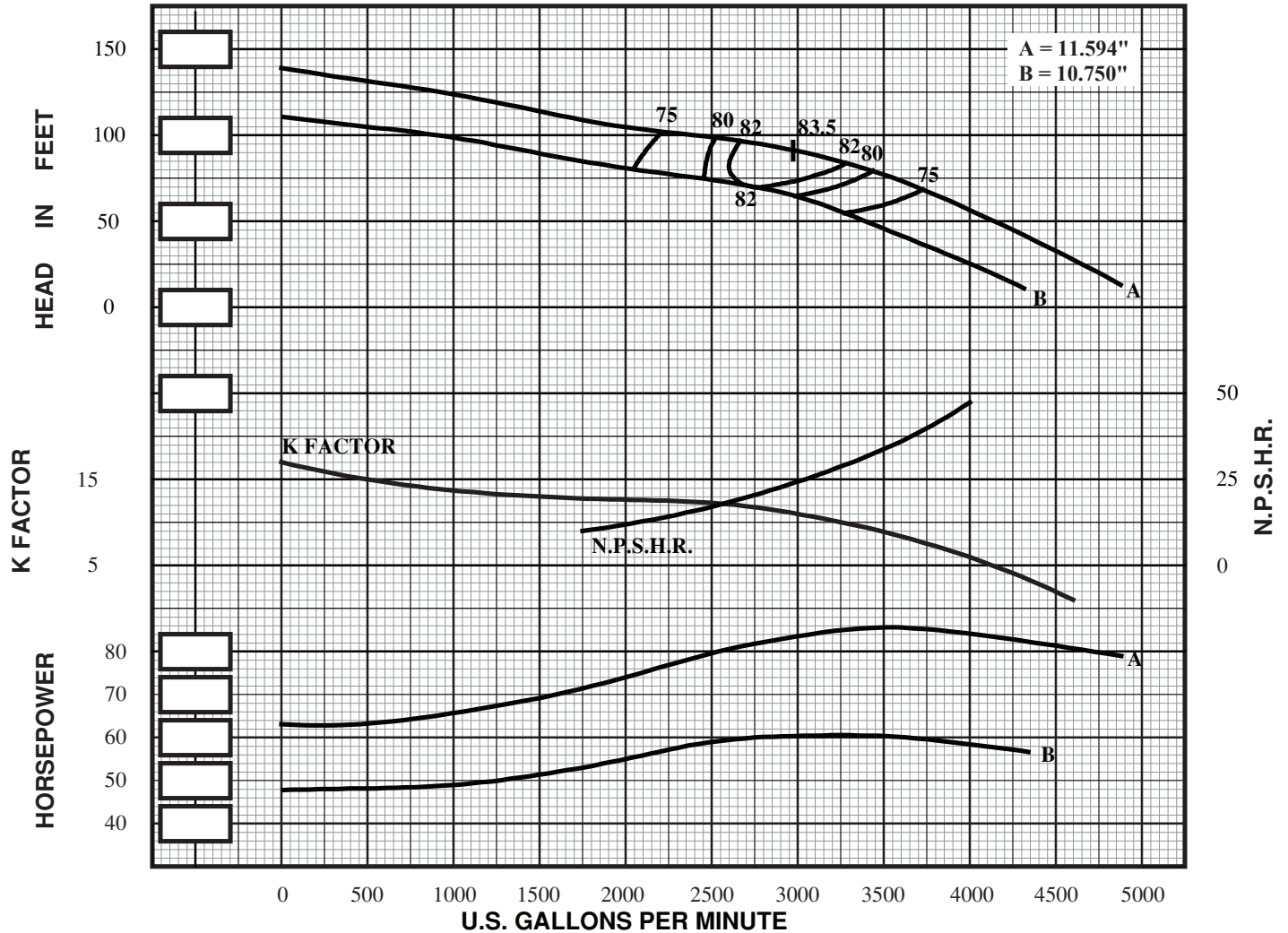
SUBMERSIBLE TURBINE



LINESHAFT TURBINE

SM14HH 1770 RPM

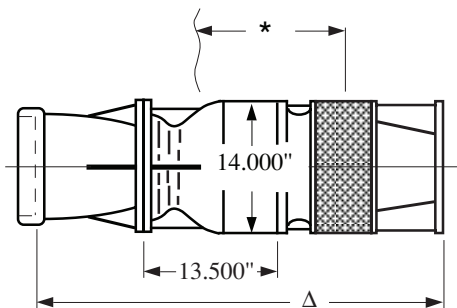
ONE ()
STAGE STAGE



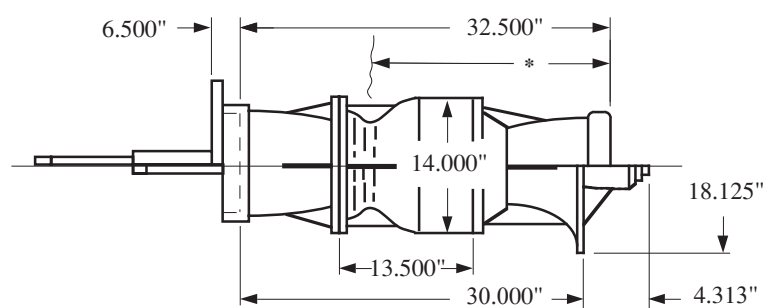
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 2.187"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SM14HH	MAX. SHAFT DIA. = 2.187"	1	-2.5	IMP. - C.I.	-5
IMPELLER WT. - LBS. = 28.4	STD. LATERAL = 1.25"	2	-1.5	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 540	DISCHARGE SIZES = 10"/12"	3	-5	IMP. - S.S.	-3
ADD'L STAGE WT. - LBS. = 225	SUCTION SIZES = 10"/BELL	4	0	BOWL - BRZ.	-1
MAX. SPHERE SIZE = 1.25"	ONE STAGE WR ² = 2,300	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 19"				BOWL - S.S.	-2

Δ CONSULT FACTORY

v18.1



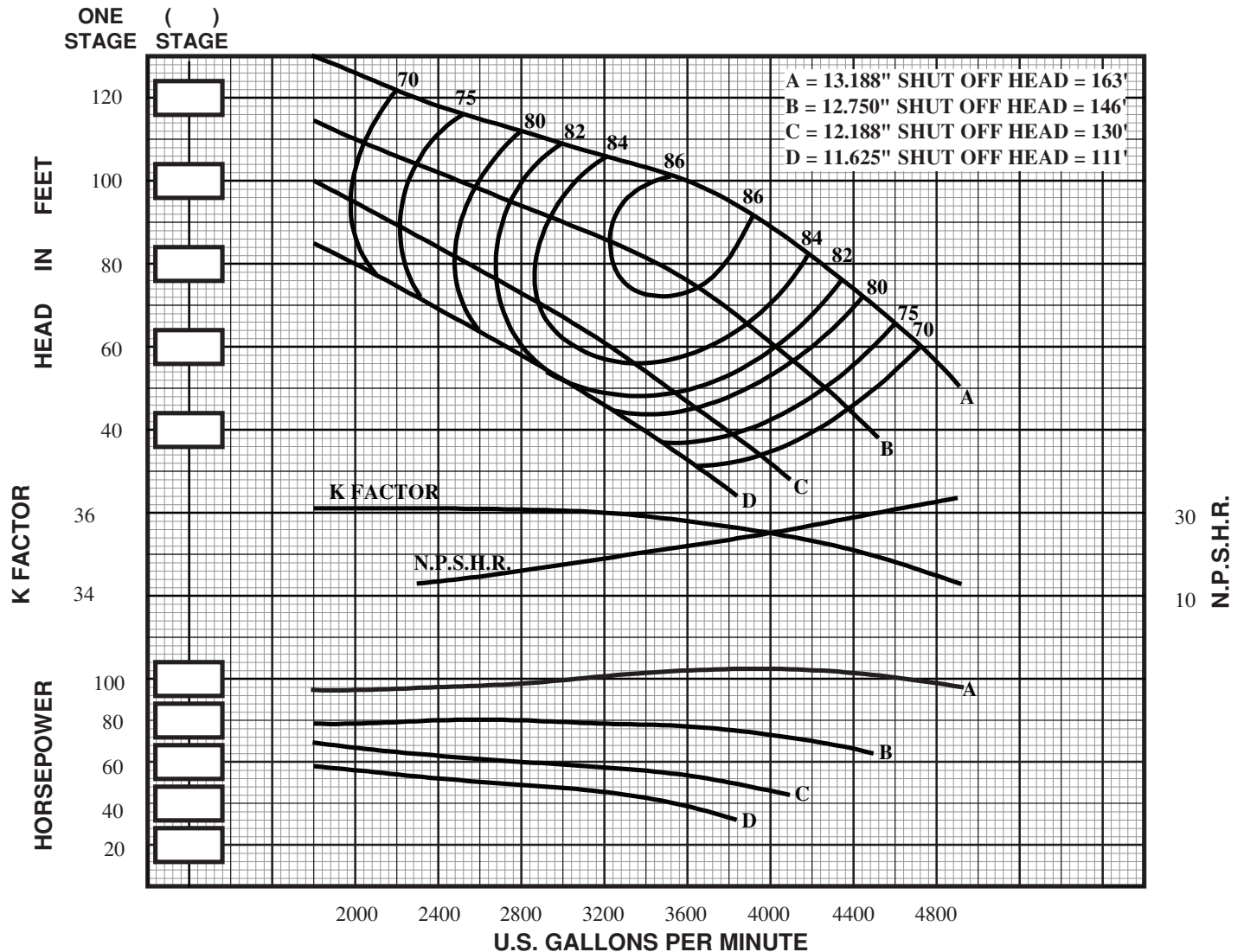
SUBMERSIBLE TURBINE



LINESHAFT TURBINE

SM16MO

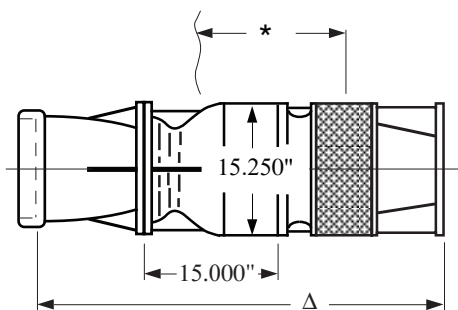
1770 RPM



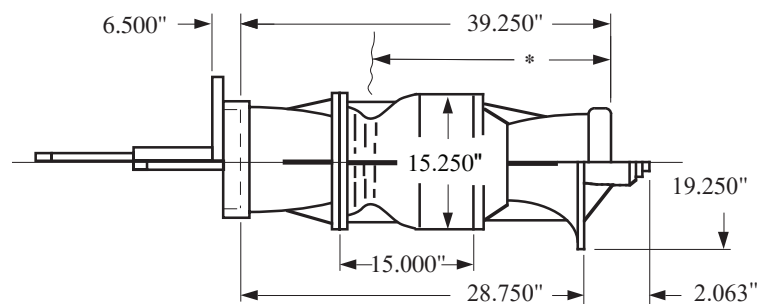
IMPELLER TYPE = SEMI-OPEN	STD. SHAFT DIA. = 2.187"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SM16MO	MAX. SHAFT DIA. = 2.187"	1	-3	IMP. - C.I.	0
IMPELLER WT. - LBS. = 24.0	STD. LATERAL = 1.34"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 600.0	DISCHARGE SIZES = 12"/ 14"	3	-1	IMP. - S.S.	-1
ADD'L STAGE WT. - LBS. = 250.0	SUCTION SIZES = 12"/ BELL	4	0	BOWL - BRZ.	-1
MAX. SPHERE SIZE = 1.19"	ONE STAGE WR ² = 2.260	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 35"				BOWL - S.S.	-2

Δ CONSULT FACTORY

v18.1



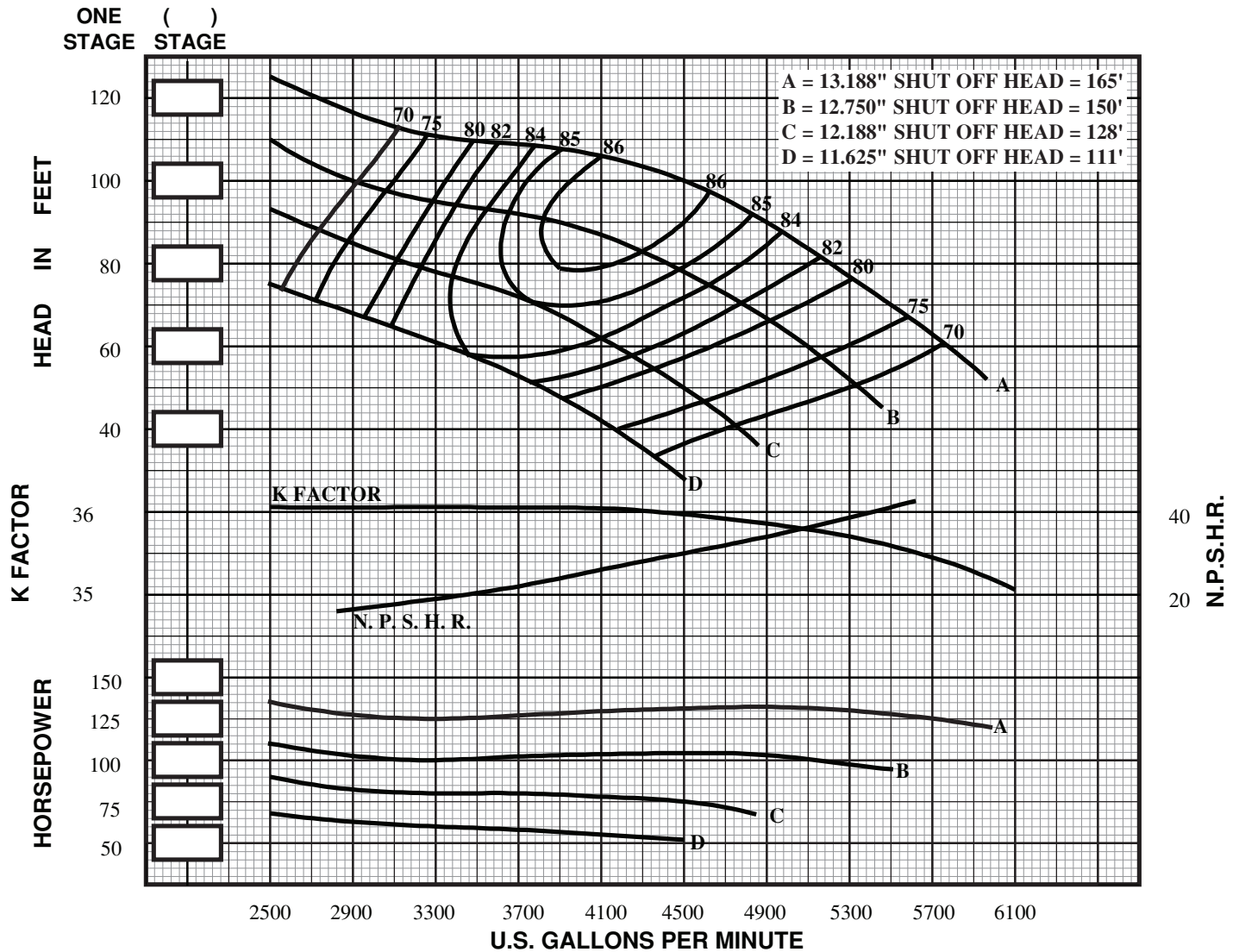
SUBMERSIBLE TURBINE



LINESHAFT TURBINE

SM16HO

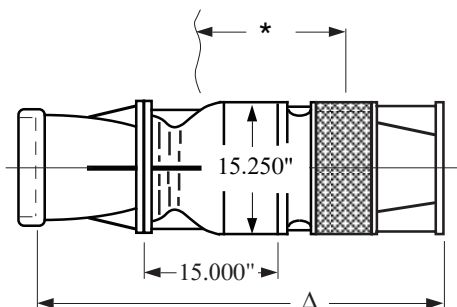
1770 RPM



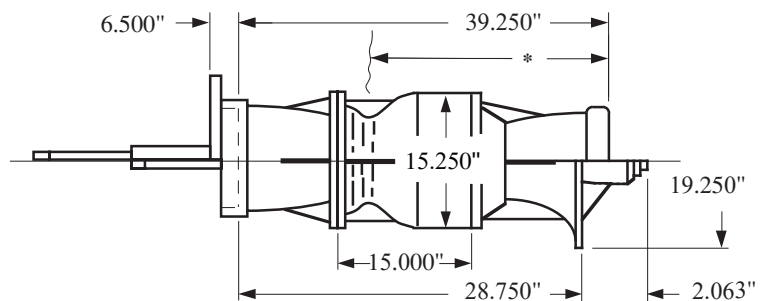
IMPELLER TYPE = SEMI-OPEN	STD. SHAFT DIA. = 2.187"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SM16HO	MAX. SHAFT DIA. = 2.187"				
IMPELLER WT. - LBS. = 25.0	STD. LATERAL = 1.06"	1	-3	IMP. - C.I.	-3
ONE STAGE WT. - LBS. = 600.0	DISCHARGE SIZES = 12"/ 14"	2	-2	IMP. - NI-RI	-2
ADD'L STAGE WT. - LBS. = 250.0	SUCTION SIZES = 12"/ BELL	3	-1	IMP. - S.S.	-1
MAX. SPHERE SIZE = 1.22"	ONE STAGE WR ² = 2.240	4	0	BOWL - BRZ.	-2
MIN. SUBMERGENCE* = 39"		5	0	BOWL - NI-RI	-1
				BOWL - S.S.	-2

Δ CONSULT FACTORY

v18.1

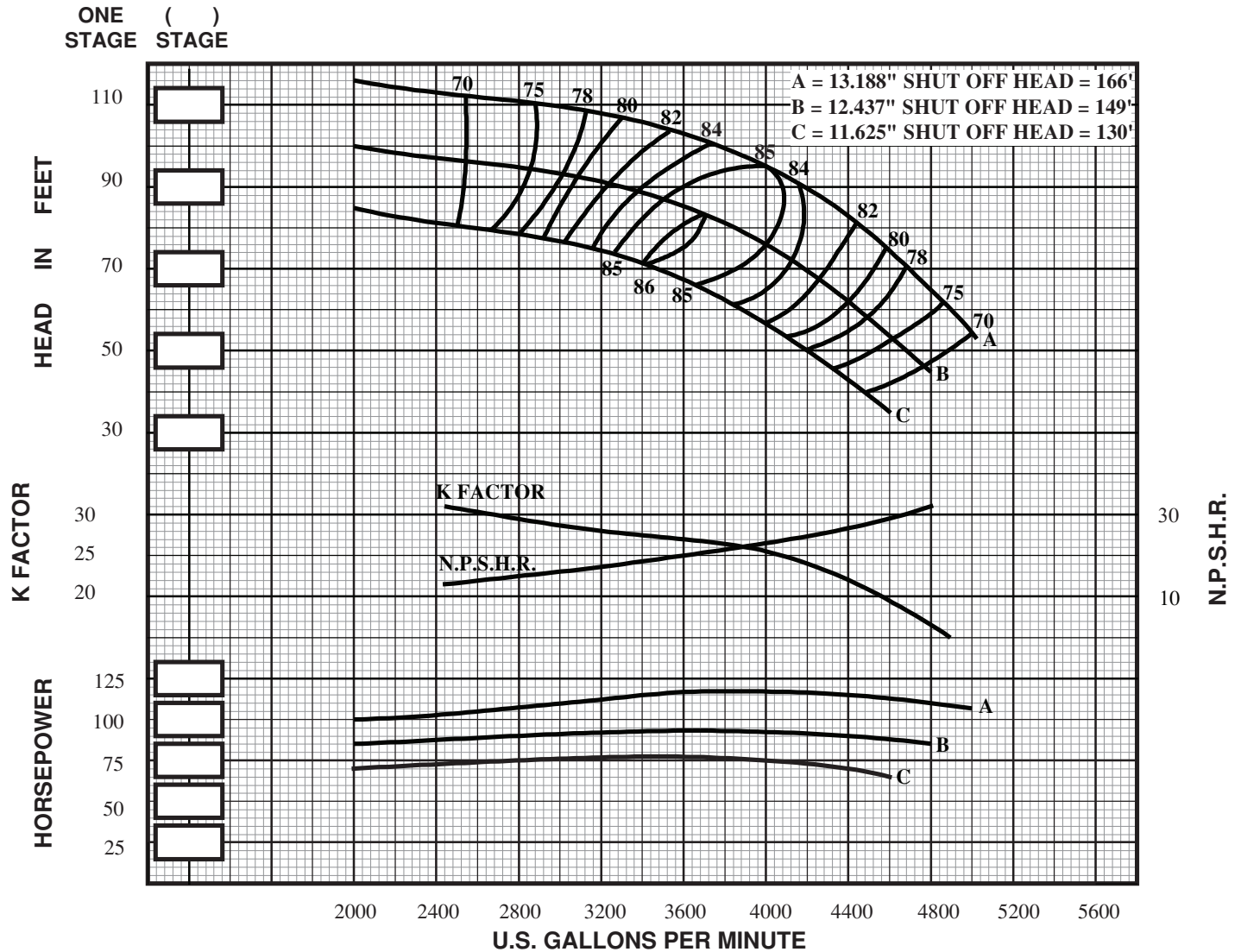


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

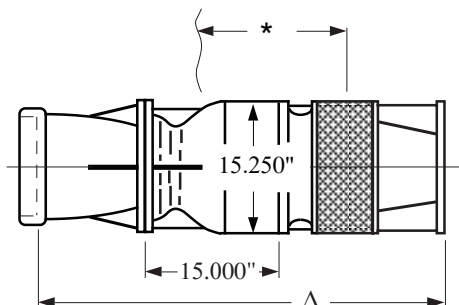
SM16M 1770 RPM



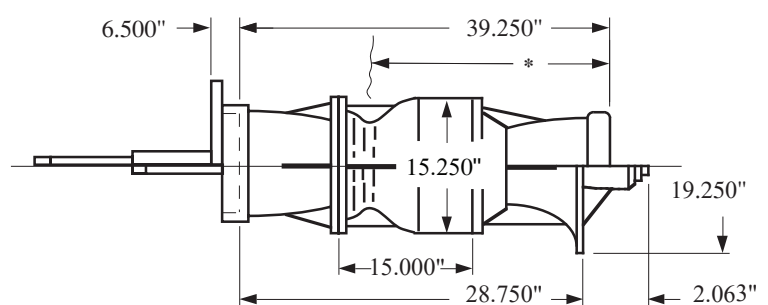
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 2.187"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SM16M	MAX. SHAFT DIA. = 2.187"	1	-3	IMP. - C.I.	0
IMPELLER WT. - LBS. = 39.0	STD. LATERAL = .94"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 600.0	DISCHARGE SIZES = 12"/ 14"	3	-1	IMP. - S.S.	-1
ADD'L STAGE WT. - LBS. = 250.0	SUCTION SIZES = 12"/ BELL	4	0	BOWL - BRZ.	-1
MAX. SPHERE SIZE = 1.00"	ONE STAGE WR ² = 4.966	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 36"				BOWL - S.S.	-2

Δ CONSULT FACTORY

v18.1

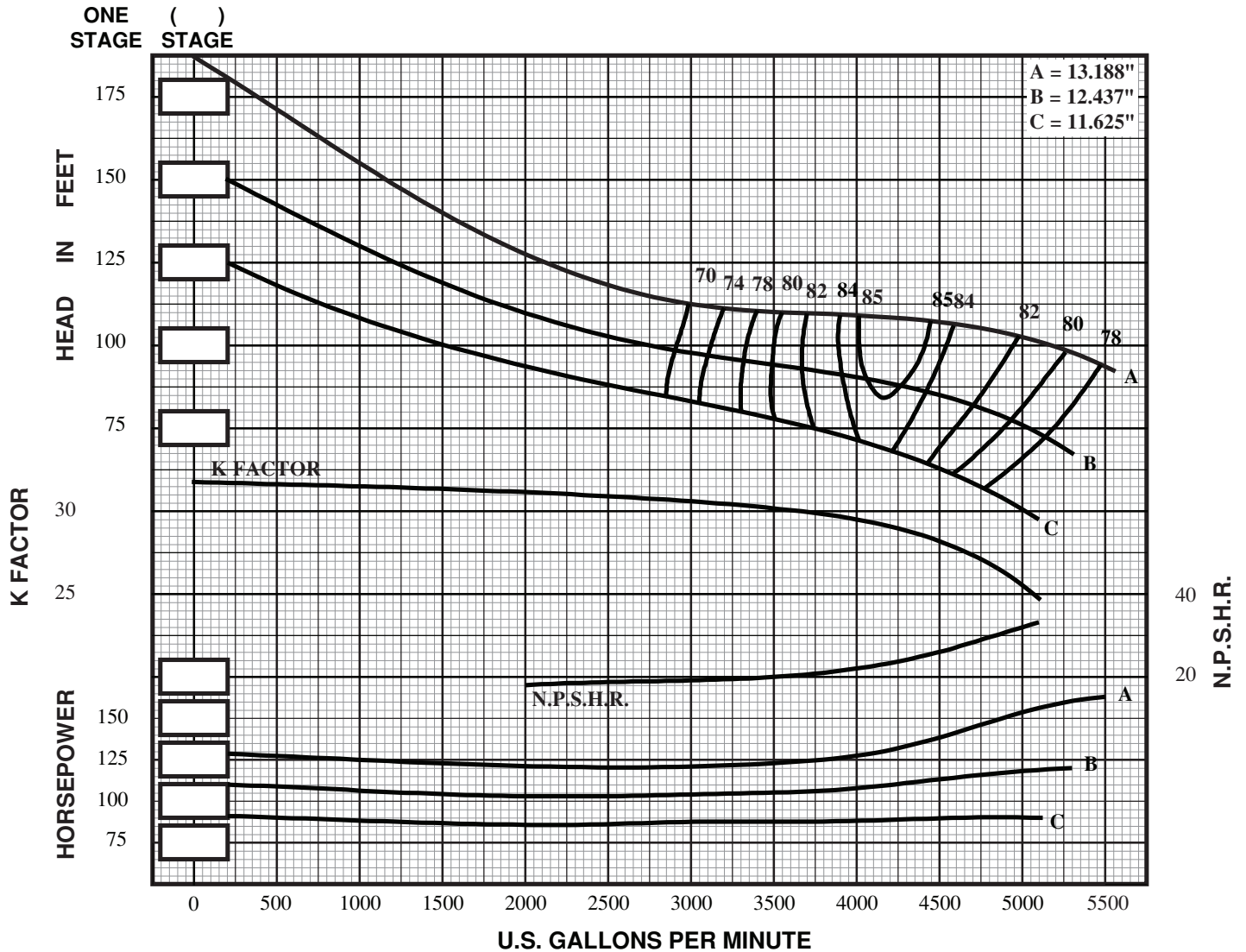


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

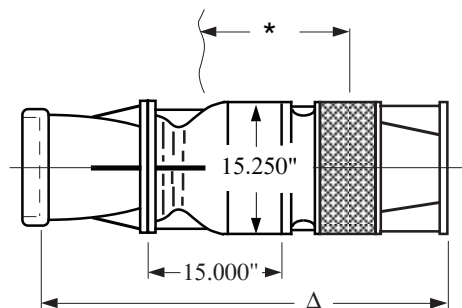
SM16H 1770 RPM



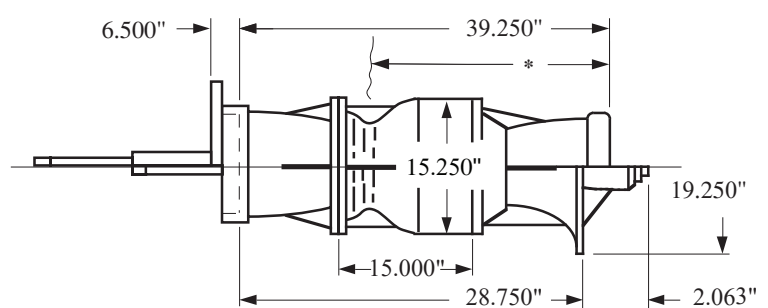
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 2.187"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SM16H	MAX. SHAFT DIA. = 2.187"	1	-3	IMP. - C.I.	-3
IMPELLER WT. - LBS. = 35.5	STD. LATERAL = .94"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 600.0	DISCHARGE SIZES = 12"/ 14"	3	-1	IMP. - S.S.	-1
ADD'L STAGE WT. - LBS. = 250.0	SUCTION SIZES = 12"/ BELL	4	0	BOWL - BRZ.	-2
MAX. SPHERE SIZE = 1.38"	ONE STAGE WR ² = 4.677	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 39"				BOWL - S.S.	-2

Δ CONSULT FACTORY

v18.1

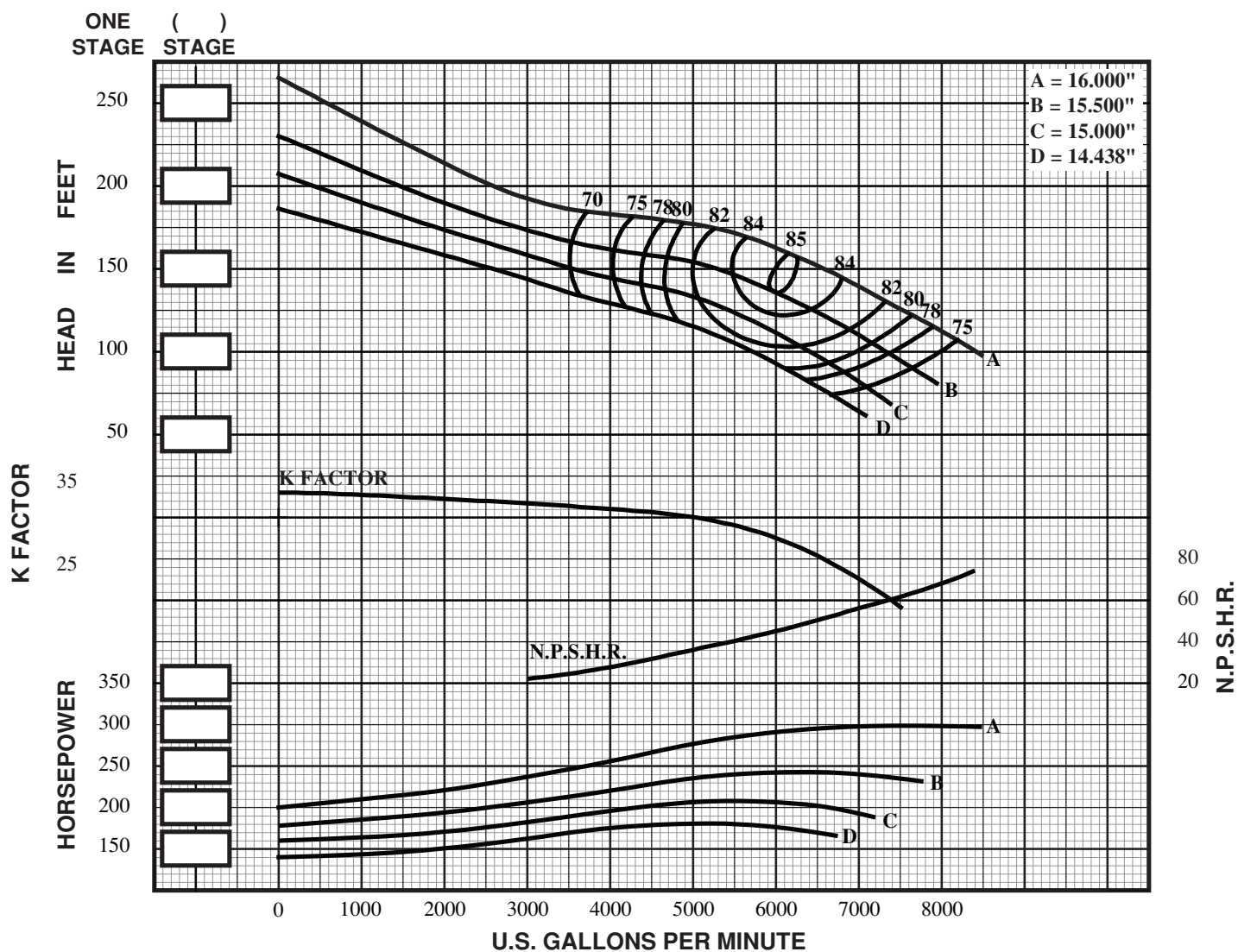


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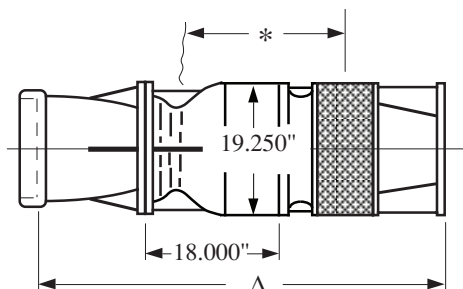


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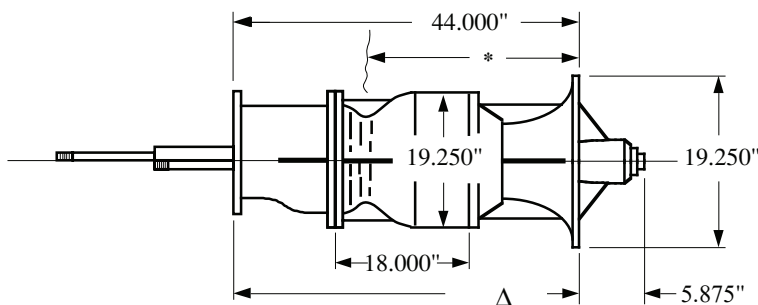
SM20M 1770 RPM



IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 2.437"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SM20M	MAX. SHAFT DIA. = 2.437"	1	-3	IMP. - C.I.	-1
IMPELLER WT. - LBS. = 101.0	STD. LATERAL = 1.50"	2	-2	IMP. - NI-RI	-1
ONE STAGE WT. - LBS. = 1000.0	DISCHARGE SIZES = 16"/Δ	3	-1	IMP. - S.S.	-1
ADD'L STAGE WT. - LBS. = 450.0	SUCTION SIZES = BELL	4	0	BOWL - BRZ.	-1
MAX. SPHERE SIZE = 1.22"	ONE STAGE WR ² = 8.220	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 42"	=			BOWL - S.S.	-1
Δ CONSULT FACTORY			v18.1		

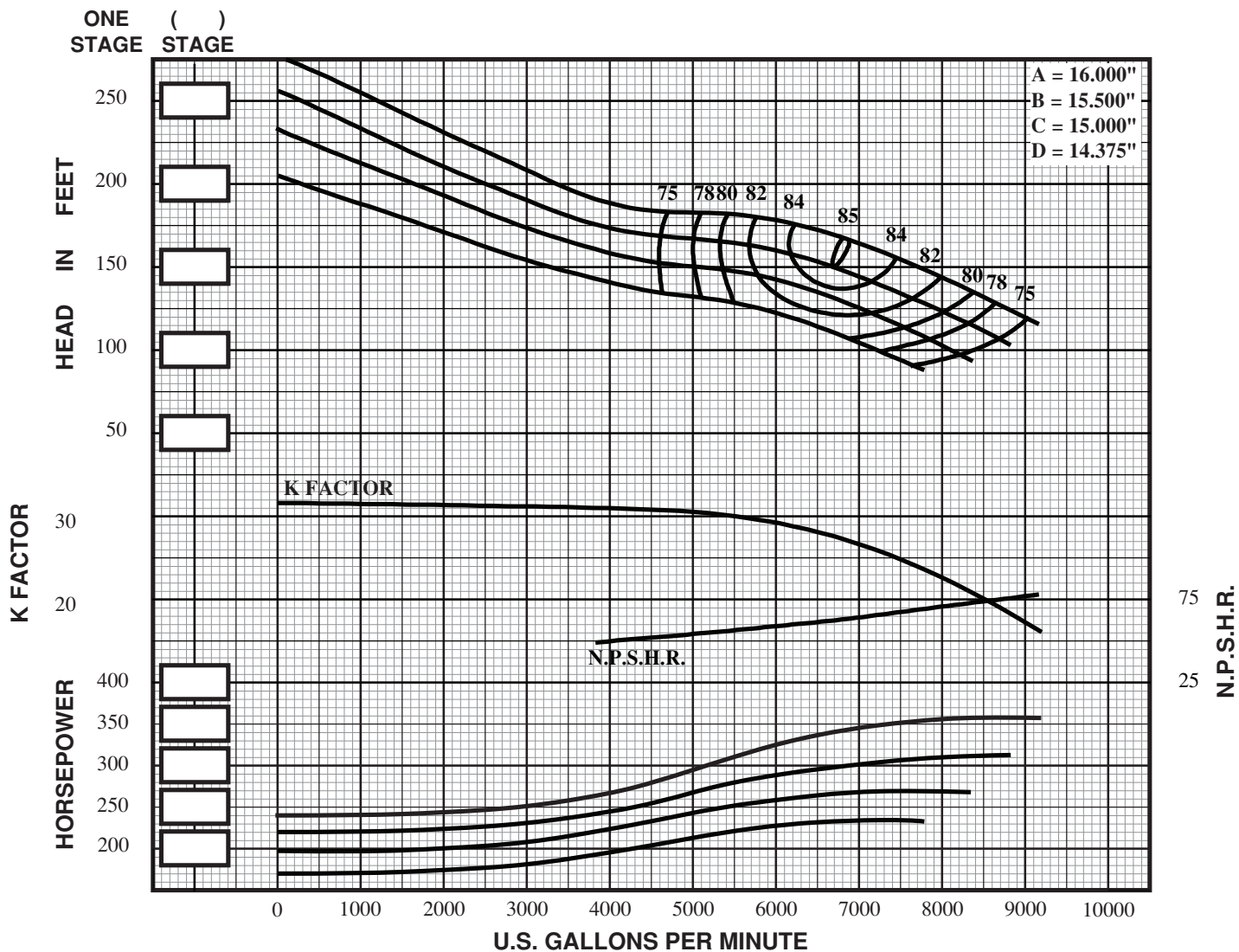


SUBMERSIBLE TURBINE

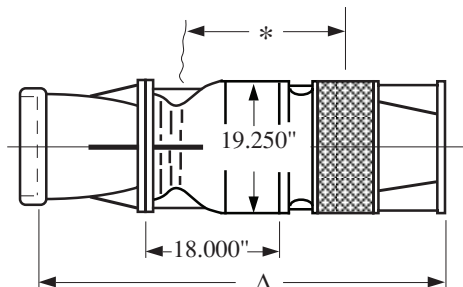


LINESHAFT TURBINE

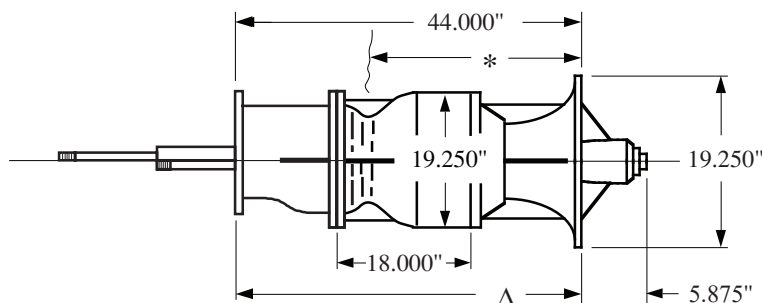
SM20H 1770 RPM



IMPELLER TYPE	=ENCLOSED	STD. SHAFT DIA.	= 2.437"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO.	= SM20H	MAX. SHAFT DIA.	= 2.437"	1	-3	IMP. - C.I.	-1
IMPELLER WT. - LBS.	= 69.0	STD. LATERAL	= 1.31"	2	-2	IMP. - NI-RI	-1
ONE STAGE WT. - LBS.	= 1000.0	DISCHARGE SIZES	= 16"/ Δ	3	-1	IMP. - S.S.	-1
ADD'L STAGE WT. - LBS.	= 450.0	SUCTION SIZES	= BELL	4	0	BOWL - BRZ.	-1
MAX. SPHERE SIZE	= 1.28"	ONE STAGE WR ²	= 8.210	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE*	= 46"					BOWL - S.S.	-1
Δ CONSULT FACTORY					v18.1		



SUBMERSIBLE TURBINE



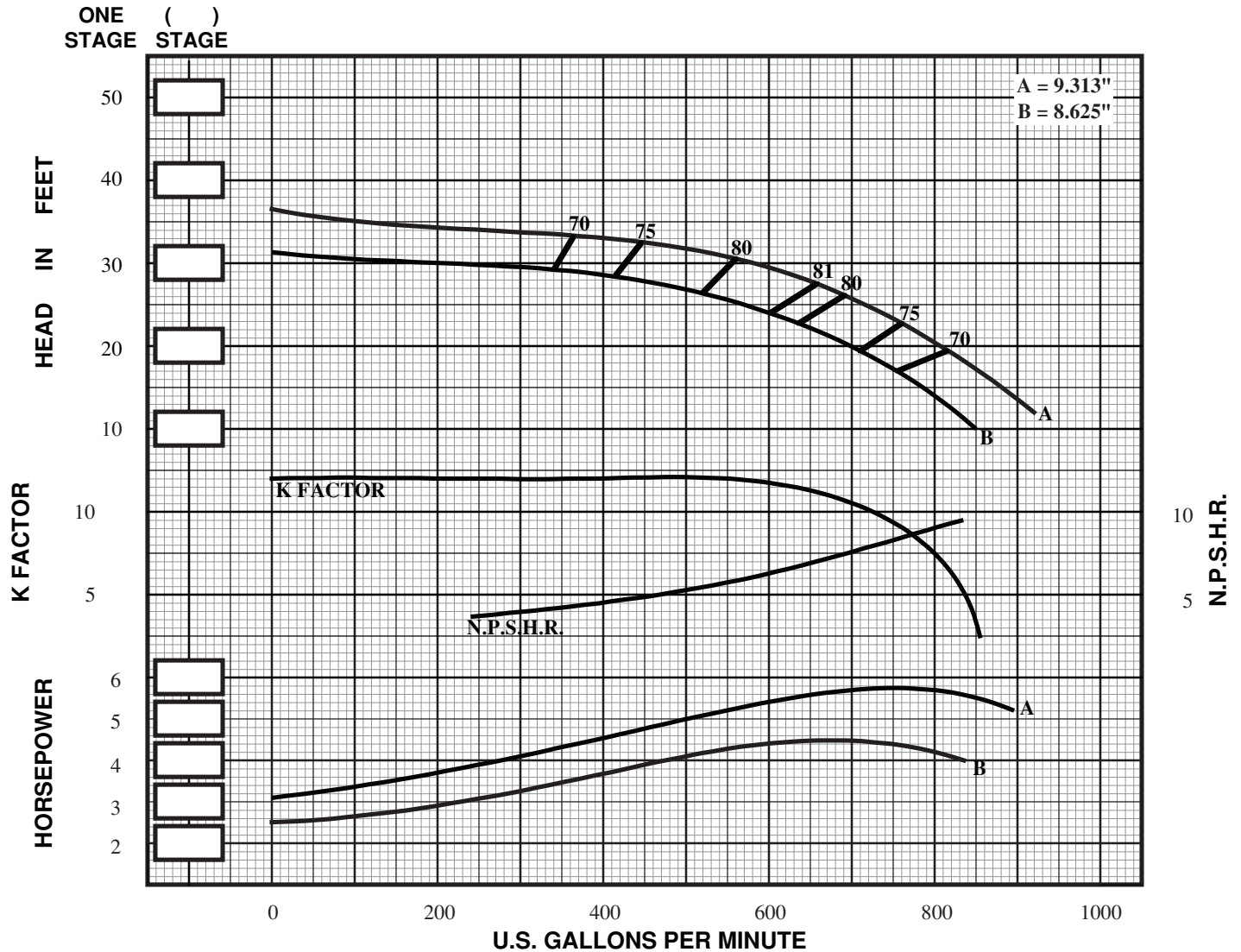
LINESHAFT TURBINE

1160 RPM Selection Chart

Model Number	Bowl Dia. (in.)	Peak Eff. (full dia.)	BEP Flow (gpm)	BEP Head (ft./ stage)	BEP NPSHr (full dia.)	POR (gpm)	Ns	Nss
SR11MO	11.50	81.0	649	27.7	7.02	454-779	2447	6852
SR11HO	11.50	83.0	785	31.3	8.73	550-934	2456	6399
SP11L	11.25	84.5	738	23.5	7.89	517-886	2952	6694
SP11M	11.25	85.0	768	25.7	7.05	538-922	2816	7430
SP11H	11.25	83.7	1033	25.0	7.64	723-1240	3335	8113
SW12L	11.63	85.0	325	30.9	3.02	228-390	1596	9128
SW12M	11.63	86.0	393	36.2	2.91	275-472	1558	10321
SP12M	11.88	82.0	488	36.6	4.89	342-586	1722	7793
SP12H	11.88	81.0	528	40.0	5.26	370-634	1676	7674
SL12M	11.75	86.0	577	26.7	5.92	404-692	2372	7342
SL12H	11.75	86.0	634	32.9	6.43	444-761	2126	7233
SJ12M	12.00	85.0	782	30.0	7.48	547-938	2531	7172
SJ12H	12.00	82.0	914	35.3	8.49	640-1097	2422	7051
SM14L	14.00	83.4	1388	27.7	5.57	972-1666	3579	11920
SM14M	14.00	84.5	1478	35.4	8.13	1035-1774	3073	9262
SM14H	14.00	85.0	1734	37.7	10.1	1214-2081	3175	8526
SM14HH	14.00	83.5	1950	39.5	9.80	1365-2340	3251	9248
SM16MO	15.25	86.0	2427	42.7	11.7	1699-2912	3421	9033
SM16HO	15.25	86.0	2892	45.5	13.4	2024-3470	3561	8907
SM16M	15.25	85.0	2590	40.0	14.4	1813-3108	3712	7986
SM16H	15.25	86.0	2942	46.7	12.2	2059-3530	3522	9638
SM20M	19.25	85.0	4135	67.7	20.9	2895-4962	3160	7631
SM20H	19.25	85.0	4515	71.4	21.3	3161-5418	3173	7861
SM24M	23.50	81.5	6920	76.8	27.0	4844-8304	3720	8147
SM24H	23.50	85.5	8973	90.4	35.2	6281-10768	3748	7604
SM28H	27.00	87.0	14923	115	39.5	10446-17908	4035	8994

v18.1

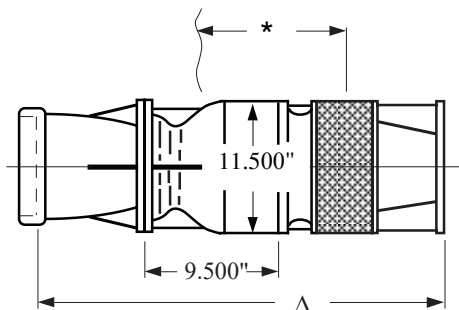
SR11MO 1160 RPM



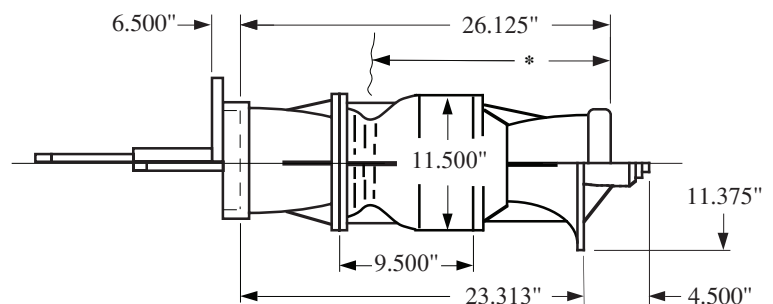
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IMPELLER NO. = SR11MO	MAX. SHAFT DIA. = 1.687"	1	-3	IMP. - C.I.	-1
IMPELLER WT. - LBS. = 8.0	STD. LATERAL = 1.13"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 270.0	DISCHARGE SIZES = 8" / 10"	3	-1	IMP. - S.S.	NOT RECOM.
ADD'L STAGE WT. - LBS. = 100.0	SUCTION SIZES = 8" / BELL	4	0	BOWL - BRZ.	-1
MAX. SPHERE SIZE = .75"	ONE STAGE WR ² = .375	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 15"				BOWL - S.S.	-2

Δ CONSULT FACTORY

v18.1

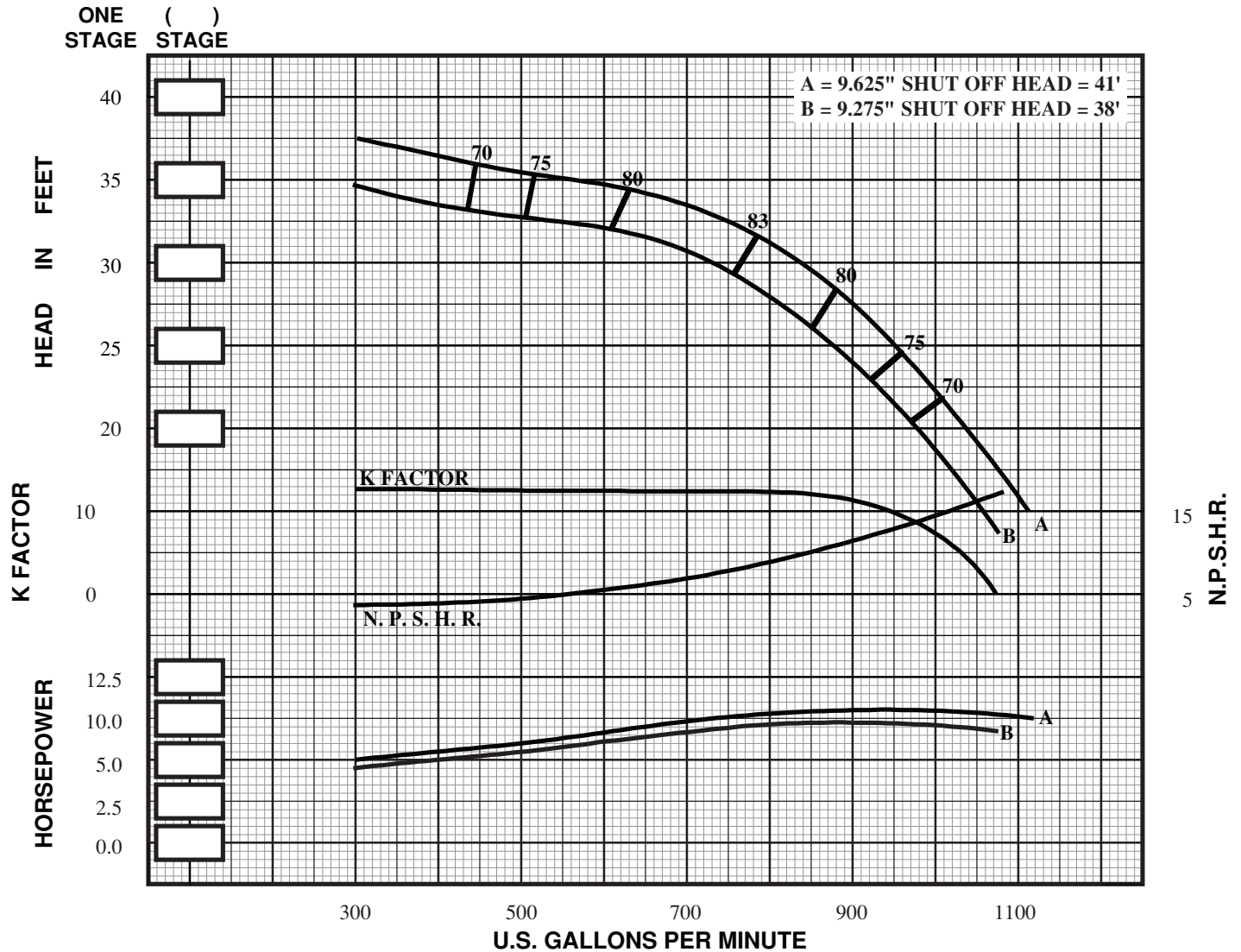


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

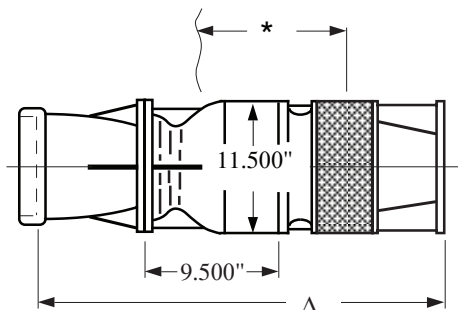
SR11H0 1160 RPM



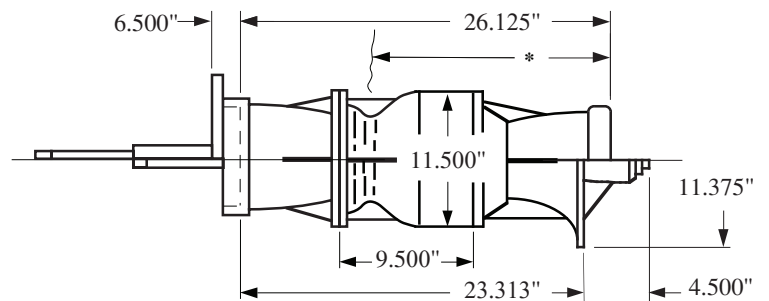
IMPELLER TYPE = SEMI-OPEN	STD. SHAFT DIA. = 1.687"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SR11H0	MAX. SHAFT DIA. = 1.687"				
IMPELLER WT. - LBS. = 8.35	STD. LATERAL = .72"	1	-3	IMP. - C.I.	0
ONE STAGE WT. - LBS. = 270.0	DISCHARGE SIZES = 8" / 10"	2	-2	IMP. - NI-RI	-2
ADD'L STAGE WT. - LBS. = 100.0	SUCTION SIZES = 8" / BELL	3	-1	IMP. - S.S.	NOT RECOM.
MAX. SPHERE SIZE = .75"	ONE STAGE WR ² = .411	4	0	BOWL - BRZ.	-1
MIN. SUBMERGENCE* = 15"		5	0	BOWL - NI-RI	-1
				BOWL - S.S.	-2

Δ CONSULT FACTORY

v18.1

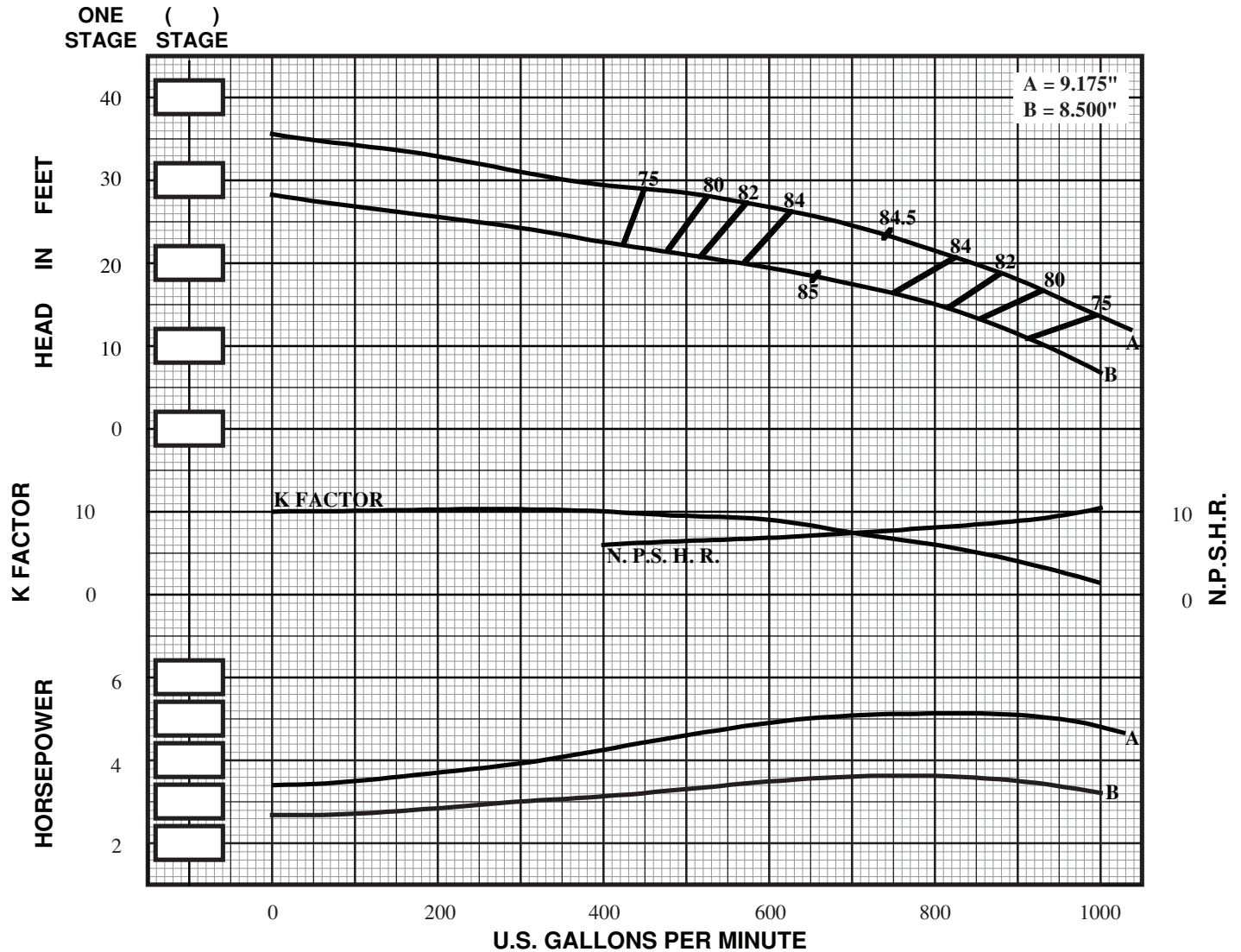


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

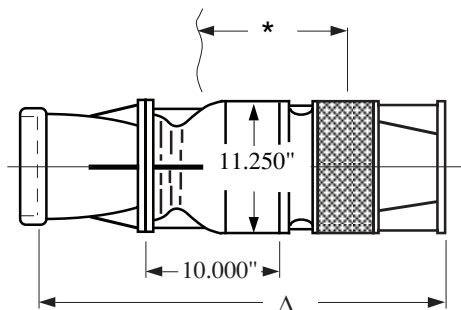
SP11L 1160 RPM



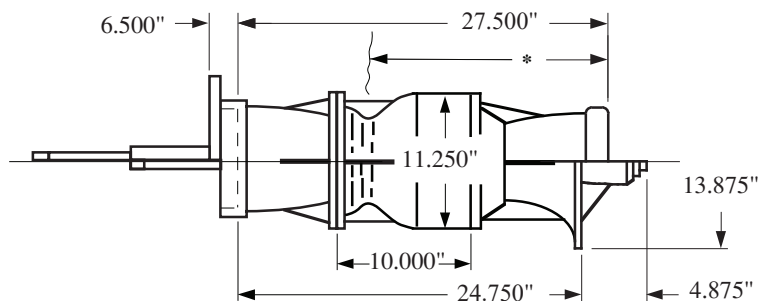
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IMPELLER NO. = SP11L	MAX. SHAFT DIA. = 1.937"				
IMPELLER WT. - LBS. = 16.4	STD. LATERAL = 1.13"	1	-4	IMP. - C.I.	0
ONE STAGE WT. - LBS. = 290.0	DISCHARGE SIZES = 8" / 10"	2	-3	IMP. - NI-RI	-2
ADD'L STAGE WT. - LBS. = 105.0	SUCTION SIZES = 8" / BELL	3	-2	IMP. - S.S.	-1
MAX. SPHERE SIZE = 1.19"	ONE STAGE WR ² = .754	4	-1	BOWL - BRZ.	-1
MIN. SUBMERGENCE* = 18"		5	0	BOWL - NI-RI	-1
				BOWL - S.S.	-2

Δ CONSULT FACTORY

v18.1

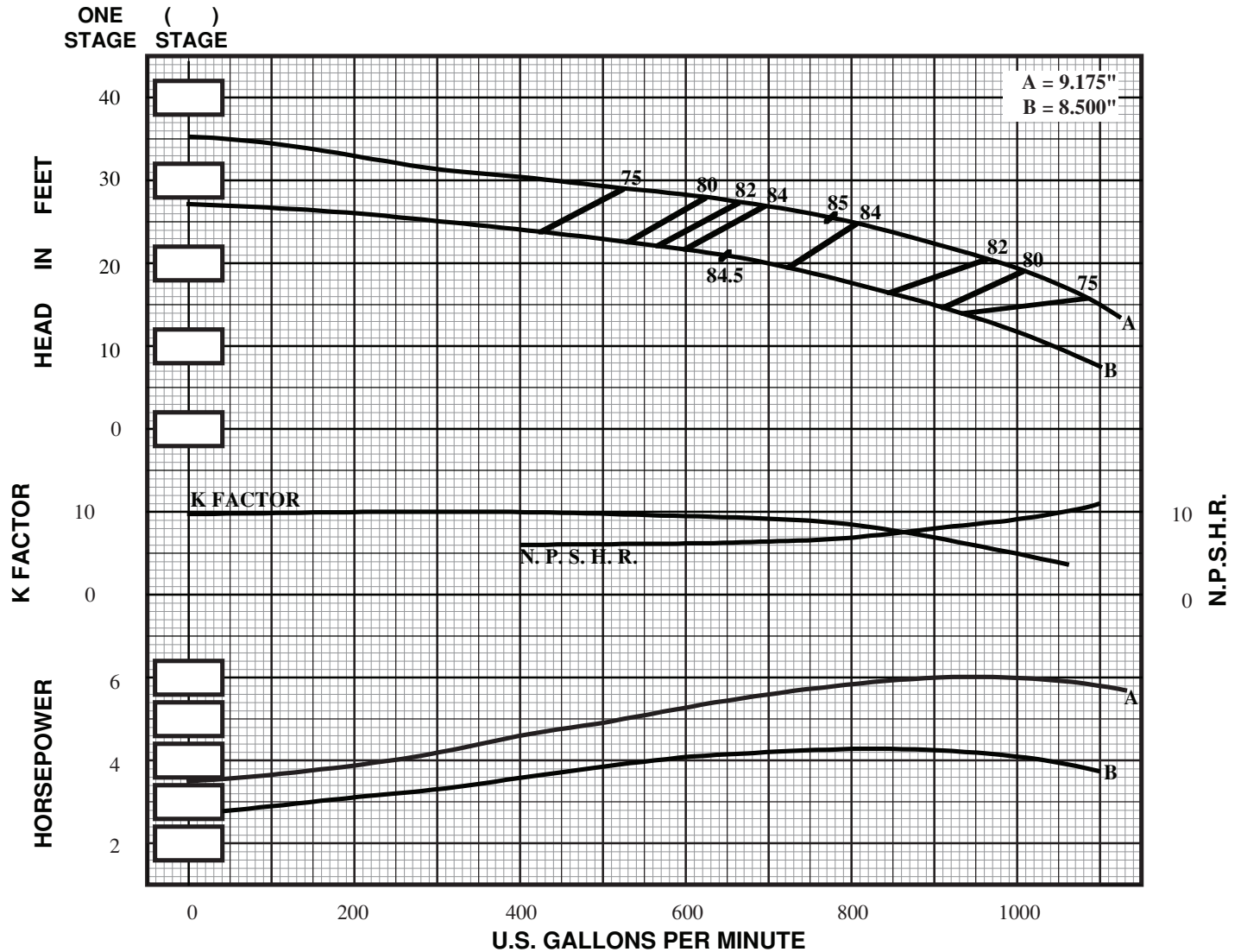


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

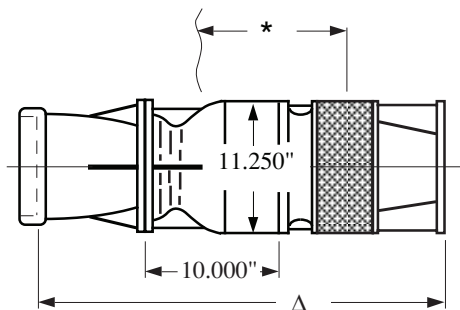
SP11M 1160 RPM



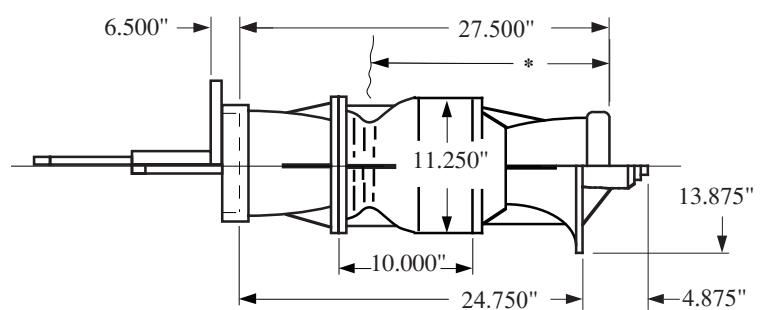
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.937"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP11M	MAX. SHAFT DIA. = 1.937"				
IMPELLER WT. - LBS. = 14.3	STD. LATERAL = 1.13"	1	-3	IMP. - C.I.	0
ONE STAGE WT. - LBS. = 290.0	DISCHARGE SIZES = 8" / 10"	2	-2	IMP. - NI-RI	-2
ADD'L STAGE WT. - LBS. = 105.0	SUCTION SIZES = 8" / BELL	3	-1	IMP. - S.S.	-2
MAX. SPHERE SIZE = 1.19"	ONE STAGE WR ² = .670	4	0	BOWL - BRZ.	-1
MIN. SUBMERGENCE* = 18"		5	0	BOWL - NI-RI	-1
				BOWL - S.S.	-2

Δ CONSULT FACTORY

v18.1

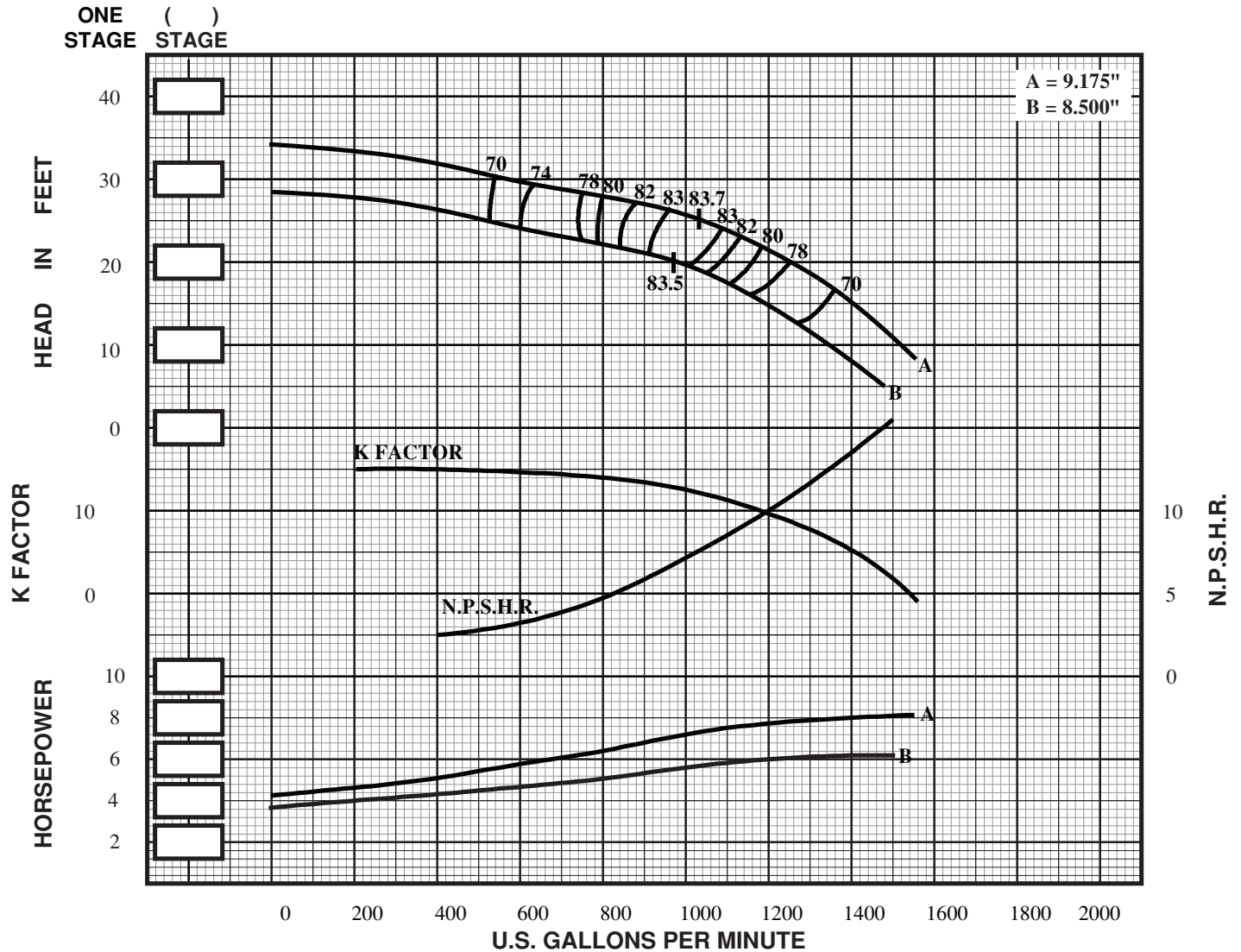


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

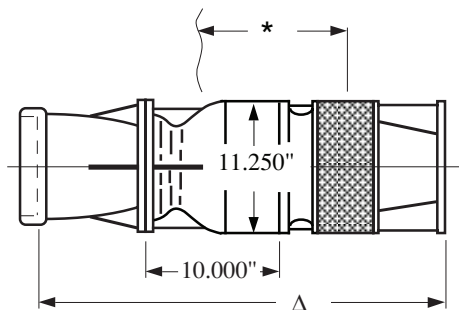
SP11H 1160 RPM



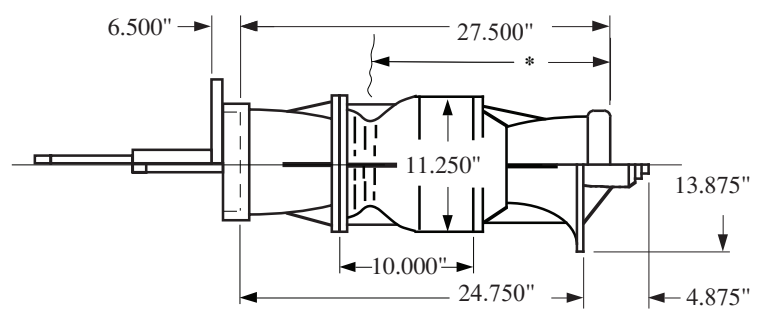
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.937"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP11H	MAX. SHAFT DIA. = 1.937"	1	-3	IMP. - C.I.	0
IMPELLER WT. - LBS. = 14.9	STD. LATERAL = 1.13"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 290.0	DISCHARGE SIZES = 8"/ 10"	3	-1	IMP. - S.S.	-2
ADD'L STAGE WT. - LBS. = 105.0	SUCTION SIZES = 8"/ BELL	4	0	BOWL - BRZ.	-1
MAX. SPHERE SIZE = 1.19"	ONE STAGE WR ² = .718	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 18"				BOWL - S.S.	-2

Δ CONSULT FACTORY

v18.1

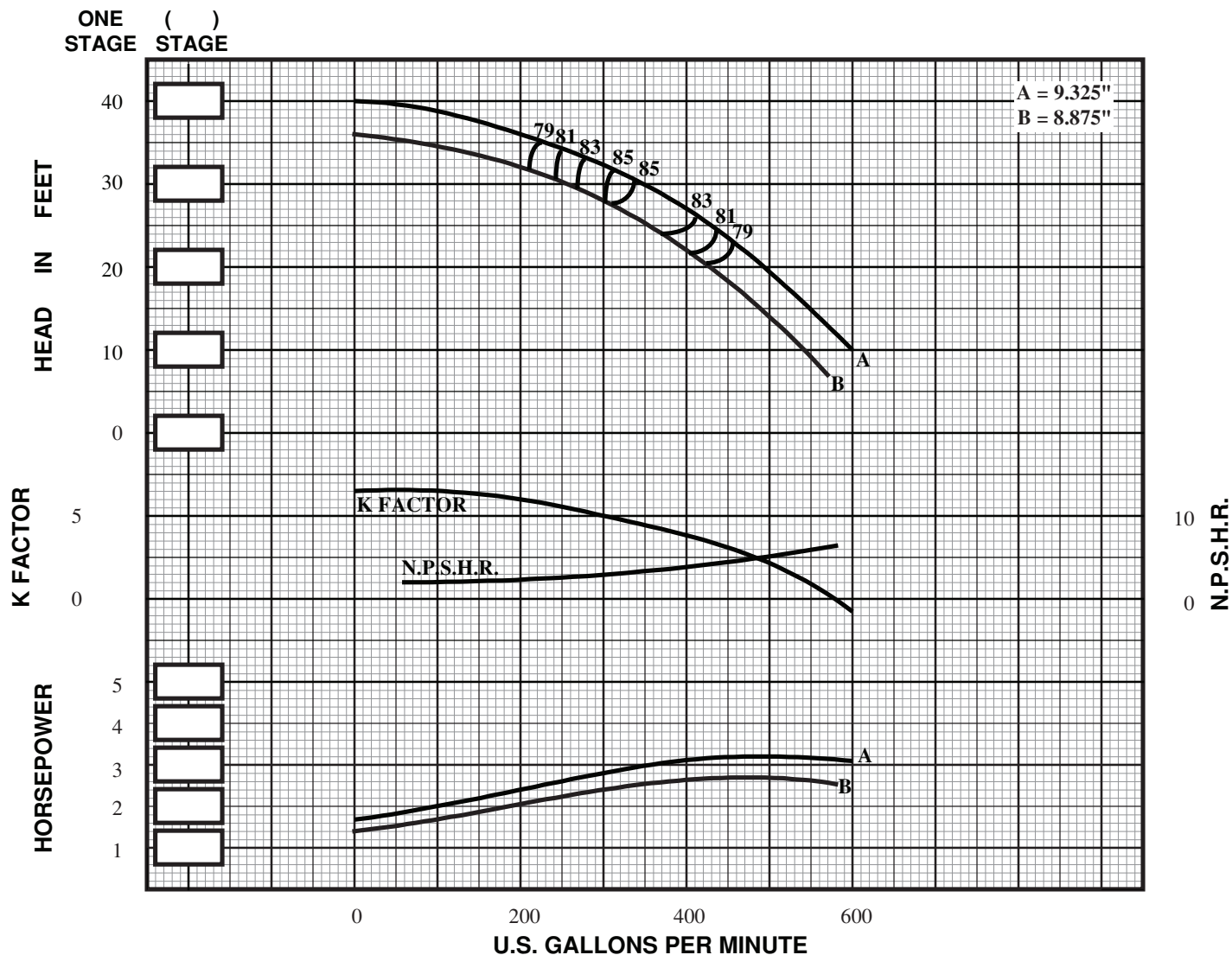


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

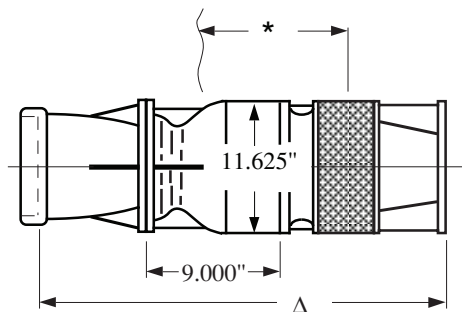
SW12L 1160 RPM



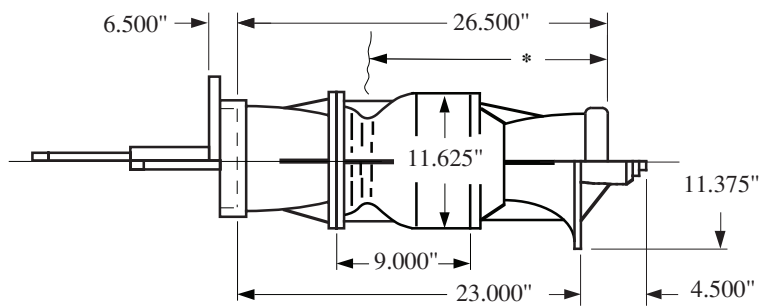
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.687"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SW12L	MAX. SHAFT DIA. = 1.687"				
IMPELLER WT. - LBS. = 13.8	STD. LATERAL = 1.13"	1	-3	IMP. - C.I.	-2
ONE STAGE WT. - LBS. = 235.0	DISCHARGE SIZES = 6"/ 8"/ 10"	2	-2	IMP. - NI-RI	-2
ADD'L STAGE WT. - LBS. = 105.0	SUCTION SIZES = 6"/ BELL	3	-1	IMP. - S.S.	-3
MAX. SPHERE SIZE = .66"	ONE STAGE WR ² = .642	4	0	BOWL - BRZ.	-2
MIN. SUBMERGENCE* = 16"	=	5	0	BOWL - NI-RI	-1
				BOWL - S.S.	-4

Δ CONSULT FACTORY

v18.1

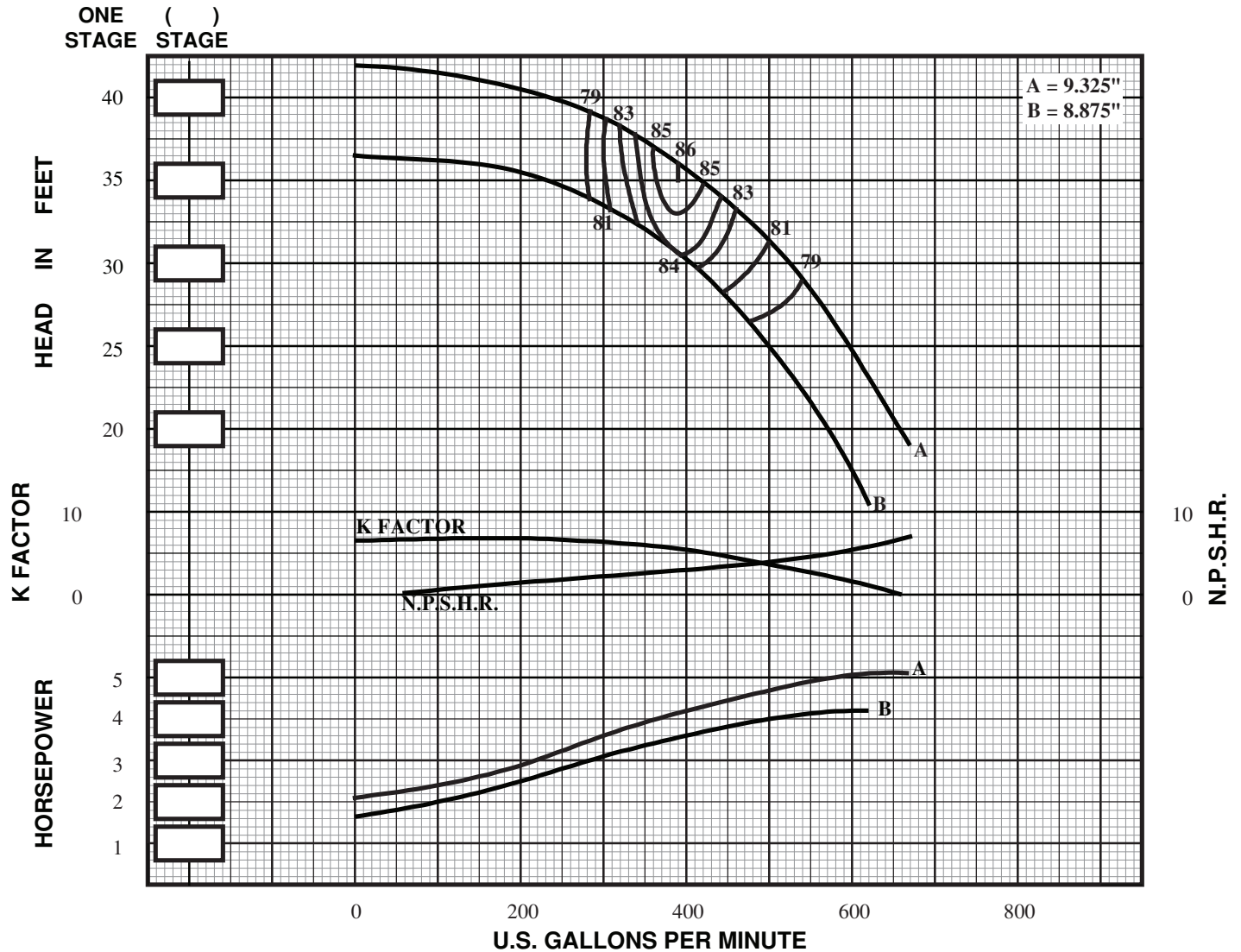


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

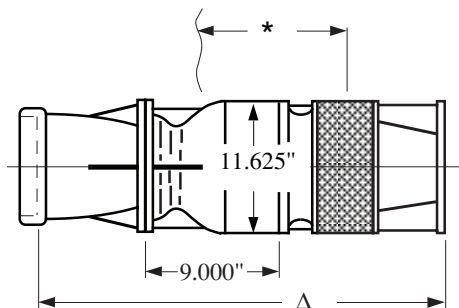
SW12M 1160 RPM



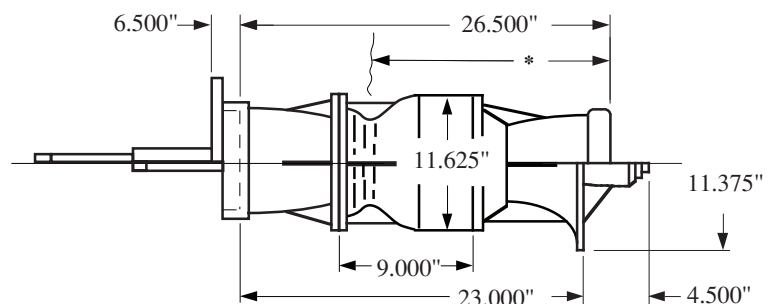
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.687"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SW12M	MAX. SHAFT DIA. = 1.687"	1	-3	IMP. - C.I.	-2
IMPELLER WT. - LBS. = 14.5	STD. LATERAL = 1.13"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 235.0	DISCHARGE SIZES = 6"/ 8"/ 10"	3	-1	IMP. - S.S.	-3
ADD'L STAGE WT. - LBS. = 105.0	SUCTION SIZES = 6"/ BELL	4	0	BOWL - BRZ.	-2
MAX. SPHERE SIZE = .66"	ONE STAGE WR ² = .673	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 16"				BOWL - S.S.	-4

Δ CONSULT FACTORY

v18.1



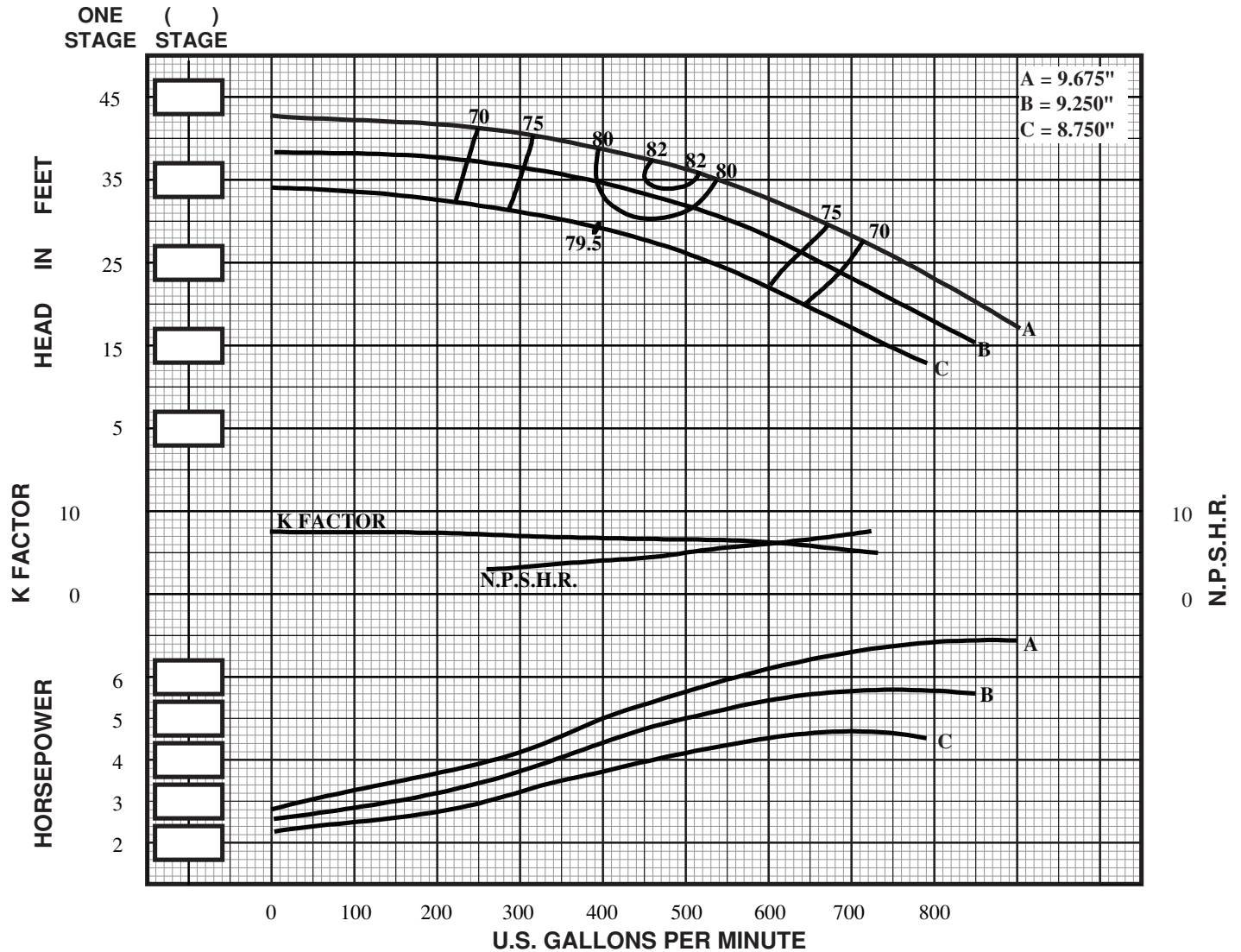
SUBMERSIBLE TURBINE



LINESHAFT TURBINE

SP12M

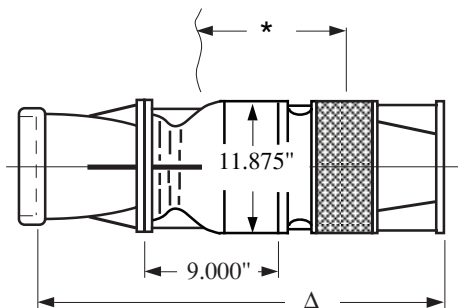
1160 RPM



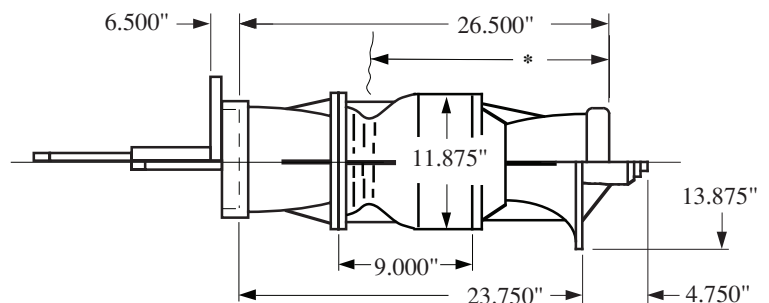
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.687"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP12M	MAX. SHAFT DIA. = 1.687"	1	-3	IMP. - C.I.	-1
IMPELLER WT. - LBS. = 15.0	STD. LATERAL = 1.00"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 260.0	DISCHARGE SIZES = 6"/ 8"/ 10"	3	-1	IMP. - S.S.	-2
ADD'L STAGE WT. - LBS. = 120.0	SUCTION SIZES = 8"/ BELL	4	0	BOWL - BRZ.	-1
MAX. SPHERE SIZE = .81"	ONE STAGE WR ² = .746	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 16"				BOWL - S.S.	-2

Δ CONSULT FACTORY

v18.1



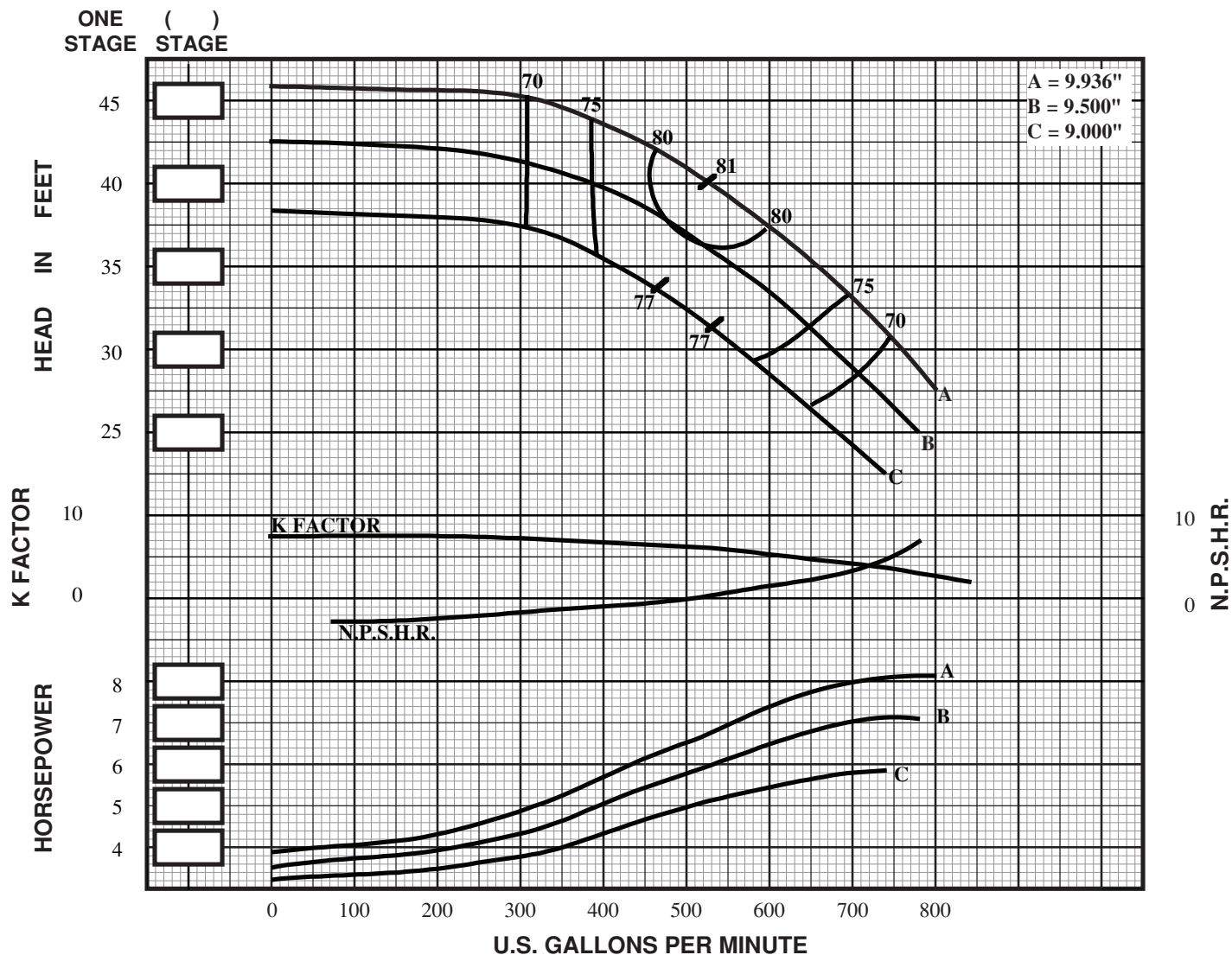
SUBMERSIBLE TURBINE



LINESHAFT TURBINE

SP12H

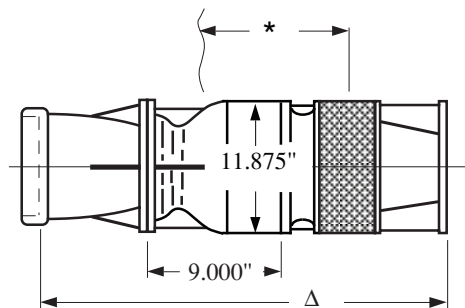
1160 RPM



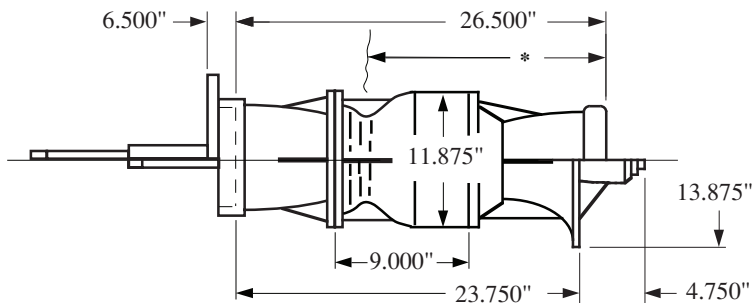
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.687"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SP12H	MAX. SHAFT DIA. = 1.687"	1	-3	IMP. - C.I.	-1
IMPELLER WT. - LBS. = 15.9	STD. LATERAL = 1.00"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 260.0	DISCHARGE SIZES = 6"/8"/10"	3	-1	IMP. - S.S.	-2
ADD'L STAGE WT. - LBS. = 120.0	SUCTION SIZES = 8"/BELL	4	0	BOWL - BRZ.	-1
MAX. SPHERE SIZE = .75"	ONE STAGE WR ² = .790	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 16"				BOWL - S.S.	-2

Δ CONSULT FACTORY

v18.1

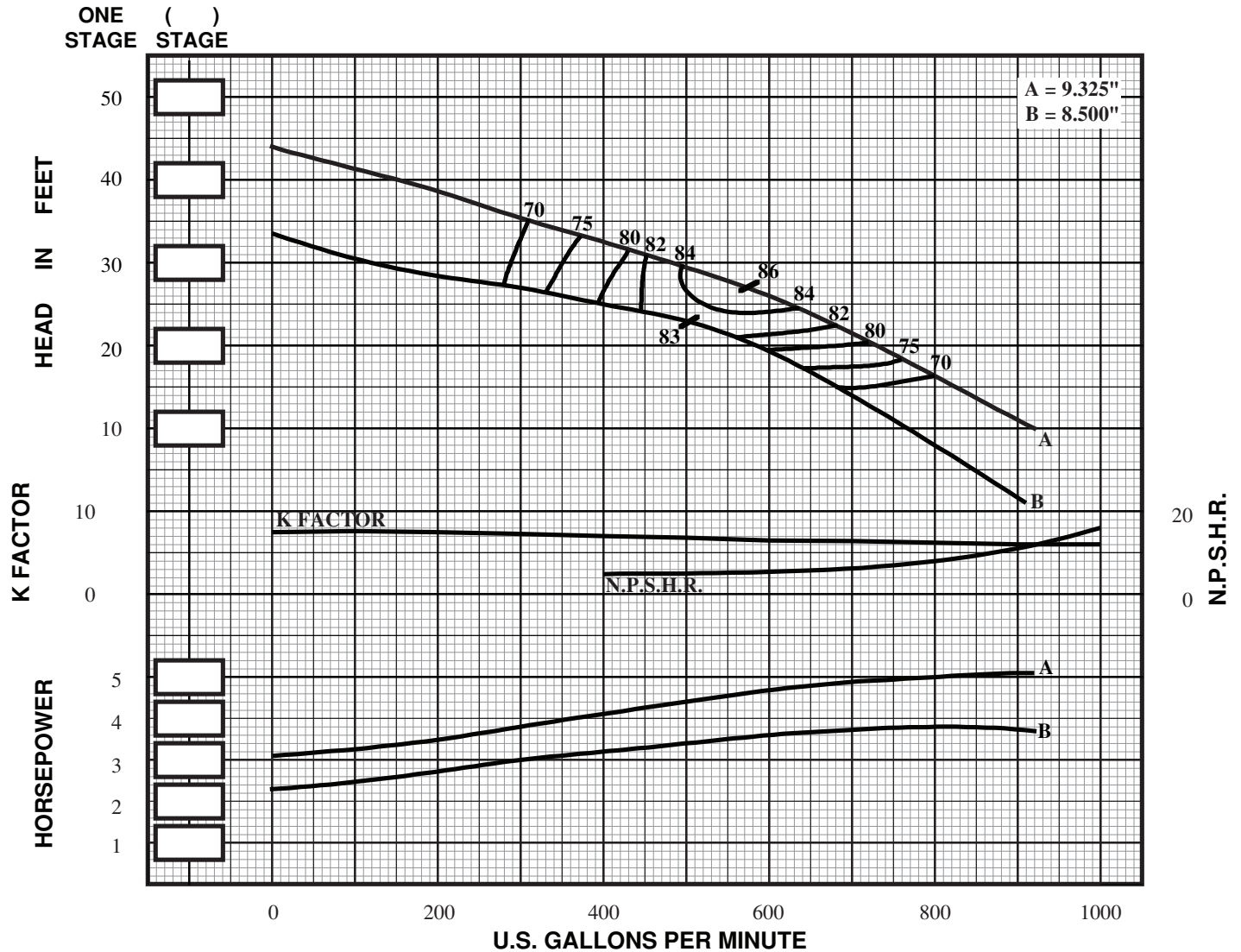


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

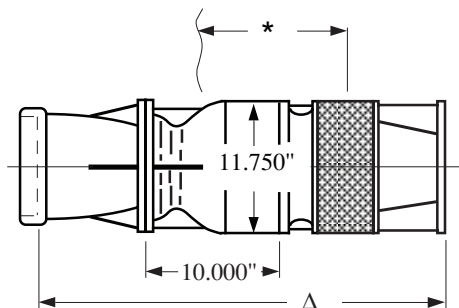
SL12M 1160 RPM



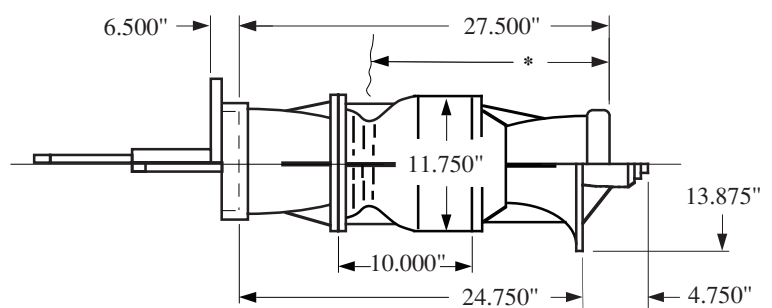
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.687"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SL12M	MAX. SHAFT DIA. = 1.687"	1	-3.5	IMP. - C.I.	-3
IMPELLER WT. - LBS. = 13.2	STD. LATERAL = 1.13"	2	-2	IMP. - NI-RI	-3
ONE STAGE WT. - LBS. = 250.0	DISCHARGE SIZES = 6"/ 8"/ 10"	3	-1	IMP. - S.S.	-4
ADD'L STAGE WT. - LBS. = 107.0	SUCTION SIZES = 8"/ BELL	4	0	BOWL - BRZ.	-2
MAX. SPHERE SIZE = .88"	ONE STAGE WR ² = .670	5	0	BOWL - NI-RI	-2
MIN. SUBMERGENCE* = 17"				BOWL - S.S.	-3

Δ CONSULT FACTORY

v18.1

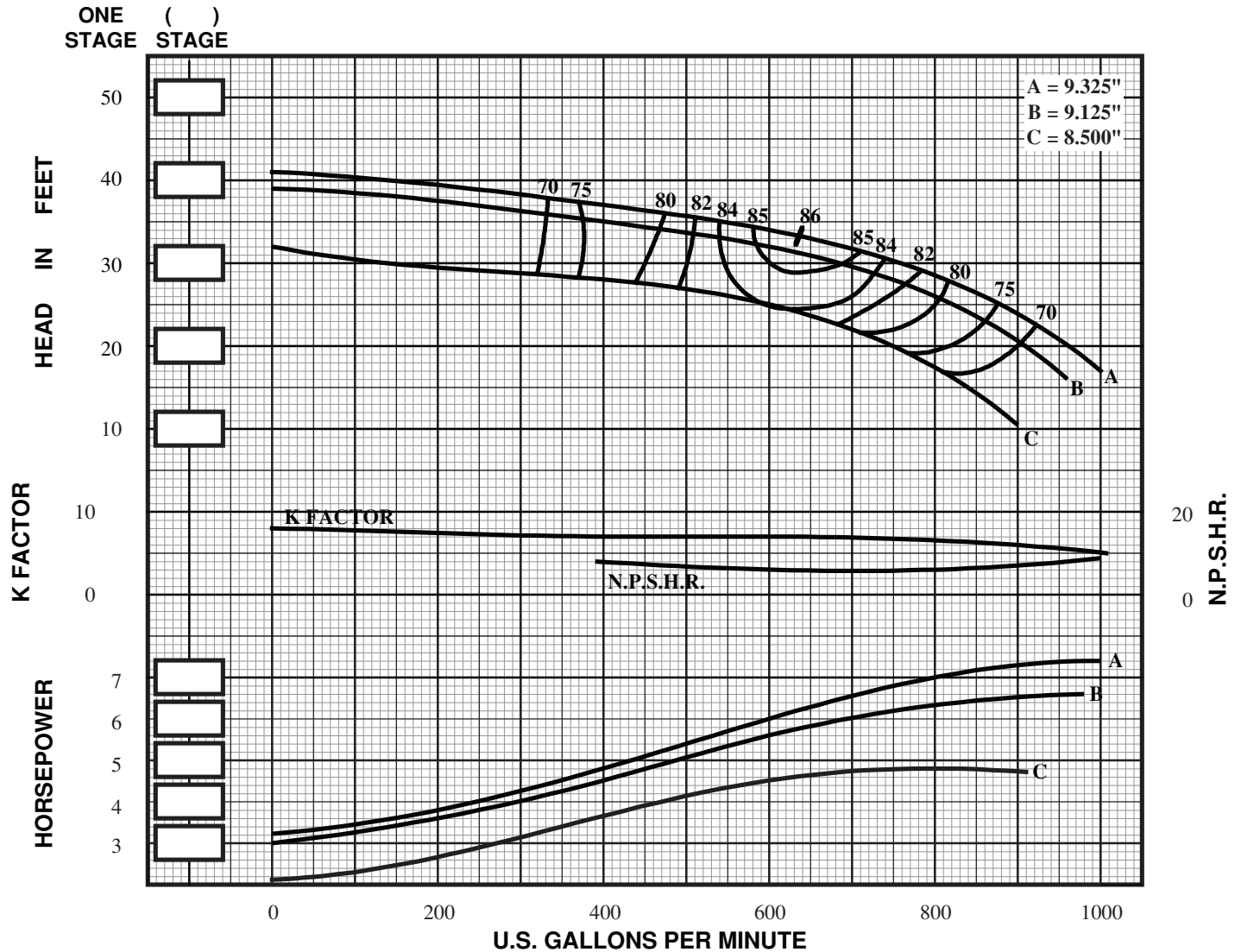


SUBMERSIBLE TURBINE



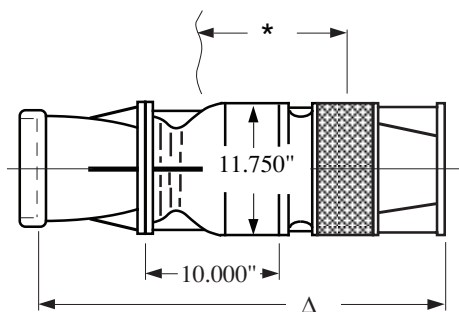
LINESHAFT TURBINE

SL12H 1160 RPM

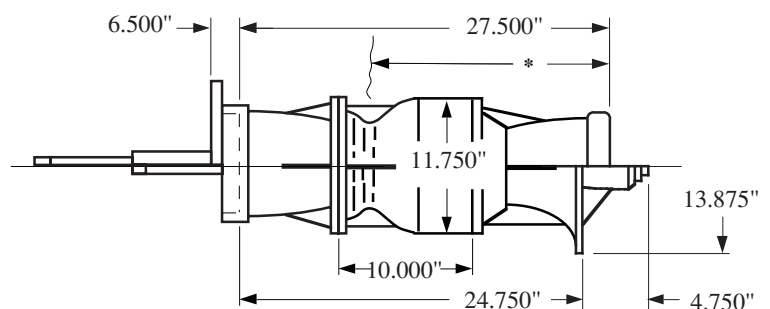


IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.687"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SL12H	MAX. SHAFT DIA. = 1.687"	1	-3.5	IMP. - C.I.	-3
IMPELLER WT. - LBS. = 14.25	STD. LATERAL = 1.13"	2	-2	IMP. - NI-RI	-3
ONE STAGE WT. - LBS. = 250.0	DISCHARGE SIZES = 6"/ 8"/ 10"	3	-1	IMP. - S.S.	Not Recom.
ADD'L STAGE WT. - LBS. = 107.0	SUCTION SIZES = 8"/ BELL	4	0	BOWL - BRZ.	-2
MAX. SPHERE SIZE = .88"	ONE STAGE WR ² = .673	5	0	BOWL - NI-RI	-2
MIN. SUBMERGENCE* = 17"				BOWL - S.S.	-3

Δ CONSULT FACTORY v18.1



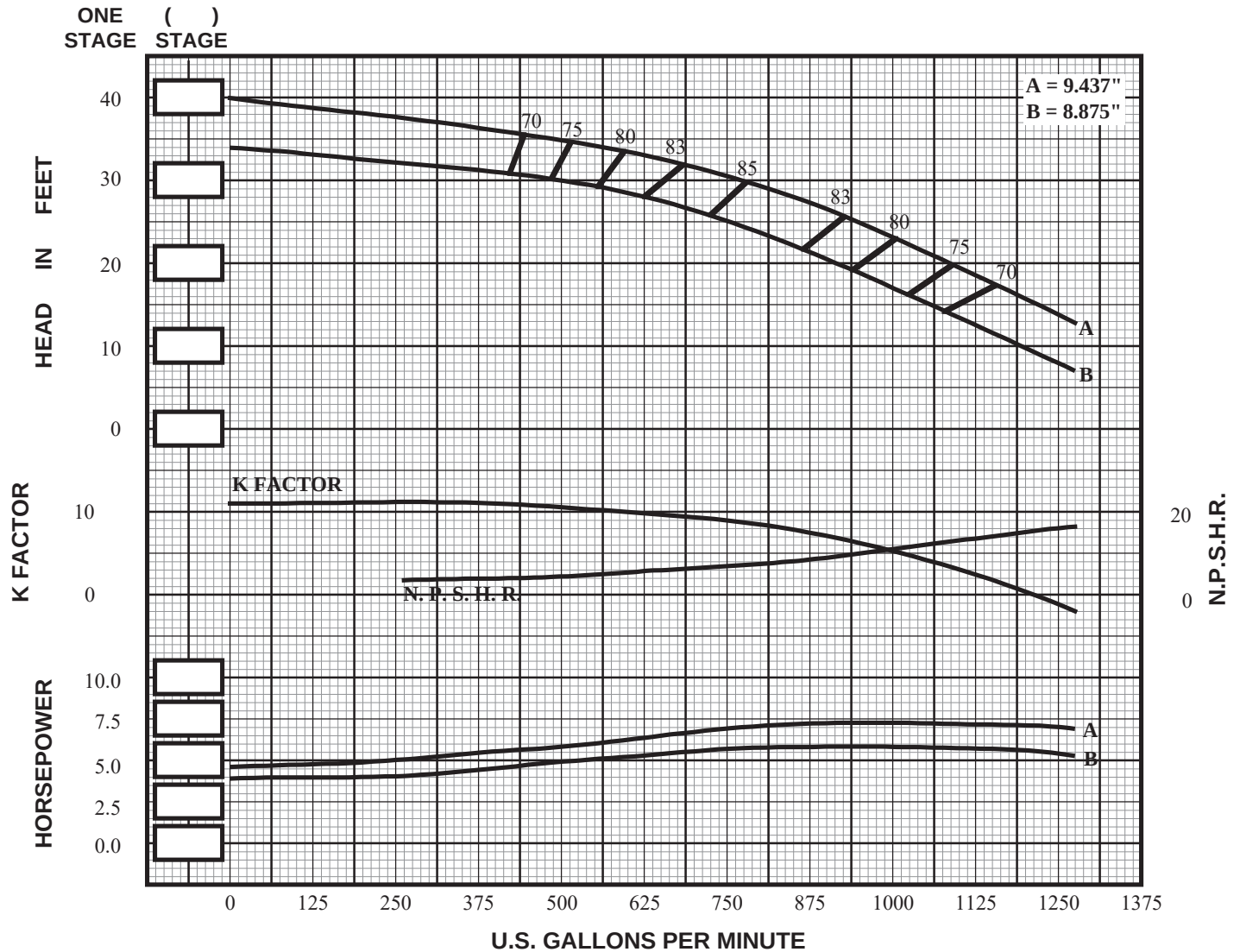
SUBMERSIBLE TURBINE



LINESHAFT TURBINE

SJ12M

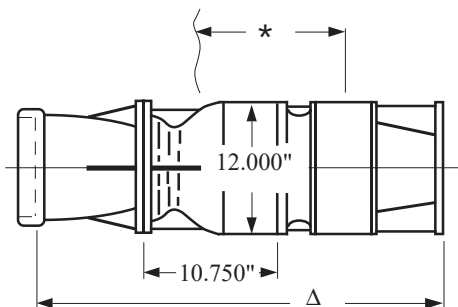
1160 RPM



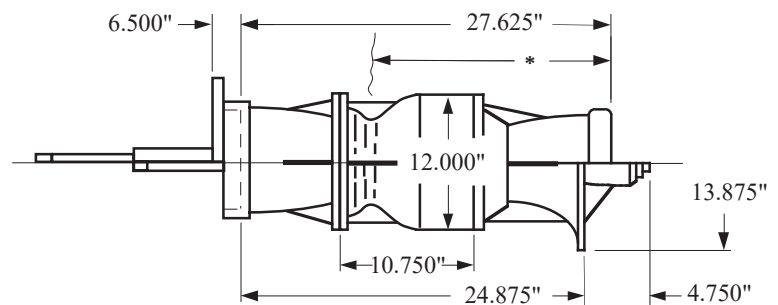
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.687"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SJ12M	MAX. SHAFT DIA. = 1.687"	1	-2	IMP. - C.I.	0
IMPELLER WT. - LBS. = 17.0	STD. LATERAL = 1.19"	2	-1	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 270.0	DISCHARGE SIZES = 8"/10"	3	0	IMP. - S.S.	-1
ADD'L STAGE WT. - LBS. = 110.0	SUCTION SIZES = 8"/BELL	4	0	BOWL - BRZ.	-1
MAX. SPHERE SIZE = .88"	ONE STAGE WR ² = .804	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 16"				BOWL - S.S.	-2

Δ CONSULT FACTORY

v18.1

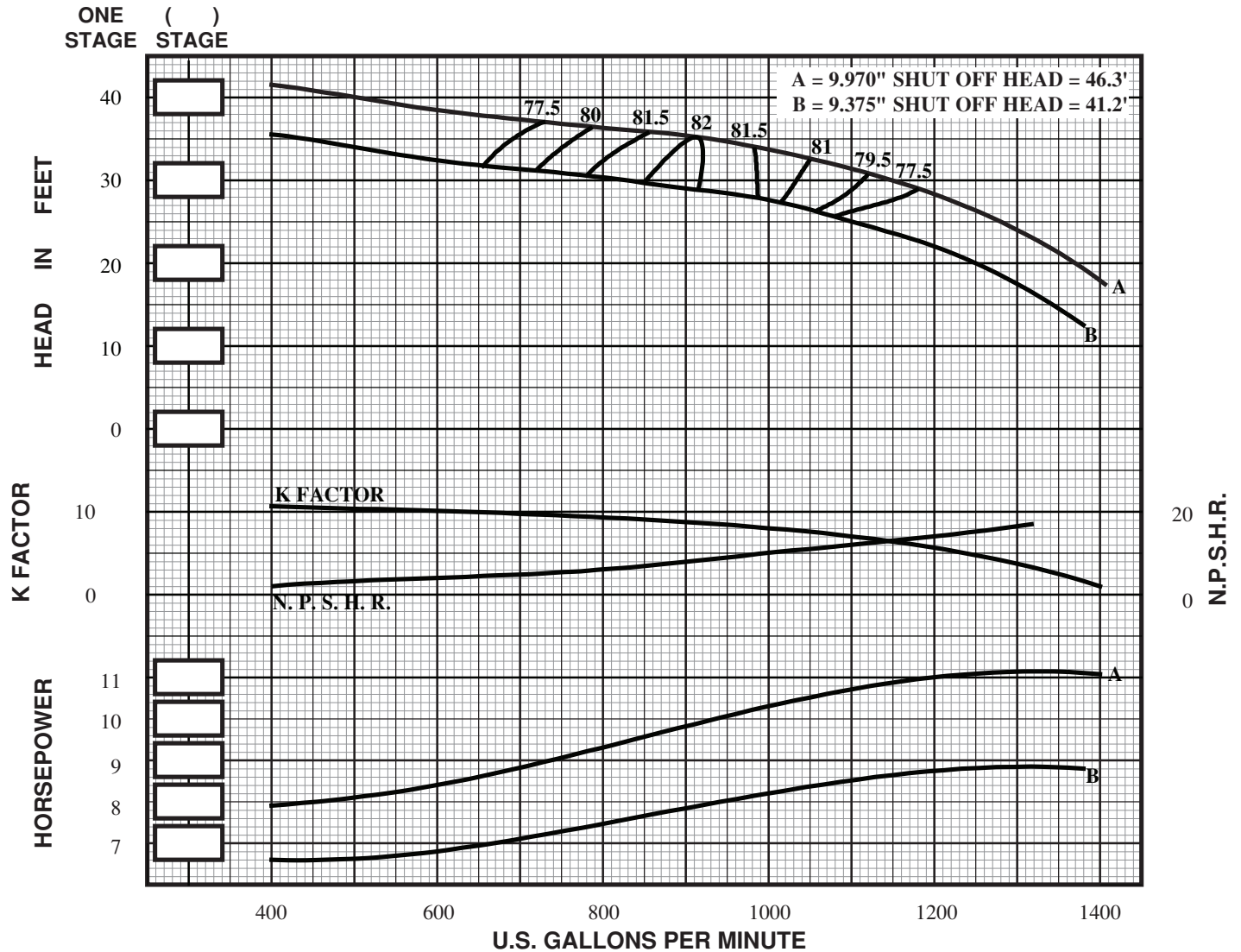


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

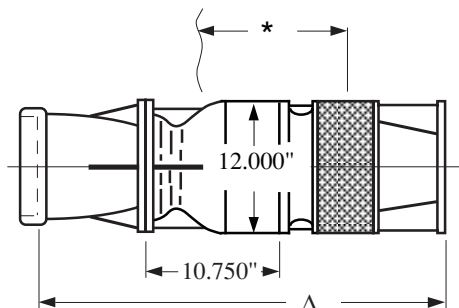
SJ12H 1160 RPM



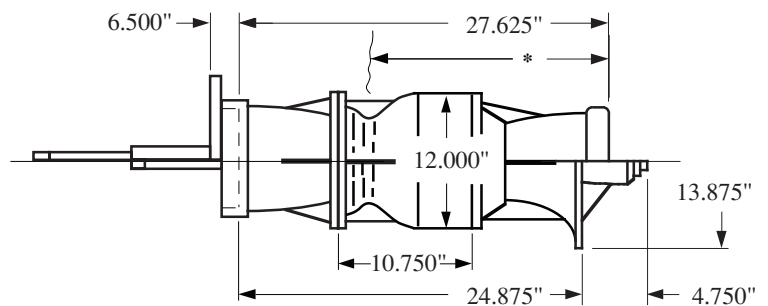
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 1.687"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SJ12H	MAX. SHAFT DIA. = 1.687"	1	-1	IMP. - C.I.	0
IMPELLER WT. - LBS. = 15.2	STD. LATERAL = 1.19"	2	0	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 270.0	DISCHARGE SIZES = 8"/ 10"	3	0	IMP. - S.S.	-1
ADD'L STAGE WT. - LBS. = 110.0	SUCTION SIZES = 8"/ BELL	4	0	BOWL - BRZ.	-1
MAX. SPHERE SIZE = .88"	ONE STAGE WR ² = .744	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 16"				BOWL - S.S.	-2

Δ CONSULT FACTORY

v18.1

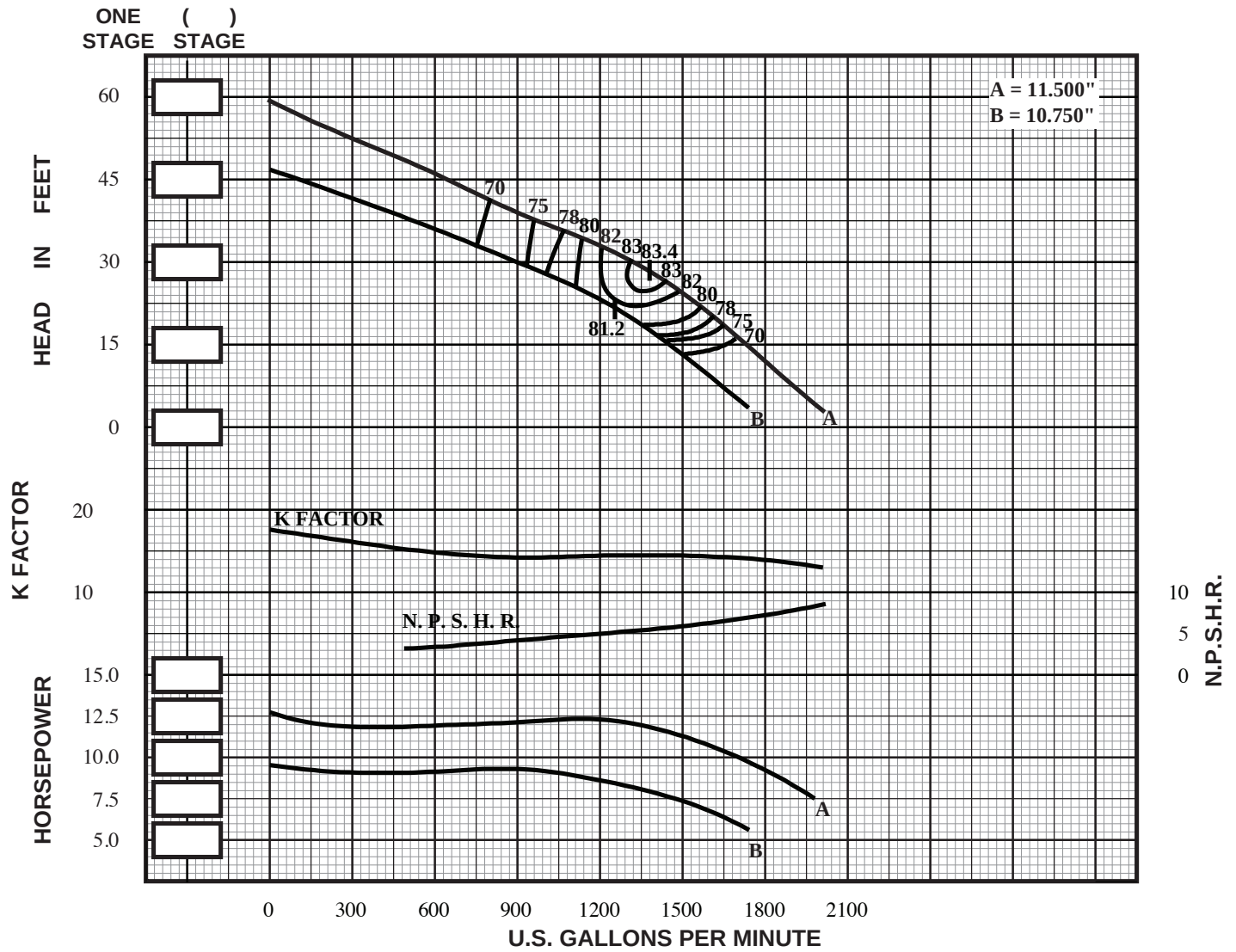


SUBMERSIBLE TURBINE

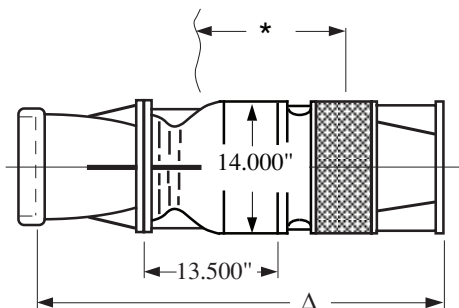


LINESHAFT TURBINE

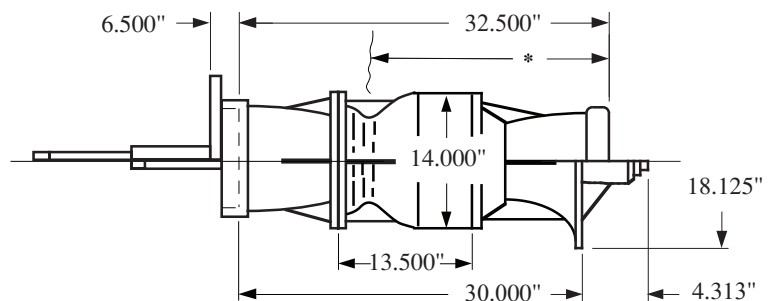
SM14L 1160 RPM



IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 2.187"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SM14L	MAX. SHAFT DIA. = 2.187"				
IMPELLER WT. - LBS. = 27.4	STD. LATERAL = 1.31"	1	-3	IMP. - C.I.	0
ONE STAGE WT. - LBS. = 540.0	DISCHARGE SIZES = 10" / 12"	2	-2	IMP. - NI-RI	-2
ADD'L STAGE WT. - LBS. = 225.0	SUCTION SIZES = 10" / BELL	3	-1	IMP. - S.S.	-2
MAX. SPHERE SIZE = 1.31"	ONE STAGE WR ² = 1.933	4	0	BOWL - BRZ.	-1
MIN. SUBMERGENCE* = 19"	=	5	0	BOWL - NI-RI	-1
Δ CONSULT FACTORY		v18.1		BOWL - S.S.	-2



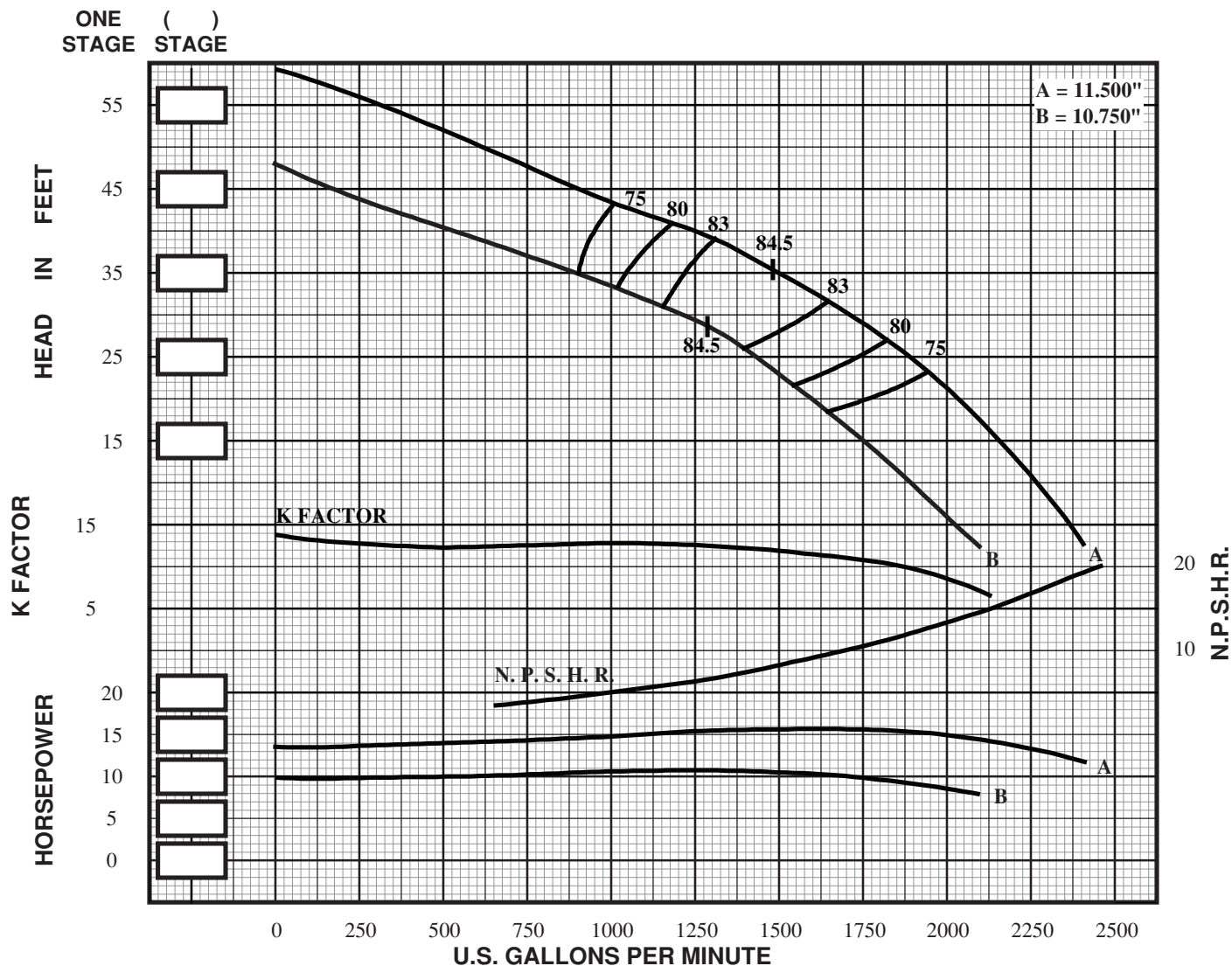
SUBMERSIBLE TURBINE



LINESHAFT TURBINE

SM14M

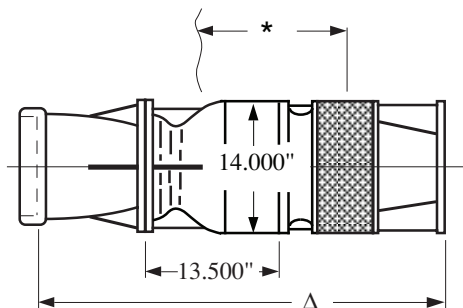
1160 RPM



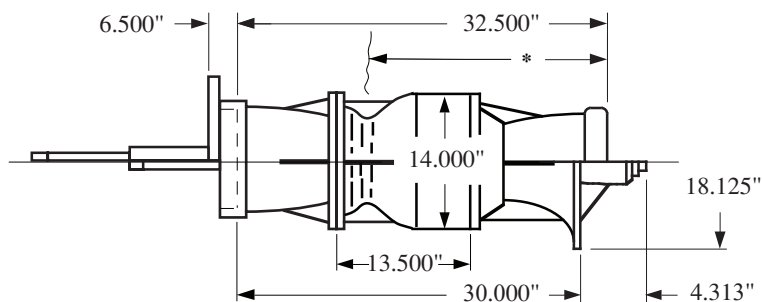
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 2.187"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SM14M	MAX. SHAFT DIA. = 2.187"	1	-3	IMP. - C.I.	0
IMPELLER WT. - LBS. = 31.7	STD. LATERAL = 1.31"	2	-1	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 550.0	DISCHARGE SIZES = 10"/12"	3	0	IMP. - S.S.	-2
ADD'L STAGE WT. - LBS. = 235.0	SUCTION SIZES = 10"/BELL	4	0	BOWL - BRZ.	-2
MAX. SPHERE SIZE = 1.31"	ONE STAGE WR ² = 2.182	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 19"				BOWL - S.S.	-2

Δ CONSULT FACTORY

v18.1



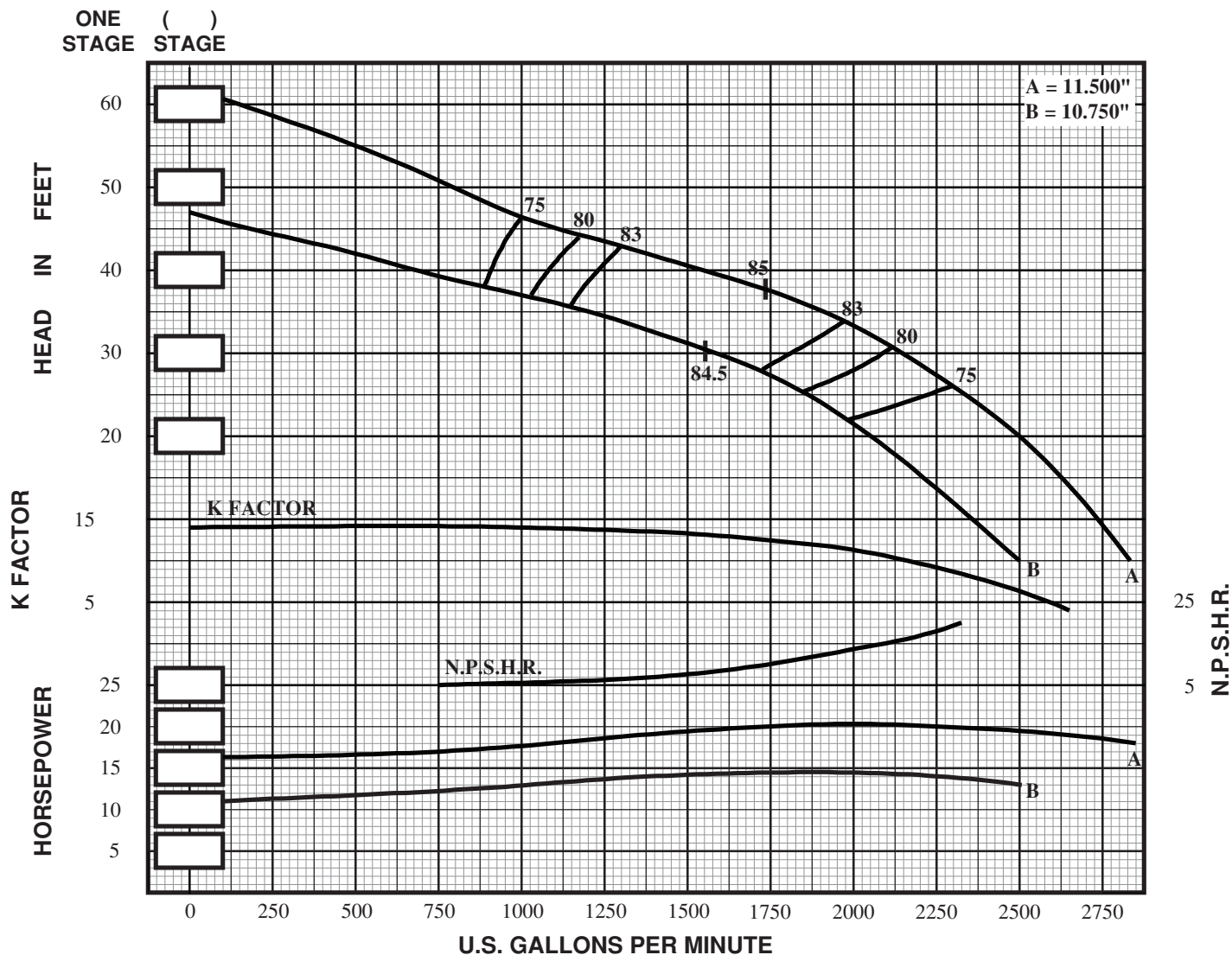
SUBMERSIBLE TURBINE



LINESHAFT TURBINE

SM14H

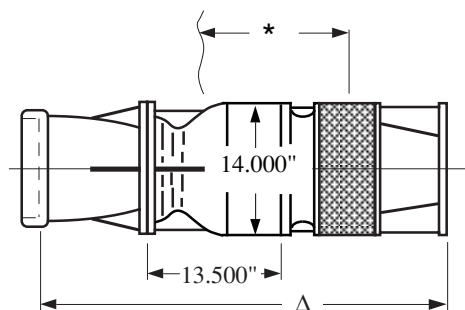
1160 RPM



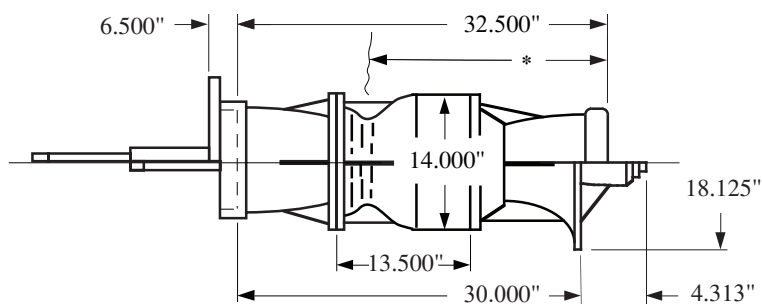
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 2.187"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SM14H	MAX. SHAFT DIA. = 2.187"	1	-2	IMP. - C.I.	0
IMPELLER WT. - LBS. = 29.0	STD. LATERAL = 1.31"	2	-1	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 550.0	DISCHARGE SIZES = 10"/ 12"	3	0	IMP. - S.S.	-2
ADD'L STAGE WT. - LBS. = 235.0	SUCTION SIZES = 10"/ BELL	4	0	BOWL - BRZ.	-1
MAX. SPHERE SIZE = 1.56"	ONE STAGE WR ² = 2.023	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 19"				BOWL - S.S.	-2

Δ CONSULT FACTORY

v18.1

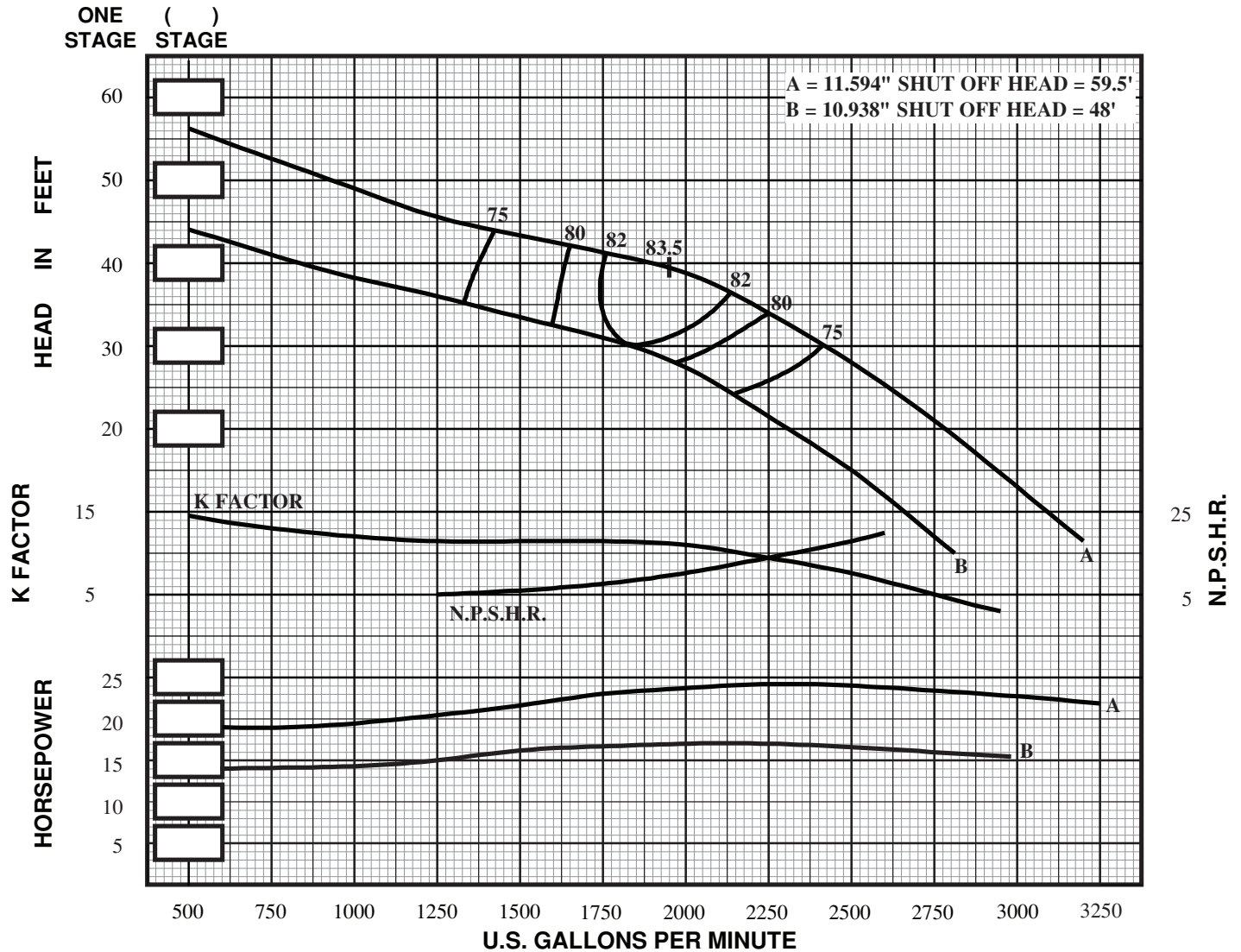


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

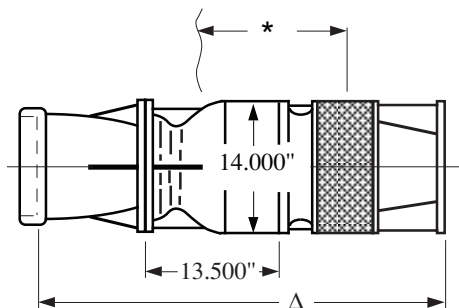
SM14HH 1160 RPM



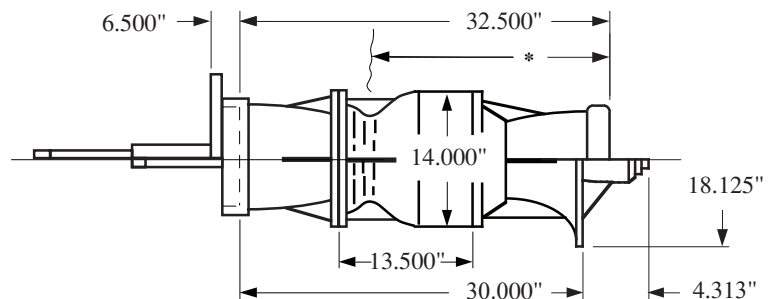
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 2.187"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SM14HH	MAX. SHAFT DIA. = 2.187"	1	-2.5	IMP. - C.I.	-.5
IMPELLER WT. - LBS. = 28.4	STD. LATERAL = 1.25"	2	-1.5	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 540	DISCHARGE SIZES = 10"/ 12"	3	-.5	IMP. - S.S.	-3
ADD'L STAGE WT. - LBS. = 225	SUCTION SIZES = 10"/ BELL	4	0	BOWL - BRZ.	-1
MAX. SPHERE SIZE = 1.250	ONE STAGE WR ² = 2.300	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 19"				BOWL - S.S.	-2

Δ CONSULT FACTORY

v18.1



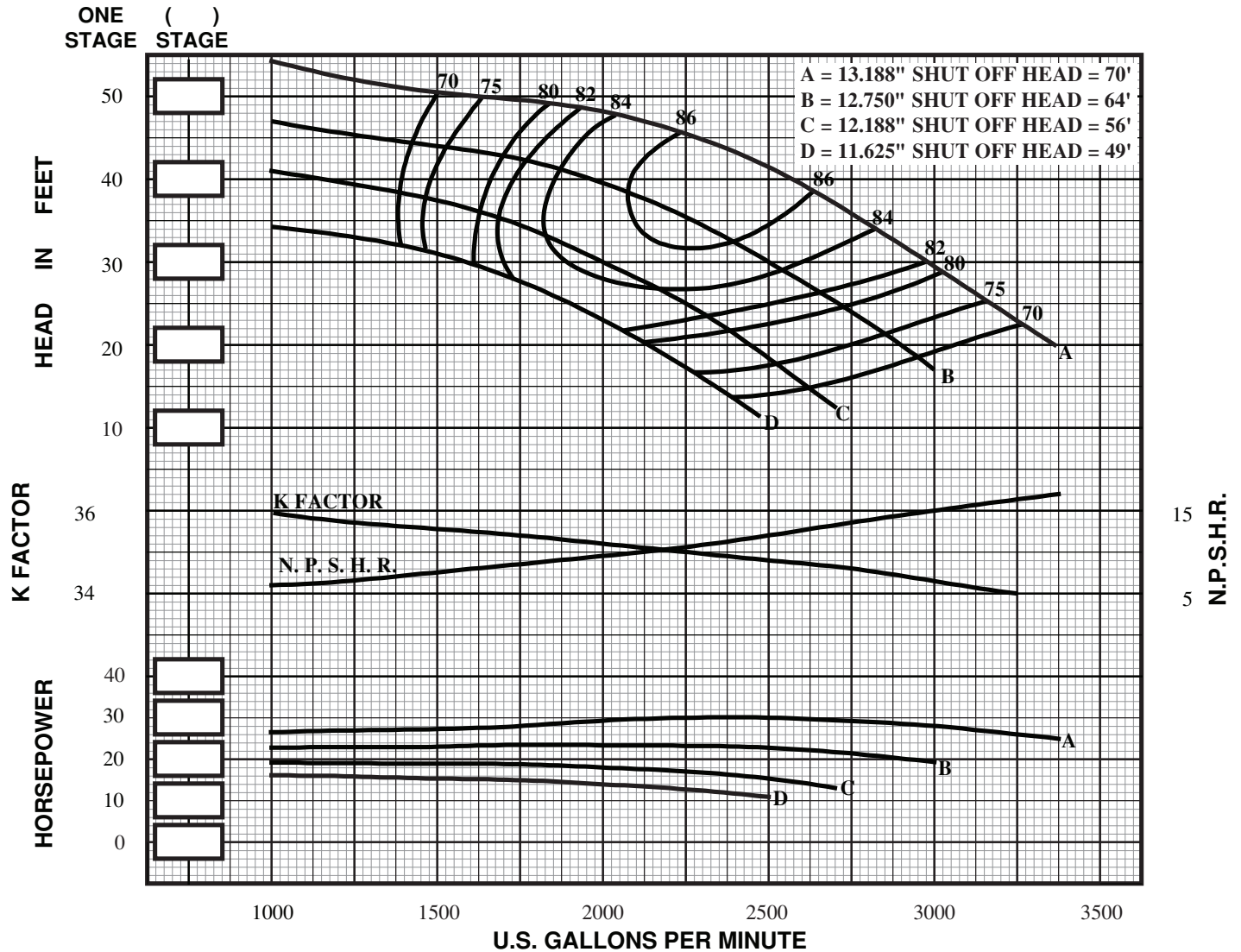
SUBMERSIBLE TURBINE



LINESHAFT TURBINE

SM16MO

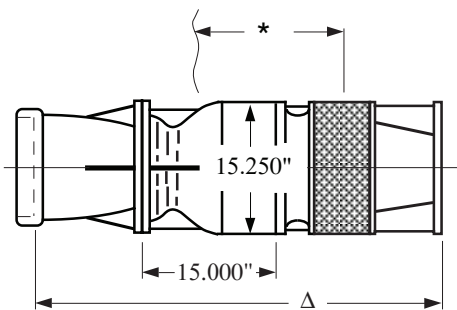
1160 RPM



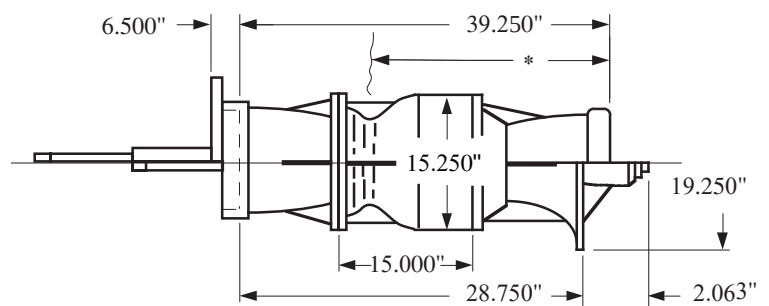
IMPELLER TYPE = SEMI-OPEN	STD. SHAFT DIA. = 2.187"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SM16MO	MAX. SHAFT DIA. = 2.187"	1	-3	IMP. - C.I.	0
IMPELLER WT. - LBS. = 24.0	STD. LATERAL = 1.34"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 600.0	DISCHARGE SIZES = 12"/ 14"	3	-1	IMP. - S.S.	-1
ADD'L STAGE WT. - LBS. = 250.0	SUCTION SIZES = 12"/ BELL	4	0	BOWL - BRZ.	-1
MAX. SPHERE SIZE = 1.19"	ONE STAGE WR ² = 2.260	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 35"	=			BOWL - S.S.	-2

Δ CONSULT FACTORY

v18.1

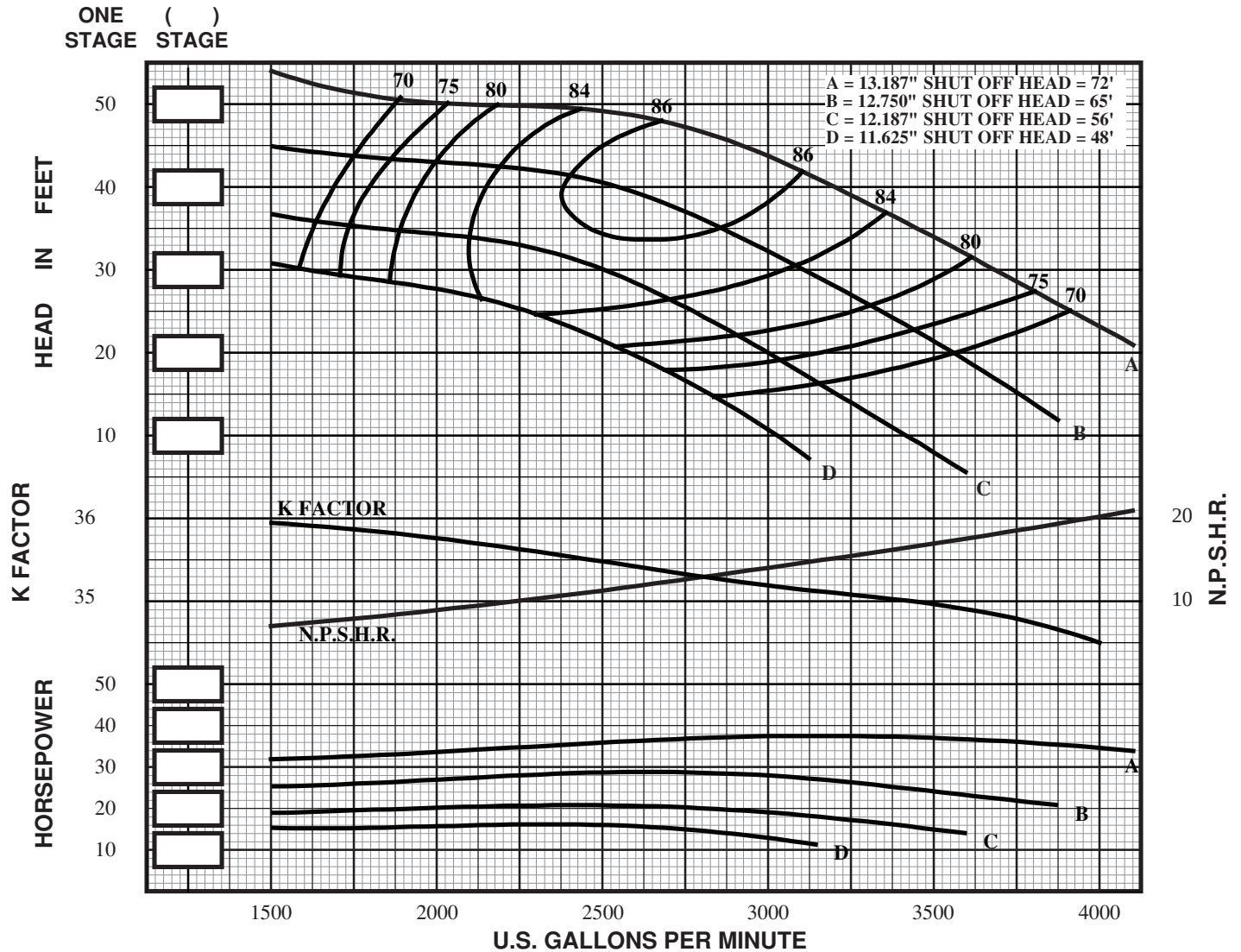


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

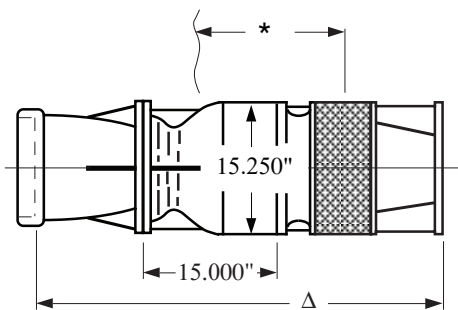
SM16HO 1160 RPM



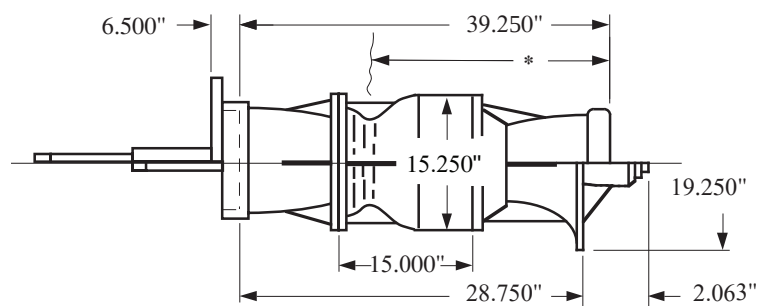
IMPELLER TYPE = SEMI-OPEN	STD. SHAFT DIA. = 2.187"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SM16HO	MAX. SHAFT DIA. = 2.187"	1	-3	IMP. - C.I.	-3
IMPELLER WT. - LBS. = 25.0	STD. LATERAL = 1.06"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 600.0	DISCHARGE SIZES = 12"/14"	3	-1	IMP. - S.S.	-1
ADD'L STAGE WT. - LBS. = 250.0	SUCTION SIZES = 12"/ BELL	4	0	BOWL - BRZ.	-2
MAX. SPHERE SIZE = 1.22"	ONE STAGE WR ² = 2.240	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 39"				BOWL - S.S.	-2

Δ CONSULT FACTORY

v18.1



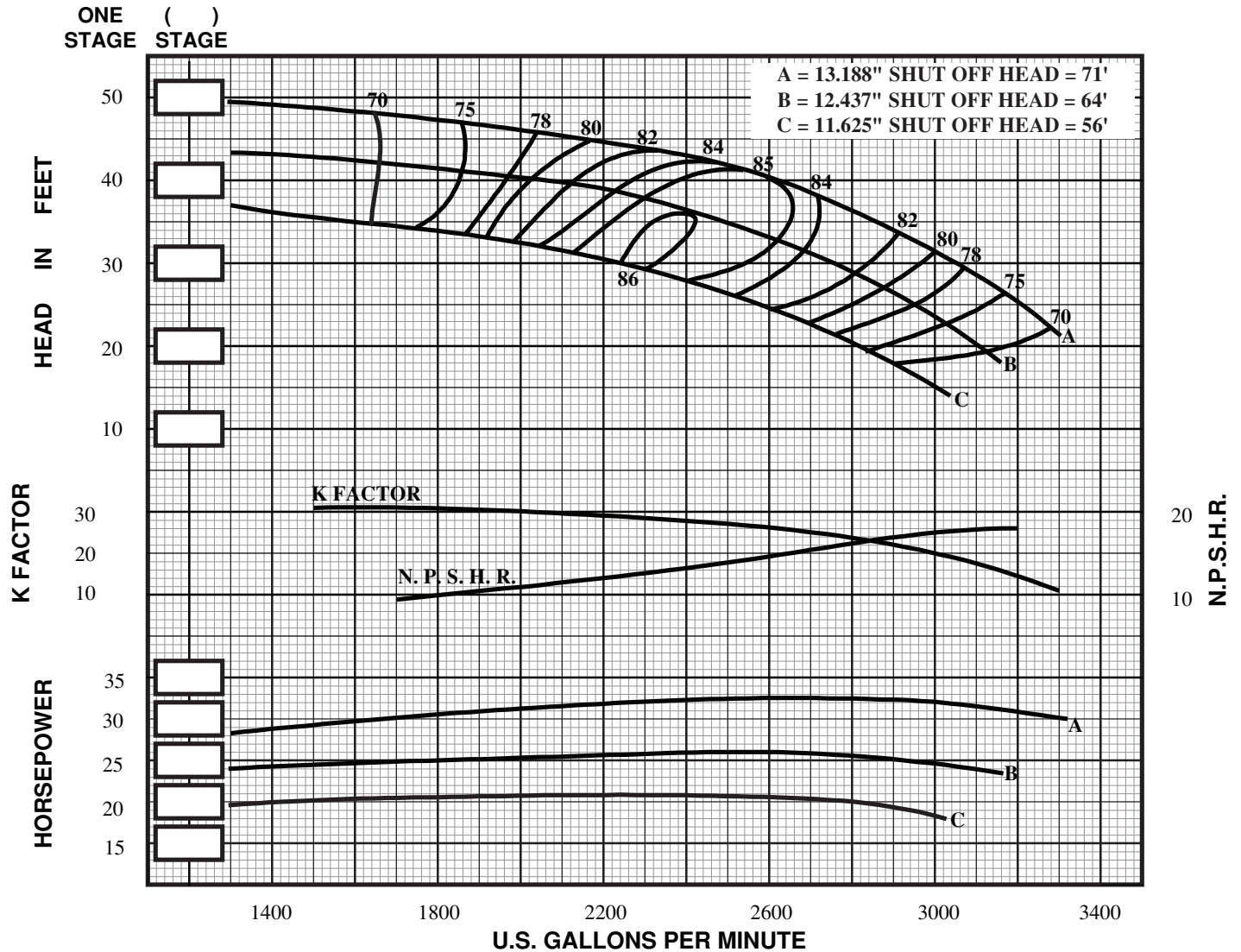
SUBMERSIBLE TURBINE



LINESHAFT TURBINE

SM16M

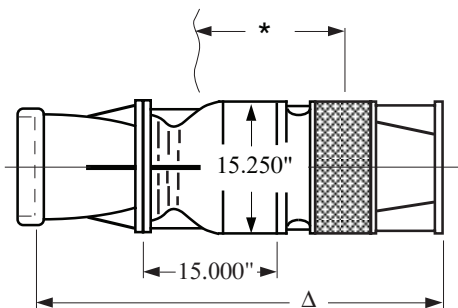
1160 RPM



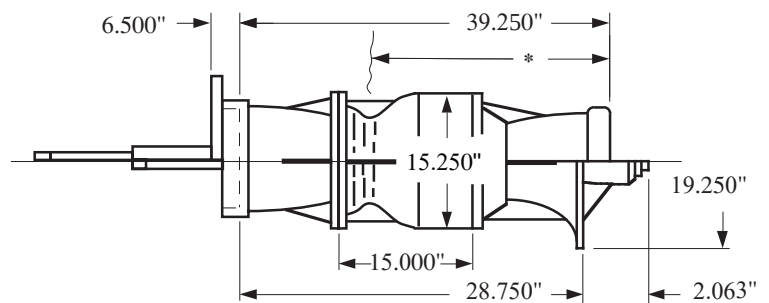
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 2.187"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SM16M	MAX. SHAFT DIA. = 2.187"	1	-3	IMP. - C.I.	0
IMPELLER WT. - LBS. = 39.0	STD. LATERAL = .94"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 600.0	DISCHARGE SIZES = 12"/14"	3	-1	IMP. - S.S.	-1
ADD'L STAGE WT. - LBS. = 250.0	SUCTION SIZES = 12"/ BELL	4	0	BOWL - BRZ.	-1
MAX. SPHERE SIZE = 1.00"	ONE STAGE WR ² = 4.966	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 36"	=			BOWL - S.S.	-2

Δ CONSULT FACTORY

v18.1

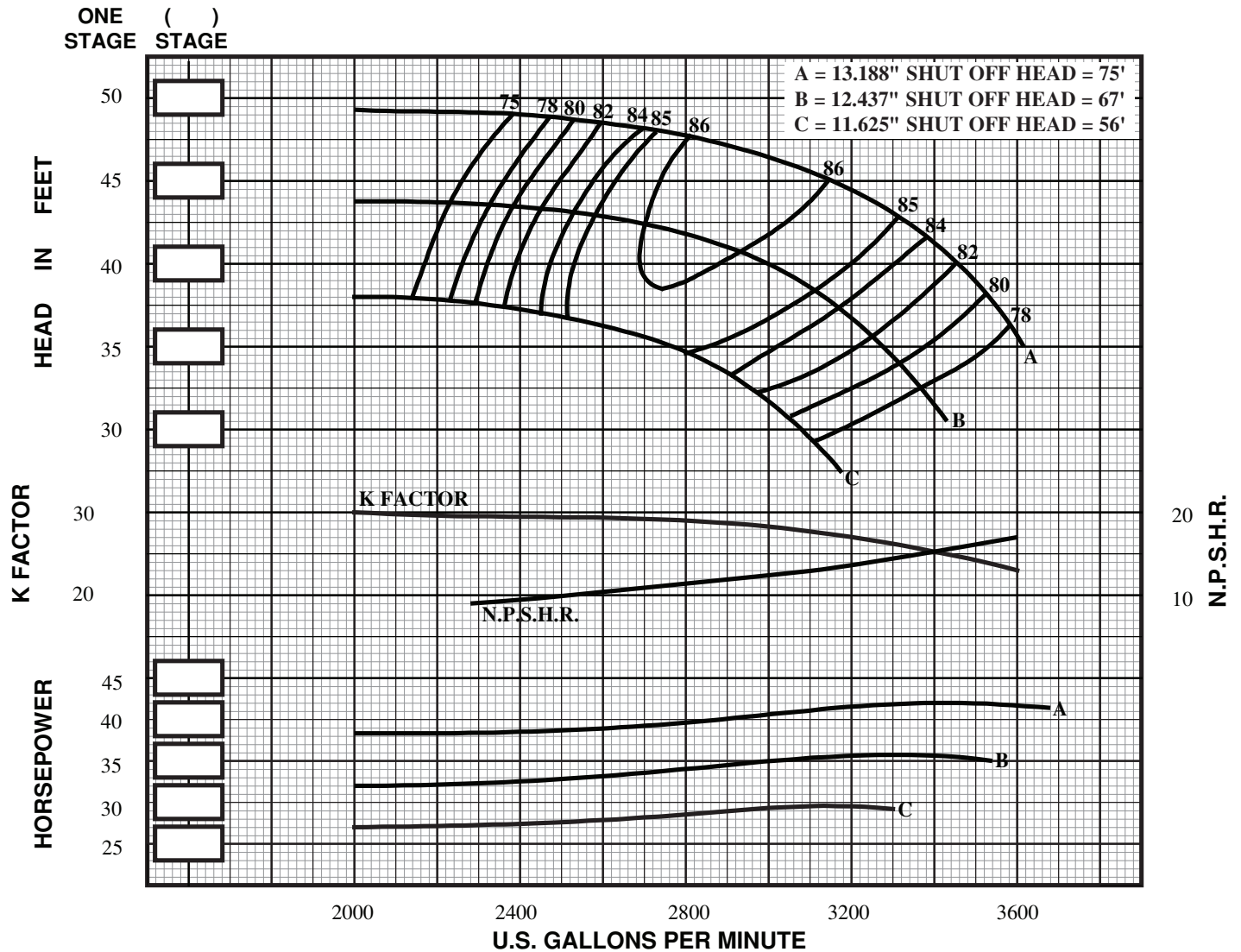


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

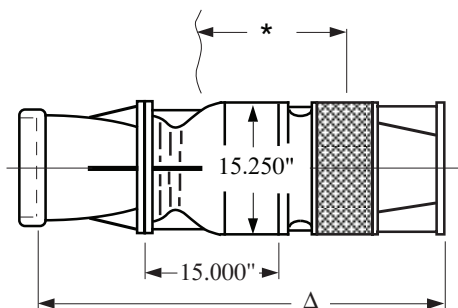
SM16H 1160 RPM



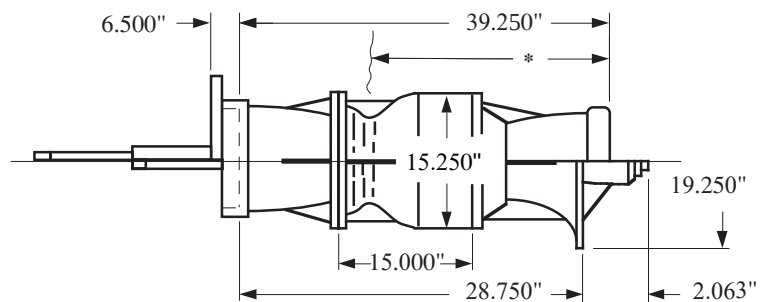
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 2.187"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SM16H	MAX. SHAFT DIA. = 2.187"	1	-3	IMP. - C.I.	-3
IMPELLER WT. - LBS. = 35.5	STD. LATERAL = .94"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 600.0	DISCHARGE SIZES = 12"/ 14"	3	-1	IMP. - S.S.	-1
ADD'L STAGE WT. - LBS. = 250.0	SUCTION SIZES = 12"/ BELL	4	0	BOWL - BRZ.	-2
MAX. SPHERE SIZE = 1.38"	ONE STAGE WR ² = 4.677	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 39"				BOWL - S.S.	-2

Δ CONSULT FACTORY

v18.1

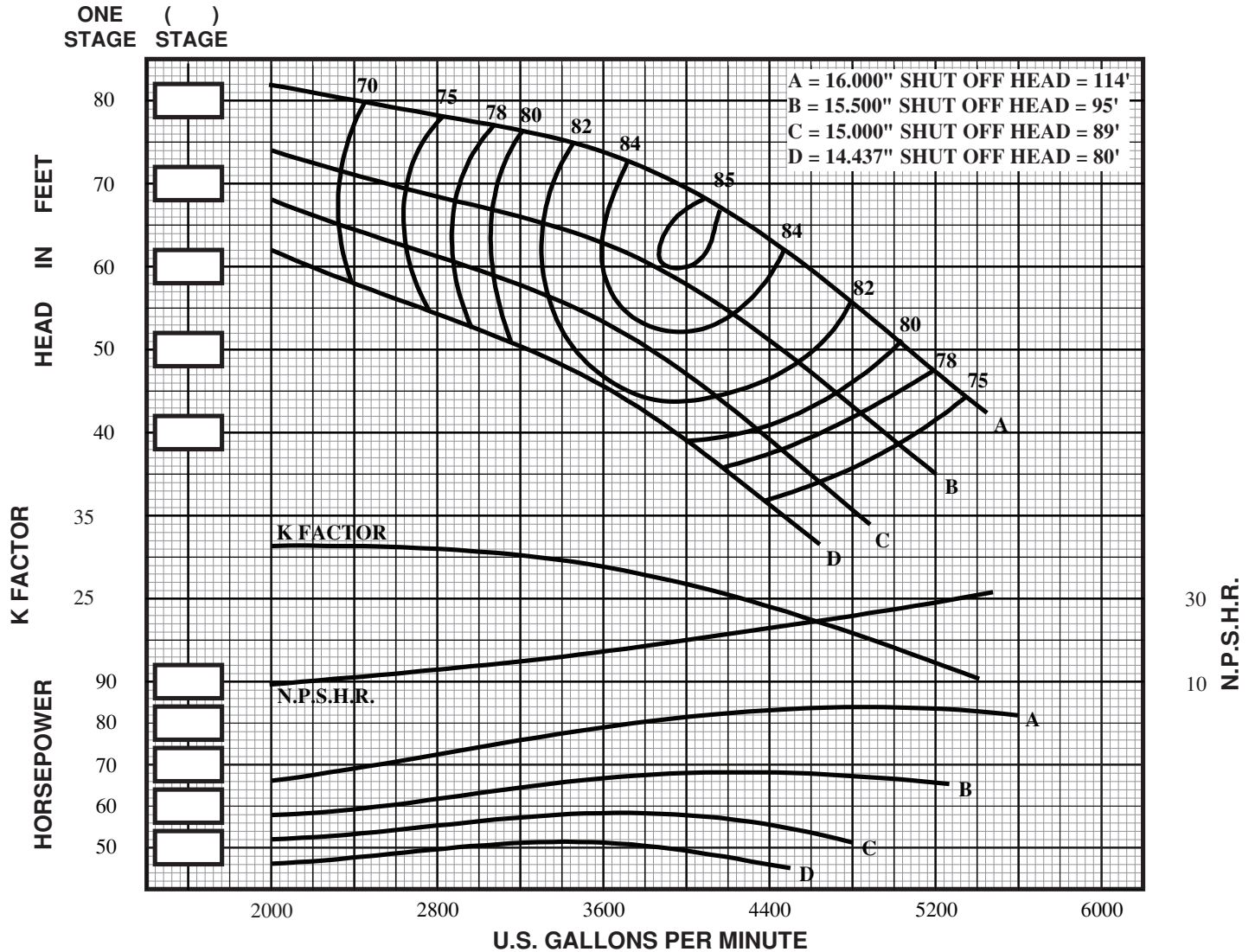


SUBMERSIBLE TURBINE



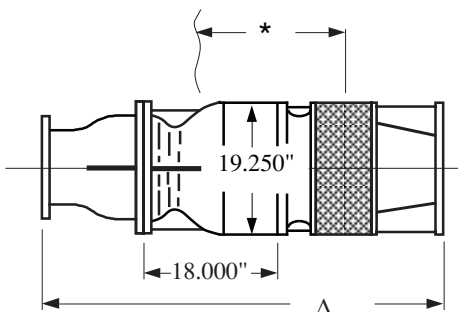
LINESHAFT TURBINE

SM20M 1160 RPM

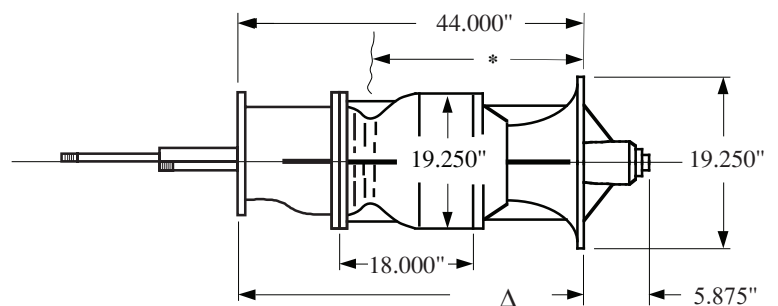


IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 2.437"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SM20M	MAX. SHAFT DIA. = 2.437"	1	0	IMP. - C.I.	Δ
IMPELLER WT. - LBS. = 101.0	STD. LATERAL = 1.50"	2	0	IMP. - NI-RI	Δ
ONE STAGE WT. - LBS. = 1000.0	DISCHARGE SIZES = 16"/Δ	3	0	IMP. - S.S.	Δ
ADD'L STAGE WT. - LBS. = 450.0	SUCTION SIZES = BELL	4	0	BOWL - BRZ.	Δ
MAX. SPHERE SIZE = 1.22"	ONE STAGE WR ² = 8.220	5	0	BOWL - NI-RI	Δ
MIN. SUBMERGENCE* = 42"	=			BOWL - S.S.	Δ

Δ CONSULT FACTORY v18.1

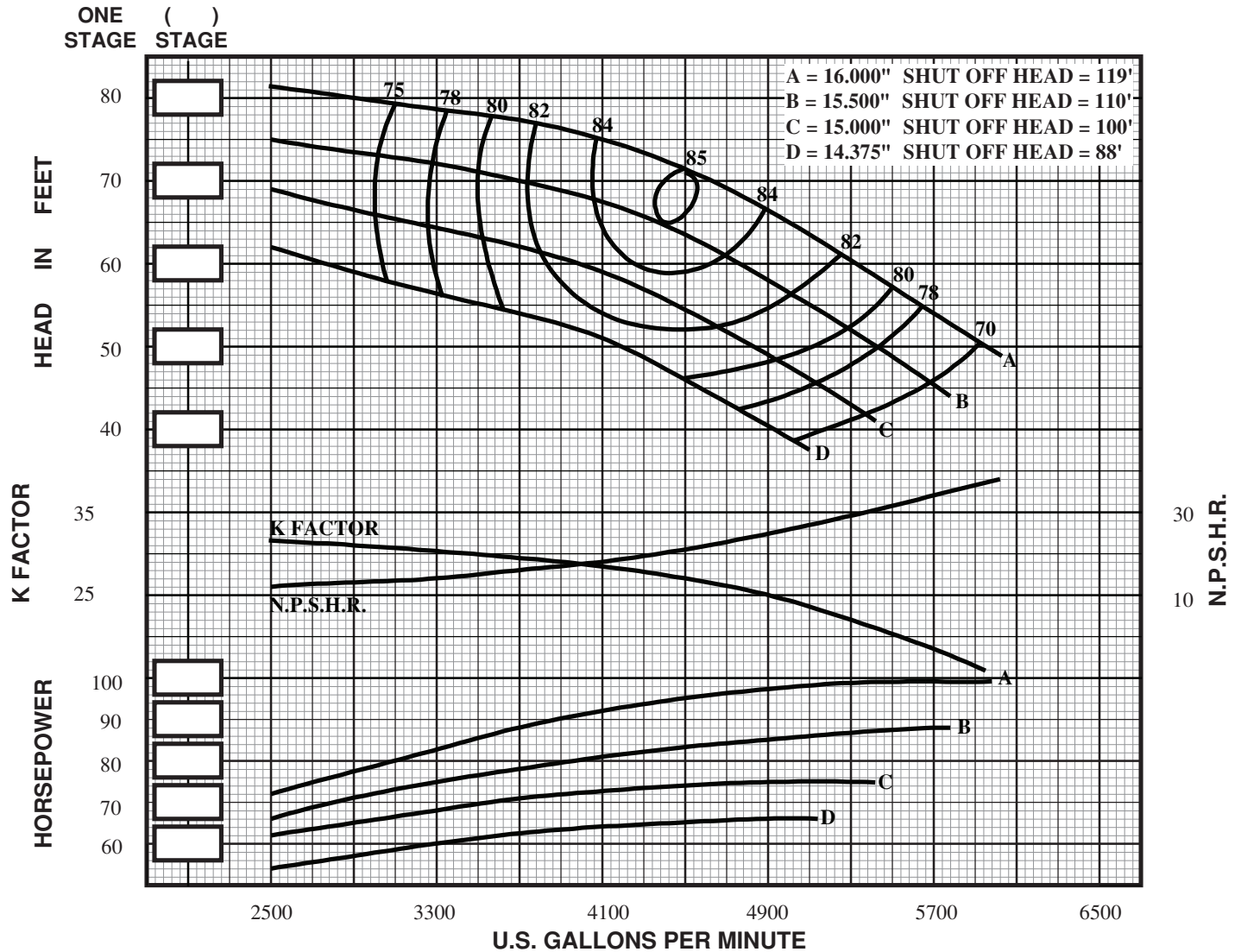


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

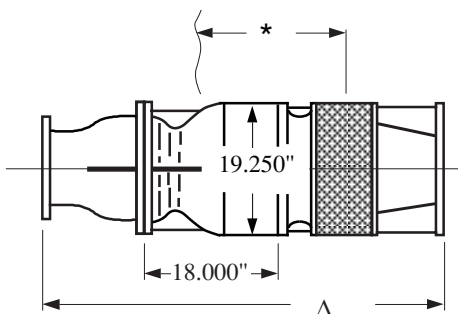
SM20H 1160 RPM



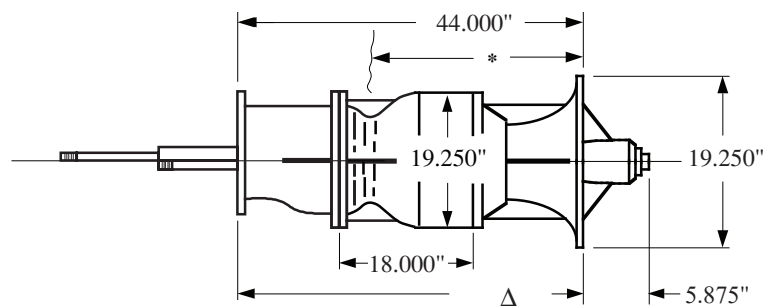
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 2.437"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SM20H	MAX. SHAFT DIA. = 2.437"	1	0	IMP. - C.I.	Δ
IMPELLER WT. - LBS. = 69.0	STD. LATERAL = 1.31"	2	0	IMP. - NI-RI	Δ
ONE STAGE WT. - LBS. = 1000.0	DISCHARGE SIZES = 16"/ Δ	3	0	IMP. - S.S.	Δ
ADD'L STAGE WT. - LBS. = 450.0	SUCTION SIZES = BELL	4	0	BOWL - BRZ.	Δ
MAX. SPHERE SIZE = 1.28"	ONE STAGE WR ² = 8.210	5	0	BOWL - NI-RI	Δ
MIN. SUBMERGENCE* = 46"				BOWL - S.S.	Δ

Δ CONSULT FACTORY

v18.1



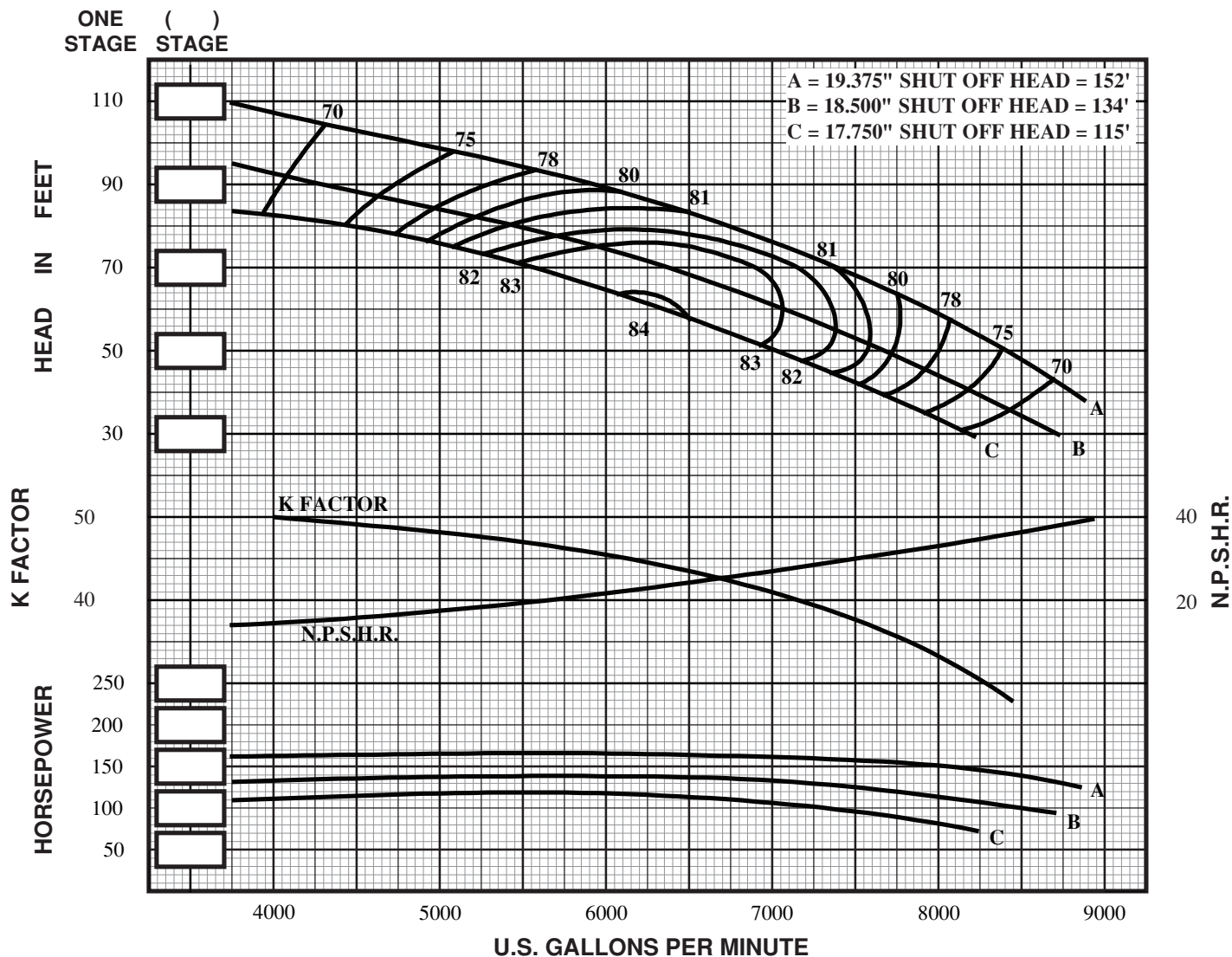
SUBMERSIBLE TURBINE



LINESHAFT TURBINE

SM24M

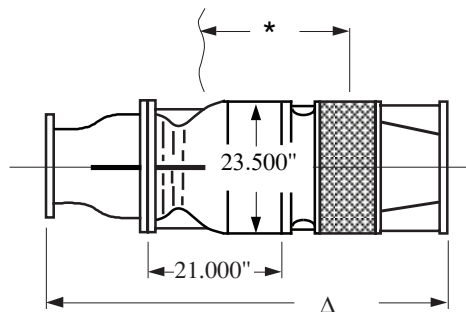
1160 RPM



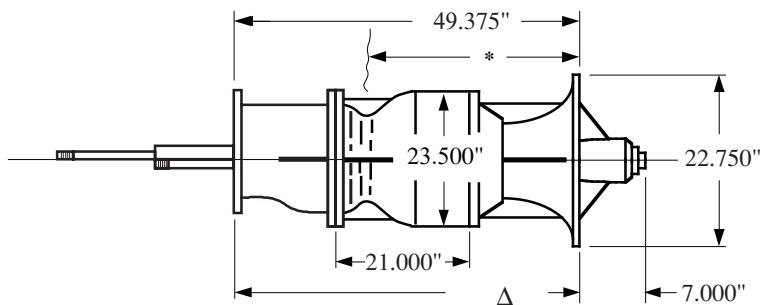
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 2.937"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SM24M	MAX. SHAFT DIA. = 2.937"	1	0	IMP. - C.I.	Δ
IMPELLER WT. - LBS. = 112.0	STD. LATERAL = 2.63"	2	0	IMP. - NI-RI	Δ
ONE STAGE WT. - LBS. = 1200.0	DISCHARGE SIZES = 18" / Δ	3	0	IMP. - S.S.	Δ
ADD'L STAGE WT. - LBS. = 625.0	SUCTION SIZES = BELL	4	0	BOWL - BRZ.	Δ
MAX. SPHERE SIZE = 1.81"	ONE STAGE WR ² = 19.69	5	0	BOWL - NI-RI	Δ
MIN. SUBMERGENCE* = 56"	=			BOWL - S.S.	Δ

Δ CONSULT FACTORY

v18.1

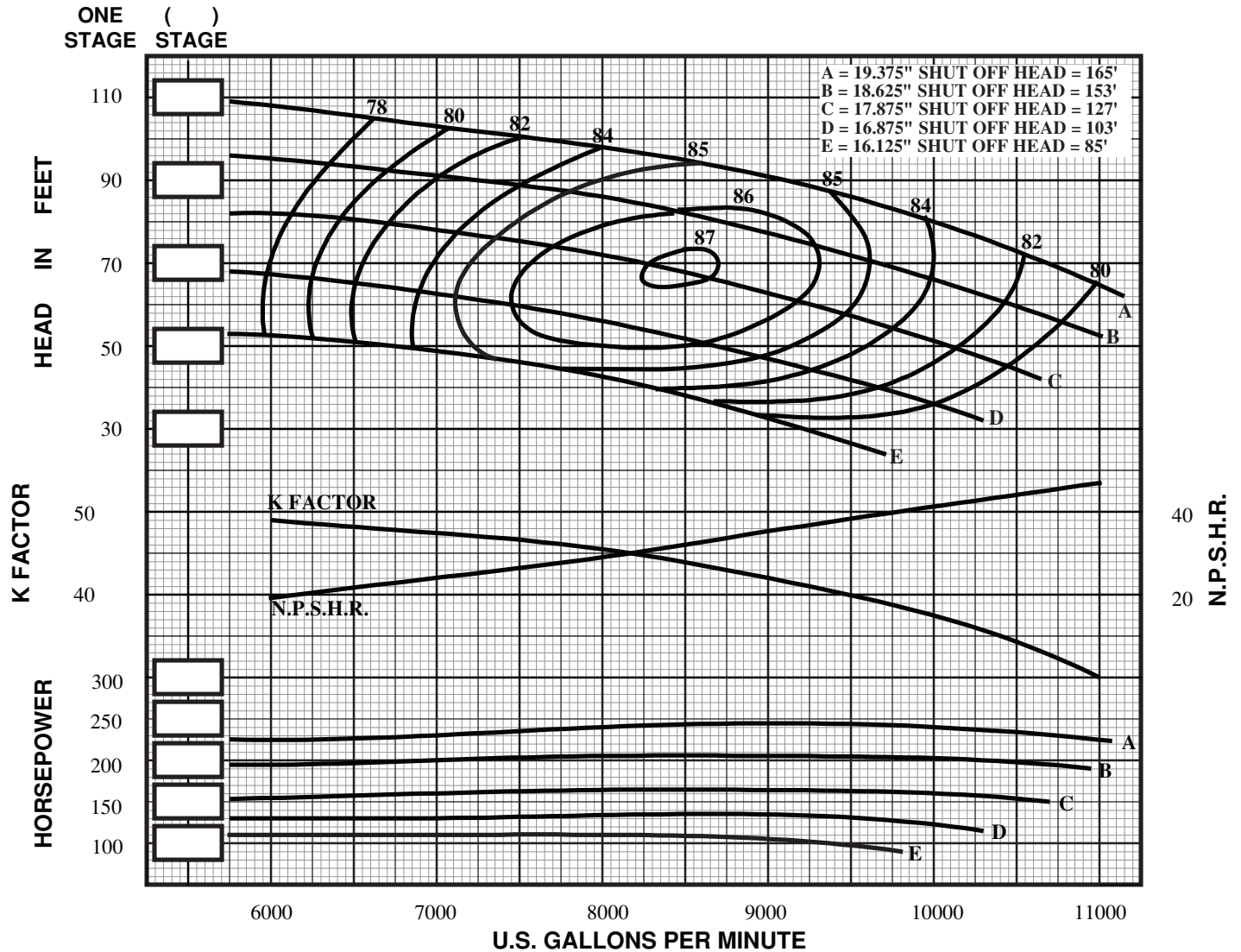


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

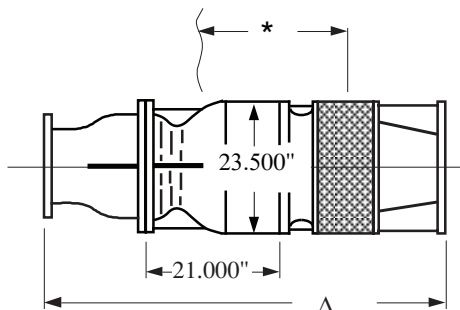
SM24H 1160 RPM



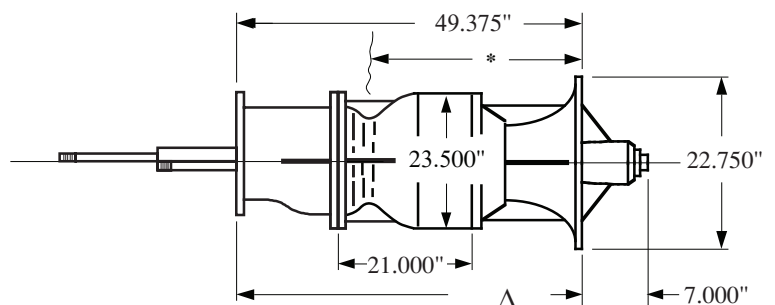
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 2.937"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SM24H	MAX. SHAFT DIA. = 2.937"	1	0	IMP. - C.I.	Δ
IMPELLER WT. - LBS. = 112.0	STD. LATERAL = 2.20"	2	0	IMP. - NI-RI	Δ
ONE STAGE WT. - LBS. = 1200.0	DISCHARGE SIZES = 18"/ Δ	3	0	IMP. - S.S.	Δ
ADD'L STAGE WT. - LBS. = 625.0	SUCTION SIZES = BELL	4	0	BOWL - BRZ.	Δ
MAX. SPHERE SIZE = 1.88"	ONE STAGE WR ² = 19.03	5	0	BOWL - NI-RI	Δ
MIN. SUBMERGENCE* = 56"	=			BOWL - S.S.	Δ

Δ CONSULT FACTORY

v18.1



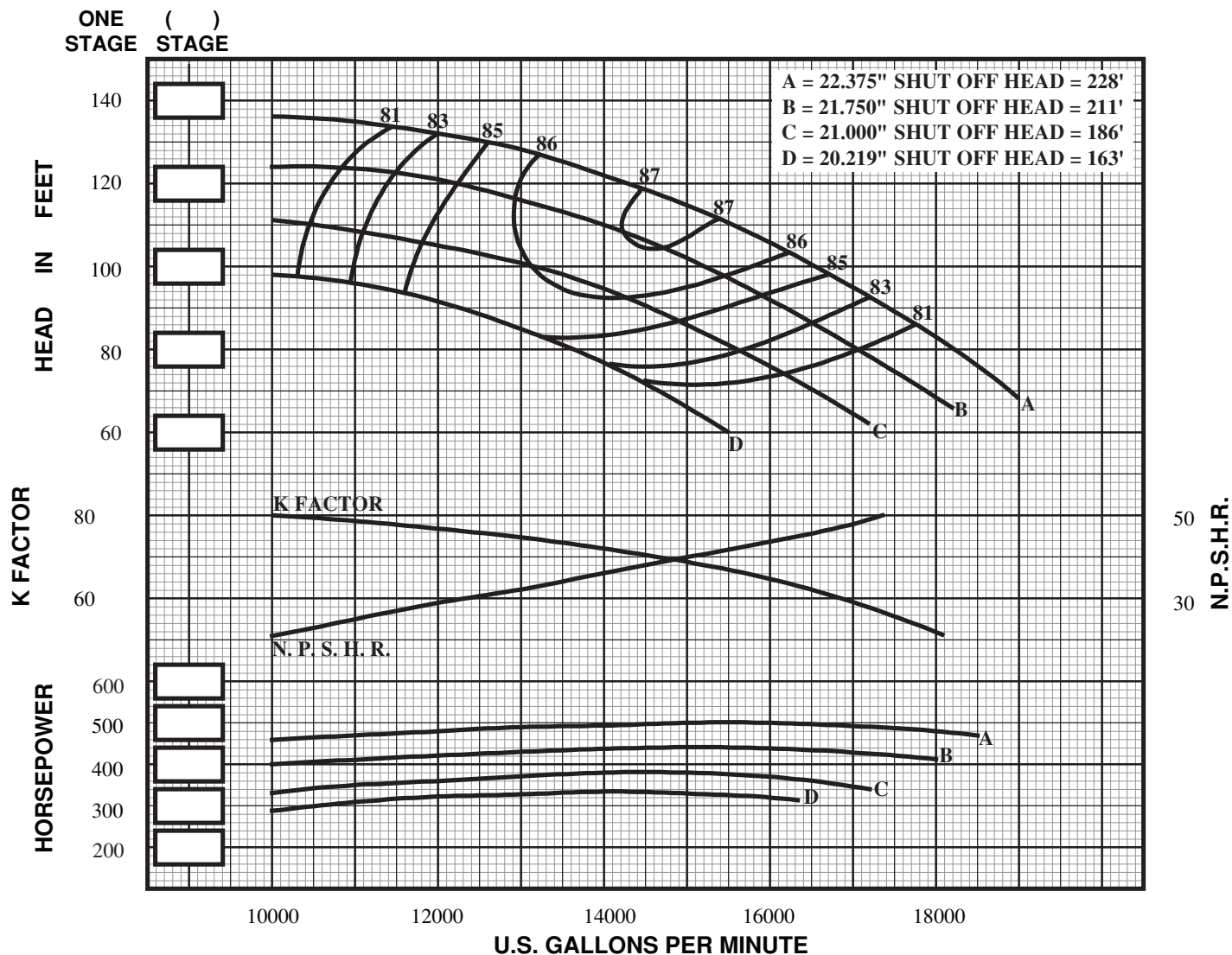
SUBMERSIBLE TURBINE



LINESHAFT TURBINE

SM28H

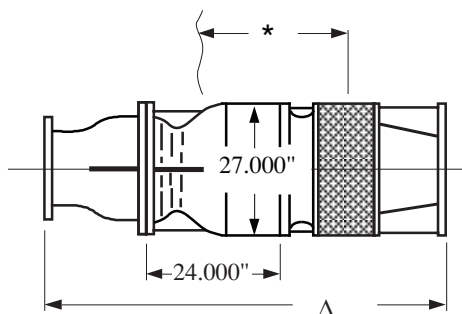
1160 RPM



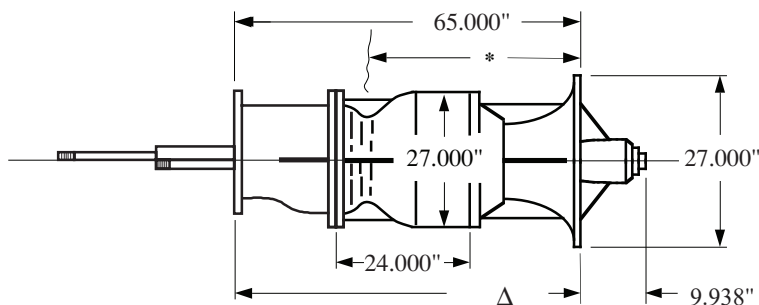
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 2.937"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SM28H	MAX. SHAFT DIA. = 2.937"				
IMPELLER WT. - LBS. = 218.0	STD. LATERAL = .49"	1	0	IMP. - C.I.	Δ
ONE STAGE WT. - LBS. = 2100.0	DISCHARGE SIZES = 20"/ Δ	2	0	IMP. - NI-RI	Δ
ADD'L STAGE WT. - LBS. = 1000.0	SUCTION SIZES = BELL	3	0	IMP. - S.S.	Δ
MAX. SPHERE SIZE = 1.88"	ONE STAGE WR ² = 39.62	4	0	BOWL - BRZ.	Δ
MIN. SUBMERGENCE* = 64"		5	0	BOWL - NI-RI	Δ
				BOWL - S.S.	Δ

Δ CONSULT FACTORY

v18.1



SUBMERSIBLE TURBINE



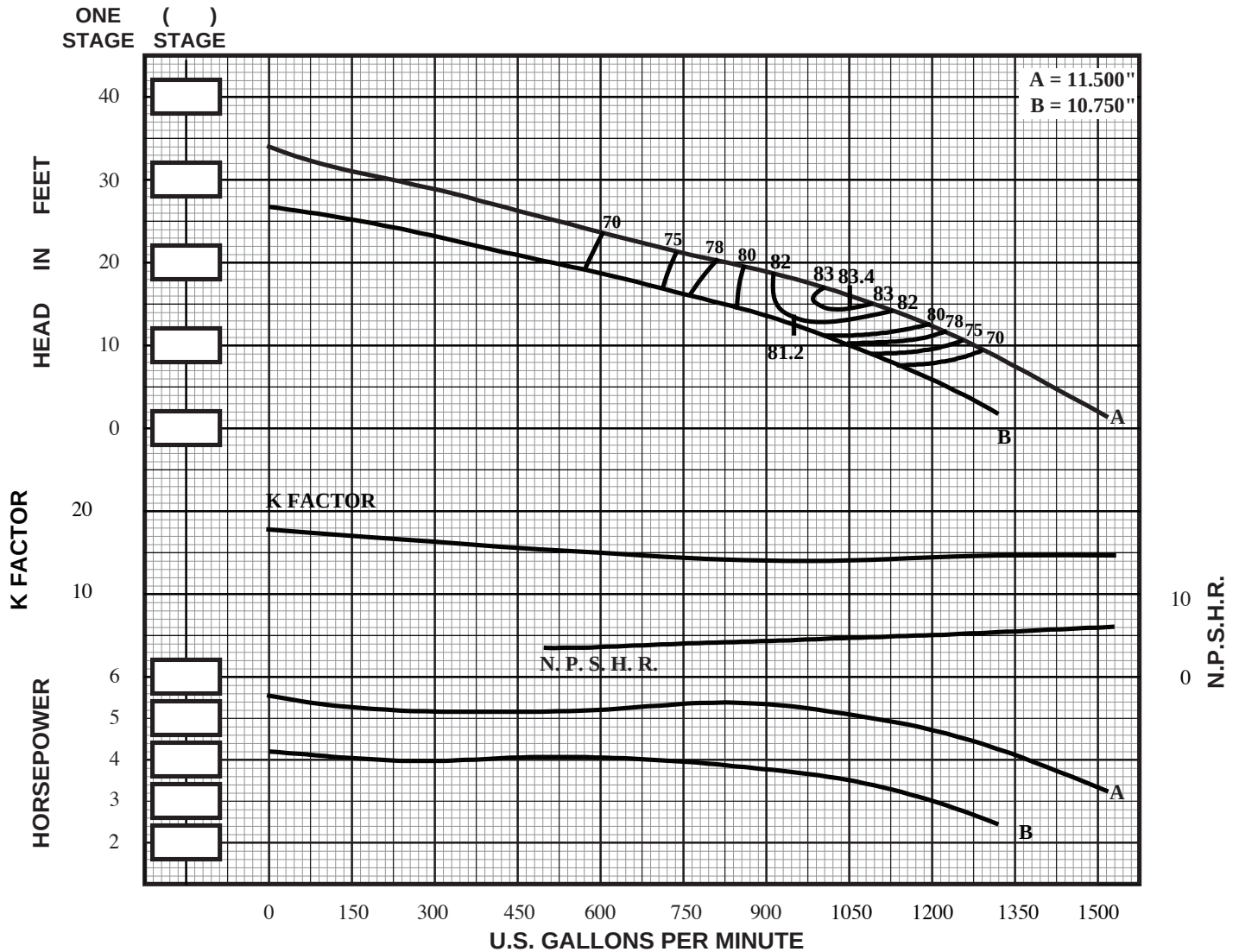
LINESHAFT TURBINE

880 RPM
Selection Chart

Model Number	Bowl Dia, (in.)	Peak Eff. (full dia.)	BEP Flow (gpm)	BEP Head (ft./ stage)	BEP NPSHr (full dia.)	POR (gpm)	Ns	Nss
SM14L	14.00	83.4	1052	16.0	4.75	736-1262	3568	8871
SM14M	14.00	84.5	1122	20.4	4.60	785-1346	3071	9384
SM14H	14.00	84.5	1128	23.6	4.37	790-1354	2760	9779
SM14HH	14.00	83.5	1469	22.6	6.04	1028-1763	3254	8754
SM16MO	15.25	86.0	1874	23.8	7.63	1312-2249	3535	8298
SM16HO	15.25	86.0	2242	25.9	8.64	1569-2690	3629	8268
SM16M	15.25	85.0	1979	23.4	7.81	1385-2375	3680	8379
SM16H	15.25	86.0	2242	27.0	6.89	1569-2960	3518	9798
SM20M	19.25	85.0	3135	38.5	13.1	2195-3762	3188	7156
SM20H	19.25	85.0	3404	40.7	12.9	2383-4085	3186	7543
SM24M	23.50	81.9	5288	43.5	15.5	3702-6346	3778	8192
SM24H	23.50	85.6	6719	50.8	24.9	4703-8063	3791	6471
SM28H	27.00	88.0	11234	64.2	25.6	7864-13481	4112	8195

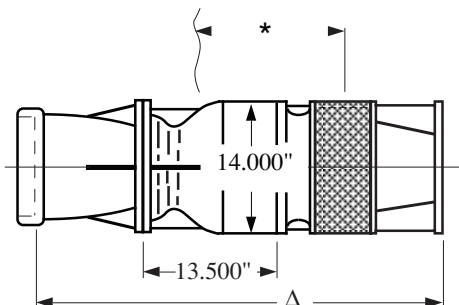
v18.1

SM14L 880 RPM

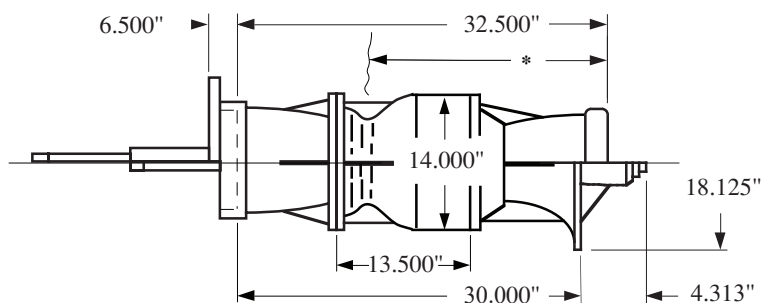


IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 2.187"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SM14L	MAX. SHAFT DIA. = 2.187"	1	-3	IMP. - C.I.	0
IMPELLER WT. - LBS. = 27.4	STD. LATERAL = 1.31"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 540.0	DISCHARGE SIZES = 10" / 12"	3	-1	IMP. - S.S.	-2
ADD'L STAGE WT. - LBS. = 225.0	SUCTION SIZES = 10" / BELL	4	0	BOWL - BRZ.	-1
MAX. SPHERE SIZE = 1.31"	ONE STAGE WR ² = 1.933	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 19"	=			BOWL - S.S.	-2

Δ CONSULT FACTORY v18.1



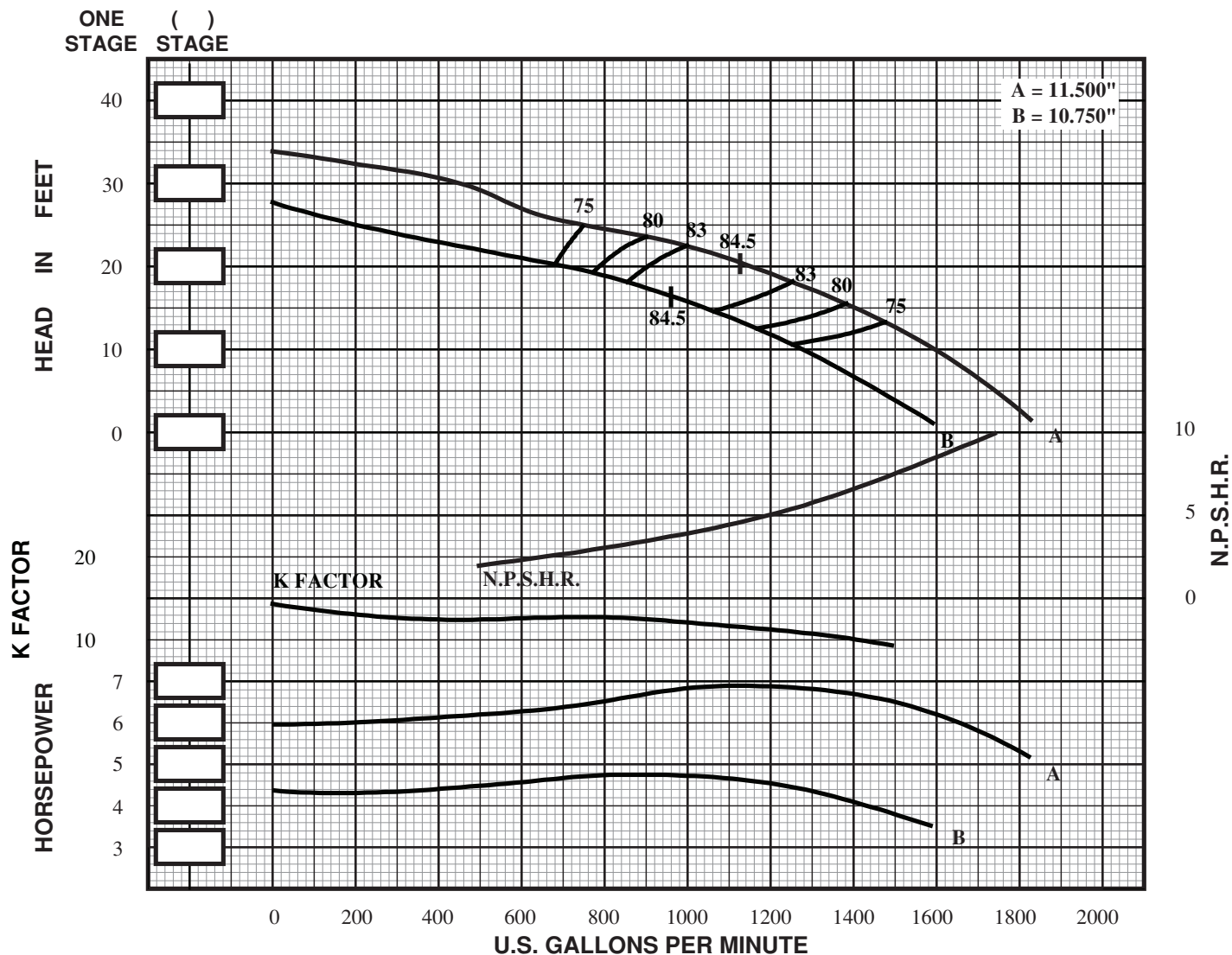
SUBMERSIBLE TURBINE



LINESHAFT TURBINE

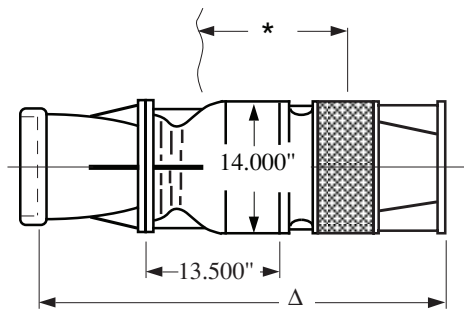
SM14M

880 RPM

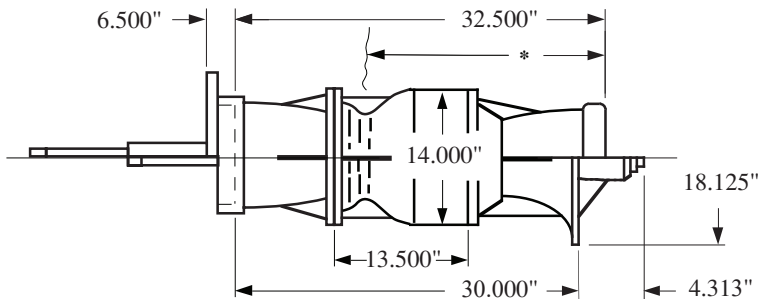


IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 2.187"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SM14M	MAX. SHAFT DIA. = 2.187"	1	-3	IMP. - C.I.	0
IMPELLER WT. - LBS. = 31.7	STD. LATERAL = 1.31"	2	-1	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 550.0	DISCHARGE SIZES = 10"/ 12"	3	0	IMP. - S.S.	-2
ADD'L STAGE WT. - LBS. = 235.0	SUCTION SIZES = 10"/ BELL	4	0	BOWL - BRZ.	-2
MAX. SPHERE SIZE = 1.31"	ONE STAGE WR ² = 2.182	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 19"				BOWL - S.S.	-2

Δ CONSULT FACTORY v18.1



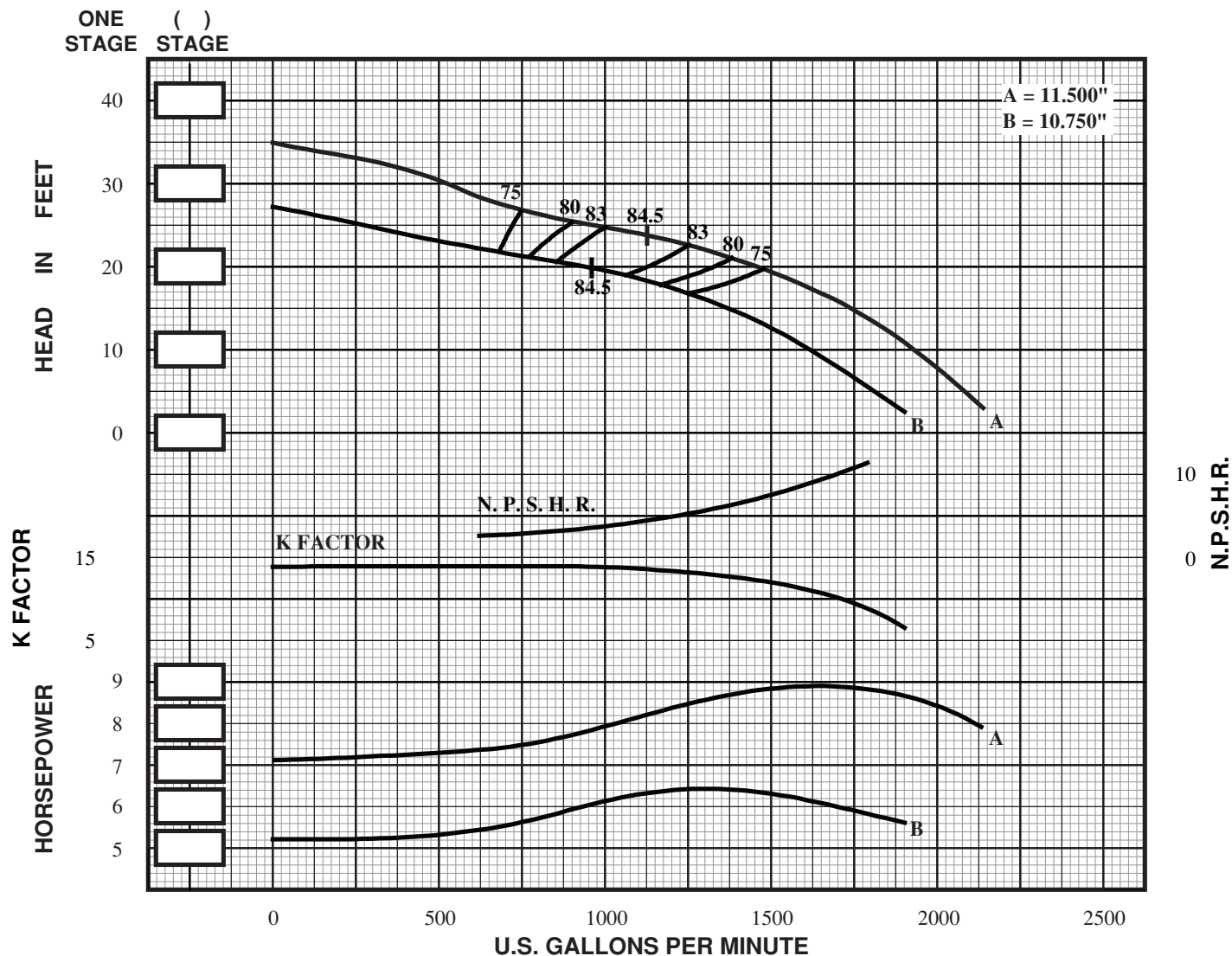
SUBMERSIBLE TURBINE



LINESHAFT TURBINE

SM14H

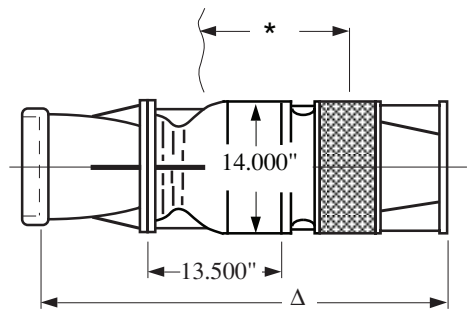
880 RPM



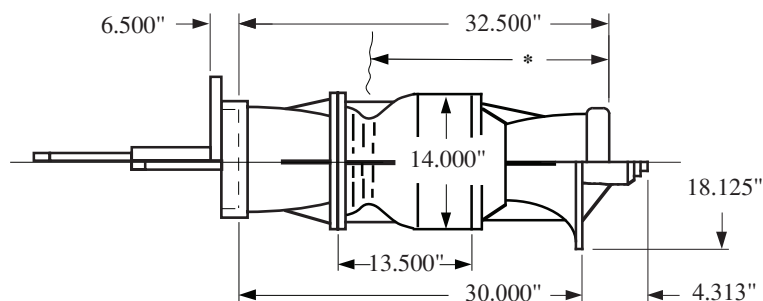
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 2.187"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SM14H	MAX. SHAFT DIA. = 2.187"	1	-2	IMP. - C.I.	0
IMPELLER WT. - LBS. = 29.0	STD. LATERAL = 1.31"	2	-1	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 550.0	DISCHARGE SIZES = 10"/ 12"	3	0	IMP. - S.S.	-2
ADD'L STAGE WT. - LBS. = 235.0	SUCTION SIZES = 10"/ BELL	4	0	BOWL - BRZ.	-1
MAX. SPHERE SIZE = 1.56"	ONE STAGE WR ² = 2.023	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 19"				BOWL - S.S.	-2

Δ CONSULT FACTORY

v18.1



SUBMERSIBLE TURBINE



LINESHAFT TURBINE

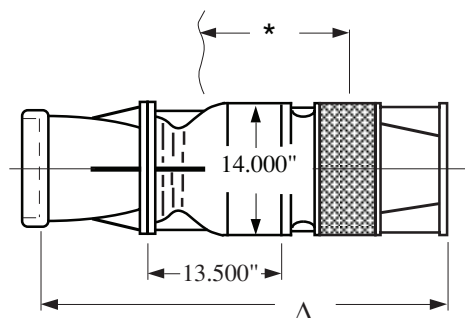
880 RPM



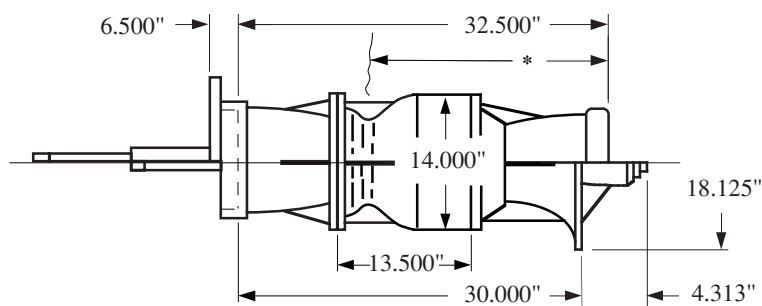
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 2.187"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF CHANGE
IMPELLER NO. = SM14HH	MAX. SHAFT DIA. = 2.187"				
IMPELLER WT. - LBS. = 28.4	STD. LATERAL = 1.25"	1	-2.5	IMP. - C.I.	-5
ONE STAGE WT. - LBS. = 540	DISCHARGE SIZES = 10"/ 12"	2	-1.5	IMP. - NI-RI	-2
ADD'L STAGE WT. - LBS. = 225	SUCTION SIZES = 10"/ BELL	3	-.5	IMP. - S.S.	-3
MAX. SPHERE SIZE = 1.25"	ONE STAGE WR ² = 2.300	4	0	BOWL - BRZ.	-1
MIN. SUBMERGENCE* = 19"	=	5	0	BOWL - NI-RI	-1
Δ CONSULT FACTORY v18.1				BOWL - S.S.	-2

Δ CONSULT FACTORY

v18.1



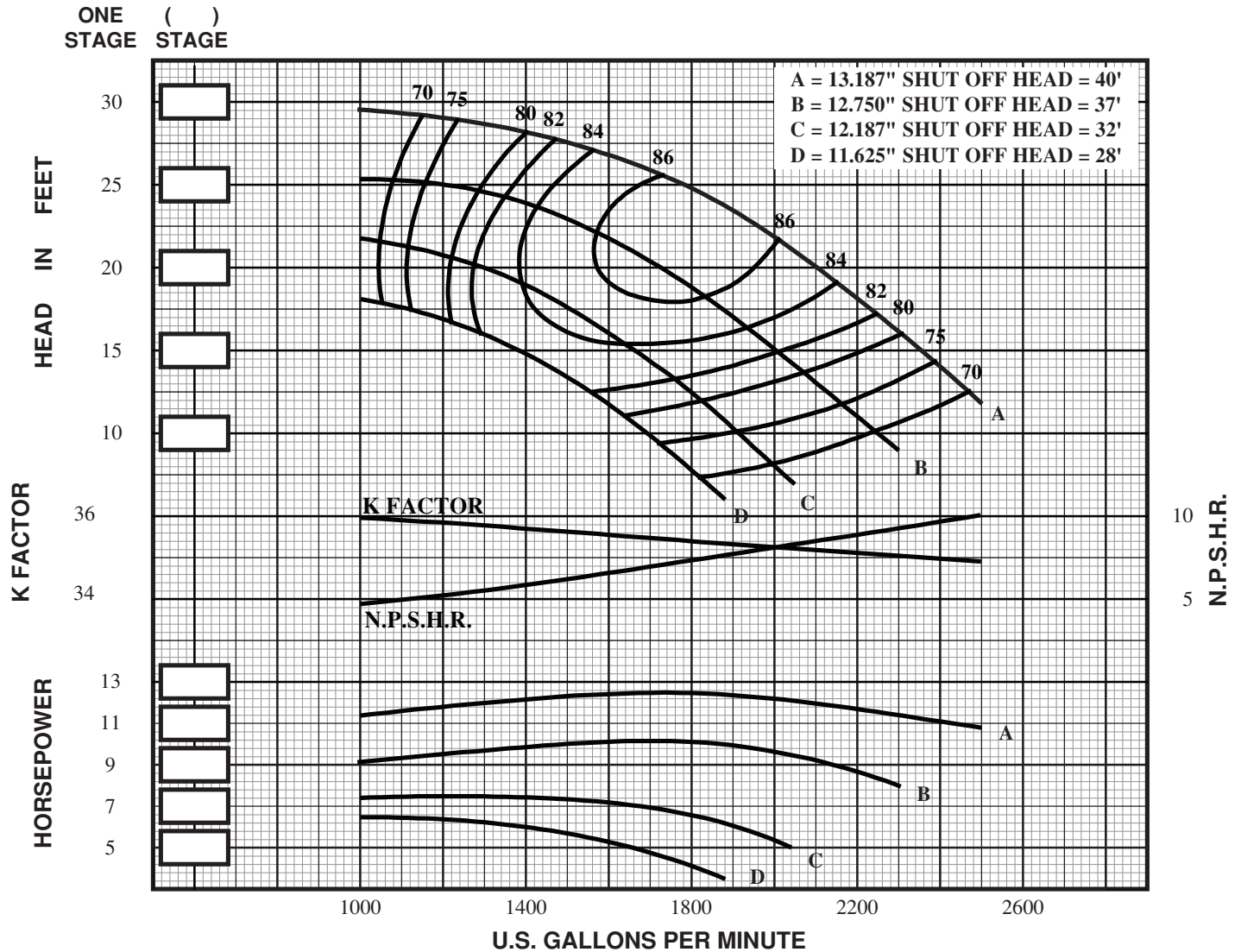
SUBMERSIBLE TURBINE



LINESHAFT TURBINE

SM16MO

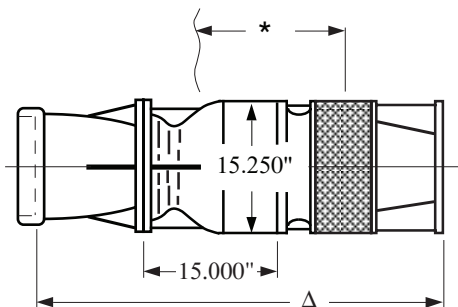
880 RPM



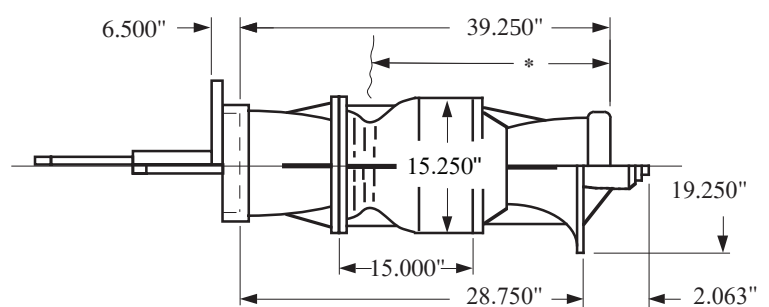
IMPELLER TYPE = SEMI-OPEN	STD. SHAFT DIA. = 2.187"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SM16MO	MAX. SHAFT DIA. = 2.187"	1	-3	IMP. - C.I.	0
IMPELLER WT. - LBS. = 24.0	STD. LATERAL = 1.34"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 600.0	DISCHARGE SIZES = 12"/14"	3	-1	IMP. - S.S.	-1
ADD'L STAGE WT. - LBS. = 250.0	SUCTION SIZES = 12"/BELL	4	0	BOWL - BRZ.	-1
MAX. SPHERE SIZE = 1.19"	ONE STAGE WR ² = 2.26	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 35"	=			BOWL - S.S.	-2

Δ CONSULT FACTORY

v18.1



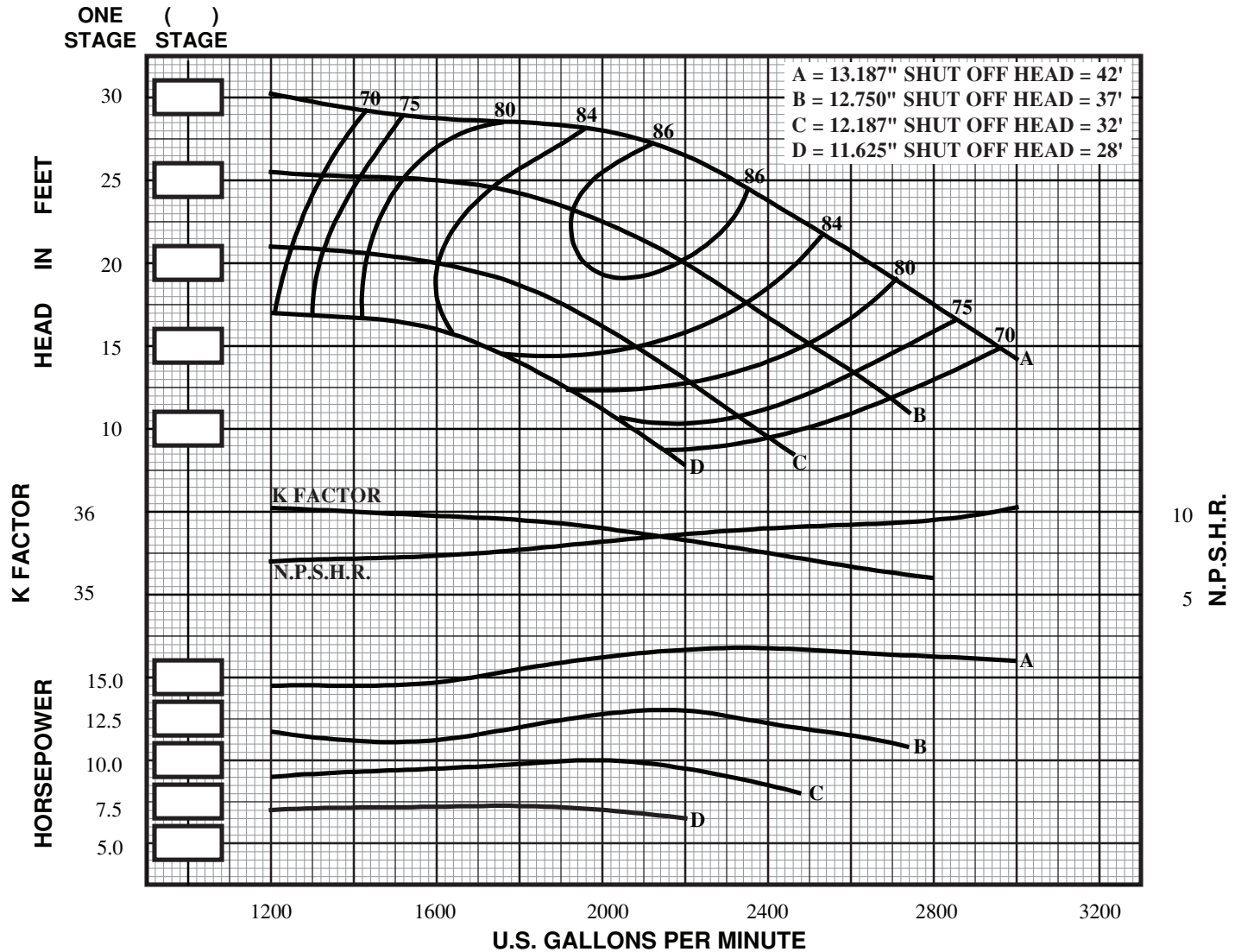
SUBMERSIBLE TURBINE



LINESHAFT TURBINE

SM16HO

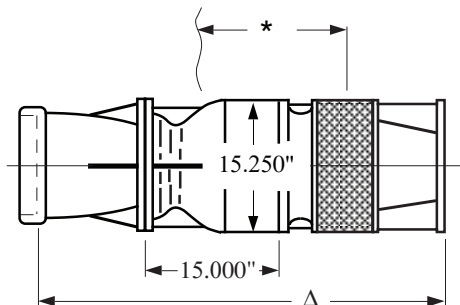
880 RPM



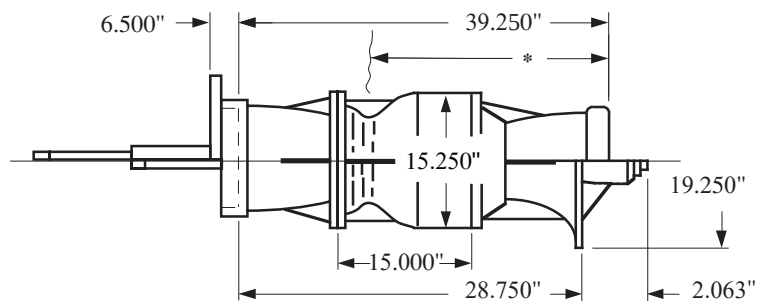
IMPELLER TYPE = SEMI-OPEN	STD. SHAFT DIA. = 2.187"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SM16HO	MAX. SHAFT DIA. = 2.187"	1	-3	IMP. - C.I.	-3
IMPELLER WT. - LBS. = 25.0	STD. LATERAL = 1.06"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 600.0	DISCHARGE SIZES = 12"/14"	3	-1	IMP. - S.S.	-1
ADD'L STAGE WT. - LBS. = 250.0	SUCTION SIZES = 12"/ BELL	4	0	BOWL - BRZ.	-2
MAX. SPHERE SIZE = 1.22"	ONE STAGE WR ² = 2.240	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 39"	=			BOWL - S.S.	-2

Δ CONSULT FACTORY

v18.1

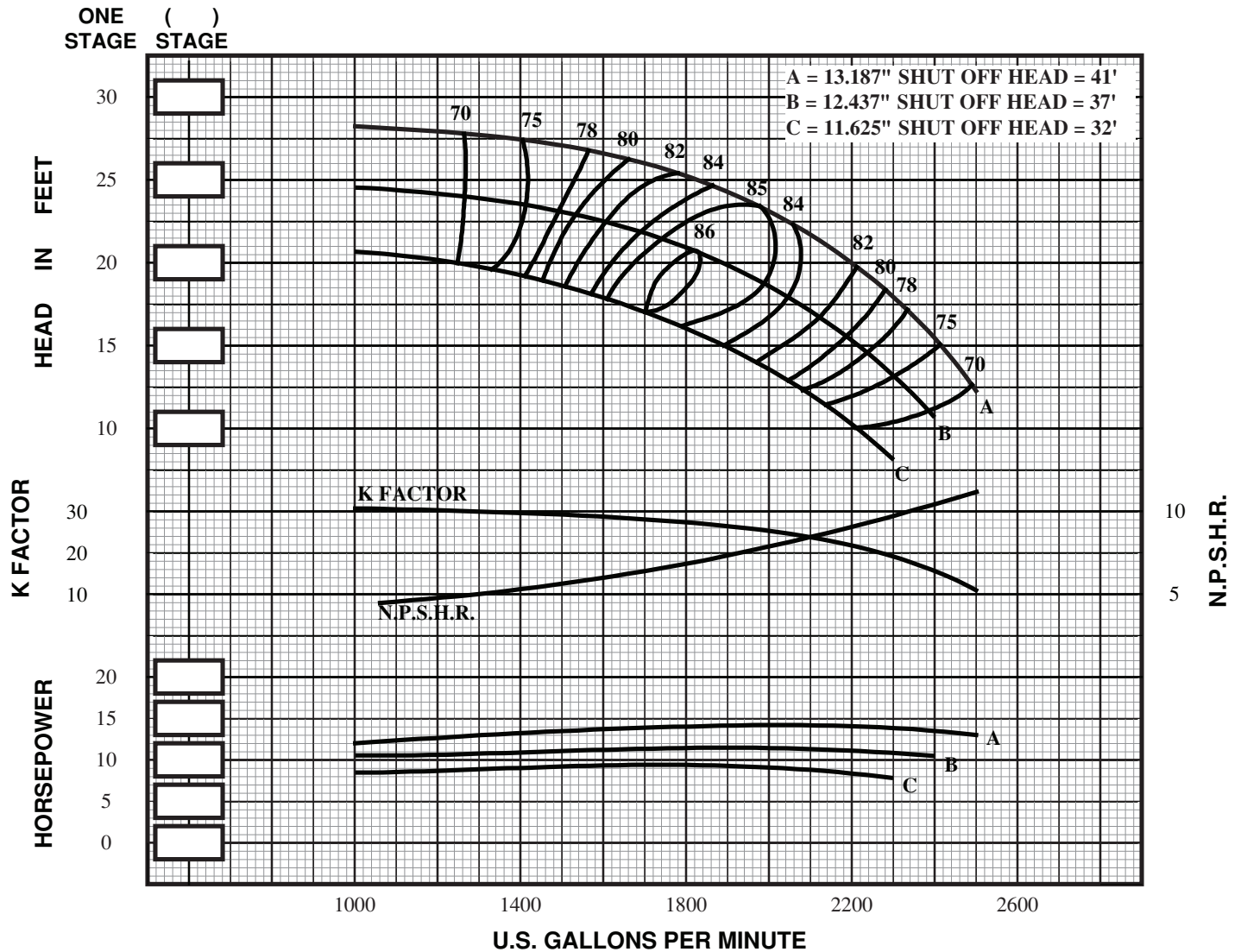


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

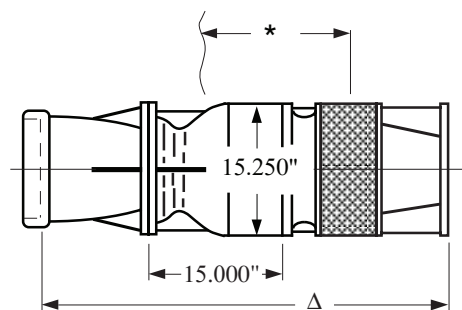
SM16M 880 RPM



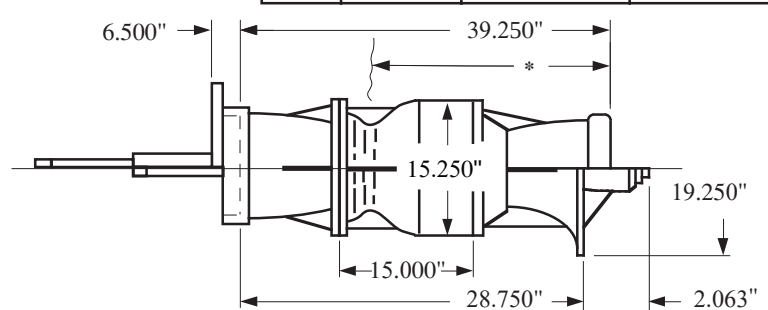
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IMPELLER NO. = SM16M	MAX. SHAFT DIA. = 2.187"	1	-3	IMP. - C.I.	0
IMPELLER WT. - LBS. = 39.0	STD. LATERAL = .94"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 600.0	DISCHARGE SIZES = 12"/14"	3	-1	IMP. - S.S.	-1
ADD'L STAGE WT. - LBS. = 250.0	SUCTION SIZES = 12"/ BELL	4	0	BOWL - BRZ.	-1
MAX. SPHERE SIZE = 1.00"	ONE STAGE WR ² = 4.966	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 36"	=			BOWL - S.S.	-2

Δ CONSULT FACTORY

v18.1



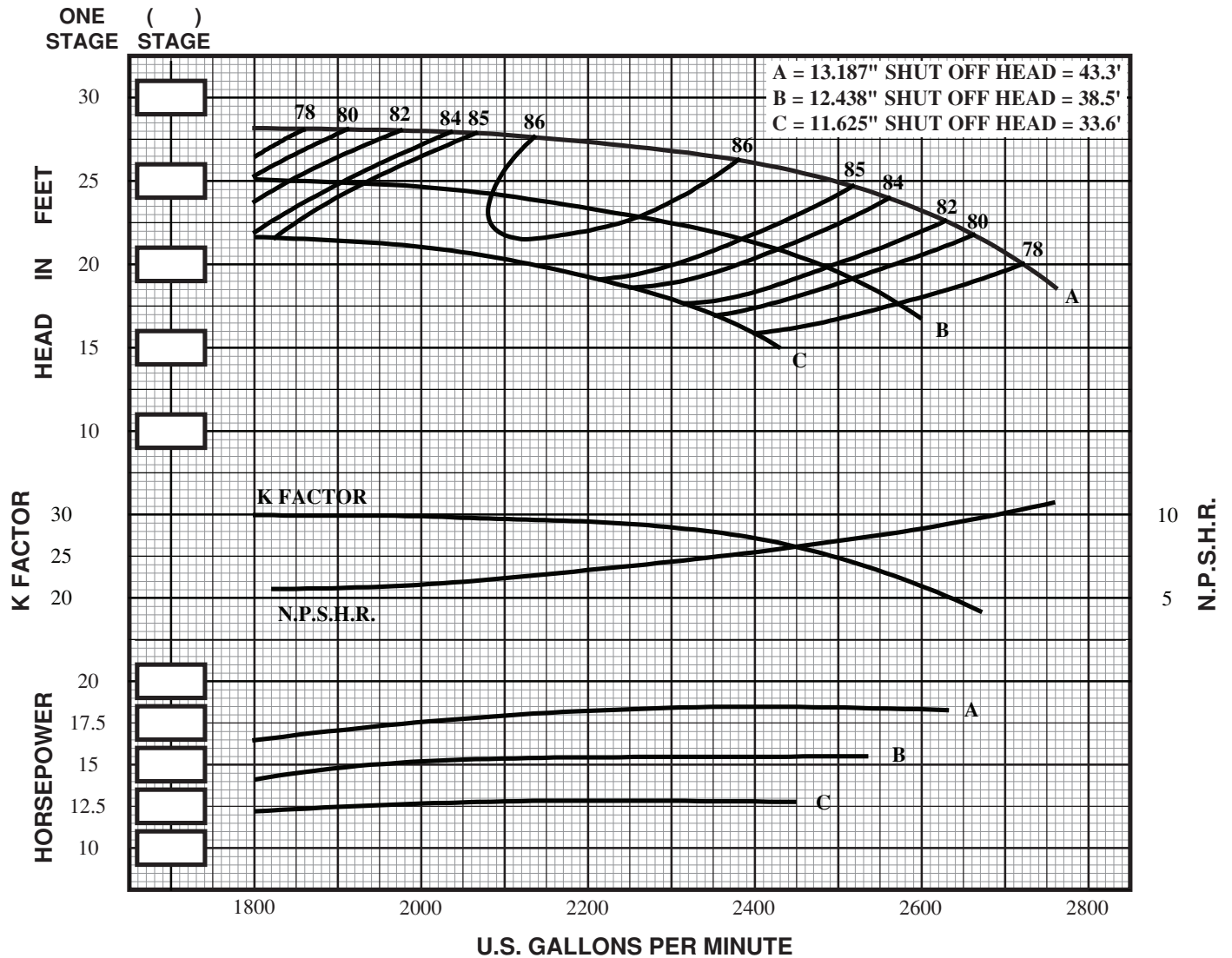
SUBMERSIBLE TURBINE



LINESHAFT TURBINE

SM16H

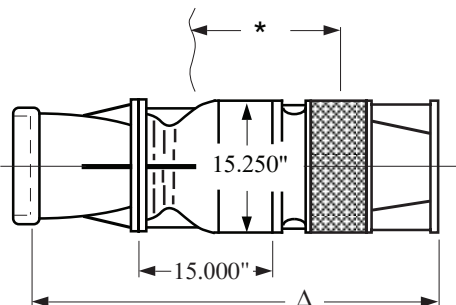
880 RPM



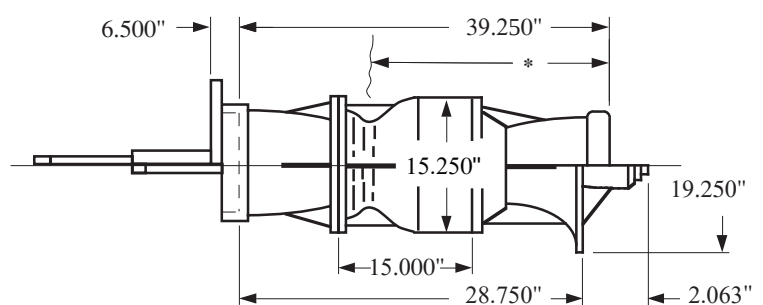
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IMPELLER WT. - LBS. = 35.5	STD. LATERAL = .94"	2	-2	IMP. - NI-RI	-2
ONE STAGE WT. - LBS. = 600.0	DISCHARGE SIZES = 12"/ 14"	3	-1	IMP. - S.S.	-1
ADD'L STAGE WT. - LBS. = 250.0	SUCTION SIZES = 12"/ BELL	4	0	BOWL - BRZ.	-2
MAX. SPHERE SIZE = 1.38"	ONE STAGE WR ² = 4.677	5	0	BOWL - NI-RI	-1
MIN. SUBMERGENCE* = 39"	=			BOWL - S.S.	-2

Δ CONSULT FACTORY

v18.1

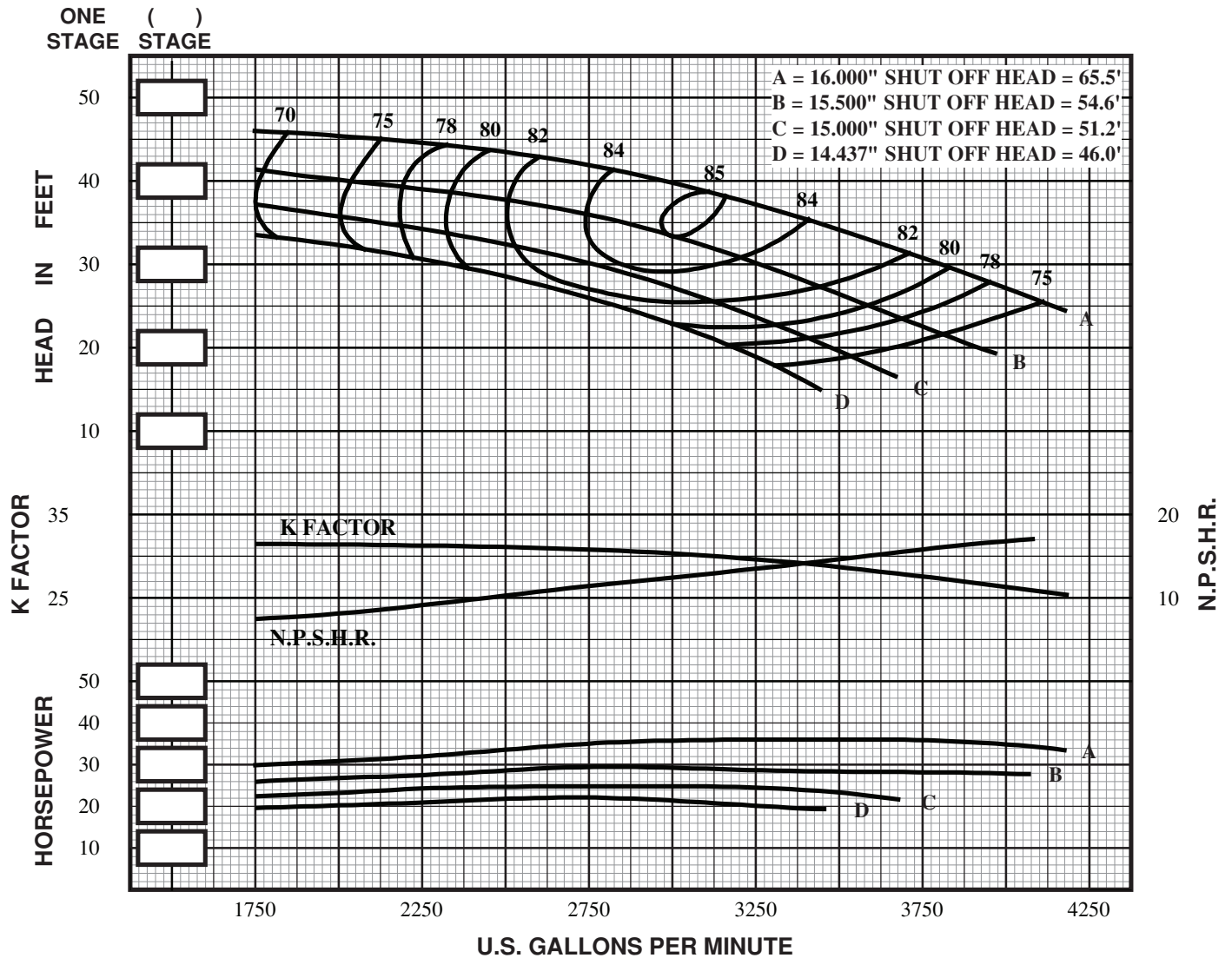


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

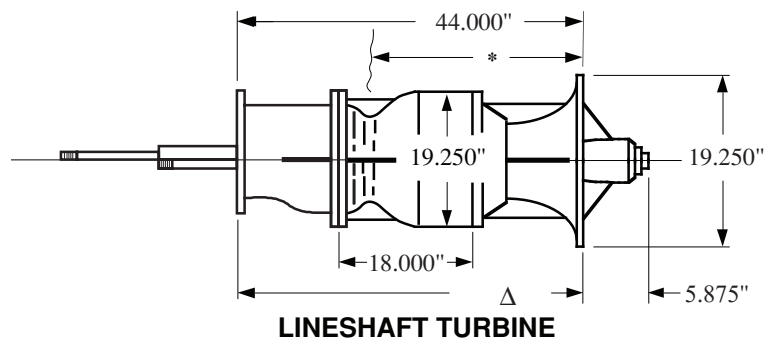
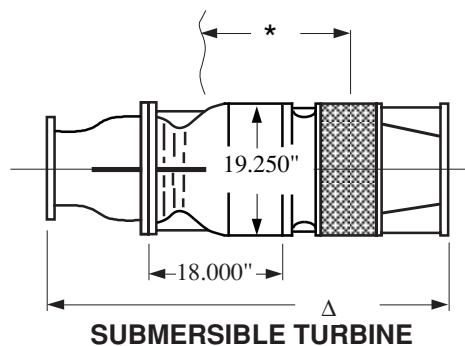
SM20M 880 RPM



IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 2.437"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SM20M	MAX. SHAFT DIA. = 2.437"	1	0	IMP. - C.I.	Δ
IMPELLER WT. - LBS. = 101.0	STD. LATERAL = 1.50"	2	0	IMP. - NI-RI	Δ
ONE STAGE WT. - LBS. = 1000.0	DISCHARGE SIZES = 16"/Δ	3	0	IMP. - S.S.	Δ
ADD'L STAGE WT. - LBS. = 450.0	SUCTION SIZES = BELL	4	0	BOWL - BRZ.	Δ
MAX. SPHERE SIZE = 1.22"	ONE STAGE WR ² = 8.220	5	0	BOWL - NI-RI	Δ
MIN. SUBMERGENCE* = 42"	=			BOWL - S.S.	Δ

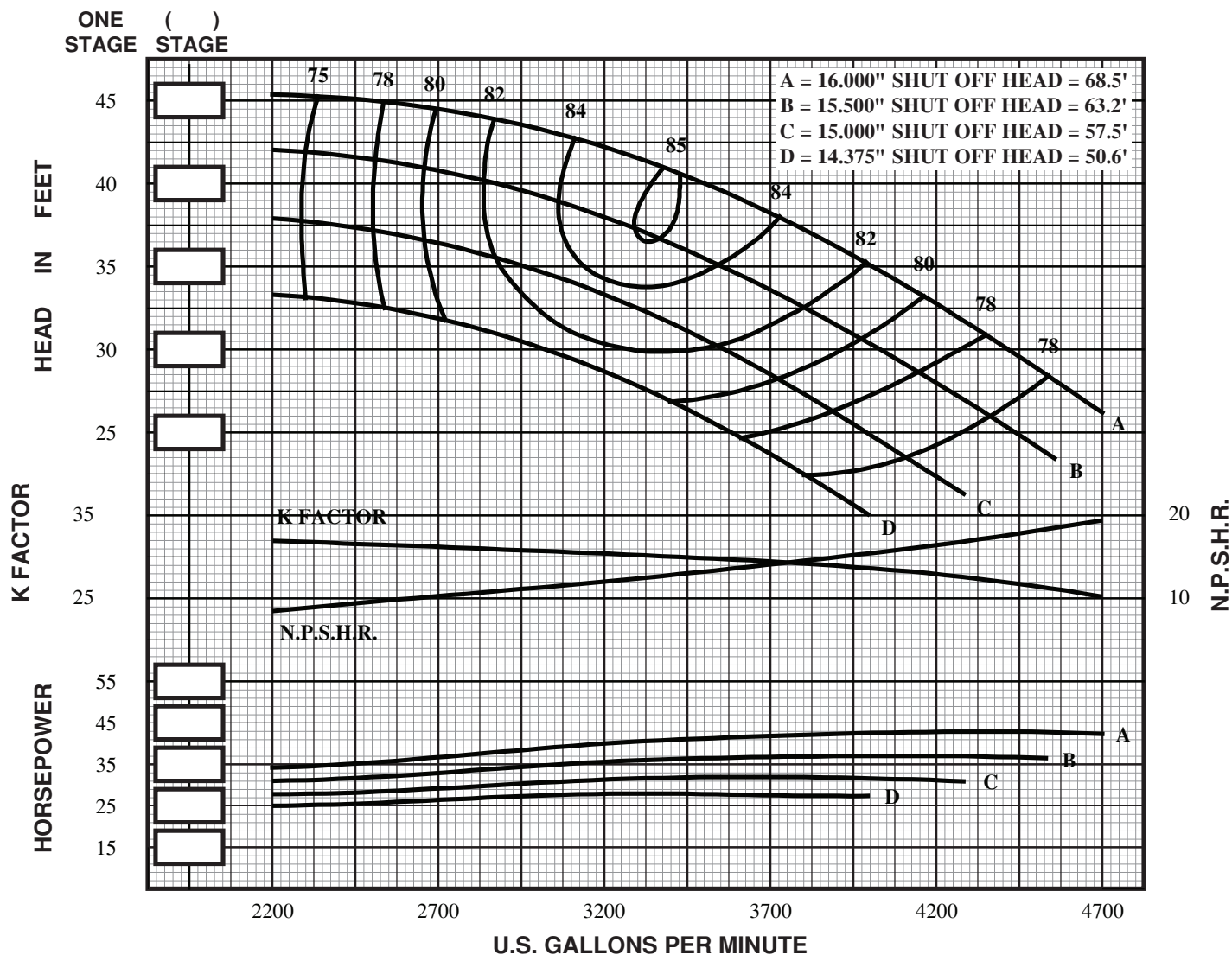
Δ CONSULT FACTORY

v18.1



SM20H

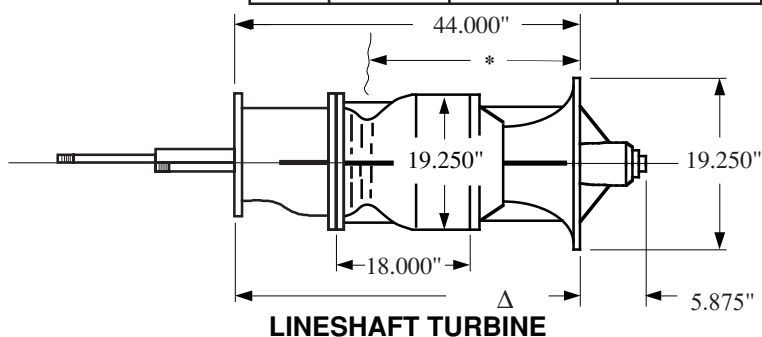
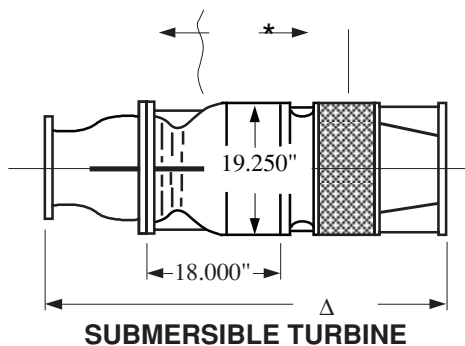
880 RPM



IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 2.437"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SM20H	MAX. SHAFT DIA. = 2.437"	1	0	IMP. - C.I.	Δ
IMPELLER WT. - LBS. = 69.0	STD. LATERAL = 1.31"	2	0	IMP. - NI-RI	Δ
ONE STAGE WT. - LBS. = 1000.0	DISCHARGE SIZES = 16"/ Δ	3	0	IMP. - S.S.	Δ
ADD'L STAGE WT. - LBS. = 450.0	SUCTION SIZES = BELL	4	0	BOWL - BRZ.	Δ
MAX. SPHERE SIZE = 1.28"	ONE STAGE WR ² = 8.210	5	0	BOWL - NI-RI	Δ
MIN. SUBMERGENCE* = 46"	=			BOWL - S.S.	Δ

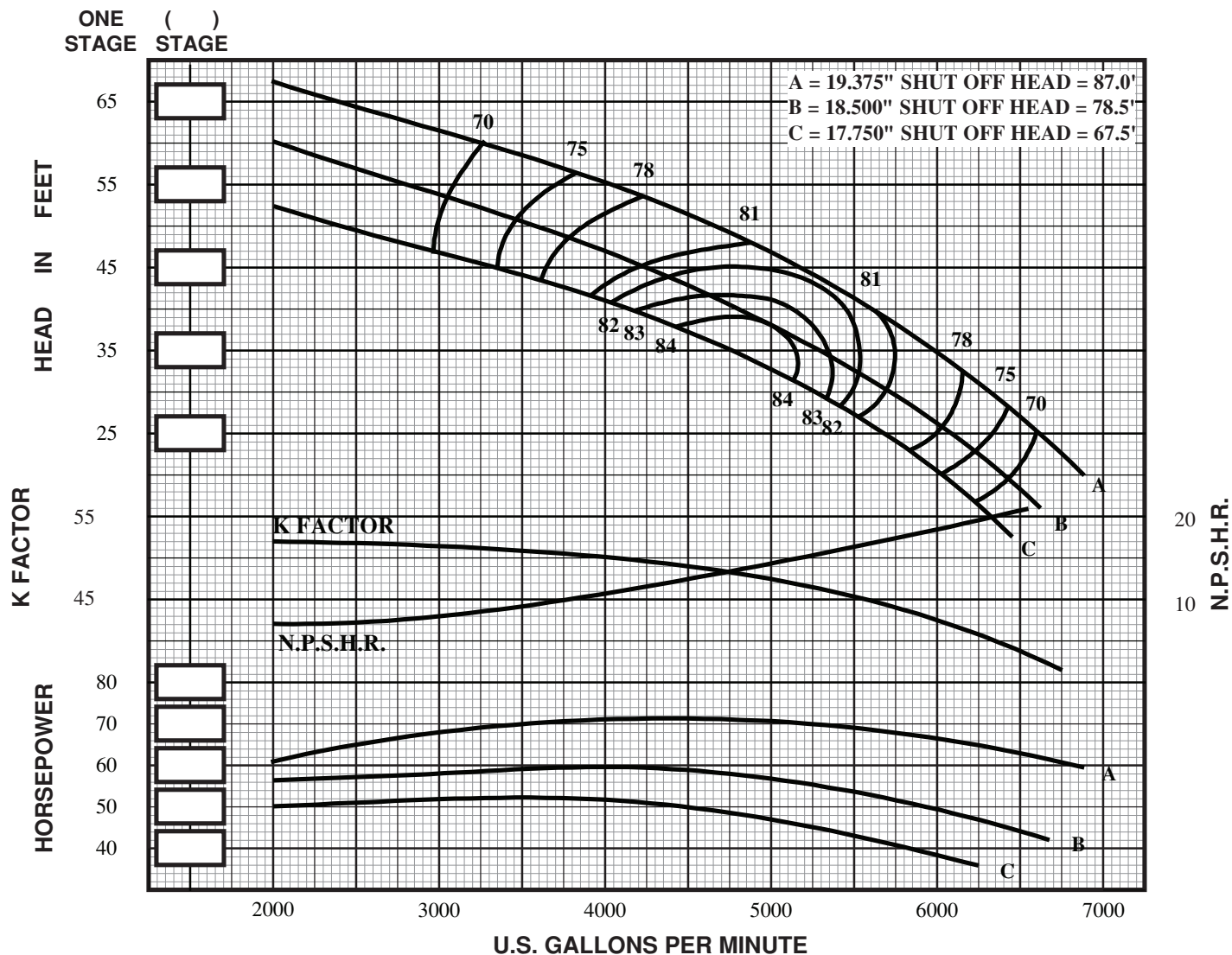
Δ CONSULT FACTORY

v18.1



SM24M

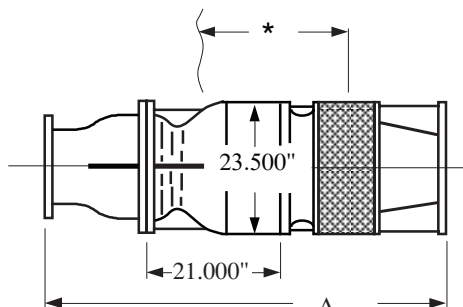
880 RPM



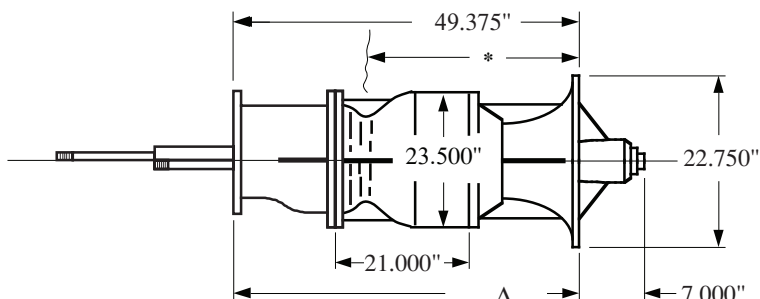
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IMPELLER NO. = SM24M	MAX. SHAFT DIA. = 2.937"	1	0	IMP. - C.I.	Δ
IMPELLER WT. - LBS. = 112.0	STD. LATERAL = 2.63"	2	0	IMP. - NI-RI	Δ
ONE STAGE WT. - LBS. = 1200.0	DISCHARGE SIZES = 18"/ Δ	3	0	IMP. - S.S.	Δ
ADD'L STAGE WT. - LBS. = 625.0	SUCTION SIZES = BELL	4	0	BOWL - BRZ.	Δ
MAX. SPHERE SIZE = 1.81"	ONE STAGE WR ² = 19.69	5	0	BOWL - NI-RI	Δ
MIN. SUBMERGENCE* = 56"	=			BOWL - S.S.	Δ

Δ CONSULT FACTORY

v18.1



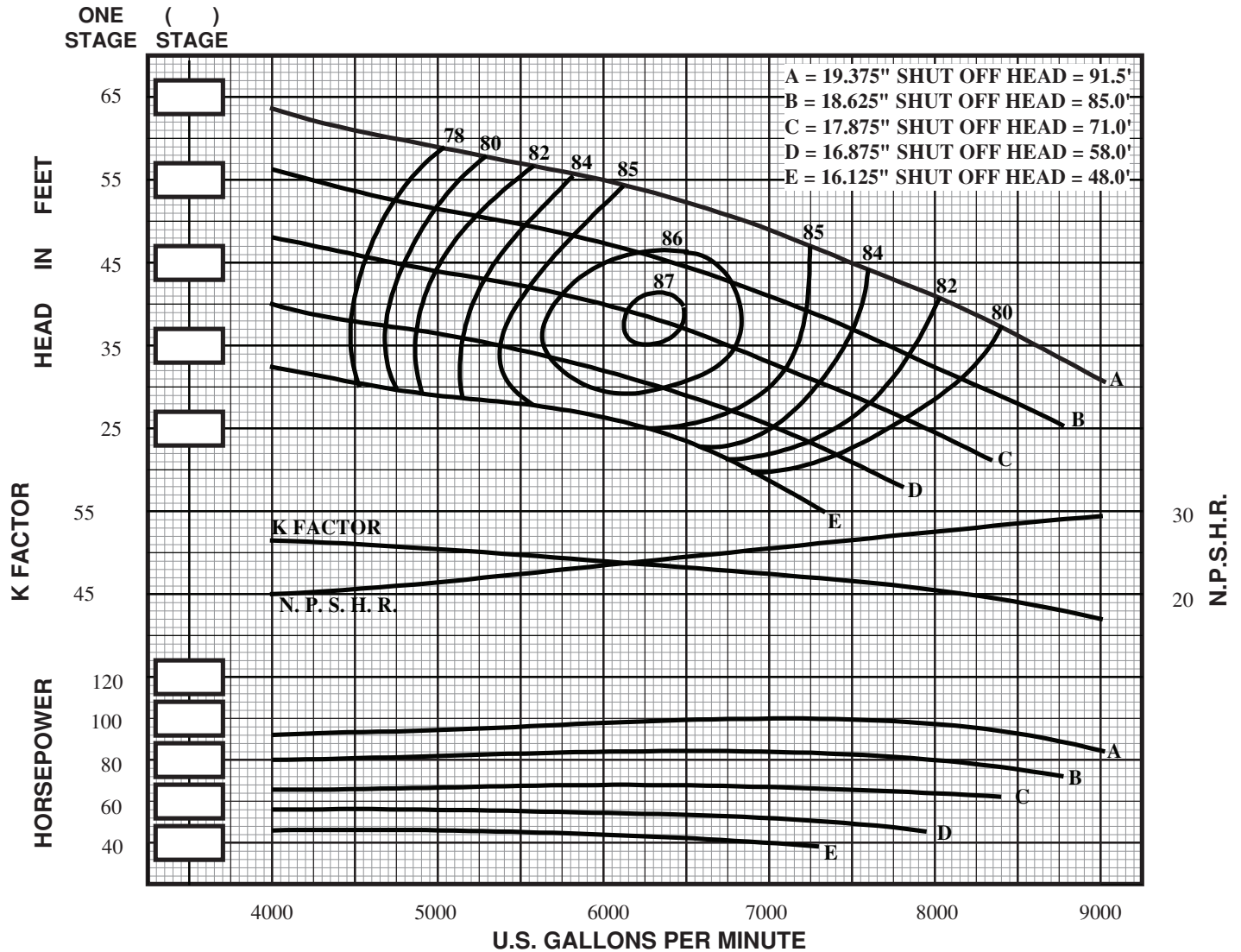
SUBMERSIBLE TURBINE



LINESHAFT TURBINE

SM24H

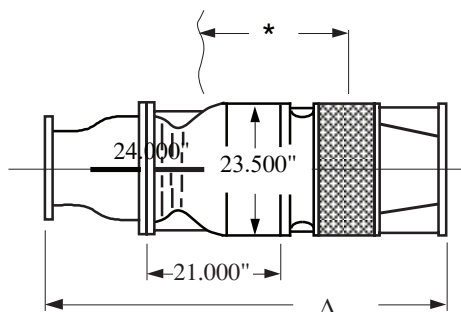
880 RPM



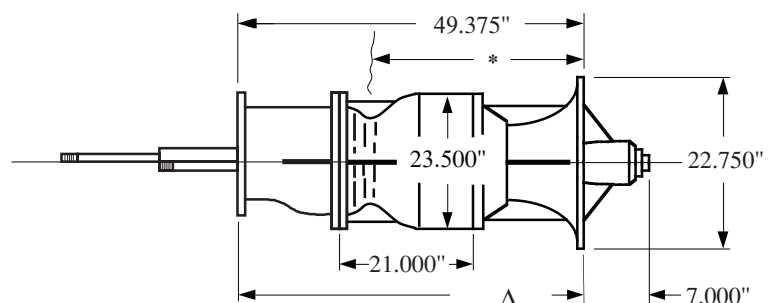
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IMPELLER NO. = SM24H	MAX. SHAFT DIA. = 2.937"	1	0	IMP. - C.I.	Δ
IMPELLER WT. - LBS. = 112.0	STD. LATERAL = 2.20"	2	0	IMP. - NI-RI	Δ
ONE STAGE WT. - LBS. = 1200.0	DISCHARGE SIZES = 18"/ Δ	3	0	IMP. - S.S.	Δ
ADD'L STAGE WT. - LBS. = 625.0	SUCTION SIZES = BELL	4	0	BOWL - BRZ.	Δ
MAX. SPHERE SIZE = 1.88"	ONE STAGE WR ² = 19.03	5	0	BOWL - NI-RI	Δ
MIN. SUBMERGENCE* = 56"	=			BOWL - S.S.	Δ

Δ CONSULT FACTORY

v18.1



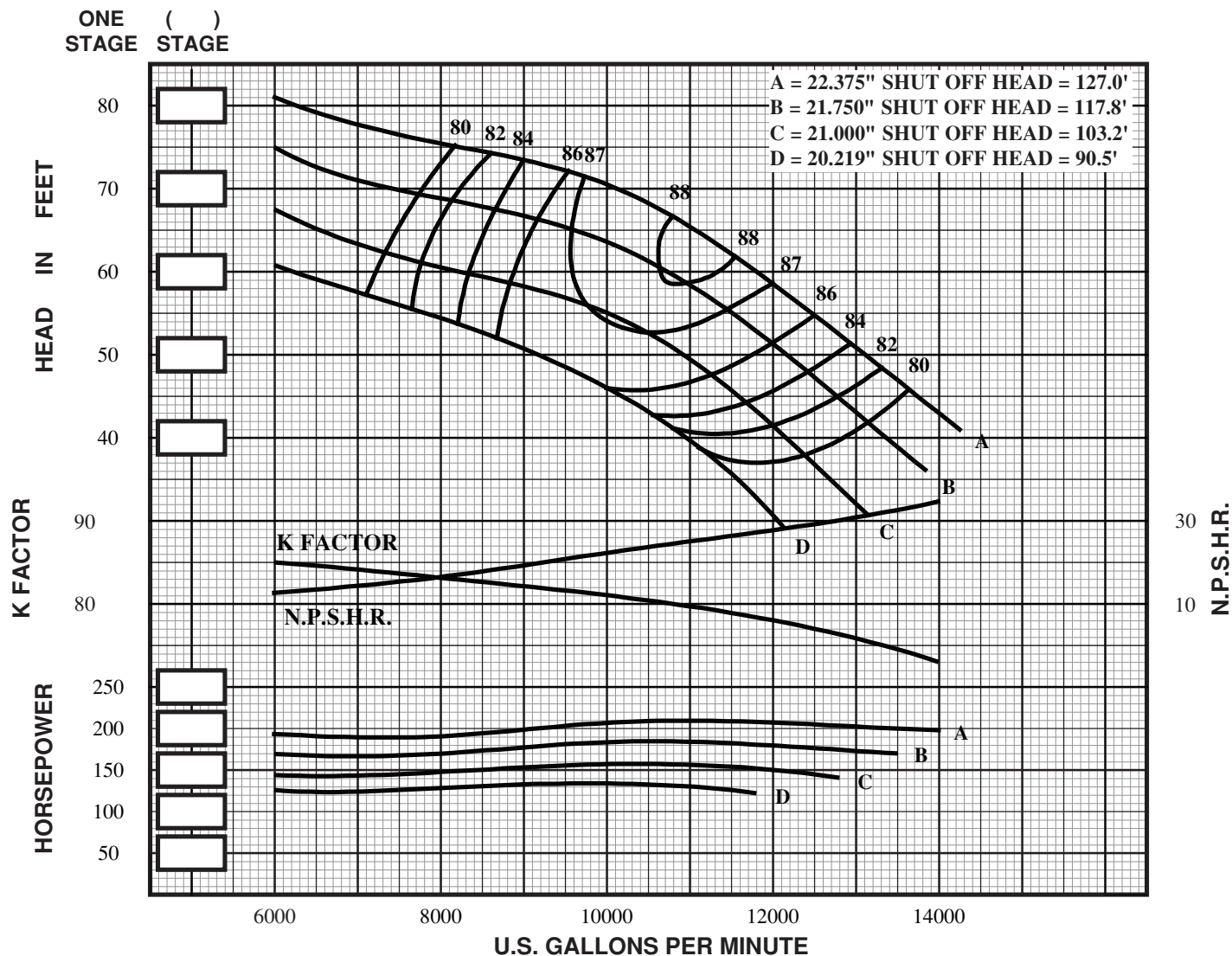
SUBMERSIBLE TURBINE



LINESHAFT TURBINE

SM28H

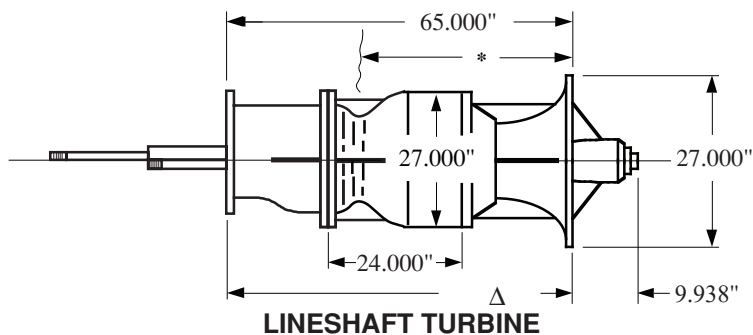
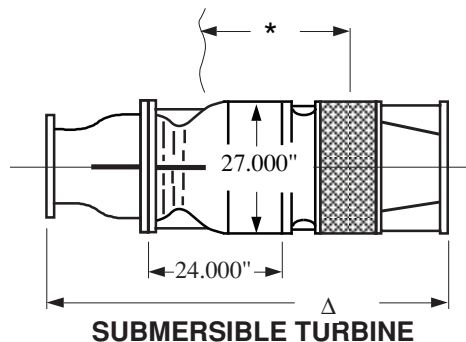
880 RPM



IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 2.937"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SM28H	MAX. SHAFT DIA. = 2.937"	1	0	IMP. - C.I.	Δ
IMPELLER WT. - LBS. = 218.0	STD. LATERAL = .49"	2	0	IMP. - NI-RI	Δ
ONE STAGE WT. - LBS. = 2100.0	DISCHARGE SIZES = 20"/ Δ	3	0	IMP. - S.S.	Δ
ADD'L STAGE WT. - LBS. = 1000.0	SUCTION SIZES = BELL	4	0	BOWL - BRZ.	Δ
MAX. SPHERE SIZE = 1.88"	ONE STAGE WR ² = 39.62	5	0	BOWL - NI-RI	Δ
MIN. SUBMERGENCE* = 64"	=			BOWL - S.S.	Δ

Δ CONSULT FACTORY

v18.1

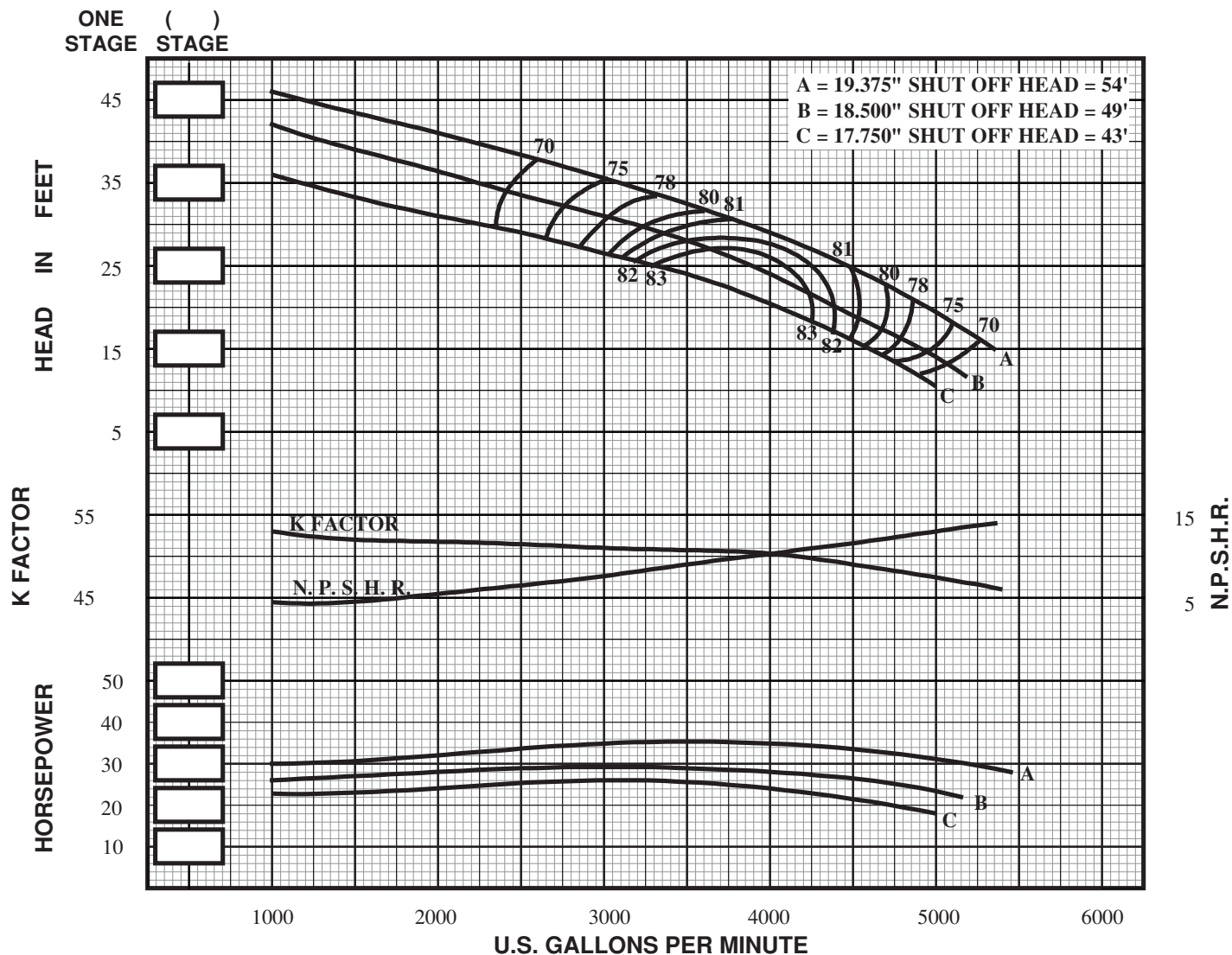


700 RPM
Selection Chart

Model Number	Bowl Dia. (in.)	Peak Eff. (full dia.)	BEP Flow (gpm)	BEP Head (ft./ stage)	BEP NPSHr (full dia.)	POR (gpm)	Ns	Nss
SM24M	23.50	81.5	4095	28.5	10.6	2867-4914	3632	7625
SM24H	23.50	85.4	5311	31.6	12.3	3718-6373	3828	7767
SM28H	27.00	88.0	8918	40.1	15.8	6243-10700	4148	8341

v18.1

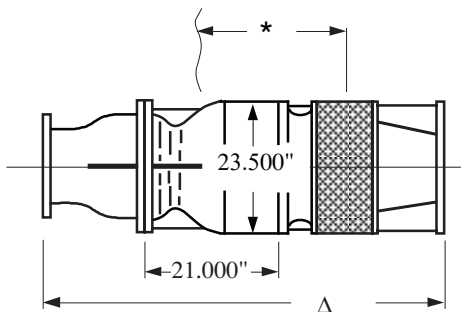
SM24M 700 RPM



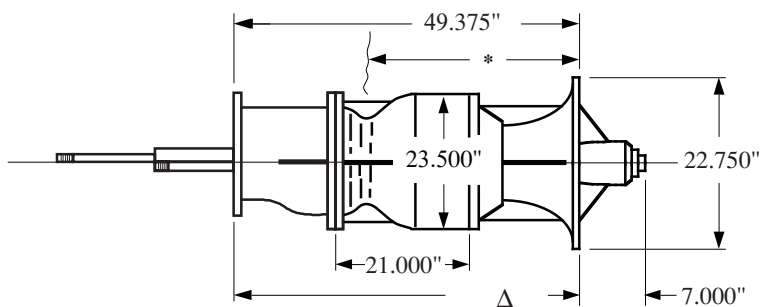
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IMPELLER NO. = SM24M	MAX. SHAFT DIA. = 2.937"	1	0	IMP. - C.I.	Δ
IMPELLER WT. - LBS. = 112.0	STD. LATERAL = 2.63"	2	0	IMP. - NI-RI	Δ
ONE STAGE WT. - LBS. = 1200.0	DISCHARGE SIZES = 18"/ Δ	3	0	IMP. - S.S.	Δ
ADD'L STAGE WT. - LBS. = 625.0	SUCTION SIZES = BELL	4	0	BOWL - BRZ.	Δ
MAX. SPHERE SIZE = 1.81"	ONE STAGE WR ² = 19.69	5	0	BOWL - NI-RI	Δ
MIN. SUBMERGENCE* = 56"	=			BOWL - S.S.	Δ

Δ CONSULT FACTORY

v18.1

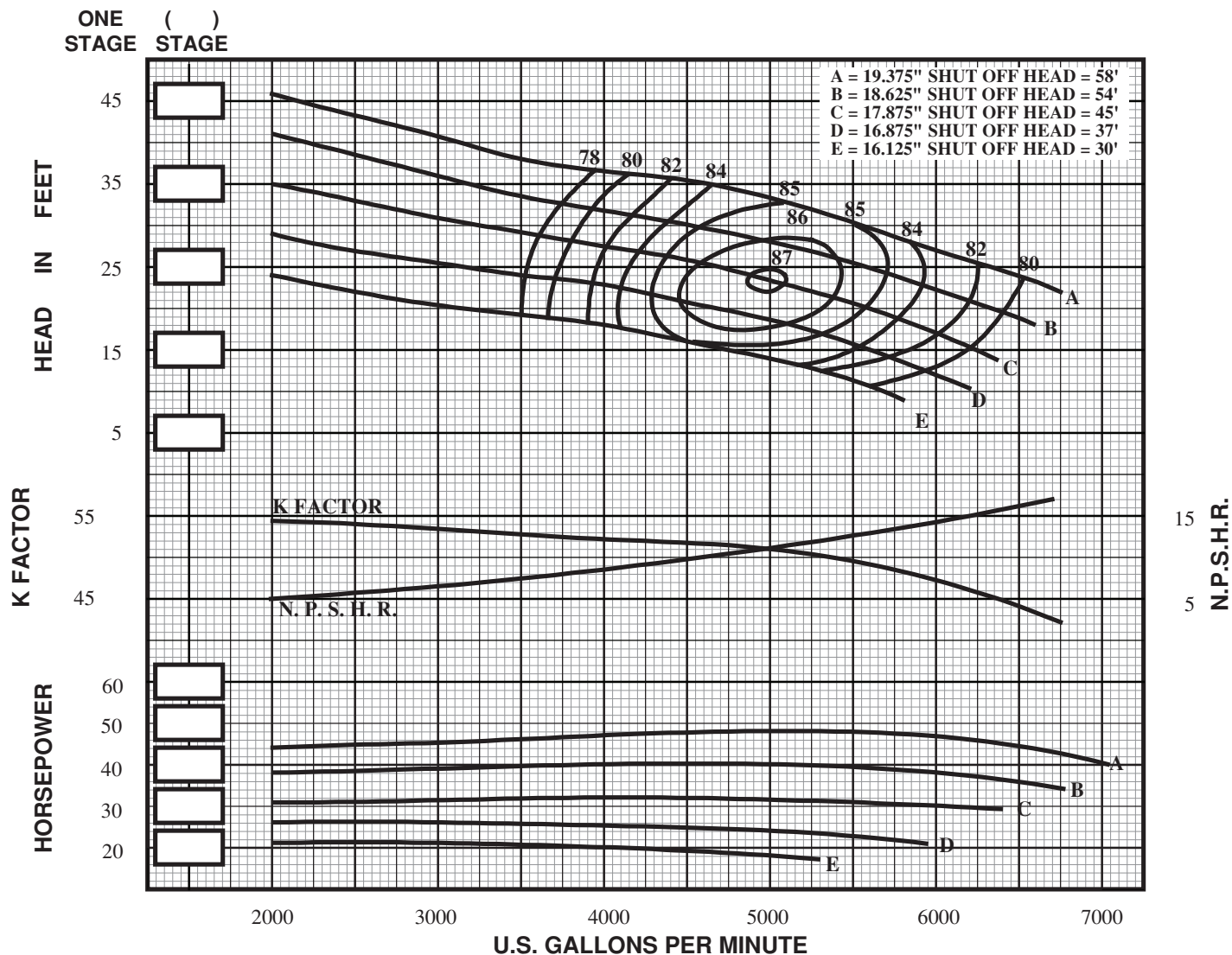


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

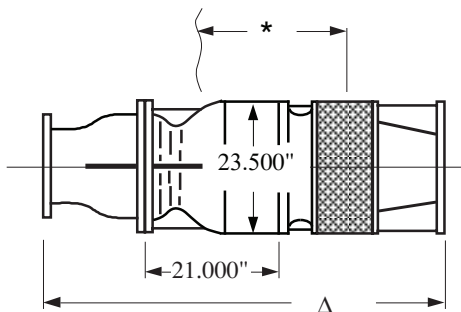
SM24H 700 RPM



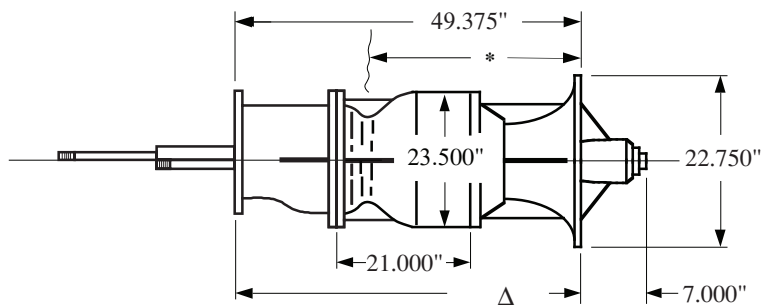
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IMPELLER NO. = SM24H	MAX. SHAFT DIA. = 2.937"	1	0	IMP. - C.I.	Δ
IMPELLER WT. - LBS. = 112.0	STD. LATERAL = 2.20"	2	0	IMP. - NI-RI	Δ
ONE STAGE WT. - LBS. = 1200.0	DISCHARGE SIZES = 18"/ Δ	3	0	IMP. - S.S.	Δ
ADD'L STAGE WT. - LBS. = 625.0	SUCTION SIZES = BELL	4	0	BOWL - BRZ.	Δ
MAX. SPHERE SIZE = 1.88"	ONE STAGE WR ² = 19.03	5	0	BOWL - NI-RI	Δ
MIN. SUBMERGENCE* = 56"	=			BOWL - S.S.	Δ

Δ CONSULT FACTORY

v18.1

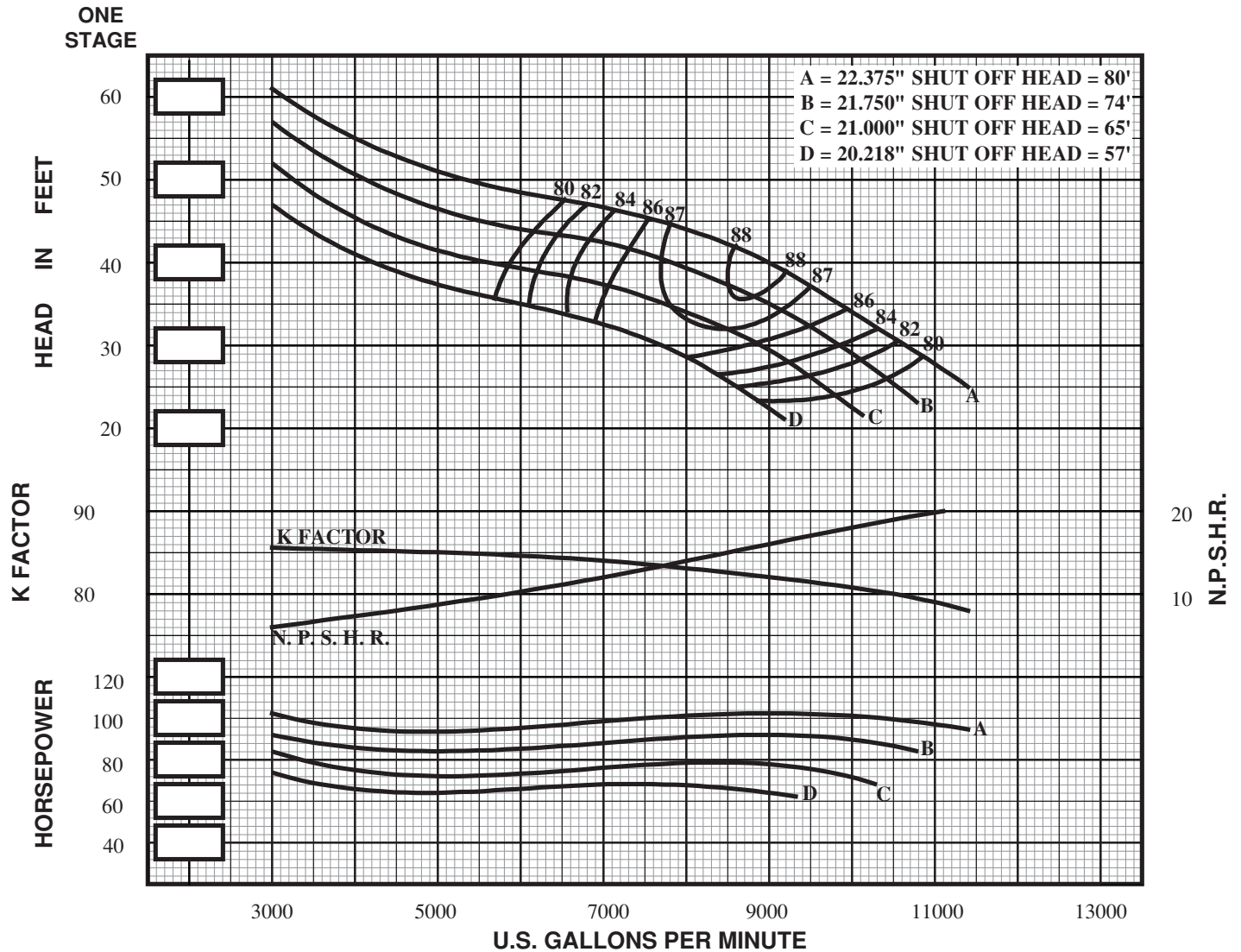


SUBMERSIBLE TURBINE



LINESHAFT TURBINE

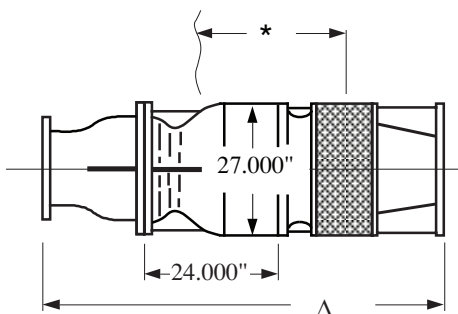
SM28H 700 RPM



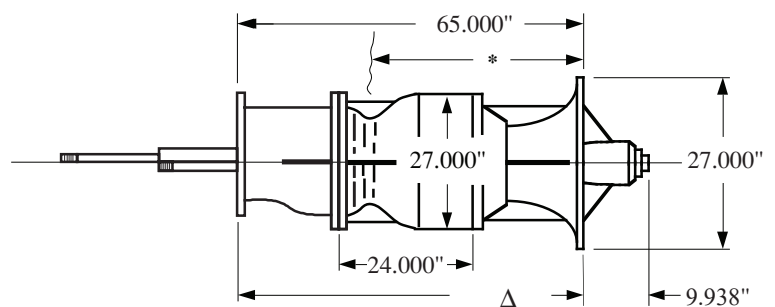
IMPELLER TYPE = ENCLOSED	STD. SHAFT DIA. = 2.937"	NO. STAGES	EFF. CHANGE	MATERIAL	B.E.P. EFF. CHANGE
IMPELLER NO. = SM28H	MAX. SHAFT DIA. = 2.937"				
IMPELLER WT. - LBS. = 218.0	STD. LATERAL = .49"	1	0	IMP. - C.I.	Δ
ONE STAGE WT. - LBS. = 2100.0	DISCHARGE SIZES = 20"/ Δ	2	0	IMP. - NI-RI	Δ
ADD'L STAGE WT. - LBS. = 1000.0	SUCTION SIZES = BELL	3	0	IMP. - S.S.	Δ
MAX. SPHERE SIZE = 1.88"	ONE STAGE WR ² = 39.62	4	0	BOWL - BRZ.	Δ
MIN. SUBMERGENCE* = 64"		5	0	BOWL - NI-RI	Δ
				BOWL - S.S.	Δ

Δ CONSULT FACTORY

v18.1



SUBMERSIBLE TURBINE



LINESHAFT TURBINE

Pump Performance Speed Change Affinity

$$\frac{\text{Corrected Speed}}{\text{Original Speed}} = \text{Ratio}$$

$$\begin{aligned} \text{Ratio X GPM} &= \text{Corrected GPM} \\ \text{Ratio}^2 \text{ X Head} &= \text{Corrected Head} \\ \text{Ratio}^3 \text{ X HP} &= \text{Corrected HP} \end{aligned}$$

This formula is also used for increasing or decreasing speed. Efficiency at this point is assumed to be the same efficiency as the original point.

EXAMPLE: Speed decreasing from 1770 to 1750 RPM.

GIVEN: 1000 GPM, 1770 RPM. 54' of head and 16.5 HP

$$\begin{aligned} \text{SOLUTION: } \frac{\text{Corrected Speed}}{\text{Original Speed}} = \frac{1750}{1770} &= \text{Ratio} &= &.9887 \\ &\text{Ratio}^2 &= &.9775 \\ &\text{Ratio}^3 &= &.9665 \end{aligned}$$

$$\begin{aligned} \text{GPM X Ratio} &= 1000 \text{ X } .9887 = 988.7 \text{ GPM} \\ \text{Head X Ratio}^2 &= 54' \text{ X } .9775 = 52.8' \text{ Head} \\ \text{HP X Ratio}^3 &= 16.5 \text{ X } .9665 = 15.9 \text{ HP} \end{aligned}$$

The formula can also be used for change of cycles in electricity.

$$\frac{50 \text{ cycles}}{60 \text{ cycles}} = .8333$$

$$.8333 \text{ X } 1700 \text{ RPM} = 1417 \text{ RPM}$$

Now you have the correct RPM from cycle change and therefore can find the correct performance according to speed.

Note: The mathematical results of this formula are approximate. Variances will occur due to design and application differences.

Trouble Shooting Operating Symptoms

INSUFFICIENT PRESSURE

1. Speed too slow (check voltage).
2. Impeller trimmed incorrectly.
3. Impeller loose.
4. Impeller plugged.
5. Wear rings worn.
6. Entrained air in pump.
7. Leaking joints or bowl casing.
8. Wrong rotation.
9. Incorrect impeller adjustment.

NO LIQUID DELIVERED

1. Pump section broken (water level below inlet).
2. Suction valve closed.
3. Impeller plugged.
4. Strainer clogged.
5. Wrong rotation.
6. Shaft broken or unscrewed.
7. Impeller loose.
8. Barrel or discharge not vented.
9. Driver inoperative.

VIBRATION

1. Motor imbalance-electrical.
2. Motor bearing not properly seated or worn.
3. Motor drive coupling out of balance or alignment.
4. Misalignment of pump, casings, discharge head column or bowls.
5. Discharge head misaligned by improper mounting or pipe strain.
6. Bent shafting.
7. Worn pump bearings.
8. Clogged impeller or foreign material in pump.
9. Improper impeller adjustment.
10. Vortex problems in sump.
11. Resonance-system frequency at or near pump speed.
12. Cavitation.
13. Impeller out of balance.

INSUFFICIENT CAPACITY

1. Speed too slow.
2. Impeller trimmed incorrectly.
3. Impeller loose.
4. Impeller or bowl partially plugged.
5. Leaking joints.
6. Strainer or suction pipe clogged.
7. Suction valve throttled.
8. Low water level.
9. Reverse rotation.
10. Insufficient submergence.
11. Insufficient N.P.S.H.A.
12. Incorrect impeller adjustment.
13. Worn pump.
14. System pressure higher than design.

USING TOO MUCH POWER

1. Speed too high.
2. Improper impeller adjustment.
3. Improper impeller trim.
4. Pump out of alignment.
5. Coupling out of alignment.
6. Pumping sand, silt or other foreign material
7. Lubricating oil too heavy.
8. Bent shaft.
9. Tight bearing or packing.
10. Specific gravity or viscosity of fluid higher than design.
11. Worn pump.
12. Damaged pump.
13. Partial freezing of pump liquid.

ABNORMAL NOISE

1. Motor noise.
2. Dry pump bearing.
3. Broken column bearing retainers.
4. Broken shaft or shaft enclosing tube.
5. Impellers dragging on bowl case.
6. Cavitation due to insufficient N.P.S.H.A. and/or submergence.
7. Foreign material in pump.
8. Excessive fluid velocity in pipe system.

Component Problem Solving

IMPELLERS

TROUBLE SOURCE	PROBABLE CAUSE	REMEDY
Wear on exit vanes and shrouds. Consider	Abrasive action.	Replace impeller if excessive. coating or upgrading material.
Pitting on entrance vanes of impellers.	Cavitation.	Correct condition or upgrade material to extend life.
Pitting on impellers and bowl castings.	Corrosion/Erosion	Investigate cost of different materials. vs. frequency of replacements.
Wear on impeller skirts and/or bowl seal ring area.	1. Abrasive action or excess wear impeller skirts due to worn bowl bearings. 2. Impellers set too high.	1. Install new bearings and wear rings. Upgrade material if abrasive action. 2. Install wear rings and adjust correctly.
Impeller loose on shaft (extremely rare occurrence.)	1. Repeated shock load by surge in suction or discharge line. (Can loosen first or last stage impellers.) 2. Foreign material jamming impeller. (May break shaft or trip motor over load before impeller comes to loose. 3. Differential expansion due to temperature. 4. Parts improperly machined and/or assembled. 5. Torsion loading on submersible pumps.	1. Re-fit impellers. If collet mounted, consider changing to key mounting. 2. Remove cause of jamming. 3. If collet mounted, consider change to key mounted. Avoid sudden thermal shock. 4. Correct parts and refit. 5. Add keyway to collet mounting.

BEARINGS

TROUBLE SOURCE	PROBABLE CAUSE	REMEDY
Bearing seized or galling on shaft.	Running without lubrication.	Check lubrication, look for plugged suction or evidence of flashing.
Bearing failure or bearing seized.	High temperature failure.	Check pump manufacturer for bearing temperature limits.
Excessive shaft wear under rubber bearings	Rubber bearings will swell in hydro-carbon, H ₂ S & high temperature.	Change bearing material.
Premature bearing wear.	Abrasive action.	Consider conversion to water flushing pressure grease or oil lubrication on all bearings.
Uneven wear on bearings, uniform wear on shaft.	Pump's non-rotating parts misaligned.	Check mounting and discharge pipe connection for dirt between column joints. Correct misalignment, replace bearings and repair or replace shaft.
Uniform wear on bearings and shaft.	Abrasive action.	Replace parts, consider changing materials or means of lubrication.
Uniform wear on bearings, uneven wear on shaft.	1. Shaft run-out caused by bent shafts, shafts not butted in couplings, dirt or grease 2. Shafts ends not properly faced.	1. Straighten shaft or replace, clean and assemble correctly. 2. Reface shaft ends, parallel and concentric.

Component Problem Solving (Con't)

SHAFT AND COUPLINGS

TROUBLE SOURCE	PROBABLE CAUSE	REMEDY
Bent shaft.	Mishandling in transit or assembly.	Check straightness. Correct to .005"/10 ft. total run-out or replace.
Shaft coupling elongated (neck down).	1. Motor is started while pump running in reverse. 2. Corrosion. 3. Pipe wrench fatigue on reused couplings. 4. Power being applied to shafts that are not butted in coupling.	1. Look for faulty check valve. Could also be momentary power failure or improper starting timers. 2. Replace couplings. 3. Replace couplings. 4. Check for galling on shaft ends.
Shaft coupling unscrewed	Pump started in reverse rotation.	Shafts may be bent, check shafts and couplings. Correct rotation.
Broken shaft or coupling.	1. Can be caused by same reasons listed for coupling elongation. 2. Can also be caused by bearings seized due to lack of lubrication. 3. Foreign locking impellers or galling wear rings. 4. Metal fatigue due to vibrations. 5. Improper impeller adjustment or continuous upthrust conditions, causing impeller drag.	1. Same as for coupling elongation. 2. Same as above for bearing seizure. 3. Add strainers or screens. 4. Check alignment of the pump components to eliminate vibration. 5. See Engineering Section for correction.

BOWLS

TROUBLE SOURCE	PROBABLE CAUSE	REMEDY
Wear on bowl vanes.	Abrasive action.	Coat bowls, upgrade material or rubber line.

PACKING BOX

TROUBLE SOURCE	PROBABLE CAUSE	REMEDY
Excessive leakage.	1. Improper packing. 2. Incorrect type or defective packing. 3. Worn shaft or sleeve.	1. Repack correctly. 2. Repack with the correct grade for service. 3. Remachine or replace scored parts.
Packing box overheated.	1. Improper packing procedure. 2. Packing too tight. 3. Insufficient lubrication. 4. Incorrect type of packing.	1. Repack correctly. 2. Repack with the correct grade for service. 3. Remachine or replace scored parts.
Packing wears prematurely.	1. Improper packing. 2. Insufficient lubrication. 3. Shaft or sleeve scored. 4. Incorrect type of packing. 5. Abrasive action.	1. Repack correctly. 2. Repack correctly. 3. Remachine or replace scored parts. 4. Repack with the correct grade for service. 5. Remove source of abrasives.

INNER COLUMN

TROUBLE SOURCE	PROBABLE CAUSE	REMEDY
Water in inner column.	1. Bypass ports plugged. 2. Badly worn bypass seal or bearings. 3. Tubing joint leaking. 4. Crack or hole in tubing.	1. Remove cause. 2. Replace worn parts. 3. Ensure tubing joint face is clean and is butted squarely. 4. Replace section affected.

Bearing Temperature
Limitations and
Recommendations

FOR BOWLS AND LINE-SHAFT

MATERIAL	TEMP. RANGE °F	MINIMUM S.G.	REMARKS
Neoprene	32 to 100	1.0	Good for abrasive service. Not recommended where sulfides are present.
Bronze	-60 to 170	0.5	General purpose bearing successfully applied on non-abrasive fresh or salt water and hydro-carbons
Engineered Plastic (Elastomeric Polymer/ Thermoplastics/ PTFE)	-80 to 225	0.3	Good for abrasive service. Low friction; suitable for dry start-up. Generally inert to harsh chemical solutions.
Graphalloy (babbitt/carbon)	-100 to 300	0.5	Good for extreme temperatures and non-abrasive fluids. Also excellent where fluid has poor lubricating properties.
Carbon	-300 to 450	0.3	Good for extreme temperatures and non-abrasive fluids. Also excellent where fluid has poor lubricating properties.

Notes: Temperature and S.G. are approximate for material classes, consult manufacturer for specific material alloy properties and service limits.

Definitions

A **lineshaft vertical turbine pump** is a vertical-shaft centrifugal or mixed-flow pump assembly with rotating impeller or impellers, and with the discharge from the pump element coaxial with the shaft. The pumping element is suspended by the vertical shafting used to transmit power to the impellers, the prime mover being external to the flow stream.

The **pump bowl assembly** is either a single or multistage, centrifugal or mixed-flow vertical pump with discharge coaxial with the shaft. It has an open, semi-open, or enclosed impeller. Assemblies are constructed for use with either open or enclosed lineshafts.

The **column and shaft assembly** consists of the column pipe that suspends the pump bowl assembly from the head assembly and serves as a conductor for the fluid from the pump bowl assembly to the discharge head. Contained within the column pipe is the line-shaft which transmits the power from the driver to the pump shaft. The line-shaft is maintained in alignment throughout its length by means of bearings and is generally lubricated by the fluid being pumped, or it may be enclosed in tube and lubricated with oil.

The **head assembly** consists of the driver, the base from which the column and shaft assembly and the bowl assembly are suspended, and may include the discharge head, which directs the fluid into the desired piping system.

The **driver** is the mechanism mounted on the head assembly which transmits or furnishes the power to the top shaft. It may contain the means for impeller adjustment and provides a bearing to carry the thrust load. It may or may not be a prime mover.

The **impeller elevation datum** shall be taken as the elevation of the entrance eye to the bottom stage impeller.

The **foundation elevation datum** shall be taken as the elevation of that surface from which the weight of the pump is supported. This is normally the elevation of the underside of the discharge head or foundation plate.

The **setting** is the nominal vertical distance in feet (meters) from the foundation elevation datum to the column pipe connection at the bowl assembly.

The **static water level** is the vertical distance in feet (meters) from the foundation elevation datum to the level of the atmospheric surface of the supply pool while no water is being drawn.

The **pumping water level** is the vertical distance in feet (meters) from the foundation elevation datum to the level of the atmospheric surface while the specified fluid flow is being drawn from the supply pool.

Drawdown is the difference in feet (meters) between the pumping water level and the static water level.

Specific yield, expressed in U.S. gallons per minute per foot of drawdown (liter per second per meter of drawdown), is the rate of flow being pumped from the well divided by the total drawdown measured during the metered flow rate.

Head is the quantity used to express the energy content of the liquid per unit weight of the liquid, referred to any arbitrary datum. In terms of foot pounds (meter-kilograms) of energy per pound (kilogram) being pumped, all head quantities have the dimension of feet (meters) of liquid.

Head above datum is the head measured above the foundation elevation datum, expressed in feet (meters) of liquid, plus the velocity head at the point of measurement.

Velocity head is the kinetic energy of a fluid expressed in feet (meters). Velocity head loss corresponds to the energy used to accelerate a fluid to a given velocity.

Suction head (closed system) is the algebraic sum of the pressure in feet (meters) of liquid (measured at the pump suction connection) and the velocity head at the point. Pump suction connection is that point at which the suction piping is attached to the pump bowl assembly or its enclosing vessel. Note that a negative suction head will add to the vertical distance from the datum due to the algebraic subtraction of a negative quantity.

Pump total head is the bowl assembly head minus the column loss and discharge head loss. This is the head generally called for in pump specifications.

Column loss is the value of the head loss, expressed in feet (meters), caused by the flow friction in the column pipe.

Discharge head loss is the value of the head loss, expressed in feet (meters), caused by the flow friction in the discharge head assembly.

The **line-shaft loss** is the power, expressed in horsepower, required due to the rotation friction of the line-shaft. The value is added to the bowl assembly input to predict the pump input.

Pump efficiency is the ratio of pump power output to pump input, expressed as a percentage.

Driver efficiency is the ratio of the driver power input, expressed as a percentage.

Bowl assembly efficiency is the ratio of the bowl output to the bowl assembly input, expressed as a percentage. This is the efficiency that is usually shown on catalog rating charts.

SYMBOLS AND ABBREVIATIONS

AC	Alternating current
AMP	Amperes
BHP	Brake horsepower
GAL	Gallons
GPM	Gallons per minute
H	Total head in feet
HP	Horsepower
KW	Kilowatts
PSI	Pounds per square inch
RPM	Revolutions per minute
S.G.	Specific gravity

Definitions (Con't)

DOWNTHRUST

Downd thrust is the total thrust load expressed in pounds carried by the thrust bearing in the motor, gear drive or pump head. It is the sum of the weight of the rotating elements and the hydraulic downd thrust of the bowl unit.

The shaft length is the sum of the setting (column length), the length of discharge head and driver (from dimension sheet), and length of the bowl unit (from pump curve).

EXAMPLE:

6 stage SM10H bowl unit, 75 HP, 1770 motor, SPC-8 discharge head, 200' setting, 1 1/2 shaft, 312 feet total head

200' + 6' + 5' =	211' (shaft length)
(1) 211' X 6.02 lbs/ft. =	1270 lbs. of shaft
(2) 300' TDH X 4.5(k factor) =	1350 lbs. hyd. thrust
Add (1) and (2) =	2620 lbs.
Add impeller weight =	65 lbs.
	* 2685 lbs. of total thrust load

Motor data sheet shows 75 HP, 1770 RPM motor to have a normal thrust of 4800 lbs., so no additional thrust load capacity is required.

* Note: Coupling weight may be added for deep set pumps.

UPTHRUST

Upthrust is usually not a problem with deep well turbine pumps when used as such. If pump setting is 30 feet or less and designed for a relatively high head, or if the pump operates at a point far to the right of the curve, at high capacity against low head, then an upthrust problem might result. All such applications should be viewed with suspicion and full information furnished to the factory so upthrust protection may be provided, if required.

SHAFT STRETCH

The hydraulic thrust when pump is operating imposes an axial tensile load on the shaft and column pipe which causes the shaft and column pipe to stretch. It is necessary, therefore, to determine the magnitude of the net elongation and whether or not the elongation exceeds the clearance provided in the pump bowls. If there is insufficient clearance, the impeller skirts will rub on the bowl seal rings, resulting in excessive wear and power consumption.

For example, we have 1350 lbs. of hydraulic thrust. From the shaft elongation chart, it is found by interpolation that the elongation for a 1 1/2" shaft at 1350 lbs. of hydraulic thrust = .031" per 100' of shaft.

Elongation for 200' of shaft =
$$\frac{200' \times .031''}{100'} = .062''$$

Column elongation is found by the same method using the column elongation chart.

$$\frac{200' \times .006''}{100'} = .012''$$

Shaft elongation minus column elongation equals net elongation.

$$.062'' - .012'' = .050''$$

Extra lateral may be machined if required.

Conversion Factors and Formulas

UNITS OF LENGTH					
UNIT	INCH	FOOT	YARD	CENTIMETER	METER
INCH	1	.0833	.0278	2.54	.0254
FOOT	12	1	.333	30.48	.3048
YARD	36	3	1	91.44	.9144
CENTIMETER	.3937	.0328	.0109	1	.01
METER	39.37	3.281	1.094	100	1

UNITS OF AREA					
UNIT	SQ. INCH	SQ. FOOT	SQ. YARD	SQ. CM	SQ. METER
SQ. INCH	1.00	0.00694	0.000772	6.452	0.000645
SQ. FOOT	144.00	1.00	0.1111	929.00	0.0929
SQ. YARD	1296.00	9.00	1.00	8360.00	0.836
SQ. CM	0.1550	0.001076	.00012	1.00	0.0001
SQ. METER	1550.00	10.76	1.196	10,000.00	1.00

UNITS OF VOLUME							
UNIT	U.S. GAL.	IMP. GAL.	CU. FT.	LB. WATER AT 60°F	CU. METER	QUART	LITER
U.S. GAL.	1.0	.833	.1337	8.33	.003785	4.0	3.785
IMP. GAL.	1.2	1.0	.1605	10.0	.004546	4.8	4.546
CUBIC FT.	7.481	6.232	1.0	62.37	.0283	29.92	28.32
LB. WATER	.120	.10	0.160	1.0	----	.48	.454
CU. METER	264.2	220.0	35.31	2204.0	1.0	1057.0	1000.0
QUART	.25	.208	.0334	2.086	----	1.0	.9464
LITER	.2642	.220	.0353	2.204	.001	1.057	1.0

Useful Formulas:

Liquid HP or useful work done by pump—

$$\text{WHP} = \frac{(\text{GPM}) \times (\text{TDH}) \times (\text{S.G.})}{3960}$$

kw input to motor =
$$\frac{\text{BHP} \times 0.746}{\text{Motor Eff.}}$$

Brake HP required to drive the pump—

$$\text{BHP} = \frac{(\text{GPM}) \times (\text{TDH}) \times (\text{S.G.})}{3960 \times \text{Pump Eff.}}$$

Overall efficiency = Pump Eff. X Motor Eff.

Pump efficiency =
$$\frac{\text{OUTPUT}}{\text{INPUT}} = \frac{\text{WHP}}{\text{BHP}}$$

Velocity formula:
$$V = \frac{.409 \times \text{GPM}}{(d_1^2 - d_2^2)}$$

Electrical HP input to motor =
$$\frac{\text{BHP}}{\text{Motor Eff.}}$$

Where: GPM = flow rate in gallons per minute
 TDH = total dynamic head in feet
 S.G. = fluid specific gravity (water S.G. = 1)
 V = velocity in feet per second
 d₁ = fluid passage major diameter in inch
 d₂ = flow passage minor diameter in inch
 (if applicable)

Conversion Factors and Formulas

Capacity		
1 Cubic Foot Per Second	449.0	GPM
1 Acre Foot Per Da	227.0	GPM
1 Acre Inch Per Hour	454.0	GPM
1 Cubic Meter Per Minute	264.2	GPM
1,000,000 Gal. Per Day	595.0	GPM

To Find Capacity of a Tank or a Cistern:	
$D \times D \times h \times 5.875 = \text{Capacity in U.S. Gallons}$	
Where: D = Diameter of Tank in Feet h = Height of Tank in Feet	

Head	
1 Pound Per Square Inch (PSI)	$\left\{ \begin{array}{l} 2.31 \text{ ft. of water} \\ 2.04 \text{ in. mercury} \\ 0.07 \text{ kg. per sq. cm} \end{array} \right.$
1 Foot of Water	$\left\{ \begin{array}{l} 0.433 \text{ PSI} \\ 0.885 \text{ in. mercury} \end{array} \right.$
1 Inch of Mercury (or vacuum)	1.132 ft. of water
1 Kilogram Per Square cm.	14.22 lb. PSI
1 Atmosphere (at sea level)	$\left\{ \begin{array}{l} 14.7 \text{ PSI} \\ 34.0 \text{ ft. of water} \\ 10.35 \text{ meters of water} \end{array} \right.$
1 Meter of Water	3.28 ft. of water

Volume	
1 Acre Foot	$\left\{ \begin{array}{l} 43,560 \text{ cu. ft.} \\ 325,829 \text{ U.S. gal.} \end{array} \right.$
1 Acre Inch	$\left\{ \begin{array}{l} 3,630 \text{ cu. ft.} \\ 27,100 \text{ U.S. gal.} \end{array} \right.$

Horsepower	
1 HP is equivalent to: 0.746	
kilowatts	
746 watts	
33,000 ft.-lbs. per minute	
550 ft.-lbs. per second	

Electric Power	
AC	= Alternating current power
DC	= Direct current
E	= Volts = Electrical pressure (similar to head)
I	= Amperes = Electrical current (similar to rate of flow)
W	= Watts = Electrical power (similar to head capacity)
KW	= Kilowatts = 1000 watts
Apparent Power = Volts x amperes = Voltamperes	
Apparent Power = EI	
Useful Power = W = EI x P.F.	
Power factor = ratio of useful power to apparent power	
Power factor = PF = W/EI	
KW Hr. = Kilowatt hour	
Single phase power W = E x I x PF	
3 Phase Power W = 1.73 x I x PF	
Where E = Average voltage between phases	
I = Average current in each phase	

Model Data (4"-9")

Model Number	Bowl Dia. (in.)	P. Rating CL30 C.I. (psi)	Std. Lateral (in.)	Setting (in.)	Eye Area (in. ²)	WR ² (lb.-ft. ²)	Sphere Size (in.)
SP5XXL	5.25	533	0.30	0.075	3.34	0.014	0.34
SP5XL	5.25	533	0.30	0.075	3.52	0.015	0.38
SP5L	5.25	533	0.30	0.075	2.81	0.015	0.38
SM5M	5.25	533	0.55	0.075	7.31	0.014	0.63
SM5H	5.25	533	0.55	0.075	7.16	0.014	0.50
SP5LO	5.25	533	0.16	0.010	5.03	0.014	0.31
SP6LL	6.00	341	0.66	0.125	4.75	0.037	0.38
SP6L	6.00	341	0.54	0.125	4.75	0.037	0.38
SP6M	6.00	341	0.41	0.125	4.97	0.037	0.31
SP6H	6.00	341	0.28	0.125	5.69	0.034	0.38
SP6LO	6.00	341	0.70	0.020	5.76	0.019	0.44
SP6MO	6.00	341	0.56	0.020	5.03	0.019	0.34
SK6HH	5.50	349	0.50	0.075	7.73	0.031	0.50
SP7L	7.19	330	0.59	0.075	7.79	0.073	0.53
SP7H	7.19	330	0.59	0.075	7.79	0.072	0.53
SK7L	6.56	412	0.94	0.125	8.82	0.051	0.44
SK7M	6.56	412	0.75	0.125	12.07	0.046	0.56
SK7H	6.56	412	0.75	0.125	11.73	0.050	0.56
SM7M	7.38	463	0.94	0.125	12.06	0.101	0.50
SP8L	7.88	478	0.88	0.125	7.08	0.108	0.31
SP8M	7.88	478	0.75	0.125	8.18	0.105	0.56
SP8H	7.88	478	0.56	0.125	8.63	0.105	0.75
SM8H	7.69	348	0.58	0.125	9.04	0.158	0.66
SR8MO	7.69	395	0.83	0.020	7.22	0.107	0.44
SR8HO	7.69	395	0.61	0.020	8.28	0.112	0.59
SK8H	7.50	405	1.00	0.125	15.62	0.133	0.75
SP9L	9.50	278	1.19	0.313	10.41	0.286	0.53
SP9M	9.50	278	1.19	0.313	9.74	0.303	0.53
SM9L	9.50	278	1.13	0.313	10.41	0.286	0.53
SM9M	9.50	278	1.13	0.313	9.74	0.303	0.53
SL9H	9.00	294	0.94	0.125	12.68	0.248	0.88
SF9H	9.50	205	0.94	0.125	16.87	0.291	0.88
SK9M	9.44	355	1.44	0.125	19.73	0.462	1.13
SK9H	9.44	355	1.00	0.125	23.47	0.421	1.13

v18.2

Model Data (10"-28")

Model Number	Bowl Dia. (in.)	P. Rating CL30 C.I. (psi)	Std. Lateral (in.)	Setting (in.)	Eye Area (in. ²)	WR ² (lb.-ft. ²)	Sphere Size (in.)
SP10L	10.19	470	0.94	0.125	8.63	0.295	0.50
SP10M	10.19	470	0.94	0.125	9.21	0.324	0.50
SP10H	10.19	470	0.63	0.125	13.22	0.315	0.63
SM10MO	10.19	470	1.31	0.020	17.87	0.217	0.81
SM10HO	10.19	470	1.00	0.020	17.87	0.217	0.81
SM10M	10.19	470	0.81	0.125	13.42	0.347	0.88
SM10H	10.19	470	0.81	0.125	13.52	0.386	0.88
SM11M	10.63	247	0.88	0.125	12.61	0.382	0.81
SM11H	10.63	247	0.94	0.125	12.19	0.450	0.81
SL11H	10.88	305	1.44	0.125	20.34	0.532	0.88
SR11MO	11.50	407	1.13	0.020	15.69	0.375	0.75
SR11HO	11.50	407	0.72	0.020	21.39	0.411	0.75
SP11L	11.25	353	1.13	0.125	29.93	0.754	1.19
SP11M	11.25	353	1.13	0.125	29.25	0.670	1.19
SP11H	11.25	353	1.13	0.125	28.56	0.718	1.19
SW12L	11.63	254	1.13	0.250	16.31	0.642	0.66
SW12M	11.63	254	1.13	0.250	15.89	0.673	0.66
SP12M	11.88	367	1.00	0.125	18.29	0.746	0.81
SP12H	11.88	367	1.00	0.125	20.58	0.790	0.75
SL12M	11.75	345	1.13	0.250	20.90	0.670	0.88
SL12H	11.75	345	1.13	0.250	20.40	0.673	0.88
SJ12M	12.00	275	1.19	0.188	28.24	0.804	0.88
SJ12H	12.00	275	1.19	0.188	29.07	0.744	0.88
SM14LL	14.00	425	1.31	0.250	44.88	2.211	1.44
SM14L	14.00	425	1.31	0.250	49.08	1.933	1.31
SM14M	14.00	425	1.31	0.250	48.23	2.182	1.31
SM14H	14.00	425	1.31	0.250	48.39	2.023	1.56
SM14HH	14.00	425	1.25	0.250	46.89	2.300	1.25
SM16MO	15.25	457	1.34	0.020	78.41	2.260	1.19
SM16HO	15.25	457	1.06	0.020	81.41	2.240	1.22
SM16M	15.25	457	0.94	0.125	78.55	4.966	1.00
SM16H	15.25	457	0.94	0.125	79.15	4.667	1.38
SM20M	19.25	466	1.50	0.125	81.71	8.220	1.22
SM20H	19.25	466	1.31	0.125	89.84	8.210	1.28
SM24M	23.50	413	2.63	0.125	131.3	19.69	1.81
SM24H	23.50	413	2.20	0.125	147.3	19.03	1.88
SM28H	27.00	397	0.49	0.125	225.5	39.62	1.88

v18.2

Submersible

Friction Loss per 100 Feet of Steel Drop Pipe
(ft. TDH)

GPM	Pipe Size					
	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"
3	2.50	0.77				
5	6.32	1.93				
7	11.80	3.56				
10	23.00	7.86	1.77			
16	56.03	16.50	4.20	1.96		
20	3"	25.10	6.34	2.94	0.87	
26		41.60	10.37	4.81	1.39	
30		54.60	13.60	6.26	1.82	0.75
40			23.50	10.79	3.10	1.28
50	0.60	4"		16.40	4.67	1.94
60	0.90		5"	23.20	6.59	2.72
80	1.57			40.50	11.40	4.66
100	2.39	0.62			17.40	7.11
120	3.37	0.88			24.70	10.00
140	4.51	1.66	0.38	6"		15.40
200	8.90	2.27	0.74		8"	26.70
240	12.06	3.21	1.03	0.41		
300	19.20	4.89	1.58	0.64	0.16	
340	24.08	6.19	2.00	0.81	0.20	
400	33.90	8.47	2.72	1.09	0.28	10"
440		10.02	3.26	1.31	0.33	
500		13.00	4.16	1.66	0.42	0.14
600		18.60	5.88	2.34	0.60	0.19
700			7.93	3.13	0.80	0.26
800	12"		10.22	4.03	1.02	0.33
850				4.53	1.15	0.37
900	0.17			5.05	1.27	0.41
950	0.19			5.60	1.41	0.46
1000	0.21			6.17	1.56	0.50
1100	0.25				1.87	0.60
1200	0.30				2.20	0.70
1300	0.34				2.56	0.82
1500	0.45				3.37	1.07
1700	0.57				4.29	1.36
2000	0.78				5.86	1.86
2200	0.93					2.23
2400	1.09					2.64
2800	1.47					3.56
3000	1.68					4.06

CAUTION: No allowance has been made for age, differences in diameter resulting from manufacturing tolerances or any abnormal conditions of interior pipe surface. It is recommended that a margin of safety to cover these effects be added to the values shown in the tables. Where no careful analysis of these effects is made, a reserve of at least 15% is recommended.

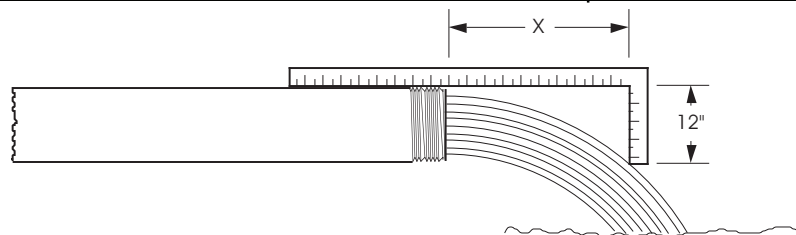
Submersible

Friction Loss per 100 Feet of Aluminum Drop Pipe (ft. TDH)

GPM	Pipe Size						
	2"	3"	4"	5"	6"	7"	8"
20	1.27	.15	.04				
30	2.58	.38	.08				
40	4.49	.56	.13	.04			
50	6.85	.85	.20	.07	.03		
60	9.67	1.21	.28	.09	.04		
70	12.95	1.67	.38	.12	.05		
80	16.70	2.06	.49	.16	.06	.03	
90	20.80	2.58	.60	.20	.08	.04	
100	25.40	3.18	.74	.24	.10	.05	.03
120		4.51	1.06	.34	.14	.07	.04
140		6.00	1.41	.46	.19	.07	.05
160		7.76	1.82	.59	.24	.11	.06
180		9.67	2.27	.73	.30	.14	.07
200		11.83	2.78	.89	.36	.17	.09
220		14.12	3.31	1.07	.44	.20	.11
240		16.72	3.91	1.27	.52	.24	.13
260		19.42	4.56	1.47	.60	.28	.15
280		22.40	5.26	1.71	.69	.33	.17
300		25.45	5.98	1.95	.79	.37	.19
350			8.03	2.59	1.05	.50	.26
400			10.36	3.33	1.35	.64	.33
450			12.90	4.15	1.69	.80	.41
500			15.73	5.07	2.06	.97	.50
550				6.16	2.50	1.18	.62
600				7.24	2.94	1.38	.72
650				8.42	3.41	1.62	.84
700				9.98	3.92	1.86	.97
750				11.05	4.46	2.11	1.10
800				12.48	5.03	2.38	1.24

Gallons per Minute (Approximate)

Horizontal Distance X	Pipe Size				
	2"	2-1/2"	3"	4"	5"
12"	42	60	93	159	250
14"	49	70	108	186	292
16"	56	80	123	212	334
18"	63	90	139	239	376
20"	70	100	154	266	417
22"	77	110	169	292	459
24"	84	120	185	318	501
26"	91	130	200	345	543
28"	98	140	216	372	585
30"	105	150	231	398	627



Submersible

MAXIMUM ALLOWABLE CABLE LENGTHS IN FEET

NOTE: Values below are based on 15% continuous motor overload

HORSE POWER	VOLTS	PHASE	CABLE SIZE										
			14	12	10	8	6	4	2	0	00	000	0000
1/2	115	1	100	159	249	390	608						
1/2	230	1	404	641	1003								
3/4	230	1	293	473	740	1161							
1	230	1	248	392	617	968	1507						
1-1/2	230	1	205	326	510	801	1248						
1-1/2	230	3	430	680	1070	1680							
1-1/2	460	3	1720										
2	230	1	180	286	449	703	1096	4675					
2	230	3	320	510	790	1250	1940						
2	460	3	1280	2030									
3	230	1		229	359	563	877	1339	2041				
3	230	3	240	380	600	940	1470	2240					
3	460	3	960	1530	2400								
5	230	1			216	315	490	750	1142	1540			
5	230	3		250	390	620	960	1470	2230				
5	460	3	630	1000	1570	2470							
7-1/2	230	1				270	362	553	842	1136	1420		
7-1/2	230	3			290	450	700	1070	1630	2200			
7-1/2	460	3	460	730	1150	1800	2810						
10	230	1					250	425	650	875	1100		
10	230	3				340	520	800	1220	1640	2050		
10	460	3		530	850	1340	2090	3190					
15	230	3			112	168	268	416	665	1020	1250	1500	1500
20	230	3					268	416	665	1020	1250	1500	1500
25	230	3					143	223	353	545	670	800	1000
30	230	3						223	353	545	670	800	1000

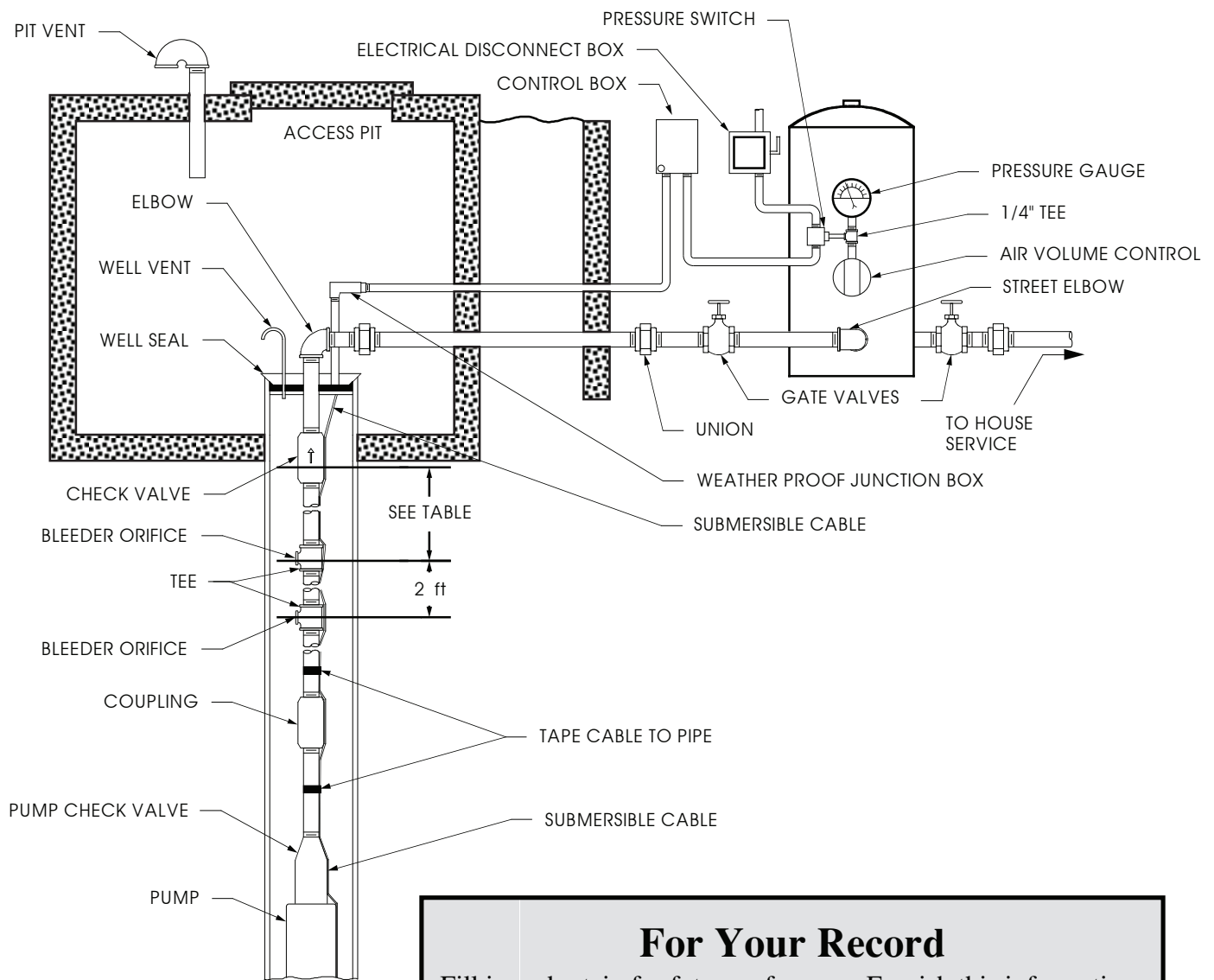
MAXIMUM ALLOWABLE CABLE LENGTHS IN FEET

Feet (FT.) column gives maximum allowable cable lengths in feet.

Horsepower (HP) column gives cable loss in HP per 100' of cable at full load.

HORSE POWER	CABLE SIZE for THREE PHASE = 460 Volts													
	10		8		6		4		2		0		00	
	FT.	HP	FT.	HP	FT.	HP	FT.	HP	FT.	HP	FT.	HP	FT.	HP
15	428	.222	687	.139	1080	.088	1700	.056						
20	428	.360	687	.225	1080	.142	1700	.090						
25	252	.562	402	.350	642	.221	1000	.140	1580	.088	2430	.005		
30			402	.482	642	.304	1000	.193	1580	.121	2430	.010		
40					313	.489	487	.310	770	.195	1190	.122	1460	.098
50					313	.838	487	.532	770	.333	1190	.208	1460	.167
60									480	.484	745	.303	910	.243
75									480	.705	745	.422	910	.355
100											596	.855	730	.710
125													600	.928
HORSE POWER	000		0000		250		300		350		400		500	
	FT.	HP	FT.	HP	FT.	HP	FT.	HP	FT.	HP	FT.	HP	FT.	HP
40	1740	.078												
50	1740	.133												
60	1090	.193	1370	.155	1550	.128	1780	.110						
75	1090	.282	1370	.225	1550	.187	1780	.160						
100	873	.563	1095	.451	1240	.373	1430	.322	1630	.269	1680	.236	1930	.190
125	720	.735	900	.589	1020	.486	1170	.420	1340	.351	1390	.310	1590	.246
150	585	1.069	735	.856	830	.708	950	.610	1040	.510	1120	.444	1290	.359
200					613	1.270	700	1.08	770	.900	835	.782	955	.637
250											665	1.220	760	.990

Submersible Pressure System Installation



For Your Record

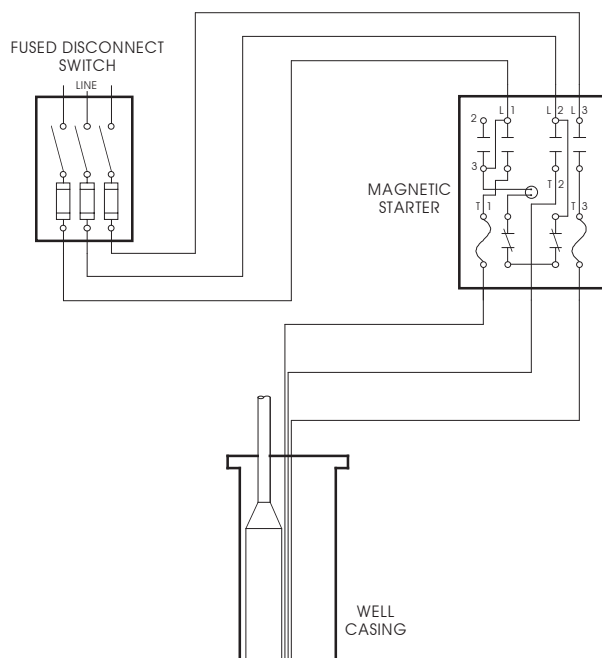
Fill in and retain for future reference. Furnish this information when it is necessary to contact your distributor or the factory.

Pump Model No. _____
 Pump Serial No. _____
 Motor Horsepower _____ Phase _____ Volts _____
 Date of Installation: Month _____ Day _____ Year _____
 Well Depth: _____ (in feet) Casing Size _____
 Drop Pipe Size: _____ (in inches) Pipe Set At: _____ (in feet)

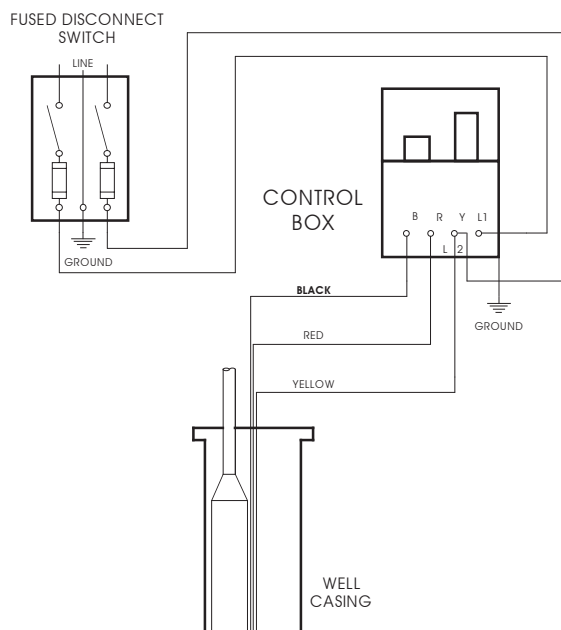
Note: Refer to your State Water Well Code for installation regulations within your State

Submersible

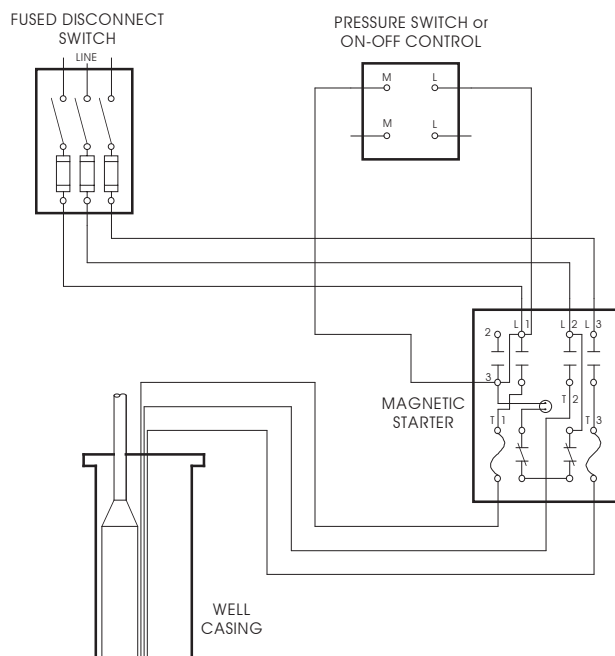
Open System - 3 Phase



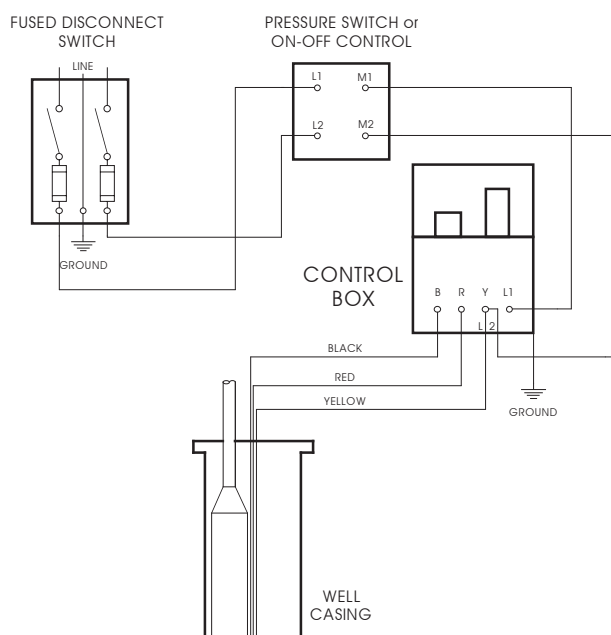
Open System - Single Phase 1/4 HP thru 5 HP



3 Phase - With Pressure Switch



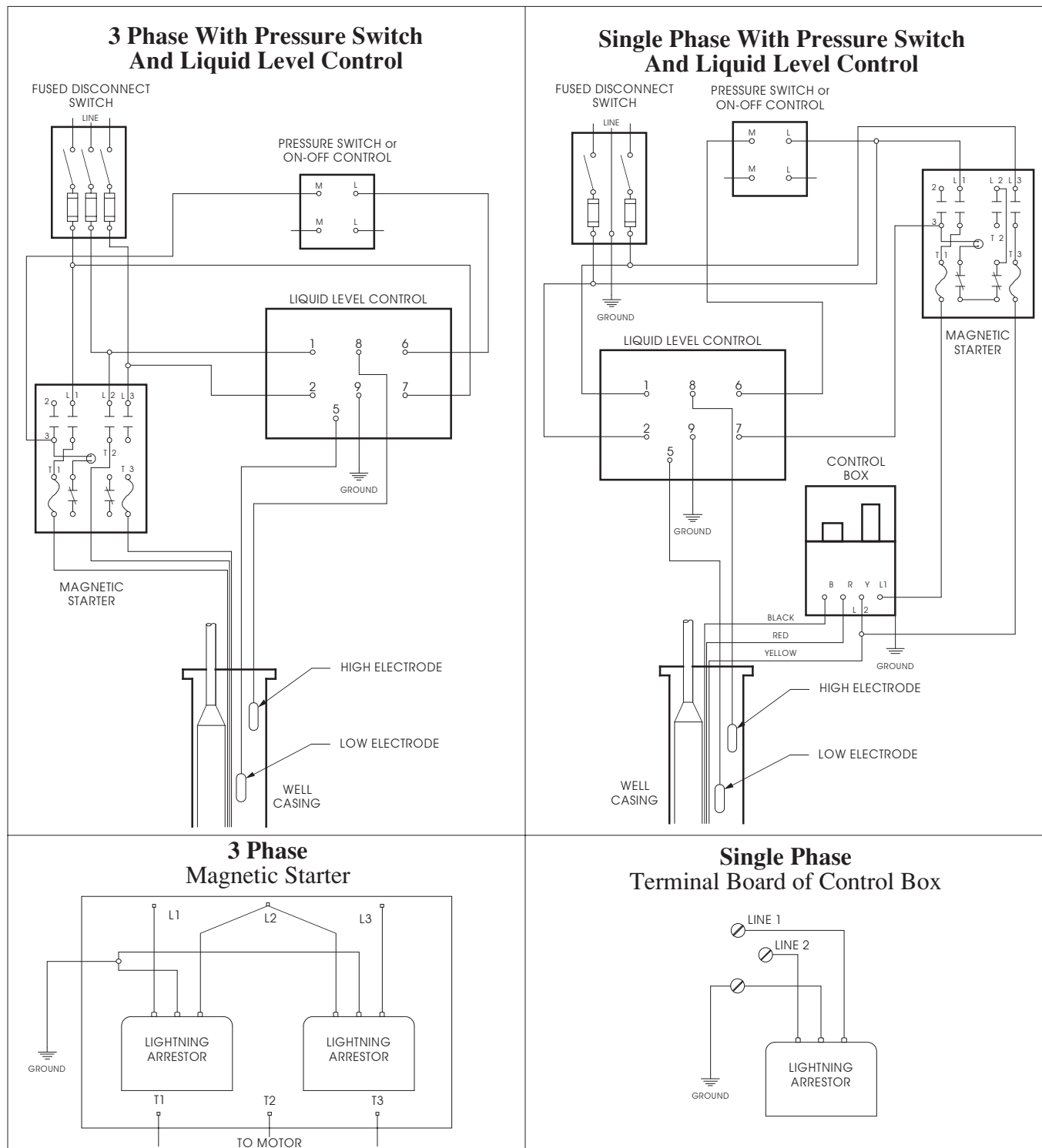
Single Phase - With Pressure Switch. Magnetic Starter Recommended Above 3 HP



Ground all systems to metal well casing, metal drop pipe, metal ground rod or grounded water pipe.

Consult your local electrical code for wire size.

Submersible



Ground all systems to metal well casing, metal drop pipe, metal ground rod or grounded water pipe.

Consult your local electrical code for wire size.

Column Friction Loss Open and Enclosed Line-Shaft 4"-12"

COL. SIZE	4"		5"			6"				8"			
TUBE SIZE	1 1/2	2	1 1/2	2	2 1/2	1 1/2	2	2 1/2	3	1 1/2	2	2 1/2	3
SHAFT SIZE	1	1 1/4	1	1 1/4	1 1/2 1 11/16	1	1 1/4	1 1/2 1 11/16	1 15/16	1	1 1/4	1 1/2 1 11/16	1 15/16 2 3/16
GPM	COLUMN FRICTION LOSS (IN FEET) PER 100 FEET OF COLUMN												
100	2.90	5.30		.90	1.20								
200	9.50	17.00	2.20	3.10	4.00	.73	.95	1.40	2.20				
300	19.00		4.50	6.40	8.30	1.60	2.00	2.90	4.50				
400			7.50	10.50		2.70	3.40	4.70	7.60		.61	.74	1.05
500			11.20			3.80	4.90	6.90	11.80		.91	1.10	1.55
600						5.20	7.00	9.50	17.10		1.30	1.55	2.20
700						7.00	9.00	12.50		.98	1.80	2.10	2.90
800						8.90	12.00	16.20		1.30	2.20	2.70	3.70
900						11.50	14.50			1.60	2.80	3.20	4.70
1000										1.90	3.30	3.90	5.40
1200										2.60	4.50	5.50	7.50
1400										3.50	5.95	7.20	9.98
1600										4.50	7.55	9.20	13.00
1800										5.50	9.40	14.00	16.40
2000										6.70	12.50		
2200										7.90	15.10		
2400										9.40			
2600										11.00			
2800										12.80			
3000										14.70			
3200										16.70			

COL. SIZE	10"				12"			
TUBE SIZE	1 1/2	2	2 1/2	3	2	2 1/2	3	3 1/2
SHAFT SIZE	1	1 1/4	1 1/2 1 11/16	1 15/16 2 3/16	1 1/4	1 1/2 1 11/16	1 15/16 2 3/16	2 7/16
GPM	COLUMN FRICTION LOSS (IN FEET) PER 100 FEET OF COLUMN							
700			.50	.62				
800		.58	.67	.80				
900		.72	.83	1.00				
1000		.89	1.00	1.17				
1200	1.08	1.20	1.38	1.65				
1400	1.40	1.59	1.81	2.18		.90		1.02
1600	1.79	2.20	2.30	2.78		1.11	1.04	1.30
1800	2.20	2.50	2.88	3.50	.99	1.36	1.29	1.65
2000	2.69	3.02	3.50	4.25	1.20	1.60	1.57	1.95
2200	3.20	3.60	4.10	5.05	1.42	1.89	1.85	2.35
2400	3.75	4.20	4.80	5.95	1.68	2.18	2.18	2.76
2600	4.33	4.90	5.60	6.90	1.92	2.50	2.50	3.23
2800	5.00	5.60	6.40	7.90	2.20	2.87	2.90	3.69
3000	5.65	6.40	7.25	8.95	2.50	3.20	3.30	4.20
3200	6.35	7.15	8.20	9.99	2.80	3.60	3.72	4.73
3400	7.05	8.00	9.10	12.00	3.15	4.00	4.15	5.28
3600	7.85	8.90	10.50	13.50	3.50	4.40	4.60	5.90
3800	8.70	9.80	12.50	14.50	3.85	4.80	5.15	5.55
4000	9.60	12.00	13.50		4.20	5.25	5.65	7.25
4200	10.60	14.50	14.90		4.60	5.80	6.15	7.85
4400	11.60				5.10	6.30	6.70	8.60
4600	12.70	14.40			5.50	6.80	7.25	9.30
4800	13.80	15.60			5.90	7.30	7.90	10.10
5000	15.00				6.40	8.70	8.55	11.10
5500					7.60	10.40	10.30	13.30
6000					9.00	12.20	12.30	15.80
6500					10.60	14.10	14.40	
7000					12.30	16.20	16.80	
7500					14.10			
8000					16.00			

Note: For open line-shaft use shaft size, for enclosed line-shaft use tube size.

Column Friction Loss Open and Enclosed Line-Shaft 14"-24"

COL. SIZE	14"					16"				
TUBE SIZE	2 1/2	3	3 1/2	4	5	2 1/2	3	3 1/2	4	5
SHAFT SIZE	1 1/2	1 15/16	2 7/16	2 11/16	2 15/16	1 1/2	1 15/16	2 7/16	2 11/16	2 15/16
SIZE	1 11/16	2 3/16			3 11/16	1 11/16	2 3/16	2 15/16	3 11/16	
GPM	COLUMN FRICTION LOSS (IN FEET) PER 100 FEET OF COLUMN									
2000			1.05							
2200	.95	1.07	1.24							
2400	1.13	1.26	1.46							
2600	1.30	1.46	1.68							
2800	1.50	1.67	1.93	2.01	2.52					1.00
3000	1.68	1.90	2.20	2.30	2.87			.99	1.03	1.10
3200	1.90	2.13	2.45	2.55	3.20		1.00	1.12	1.17	1.30
3400	2.14	2.38	2.72	2.85	3.60	1.03	1.12	1.25	1.30	1.40
3600	2.38	2.65	3.04	3.17	4.00	1.14	1.24	1.38	1.44	1.60
3800	2.62	2.90	3.35	3.50	4.40	1.25	1.37	1.53	1.60	1.80
4000	2.90	3.20	3.67	3.85	4.85	1.37	1.50	1.66	1.75	1.90
4200	3.15	3.50	4.00	4.20	5.25	1.49	1.64	1.83	1.90	2.10
4400	3.45	3.80	4.35	4.55	5.70	1.63	1.79	2.00	2.08	2.30
4600	3.70	4.10	4.72	4.95	6.20	1.77	1.93	2.16	2.25	2.50
4800	4.00	4.45	5.15	5.40	6.75	1.90	2.10	2.32	2.42	2.70
5000	4.35	4.80	5.53	5.80	7.20	2.06	2.25	2.52	2.63	2.90
5500	5.15	5.70	6.50	6.80	8.60	2.45	2.70	2.98	3.10	3.50
6000	6.10	6.70	7.65	8.00	9.99	2.87	3.13	3.48	3.60	4.10
6500	7.10	7.70	8.85	9.30	11.70	3.30	3.60	4.03	4.20	4.70
7000	8.10	8.90	10.30	10.80	13.60	3.80	4.15	4.62	4.80	5.40
7500	9.20	10.20	11.18	12.40	15.60	4.30	4.70	5.27	5.50	6.10
8000	10.50	11.60	13.40	14.10		4.80	5.25	5.87	6.10	6.85
8500	11.80	13.10	13.10	15.90		5.40	5.90	6.55	6.80	7.60
9000	13.20	14.70				6.00	6.50	7.30	7.60	8.30
9500	14.80	16.40				6.60	7.20	8.05	8.40	9.00
10000	16.40					7.25	7.90	8.85	9.20	9.80
10500						7.99	8.71	9.76	10.10	10.80
11000						8.77	9.56	10.70	11.10	11.90
11500						9.59	10.40	11.70	12.20	13.00
12000						10.40	11.40	12.70	13.20	14.10
12500						11.30	12.30	13.80	14.30	15.30
13000						12.30	13.40	15.00	15.50	
13500						13.20	14.40			
14000						14.20	15.20			
14500						15.20				

COL. SIZE	18"				20"				24"			
TUBE SIZE	3	3 1/2	4	5	3	3 1/2	4	5	3	3 1/2	4	5
SHAFT SIZE	1 15/16	2 7/16	2 11/16	2 15/16	1 15/16	2 7/16	2 11/16	2 15/16	1 15/16	2 7/16	2 11/16	2 15/16
SIZE	2 3/16			3 11/16	2 3/16			3 11/16	2 3/16			3 11/16
GPM	COLUMN FRICTION LOSS (IN FEET) PER 100 FEET OF COLUMN											
8500	3.70	4.20	4.55	6.20	1.90	2.20	2.55	3.40				1.04
9000	4.20	4.60	5.10	6.90	2.10	2.50	2.85	3.75				1.15
9500	4.60	5.15	5.60	7.60	2.35	2.75	3.07	4.15				1.32
10000	5.00	5.60	6.20	8.35	2.55	3.00	3.45	4.55			1.08	1.40
10500	5.50	6.10	6.70	9.20	2.80	3.30	3.80	5.00		1.05	1.20	1.54
11000	6.00	6.60	7.30	10.00	3.05	3.55	4.10	5.40		1.12	1.30	1.65
11500	6.40	7.20	8.00	13.20	3.30	3.85	4.50	5.85		1.20	1.40	1.80
12000	7.00	7.80	8.60	14.00	3.55	4.20	4.85	6.30		1.32	1.50	1.94
12500	7.50	8.20	9.20	15.60	3.85	4.50	5.20	6.80	1.25	1.42	1.60	2.07
13000	8.10	9.00	10.00		4.10	4.85	5.60	7.30	1.35	1.52	1.75	2.25
13500	8.70	9.80	10.80		4.40	5.25	6.00	7.80	1.45	1.65	1.87	2.40
14000	9.30	10.50	11.50		4.75	5.60	6.40	8.40	1.55	1.75	2.00	2.57
14500	10.00	11.30	12.40		5.05	6.00	6.90	9.00	1.65	1.85	2.15	2.75
15000	10.70	12.10	13.30		5.40	6.30	7.30	9.60	1.77	2.00	2.25	2.90
15500	11.40	12.90	14.20		5.70	6.80	7.80	10.30	1.87	2.10	2.42	3.10

Notes: For open line-shaft use shaft size, for enclosed line-shaft use tube size.

Cast Iron
Discharge Head
Friction Loss

GPM	Cast Iron Discharge Head Model				
	SPC-3	SPC-4	SPC-6	SPC-8	SPC-10
	Head Loss (ft.)				
100	0.25				
125	0.40	0.12			
150	0.57	0.17			
175	0.78	0.23			
200	1.02	0.30			
225	1.29	0.38			
250	1.59	0.47	0.10		
275	1.93	0.56	0.12		
300	2.30	0.67	0.14		
400	4.10	1.20	0.24		
500		1.87	0.38	0.12	
600		2.70	0.55	0.17	
700		3.67	0.75	0.23	
800		4.80	0.98	0.30	0.12
900			1.24	0.38	0.15
1000			1.53	0.47	0.19
1250			2.39	0.74	0.29
1500			3.44	1.06	0.42
1750			4.69	1.45	0.58
2000				1.90	0.75
2250				2.40	0.95
2500				2.97	1.17
2750				3.60	1.42
3000				4.28	1.69
3250				5.03	1.98
3500					2.30
3750					2.64
4000					3.00
4250					3.39
4500					3.79
4750					4.23
5000					4.68

v18.1

Standard
Fabricated 'SL'
Discharge Head
Friction Loss 3"-10"

GPM	Fabricated Standard Discharge Head Model				
	SL-3	SL-4	SL-6	SL-8	SL-10
	Head Loss (ft.)				
100	0.37	0.13			
125	0.58	0.20			
150	0.84	0.28			
175	1.14	0.38			
200	1.49	0.50			
225	1.89	0.63	0.12		
250	2.33	0.78	0.15		
275	2.83	0.95	0.18		
300	3.37	1.13	0.21		
400	6.00	2.00	0.38	0.13	
500	9.39	3.13	0.60	0.20	
600		4.50	0.87	0.29	0.12
700		6.12	1.20	0.39	0.16
800		8.00	1.57	0.51	0.21
900		10.13	2.00	0.65	0.27
1000			2.48	0.80	0.33
1250			3.92	1.25	0.52
1500			5.69	1.80	0.74
1750			7.81	2.45	1.01
2000			10.27	3.20	1.33
2250				4.05	1.68
2500				5.00	2.08
2750				6.05	2.52
3000				7.20	3.00
3250				8.45	3.52
3500				9.80	4.09
3750					4.70
4000					5.35
4250					6.05
4500					6.78
4750					7.56
5000					8.38

Standard
Fabricated 'SL'
Discharge Head
Friction Loss 12"-24"

GPM	Fabricated Standard Discharge Head Model					
	SL-12	SL-14	SL-16	SL-18	SL-20	SL-24
	Head Loss (ft.)					
1000	0.16	0.11				
1250	0.25	0.17	0.10			
1500	0.35	0.25	0.14	0.10		
1750	0.48	0.34	0.19	0.13		
2000	0.63	0.44	0.25	0.17	0.10	
2250	0.80	0.56	0.32	0.21	0.13	
2500	0.99	0.69	0.39	0.26	0.16	
2750	1.20	0.84	0.47	0.31	0.19	
3000	1.43	1.00	0.56	0.37	0.22	0.11
3250	1.68	1.17	0.66	0.43	0.26	0.13
3500	1.95	1.36	0.77	0.50	0.31	0.15
3750	2.24	1.56	0.88	0.57	0.35	0.17
4000	2.55	1.78	1.00	0.65	0.40	0.19
4250	2.88	2.01	1.13	0.73	0.45	0.22
4500	3.24	2.25	1.27	0.81	0.51	0.24
4750	3.61	2.51	1.41	0.90	0.56	0.27
5000	4.00	2.78	1.56	1.00	0.63	0.30
6000	5.77	4.00	2.25	1.43	0.90	0.43
7000	7.87	5.44	3.06	1.93	1.23	0.59
8000	10.30	7.11	4.00	2.50	1.60	0.78
9000		9.00	5.06	3.15	2.03	0.99
10000		11.11	6.25	3.86	2.50	1.22
12500			9.77	5.97	3.91	1.93
15000				8.51	5.63	2.79
17500					7.66	3.81
20000					10.00	5.00
22500						6.35
25000						7.86
27500						9.54
30000						11.39

v18.1

Mitered
Fabricated 'SL'
Discharge Head
Friction Loss 12"-24"

GPM	Fabricated Miter Discharge Head Model					
	SL-12	SL-14	SL-16	SL-18	SL-20	SL-24
	Head Loss (ft.)					
1000	0.05					
1250	0.07	0.06				
1500	0.11	0.08	0.05			
1750	0.14	0.10	0.06			
2000	0.19	0.13	0.08	0.05		
2250	0.24	0.17	0.10	0.06		
2500	0.29	0.20	0.12	0.08	0.05	
2750	0.36	0.24	0.14	0.09	0.06	
3000	0.42	0.28	0.16	0.11	0.07	
3250	0.50	0.33	0.19	0.12	0.08	
3500	0.58	0.38	0.22	0.14	0.09	
3750	0.66	0.43	0.25	0.16	0.11	0.05
4000	0.75	0.48	0.28	0.18	0.12	0.05
4250	0.85	0.54	0.31	0.20	0.13	0.06
4500	0.95	0.60	0.35	0.23	0.15	0.06
4750	1.06	0.67	0.38	0.25	0.16	0.07
5000	1.18	0.73	0.42	0.28	0.18	0.08
6000	1.69	1.03	0.59	0.39	0.25	0.11
7000	2.30	1.37	0.78	0.52	0.33	0.14
8000	3.01	1.76	1.00	0.66	0.43	0.18
9000	3.81	2.19	1.25	0.82	0.53	0.23
10000	4.70	2.66	1.52	1.00	0.65	0.28
12500	7.34	4.04	2.29	1.51	0.97	0.42
15000	10.57	5.67	3.21	2.12	1.37	0.59
17500		7.55	4.27	2.83	1.81	0.78
20000		9.68	5.47	3.62	2.32	1.00
22500			6.81	4.51	2.88	1.24
25000			8.27	5.48	3.50	1.51
27500			9.87	6.54	4.18	1.80
30000				7.69	4.91	2.12

v18.1

Velocity Head
3"-24" Pipe

GPM	Nominal Pipe Size											
	3	4	5	6	8	10	12	14	16	18	20	24
	Head Loss (ft.)											
100	0.293	0.099										
125	0.458	0.154										
150	0.659	0.222	0.090									
175	0.897	0.302	0.122									
200	1.171	0.395	0.160									
225	1.482	0.500	0.202	0.097								
250	1.830	0.617	0.250	0.120								
275	2.214	0.747	0.302	0.145								
300	2.635	0.889	0.360	0.173								
400	4.685	1.580	0.640	0.307	0.098							
500	7.321	2.469	1.000	0.479	0.153							
600	10.542	3.555	1.439	0.690	0.220							
700		4.839	1.959	0.940	0.300	0.118						
800		6.320	2.559	1.227	0.391	0.154						
900		7.999	3.239	1.553	0.495	0.195	0.098					
1000		9.875	3.998	1.917	0.611	0.240	0.121					
1250			6.248	2.996	0.955	0.376	0.190	0.132				
1500			8.997	4.314	1.376	0.541	0.273	0.189	0.108			
1750				5.872	1.872	0.736	0.372	0.258	0.147	0.090		
2000				7.669	2.446	0.962	0.486	0.337	0.192	0.117		
2250				9.707	3.095	1.217	0.615	0.426	0.243	0.148	0.096	
2500					3.821	1.503	0.759	0.526	0.300	0.183	0.118	
2750					4.624	1.818	0.918	0.637	0.363	0.222	0.143	
3000					5.502	2.164	1.093	0.758	0.432	0.264	0.170	
3250					6.458	2.540	1.283	0.889	0.507	0.309	0.200	0.094
3500					7.489	2.945	1.487	1.031	0.588	0.359	0.231	0.109
3750					8.598	3.381	1.708	1.184	0.675	0.412	0.266	0.125
4000					9.782	3.847	1.943	1.347	0.767	0.469	0.302	0.142
4250						4.343	2.193	1.520	0.866	0.529	0.341	0.160
4500						4.869	2.459	1.704	0.971	0.593	0.383	0.180
4750						5.425	2.740	1.899	1.082	0.661	0.426	0.200
5000						6.011	3.036	2.104	1.199	0.733	0.472	0.222
6000						8.655	4.371	3.030	1.727	1.055	0.680	0.320
7000							5.950	4.124	2.350	1.436	0.926	0.435
8000							7.771	5.387	3.070	1.875	1.209	0.568
9000							9.836	6.818	3.885	2.373	1.530	0.719
10000								8.417	4.797	2.930	1.889	0.888
12500									7.495	4.578	2.952	1.387
15000									10.793	6.593	4.251	1.998
17500										8.973	5.786	2.719
20000											7.557	3.551
22500											9.565	4.495
25000												5.549
27500												6.714
30000												7.991

Threaded Line-shaft Assembly Limits (Carbon Steel)

Shaft Size (in.)	RPM	Pump Thrust (lb.)									
		0 – 4000	6000	8000	10000	15000	20000	25000	30000	40000	
		Maximum Allowable Horsepower									
7/8	1160	26	25	23							
	1770	39	38	35							
	3450	77	73	68							
1	1160	42	41	39							
	1770	63	62	60							
	3450	124	121	117							
1 3/16	700	39	39	38							
	880	49	49	48							
	1160	65	64	63							
	1770	99	98	96							
3450	194	191	188								
	1 1/4	700	47	47	46						
		880	59	59	58						
		1160	78	77	76						
1770		119	118	116							
3450	232	230	227								
	1 1/2 ¹	700	89	88	88	87	85	81			
		880	112	111	110	110	106	102			
		1160	147	146	146	144	140	134			
1770		224	224	222	220	214	205				
3450	438	436	433	430	418	400					
	1 11/16 ²	700	132	132	131	131	129	126			
		880	166	166	165	165	162	158			
		1160	219	219	218	217	213	208			
1770		335	334	332	331	326	318				
3450	652	650	648	645	635	620					
	1 15/16 ²	700	210	209	209	208	207	204			
		880	263	263	263	262	260	257			
		1160	347	347	346	345	342	338			
1770		530	529	528	527	522	516				
2 3/16 ³	700	312	312	312	311	310	307	305			
	880	393	392	392	391	389	386	383			
	1160	517	517	516	516	513	509	505			
	1770	790	789	788	787	783	777	770			
2 7/16	700	444	444	443	443	442	440	437			
	880	558	558	557	557	555	553	549			
	1160	736	735	735	734	732	728	724			
	1770	1122	1122	1121	1120	1116	1112	1105			
2 11/16	700	608	608	608	607	606	604	602	599	592	
	880	764	764	764	763	762	760	757	753	744	
	1160	1008	1007	1007	1006	1004	1001	997	993	981	
	1770	1537	1537	1536	1535	1532	1528	1522	1515	1497	
2 15/16	700	771	771	770	770	769	767	765	763	756	
	880	969	969	969	968	967	965	962	959	951	
	1160	1278	1277	1277	1276	1274	1272	1268	1264	1253	
	1770	1949	1949	1948	1947	1944	1940	1935	1929	1912	

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Material	Shaft Correction Factor	Coupling Correction Factor
416 HT	1.12	1.72
304	0.53	0.82
316	0.59	0.91
17-4 PH	1.64	2.51
Alloy 20	0.82	1.25
Nitronic 50	0.97	1.49

¹ Multiply listed coupling material correction factor by 0.80

² Multiply listed coupling material correction factor by 0.64

³ Multiply listed coupling material correction factor by 0.85

v18.1

All ratings conform to ANSI B 58.1 (AWWAE 101) specifications

Vertical Lineshaft

Cost of Pumping Water

1. If the cost of operation per hour is desired, power consumption may be used:
Cost per hour = Kilowatts consumed x Cost per KW hour
2. The cost of operation may be estimated by determining the input horsepower and converting it to kilowatts:
Cost per hour of operation = Input Horsepower x .746 x Cost per KW hour
3. A less accurate estimate may be made by using the following formula:
Cost per hour of operation = $\frac{\text{GPM x Total head x .746 x Cost per KW Hour}}{3960 \text{ x Overall Pump efficiency x Motor efficiency}}$
4. It is often desirable to express the cost of operating a pump in terms of "Cost per 1000 gallons". To do this the above figures of Cost per hour of operation may be used with the capacity of the pump as follows:
Cost per 1000 gallons = $\frac{\text{Cost per Hour x 1000}}{\text{Gallons pumped per hour}}$
5. For convenience the following table may be used to estimate the power consumption and cost of operation when the overall efficiencies are known. The table gives power consumed pumping 1000 GPM at one foot total head at various overall pump efficiencies.

Overall Efficiency of Pump Unit	Kilowatts per 1000 Gallons at 1" Total Head	Overall Efficiency of Pump Unit	Kilowatts per 1000 Gallons at 1" Total Head	Overall Efficiency of Pump Unit	Kilowatts per 1000 Gallons at 1" Total Head
36	.00871	53	.00592	70	.00448
37	.00858	54	.00581	71	.00442
38	.00826	55	.00570	72	.00435
39	.00804	56	.00560	73	.00430
40	.00784	57	.00550	74	.00424
41	.00765	58	.00541	75	.00418
42	.00747	59	.00532	76	.00413
43	.00730	60	.00523	77	.00407
44	.00713	61	.00514	78	.00402
45	.00697	62	.00506	79	.00397
46	.00682	63	.00498	80	.00392
47	.00667	64	.00490	81	.00387
48	.00653	65	.00482	82	.00382
49	.00640	66	.00475	83	.00378
50	.00627	67	.00468	84	.00373
51	.00615	68	.00461	85	.00369
52	.00603	69	.00454		

Overall Efficiency as indicated is the input-output efficiency including all losses in the pump unit, pumping 1000 gallons of clear water one foot total head. Therefore, in determining the kilowatts per 1000 gallons pumped, it is only necessary to multiply the factor corresponding to the overall efficiency by the number of feet head at which the total dynamic head has been calculated.

Mechanical Friction

MECHANICAL FRICTION IN BRAKE HORSEPOWER PER 100 FEET OF OPEN OR ENCLOSED LINE-SHAFT

SHAFT SIZE	RPM								
(INCHES)	3460	2900	1760	1450	1160	960	860	720	690
3/4	.60	.51	.31	.26	.20	.17			
1	1.05	.87	.53	.44	.35	.29	.26	.25	
1-3/16	1.60	1.33	.79	.67	.52	.44	.39	.34	
1-1/2	2.20	1.90	1.14	.96	.74	.63	.50	.47	.44
1-11/16	2.81	2.36	1.43	1.18	.94	.78	.70	.59	.56
1-15/16			1.83	1.51	1.21	1.00	.89	.75	.72
2-3/16			2.40	2.00	1.55	1.35	1.20	1.00	.96
2-7/16			2.90	2.39	1.91	1.58	1.42	1.19	1.10
2-11/16			1.90	2.75	2.20	1.82	1.63	1.38	1.30
2-15/16			3.34	3.50	2.77	2.28	2.00	1.74	1.66
3-3/16				4.04	3.28	2.72	2.46	2.08	1.92
3-7/16					3.75	3.08	2.83	2.45	2.30
3-11/16					4.10	3.46	3.00	2.62	2.47
3-15/16					4.80	3.89	3.48	2.94	2.77

FRICTION IN THRUST BEARING CONVERTED TO HORSEPOWER

$$\text{HP} = \frac{\text{TOTAL THRUST X RPM X .0075}}{100,000}$$

Shaft Elongation (C1045)

HYD. Thrust	Shaft Diameter (in.)										
	7/8	1	1 3/16	1 1/4	1 1/2	1 11/16	1 15/16	2 3/16	2 7/16	2 11/16	2 15/16
	Shaft Elongation (inches per 100 ft.)										
200	0.013	0.010	0.007	0.007							
400	0.027	0.021	0.015	0.013	0.009	0.007					
600	0.040	0.031	0.022	0.020	0.014	0.011	0.008	0.006			
800	0.054	0.041	0.029	0.026	0.018	0.014	0.011	0.009	0.007	0.006	
1000	0.067	0.051	0.036	0.033	0.023	0.018	0.014	0.011	0.009	0.007	0.006
1200	0.081	0.062	0.044	0.040	0.027	0.022	0.016	0.013	0.010	0.009	0.007
1400	0.094	0.072	0.051	0.046	0.032	0.025	0.019	0.015	0.012	0.010	0.008
1600	0.108	0.082	0.058	0.053	0.037	0.029	0.022	0.017	0.014	0.011	0.010
1800	0.121	0.093	0.066	0.059	0.041	0.033	0.025	0.019	0.016	0.013	0.011
2000	0.134	0.103	0.073	0.066	0.046	0.036	0.027	0.022	0.017	0.014	0.012
2400	0.161	0.123	0.088	0.079	0.055	0.043	0.033	0.026	0.021	0.017	0.014
2800	0.188	0.144	0.102	0.092	0.064	0.051	0.038	0.030	0.024	0.020	0.017
3200	0.215	0.165	0.117	0.105	0.073	0.058	0.044	0.034	0.028	0.023	0.019
3600	0.242	0.185	0.131	0.119	0.082	0.065	0.049	0.039	0.031	0.026	0.021
4000	0.269	0.206	0.146	0.132	0.091	0.072	0.055	0.043	0.035	0.028	0.024
4400	0.296	0.226	0.161	0.145	0.101	0.079	0.060	0.047	0.038	0.031	0.026
4800	0.323	0.247	0.175	0.158	0.110	0.087	0.066	0.052	0.042	0.034	0.029
5200	0.349	0.268	0.190	0.171	0.119	0.094	0.071	0.056	0.045	0.037	0.031
5600	0.376	0.288	0.204	0.184	0.128	0.101	0.077	0.060	0.048	0.040	0.033
6000	0.403	0.309	0.219	0.198	0.137	0.108	0.082	0.065	0.052	0.043	0.036
6500	0.437	0.334	0.237	0.214	0.149	0.117	0.089	0.070	0.056	0.046	0.039
7000	0.470	0.360	0.255	0.230	0.160	0.126	0.096	0.075	0.061	0.050	0.042
7500	0.504	0.386	0.274	0.247	0.171	0.135	0.103	0.081	0.065	0.053	0.045
8000	0.538	0.412	0.292	0.263	0.183	0.145	0.110	0.086	0.069	0.057	0.048
9000					0.206	0.163	0.123	0.097	0.078	0.064	0.054
10000					0.229	0.181	0.137	0.108	0.087	0.071	0.060
12500					0.286	0.226	0.171	0.134	0.108	0.089	0.075
15000					0.343	0.271	0.206	0.161	0.130	0.107	0.089
17500					0.400	0.316	0.240	0.188	0.152	0.125	0.104
20000					0.457	0.361	0.274	0.215	0.173	0.142	0.119
22500								0.242	0.195	0.160	0.134
25000								0.269	0.216	0.178	0.149
27500										0.196	0.164
30000										0.214	0.179
32500										0.231	0.194
35000										0.249	0.209
37500										0.267	0.224
40000										0.285	0.238

Note: Multiply elongation by appropriate correction factor for alternate material

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Material	Shaft Correction Factor
416 HT	1.02
316	1.06
17-4 PH	1.00
Alloy 20	1.06
Nitronic 50	1.06

v18.1

Column Elongation (With Enclosing Tube)

Column Size (wall thickness)	3 (.216)	4 (.237)	5 (.258)	6 (.280)	6 (.280)	8 (.277)	8 (.277)	10 (.279)	10 (.279)	12 (.330)	12 (.330)	14 (.375)	16 (.375)
Encl. Tube (sch. 80)	1-1/4	1-1/2	1-1/2	2	2-1/2	2	2-1/2	2-1/2	3	2-1/2	3	3-1/2	3-1/2
HYD. Thrust	Column Assy. Elongation (inches per 100 ft.)												
500	0.007	0.005	0.004	0.003									
600	0.008	0.006	0.005	0.004									
800	0.011	0.008	0.006	0.005	0.004	0.004							
1000	0.013	0.010	0.008	0.006	0.005	0.005	0.004						
1200	0.016	0.012	0.009	0.007	0.006	0.006	0.005	0.004					
1400	0.019	0.014	0.011	0.008	0.007	0.007	0.006	0.005	0.005				
1600	0.021	0.016	0.012	0.009	0.008	0.008	0.007	0.006	0.005				
1800	0.024	0.018	0.014	0.011	0.010	0.009	0.008	0.007	0.006	0.005			
2000	0.027	0.020	0.015	0.012	0.011	0.009	0.009	0.007	0.007	0.005	0.005		
2400	0.032	0.023	0.019	0.014	0.013	0.011	0.010	0.009	0.008	0.007	0.006		
2800	0.037	0.027	0.022	0.016	0.015	0.013	0.012	0.010	0.010	0.008	0.007	0.006	
3200	0.043	0.031	0.025	0.019	0.017	0.015	0.014	0.012	0.011	0.009	0.008	0.007	0.006
3600	0.048	0.035	0.028	0.021	0.019	0.017	0.016	0.013	0.012	0.010	0.009	0.008	0.007
4000		0.039	0.031	0.023	0.021	0.019	0.017	0.014	0.014	0.011	0.010	0.008	0.007
4400		0.043	0.034	0.026	0.023	0.021	0.019	0.016	0.015	0.012	0.011	0.009	0.008
4800		0.047	0.037	0.028	0.025	0.023	0.021	0.017	0.016	0.013	0.012	0.010	0.009
5200		0.051	0.040	0.030	0.027	0.025	0.023	0.019	0.018	0.014	0.014	0.011	0.010
5600		0.055	0.043	0.033	0.030	0.027	0.024	0.020	0.019	0.015	0.015	0.012	0.010
6000			0.046	0.035	0.032	0.028	0.026	0.022	0.020	0.016	0.016	0.013	0.011
6500			0.050	0.038	0.034	0.031	0.028	0.024	0.022	0.018	0.017	0.014	0.012
7000			0.054	0.041	0.037	0.033	0.030	0.025	0.024	0.019	0.018	0.015	0.013
7500			0.058	0.044	0.040	0.036	0.033	0.027	0.025	0.021	0.020	0.016	0.014
8000			0.062	0.047	0.042	0.038	0.035	0.029	0.027	0.022	0.021	0.017	0.015
9000				0.053	0.048	0.043	0.039	0.033	0.031	0.025	0.023	0.019	0.017
10000				0.059	0.053	0.047	0.043	0.036	0.034	0.027	0.026	0.021	0.019
12000				0.070	0.063	0.057	0.052	0.043	0.041	0.033	0.031	0.025	0.022
14000				0.082	0.074	0.066	0.061	0.051	0.048	0.038	0.036	0.029	0.026
16000				0.094	0.085	0.076	0.070	0.058	0.054	0.044	0.042	0.034	0.030
18000					0.095	0.085	0.078	0.065	0.061	0.049	0.047	0.038	0.034
20000					0.106	0.095	0.087	0.072	0.068	0.055	0.052	0.042	0.037
22000					0.116	0.104	0.096	0.080	0.075	0.060	0.057	0.046	0.041
24000						0.114	0.104	0.087	0.081	0.066	0.062	0.050	0.045
26000							0.113	0.094	0.088	0.071	0.068	0.055	0.049
28000								0.101	0.095	0.077	0.073	0.059	0.052
30000								0.109	0.102	0.082	0.078	0.063	0.056

Column Elongation (Without Enclosing Tube)

Column Size (wall thickness)	3 (.216)	4 (.237)	5 (.258)	6 (.280)	8 (.277)	10 (.279)	12 (.330)	14 (.375)	16 (.375)
HYD. Thrust	Column Elongation (inches per 100 ft.)								
500	0.009	0.007	0.005	0.004					
600	0.011	0.008	0.006	0.004					
800	0.015	0.010	0.008	0.006	0.005	0.004			
1000	0.019	0.013	0.010	0.007	0.006	0.005			
1200	0.022	0.016	0.012	0.009	0.007	0.005	0.004		
1400	0.026	0.018	0.013	0.010	0.008	0.006	0.004	0.004	
1600	0.030	0.021	0.015	0.012	0.009	0.007	0.005	0.004	0.004
1800	0.033	0.023	0.017	0.013	0.010	0.008	0.006	0.005	0.004
2000	0.037	0.026	0.019	0.015	0.011	0.009	0.006	0.005	0.004
2400	0.045	0.031	0.023	0.018	0.014	0.011	0.008	0.006	0.005
2800	0.052	0.037	0.027	0.021	0.016	0.013	0.009	0.007	0.006
3200	0.059	0.042	0.031	0.024	0.018	0.014	0.010	0.008	0.007
3600	0.067	0.047	0.035	0.027	0.021	0.016	0.012	0.009	0.008
4000	0.074	0.052	0.038	0.030	0.023	0.018	0.013	0.010	0.009
4400	0.082	0.057	0.042	0.033	0.025	0.020	0.014	0.011	0.010
4800	0.089	0.063	0.046	0.036	0.027	0.022	0.015	0.012	0.011
5200	0.097	0.068	0.050	0.039	0.030	0.023	0.017	0.013	0.012
5600	0.104	0.073	0.054	0.042	0.032	0.025	0.018	0.014	0.013
6000		0.078	0.058	0.044	0.034	0.027	0.019	0.015	0.013
6500		0.085	0.063	0.048	0.037	0.029	0.021	0.017	0.015
7000		0.091	0.067	0.052	0.040	0.032	0.022	0.018	0.016
7500		0.098	0.072	0.056	0.043	0.034	0.024	0.019	0.017
8000		0.104	0.077	0.059	0.046	0.036	0.026	0.021	0.018
9000			0.087	0.067	0.051	0.041	0.029	0.023	0.020
10000			0.096	0.074	0.057	0.045	0.032	0.026	0.022
12000				0.089	0.068	0.054	0.039	0.031	0.027
14000				0.104	0.080	0.063	0.045	0.036	0.031
16000					0.091	0.072	0.051	0.041	0.036
18000					0.103	0.081	0.058	0.046	0.040
20000						0.090	0.064	0.052	0.045
22000						0.099	0.071	0.057	0.049
24000						0.108	0.077	0.062	0.054
26000							0.084	0.067	0.058
28000							0.090	0.072	0.063
30000							0.096	0.077	0.067

Selection/Calculation Guide

Customer _____ Job _____ Date _____

CONDITIONS

☐ Well _____ dia. ☐ Sump or Tank ☐ Can _____ dia. ☐ Open Water Body	}	Depth _____	<u>Pump type</u> ☐ line-shaft ☐ submersible	<u>Lubrication</u> ☐ oil ☐ product ☐ water flushed	<u>Seal type</u> ☐ packing ☐ mechanical	_____ GPM(A) _____ RPM _____ TPL _____ Water Temp _____ Elevation
--	---	-------------	--	---	--	---

_____ ' **Setting** of _____ " Column _____ " Tube _____ " Shaft _____ " Sleeve OD
 _____ Bowl Model # of stages _____ OD _____ Impeller Diameter
 _____ Motor HP _____ PH _____ Volts _____ Hertz _____ Cable Size (submersible)

_____ Static Water Level
 _____ Drawdown
 _____ Head above Discharge
 _____ PSI x 2.31 = _____ Pressure in Feet
 _____ specific gravity

(B) _____ Field Head

_____ Column Friction Loss	Coupling Weight _____ #
_____ Elbow Friction Loss	Shaft Weight _____ #
_____ Velocity Head Loss	Impeller Weight _____ #
_____ specific gravity x (C) _____ TDH x _____ K Factor =	Total Hydraulic Thrust _____ #
	Total Thrust Load _____ #

A	B	C	D	E	F	*G	H	I	J	K	L
GPM	Field Head	TDH	Head per Stage	Bowl Eff.	Lab. HP	Shaft or Cable Loss in HP	Thrust Loss in HP	Total HP	Field Eff.	Motor Eff.	Wire to Water Eff.

A = Customer Specifications

B = Customer Specifications - Calculated as above

C = Field Head plus losses - Calculated as above

D = C / number of stages

E = Determined from performance curve

F = (A x C x specific gravity) / (3960xE)

*G = Refer to Engineering Data

Lineshaft Pump (502-10)

Submersible Pump (501-3)

(use the larger of shaft or sleeve ø)

H = (total thrust load x RPM x .012) / 100,000
 (this is an average for most motors)

I = F + G + H

J = (A x B x specific gravity) / (3960 x I)

K = Per Motor Manufacturer

L = J x K

NOTE: Convert all percentages to decimals.

DETERMINING PROPER IMPELLER SETTING

From the above data use the **Total Hydraulic Thrust** rating to determine the elongation in inches per 100' of shaft and column.

Shaft Stretch (502-11) = (_____ ' setting x _____ " shaft elongation per 100') / 100 = _____ "

Column Stretch (502-12 & 13) = (_____ ' setting x _____ " column elongation per 100') / 100 = _____ "

Impeller Setting (500-10 & 11) = _____ "

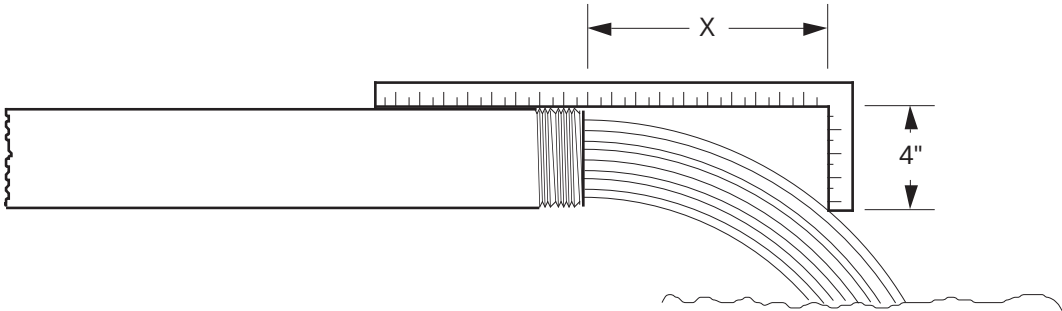
Total Shaft Adjustment = Shaft Stretch - Column Stretch + Impeller Setting = _____ "

NOTE: Turn adjusting nut until impellers turn freely - then make the calculated **Total Shaft Adjustment** per SIMFLO IOM.

Estimating
Flow

Gallons per Minute
(Approximate)

Horizontal Distance X	Discharge Pipe Size				
	4"	5"	6"	8"	10"
4"	83				
5"	104	163			
6"	125	195	285		
7"	146	228	335	580	
8"	166	260	380	665	1060
9"	187	293	430	750	1190
10"	208	326	476	830	1330
11"	229	360	525	915	1460
12"	250	390	570	1000	1600
13"	270	425	620	1080	1730
14"	292	456	670	1160	1860
15"	312	490	710	1250	2000
16"	334	520	760	1330	2120
17"	355	550	810	1410	2260
18"	375	590	860	1500	2390
19"	395	620	910	1580	2520
20"	415	650	950	1660	2660



Plastic Pipe 1"-4"

Friction Loss Per 100 Feet Schedule 40 Plastic Pipe (ft. TDH)

[illegible]

Friction Loss Per 100 Feet Schedule 40 Plastic Pipe (ft. TDH)

[illegible]

Friction Loss Per 100 Feet Schedule 80 Plastic Pipe (ft. TDH)

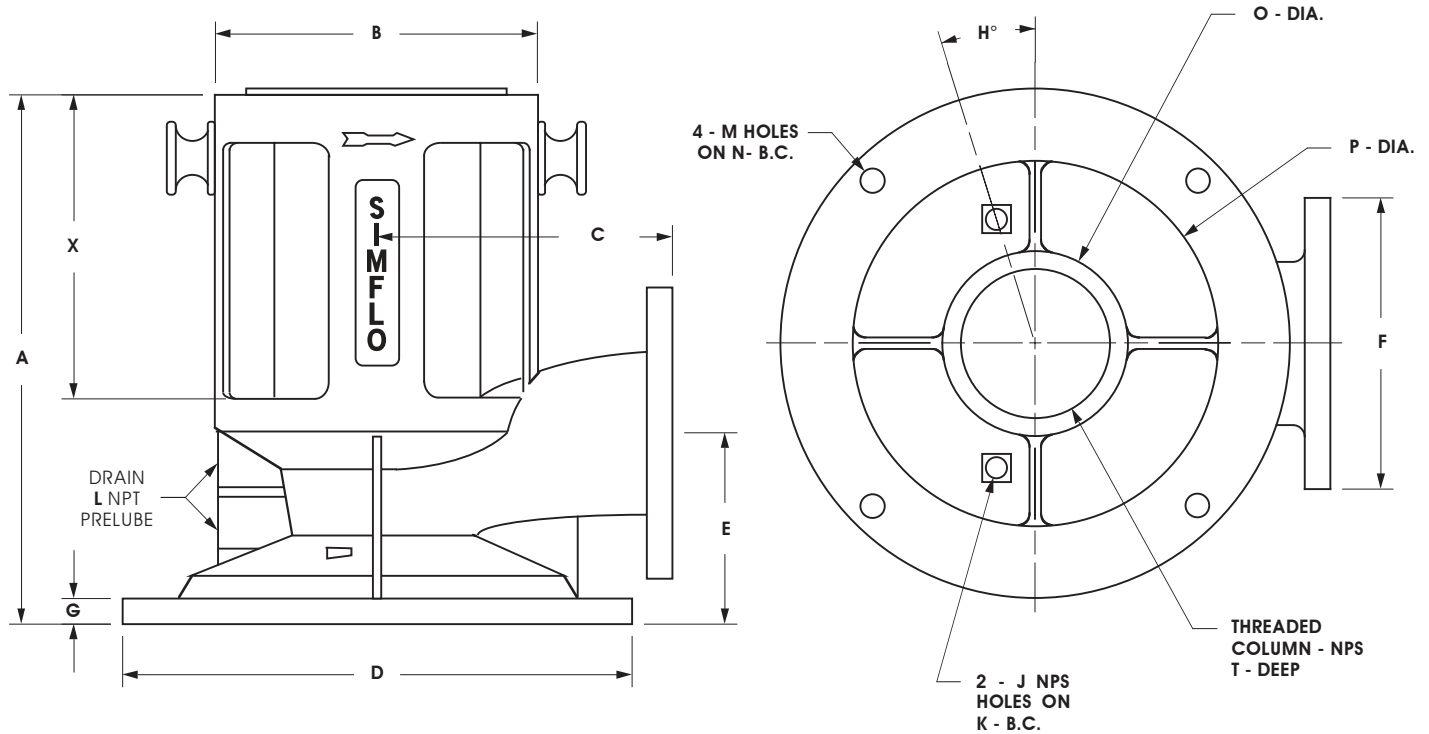
GPM	PIPE SIZE																			
	1"		1-1/4"		1-1/2"		2"		2-1/2"		3"		4"		5"		6"		8"	
	Velocity Loss	Friction Loss	Velocity Loss	Friction Loss	Velocity Loss	Friction Loss	Velocity Loss	Friction Loss	Velocity Loss	Friction Loss	Velocity Loss	Friction Loss	Velocity Loss	Friction Loss	Velocity Loss	Friction Loss	Velocity Loss	Friction Loss	Velocity Loss	Friction Loss
4	1.79	1.54																		
6	2.68	3.34	1.50	.82																
8	3.57	5.69	2.00	1.39																
10	4.46	8.60	2.50	2.10	1.82	.96														
15	6.70	22.90	3.76	4.45	2.72	2.04	1.63	.585												
20	8.92	30.90	5.00	7.57	3.63	3.47	2.17	.996												
25	11.20	58.80	6.25	11.40	4.55	5.25	2.71	1.51	1.90	.625										
30	13.40	65.30	7.50	16.00	5.45	7.38	3.26	2.11	2.27	.874										
40			10.00	27.30	7.26	12.50	4.35	3.59	3.03	1.49	1.94	.507								
50			12.50	41.30	9.09	18.90	5.43	5.41	3.79	2.25	2.42	.766								
60			15.00	57.80	10.90	26.50	6.52	7.61	4.54	3.16	2.92	1.07								
70					12.70	35.30	7.61	10.10	5.30	4.20	3.39	1.43								
80					14.50	45.20	8.69	12.90	6.05	5.36	3.88	1.83								
90							9.78	16.10	6.81	6.53	4.33	2.27	2.51	.592						
100							10.90	19.60	7.57	8.13	4.85	2.76	2.79	.719						
120							13.00	27.40	9.08	11.40	5.80	3.87	3.35	1.00						
140							15.20	36.50	10.60	15.10	6.80	5.12	3.91	1.33						
160							17.40	46.70	12.10	19.40	7.75	6.58	4.47	1.71	2.82	.559				
180									13.60	24.10	8.60	8.18	5.02	2.12	3.16	.696				
200									15.10	29.30	9.70	9.96	5.58	2.58	3.52	.846				
240									18.20	41.00	11.60	13.90	6.70	3.62	4.23	1.18	2.96	.484		
280											13.50	18.60	7.82	4.78	4.49	1.57	3.45	.658		
320											15.50	23.70	8.94	6.16	5.64	2.01	3.94	.841		
360											17.40	29.50	10.00	7.66	6.35	2.51	4.43	1.05		
400											19.40	35.90	11.20	9.31	7.05	3.05	4.93	1.27	2.81	.325
450											21.80	44.60	12.50	11.60	7.95	3.79	5.54	1.58	3.16	.404
500											23.20	54.10	14.00	14.10	8.82	4.61	6.16	1.92	3.51	.493
550											26.50	64.90	15.30	16.80	9.70	5.50	6.77	2.29	3.86	.587
600											29.10	76.10	16.70	19.70	10.60	6.44	7.39	2.69	4.22	.686
650													18.10	22.90	11.50	7.47	8.00	3.12	4.57	.799
700													19.50	26.20	12.30	8.60	8.63	3.58	4.92	.916
750													20.90	29.80	13.20	9.77	9.24	4.07	5.27	1.04
800													22.30	33.60	14.10	11.00	9.85	4.58	5.62	1.17
850													23.70	37.60	15.00	12.30	10.50	5.12	5.97	1.31
900													25.10	41.80	15.90	13.70	11.10	5.69	6.32	1.46
950															16.70	15.10	11.70	6.29	6.67	1.61
1000															17.60	16.60	12.30	6.91	7.03	1.77
1100															19.40	19.80	13.50	8.27	7.83	2.11
1200															21.10	23.30	14.80	9.73	8.43	2.48
1300																			9.13	2.87
1500																			10.50	3.75
1800																			12.60	5.26
2000																			14.10	6.39
2200																			15.50	7.80
2400																			16.90	8.93

Booster Can Selection Chart

Bowl Size	Booster Can Size														
	5	6	8	10	12	14	16	18	20	24	30	36	42	48	54
	Maximum Recommended GPM														
4	135	266													
5		112	460												
6			356	831											
7			164	638	1156										
8				511	1029	1389	2087								
9					684	1044	1742								
10					518	878	1576	2372							
11						530	1228	2024	2918						
12						356	1084	1880	2774						
14								1243	2137	4219					
16									1689	3771	7450				
20										2081	5760	10462			
24											5355	8237	13821		
28													11656	18121	25468

- Data based on maximum velocity of 5'/second past the bowl assembly.

"SPC" Style Cast Discharge Head



Model Number	Size	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	T	X	Wt. (#)
SPC-3	3	16.75	10.0	7.50	13.50	5.25	7.5	0.75	19.5	1/2	7.50	1/2	.75	11.75	6.00	9.00	1.38	9.38	87
SPC-4	4	16.50	10.0	9.13	16.00	6.00	9.0	0.81	18.5	1/2	7.50	3/4	.75	14.25	5.75	11.25	1.38	9.50	145
SPC-6	6	20.13	16.5	11.50	20.88	7.00	11.0	1.00	20.0	3/4	11.25	3/4	.75	18.75	8.50	14.50	1.75	11.56	300
SPC-8	8	22.31	16.5	13.13	23.88	8.50	13.5	1.00	20.0	1	13.00	3/4	.88	21.25	10.50	16.50	1.75	12.13	395
SPC-10	10	26.00	20.0	15.00	27.25	11.00	16.0	1.13	24.0	1	16.75	3/4	.88	25.00	12.50	20.50	2.50	13.25	595

NOTE: "F" is drilled to match ANSI 125# flange, except for SPC-3, which is drilled to match ANSI 250# flange.

Optional ANSI 250# outlet flange is available on SPC-4, SPC-6, and SPC-8.

SPC-10 is only available with ANSI 125# outlet flange.

SPC-3 is available with optional 8" ANSI 150# base plate drilling for booster can use.

SPC-4 is available with optional 10" ANSI 150# base plate drilling for booster can use.

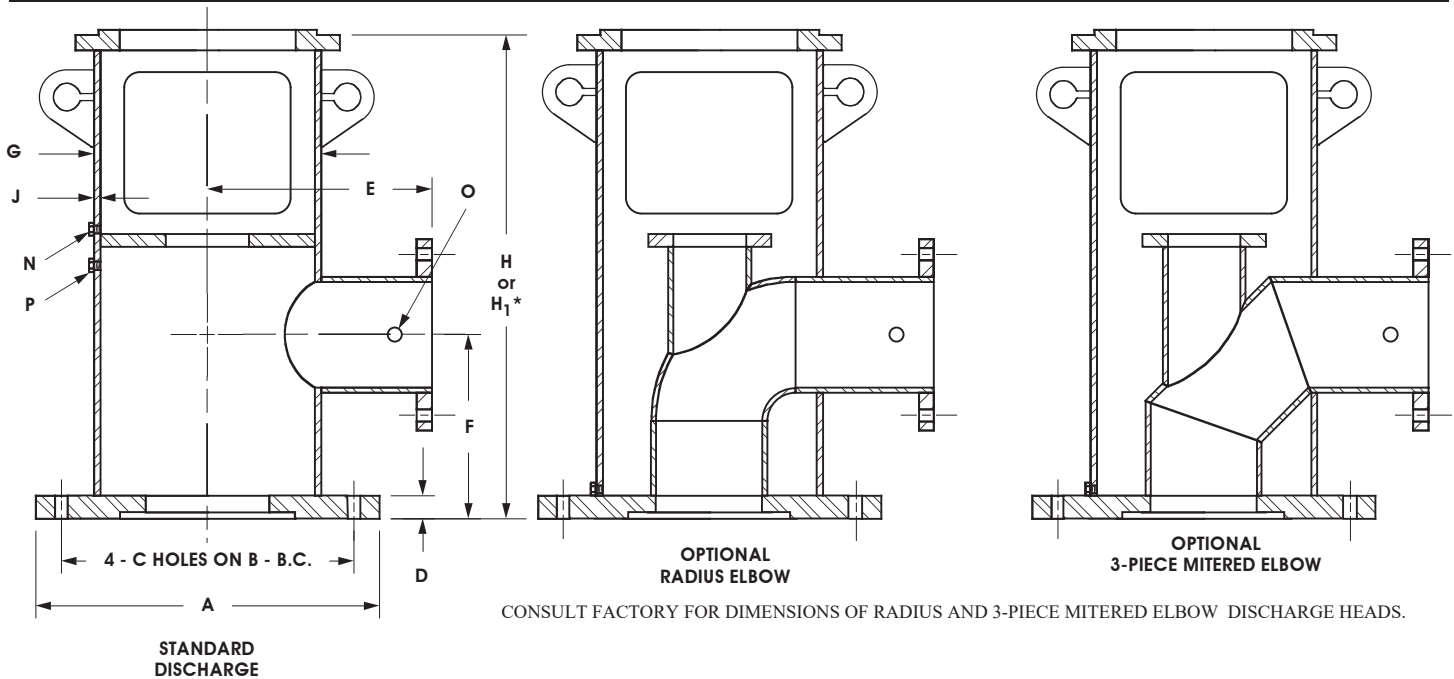
SPC-6 is available with optional 14" ANSI 150# base plate drilling for booster can use.

SPC-8 is available with optional 16" ANSI 150# base plate drilling for booster can use.

SPC-10 is available with optional 20" ANSI 150# base plate drilling for booster can use.

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"SL" Style Fabricated "L" Discharge Head

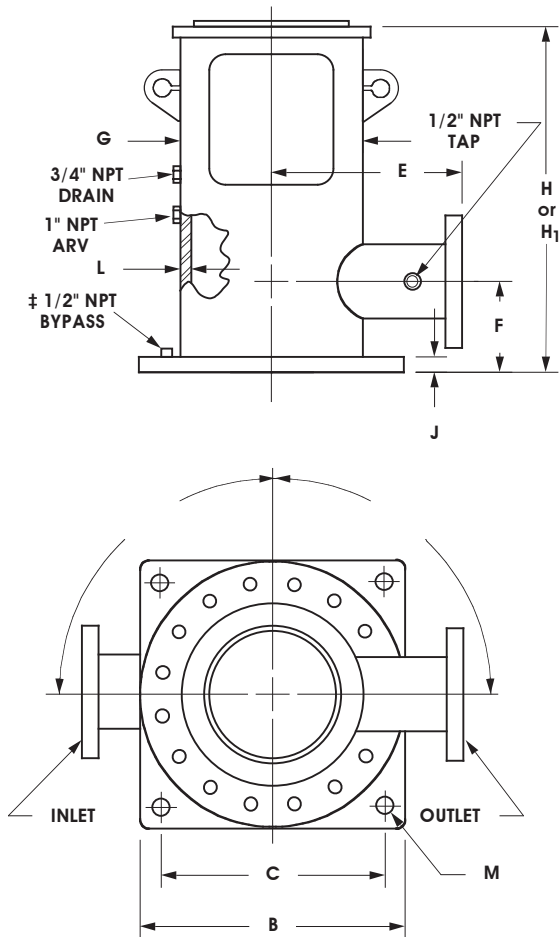


N = 3/4" NPT DRAIN O = 1/2" NPT TAP P = 1" NPT ARV TAP

Model Number	Driver B.D.	Disch. & Col. Size	A	B	C	D	E	F	G	H	H ₁	J
SL-3	10 to 12	3	16.00	14.25	0.75	1.00	11.00	6.00	10.75	19.00	H ₁ dimension must be specified when using a spacer type flanged motor coupling, and will vary according to coupling size and sealing arrangement. Consult factory.	0.28
SL-4	10 to 12	4	16.00	14.25	0.75	1.00	11.00	7.00	10.75	20.00		0.28
SL-5	10 to 12	5	19.00	17.00	0.75	1.00	12.00	7.00	12.75	24.00		0.33
SL-5	16	5	19.00	17.00	0.75	1.00	12.00	7.00	12.75	24.00		0.33
SL-6	10 to 12	6	21.00	18.75	0.75	1.00	12.00	8.00	12.75	25.00		0.33
SL-6	16	6	21.00	18.75	0.75	1.00	12.00	8.00	12.75	25.00		0.33
SL-8	16 to 20	8	27.50	25.00	0.88	1.13	16.00	9.00	14.00	28.00		0.38
SL-8	24	8	27.50	25.00	0.88	1.13	16.00	9.00	14.00	28.00		0.38
SL-10	16 to 20	10	32.00	29.50	1.00	1.13	18.00	10.00	18.00	30.00		0.38
SL-10	24	10	32.00	29.50	1.00	1.13	18.00	10.00	18.00	30.00		0.38
SL-10	30	10	32.00	29.50	1.00	1.13	18.00	10.00	18.00	30.00		0.38
SL-12	16 to 20	12	32.00	29.50	1.00	1.38	18.00	12.00	20.00	33.00		0.38
SL-12	24	12	32.00	29.50	1.00	1.38	18.00	12.00	20.00	33.00		0.38
SL-12	30	12	32.00	29.50	1.00	1.38	18.00	12.00	20.00	33.00		0.38
SL-14	16 to 20	14	34.25	31.75	1.13	1.38	21.00	13.00	20.00	35.00		0.38
SL-14	24	14	34.25	31.75	1.13	1.38	21.00	13.00	20.00	35.00		0.38
SL-14	30	14	34.25	31.75	1.13	1.38	21.00	13.00	20.00	35.00		0.38
SL-16	16 to 20	16	36.50	34.00	1.13	1.38	21.00	14.00	24.00	37.00		0.38
SL-16	24	16	36.50	34.00	1.13	1.38	21.00	14.00	24.00	37.00		0.38
SL-16	30	16	36.50	34.00	1.13	1.38	21.00	14.00	24.00	37.00		0.38
SL-18	16 to 20	18	36.50	34.00	1.13	1.38	23.00	18.00	24.00	41.00		0.38
SL-18	24	18	36.50	34.00	1.13	1.38	23.00	18.00	24.00	41.00		0.38
SL-18	30	18	36.50	34.00	1.13	1.38	23.00	18.00	24.00	41.00		0.38
SL-20	16 to 20	20	43.75	40.50	1.63	1.88	25.00	18.00	30.00	44.00		0.50
SL-20	24	20	43.75	40.50	1.63	1.88	25.00	18.00	30.00	44.00		0.50
SL-20	30	20	43.75	40.50	1.63	1.88	25.00	18.00	30.00	44.00		0.50
SL-24	16 to 20	24	43.75	40.50	1.63	1.88	25.00	20.00	30.00	48.00		0.50
SL-24	24	24	43.75	40.50	1.63	1.88	25.00	20.00	30.00	48.00		0.50
SL-24	30	24	43.75	40.50	1.63	1.88	25.00	20.00	30.00	48.00		0.50

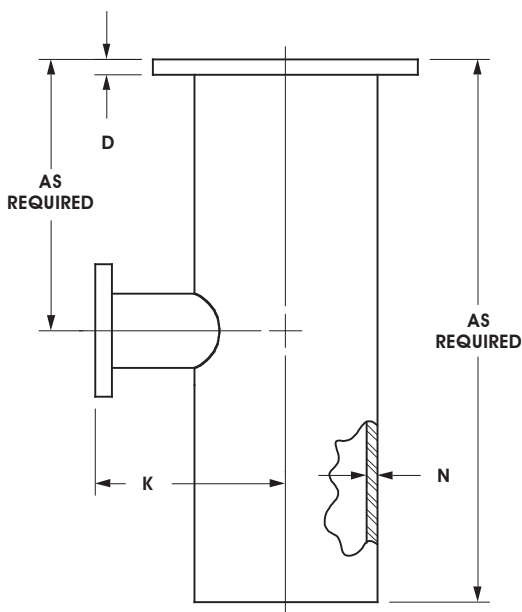
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“SL” Style
Fabricated “L”
Discharge Head
For Booster Can



Model Number	Driver B.D.	Disch. & Col. Size	E	F	G*	H	H ₁	J	L
SL-3	10 to 12	3	Consult Factory	6.00	10.75	19.00	Consult Factory	1.00	0.28
SL-4	10 to 12	4		7.00	10.75	20.00		1.00	0.28
SL-5	10 to 12	5		7.00	12.75	24.00		1.00	0.33
SL-5	16	5		7.00	12.75	24.00		1.00	0.33
SL-6	10 to 12	6		8.00	12.75	25.00		1.00	0.33
SL-6	16	6		8.00	12.75	25.00		1.00	0.33
SL-8	16 to 20	8		9.00	14.00	28.00		1.13	0.38
SL-8	24	8		9.00	14.00	28.00		1.13	0.38
SL-10	16 to 20	10		10.00	18.00	30.00		1.13	0.38
SL-10	24	10		10.00	18.00	30.00		1.13	0.38
SL-10	30	10		10.00	18.00	30.00		1.13	0.38
SL-12	16 to 20	12		12.00	20.00	33.00		1.38	0.38
SL-12	24	12		12.00	20.00	33.00		1.38	0.38
SL-12	30	12		12.00	20.00	33.00		1.38	0.38
SL-14	16 to 20	14		13.00	20.00	35.00		1.38	0.38
SL-14	24	14		13.00	20.00	35.00		1.38	0.38
SL-14	30	14		13.00	20.00	35.00		1.38	0.38
SL-16	16 to 20	16		14.00	24.00	37.00		1.38	0.38
SL-16	24	16		14.00	24.00	37.00		1.38	0.38
SL-16	30	16		14.00	24.00	37.00		1.38	0.38
SL-18	16 to 20	18		18.00	24.00	41.00		1.38	0.38
SL-18	24	18		18.00	24.00	41.00		1.38	0.38
SL-18	30	18		18.00	24.00	41.00		1.38	0.38
SL-20	16 to 20	20		18.00	30.00	44.00		1.88	0.50
SL-20	24	20		18.00	30.00	44.00		1.88	0.50
SL-20	30	20		18.00	30.00	44.00		1.88	0.50
SL-24	16 to 20	24		20.00	30.00	48.00		1.88	0.50
SL-24	24	24		20.00	30.00	48.00		1.88	0.50
SL-24	30	24		20.00	30.00	48.00		1.88	0.50

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Can Dia.	B	C	D	K	M	N
8.75	13.50	11.50	1.00	9.00	0.63	0.28
10.75	16.00	13.00	1.13	11.00	0.88	0.28
12.75	19.00	16.00	1.13	12.00	0.88	0.33
14.00	21.00	18.00	1.13	12.00	0.88	0.38
16.00	23.50	20.00	1.38	14.00	1.13	0.38
18.00	25.00	22.00	1.38	15.00	1.13	0.38
20.00	27.50	24.00	1.38	16.00	1.13	0.38
24.00	32.00	28.00	1.38	18.00	1.13	0.38
30.00	38.75	34.00	1.88	21.00	1.25	0.38
36.00	46.00	40.00	1.88	24.00	1.25	0.38
48.00	59.50	53.50	1.88	30.00	1.25	0.38

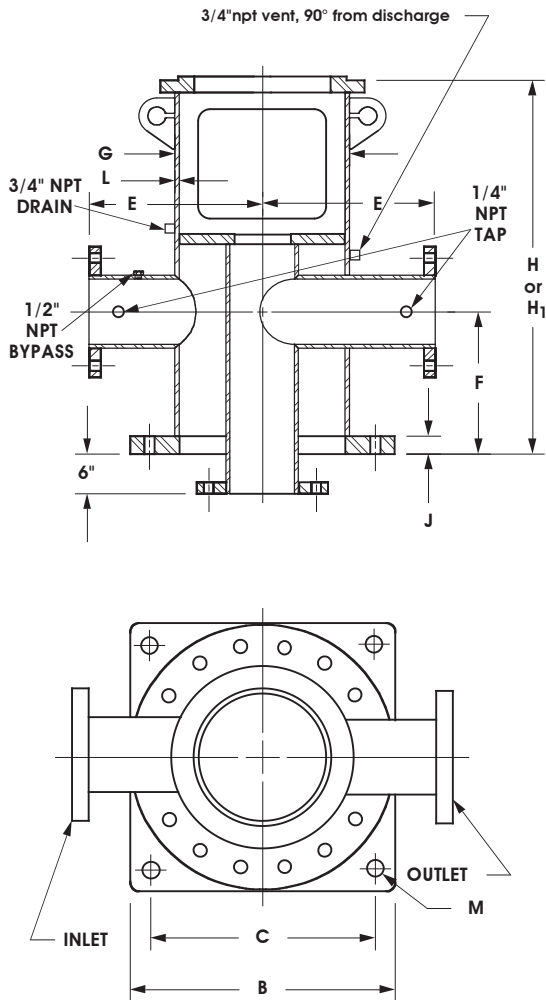
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‡ Bypass may be located outside of discharge housing, if permissible by can size.

* Dimensions in all cases should be changed to be less than or equal to can size.

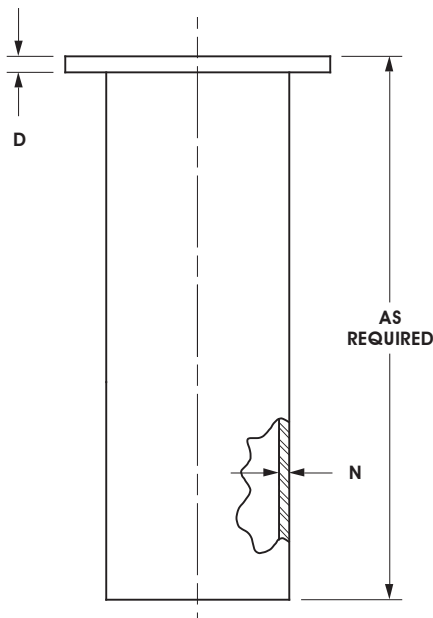
H¹ Dimension must be specified when using a spacer type flanged motor coupling, and will vary according to coupling size and sealing arrangement. Consult factory.

“ST” Style Fabricated “T” Discharge Head For Booster Can



Model Number	Driver B.D.	Suct./ Disch. Size		E	F	G*	H	H ₁	J	L
ST-3	10 to 12	3	3	Consult Factory	6.00	10.75	19.00	Consult Factory	1.00	0.28
ST-4	10 to 12	4	4		7.00	10.75	20.00		1.00	0.28
ST-5	10 to 12	5	5		7.00	12.75	24.00		1.00	0.33
ST-5	16	5	5		7.00	12.75	24.00		1.00	0.33
ST-6	10 to 12	6	6		8.00	12.75	25.00		1.00	0.33
ST-6	16	6	6		8.00	12.75	25.00		1.00	0.33
ST-8	16 to 20	8	8		9.00	14.00	28.00		1.12	0.38
ST-8	24	8	8		9.00	14.00	28.00		1.12	0.38
ST-10	16 to 20	10	10		10.00	18.00	30.00		1.12	0.38
ST-10	24	10	10		10.00	18.00	30.00		1.12	0.38
ST-10	30	10	10		10.00	18.00	30.00		1.12	0.38
ST-12	16 to 20	12	12		12.00	20.00	33.00		1.38	0.38
ST-12	24	12	12		12.00	20.00	33.00		1.38	0.38
ST-12	30	12	12		12.00	20.00	33.00		1.38	0.38
ST-14	16 to 20	14	14		13.00	20.00	35.00		1.38	0.38
ST-14	24	14	14		13.00	20.00	35.00		1.38	0.38
ST-14	30	14	14		13.00	20.00	35.00		1.38	0.38
ST-16	16 to 20	16	16		14.00	24.00	37.00		1.38	0.38
ST-16	24	16	16		14.00	24.00	37.00		1.38	0.38
ST-16	30	16	16		14.00	24.00	37.00		1.38	0.38
ST-18	16 to 20	18	18		18.00	24.00	41.00		1.38	0.38
ST-18	24	18	18		18.00	24.00	41.00		1.38	0.38
ST-18	30	18	18		18.00	24.00	41.00		1.38	0.38
ST-20	16 to 20	20	20		18.00	30.00	44.00		1.88	0.50
ST-20	24	20	20		18.00	30.00	44.00		1.88	0.50
ST-20	30	20	20		18.00	30.00	44.00		1.88	0.50
ST-24	16 to 20	24	24		20.00	30.00	48.00		1.88	0.50
ST-24	24	24	24		20.00	30.00	48.00		1.88	0.50
ST-24	30	24	24		20.00	30.00	48.00		1.88	0.50

v18.1



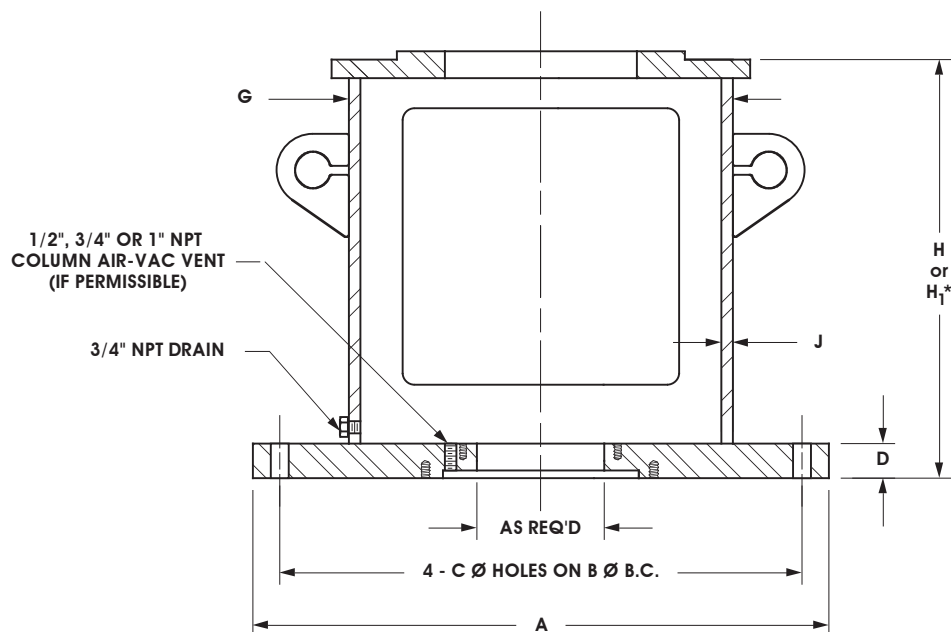
Can Dia.	B	C	D	M	N
8.75	13.50	11.50	1.00	0.63	0.28
10.75	16.00	13.00	1.13	0.88	0.28
12.75	19.00	16.00	1.13	0.88	0.33
14.00	21.00	18.00	1.13	0.88	0.38
16.00	23.50	20.00	1.38	1.13	0.38
18.00	25.00	22.00	1.38	1.13	0.38
20.00	27.50	24.00	1.38	1.13	0.38
24.00	32.00	28.00	1.38	1.13	0.38
30.00	38.75	34.00	1.88	1.25	0.38
36.00	46.00	40.00	1.88	1.25	0.38
48.00	59.50	53.50	1.88	1.25	0.38

v18.1

* Dimensions in all cases should be changed to be less than or equal to can size.

H¹ Dimension must be specified when using a spacer type flanged motor coupling, and will vary according to coupling size and sealing arrangement. Consult factory.

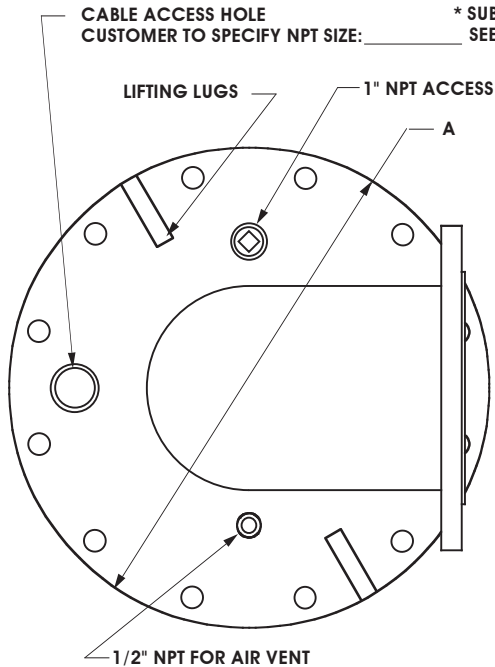
"SM" Style Fabricated Motor Stand



Model Number	Driver B.D.	Col. Size	A	B	C	D	G	H	H ₁	J
SM-3	10 to 12	3	16.00	14.25	0.75	1.00	10.75	12.00	Consult Factory	0.28
SM-4	10 to 12	4	16.00	14.25	0.75	1.00	10.75	12.00		0.28
SM-5	10 to 12	5	19.00	17.00	0.75	1.00	12.75	14.00		0.33
SM-5	16	5	19.00	17.00	0.75	1.00	12.75	14.00		0.33
SM-6	10 to 12	6	21.00	18.75	0.75	1.00	12.75	14.00		0.33
SM-6	16	6	21.00	18.75	0.75	1.00	12.75	14.00		0.33
SM-8	16 to 20	8	27.50	25.00	0.88	1.13	14.00	16.00		0.38
SM-8	24	8	27.50	25.00	0.88	1.13	14.00	16.00		0.38
SM-10	16 to 20	10	32.00	25.00	1.00	1.13	18.00	16.00		0.38
SM-10	24	10	32.00	29.50	1.00	1.13	18.00	16.00		0.38
SM-10	30	10	32.00	31.75	1.00	1.38	18.00	16.00		0.38
SM-12	16 to 20	12	34.25	31.75	1.00	1.38	20.00	16.00		0.38
SM-12	24	12	34.25	31.75	1.00	1.38	20.00	16.00		0.38
SM-12	30	12	34.25	31.75	1.00	1.38	20.00	16.00		0.38
SM-14	16 to 20	14	34.25	31.75	1.13	1.38	20.00	16.00		0.38
SM-14	24	14	34.25	31.75	1.13	1.38	20.00	16.00		0.38
SM-14	30	14	34.25	31.75	1.13	1.38	20.00	16.00		0.38
SM-16	24	16	36.50	34.00	1.13	1.38	24.00	16.00		0.38
SM-16	30	16	36.50	34.00	1.13	1.38	24.00	16.00		0.38
SM-18	16 to 20	18	36.50	34.00	1.13	1.38	24.00	16.00		0.38
SM-18	24	18	36.50	34.00	1.13	1.38	24.00	16.00		0.38
SM-18	30	18	36.50	34.00	1.13	1.38	24.00	16.00		0.38
SM-20	16 to 20	20	43.75	40.50	1.63	1.88	30.00	18.00		0.50
SM-20	24	20	43.75	40.50	1.63	1.88	30.00	18.00		0.50
SM-20	30	20	43.75	40.50	1.63	1.88	30.00	18.00		0.50
SM-24	16 to 20	24	43.75	40.50	1.63	1.88	30.00	18.00		0.50
SM-24	24	24	43.75	40.50	1.63	1.88	30.00	18.00		0.50
SM-24	30	24	43.75	40.50	1.63	1.88	30.00	18.00		0.50

v18.1

Fabricated Submersible Discharge



* SUBJECT TO AVAILABILITY
CUSTOMER TO SPECIFY NPT SIZE: _____ SEE TABLE BELOW.

WELL CASING DIAMETER

	6	8	10	12	14	16	18	20
A	11.00	13.50	16.00	19.00	21.00	23.50	25.00	27.50
B - cls D	0.69	0.69	0.69	0.81	0.94	1.00	1.06	1.13
B - 150#	1.00	1.13	1.19	1.25	1.38	1.44	1.56	1.69

v18.1

ELBOW & NIPPLE DIAMETER

	2	3	4	5	6	8	10	12
C	5.00	6.50	8.00	10.00	11.50	14.75	17.75	20.75
D	3.75	5.13	7.13	8.63	10.13	12.88	17.63	19.50

v18.1

BASE PLATE MOUNTING HOLE PATTERN

	6	8	10	12	14	16	18	20
hole Ø	.88	.88	1.00	1.00	1.13	1.13	1.25	1.25
quantity	8	8	12	12	12	16	16	20
B. C.	9.50"	11.75	14.25	17.00	18.75	21.25	22.75	25.00

v18.1

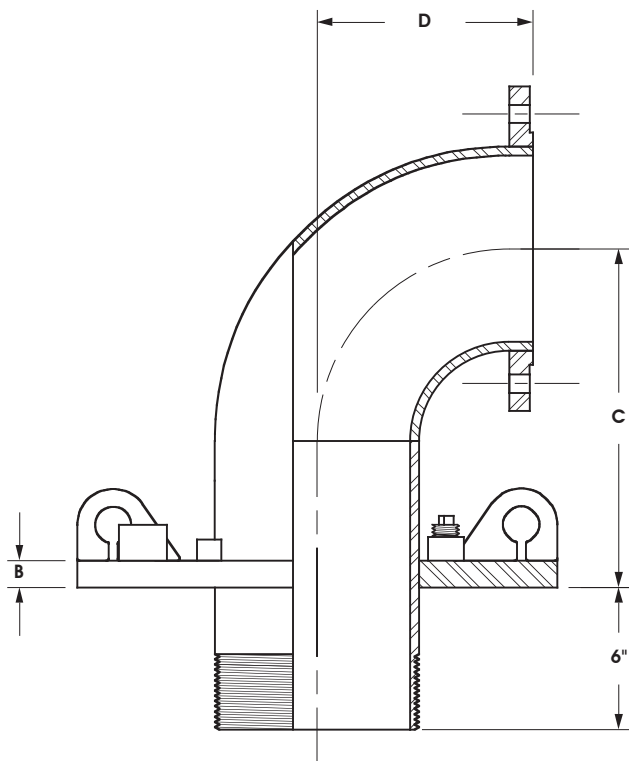
MAXIMUM CABLE AND ACCESS TAP SIZES

CASING

	6	8	10	12	14	16	18	20
2	3/4	1-1/2	2-1/2	3	4	4	4	4
3	-	1	2	2-1/2	3	4	4	4
4	-	1/2	1-1/2	2-1/2	2-1/2	3	4	4
5	-	-	3/4	1-1/2	2	3	4	4
6	-	-	-	1-1/4	1-1/2	2-1/2	3	4
8	-	-	-	-	3/4	1-1/2	2-1/2	3
10	-	-	-	-	-	1/2	1-1/2	2-1/2
12	-	-	-	-	-	-	-	1-1/4

TAP SIZE

v18.1



Standard features include:

Lifting lugs

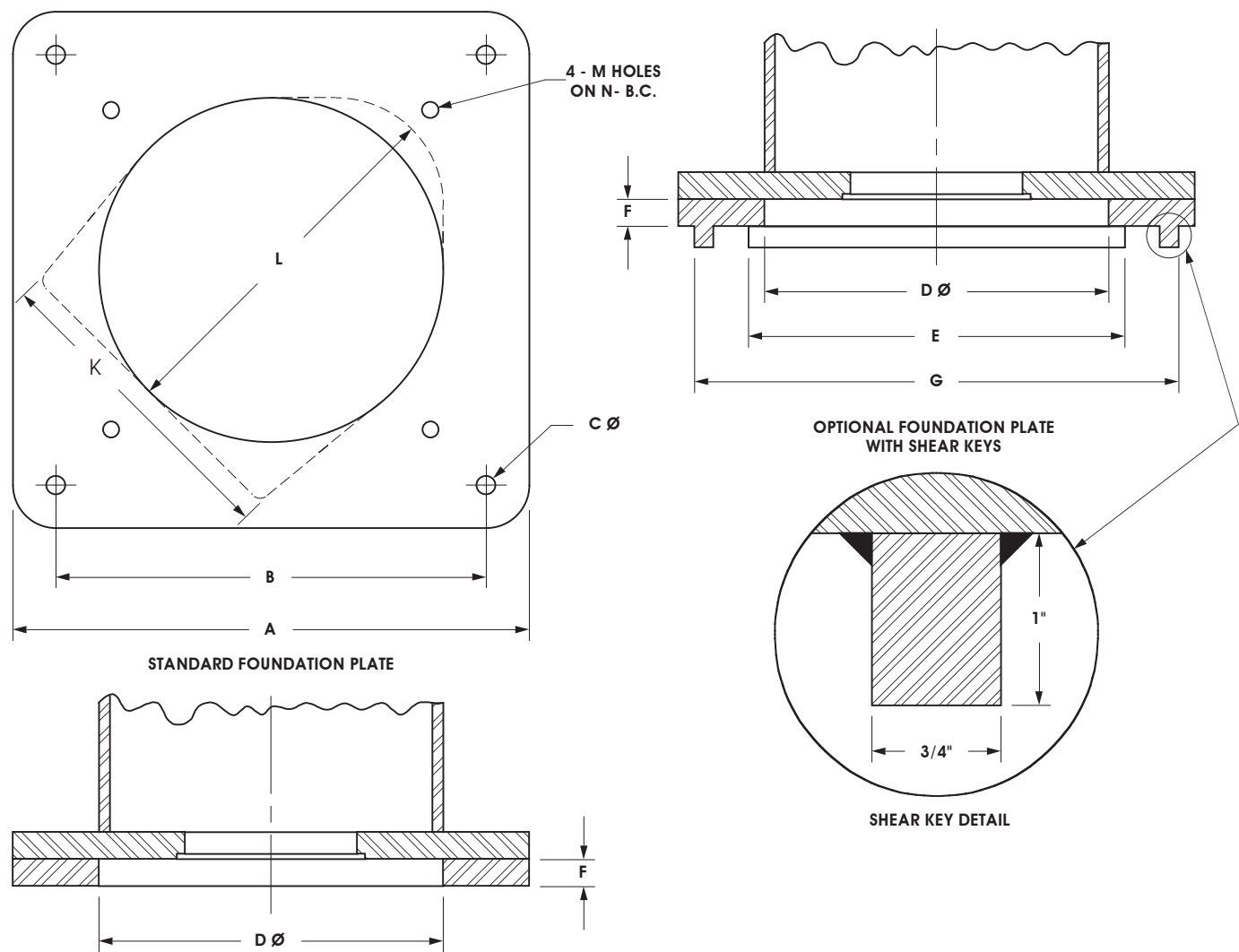
1" npt access hole

1/2" npt for air vent

ANSI 150# raised face discharge flange.

ANSI 150# hole pattern base plate.

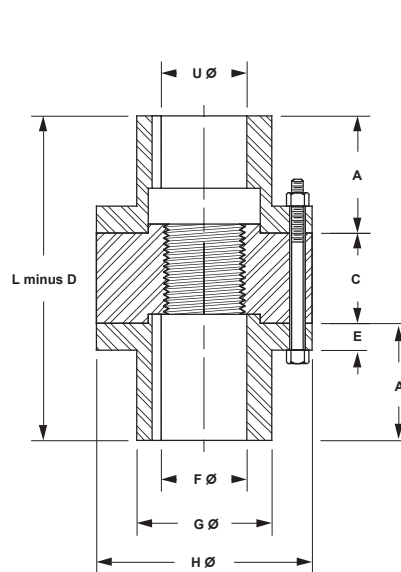
Discharge Head
Foundation Plate



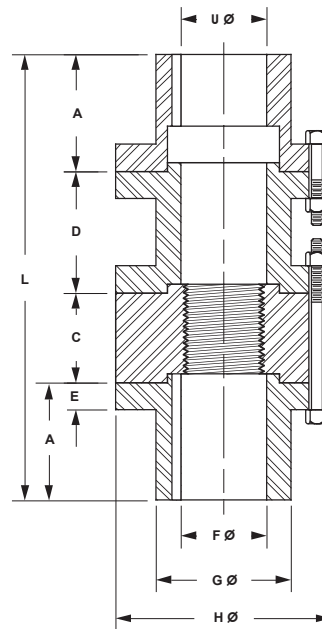
Model Number	A	B	C	D*	E	F	G	Underground Discharge		M	N
								K	L		
FP-3C	13.50	10.50	0.63	9.25	9.50	1.00	12.50	Consult Factory	Consult Factory	5/8 NC	11.75
FP-4	16.00	13.50	0.63	11.00	12.00	1.00	15.00			5/8 NC	14.25
FP-5	19.00	16.00	0.88	12.00	13.50	1.13	18.00			3/4 NC	17.00
FP-6	21.00	18.00	0.88	15.00	15.75	1.13	20.00			5/8 NC	18.75
FP-8C	24.00	20.00	0.88	16.00	18.00	1.13	23.00			3/4 NC	21.25
FP-8	28.00	24.00	1.13	21.00	21.00	1.13	27.00			3/4 NC	25.00
FP-10C	28.00	24.00	1.13	21.00	21.00	1.13	27.00			3/4 NC	25.00
FP-12	32.00	28.00	1.13	22.00	24.00	1.38	31.00			7/8 NC	29.50
FP-14	34.25	30.25	1.13	25.00	25.50	1.38	33.25			1 NC	31.75
FP-18	36.5	32.25	1.13	27.00	28.00	1.38	35.50			1 NC	34.00
FP-24	43.75	37.75	1.63	34.00	35.75	1.88	42.75			1 1/2 NC	40.50

* The "D" dimension must be greater than the largest diameter of the pump to allow installation.

Vertical Solid Shaft Motor Coupling



ADJUSTABLE FLANGED MOTOR COUPLING



ADJUSTABLE FLANGED SPACER MOTOR COUPLING

Cplg. Size	L*	A	C	D*	E	F		G	H	Bolt Size	Bolts/ Flange
						Max	Min				
VS-3	9.81	2.00	1.50	4.31	.50	1 1/4	15/16	2.50	4.25	3/8	4
VS-7	11.19	2.69	1.50	4.31	.63	1 3/4	1 3/16	2.88	5.00	3/8	6
VS-10	11.94	2.69	2.25	4.31	.75	2 1/4	1 7/16	3.63	6.00	1/2	6
VS-11	13.75	3.00	2.50	5.25	.75	2 5/8	1 15/16	4.25	6.88	5/8	6
VS-12	13.75	3.00	2.50	5.25	.75	2 5/8	1 15/16	4.25	6.88	5/8	6
VS-13	15.13	3.44	3.00	5.25	.88	2 7/8	2 1/8	4.88	6.88	5/8	8
VS-14	17.50	4.38	3.50	5.25	1.00	3 7/8	3	6.25	9.75	3/4	8
VS-14A	17.50	4.38	3.50	5.25	1.00	3 7/8	1 15/16	6.25	9.75	3/4	8
VS-15	19.25	5.00	4.00	5.25	1.00	4 1/4	1 15/16	6.75	10.38	7/8	10

* MAY VARY ACCORDING TO SEALING ARRANGEMENT. CONSULT FACTORY FOR INFORMATION.

v18.1

Cplg. Size	Max Thrust	Max BHP Rating @ RPM					Motor Shaft Dimensions					
		3450	1770	1160	880	700	U	AH	EU	EW	EY/EX	Sq. Key
VS-3	20,000	240	125	80	60	50	1 1/8	2 3/4	7/8	3/8	3/4	1/4
VS-7	30,000	580	300	200	150	120	1 5/8	4 1/2	1 1/4	3/8	3/4	3/8
VS-10	75,000	1360	700	460	350	280	2 1/8	4 1/2	1 3/4	3/8	3/4	1/2
VS-11	85,000	1750	900	590	450	360	2 3/8	5	2	3/8	3/4	5/8
VS-12	85,000	1750	900	590	450	360	2 5/8	5	2 1/4	3/8	3/4	5/8
VS-13	90,000	2140	1100	720	550	440	2 7/8	7	2 3/8	1/2	1	3/4
VS-14	100,000	2920	1500	980	750	590	3 7/8	7 1/2	2 5/8	1/2	1	1
VS-14A	100,000	2920	1500	980	750	590	3 1/8	7 1/2	2 5/8	1/2	1	3/4
VS-15	200,000	4870	2500	1640	1240	990	4 1/4	10	3 11/16	1/2	1	1

v18.1

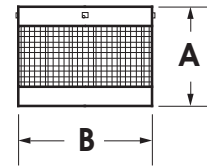
Strainer Dimensions

Bell Dia.	Bolt on Basket Strainer			
	A	B	Eff. Length	Clear Dia.
4.00	6	4.56	5.00	5.06
6.00	7	6.56	6.00	7.06
8.00	7	8.56	6.00	9.06
9.38	7	9.94	6.00	10.44
10.00	8	10.56	7.00	11.06
11.38	8	11.94	7.00	12.44
13.88	8	14.44	7.00	14.94
15.25	10	15.81	9.00	16.31
18.13	8	18.69	6.50	19.69
19.25	10	19.81	8.50	20.81
22.75	14	23.31	12.25	24.31
27.00	17	27.56	15.00	28.56

v18.1

NOTES:

1. Bell suction is required when using bolt on basket strainer.
2. Refer to Section 200 curve data sheets for pump bell diameter.
3. Eff. Length is the length added to pump measured from bell lip.
4. Clear Dia. is the installed clearance diameter to accommodate installation hardware.



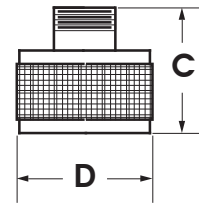
BOLT-ON TYPE BASKET

Inlet Size	Threaded Basket Strainer		
	C	D	Eff. Length
4	11.00	8.00	9.88
5	12.00	10.00	10.81
6	14.00	10.00	12.81
8	16.75	12.00	15.44
10	20.00	18.00	18.50
12	22.50	18.00	20.88

v18.1

NOTES:

1. Threaded suction is required when using threaded basket strainer.
2. Refer to Section 200 curve data sheets for pump suction inlet size.
3. Eff. Length is the length added to pump measured from threaded suction end.



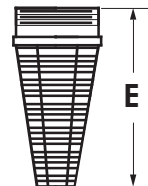
THREADED TYPE BASKET

Inlet Size	Cone Strainer		
	E	Eff. Length	F
4	17.38	16.28	14.38
5	17.38	16.19	14.38
6	17.38	16.19	14.38
8	22.88	21.56	19.88
10	33.75	32.25	30.25
12	33.75	32.13	30.75

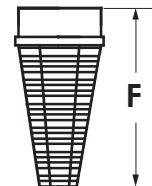
v18.1

NOTES:

1. Threaded suction is required when using threaded cone strainer.
2. Refer to Section 200 curve data sheets for pump suction inlet size.
3. Eff. Length is the length added to pump measured from threaded suction end when using threaded cone strainer.

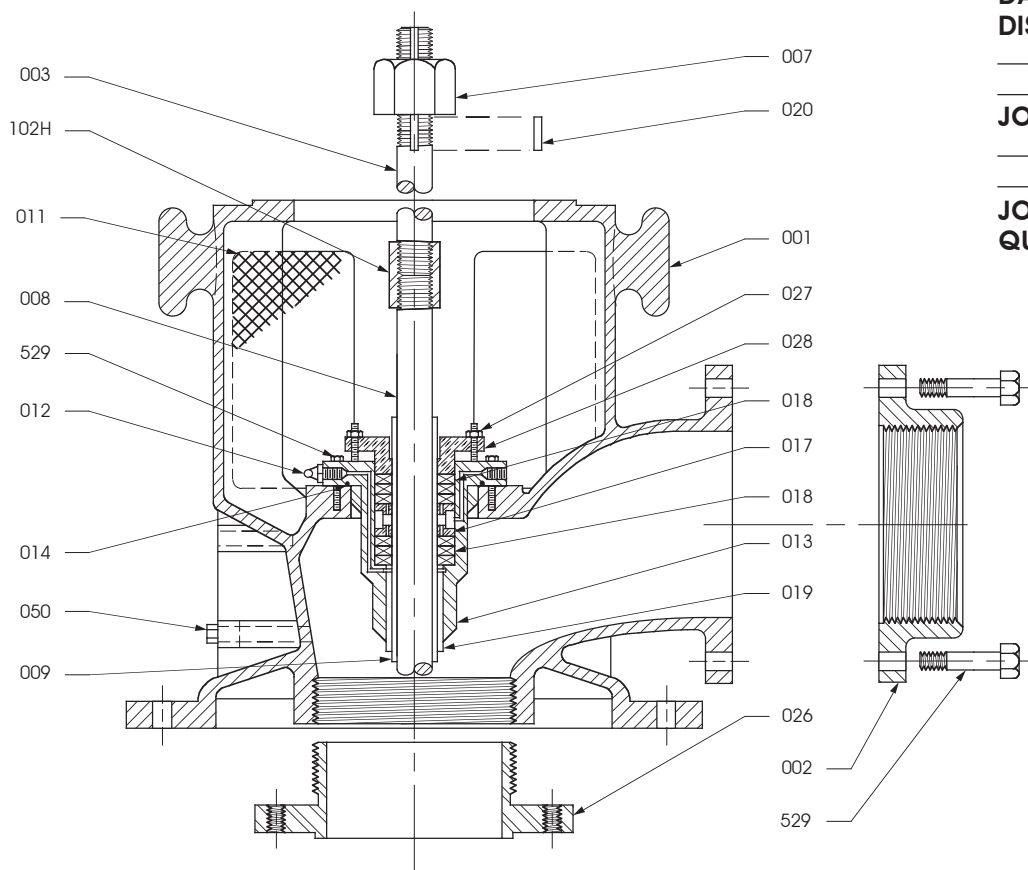


**THREADED
CONE
STRAINER**



**WELD-ON
CONE
STRAINER**

Cast Discharge Head With Product Lube Packing Gland



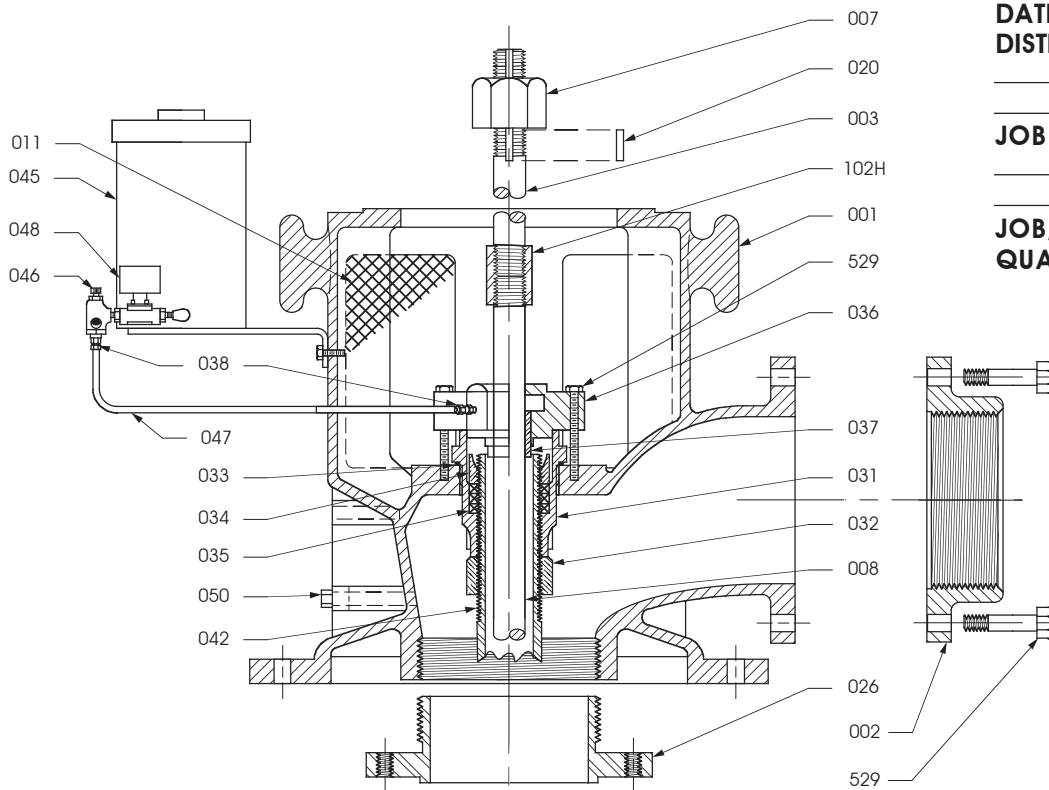
DATE _____
 DISTRIBUTOR _____

 JOB _____

 JOB/QUOTE # _____
 QUANTITY _____

CATALOG NUMBER	QUANTITY	PART NAME	STANDARD MATERIAL (A.S.T.M. DESIGNATION)	SPECIFICATION REQUIREMENT
001	1	HEAD, DISCHARGE	ASTM A48 CLASS 30 CAST IRON	
002		FLANGE, DISCHARGE (THREADED)	ASTM A48 CLASS 30 CAST IRON	
003		SHAFT, MOTOR	ASTM A108 GR 1045 CARBON STEEL	
005		COUPLING, FLG'D MOTOR (NOT SHOWN)	STEEL	
007		NUT, HEAD	ASTM B584 C89833 BRONZE	
008	1	SHAFT, HEAD	ASTM A108 GR 1045 CARBON STEEL	
009		SLEEVE, SHAFT	STAINLESS STEEL	
010D		GASKET, DISCHARGE RING(NOT SHOWN)	RUBBER	
011		GUARD, SAFETY	STEEL	
012	1	FITTING, GREASE	COMMERCIAL	
013	1	BOX, PACKING	ASTM A48 CLASS 30 CAST IRON	
014	1	O-RING, PACKING BOX	BUNA	
017	1	RING, LANTERN	ASTM B505 C89835 BRONZE	
018	6	RING, PACKING	GRAPHITE	
019	1	BEARING, PACKING BOX	ASTM B505 C89835 BRONZE	
020		KEY, GIB	COMMERCIAL	
529	4	BOLT, PACKING BOX	COMMERCIAL	
026		FLANGE ADAPTER	ASTM A36 HR & A53 GR B CARBON STEEL	
027	2	STUD AND NUT	STAINLESS STEEL/ BRASS	
028	1	GLAND, PACKING	ASTM B584 C89833 BRONZE	
529		BOLT, DISCHARGE FLANGE	COMMERCIAL	
050	1	PLUG, PRE-LUBE	COMMERCIAL	
102H	1	COUPLING, HEAD SHAFT	ASTM A108 GR 1018 CR CARBON STEEL	
529		BOLTS, FOUND. PLATE (NOT SHOWN)	COMMERCIAL	

Cast Discharge Head With Oil Lube Packing Gland



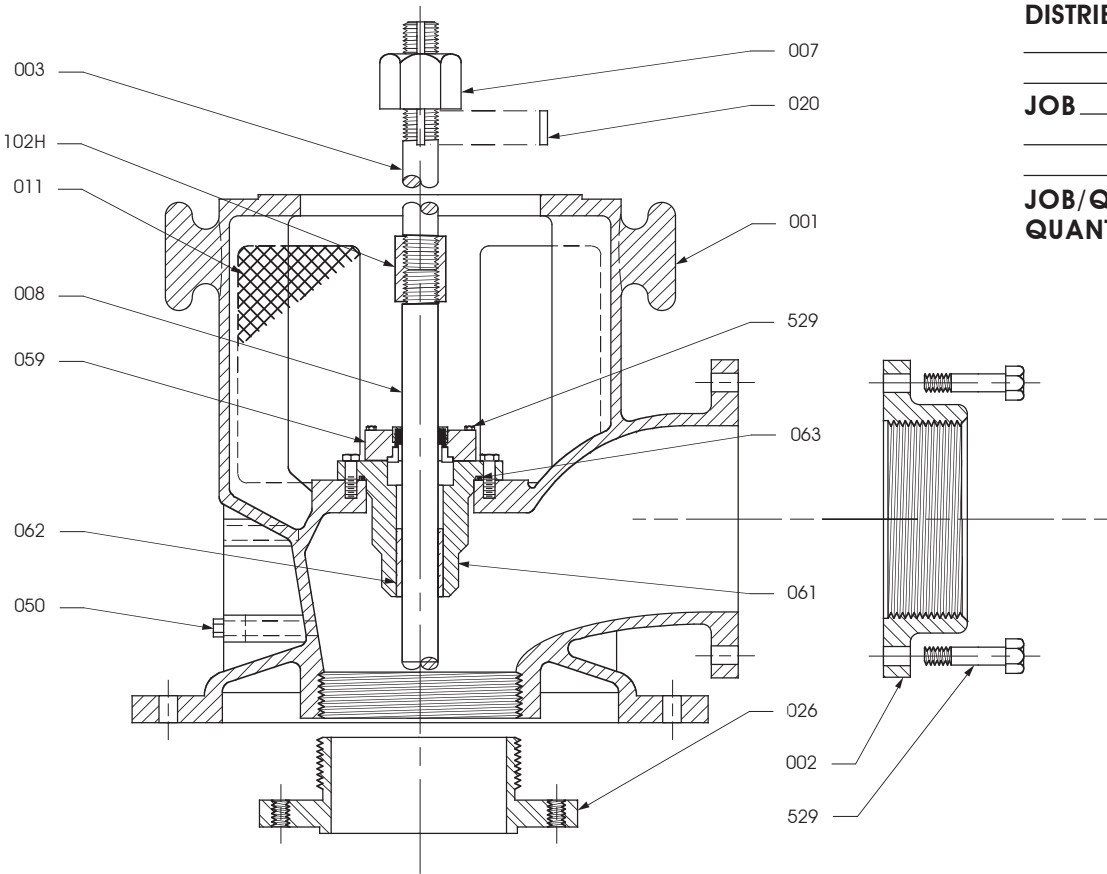
DATE _____
DISTRIBUTOR _____

JOB _____

JOB/QUOTE # _____
QUANTITY _____

CATALOG NUMBER	QUAN-TITY	PART NAME	STANDARD MATERIAL (A.S.T.M. DESIGNATION)	SPECIFICATION REQUIREMENT
001	1	HEAD, DISCHARGE	ASTM A48 CLASS 30 CAST IRON	
002		FLANGE, DISCHARGE (THREADED)	ASTM A48 CLASS 30 CAST IRON	
003		SHAFT, MOTOR	ASTM A108 GRADE 1045 CARBON STEEL	
005		COUPLING, FLG'D MOTOR (NOT SHOWN)	STEEL	
007		NUT, HEAD	ASTM B584 C89833 BRONZE	
008	1	SHAFT, HEAD	ASTM A108 GR 1045 CARBON STEEL	
010D		GASKET, DISCHARGE RING(NOT SHOWN)	RUBBER	
011		GUARD, SAFETY	STEEL	
020		KEY, GIB	COMMERCIAL	
529	4	BOLTS, DUST COVER	COMMERCIAL	
026		FLANGE, ADAPTER	ASTM A36 HR & A53 GR B CARBON STEEL	
529		BOLT, DISCHARGE FLANGE	COMMERCIAL	
031	1	BOX, PACKING	ASTM A48 CLASS 30 CAST IRON	
032	1	LOCKNUT, OIL TUBE	ASTM B584 C89833 BRONZE	
033	1	GASKET, PACKING BOX	COPPER	
034	1	FOLLOWER, PACKING	ASTM B584 C89833 BRONZE	
035	3	RING, PACKING	GRAPHITE	
036	1	COVER, DUST	ASTM A48 CLASS 30 CAST IRON	
037	1	BEARING, DUST COVER	ASTM B505 C89835 BRONZE	
038	2	FITTINGS, OIL LINE	BRASS	
042	1	TUBE, EXTENSION	ASTM A53 GR B CARBON STEEL SCH 80 XS	
045		POT, OIL	ASTM A36 HR & A53 GR B CARBON STEEL	
046		DRIPPER, OIL	BRASS	
047		LINE, OIL	COPPER	
048		OILER, SOLENOID	COMMERCIAL	
050	1	PLUG, PRE-LUBE	COMMERCIAL	
102H		COUPLING, HEAD SHAFT	ASTM A108 GR 1018 CR CARBON STEEL	
529		BOLTS, FOUND. PLATE (NOT SHOWN)	COMMERCIAL	

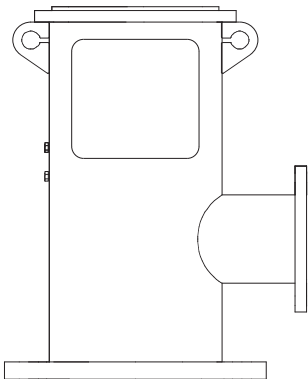
Cast Discharge Head
With Mechanical Seal



DATE _____
DISTRIBUTOR _____
JOB _____
JOB/QUOTE # _____
QUANTITY _____

CATALOG NUMBER	QUAN-TITY	PART NAME	STANDARD MATERIAL (A.S.T.M. DESIGNATION)	SPECIFICATION REQUIREMENT
001	1	HEAD, DISCHARGE	ASTM A48 CLASS 30 CAST IRON	
002		FLANGE, DISCHARGE	ASTM A48 CLASS 30 CAST IRON	
003		SHAFT, MOTOR	ASTM A108 GRADE 1045 CARBON STEEL	
005		COUPLING, FLG'D MOTOR (NOT SHOWN)	STEEL	
007		NUT, HEAD	ASTM B584 C89833 BRONZE	
008	1	SHAFT, HEAD	ASTM A582 GR 416 HT STAINLESS STEEL	
020	1	KEY, GIB	COMMERCIAL	
102H		COUPLING, HEAD SHAFT	ASTM A108 GR 1018 CR CARBON STEEL	
011		GUARD, SAFETY	STEEL	
529	4	BOLTS, SEAL RETAINING	COMMERCIAL	
026		FLANGE, ADAPTER	STEEL	
529		BOLT, DISCHARGE FLANGE	COMMERCIAL	
061	1	HOUSING, SEAL	ASTM A48 CLASS 30 CAST IRON	
062	1	BEARING, SEAL HOUSING	ASTM B505 C89835 BRONZE	
063	1	O-RING, SEAL HOUSING	BUNA	
059	1	SEAL ASSEMBLY	VARIOUS	
529		BOLTS, FOUND. PLATE (NOT SHOWN)	COMMERCIAL	

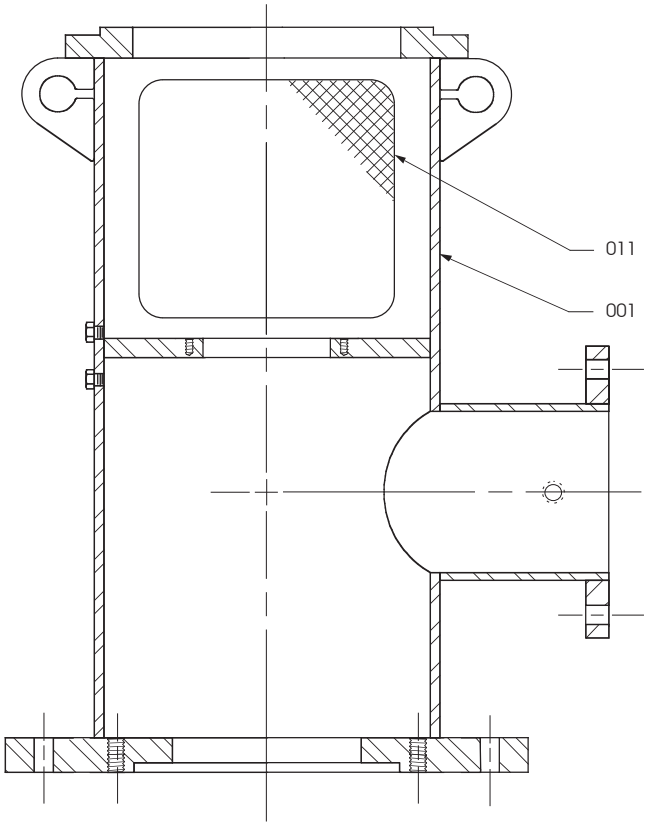
'SL' Style
Discharge Head



DATE _____
DISTRIBUTOR _____

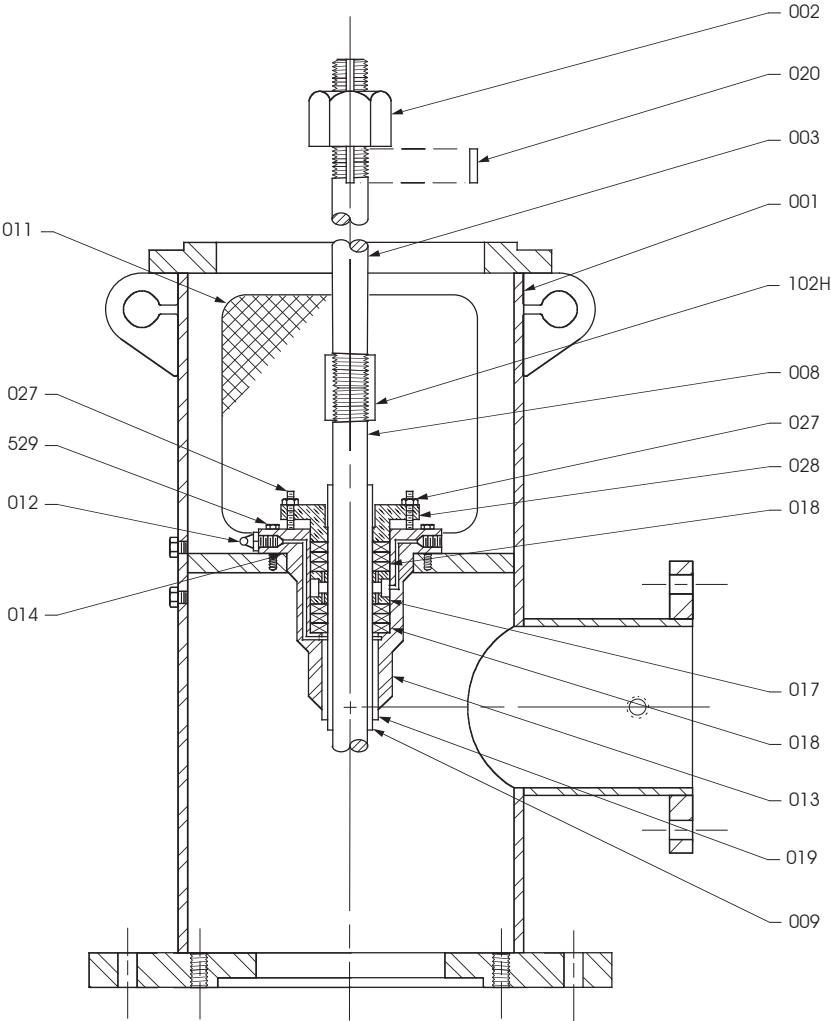
JOB _____

JOB/QUOTE # _____
QUANTITY _____



CATALOG NUMBER	QUAN-TITY	PART NAME	STANDARD MATERIAL (A.S.T.M. DESIGNATION)	SPECIFICATION REQUIREMENT
001	1	HEAD, DISCHARGE	ASTM A36 HR & A53 GR B CARBON STEEL	
010D		GASKET, DISCHARGE RING (NOT SHOWN)	RUBBER	
011		GUARD, SAFETY	STEEL	
529		BOLTS, FOUND. PLATE (NOT SHOWN)	COMMERCIAL	

'SL' Style
Discharge Head
With Product Lube
Packing Gland



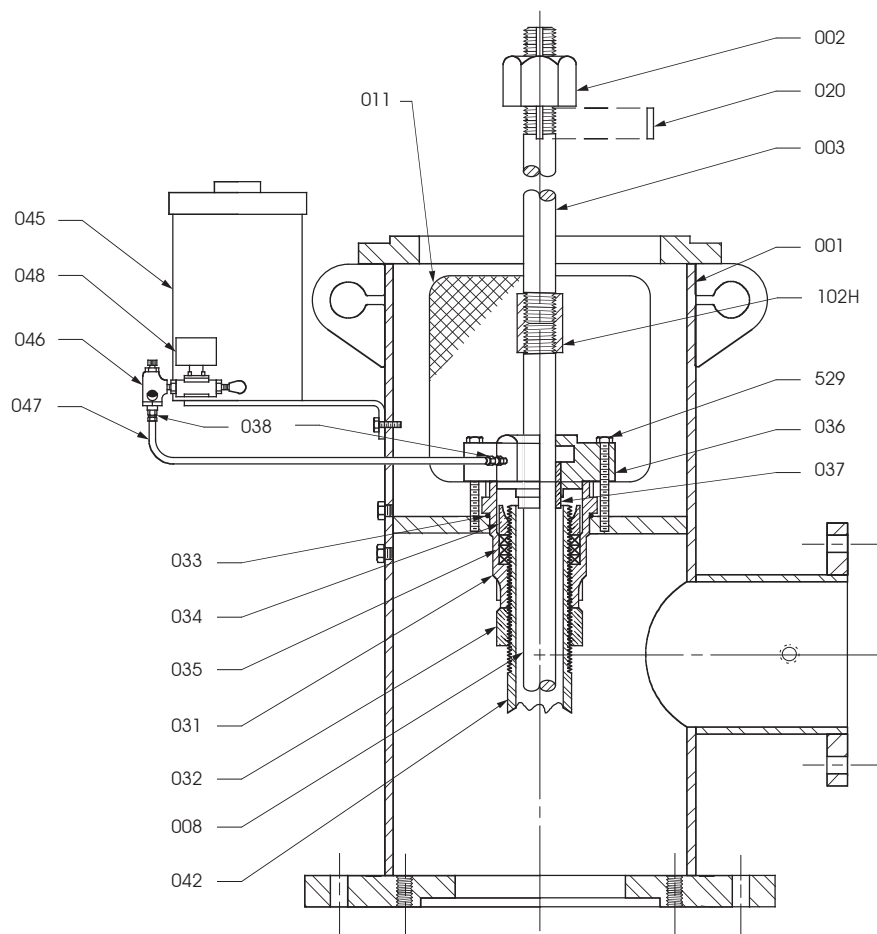
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JOB _____

JOB/QUOTE # _____
QUANTITY _____

CATALOG NUMBER	QUAN-TITY	PART NAME	STANDARD MATERIAL (A.S.T.M. DESIGNATION)	SPECIFICATION REQUIREMENT
001	1	HEAD, DISCHARGE	ASTM A36 HR & A53 GR B CARBON STEEL	
002		NUT, HEAD	ASTM B584 C89833 BRONZE	
003		SHAFT, MOTOR	ASTM A108 GR 1045 CARBON STEEL	
005		COUPLING, FLG'D MOTOR (NOT SHOWN)	STEEL	
008	1	SHAFT, HEAD	ASTM A108 GR 1045 CARBON STEEL	
009		SLEEVE, SHAFT	ASTM A511 GR 304L	
010D		GASKET, DISCHARGE RING(NOT SHOWN)	RUBBER	
011		GUARD, SAFETY	STEEL	
012	1	FITTING, GREASE	COMMERCIAL	
013	1	BOX, PACKING	ASTM A48 CLASS 30 CAST IRON	
014	1	O-RING, PACKING BOX	BUNA	
017	1	RING, LANTERN	ASTM B505 C89835 BRONZE	
018	6	RING, PACKING	GRAPHITE	
019	1	BEARING, PACKING BOX	ASTM B505 C89835 BRONZE	
020		KEY, GIB	COMMERCIAL	
529	4	BOLTS, PACKING BOX	COMMERCIAL	
027	2	STUD AND NUT	STAINLESS STEEL/BRASS	
028	1	GLAND, PACKING	ASTM B584 C89833 BRONZE	
102H		COUPLING, HEAD SHAFT	ASTM A108 GR 1018 CR CARBON STEEL	
529		BOLTS, FOUND. PLATE (NOT SHOWN)	COMMERCIAL	

'SL' Style Discharge Head With Oil Lube Packing Gland



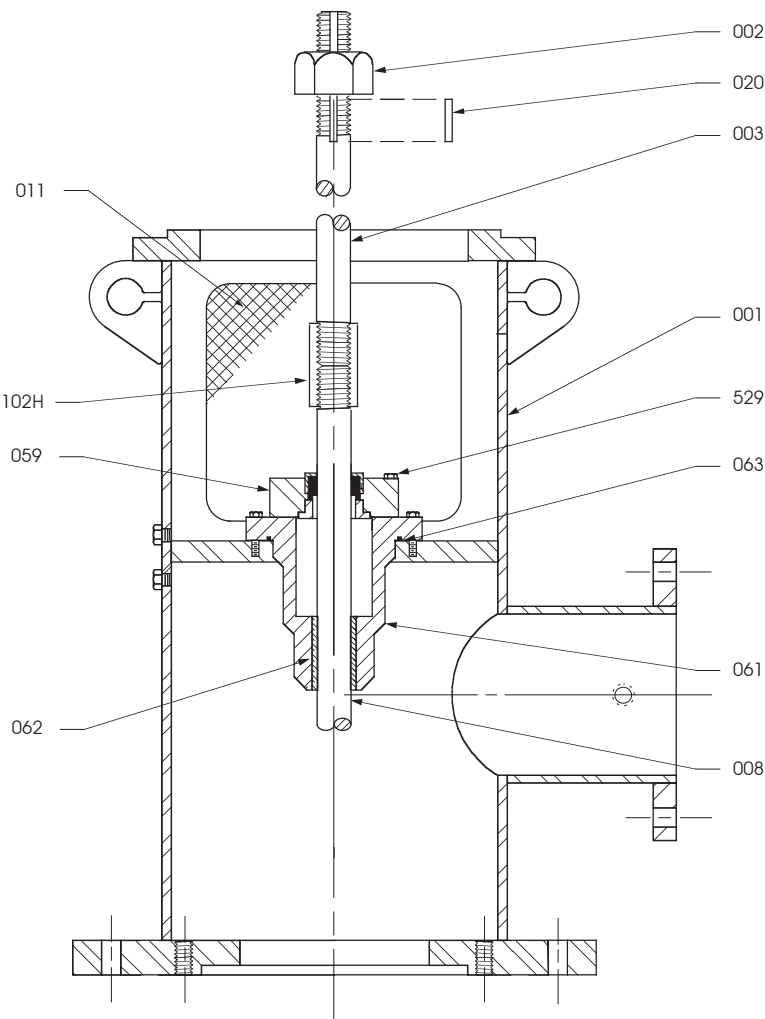
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 JOB _____

 JOB/QUOTE # _____
 QUANTITY _____

CATALOG NUMBER	QUAN-TITY	PART NAME	STANDARD MATERIAL (A.S.T.M. DESIGNATION)	SPECIFICATION REQUIREMENT
001	1	HEAD, DISCHARGE	ASTM A36 HR & A53 GR B CARBON STEEL	
002		NUT, HEAD	ASTM B584 C89833 BRONZE	
003		SHAFT, MOTOR	ASTM A108 GRADE 1045 CARBON STEEL	
005		COUPLING, FLG'D MOTOR (NOT SHOWN)	STEEL	
008	1	SHAFT, HEAD	ASTM A108 GRADE 1045 CARBON STEEL	
010D		GASKET, DISCHARGE RING(NOT SHOWN)	RUBBER	
011		GUARD, SAFETY	STEEL	
020		KEY, GIB	COMMERCIAL	
529	4	BOLTS, DUST COVER	COMMERCIAL	
031	1	BOX, PACKING	ASTM A48 CLASS 30 CAST IRON	
032	1	LOCKNUT, OIL TUBE	ASTM B584 C89833 BRONZE	
033	1	GASKET, PACKING BOX	COPPER	
034	1	FOLLOWER, PACKING	ASTM B584 C89833 BRONZE	
035	3	RING, PACKING	GRAPHITE	
036	1	COVER, DUST	ASTM A48 CLASS 30 CAST IRON	
037	1	BEARING, DUST COVER	ASTM B505 C89835 BRONZE	
038	2	FITTINGS, OIL LINE	BRASS	
042	1	TUBE, EXTENSION	ASTM A53 GR B CARBON STEEL SCH 80 XS	
045		POT, OIL	FAB. STEEL	
046		DRIPPER, OIL	BRASS	
047		LINE, OIL	COPPER	
048		OILER, SOLENOID	COMMERCIAL	
102H		COUPLING, HEAD SHAFT	ASTM A108 GR 1018 CR CARBON STEEL	
529		BOLTS, FOUND. PLATE (NOT SHOWN)	COMMERCIAL	

'SL' Style
Discharge Head
With Mechanical Seal



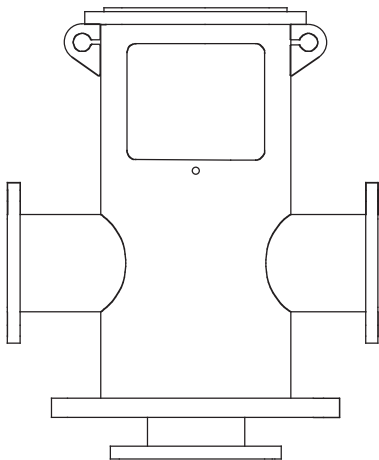
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JOB _____

JOB/QUOTE # _____
QUANTITY _____

CATALOG NUMBER	QUAN-TITY	PART NAME	STANDARD MATERIAL (A.S.T.M. DESIGNATION)	SPECIFICATION REQUIREMENT
001	1	HEAD, DISCHARGE	ASTM A36 HR & A53 GR B CARBON STEEL	
002		NUT, HEAD	ASTM B584 C89833 BRONZE	
003		SHAFT, MOTOR	ASTM A108 GRADE 1045 CARBON STEEL	
005		COUPLING, FLG'D MOTOR (NOT SHOWN)	STEEL	
008	1	SHAFT, HEAD	ASTM A582 GR 416 HT STAINLESS STEEL	
020		KEY, GIB	COMMERCIAL	
102H		COUPLING, HEAD SHAFT	ASTM A108 GR 1018 CR CARBON STEEL	
011		GUARD, SAFETY, SET OF	STEEL	
529	4	BOLTS, SEAL RETAINING	COMMERCIAL, 18-8 SS	
061	1	HOUSING, SEAL	ASTM A48 CLASS 30 CAST IRON	
062	1	BEARING, SEAL HOUSING	ASTM B505 C89835 BRONZE	
063	1	O-RING, SEAL HOUSING	BUNA	
059	1	SEAL ASSEMBLY	VARIOUS	
529		BOLTS, FOUND. PLATE (NOT SHOWN)	COMMERCIAL	

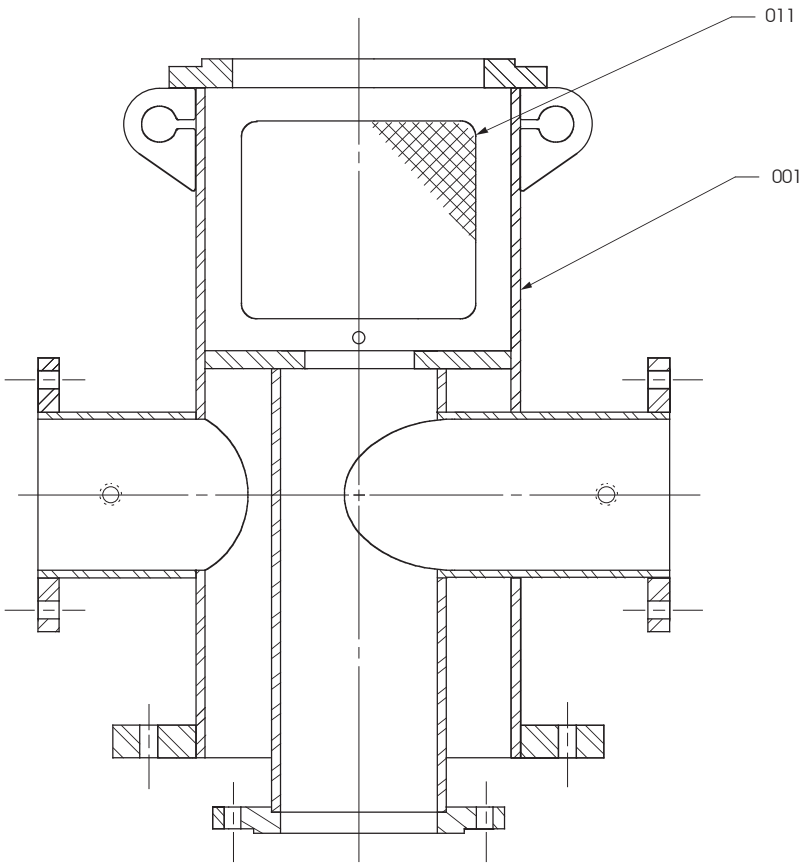
'ST' Style
Discharge Head



DATE _____
DISTRIBUTOR _____

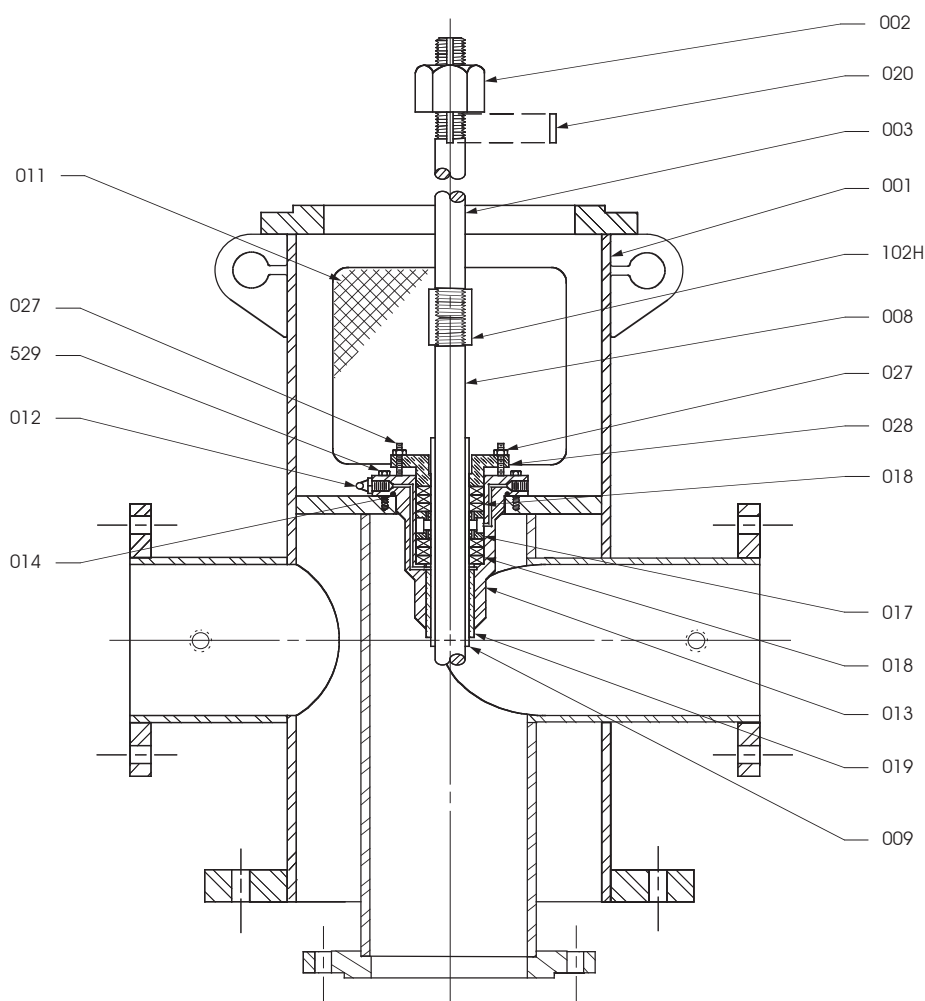
JOB _____

JOB/QUOTE # _____
QUANTITY _____



CATALOG NUMBER	QUAN-TITY	PART NAME	STANDARD MATERIAL (A.S.T.M. DESIGNATION)	SPECIFICATION REQUIREMENT
001	1	HEAD, DISCHARGE	ASTM A36 HR & A53 GR B CARBON STEEL	
010S		GASKET, SUCTION RING (NOT SHOWN)	RUBBER	
010D		GASKET, DISCHARGE RING (NOT SHOWN)	RUBBER	
011		GUARD, SAFETY	STEEL	
529		BOLTS, FOUND. PLATE (NOT SHOWN)	COMMERCIAL	

'ST' Style Discharge Head With Product Lube Packing Gland



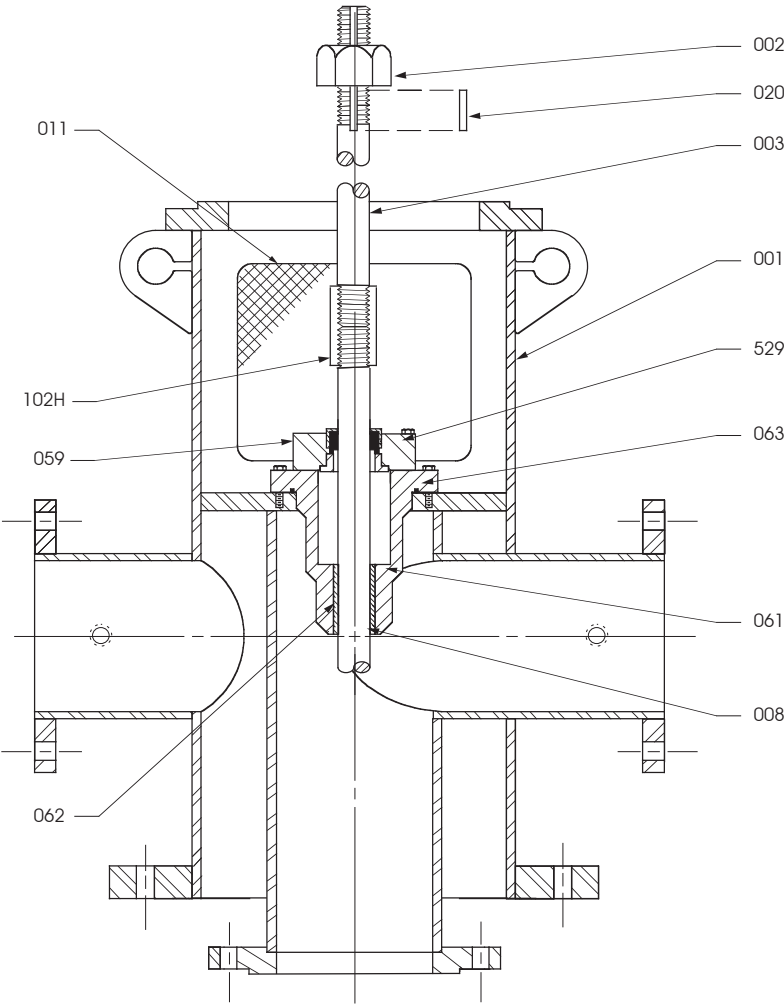
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JOB _____

JOB/QUOTE # _____
QUANTITY _____

CATALOG NUMBER	QUAN-TITY	PART NAME	STANDARD MATERIAL (A.S.T.M. DESIGNATION)	SPECIFICATION REQUIREMENT
001	1	HEAD, DISCHARGE	ASTM A36 HR & A53 GR B CARBON STEEL	
002		NUT, HEAD	ASTM B584 C89833 BRONZE	
003		SHAFT, MOTOR	ASTM A108 GR 1045 CARBON STEEL	
005		COUPLING, FLG'D MOTOR (NOT SHOWN)	STEEL	
008	1	SHAFT, HEAD	ASTM A108 GR 1045 CARBON STEEL	
009		SLEEVE, SHAFT	STAINLESS STEEL	
010S		GASKET, SUCTION RING (NOT SHOWN)	RUBBER	
010D		GASKET, DISCHARGE RING (NOT SHOWN)	RUBBER	
011		GUARD, SAFETY	STEEL	
012	1	FITTING, GREASE	COMMERCIAL	
013	1	BOX, PACKING	ASTM A48 CLASS 30 CAST IRON	
014	1	O-RING, PACKING BOX	BUNA	
017	1	RING, LANTERN	ASTM B505 C89835 BRONZE	
018	6	RING, PACKING	GRAPHITE	
019	1	BEARING, PACKING BOX	ASTM B505 C89835 BRONZE	
020		KEY, GIB	COMMERCIAL	
529	4	BOLTS, PACKING BOX	COMMERCIAL	
027	2	STUD AND NUT	STAINLESS STEEL/BRASS	
028	1	GLAND, PACKING	ASTM B584 C89833 BRONZE	
102H		COUPLING, HEAD SHAFT	ASTM A108 GR 1018 CR CARBON STEEL	
529		BOLTS, FOUND. PLATE (NOT SHOWN)	COMMERCIAL	

'ST' Style
Discharge Head
With Mechanical Seal



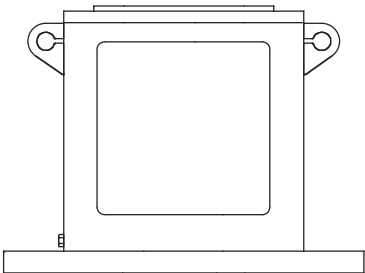
DATE _____
DISTRIBUTOR _____

JOB _____

JOB/QUOTE # _____
QUANTITY _____

CATALOG NUMBER	QUAN-TITY	PART NAME	STANDARD MATERIAL (A.S.T.M. DESIGNATION)	SPECIFICATION REQUIREMENT
001	1	HEAD, DISCHARGE	ASTM A36 HR & A53 GR B CARBON STEEL	
002		NUT, HEAD	ASTM B584 C89833 BRONZE	
003		SHAFT, MOTOR	ASTM A108 GRADE 1045 CARBON STEEL	
005	1	COUPLING, FLG'D MOTOR (NOT SHOWN)	STEEL	
008		SHAFT, HEAD	ASTM A582 GR 416 HT STAINLESS STEEL	
020		KEY, GIB	COMMERCIAL	
102H		COUPLING, HEAD SHAFT	ASTM A108 GR 1018 CR CARBON STEEL	
011		GUARD, SAFETY, SET OF	STEEL	
529	4	BOLTS, SEAL RETAINING	COMMERCIAL, 18-8 SS	
061	1	HOUSING, SEAL	ASTM A48 CLASS 30 CAST IRON	
062	1	BEARING, SEAL HOUSING	ASTM B505 C89835 BRONZE	
063	1	O-RING, SEAL HOUSING	BUNA	
059	1	SEAL ASSEMBLY	VARIOUS	
529		BOLTS, FOUND. PLATE (NOT SHOWN)	COMMERCIAL	

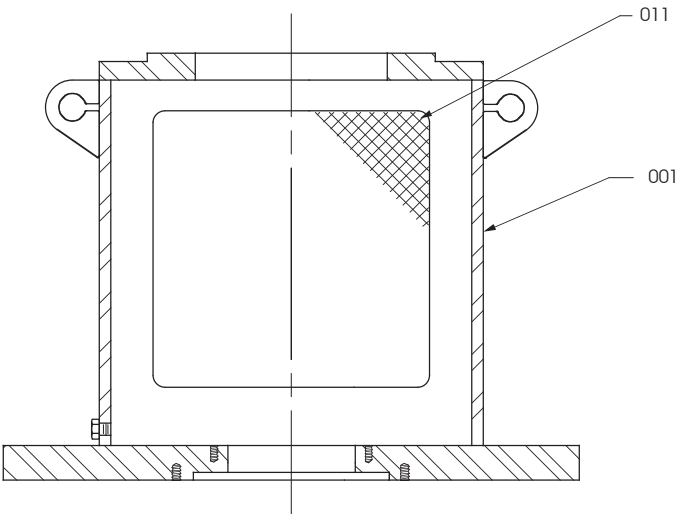
'SM' Style
Motor Stand



DATE _____
DISTRIBUTOR _____

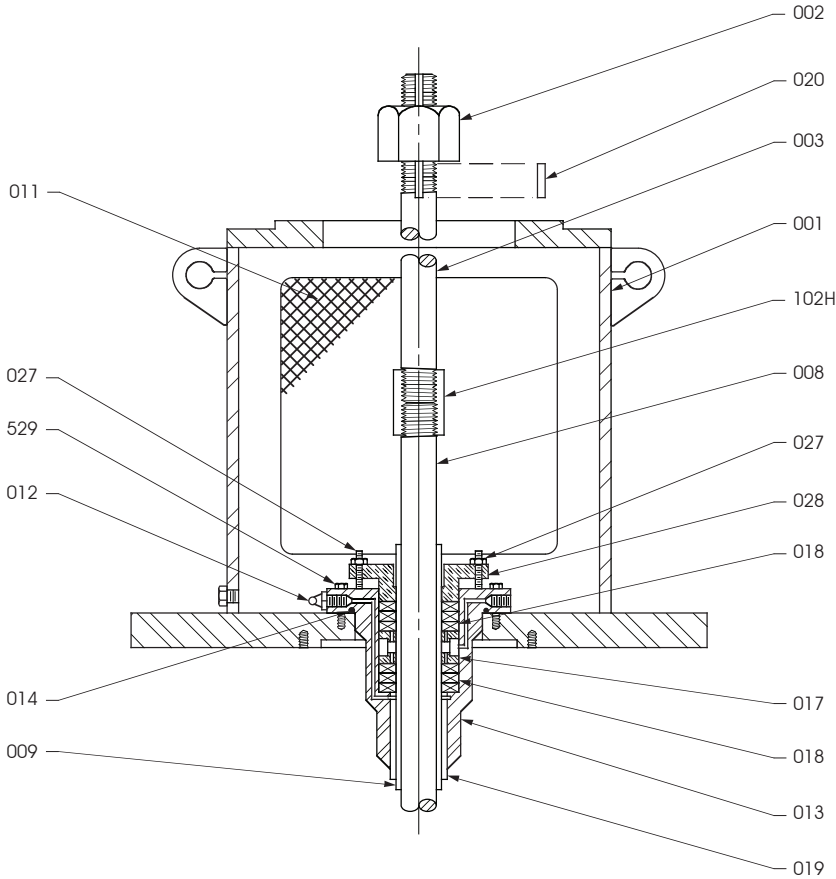
JOB _____

JOB/QUOTE # _____
QUANTITY _____



CATALOG NUMBER	QUAN-TITY	PART NAME	STANDARD MATERIAL (A.S.T.M. DESIGNATION)	SPECIFICATION REQUIREMENT
001	1	HEAD, DISCHARGE	ASTM A36 HR & A53 GR B CARBON STEEL	
011		GUARD, SAFETY	STEEL	
529		BOLTS, FOUND. PLATE (NOT SHOWN)	COMMERCIAL	

'SM' Style
Motor Stand
With Product Lube
Packing Gland



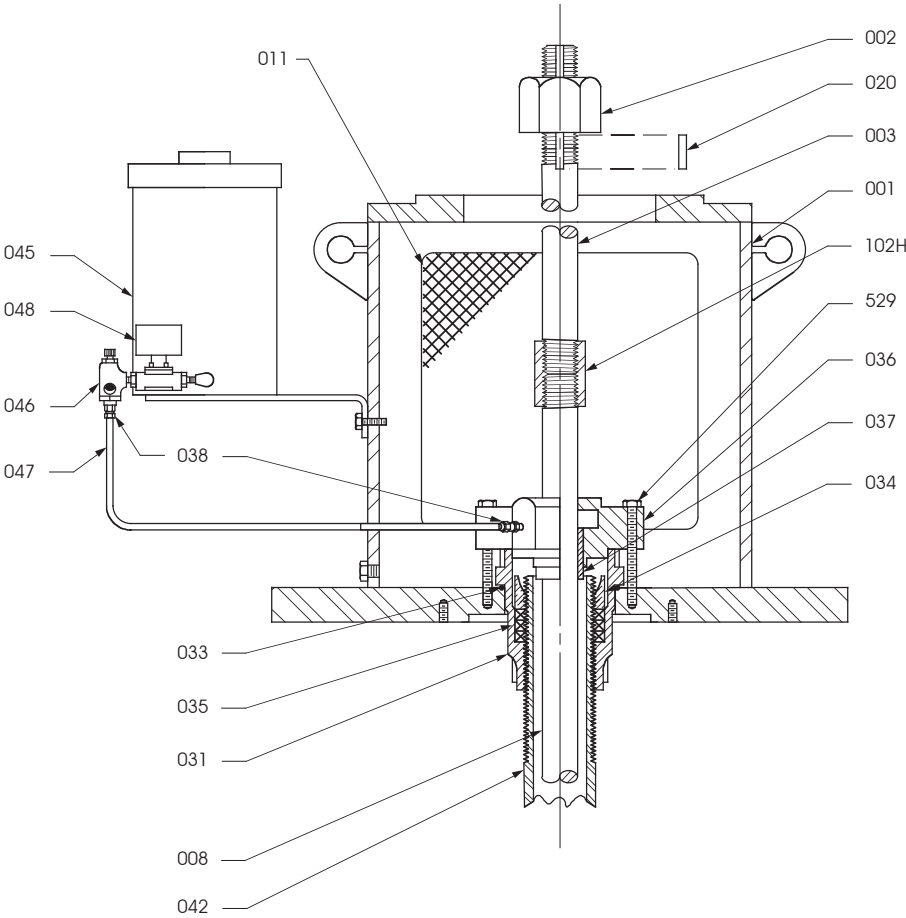
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JOB _____

JOB/QUOTE # _____
QUANTITY _____

CATALOG NUMBER	QUAN-TITY	PART NAME	STANDARD MATERIAL (A.S.T.M. DESIGNATION)	SPECIFICATION REQUIREMENT
001	1	HEAD, DISCHARGE	ASTM A36 HR & A53 GR B CARBON STEEL	
002		NUT, HEAD	ASTM B584 C89833 BRONZE	
003		SHAFT, MOTOR	ASTM A108 GR 1045 CARBON STEEL	
005		COUPLING, FLG'D MOTOR (NOT SHOWN)	STEEL	
008	1	SHAFT, HEAD	ASTM A108 GR 1045 CARBON STEEL	
009		SLEEVE, SHAFT	ASTM A511 GR 304L	
011		GUARD, SAFETY	STEEL	
012	1	FITTING, GREASE	COMMERCIAL	
013	1	BOX, PACKING	ASTM A48 CLASS 30 CAST IRON	
014	1	O-RING, PACKING BOX	BUNA	
017	1	RING, LANTERN	ASTM B505 C89835 BRONZE	
018	6	RING, PACKING	GRAPHITE	
019	1	BEARING, PACKING BOX	ASTM B505 C89835 BRONZE	
020		KEY, GIB	COMMERCIAL	
529	4	BOLTS, PACKING BOX	COMMERCIAL	
027	2	STUD AND NUT	STAINLESS STEEL/BRASS	
028	1	GLAND, PACKING	ASTM B584 C89833 BRONZE	
102H		COUPLING, HEAD SHAFT	ASTM A108 GR 1018 CR CARBON STEEL	
529		BOLTS, FOUND. PLATE (NOT SHOWN)	COMMERCIAL	

'SM' Style
Motor Stand
With Oil Lube
Packing Gland



DATE _____
DISTRIBUTOR _____
JOB _____
JOB/QUOTE # _____
QUANTITY _____

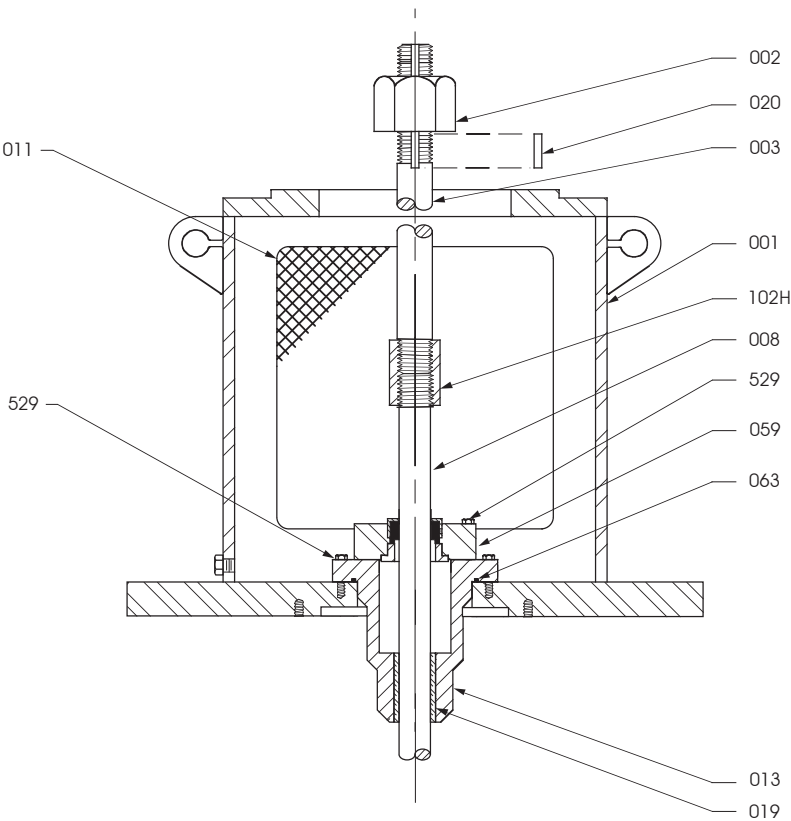
CATALOG NUMBER	QUAN-TITY	PART NAME	STANDARD MATERIAL (A.S.T.M. DESIGNATION)	SPECIFICATION REQUIREMENT
001	1	STAND, MOTOR	ASTM A36 HR & A53 GR B CARBON STEEL	
002		NUT, HEAD	ASTM B584 C89833 BRONZE	
003		SHAFT, MOTOR	ASTM A108 GRADE 1045 CARBON STEEL	
005		COUPLING, FLG'D MOTOR (NOT SHOWN)	STEEL	
008	1	SHAFT, HEAD	ASTM A108 GRADE 1045 CARBON STEEL	
011		GUARD, SAFETY	STEEL	
020		KEY, GIB	COMMERCIAL	
529	4	BOLTS, DUST COVER	COMMERCIAL	
031	1	BOX, PACKING	ASTM A48 CLASS 30 CAST IRON	
033	1	GASKET, PACKING BOX	COPPER	
034	1	FOLLOWER, PACKING	ASTM B584 C89833 BRONZE	
035	3	RING, PACKING	GRAPHITE	
036	1	COVER, DUST	ASTM A48 CLASS 30 CAST IRON	
037	1	BEARING, DUST COVER	ASTM B505 C89835 BRONZE	
038	2	FITTINGS, OIL LINE	BRASS	
042	1	TUBE, EXTENSION	ASTM A53 GR B CARBON STEEL SCH 80 XS	
045		POT, OIL	FAB. STEEL	
046		DRIPPER, OIL	BRASS	
047		LINE, OIL	COPPER	
048		OILER, SOLENOID	COMMERCIAL	
102H		COUPLING, HEAD SHAFT	ASTM A108 GR 1018 CR CARBON STEEL	
529		BOLTS, FOUND. PLATE (NOT SHOWN)	COMMERCIAL	

'SM' Style
Motor Stand
With Mechanical Seal

DATE _____
DISTRIBUTOR _____

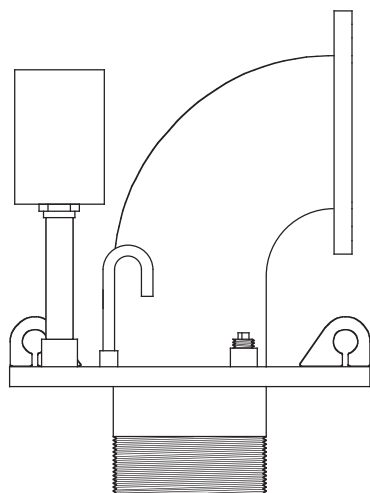
JOB _____

JOB/QUOTE # _____
QUANTITY _____



CATALOG NUMBER	QUAN-TITY	PART NAME	STANDARD MATERIAL (A.S.T.M. DESIGNATION)	SPECIFICATION REQUIREMENT
001	1	STAND, MOTOR	ASTM A36 HR & A53 GR B CARBON STEEL	
002		NUT, HEAD	ASTM B584 C89833 BRONZE	
003		SHAFT, MOTOR	ASTM A108 GRADE 1045 CARBON STEEL	
005		COUPLING, FLG'D MOTOR (NOT SHOWN)	STEEL	
008	1	SHAFT, HEAD	ASTM A582 GR 416 HT STAINLESS STEEL	
011		GUARDS, SAFETY, SET OF	STEEL	
013	1	HOUSING, SEAL	ASTM A48 CLASS 30 CAST IRON	
019	1	BEARING, SEAL HOUSING	ASTM B505 C89835 BRONZE	
020		KEY, GIB	COMMERCIAL	
059	1	SEAL, MECHANICAL	VARIOUS	
063	1	O-RING, SEAL HOUSING	BUNA	
529	4	BOLTS, SEAL RETAINING	COMMERCIAL, 18-8 SS	
529	4	BOLTS, SEAL HOUSING	COMMERCIAL, 18-8 SS	
102H		COUPLING, HEAD SHAFT	ASTM A108 GR 1018 CR CARBON STEEL	
529		BOLTS, FOUND. PLATE (NOT SHOWN)	COMMERCIAL	
529	4	WASHERS, FLAT	COMMERCIAL, 18-8 SS	

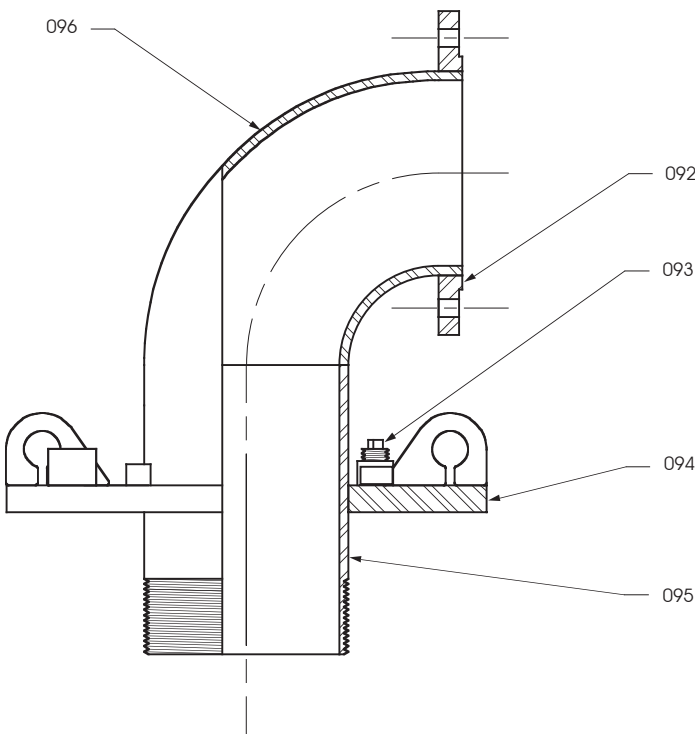
Submersible Discharge Head



DATE _____
DISTRIBUTOR _____

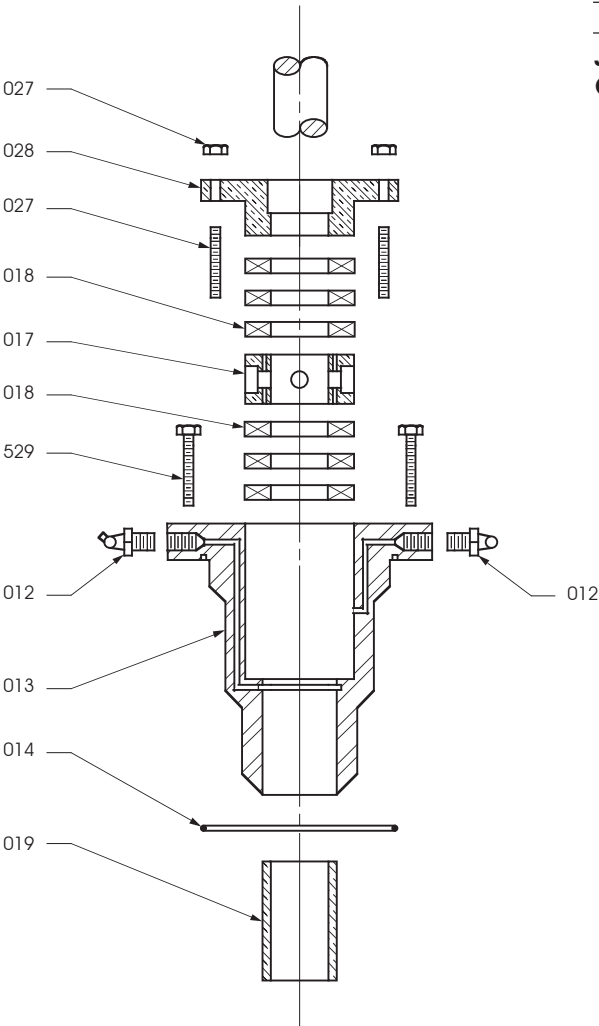
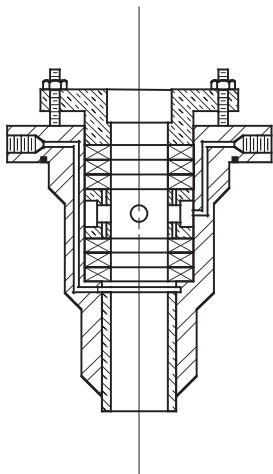
JOB _____

JOB/QUOTE # _____
QUANTITY _____



CATALOG NUMBER	QUAN-TITY	PART NAME	STANDARD MATERIAL (A.S.T.M. DESIGNATION)	SPECIFICATION REQUIREMENT
010D		GASKET, DISCHARGE RING (NOT SHOWN)	RUBBER	
092	1	FLANGE, DISCHARGE	ASTM A36 HR CARBON STEEL	
093	1	PLUG	COMMERCIAL	
094	1	PLATE, BASE	ASTM A36 HR CARBON STEEL	
095	1	PIPE, RISER	ASTM A53 GR B CARBON STEEL	
096	1	ELBOW, LONG RADIUS	ASTM A53 GR B CARBON STEEL	

Product Lube
Packing Gland



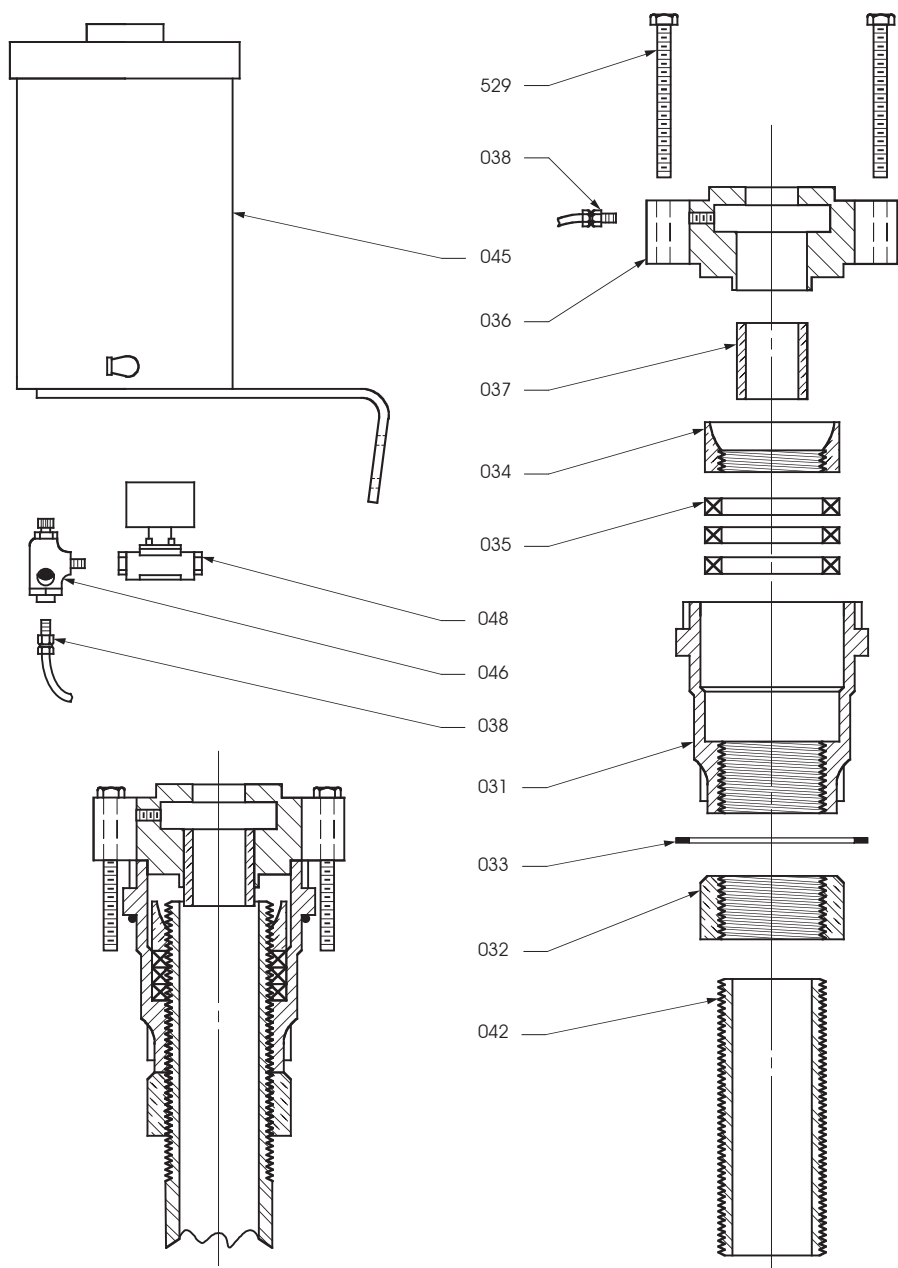
DATE _____
DISTRIBUTOR _____

JOB _____

JOB/QUOTE # _____
QUANTITY _____

CATALOG NUMBER	QUAN-TITY	PART NAME	STANDARD MATERIAL (A.S.T.M. DESIGNATION)	SPECIFICATION REQUIREMENT
012	2	FITTING, GREASE	COMMERCIAL	
013	1	BOX, PACKING	ASTM A48 CLASS 30 CAST IRON	
014	1	O-RING	BUNA	
017	1	RING, LANTERN	ASTM B505 C89835 BRONZE	
018	6	RING, PACKING	GRAPHITE	
019	1	BEARING, PACKING BOX	ASTM B505 C89835 BRONZE	
529	4	SCREW, CAP	COMMERCIAL	
027	2	STUD AND NUT	STAINLESS STEEL/BRASS	
028	1	GLAND, PACKING	ASTM B584 C89833 BRONZE	

Oil Lube
Packing Gland



DATE _____
DISTRIBUTOR _____

JOB _____

JOB/QUOTE # _____
QUANTITY _____

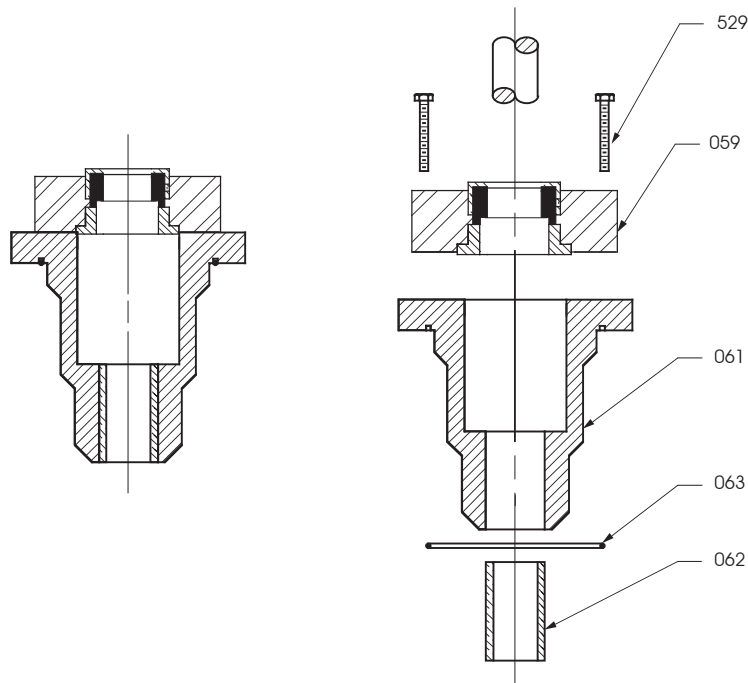
CATALOG NUMBER	QUAN- TITY	PART NAME	STANDARD MATERIAL (A.S.T.M. DESIGNATION)	SPECIFICATION REQUIREMENT
529	4	SCREWS, CAP	COMMERCIAL	
031	1	BOX, PACKING	ASTM A48 CLASS 30 CAST IRON	
032	1	LOCK NUT, OIL TUBE	ASTM B584 C89833 BRONZE	
033	1	GASKET, PACKING BOX	COPPER	
034	1	FOLLOWER, PACKING	ASTM B584 C89833 BRONZE	
035	3	RING, PACKING	GRAPHITE	
036	1	COVER, DUST	ASTM A48 CLASS 30 CAST IRON	
037	1	BEARING, DUST COVER	ASTM B505 C89835 BRONZE	
038	2	ADAPTER, OIL LINE	BRASS	
042	1	TUBE, EXTENSION	ASTM A53 GR B CARBON STEEL SCH 80 XS	
045		POT, OIL	FAB. STEEL	
046	1	DRIPPER, OIL	BRASS	
048		OILER, SOLENOID	COMMERCIAL	

Cartridge Mechanical Seal

DATE _____
DISTRIBUTOR _____

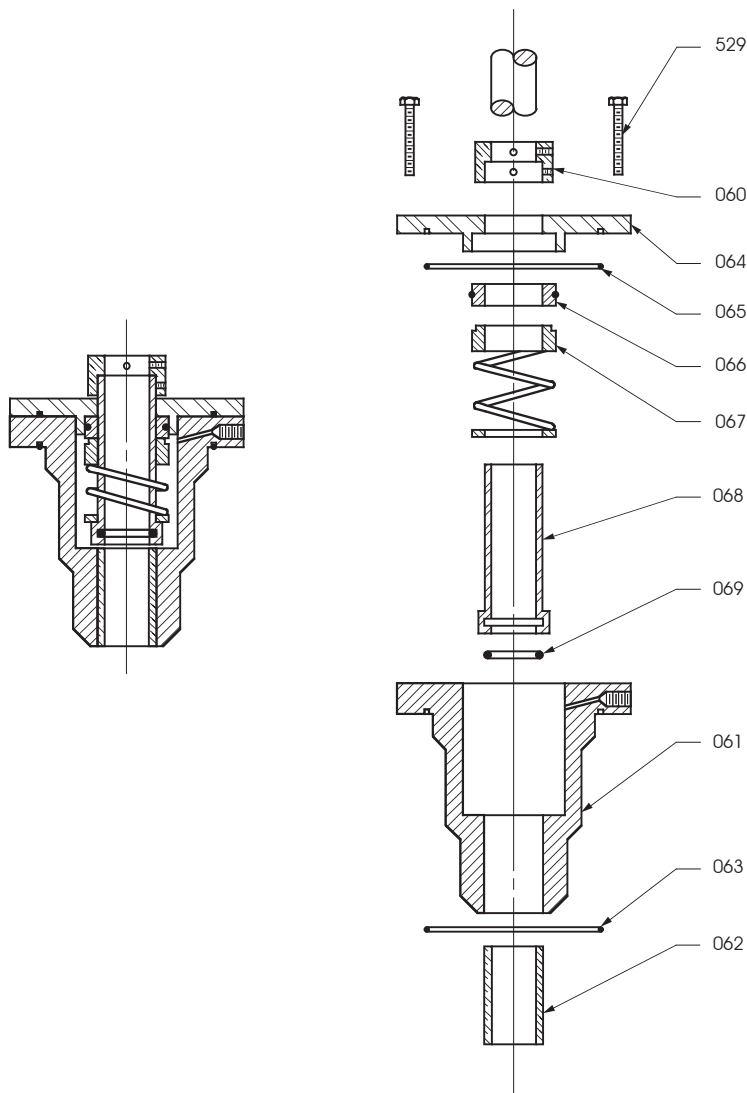
JOB _____

JOB/QUOTE # _____
QUANTITY _____



CATALOG NUMBER	QUAN-TITY	PART NAME	STANDARD MATERIAL (A.S.T.M. DESIGNATION)	SPECIFICATION REQUIREMENT
529	4	SCREWS, CAP	COMMERCIAL, 18-8 SS	
059	1	SEAL, MECHANICAL, CARTRIDGE	VARIOUS	
060	1	HOUSING, SEAL	ASTM A48 CLASS 30 CAST IRON	
061	1	BEARING, SEAL HOUSING	ASTM B505 C89835 BRONZE	
062	1	O-RING, SEAL HOUSING	BUNA	

Mechanical Seal



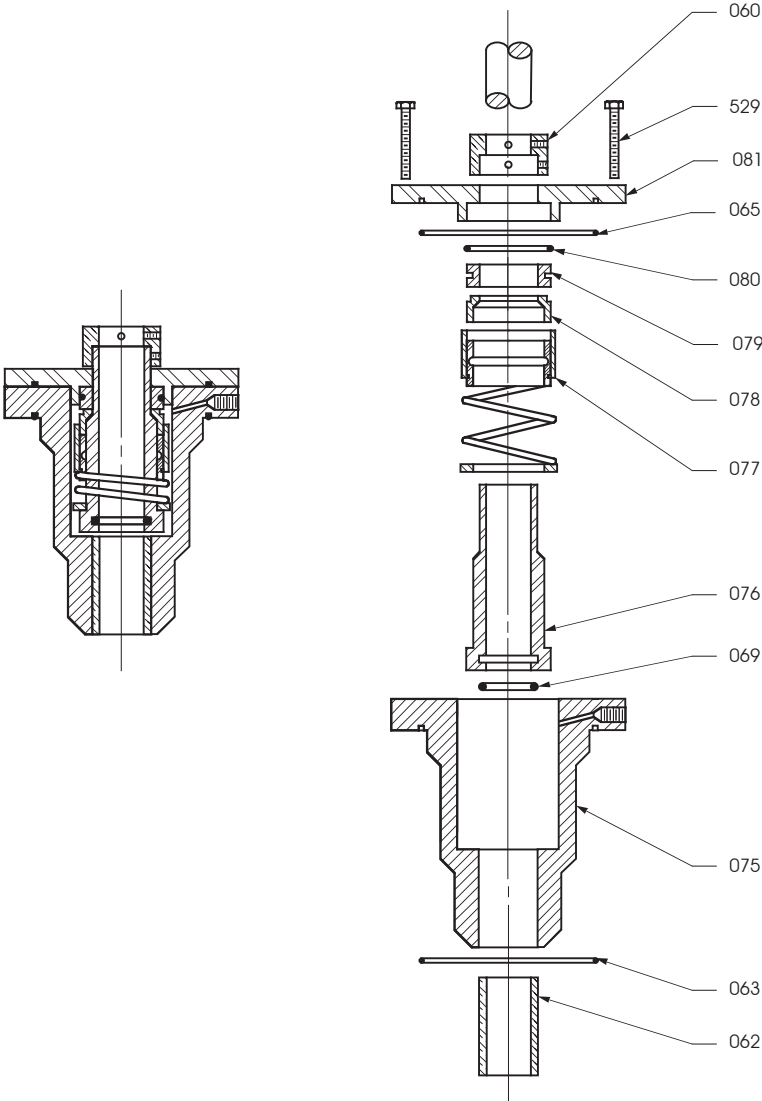
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DISTRIBUTOR _____

JOB _____

JOB/QUOTE # _____
QUANTITY _____

CATALOG NUMBER	QUAN-TITY	PART NAME	STANDARD MATERIAL (A.S.T.M. DESIGNATION)	SPECIFICATION REQUIREMENT
529	4	SCREWS, CAP	COMMERCIAL, 18-8 SS	
060	1	RING, LOCK	ASTM A582 GR 416 STAINLESS STEEL	
061	1	HOUSING, SEAL	ASTM A48 CLASS 30 CAST IRON	
062	1	BEARING, SEAL HOUSING	ASTM B505 C89835 BRONZE	
063	1	O-RING, SEAL HOUSING	BUNA	
064	1	COVER, SEAL HOUSING	ASTM A36 HR CARBON STEEL	
065	1	O-RING, HOUSING COVER	BUNA	
066	1	RING, MATING	CERAMIC	
067	1	RING, SEAL	CARBON GRAPHITE	
068	1	SLEEVE, SHAFT	ASTM A582 GR 416 STAINLESS STEEL	
069	1	O-RING, SHAFT SLEEVE	BUNA	

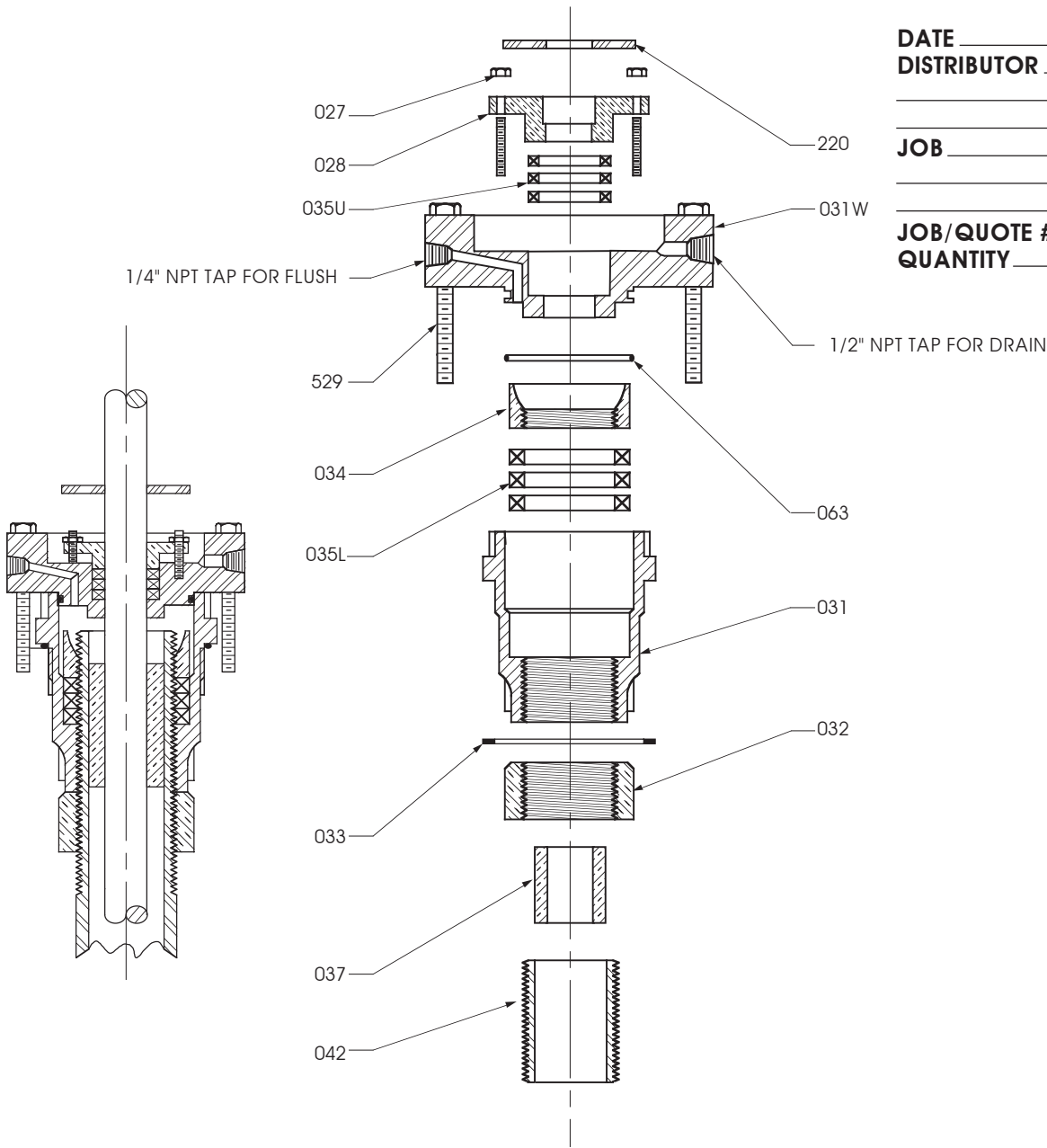
Balanced Mechanical Seal



DATE _____
DISTRIBUTOR _____
JOB _____
JOB/QUOTE # _____
QUANTITY _____

CATALOG NUMBER	QUAN- TITY	PART NAME	STANDARD MATERIAL (A.S.T.M. DESIGNATION)	SPECIFICATION REQUIREMENT
529	4	SCREWS, CAP	COMMERCIAL, 18-8 SS	
060	1	RING, LOCK	ASTM A582 GR 416 STAINLESS STEEL	
062	1	BEARING, SEAL HOUSING	ASTM B505 C89835 BRONZE	
063	1	O-RING, SEAL HOUSING	BUNA	
065	1	O-RING, HOUSING COVER	BUNA	
069	1	O-RING, SHAFT SLEEVE	BUNA	
075	1	HOUSING, SEAL	ASTM A48 CLASS 30 CAST IRON	
076	1	SLEEVE, SHAFT	ASTM A582 GR 416 STAINLESS STEEL	
077	1	RETAINER, SEAL	ASTM A582 GR 416 STAINLESS STEEL	
078	1	RING, SEAL	CARBON GRAPHITE	
079	1	RING, MATING	CERAMIC	
080	1	O-RING, MATING RING	BUNA	
081	1	COVER, SEAL HOUSING	ASTM A36 HR CARBON STEEL	

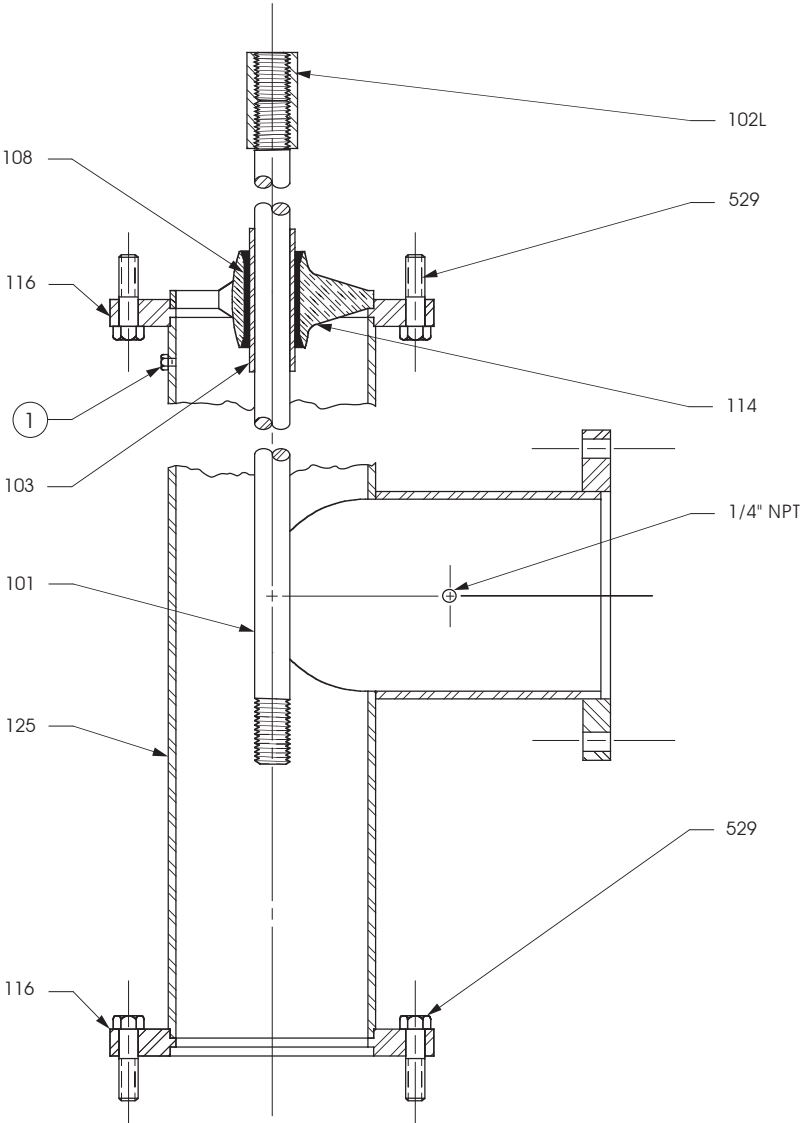
Water Flush
Packing Gland



DATE _____
DISTRIBUTOR _____
JOB _____
JOB/QUOTE # _____
QUANTITY _____

CATALOG NUMBER	QUAN-TITY	PART NAME	STANDARD MATERIAL (A.S.T.M. DESIGNATION)	SPECIFICATION REQUIREMENT
529	4	BOLTS, WATER FLUSH PACKING BOX	COMMERCIAL	
027	2	STUD & NUT	STAINLESS STEEL/BRASS	
028	1	GLAND, PACKING	ASTM B584 C89833 BRONZE	
031	1	NUT, STRETCH	ASTM A48 CLASS 30 CAST IRON	
031W	1	BOX, WATER FLUSH PACKING	ASTM A48 CLASS 30 CAST IRON	
032	1	LOCKNUT, ENCLOSING TUBE	ASTM B584 C89833 BRONZE	
033	1	GASKET, PACKING BOX	COPPER	
034	1	FOLLOWER, PACKING	ASTM B584 C89833 BRONZE	
035U	3	RING, PACKING	GRAPHITE	
035L	3	RING, PACKING	GRAPHITE	
037	1	BEARING, EXTENSION TUBE	ASTM B505 C89835 BRONZE	
042	1	TUBE, EXTENSION	ASTM A53 GR B CARBON STEEL SCH 80 XS	
063	1	O-RING, PACKING BOX	BUNA	
220	1	SLINGER, RUBBER	NEOPRENE	

Flanged Product
Lube Column
Underground Discharge



DATE _____
DISTRIBUTOR _____

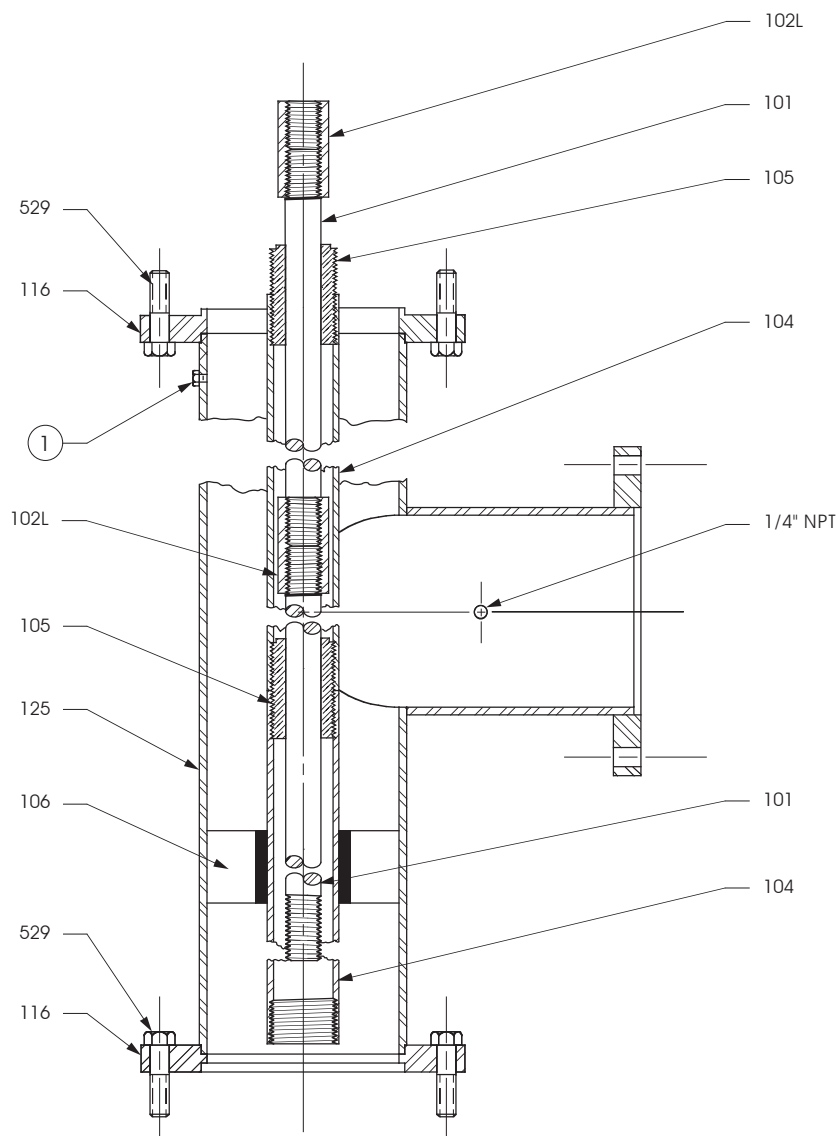
JOB _____

JOB/QUOTE # _____
QUANTITY _____

1 1/2", 3/4" OR 1" NPT COLUMN AIR-VAC VENT (IF NOT PERMISSIBLE IN MOTOR STAND)

CATALOG NUMBER	QUAN-TITY	PART NAME	STANDARD MATERIAL (A.S.T.M. DESIGNATION)	SPECIFICATION REQUIREMENT
101		SHAFT,LINE	ASTM A108 GRADE 1045 CARBON STEEL	
102L		COUPLING, LINE SHAFT	ASTM A108 GR 1018 CR CARBON STEEL	
103		SLEEVE, SHAFT	ASTM A511 GR 304L STAINLESS STEEL	
108		BEARING, LINE SHAFT	NEOPRENE	
529		FASTENING ASSEMBLY	COMMERCIAL	
114		RETAINER, BEARING(FLANGED)	STM A743 CF8 STAINLESS STEEL	
116	3	FLANGE, COLUMN	ASTM A36 HR CARBON STEEL	
125	1	DISCHARGE, UNDERGROUND	ASTM A53 GRADE B CARBON STEEL	

Flanged Oil Lube Column
Underground Discharge

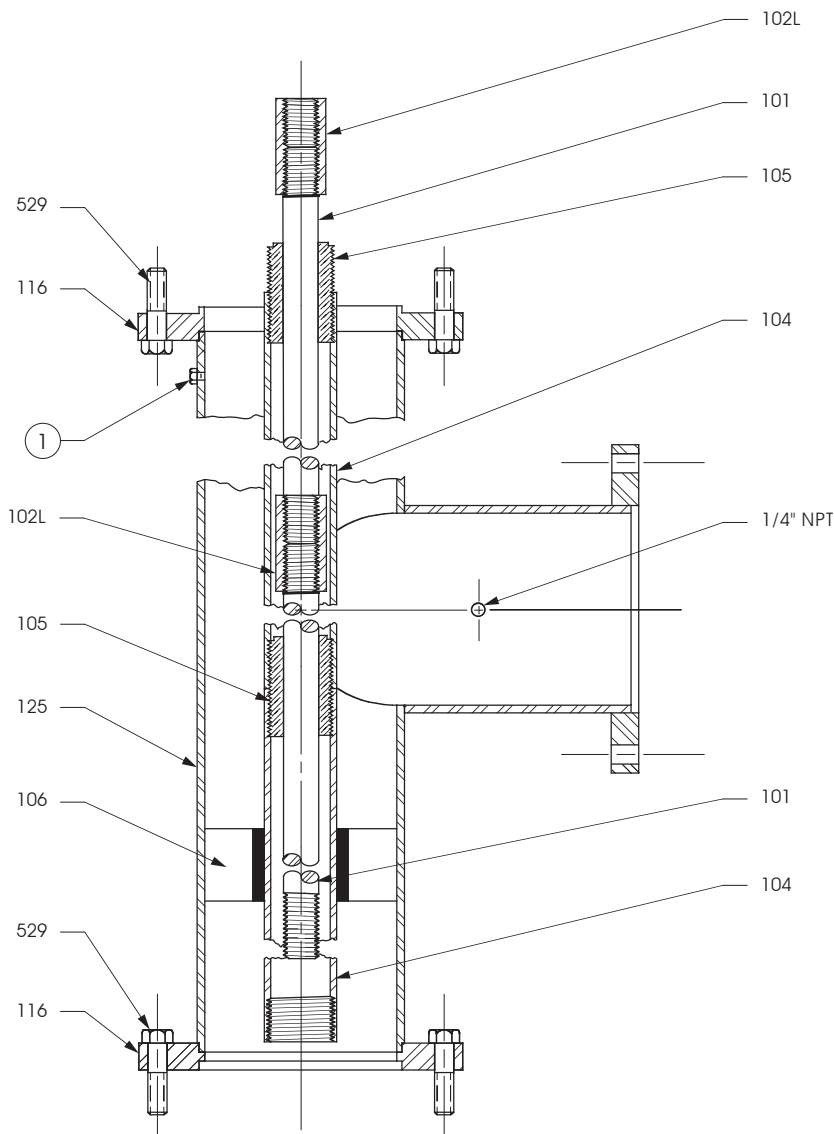


1 1/2", 3/4" OR 1" NPT COLUMN AIR-VAC VENT (IF NOT PERMISSIBLE IN MOTOR STAND)

DATE _____
DISTRIBUTOR _____
JOB _____
JOB/QUOTE # _____
QUANTITY _____

CATALOG NUMBER	QUAN-TITY	PART NAME	STANDARD MATERIAL (A.S.T.M. DESIGNATION)	SPECIFICATION REQUIREMENT
101		SHAFT, LINE	ASTM A108 GRADE 1045 CARBON STEEL	
102L		COUPLING, LINE SHAFT	ASTM A108 GR 1018 CR CARBON STEEL	
104		TUBE, OIL	ASTM A53 GR B CARBON STEEL SCH 80 XS	
105		BEARING, LINE SHAFT (COUPLING)	ASTM B505 C93200 BRONZE	
106		SPIDER, CENTERING	NEOPRENE	
529		FASTENING ASSEMBLY	COMMERCIAL	
116	3	FLANGE, COLUMN	ASTM A36 HR CARBON STEEL	
125	1	DISCHARGE, UNDERGROUND	ASTM A53 GRADE B CARBON STEEL	

Flanged Water Flush Column
Underground Discharge

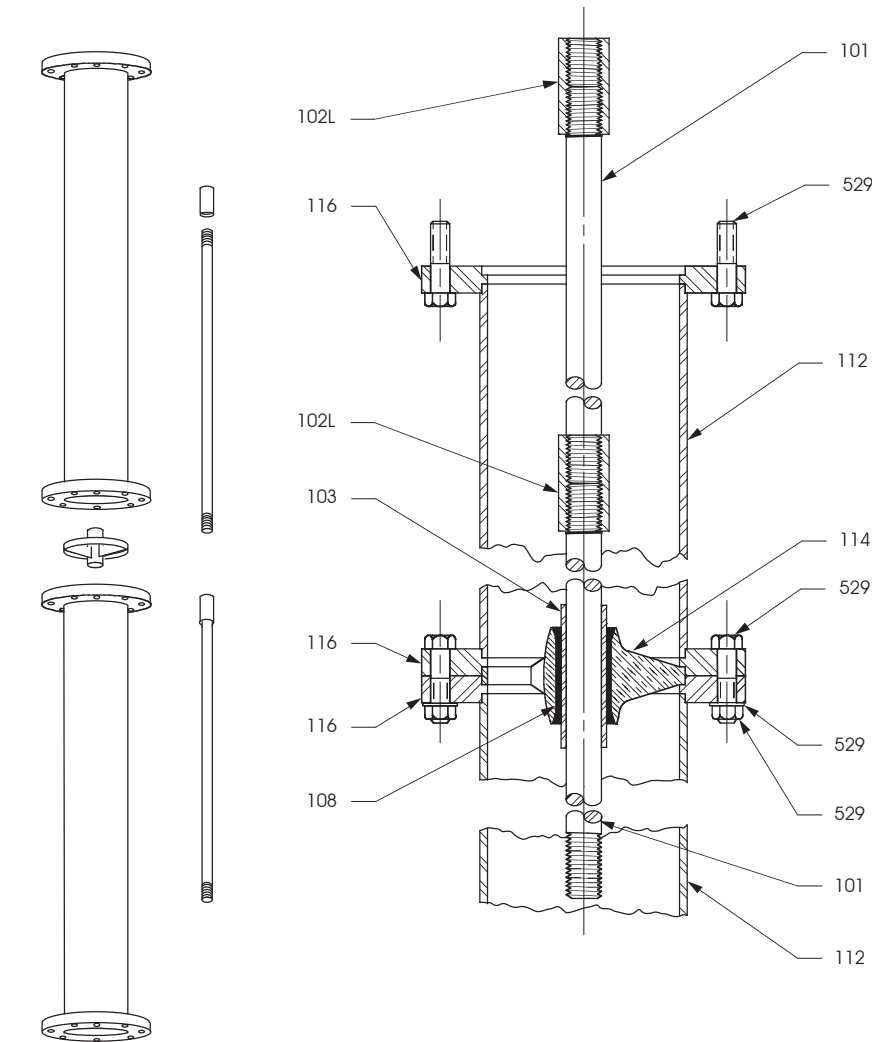


DATE _____
DISTRIBUTOR _____
JOB _____
JOB/QUOTE # _____
QUANTITY _____

1 1/2", 3/4" OR 1" NPT COLUMN AIR-VAC VENT (IF NOT PERMISSIBLE IN MOTOR STAND)

CATALOG NUMBER	QUAN-TITY	PART NAME	STANDARD MATERIAL (A.S.T.M. DESIGNATION)	SPECIFICATION REQUIREMENT
101		SHAFT,LINE	ASTM A582 GR 416 HT STAINLESS STEEL	
102L		COUPLING, LINE SHAFT	ASTM A276 GR 304 STAINELSS STEEL	
104		TUBE, WATER FLUSH	ASTM A53 GR B CARBON STEEL SCH 80 XS	
105		BEARING, LINE SHAFT (COUPLING)	ASTM B505 C93200 BRONZE	
106		SPIDER, CENTERING	NEOPRENE	
529		FASTENING ASSEMBLY	COMMERCIAL	
116	3	FLANGE, COLUMN	ASTM A36 HR CARBON STEEL	
125	1	DISCHARGE, UNDERGROUND	ASTM A53 GRADE B CARBON STEEL	

Flanged Product
Lube Column



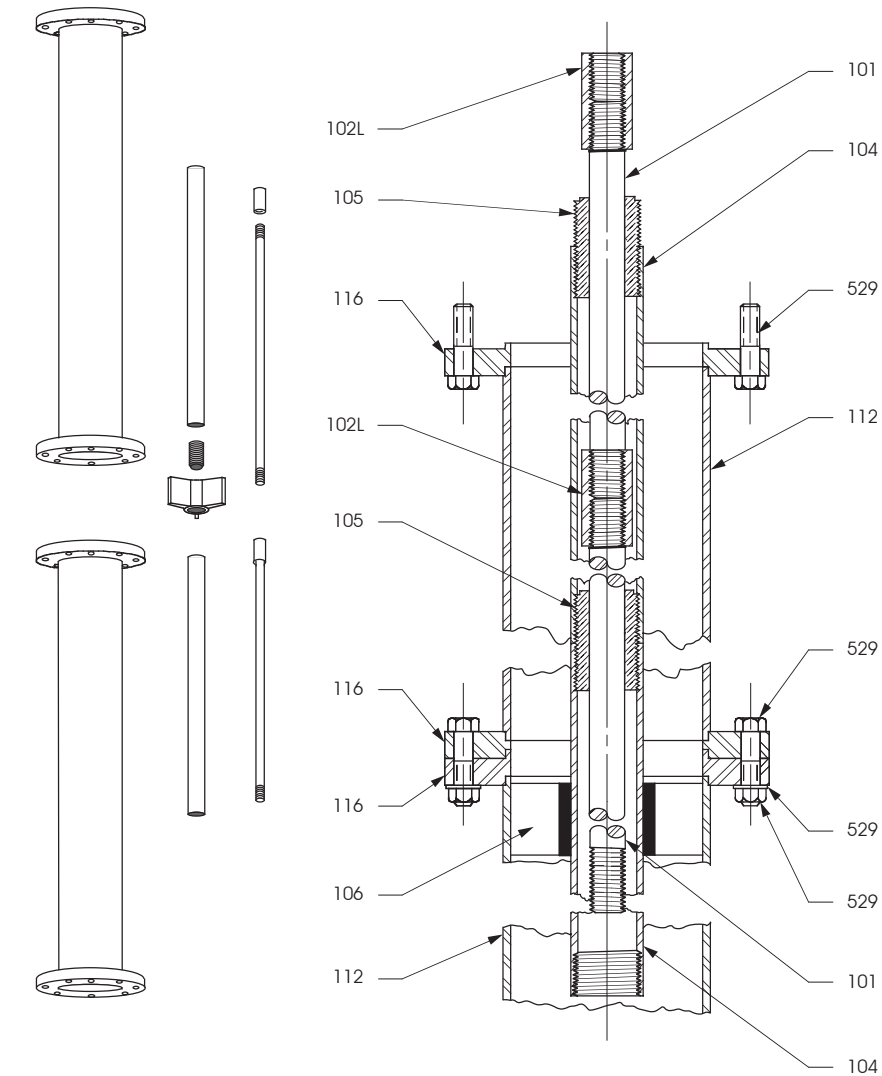
DATE _____
DISTRIBUTOR _____

JOB _____

JOB/QUOTE # _____
QUANTITY _____

CATALOG NUMBER	QUAN-TITY	PART NAME	STANDARD MATERIAL (A.S.T.M. DESIGNATION)	SPECIFICATION REQUIREMENT
101		SHAFT,LINE	ASTM A108 GRADE 1045 CARBON STEEL	
102L		COUPLING, LINE SHAFT	ASTM A108 GR 1018 CR CARBON STEEL	
103		SLEEVE, SHAFT	ASTM A511 GR 304L STAINLESS STEEL	
108		BEARING, LINE SHAFT	NEOPRENE	
112		PIPE, COLUMN (FLANGED)	ASTM A53 GRADE B CARBON STEEL	
529		FASTENING ASSEMBLY	COMMERCIAL	
114		RETAINER, BEARING(FLANGED)	STM A743 CF8 STAINLESS STEEL	
116		FLANGE, COLUMN	ASTM A36 HR CARBON STEEL	

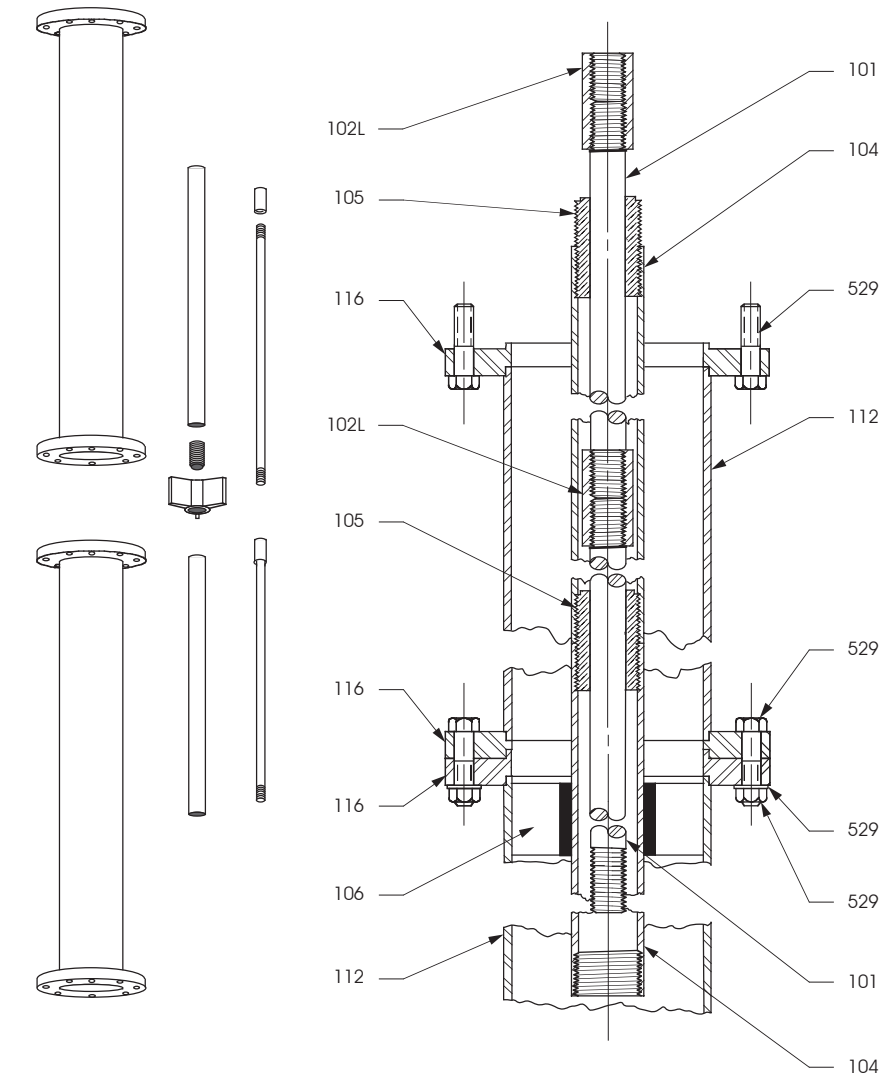
Flanged Oil
Lube Column



DATE _____
DISTRIBUTOR _____
JOB _____
JOB/QUOTE # _____
QUANTITY _____

CATALOG NUMBER	QUAN-TITY	PART NAME	STANDARD MATERIAL (A.S.T.M. DESIGNATION)	SPECIFICATION REQUIREMENT
101		SHAFT,LINE	ASTM A108 GRADE 1045 CARBON STEEL	
102L		COUPLING, LINE SHAFT	ASTM A108 GR 1018 CR CARBON STEEL	
104		TUBE, OIL	ASTM A53 GR B CARBON STEEL SCH 80 XS	
105		BEARING, LINE SHAFT(COUPLING)	ASTM B505 C93200 BRONZE	
106		SPIDER, CENTERING	NEOPRENE	
112		PIPE, COLUMN (FLANGED)	ASTM A53 GRADE B CARBON STEEL	
529		FASTENING ASSEMBLY	COMMERCIAL	
116		FLANGE, COLUMN	ASTM A36 HR CARBON STEEL	

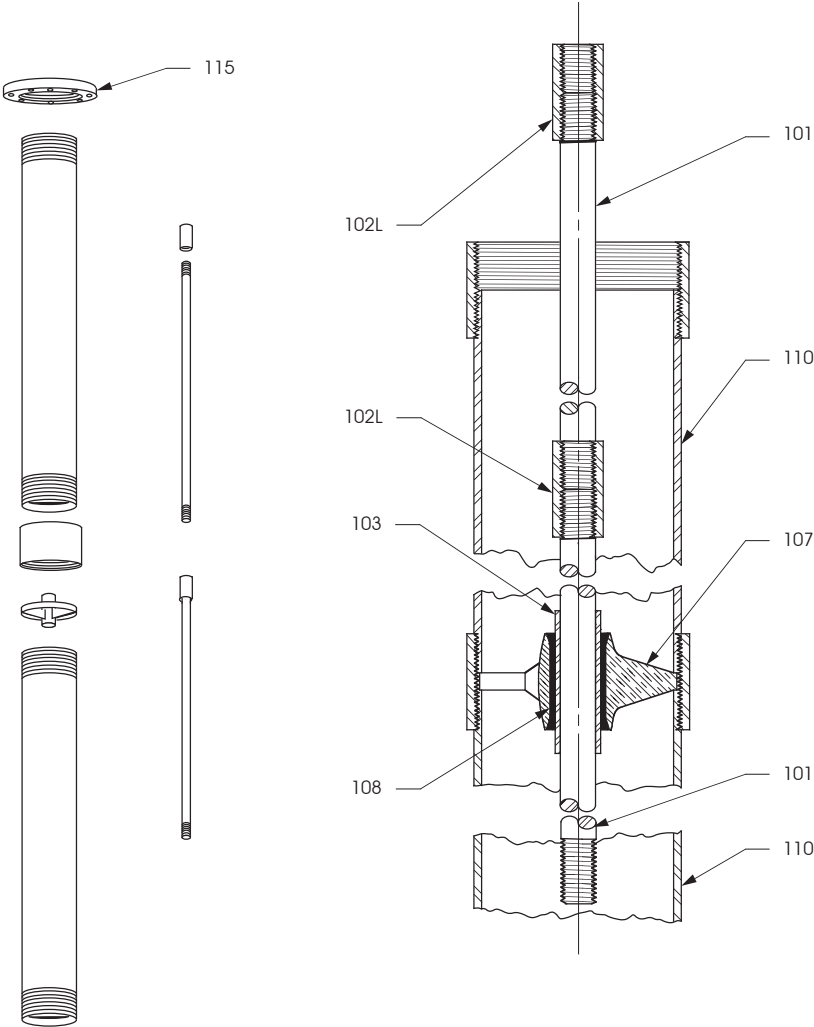
Flanged Water
Flush Column



DATE _____
DISTRIBUTOR _____
JOB _____
JOB/QUOTE # _____
QUANTITY _____

CATALOG NUMBER	QUAN- TITY	PART NAME	STANDARD MATERIAL (A.S.T.M. DESIGNATION)	SPECIFICATION REQUIREMENT
101		SHAFT,LINE	ASTM A582 GR 416 HT STAINLESS STEEL	
102L		COUPLING, LINE SHAFT	ASTM A276 GR 304 STAINELSS STEEL	
104		TUBE, WATER FLUSH	ASTM A53 GR B CARBON STEEL SCH 80 XS	
105		BEARING, LINE SHAFT(COUPLING)	ASTM B505 C93200 BRONZE	
106		SPIDER, CENTERING	NEOPRENE	
112		PIPE, COLUMN (FLANGED)	ASTM A53 GRADE B CARBON STEEL	
529		FASTENING ASSEMBLY	COMMERCIAL	
116		FLANGE, COLUMN	ASTM A36 HR CARBON STEEL	

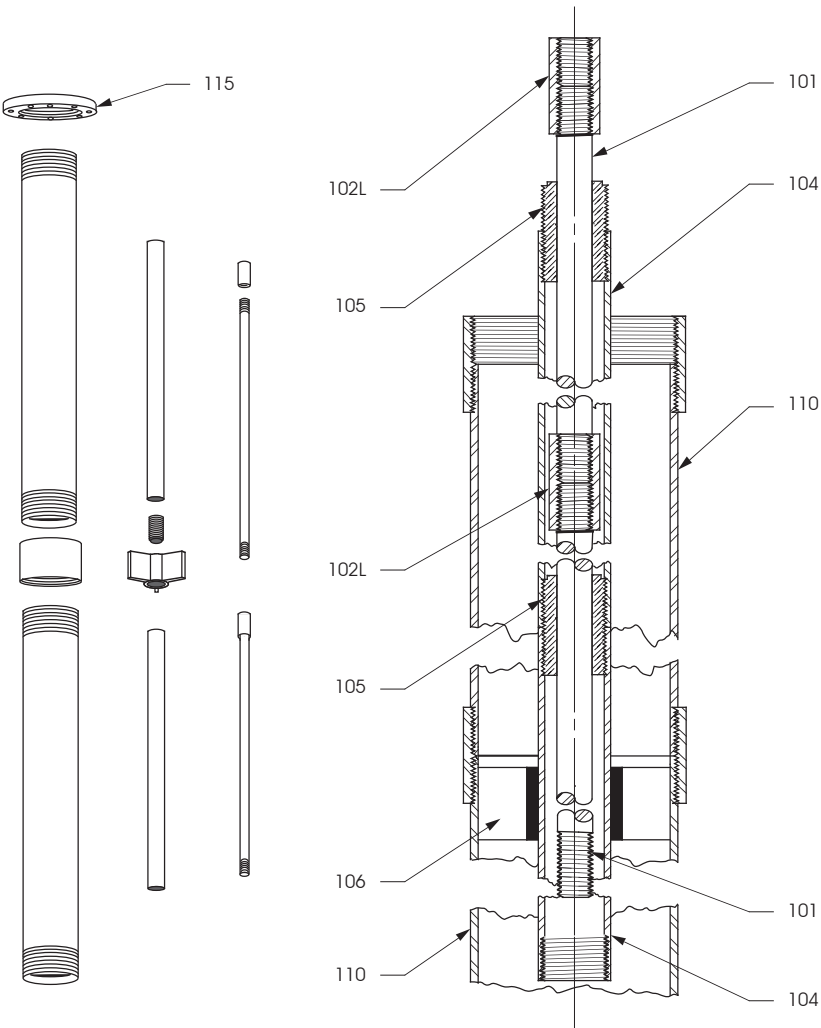
Threaded Product
Lube Column



DATE _____
DISTRIBUTOR _____
JOB _____
JOB/QUOTE # _____
QUANTITY _____

CATALOG NUMBER	QUAN-TITY	PART NAME	STANDARD MATERIAL (A.S.T.M. DESIGNATION)	SPECIFICATION REQUIREMENT
101		SHAFT,LINE	ASTM A108 GRADE 1045 CARBON STEEL	
102L		COUPLING, LINE SHAFT	ASTM A108 GR 1018 CR CARBON STEEL	
103		SLEEVE, SHAFT	ASTM A511 GR 304L STAINLESS STEEL	
107		RETAINER, BEARING (DROP IN)	STM A743 CF8 STAINLESS STEEL	
108		BEARING, LINE SHAFT	NEOPRENE	
110		PIPE, COLUMN (THREADED & COUPLED)	ASTM A53 GRADE B CARBON STEEL	
115		LOCK NUT, COLUMN (THREADED)	ASTM A48 CLASS 30 CAST IRON	

Threaded Oil
Lube Column



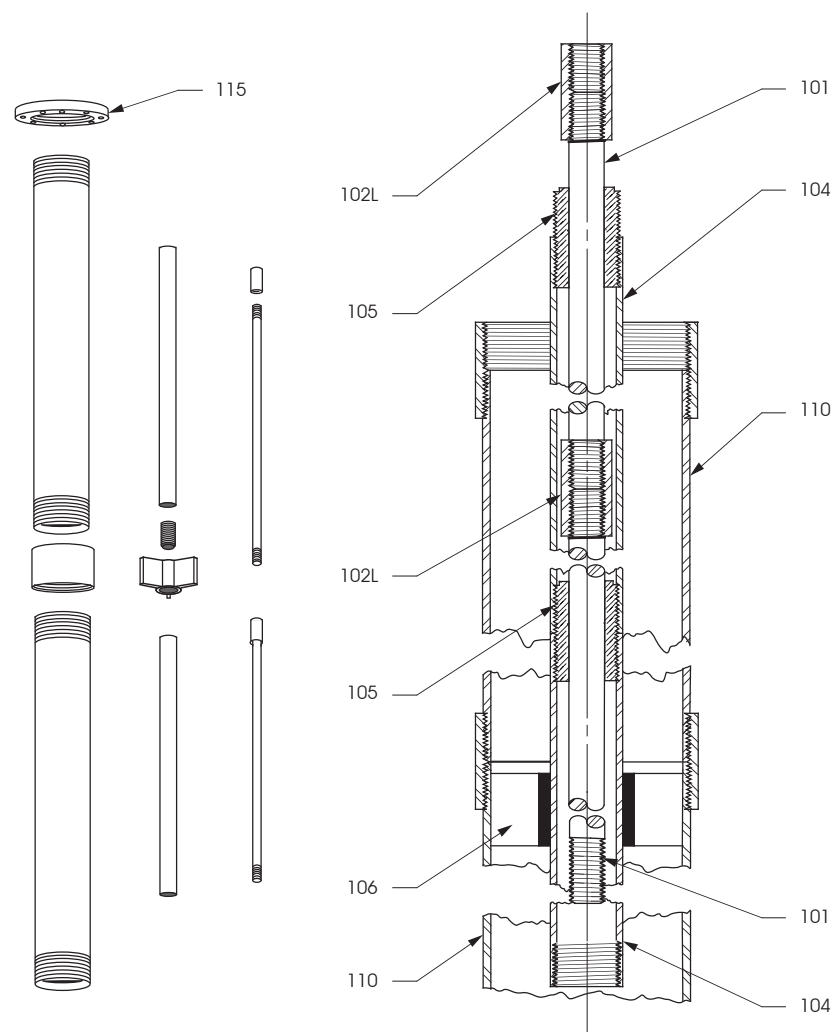
DATE _____
DISTRIBUTOR _____

JOB _____

JOB/QUOTE # _____
QUANTITY _____

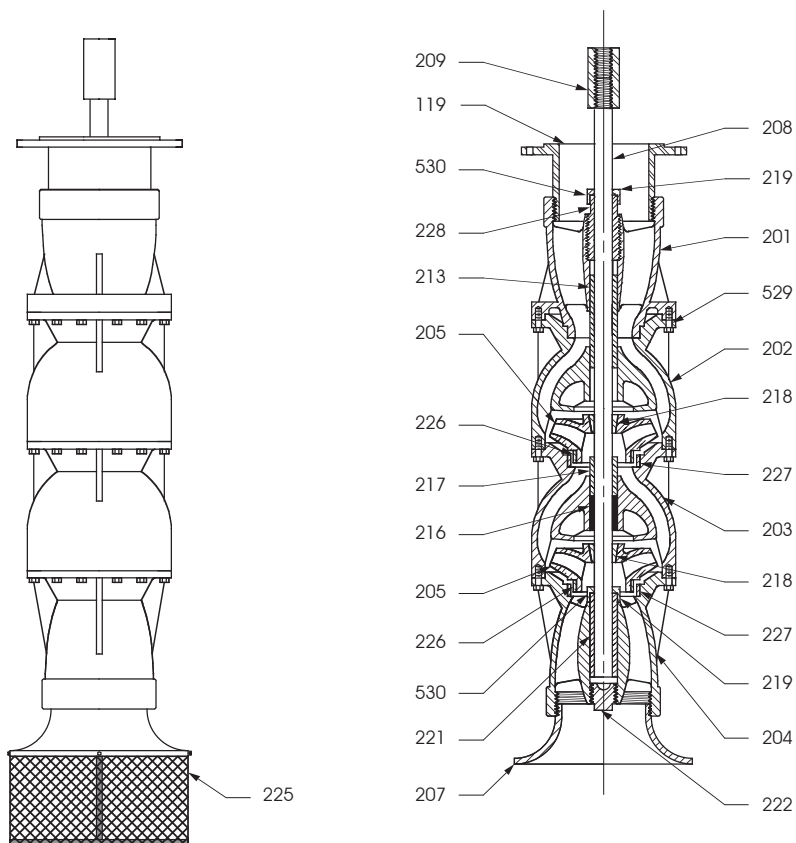
CATALOG NUMBER	QUAN- TITY	PART NAME	STANDARD MATERIAL (A.S.T.M. DESIGNATION)	SPECIFICATION REQUIREMENT
101		SHAFT,LINE	ASTM A108 GRADE 1045 CARBON STEEL	
102L		COUPLING, LINE SHAFT	ASTM A108 GR 1018 CR CARBON STEEL	
104		TUBE, OIL	ASTM A53 GR B CARBON STEEL SCH 80 XS	
105		BEARING, LINE SHAFT	ASTM B505 C93200 BRONZE	
106		SPIDER, CENTERING	NEOPRENE	
110		PIPE, COLUMN (THREADED & COUPLED)	ASTM A53 GRADE B CARBON STEEL	
115		LOCK NUT, COLUMN (THREADED)	ASTM A48 CLASS 30 CAST IRON	

Threaded Water
Flush Column



DATE _____
DISTRIBUTOR _____
JOB _____
JOB/QUOTE # _____
QUANTITY _____

CATALOG NUMBER	QUAN- TITY	PART NAME	STANDARD MATERIAL (A.S.T.M. DESIGNATION)	SPECIFICATION REQUIREMENT
101		SHAFT,LINE	ASTM A582 GR 416 HT STAINLESS STEEL	
102L		COUPLING, LINE SHAFT	ASTM A276 GR 304 STAINLESS STEEL	
104		TUBE, WATER FLUSH	ASTM A53 GR B CARBON STEEL SCH 80 XS	
105		BEARING, LINE SHAFT	ASTM B505 C93200 BRONZE	
106		SPIDER, CENTERING	NEOPRENE	
110		PIPE, COLUMN (THREADED & COUPLED)	ASTM A53 GRADE B CARBON STEEL	
115		LOCK NUT, COLUMN (THREADED)	ASTM A48 CLASS 30 CAST IRON	

Product Lube
Bowl Assembly

DATE _____

DISTRIBUTOR _____

JOB _____

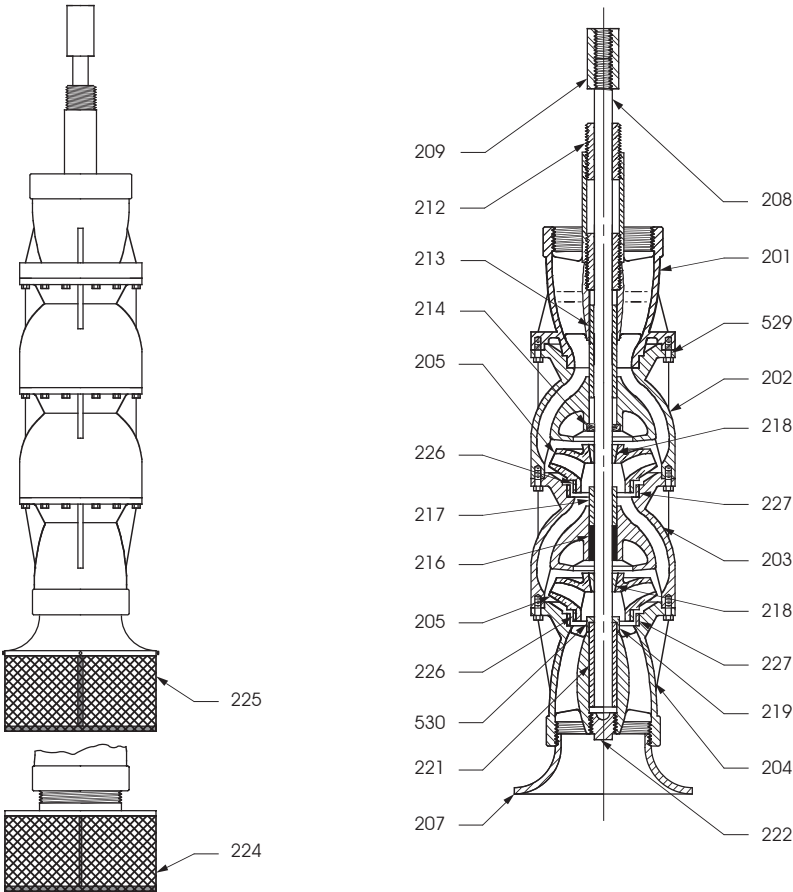
JOB/QUOTE # _____

QUANTITY _____

Note: Bowls are vitreous porcelain enamel or
fusion bonded epoxy lined.

CATALOG NUMBER	QUAN- TITY	PART NAME	STANDARD MATERIAL (A.S.T.M. DESIGNATION)	SPECIFICATION REQUIREMENT
119		ADAPTER, COLUMN, FLANGED	ASTM A36 HR & A53 GR B CARBON STEEL	
201	1	CASE, DISCHARGE HOUSING	ASTM A48 CLASS 30 CAST IRON	
202	1	BOWL, TOP HOUSING	ASTM A48 CLASS 30 CAST IRON	
203		BOWL, INTERMEDIATE HOUSING	ASTM A48 CLASS 30 CAST IRON	
204	1	CASE, SUCTION HOUSING	ASTM A48 CLASS 30 CAST IRON	
205		IMPELLER (ENCLOSED) (SEMI-OPEN)	ASTM B148 C95500 NI-AL BRONZE	
207		BELL, SUCTION	ASTM A48 CLASS 30 CAST IRON	
208	1	SHAFT, BOWL	ASTM A582 GR 416 HT STAINLESS STEEL	
209	1	COUPLING, BOWL SHAFT	ASTM A108 GR 1018 CR CARBON STEEL	
213	1	BEARING, DISCHARGE CASE (LOWER)	ASTM B505 C89835 BRONZE	
216		BEARING, INTERMEDIATE BOWL	NEOPRENE	
217		BEARING, INTERMEDIATE BOWL	ASTM B505 C89835 BRONZE	
218		COLLET, IMPELLER	ASTM A108 GR 1018 CARBON STEEL	
219	2	COLLAR, SAND	ASTM B505 C89835 BRONZE	
530	2	SET SCREW, SAND COLLAR	COMMERCIAL GR 416 STAINLESS STEEL	
221	1	BEARING, SUCTION CASE	ASTM B505 C89835 BRONZE	
222	1	PLUG, GREASE	COMMERCIAL	
529		SCREW, CAP	COMMERCIAL 18-8 STAINLESS STEEL	
224		SCREEN, BASKET (THREADED) (NOT SHOWN)	FAB. STEEL	
225		SCREEN, BASKET (CLIP ON)	FAB. STEEL	
226		RING, IMPELLER WEAR	ASTM B271 C95500 NI-AL BRONZE	
227		RING, BOWL WEAR	ASTM A48 CLASS 30 CAST IRON	
228	1	BEARING, DISCHARGE CASE (UPPER)	ASTM B505 C93200 BRONZE	
230		SCREEN, CONE (THREADED) (NOT SHOWN)	FAB STEEL W/ STAINLESS STEEL WIRE	

Oil Lube
Bowl Assembly



DATE _____
DISTRIBUTOR _____

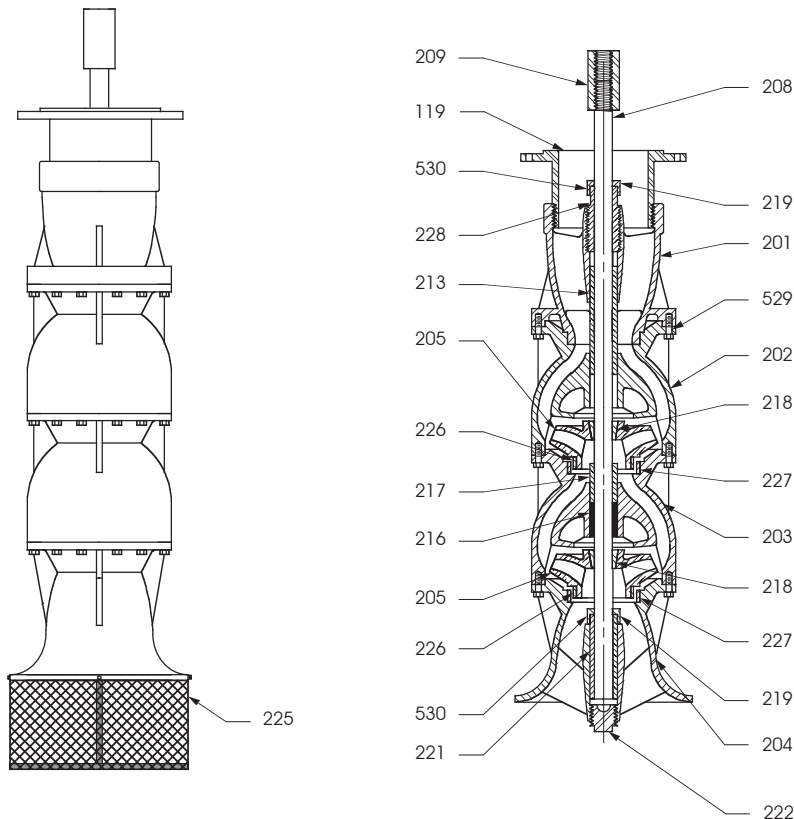
JOB _____

JOB/QUOTE # _____
QUANTITY _____

Note: Bowls are vitreous porcelain enamel or
fusion bonded epoxy lined.

CATALOG NUMBER	QUAN- TITY	PART NAME	STANDARD MATERIAL (A.S.T.M. DESIGNATION)	SPECIFICATION REQUIREMENT
201	1	CASE, DISCHARGE HOUSING	ASTM A48 CLASS 30 CAST IRON	
202	1	BOWL, TOP HOUSING	ASTM A48 CLASS 30 CAST IRON	
203		BOWL, INTERMEDIATE HOUSING	ASTM A48 CLASS 30 CAST IRON	
204	1	CASE, SUCTION HOUSING	ASTM A48 CLASS 30 CAST IRON	
205		IMPELLER (ENCLOSED) (SEMI-OPEN)	ASTM B148 C95500 NI-AL BRONZE	
207		BELL, SUCTION	ASTM A48 CLASS 30 CAST IRON	
208	1	SHAFT, BOWL	ASTM A582 GR 416 HT STAINLESS STEEL	
209	1	COUPLING, BOWL SHAFT	ASTM A108 GR 1018 CR CARBON STEEL	
211	1	TUBE, ADAPTER	ASTM A53 GR B CARBON STEEL SCH 80 XS	
212	2	BEARING, ADAPTER TUBE	ASTM B505 C93200 BRONZE	
213	1	BEARING, DISCHARGE CASE (LOWER)	ASTM B505 C89835 BRONZE	
214	1	SEAL, OIL	NEOPRENE	
216		BEARING, INTERMEDIATE BOWL	NEOPRENE	
217		BEARING, INTERMEDIATE BOWL	ASTM B505 C89835 BRONZE	
218		COLLET, IMPELLER	ASTM A108 GR 1018 CARBON STEEL	
219	1	COLLAR, SAND	ASTM B505 C89835 BRONZE	
530	1	SET SCREW, SAND COLLAR	COMMERCIAL GR 416 STAINLESS STEEL	
221	1	BEARING, SUCTION CASE	ASTM B505 C89835 BRONZE	
222	1	PLUG, GREASE	COMMERCIAL	
529		SCREW, CAP	COMMERCIAL 18-8 STAINLESS STEEL	
224		SCREEN, BASKET (THREADED)	FAB. STEEL	
225		SCREEN, BASKET (CLIP ON)	FAB. STEEL	
226		RING, IMPELLER WEAR	ASTM B271 C95500 NI-AL BRONZE	
227		RING, BOWL WEAR	ASTM A48 CLASS 30 CAST IRON	
229	1	SLINGER (NOT SHOWN)	NEOPRENE	
230		SCREEN, CONE (THREADED) (NOT SHOWN)	FAB STEEL W/ STAINLESS STEEL WIRE	

Product Lube
Bowl Assembly
W/ Integral Suction Bell



DATE _____
DISTRIBUTOR _____
JOB _____
JOB/QUOTE # _____
QUANTITY _____

Note: Bowls are vitreous porcelain enamel or fusion bonded epoxy lined.

CATALOG NUMBER	QUAN-TITY	PART NAME	STANDARD MATERIAL (A.S.T.M. DESIGNATION)	SPECIFICATION REQUIREMENT
119		ADAPTER, COLUMN, FLANGED	ASTM A36 HR & A53 GR B CARBON STEEL	
201	1	CASE, DISCHARGE HOUSING	ASTM A48 CLASS 30 CAST IRON	
202	1	BOWL, TOP HOUSING	ASTM A48 CLASS 30 CAST IRON	
203		BOWL, INTERMEDIATE HOUSING	ASTM A48 CLASS 30 CAST IRON	
204	1	CASE, SUCTION HOUSING, W/ SUCTION BELL	ASTM A48 CLASS 30 CAST IRON	
205		IMPELLER (ENCLOSED) (SEMI-OPEN)	ASTM B148 C95500 NI-AL BRONZE	
208	1	SHAFT, BOWL	ASTM A582 GR 416 HT STAINLESS STEEL	
209	1	COUPLING, BOWL SHAFT	ASTM A108 GR 1018 CR CARBON STEEL	
213	1	BEARING, DISCHARGE CASE (LOWER)	ASTM B505 C89835 BRONZE	
216		BEARING, INTERMEDIATE BOWL	NEOPRENE	
217		BEARING, INTERMEDIATE BOWL	ASTM B505 C89835 BRONZE	
218		COLLET, IMPELLER	ASTM A108 GR 1018 CARBON STEEL	
219	2	COLLAR, SAND	ASTM B505 C89835 BRONZE	
530	2	SET SCREW, SAND COLLAR	COMMERCIAL GR 416 STAINLESS STEEL	
221	1	BEARING, SUCTION CASE	ASTM B505 C89835 BRONZE	
222	1	PLUG, GREASE	COMMERCIAL	
529		SCREW, CAP	COMMERCIAL 18-8 STAINLESS STEEL	
225	1	SCREEN, BASKET (CLIP ON)	FAB. STEEL	
226		RING, IMPELLER WEAR	ASTM B271 C95500 NI-AL BRONZE	
227		RING, BOWL WEAR	ASTM A48 CLASS 30 CAST IRON	
228	1	BEARING, DISCHARGE CASE (UPPER)	ASTM B505 C93200 BRONZE	

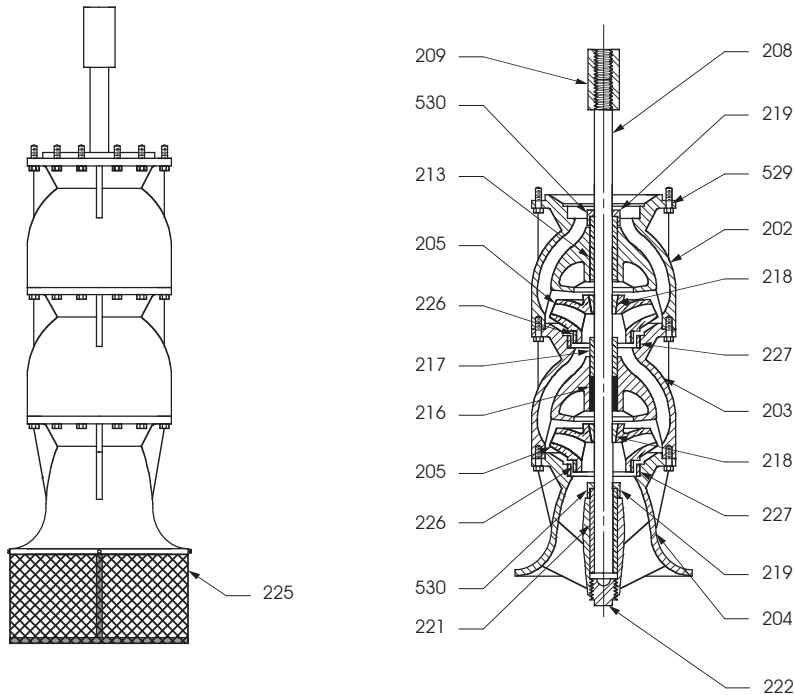
Product Lube Bowl Assembly
W/ Integral Suction Bell
W/O Discharge Case

DATE _____
DISTRIBUTOR _____

JOB _____

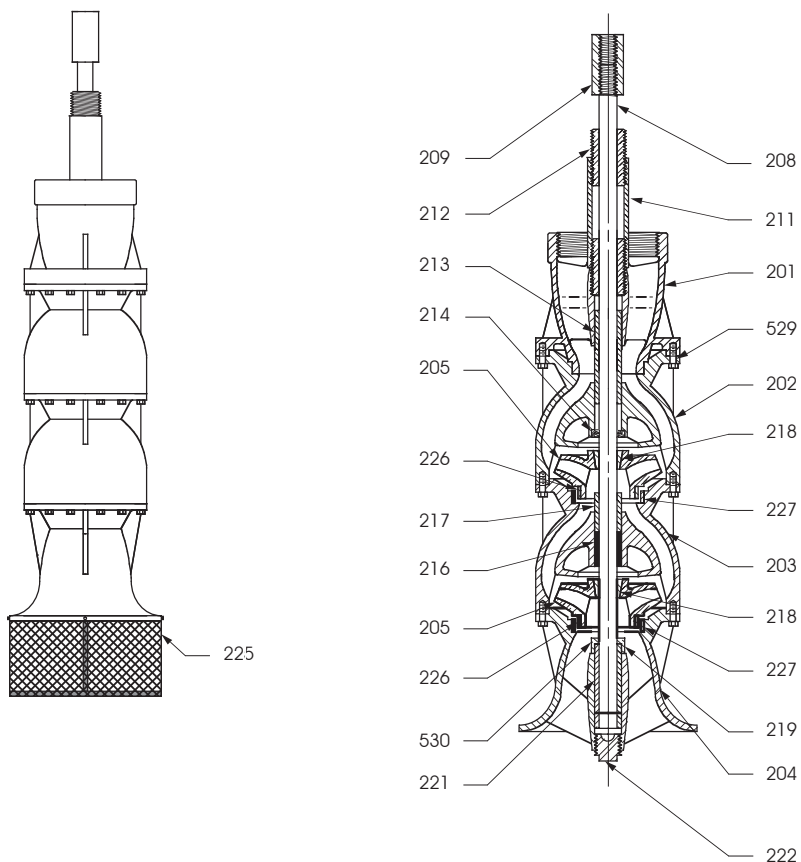
JOB/QUOTE # _____
QUANTITY _____

Note: Bowls are vitreous porcelain enamel or fusion bonded epoxy lined.



CATALOG NUMBER	QUAN-TITY	PART NAME	STANDARD MATERIAL (A.S.T.M. DESIGNATION)	SPECIFICATION REQUIREMENT
202	1	BOWL, TOP HOUSING	ASTM A48 CLASS 30 CAST IRON	
203		BOWL, INTERMEDIATE HOUSING	ASTM A48 CLASS 30 CAST IRON	
204	1	CASE, SUCTION HOUSING, W/ SUCTION BELL	ASTM A48 CLASS 30 CAST IRON	
205		IMPELLER (ENCLOSED) (SEMI-OPEN)	ASTM B148 C95500 NI-AL BRONZE	
208	1	SHAFT, BOWL	ASTM A582 GR 416 HT STAINLESS STEEL	
209	1	COUPLING, BOWL SHAFT	ASTM A108 GR 1018 CR CARBON STEEL	
213	1	BEARING, TOP BOWL	ASTM B505 C89835 BRONZE	
216		BEARING, INTERMEDIATE BOWL	NEOPRENE	
217		BEARING, INTERMEDIATE BOWL	ASTM B505 C89835 BRONZE	
218		COLLET, IMPELLER	ASTM A108 GR 1018 CARBON STEEL	
219	2	COLLAR, SAND	ASTM B505 C89835 BRONZE	
530	2	SET SCREW, SAND COLLAR	COMMERCIAL GR 416 STAINLESS STEEL	
221	1	BEARING, SUCTION CASE	ASTM B505 C89835 BRONZE	
222	1	PLUG, GREASE	COMMERCIAL	
529		SCREW, CAP	COMMERCIAL 18-8 STAINLESS STEEL	
225		SCREEN, BASKET (CLIP ON)	FAB. STEEL	
226		RING, IMPELLER WEAR	ASTM B271 C95500 NI-AL BRONZE	
227		RING, BOWL WEAR	ASTM A48 CLASS 30 CAST IRON	

Oil Lube Bowl Assembly W/ Integral Suction Bell



DATE _____

DISTRIBUTOR _____

JOB _____

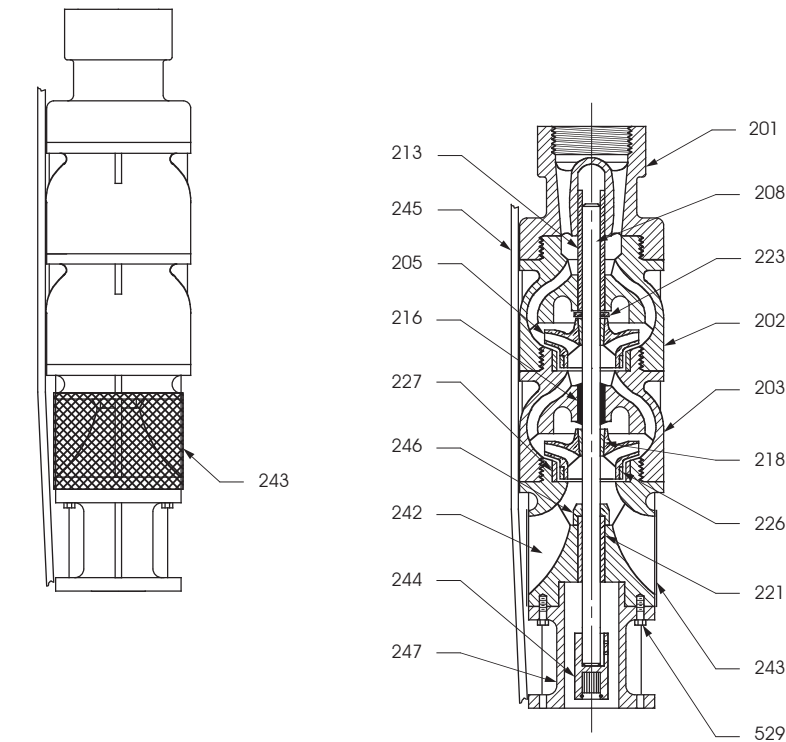
JOB/QUOTE # _____

QUANTITY _____

Note: Bowls are vitreous porcelain enamel or
fusion bonded epoxy lined.

CATALOG NUMBER	QUANTITY	PART NAME	STANDARD MATERIAL (A.S.T.M. DESIGNATION)	SPECIFICATION REQUIREMENT
201	1	CASE, DISCHARGE HOUSING	ASTM A48 CLASS 30 CAST IRON	
202	1	BOWL, TOP HOUSING	ASTM A48 CLASS 30 CAST IRON	
203		BOWL, INTERMEDIATE HOUSING	ASTM A48 CLASS 30 CAST IRON	
204	1	CASE, SUCTION HOUSING with INTEGRAL BELL	ASTM A48 CLASS 30 CAST IRON	
205		IMPELLER (ENCLOSED) (SEMI-OPEN)	ASTM B148 C95500 NI-AL BRONZE	
208	1	SHAFT, BOWL	ASTM A582 GR 416 HT STAINLESS STEEL	
209	1	COUPLING, BOWL SHAFT	ASTM A108 GR 1018 CR CARBON STEEL	
211	1	TUBE, ADAPTER	ASTM A53 GR B CARBON STEEL SCH 80 XS	
212	2	BEARING, ADAPTER TUBE	ASTM B505 C93200 BRONZE	
213	1	BEARING, DISCHARGE CASE (LOWER)	ASTM B505 C89835 BRONZE	
214	1	SEAL, OIL	NEOPRENE	
216		BEARING, INTERMEDIATE BOWL	NEOPRENE	
217		BEARING, INTERMEDIATE BOWL	ASTM B505 C89835 BRONZE	
218		COLLET, IMPELLER	ASTM A108 GR 1018 CARBON STEEL	
219	1	COLLAR, SAND	ASTM B505 C89835 BRONZE	
530	1	SET SCREW, SAND COLLAR	COMMERCIAL GR 416 STAINLESS STEEL	
221	1	BEARING, SUCTION CASE	ASTM B505 C89835 BRONZE	
222	1	PLUG, GREASE	COMMERCIAL	
529		SCREW, CAP	COMMERCIAL 18-8 STAINLESS STEEL	
225		SCREEN, BASKET (CLIP ON)	FAB. STEEL	
226		RING, IMPELLER WEAR	ASTM B271 C95500 NI-AL BRONZE	
227		RING, BOWL WEAR	ASTM A48 CLASS 30 CAST IRON	
229	1	SLINGER (NOT SHOWN)	NEOPRENE	

Submersible Bowl Assembly
With Threaded
Bowl Connection



DATE _____
DISTRIBUTOR _____

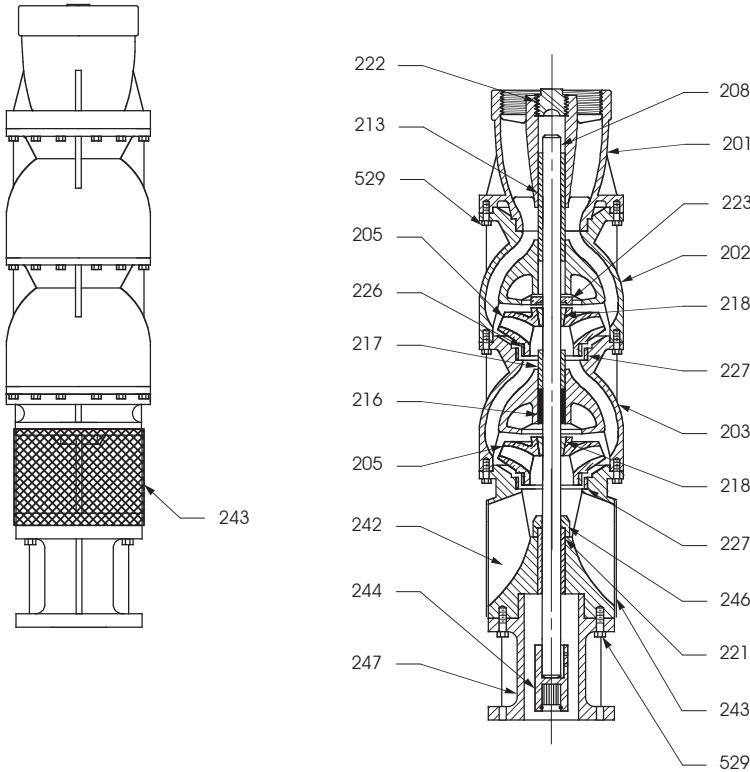
JOB _____

JOB/QUOTE # _____
QUANTITY _____

Note: Bowls are vitreous porcelain enamel lined.

CATALOG NUMBER	QUAN-TITY	PART NAME	STANDARD MATERIAL (A.S.T.M. DESIGNATION)	SPECIFICATION REQUIREMENT
201	1	CASE, DISCHARGE HOUSING	ASTM A48 CLASS 30 CAST IRON	
202	1	BOWL, TOP HOUSING	ASTM A48 CLASS 30 CAST IRON	
203		BOWL, INTERMEDIATE HOUSING	ASTM A48 CLASS 30 CAST IRON	
205		IMPELLER (ENCLOSED) (SEMI-OPEN)	ASTM B148 C95500 NI-AL BRONZE	
208	1	SHAFT, BOWL	ASTM A582 GR 416 HT STAINLESS STEEL	
213	1	BEARING, DISCHARGE CASE (LOWER)	ASTM B505 C89835 BRONZE	
216		BEARING, INTERMEDIATE BOWL	NEOPRENE	
218		COLLET, IMPELLER	ASTM A108 GR 1018 CARBON STEEL	
221	1	BEARING, MOTOR BRACKET	ASTM B505 C89835 BRONZE	
223	1	COLLAR, UPTHRUST	ASTM B505 C89835 BRONZE	
529		SCREW, CAP	COMMERCIAL 18-8 STAINLESS STEEL	
226		RING, IMPELLER WEAR	ASTM B271 C95500 NI-AL BRONZE	
227		RING, BOWL WEAR	ASTM A48 CLASS 30 CAST IRON	
242	1	BRACKET, MOTOR	ASTM A48 CLASS 30 CAST IRON	
243	1	SCREEN	STAINLESS STEEL	
244	1	COUPLING, MOTOR	ASTM A582 GR 416 HT STAINLESS STEEL	
245	1	GUARD, WIRE (NOT SHOWN)	PLASTIC	
246	1	COLLAR, SAND	ASTM B505 C89835 BRONZE	
247	1	BRACKET, MOTOR (LOWER)	CAST IRON A-48 CLS 30	

Submersible Bowl Assembly
With Flanged
Bowl Connection



DATE _____
DISTRIBUTOR _____

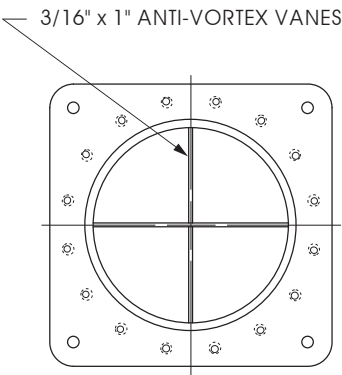
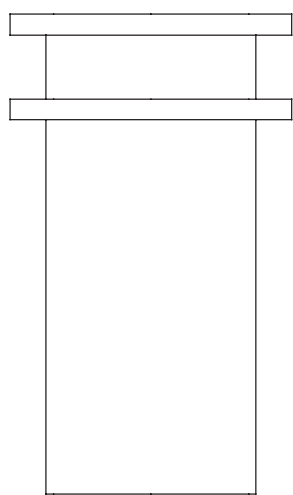
JOB _____

JOB/QUOTE # _____
QUANTITY _____

Note: Bowls are vitreous porcelain enamel or
fusion bonded epoxy lined.

CATALOG NUMBER	QUAN-TITY	PART NAME	STANDARD MATERIAL (A.S.T.M. DESIGNATION)	SPECIFICATION REQUIREMENT
201	1	CASE, DISCHARGE HOUSING	ASTM A48 CLASS 30 CAST IRON	
202	1	BOWL, TOP HOUSING	ASTM A48 CLASS 30 CAST IRON	
203		BOWL, INTERMEDIATE HOUSING	ASTM A48 CLASS 30 CAST IRON	
205		IMPELLER (ENCLOSED) (SEMI-OPEN)	ASTM B148 C95500 NI-AL BRONZE	
208	1	SHAFT, BOWL	ASTM A582 GR 416 HT STAINLESS STEEL	
213	1	BEARING, DISCHARGE CASE (LOWER)	ASTM B505 C89835 BRONZE	
216		BEARING, INTERMEDIATE BOWL	NEOPRENE	
217		BEARING, INTERMEDIATE BOWL	ASTM B505 C89835 BRONZE	
218		COLLET, IMPELLER	ASTM A108 GR 1018 CARBON STEEL	
221	1	BEARING, MOTOR BRACKET	ASTM B505 C89835 BRONZE	
222	1	PLUG, GREASE	COMMERCIAL	
223	1	COLLAR, UPTHrust	ASTM B505 C89835 BRONZE	
529		SCREW, CAP	COMMERCIAL 18-8 STAINLESS STEEL	
226		RING, IMPELLER WEAR	ASTM B271 C95500 NI-AL BRONZE	
227		RING, BOWL WEAR	ASTM A48 CLASS 30 CAST IRON	
242	1	BRACKET, MOTOR	ASTM A48 CLASS 30 CAST IRON	
243	1	SCREEN	STAINLESS STEEL	
244	1	COUPLING, MOTOR	ASTM A582 GR 416 HT STAINLESS STEEL	
245	1	GUARD, WIRE (NOT SHOWN)	PLASTIC	
246	1	COLLAR, SAND	ASTM B505 C89835 BRONZE	
247	1	BRACKET, MOTOR (LOWER)	CAST IRON A-48 CLS 30	

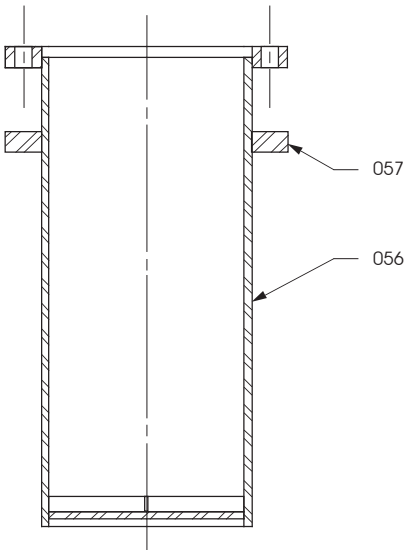
Booster Can



DATE _____
DISTRIBUTOR _____

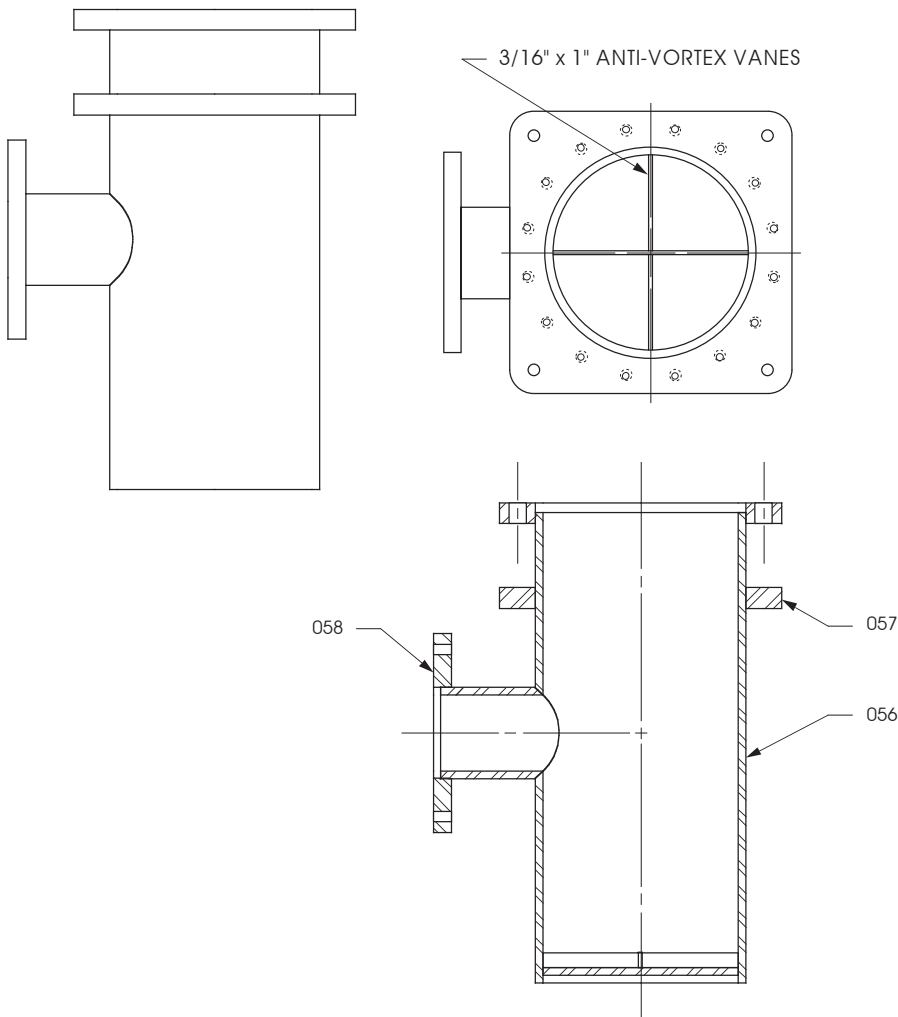
JOB _____

JOB/QUOTE # _____
QUANTITY _____



CATALOG NUMBER	QUAN-TITY	PART NAME	STANDARD MATERIAL (A.S.T.M. DESIGNATION)	SPECIFICATION REQUIREMENT
010C		GASKET, CAN RING (NOT SHOWN)	RUBBER	
056	1	CAN, BOOSTER	ASTM A36 HR & A53 GR B CARBON STEEL	
057		FLANGE, MOUNTING	ASTM A36 HR CARBON STEEL	
529		BOLTS, HEAD MOUNTING (NOT SHOWN)	COMMERCIAL	

Booster Can
With Inlet



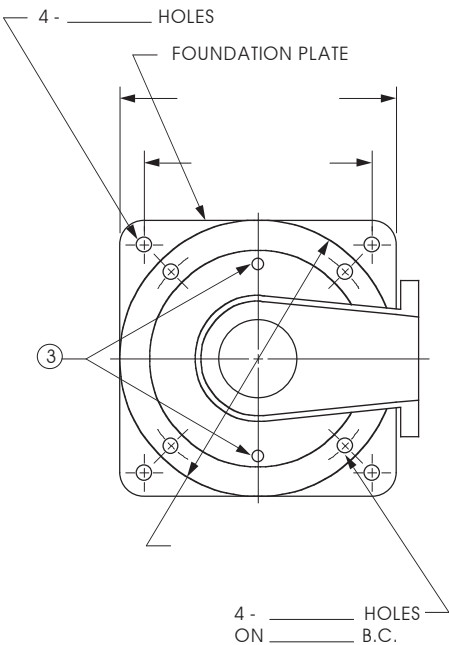
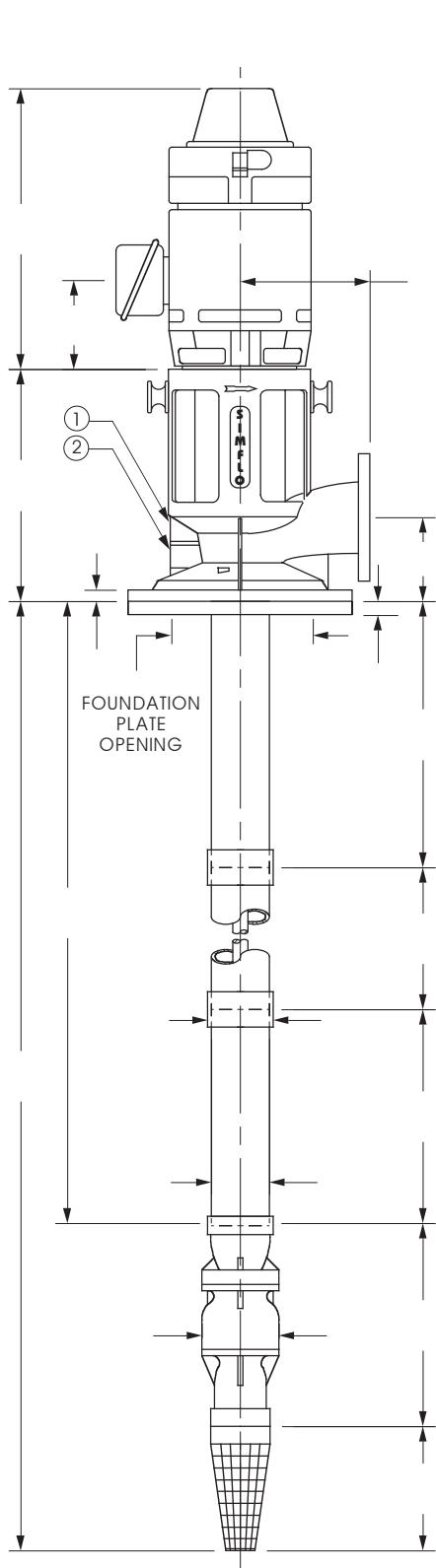
DATE _____
DISTRIBUTOR _____

JOB _____

JOB/QUOTE # _____
QUANTITY _____

CATALOG NUMBER	QUAN-TITY	PART NAME	STANDARD MATERIAL (A.S.T.M. DESIGNATION)	SPECIFICATION REQUIREMENT
010C		GASKET, CAN RING (NOT SHOWN)	RUBBER	
010S		GASKET, SUCTION RING (NOT SHOWN)	RUBBER	
056	1	CAN, BOOSTER	ASTM A36 HR & A53 GR B CARBON STEEL	
057		FLANGE, MOUNTING	ASTM A36 HR CARBON STEEL	
058	1	FLANGE, INLET	ASTM A36 HR CARBON STEEL	
529		BOLTS, HEAD MOUNTING (NOT SHOWN)	COMMERCIAL	

Deep Well Pump
With Cast Discharge Head
And Electric Motor



DISCHARGE FLANGE

MOTOR

MAKE _____
ENCLOSURE _____
N.R.R. or S.R.C. _____
H.P. _____ S.F. _____
R.P.M. _____
PHASE _____ CYCLE _____
VOLTAGE _____
V.H.S. or V.S.S. _____
OTHER MOTOR INFO: _____

- 1 - 3/4" NPT DRAIN (1/2" NPT FOR S-050)
- 2 - 3/4" NPT ARV/PRELUBE (1/2" NPT FOR S-050)
- 3 - X" NPT HOLES ON Y" B.C.

	X	Y
S-050	1/2	7.50
S-150	1/2	7.50
S-350	3/4	11.25
S-550	1	13.00
S-750	1	16.75

DATE _____
DISTRIBUTOR _____

JOB _____

JOB/QUOTE # _____
QUANTITY _____

G.P.M. _____
T.D.H. _____
SPEED _____
BOWL MODEL # _____

IMP. DIA. _____
IMP. TYPE _____
STRAINER TYPE _____

COLUMN ASSY. _____

FOUNDATION PLATE _____

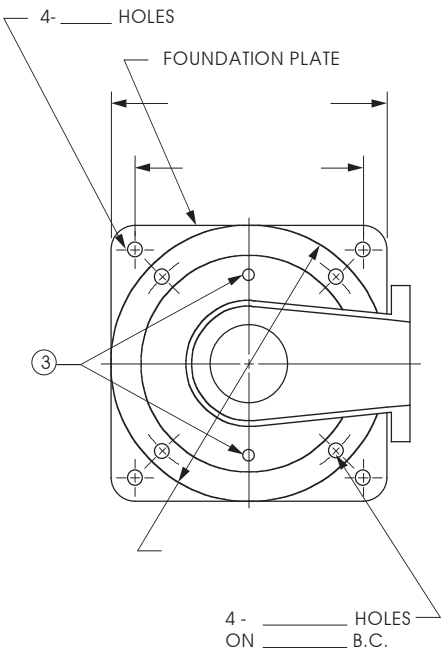
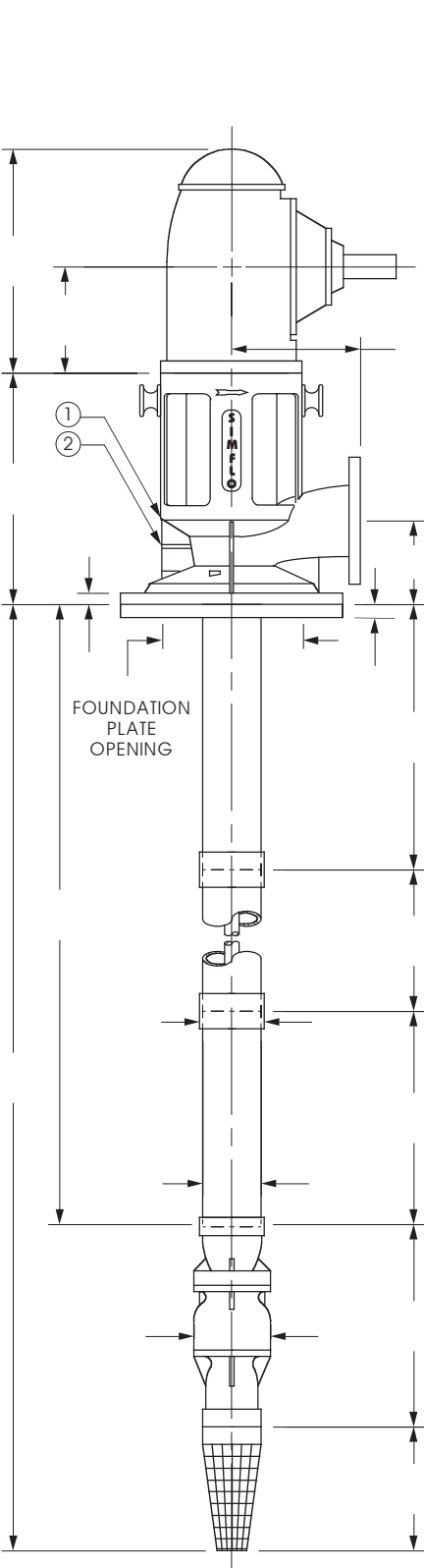
DISCHARGE HEAD _____

SEAL TYPE _____

SPECIAL _____

OTHER _____

Deep Well Pump
With Cast Discharge Head
And Gear Drive



DISCHARGE FLANGE

GEAR DRIVE

MAKE _____
RATIO _____
N.R.R. _____ NO _____
H.P. _____ S.F. _____
R.P.M. _____

- 1- 3/4" NPT DRAIN (1/2" NPT FOR S-050)
- 2- 3/4" NPT ARV/PRELUBE (1/2" NPT FOR S-050)
- 3- X" NPT HOLES ON Y" B.C.

	X	Y
S-050	1/2	7.50
S-150	1/2	7.50
S-350	3/4	11.25
S-550	1	13.00
S-750	1	16.75

DATE _____
DISTRIBUTOR _____

JOB _____

JOB/QUOTE # _____
QUANTITY _____

G.P.M. _____
T.D.H. _____
SPEED _____
BOWL MODEL # _____

IMP. DIA. _____
IMP. TYPE _____
STRAINER TYPE _____

COLUMN ASSY. _____

FOUNDATION PLATE _____

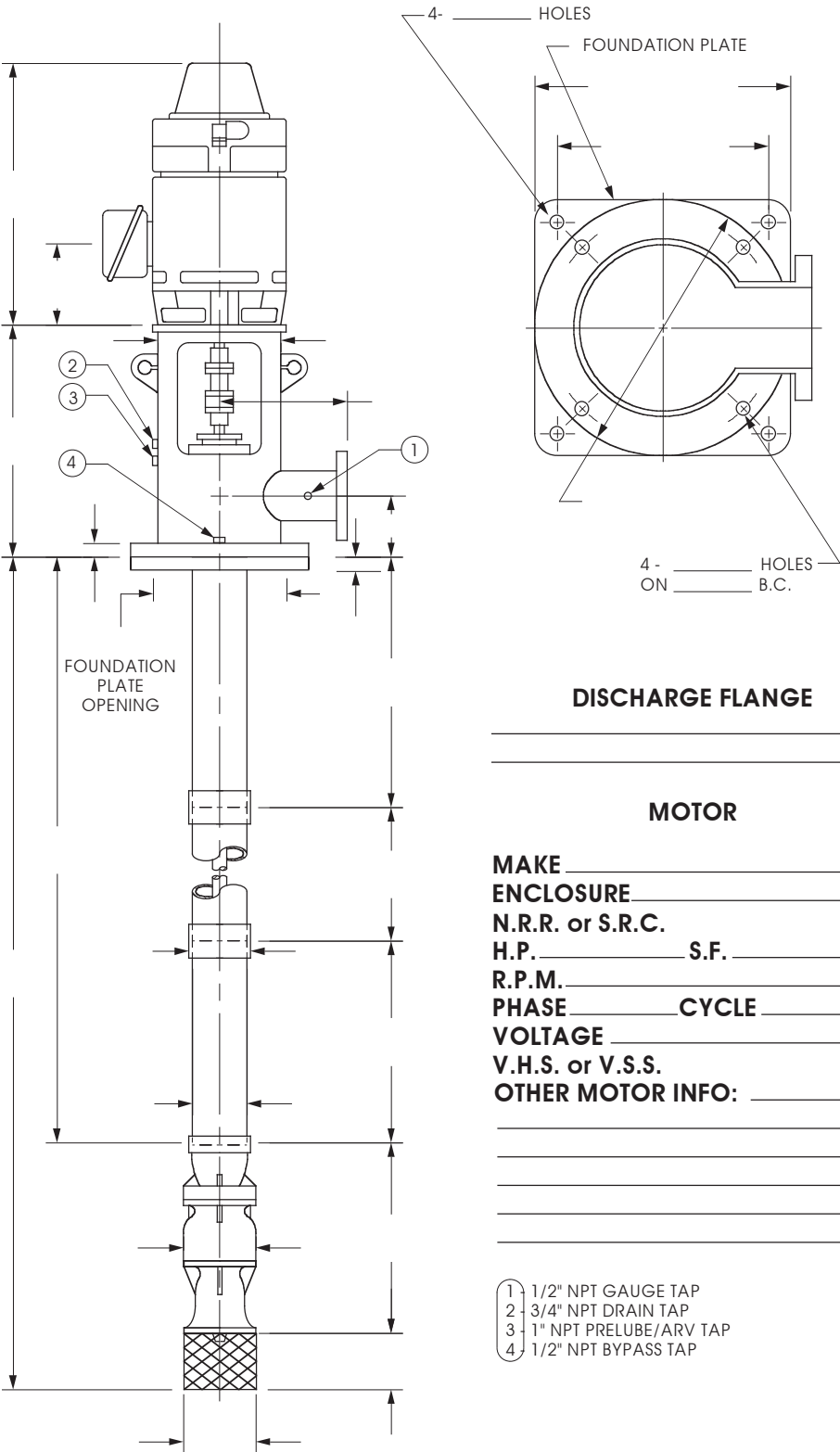
DISCHARGE HEAD _____

SEAL TYPE _____

SPECIAL _____

OTHER _____

Short Coupled Pump
With 'SL' Style
Discharge Head,
Threaded Column



DATE _____
DISTRIBUTOR _____

JOB _____

JOB/QUOTE # _____
QUANTITY _____

G.P.M. _____
T.D.H. _____
SPEED _____
BOWL MODEL # _____

IMP. DIA. _____
IMP. TYPE _____
STRAINER TYPE _____

COLUMN ASSY. _____

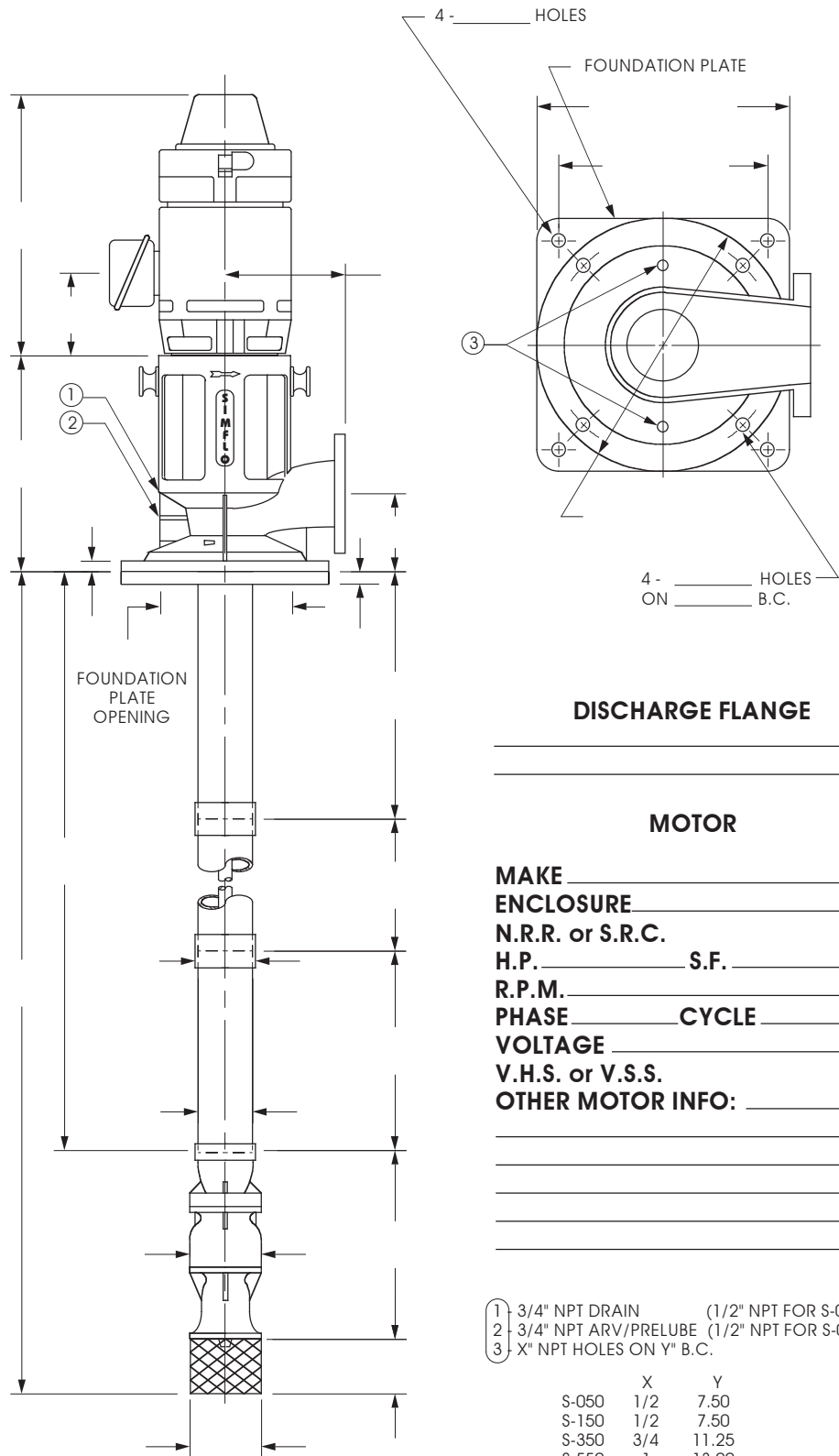
FOUNDATION PLATE _____
DISCHARGE HEAD _____

SEAL TYPE _____

SPECIAL _____

OTHER _____

Short Coupled Pump
With Cast Discharge Head,
Threaded Column



DATE _____
DISTRIBUTOR _____

JOB _____

JOB/QUOTE # _____
QUANTITY _____

G.P.M. _____
T.D.H. _____
SPEED _____
BOWL MODEL # _____

IMP. DIA. _____
IMP. TYPE _____
STRAINER TYPE _____

COLUMN ASSY. _____

FOUNDATION PLATE _____
DISCHARGE HEAD _____

SEAL TYPE _____

SPECIAL _____

OTHER _____

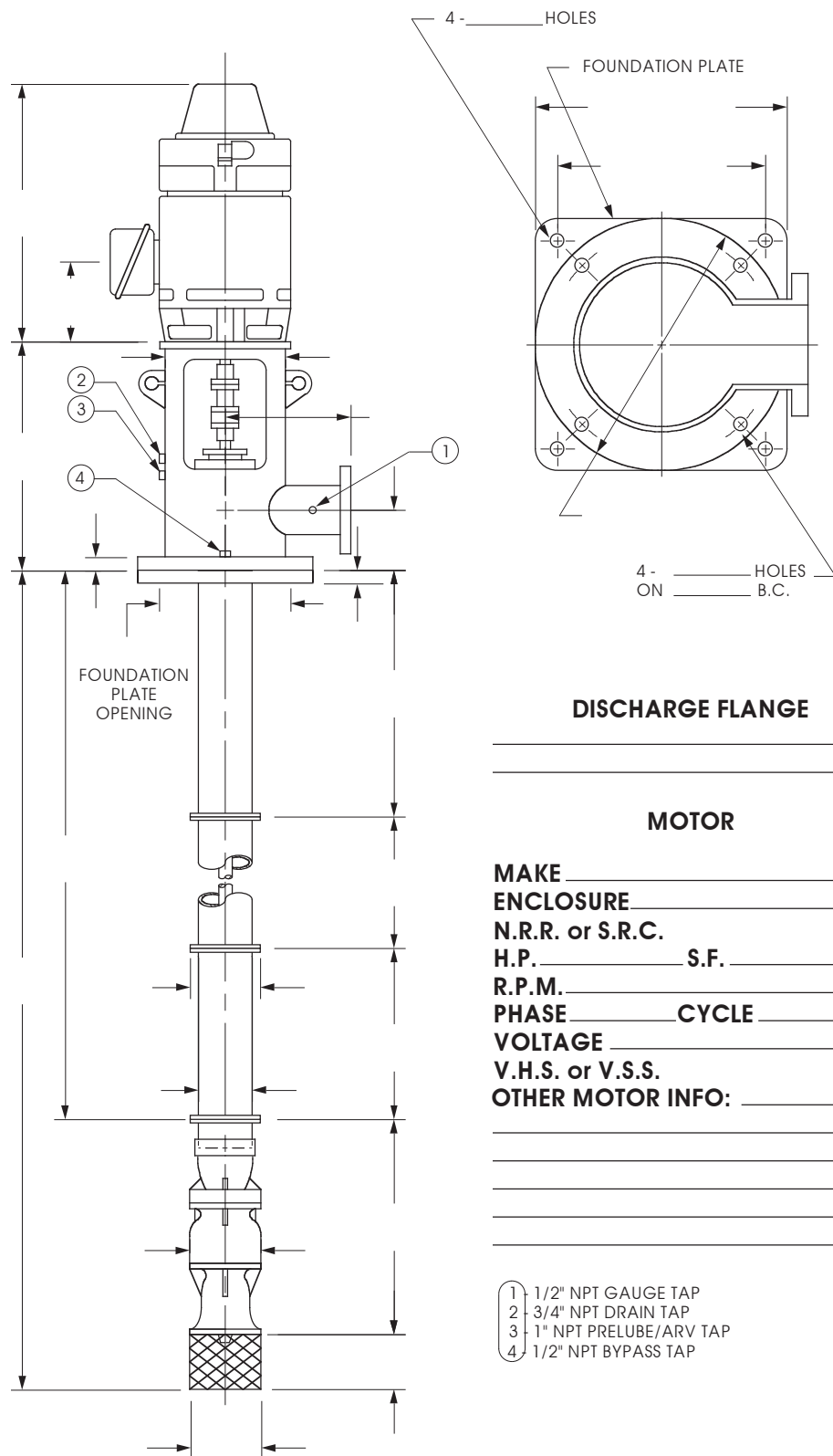
DISCHARGE FLANGE

MOTOR

MAKE _____
ENCLOSURE _____
N.R.R. or S.R.C. _____
H.P. _____ S.F. _____
R.P.M. _____
PHASE _____ CYCLE _____
VOLTAGE _____
V.H.S. or V.S.S. _____
OTHER MOTOR INFO: _____

1	3/4" NPT DRAIN	(1/2" NPT FOR S-050)
2	3/4" NPT ARV/PRELUBE	(1/2" NPT FOR S-050)
3	X" NPT HOLES ON Y" B.C.	
	X	Y
S-050	1/2	7.50
S-150	1/2	7.50
S-350	3/4	11.25
S-550	1	13.00
S-750	1	16.75

Short Coupled Pump With 'SL' Style Discharge Head, Flanged Column



DATE _____
DISTRIBUTOR _____

JOB _____

JOB/QUOTE # _____
QUANTITY _____

G.P.M. _____
T.D.H. _____
SPEED _____
BOWL MODEL # _____

IMP. DIA. _____
IMP. TYPE _____
STRAINER TYPE _____

COLUMN ASSY. _____

FOUNDATION PLATE _____

DISCHARGE HEAD _____

SEAL TYPE _____

SPECIAL _____

OTHER _____

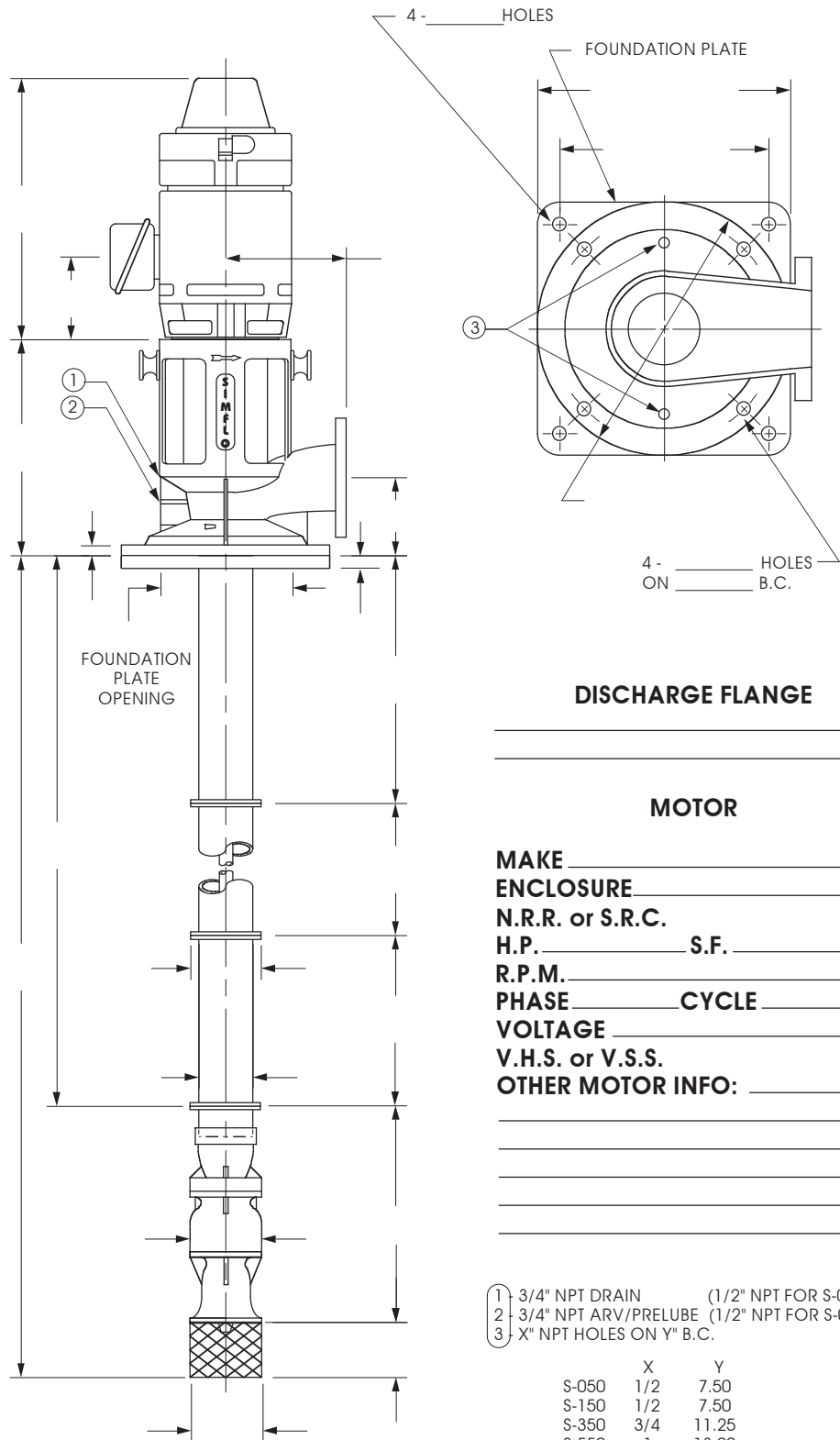
DISCHARGE FLANGE

MOTOR

MAKE _____
ENCLOSURE _____
N.R.R. or S.R.C. _____
H.P. _____ S.F. _____
R.P.M. _____
PHASE _____ CYCLE _____
VOLTAGE _____
V.H.S. or V.S.S. _____
OTHER MOTOR INFO: _____

- 1 1/2" NPT GAUGE TAP
- 2 3/4" NPT DRAIN TAP
- 3 1" NPT PRELUBE/ARV TAP
- 4 1/2" NPT BYPASS TAP

Short Coupled Pump
With Cast Discharge Head,
Flanged Column



DATE _____
DISTRIBUTOR _____

JOB _____

JOB/QUOTE # _____
QUANTITY _____

G.P.M. _____
T.D.H. _____
SPEED _____
BOWL MODEL # _____

IMP. DIA. _____
IMP. TYPE _____
STRAINER TYPE _____

COLUMN ASSY. _____

FOUNDATION PLATE _____

DISCHARGE HEAD _____

SEAL TYPE _____

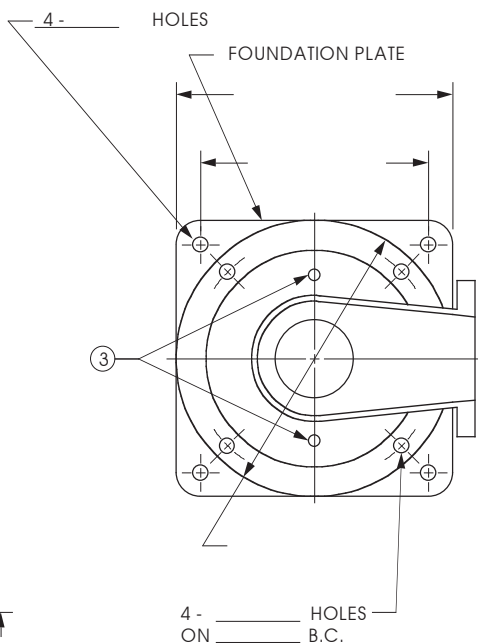
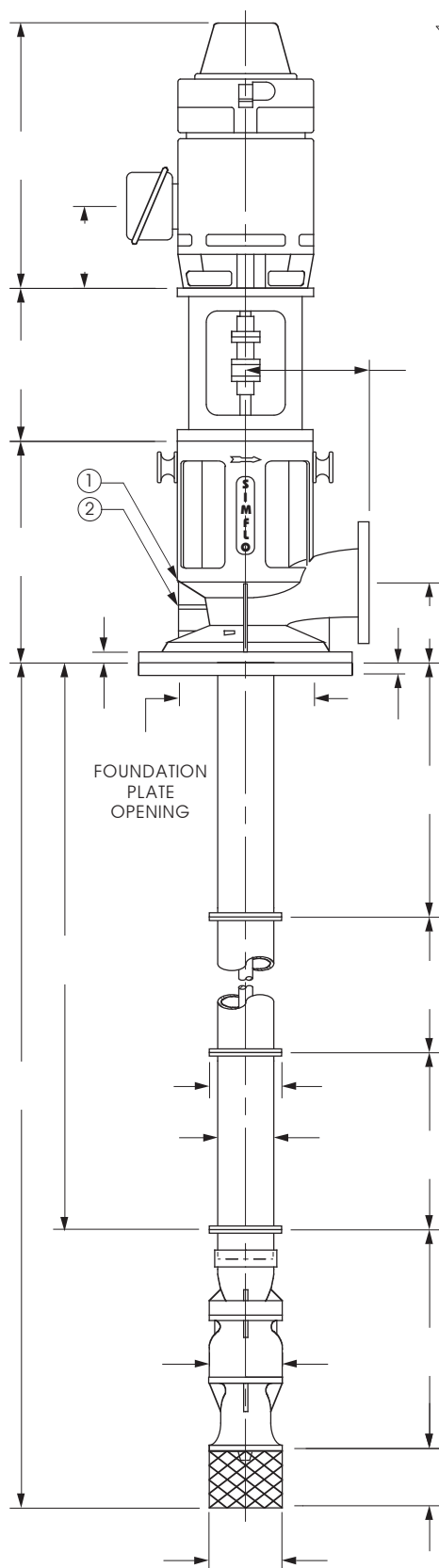
SPECIAL _____

OTHER _____

- 1 3/4" NPT DRAIN (1/2" NPT FOR S-050)
- 2 3/4" NPT ARV/PRELUBE (1/2" NPT FOR S-050)
- 3 X" NPT HOLES ON Y" B.C.

	X	Y
S-050	1/2	7.50
S-150	1/2	7.50
S-350	3/4	11.25
S-550	1	13.00
S-750	1	16.75

Short Coupled Pump With Cast Discharge Head With Motor Riser Flanged Column



DISCHARGE FLANGE

MOTOR

MAKE _____
ENCLOSURE _____
N.R.R. or S.R.C. _____
H.P. _____ S.F. _____
R.P.M. _____
PHASE _____ CYCLE _____
VOLTAGE _____
V.H.S. or V.S.S. _____

OTHER MOTOR INFO: _____

- ① 3/4" NPT DRAIN (1/2" NPT FOR S-050)
② 3/4" NPT ARV/PRELUBE (1/2" NPT FOR S-050)
③ X" NPT HOLES ON Y" B.C.

	X	Y
S-050	1/2	7.50
S-150	1/2	7.50
S-350	3/4	11.25
S-550	1	13.00
S-750	1	16.75

DATE _____
DISTRIBUTOR _____

JOB _____

JOB/QUOTE # _____
QUANTITY _____

G.P.M. _____
T.D.H. _____
SPEED _____
BOWL MODEL # _____

IMP. DIA. _____
IMP. TYPE _____
STRAINER TYPE _____

COLUMN ASSY. _____

FOUNDATION PLATE _____

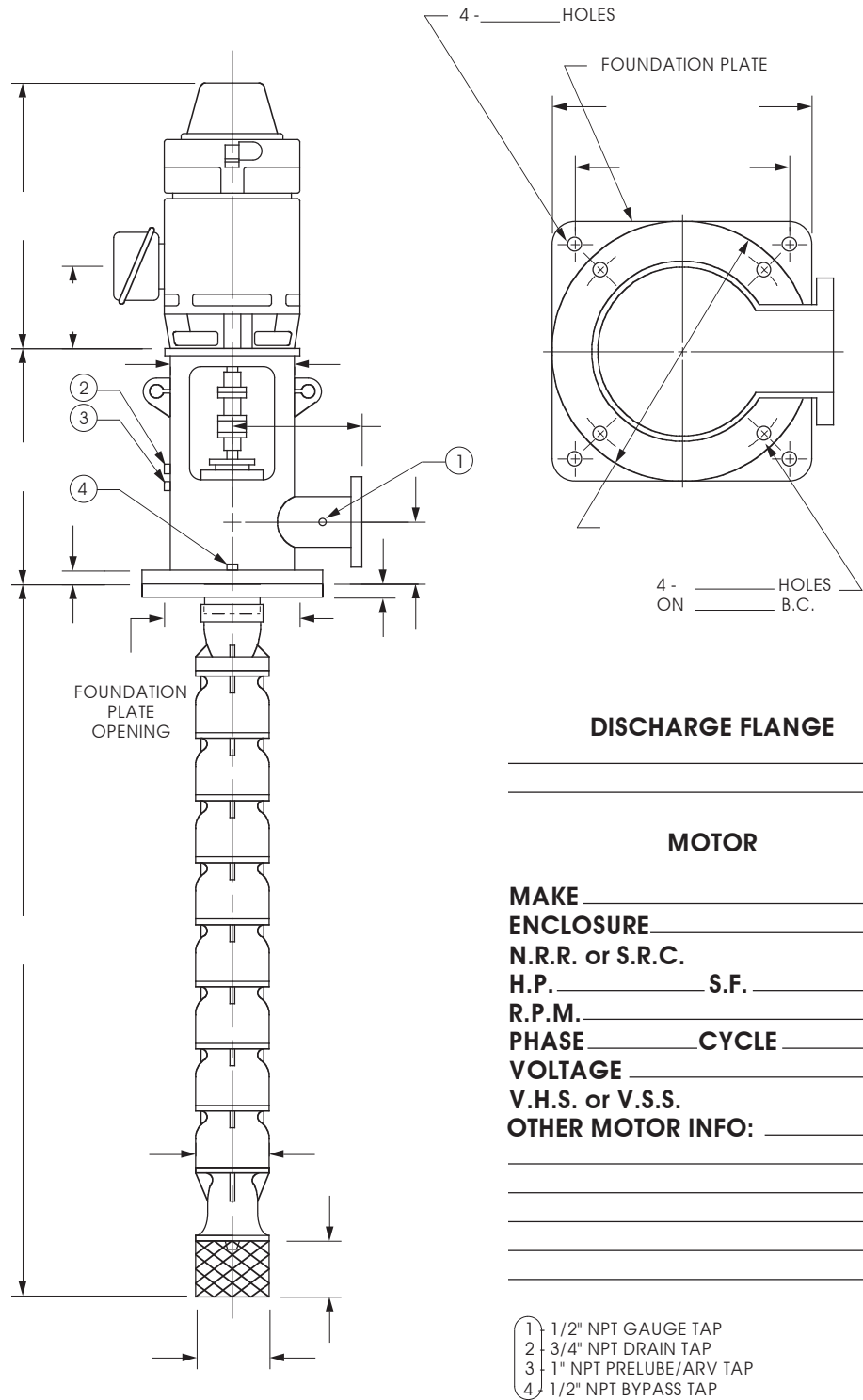
DISCHARGE HEAD _____

SEAL TYPE _____

SPECIAL _____

OTHER _____

Close Coupled Pump
With 'SL' Style
Discharge Head



DATE _____
DISTRIBUTOR _____

JOB _____

JOB/QUOTE # _____
QUANTITY _____

G.P.M. _____
T.D.H. _____
SPEED _____
BOWL MODEL # _____

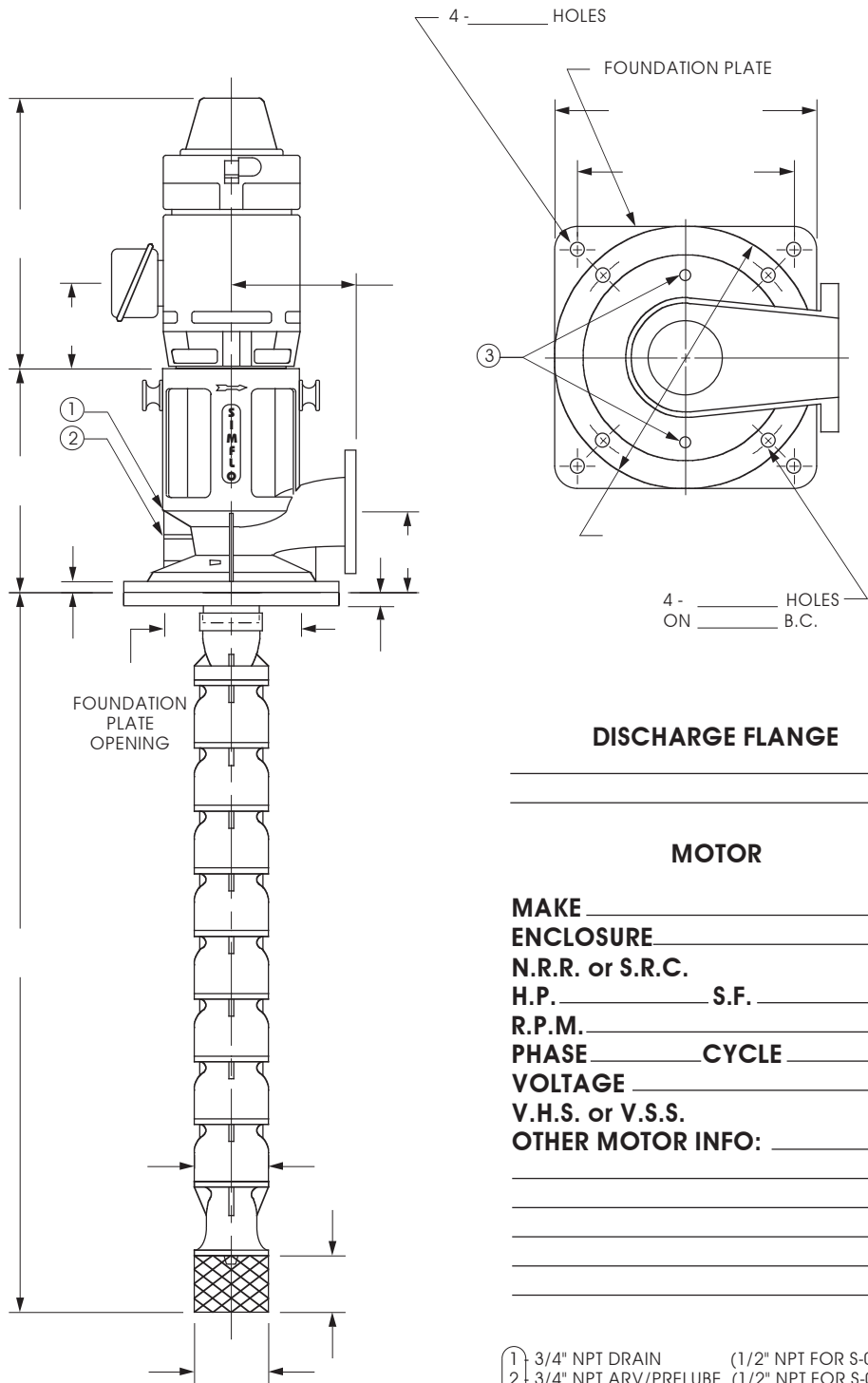
IMP. DIA. _____
IMP. TYPE _____
STRAINER TYPE _____

FOUNDATION PLATE _____
DISCHARGE HEAD _____

SEAL TYPE _____
SPECIAL _____

OTHER _____

Close Coupled Pump
With Cast Discharge Head



DATE _____
DISTRIBUTOR _____
JOB _____
JOB/QUOTE # _____
QUANTITY _____

G.P.M. _____
T.D.H. _____
SPEED _____
BOWL MODEL # _____

IMP. DIA. _____
IMP. TYPE _____
STRAINER TYPE _____

FOUNDATION PLATE _____
DISCHARGE HEAD _____

SEAL TYPE _____
SPECIAL _____

OTHER _____

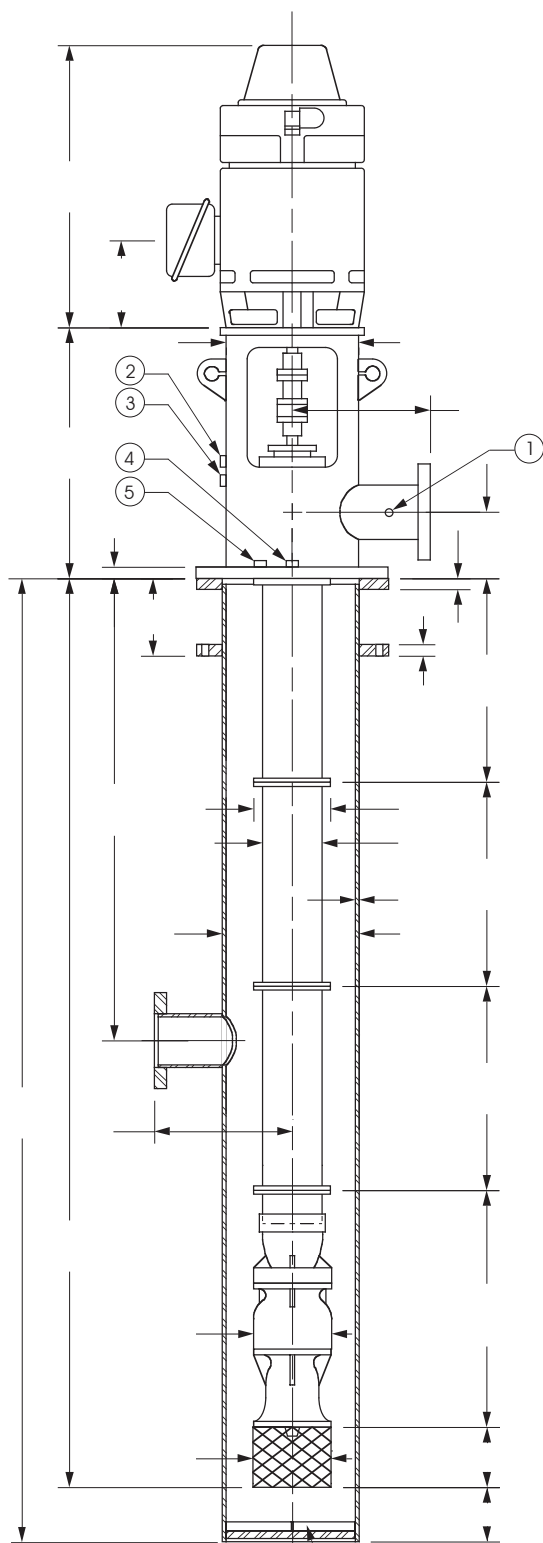
DISCHARGE FLANGE

MOTOR

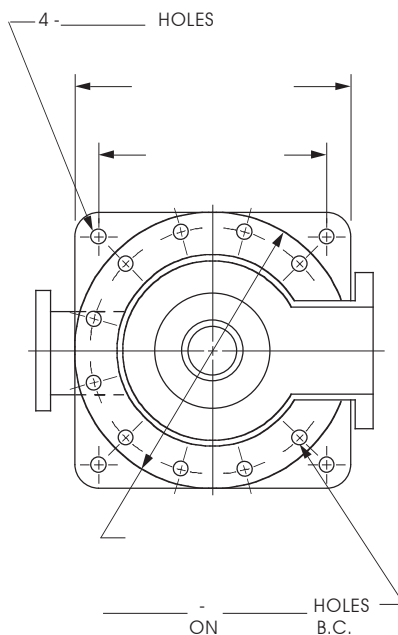
MAKE _____
ENCLOSURE _____
N.R.R. or S.R.C. _____
H.P. _____ S.F. _____
R.P.M. _____
PHASE _____ CYCLE _____
VOLTAGE _____
V.H.S. or V.S.S. _____
OTHER MOTOR INFO: _____

- 1 3/4" NPT DRAIN (1/2" NPT FOR S-050)
- 2 3/4" NPT ARV/PRELUBE (1/2" NPT FOR S-050)
- 3 X" NPT HOLES ON Y" B.C.

	X	Y
S-050	1/2	7.50
S-150	1/2	7.50
S-350	3/4	11.25
S-550	1	13.00
S-750	1	16.75



ANTI-VORTEX VANES



SUCTION FLANGE

DISCHARGE FLANGE

MOTOR

MAKE _____
ENCLOSURE _____
N.R.R. or S.R.C. _____
H.P. _____ S.F. _____
R.P.M. _____
PHASE _____ CYCLE _____
VOLTAGE _____
V.H.S. or V.S.S. _____
OTHER MOTOR INFO: _____

- 1 1/2" NPT GAUGE TAP
- 2 3/4" NPT DRAIN TAP
- 3 1" NPT PRELUBE/ARV TAP
- 4 1" NPT CAN ARV
- 5 1/2" NPT BYPASS TAP

DATE _____
DISTRIBUTOR _____

JOB _____

JOB/QUOTE # _____
QUANTITY _____

G.P.M. _____
T.D.H. _____
SPEED _____
BOWL MODEL # _____

IMP. DIA. _____
IMP. TYPE _____
STRAINER TYPE _____

COLUMN ASSY. _____

CAN MOUNTING PLATE _____

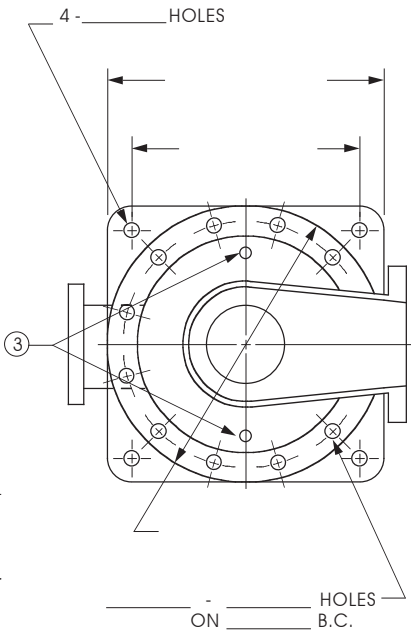
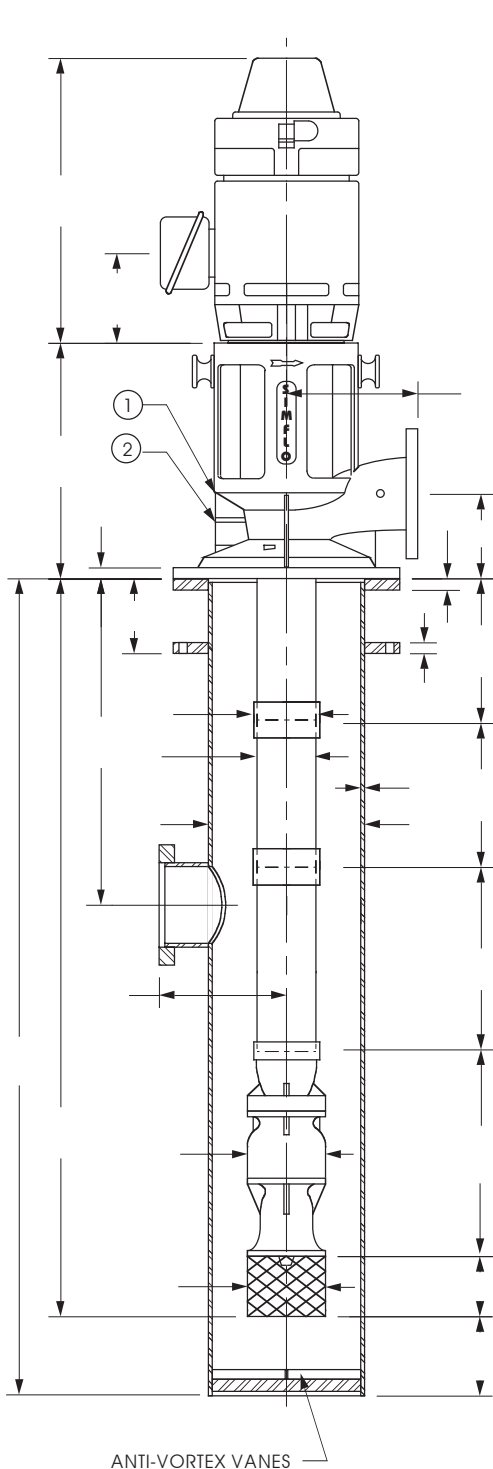
DISCHARGE HEAD _____

SEAL TYPE _____

SPECIAL _____

OTHER _____

Booster Can Pump
With Cast Discharge Head,
Threaded Column
Underground Suction



SUCTION FLANGE

DISCHARGE FLANGE

MOTOR

MAKE _____
ENCLOSURE _____
N.R.R. or S.R.C. _____
H.P. _____ S.F. _____
R.P.M. _____
PHASE _____ CYCLE _____
VOLTAGE _____
V.H.S. or V.S.S. _____
OTHER MOTOR INFO: _____

- 1 3/4" NPT DRAIN (1/2" NPT FOR S-050)
- 2 3/4" NPT ARV/PRELUBE (1/2" NPT FOR S-050)
- 3 X" NPT HOLES ON Y" B.C. (ALSO AS CAN ARV)

	X	Y
S-050	1/2	7.50
S-150	1/2	7.50
S-350	3/4	11.25
S-550	1	13.00
S-750	1	16.75

DATE _____
DISTRIBUTOR _____

JOB _____

JOB/QUOTE # _____
QUANTITY _____

G.P.M. _____
T.D.H. _____
SPEED _____
BOWL MODEL # _____

IMP. DIA. _____
IMP. TYPE _____
STRAINER TYPE _____

COLUMN ASSY. _____

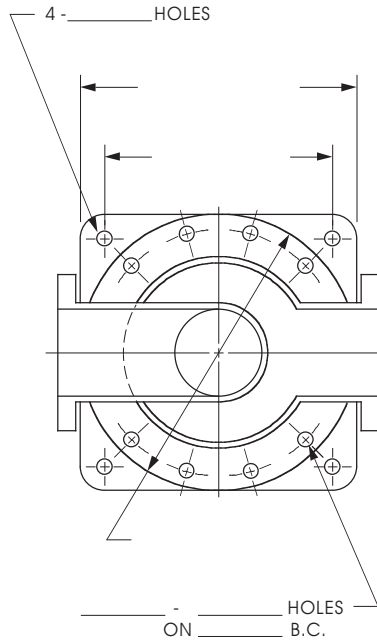
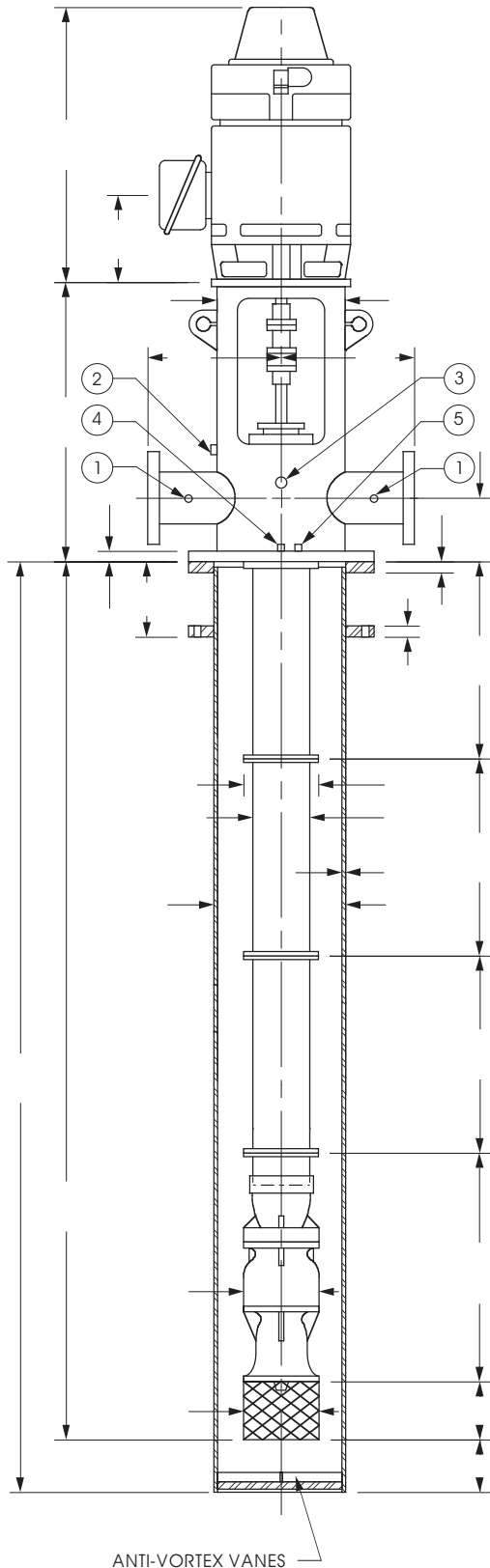
CAN MOUNTING PLATE _____

DISCHARGE HEAD _____

SEAL TYPE _____

SPECIAL _____

OTHER _____



SUCTION FLANGE

DISCHARGE FLANGE

MOTOR

MAKE _____
ENCLOSURE _____
N.R.R. or S.R.C. _____
H.P. _____ S.F. _____
R.P.M. _____
PHASE _____ CYCLE _____
VOLTAGE _____
V.H.S. or V.S.S. _____
OTHER MOTOR INFO: _____

- 1 1/2" NPT GAUGE TAP
- 2 3/4" NPT DRAIN TAP
- 3 1" NPT PRELUBE/ARV TAP
- 4 1" NPT CAN ARV TAP
- 5 1/2" NPT BYPASS TAP

DATE _____
DISTRIBUTOR _____

JOB _____

JOB/QUOTE # _____
QUANTITY _____

G.P.M. _____
T.D.H. _____
SPEED _____
BOWL MODEL # _____

IMP. DIA. _____
IMP. TYPE _____
STRAINER TYPE _____

COLUMN ASSY. _____

CAN MOUNTING PLATE _____

DISCHARGE HEAD _____

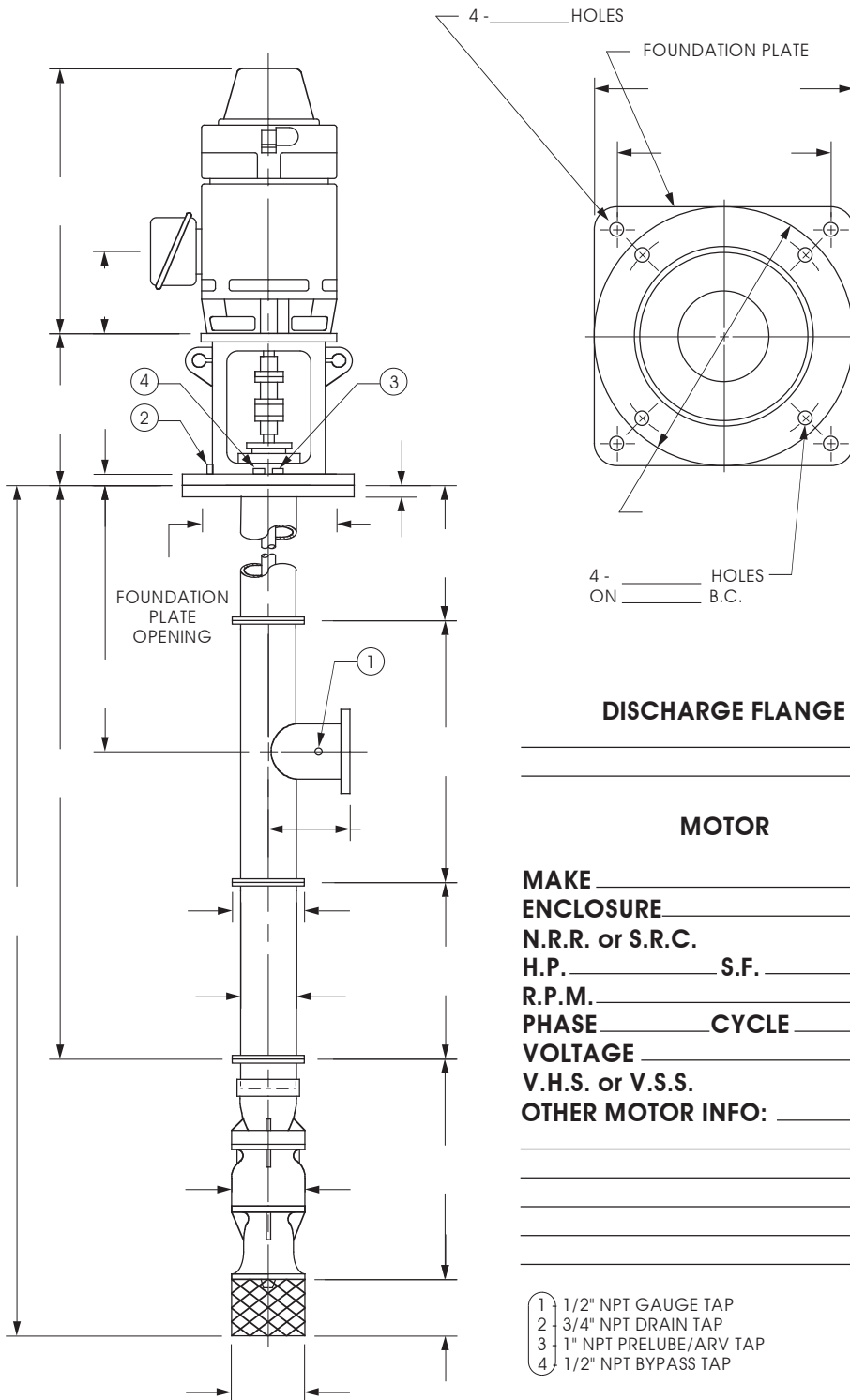
SEAL TYPE _____

SPECIAL _____

OTHER _____

ANTI-VORTEX VANES

Underground Discharge Pump With 'SM' Style Motor Stand, Flanged Column



DATE _____

DISTRIBUTOR _____

JOB _____

JOB/QUOTE # _____

QUANTITY _____

G.P.M. _____

T.D.H. _____

SPEED _____

BOWL MODEL # _____

IMP. DIA. _____

IMP. TYPE _____

STRAINER TYPE _____

COLUMN ASSY. _____

FOUNDATION PLATE _____

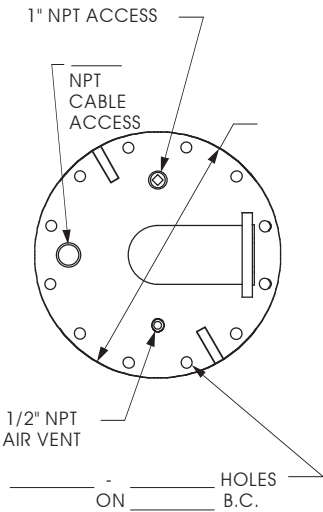
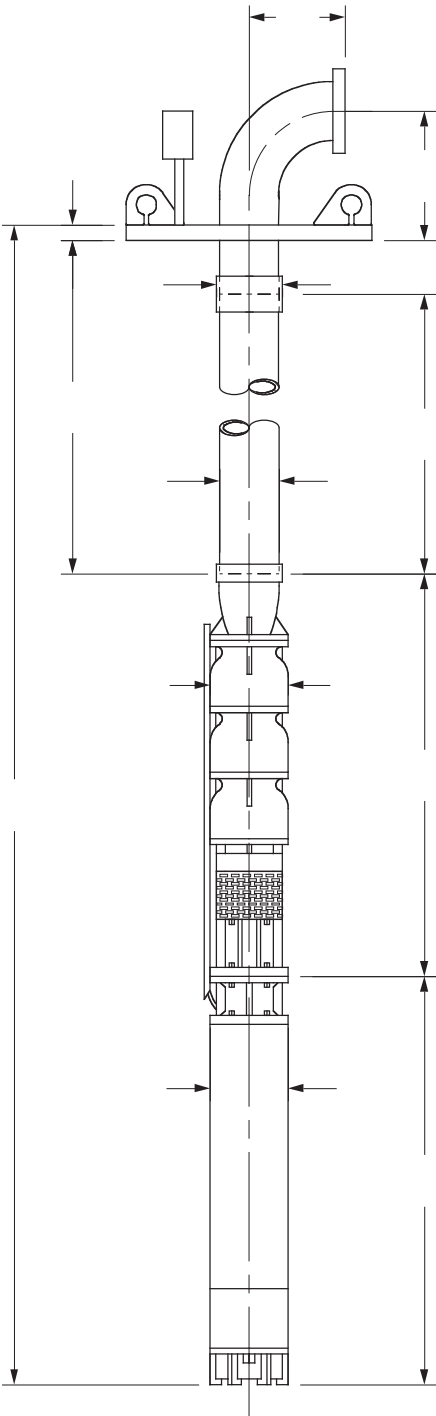
MOTOR STAND _____

SEAL TYPE _____

SPECIAL _____

OTHER _____

Submersible Pump
With Threaded Pipe



DATE _____
DISTRIBUTOR _____

JOB _____

JOB/QUOTE # _____
QUANTITY _____

G.P.M. _____
T.D.H. _____
SPEED _____
BOWL MODEL # _____

IMP. DIA. _____
IMP. TYPE _____
COLUMN ASSY. _____

DISCHARGE FLANGE

SUBMERSIBLE MOTOR

MAKE _____
H.P. _____ S.F. _____
R.P.M. _____
PHASE _____ CYCLE _____
VOLTAGE _____

CHECK VALVE _____

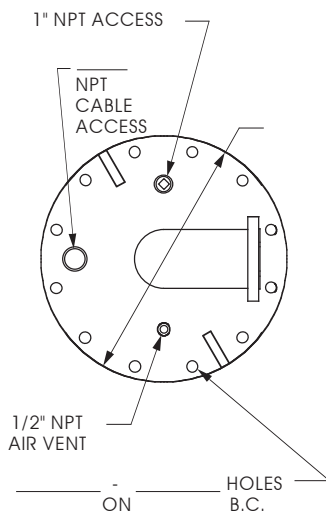
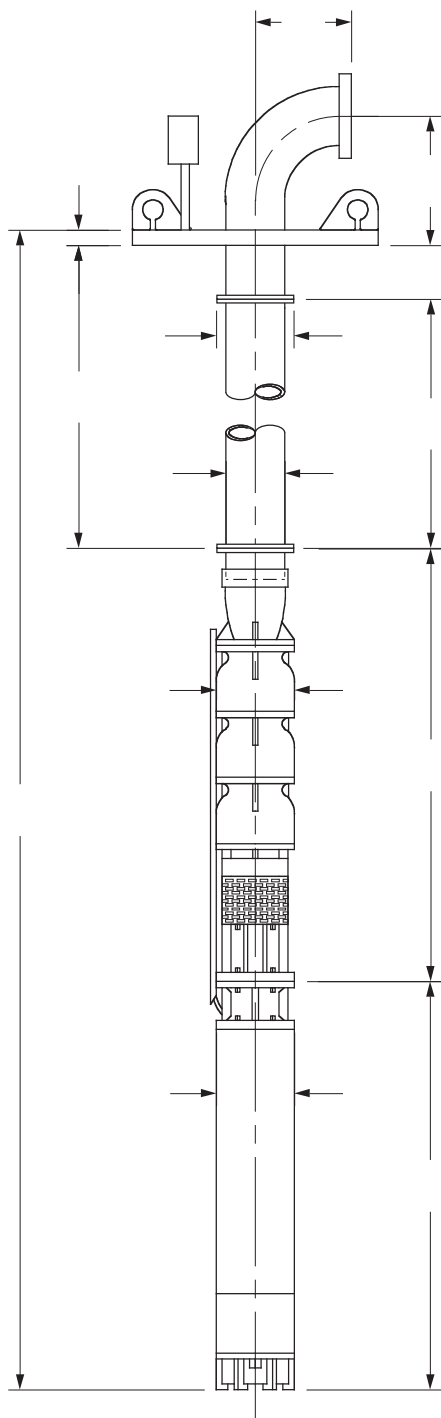
FOUNDATION PLATE _____

DISCHARGE HEAD _____

SPECIAL _____

OTHER _____

Submersible Pump With Flanged Pipe



DISCHARGE FLANGE

SUBMERSIBLE MOTOR

MAKE _____
 H.P. _____ S.F. _____
 R.P.M. _____
 PHASE _____ CYCLE _____
 VOLTAGE _____

DATE _____
 DISTRIBUTOR _____

JOB _____

JOB/QUOTE # _____
 QUANTITY _____

G.P.M. _____
 T.D.H. _____
 SPEED _____
 BOWL MODEL # _____

IMP. DIA. _____
 IMP. TYPE _____
 COLUMN ASSY. _____

CHECK VALVE _____

FOUNDATION PLATE _____

DISCHARGE HEAD _____

SPECIAL _____

OTHER _____

Submersible Pump
With Threaded Pipe
With Motor Shroud

DATE _____
DISTRIBUTOR _____

JOB _____

JOB/QUOTE # _____
QUANTITY _____

G.P.M. _____
T.D.H. _____
SPEED _____
BOWL MODEL # _____

IMP. DIA. _____
IMP. TYPE _____
COLUMN ASSY. _____

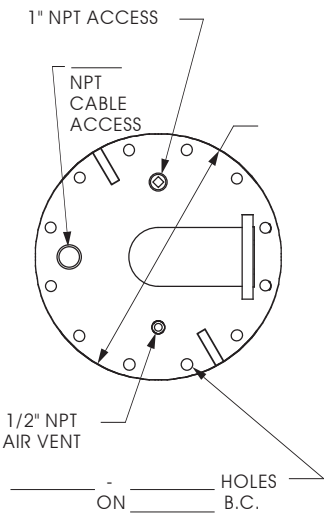
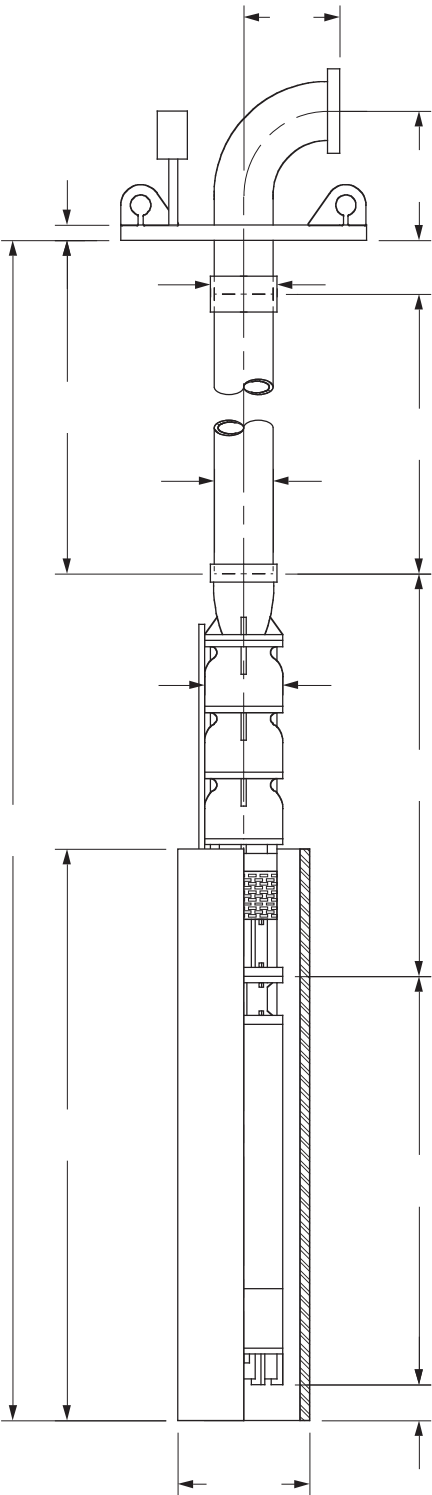
CHECK VALVE _____

FOUNDATION PLATE _____

DISCHARGE HEAD _____

SPECIAL _____

OTHER _____

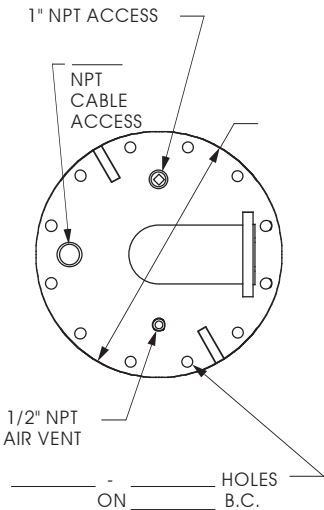
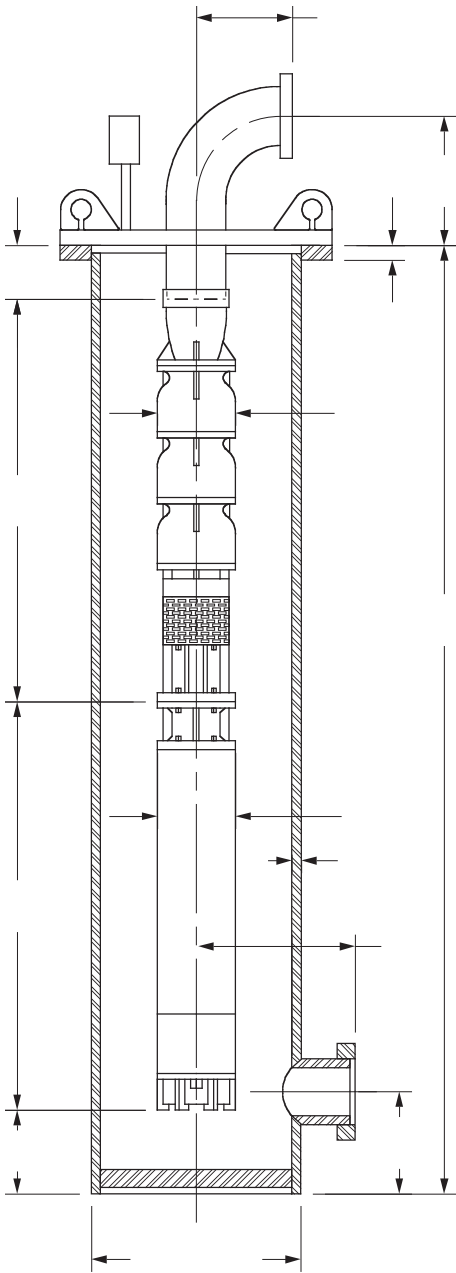


DISCHARGE FLANGE

SUBMERSIBLE MOTOR

MAKE _____
H.P. _____ S.F. _____
R.P.M. _____
PHASE _____ CYCLE _____
VOLTAGE _____

Submersible Booster
Can Pump With
Threaded Pipe,
Underground Suction



SUCTION FLANGE

DISCHARGE FLANGE

SUBMERSIBLE MOTOR

MAKE _____
H.P. _____ S.F. _____
R.P.M. _____
PHASE _____ CYCLE _____
VOLTAGE _____

DATE _____
DISTRIBUTOR _____

JOB _____

JOB/QUOTE # _____
QUANTITY _____

G.P.M. _____
T.D.H. _____
SPEED _____
BOWL MODEL # _____

IMP. DIA. _____
IMP. TYPE _____
COLUMN ASSY. _____

CHECK VALVE _____

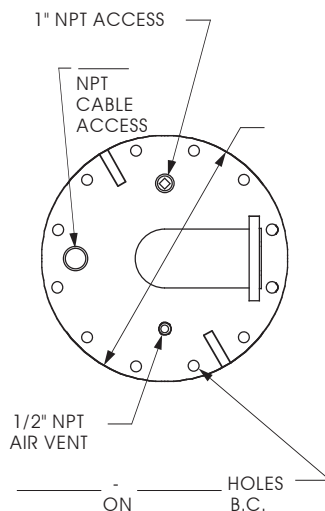
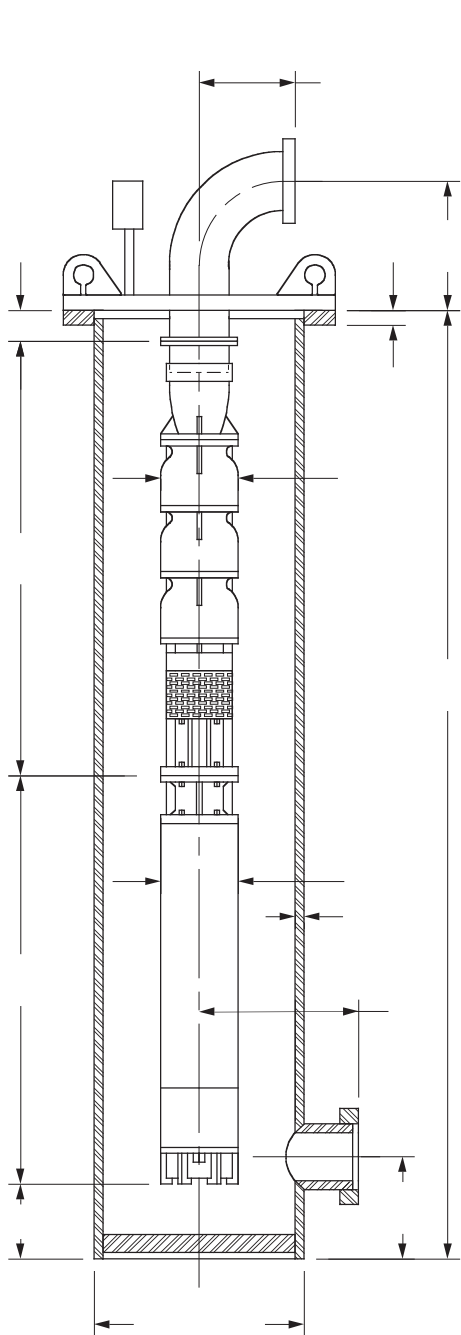
FOUNDATION PLATE _____

DISCHARGE HEAD _____

SPECIAL _____

OTHER _____

Submersible Booster Can Pump With Flanged Pipe, Underground Suction



SUCTION FLANGE

DISCHARGE FLANGE

SUBMERSIBLE MOTOR

MAKE _____
H.P. _____ S.F. _____
R.P.M. _____
PHASE _____ CYCLE _____
VOLTAGE _____

DATE _____
DISTRIBUTOR _____

JOB _____

JOB/QUOTE # _____
QUANTITY _____

G.P.M. _____
T.D.H. _____
SPEED _____
BOWL MODEL # _____

IMP. DIA. _____
IMP. TYPE _____
COLUMN ASSY. _____

CHECK VALVE _____

FOUNDATION PLATE _____

DISCHARGE HEAD _____

SPECIAL _____

OTHER _____

Horizontal Submersible Booster Can Pump With Inline Suction

DISCHARGE HEAD _____

SPECIAL _____

OTHER _____

SUCTION FLANGE

DISCHARGE FLANGE

SUBMERSIBLE MOTOR

MAKE _____

H.P. _____ S.F. _____

R.P.M. _____

PHASE _____ CYCLE _____

VOLTAGE _____

DATE _____

DISTRIBUTOR _____

JOB _____

JOB/QUOTE # _____

QUANTITY _____

G.P.M. _____

T.D.H. _____

SPEED _____

BOWL MODEL # _____

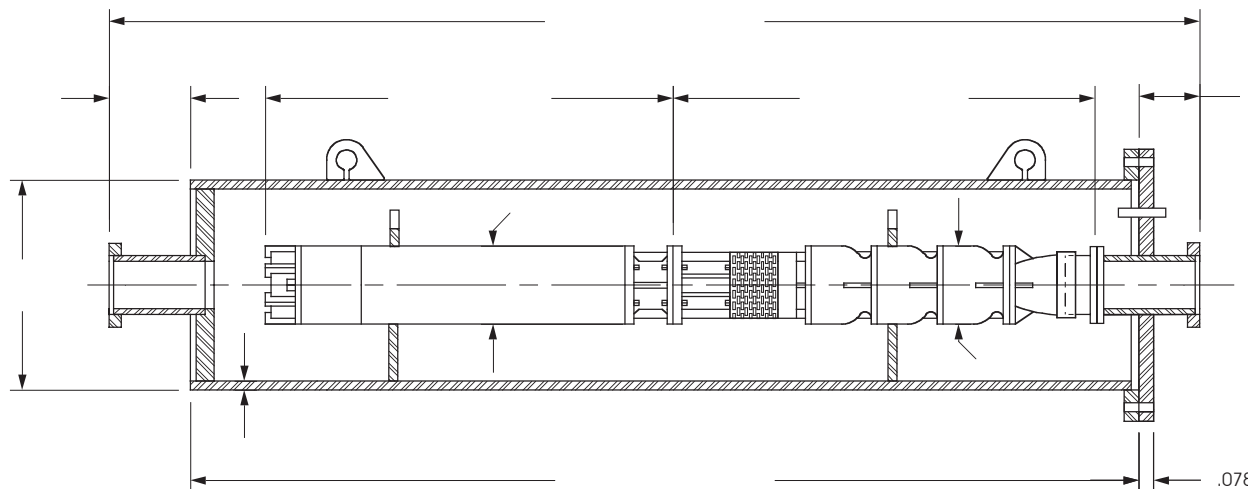
IMP. DIA. _____

IMP. TYPE _____

COLUMN ASSY. _____

CHECK VALVE _____

FOUNDATION PLATE _____



Horizontal Submersible Booster Can Pump With Divergent Suction

DISCHARGE HEAD _____

SPECIAL _____

OTHER _____

SUCTION FLANGE

DISCHARGE FLANGE

SUBMERSIBLE MOTOR

MAKE _____

H.P. _____ S.F. _____

R.P.M. _____

PHASE _____ CYCLE _____

VOLTAGE _____

DATE _____

DISTRIBUTOR _____

JOB _____

JOB/QUOTE # _____

QUANTITY _____

G.P.M. _____

T.D.H. _____

SPEED _____

BOWL MODEL # _____

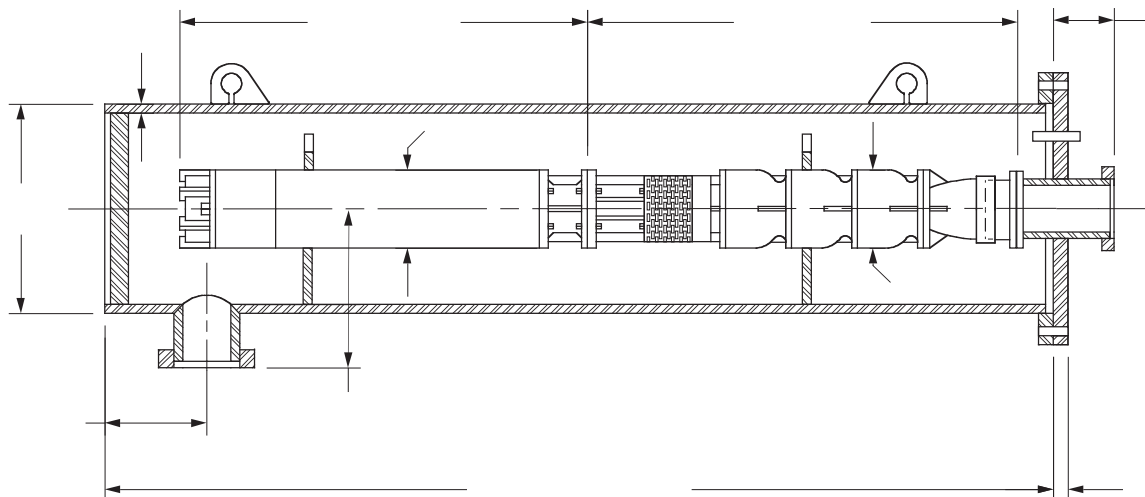
IMP. DIA. _____

IMP. TYPE _____

COLUMN ASSY. _____

CHECK VALVE _____

FOUNDATION PLATE _____



Suggested Specifications Short Coupled, Open Lineshaft Pump With Above Ground Discharge

Pump shall be designed for pumping product at:	Rated capacity of	_____ (GPM)
	Total dynamic head of	_____ (TDH)
	Minimum bowl efficiency of	_____ %
	Product temperature of	_____ °F
	Specific gravity of	_____
	Running Speed of	_____ (RPM)

BOWL ASSEMBLY: The pump bowls, suction, and discharge cases shall be of close grained ASTM A48 Class 30 cast iron or ASTM A536 Grade 65-45-12 ductile iron as required for pressure handling capability, cast and machined without defect. The top bowl shall be fitted with an ASTM B505 C89835 bronze bearing. The intermediate bowls shall be fitted with fluted neoprene and/ or ASTM B505 C89835 bronze bearings. The suction case shall be fitted with an ASTM B505 C89835 bronze bearing, permanently grease lubricated and provided with an ASTM B505 C89835 bronze sand collar to protect the suction case bearing from abrasives. The impellers shall be made of ASTM B148 C95500 Ni. Al. bronze, cast and machined without defect, statically balanced, and filed for optimum performance, *[(optional) and shall be fitted with replaceable ASTM B148 C95500 Ni. Al. bronze wear rings]* having minimum practical clearance to the mating cylindrical surface of the intermediate bowls and suction case. The impellers shall be securely fastened to the bowl-shaft with tapered collets of ASTM A519 Grade 1018 carbon steel for bowl-shafts 2-3/16" nominal diameter and smaller, and with keyed connections for bowl-shafts larger than 2-3/16" nominal diameter. The water passages of pump bowls size 6" through 14" shall have vitreous porcelain enamel lining and 16" and over shall have ScotchKote™ Fusion-Bonded Epoxy 134 to provide optimum performance. The bowl-shaft shall be ASTM A582 Grade 416 HT stainless steel *[(optional) with hard chrome plating, having a Brinell hardness of no less than 500. The bowl-shaft shall have no less than .007" hard chrome per side]*, shall have pump shaft quality dimensional tolerances of +.000"/-.002", and shall be straightened within .0005" total indicator reading per foot of length. The bowl-shaft shall be of sufficient diameter to transmit the pump horsepower with a safety factor consistent with AWWA pump shaft standards.

COLUMN ASSEMBLY: The column pipe shall be of ASTM A53 Grade B carbon steel. The column pipe shall be flanged having interchangeable sections, not exceeding 10 feet and/ or sized to avoid critical speeds by a safe operational margin. The column flanges shall be of ASTM A36 HR steel and conform to ANSI specifications. The flanged pipe ends shall have a female register accurately machined for drop-in bearing retainers of ASTM A743 CF8 stainless steel. The line-shaft bearings shall be field replaceable neoprene, securely held in place. The neoprene bearings shall have internal grooves to allow for product lubrication of the shaft.

The line-shafts shall be of ASTM A582 Grade 416 HT stainless steel *[(optional) with hard chrome plating, having a Brinell hardness of no less than 500. The line-shaft shall have no less than .007" hard chrome per side]*, shall have pump shaft quality dimensional tolerances of +.000"/-.002", and shall be straightened within .005" total indicator reading. The line-shafts shall be of sufficient diameter to transmit the pump horsepower with a safety factor consistent with AWWA pump shaft standards and/ or sized to avoid critical speeds by a safe operational margin. The shaft threads shall be lathe cut and shall be left hand to prevent loosening during pump operation. The shaft couplings shall be threaded from ASTM A108 Grade 1018 CR carbon steel or ASTM A276 Grade 304 stainless steel. The intermediate line-shaft sections shall be interchangeable and shall not exceed 10 feet in length. The butting ends of the line-shafts shall be machined square to axis of the shaft and shall be recessed to insure proper alignment.

DISCHARGE HEAD: The discharge head shall be of ASTM A48 Class 30 cast iron, ASTM A536 Grade 65-45-12 ductile iron, or fabricated of ASTM A53 Grade B carbon steel pipe and ASTM A36 HR carbon steel plate. The discharge head shall be for above ground discharge with sufficient strength and rigidity to support the attached vertical motor or driver and carry the suspended weight of the attached column and bowl assembly. As required to reduce internal friction losses, a radius or three-piece mitered type elbow shall be used for a smooth transition. The discharge flange shall be faced and drilled to match 150 Class ANSI flange bolt pattern. The discharge size shall be the same as the column pipe. The discharge head shall permit a two-piece head-shaft to be coupled above the stuffing box. The base of the discharge head shall be circular and fully finished on bottom. If the discharge head is to be mounted on a booster can, the base diameter and bolt pattern shall match a 150 Class ANSI flange.

PACKED TYPE STUFFING BOX: The stuffing box shall be of ASTM A48 Class 30 cast iron. The packing box shall have a deep bore with a minimum of five rings of packing and a lantern ring capable of handling 450 PSI and 210° F temperature. Connections for grease inlet and pressure relief shall be provided. The one piece packing gland shall be of ASTM B584 C89833 bronze and secured in place with stainless steel studs and brass nuts. A stuffing box bearing of ASTM B505 89835 bronze shall be provided directly below the packing for stability. A neoprene o-ring shall be used to seal the packing box to the discharge head.

MECHANICAL SEAL ASSEMBLY: The seal housing shall be of ASTM A48 Class 30 cast iron. The housing shall have a 1/8" NPT orifice for seal circulation or lubrication. The design of the mechanical seal system shall provide for easy and visually verifiable pump lateral adjustments. Setting shall not require the disassembly of any portion of the factory preset seal assembly. For pressures up to 600 PSI, a Chesterton 155 shall be used. The rotating face shall be tungsten carbide and the stationary face shall be carbon. All metal seal parts shall be 316 stainless steel. A seal housing bearing of ASTM B505 89835 bronze shall be provided directly below the mechanical seal for stability. A neoprene o-ring shall be used to seal the packing box to the discharge head.

FOUNDATION PLATE: The foundation plate shall be of ASTM A36 HR carbon steel. The foundation plate shall be square with radius corners, equal to or greater than the size of the base of the discharge head. The foundation plate shall be uniformly faced on one side, with four drilled holes provided, one at each corner to accommodate anchor bolts.

MOTOR COUPLING: The Motor Coupling, when driven with a solid shaft motor, shall be a flanged adjustable three-piece or spacer type four-piece rigid coupling. The coupling shall be of steel, designed to transmit the required torque and horsepower of the attached pump and other rotating elements. The lower half of the coupling shall be keyed to the head-shaft. The upper half shall have a radial key to support down thrust and an axial key to transmit torque. A threaded adjusting nut shall be located between the lower coupling half and the spacer or upper coupling half. The coupling shall be designed to prevent movement due to up thrust, and held concentric by means of machined registers.

Suggested Specifications Short Coupled, Open Lineshaft Pump With Underground Discharge

Pump shall be designed for pumping product at:	Rated capacity of	_____ (GPM)
	Total dynamic head of	_____ (TDH)
	Minimum bowl efficiency of	_____ %
	Product temperature of	_____ °F
	Specific gravity of	_____
	Running Speed of	_____ (RPM)

BOWL ASSEMBLY: The pump bowls, suction, and discharge cases shall be of close grained ASTM A48 Class 30 cast iron or ASTM A536 Grade 65-45-12 ductile iron as required for pressure handling capability, cast and machined without defect. The top bowl shall be fitted with an ASTM B505 C89835 bronze bearing. The intermediate bowls shall be fitted with fluted neoprene and/or ASTM B505 C89835 bronze bearings. The suction case shall be fitted with an ASTM B505 C89835 bronze bearing, permanently grease lubricated and provided with an ASTM B505 C89835 bronze sand collar to protect the suction case bearing from abrasives. The impellers shall be made of ASTM B148 C95500 Ni. Al. bronze, cast and machined without defect, statically balanced, and filed for optimum performance, *[(optional) and shall be fitted with replaceable ASTM B148 C95500 Ni. Al. bronze wear rings]* having minimum practical clearance to the mating cylindrical surface of the intermediate bowls and suction case. The impellers shall be securely fastened to the bowl-shaft with tapered collets of ASTM A519 Grade 1018 carbon steel for bowl-shafts 2-3/16" nominal diameter and smaller, and with keyed connections for bowl-shafts larger than 2-3/16" nominal diameter. The water passages of pump bowls size 6" through 14" shall have vitreous porcelain enamel lining and 16" and over shall have ScotchKote™ Fusion-Bonded Epoxy 134 to provide optimum performance. The bowl-shaft shall be ASTM A582 Grade 416 HT stainless steel *[(optional) with hard chrome plating, having a Brinell hardness of no less than 500. The bowl-shaft shall have no less than .007" hard chrome per side]*, shall have pump shaft quality dimensional tolerances of +.000"/-.002", and shall be straightened within .0005" total indicator reading per foot of length. The bowl-shaft shall be of sufficient diameter to transmit the pump horsepower with a safety factor consistent with AWWA pump shaft standards.

COLUMN ASSEMBLY: The column pipe shall be of ASTM A53 Grade B carbon steel. The column pipe shall be flanged having interchangeable sections, not exceeding 10 feet and/or sized to avoid critical speeds by a safe operational margin. The column flanges shall be of ASTM A36 HR steel and conform to ANSI specifications. The flanged pipe ends shall have a female register accurately machined for drop-in bearing retainers of ASTM A743 CF8 stainless steel. The line-shaft bearings shall be field replaceable neoprene, securely held in place. The neoprene bearings shall have internal grooves to allow for product lubrication of the shaft. The discharge flange shall be a 150 Class ANSI raised face flange. The discharge size shall be the same as the column pipe.

The line-shafts shall be of ASTM A582 Grade 416 HT stainless steel *[(optional) with hard chrome plating, having a Brinell hardness of no less than 500. The line-shaft shall have no less than .007" hard chrome per side]*, shall have pump shaft quality dimensional tolerances of +.000"/-.002", and shall be straightened within .005" total indicator reading. The line-shafts shall be of sufficient diameter to transmit the pump horsepower with a safety factor consistent with AWWA pump shaft standards and/or sized to avoid critical speeds by a safe operational margin. The shaft threads shall be lathe cut and shall be left hand to prevent loosening during pump operation. The shaft couplings shall be threaded from ASTM A108 Grade 1018 CR carbon steel or ASTM A276 Grade 304 stainless steel. The intermediate line-shaft sections shall be interchangeable and shall not exceed 10 feet in length. The butting ends of the line-shafts shall be machined square to axis of the shaft and shall be recessed to insure proper alignment.

MOTOR STAND: The motor stand shall be fabricated of ASTM A53 Grade B carbon steel pipe and ASTM A36 HR carbon steel plate. The motor stand shall be for below ground discharge with sufficient strength and rigidity to support the attached vertical motor or driver and carry the suspended weight of the attached column and bowl assembly. The motor stand shall permit a two-piece head shaft to be coupled above the stuffing box. The base of the motor stand shall be circular and fully finished on bottom.

PACKED TYPE STUFFING BOX: The stuffing box shall be of ASTM A48 Class 30 cast iron. The packing box shall have a deep bore with a minimum of five rings of packing and a lantern ring capable of handling 450 PSI and 210° F temperature. Connections for grease inlet and pressure relief shall be provided. The one piece packing gland shall be of ASTM B584 C89833 bronze and secured in place with stainless steel studs and brass nuts. A stuffing box bearing of ASTM B505 89835 bronze shall be provided directly below the packing for stability. A neoprene o-ring shall be used to seal the packing box to the discharge head.

MECHANICAL SEAL ASSEMBLY: The seal housing shall be of ASTM A48 Class 30 cast iron. The housing shall have a 1/8" NPT orifice for seal circulation or lubrication. The design of the mechanical seal system shall provide for easy and visually verifiable pump lateral adjustments. Setting shall not require the disassembly of any portion of the factory preset seal assembly. For pressures up to 600 PSI, a Chesterton 155 shall be used. The rotating face shall be tungsten carbide and the stationary face shall be carbon. All metal seal parts shall be 316 stainless steel. A seal housing bearing of ASTM B505 89835 bronze shall be provided directly below the mechanical seal for stability. A neoprene o-ring shall be used to seal the packing box to the discharge head.

FOUNDATION PLATE: The foundation plate shall be of ASTM A36 HR carbon steel. The foundation plate shall be square with radius corners, equal to or greater than the size of the base of the discharge head. The foundation plate shall be uniformly faced on one side, with four drilled holes provided, one at each corner to accommodate anchor bolts.

MOTOR COUPLING: The Motor Coupling, when driven with a solid shaft motor, shall be a flanged adjustable three-piece or spacer type four-piece rigid coupling. The coupling shall be of steel, designed to transmit the required torque and horsepower of the attached pump and other rotating elements. The lower half of the coupling shall be keyed to the head-shaft. The upper half shall have a radial key to support down thrust and an axial key to transmit torque. A threaded adjusting nut shall be located between the lower coupling half and the spacer or upper coupling half. The coupling shall be designed to prevent movement due to up thrust, and held concentric by means of machined registers.

Suggested Specifications Booster Can Mounted Open Lineshaft Pump With Underground Suction

Pump shall be designed for pumping product at:

Rated capacity of	_____	(GPM)
Total dynamic head of	_____	(TDH)
Minimum bowl efficiency of	_____	%
Product temperature of	_____	°F
Specific gravity of	_____	
Running Speed of	_____	(RPM)

BOWL ASSEMBLY: The pump bowls, suction, and discharge cases shall be of close grained ASTM A48 Class 30 cast iron or ASTM A536 Grade 65-45-12 ductile iron as required for pressure handling capability, cast and machined without defect. The top bowl shall be fitted with an ASTM B505 C89835 bronze bearing. The intermediate bowls shall be fitted with fluted neoprene and/ or ASTM B505 C89835 bronze bearings. The suction case shall be fitted with an ASTM B505 C89835 bronze bearing, permanently grease lubricated and provided with an ASTM B505 C89835 bronze sand collar to protect the suction case bearing from abrasives. The impellers shall be made of ASTM B148 C95500 Ni. Al. bronze, cast and machined without defect, statically balanced, and filed for optimum performance, [(optional) and shall be fitted with replaceable ASTM B148 C95500 Ni. Al. bronze wear rings] having minimum practical clearance to the mating cylindrical surface of the intermediate bowls and suction case. The impellers shall be securely fastened to the bowl-shaft with tapered collets of ASTM A519 Grade 1018 carbon steel for bowl-shafts 2-3/16" nominal diameter and smaller, and with keyed connections for bowl-shafts larger than 2-3/16" nominal diameter. The water passages of pump bowls size 6" through 14" shall have vitreous porcelain enamel lining and 16" and over shall have ScotchKote™ Fusion-Bonded Epoxy 134 to provide optimum performance. The bowl-shaft shall be ASTM A582 Grade 416 HT stainless steel [(optional) with hard chrome plating, having a Brinell hardness of no less than 500. The bowl-shaft shall have no less than .007" hard chrome per side], shall have pump shaft quality dimensional tolerances of +.000"/-.002", and shall be straightened within .0005" total indicator reading per foot of length. The bowl-shaft shall be of sufficient diameter to transmit the pump horsepower with a safety factor consistent with AWWA pump shaft standards.

COLUMN ASSEMBLY: The column pipe shall be of ASTM A53 Grade B carbon steel. The column pipe shall be flanged having interchangeable sections, not exceeding 10 feet and/ or sized to avoid critical speeds by a safe operational margin. The column flanges shall be of ASTM A36 HR steel and conform to ANSI specifications. The flanged pipe ends shall have a female register accurately machined for drop-in bearing retainers of ASTM A743 CF8 stainless steel. The line-shaft bearings shall be field replaceable neoprene, securely held in place. The neoprene bearings shall have internal grooves to allow for product lubrication of the shaft.

The line-shafts shall be of ASTM A582 Grade 416 HT stainless steel [(optional) with hard chrome plating, having a Brinell hardness of no less than 500. The line-shaft shall have no less than .007" hard chrome per side], shall have pump shaft quality dimensional tolerances of +.000"/-.002", and shall be straightened within .005" total indicator reading. The line-shafts shall be of sufficient diameter to transmit the pump horsepower with a safety factor consistent with AWWA pump shaft standards and/ or sized to avoid critical speeds by a safe operational margin. The shaft threads shall be lathe cut and shall be left hand to prevent loosening during pump operation. The shaft couplings shall be threaded from ASTM A108 Grade 1018 CR carbon steel or ASTM A276 Grade 304 stainless steel. The intermediate line-shaft sections shall be interchangeable and shall not exceed 10 feet in length. The butting ends of the line-shafts shall be machined square to axis of the shaft and shall be recessed to insure proper alignment.

DISCHARGE HEAD: The discharge head shall be of ASTM A48 Class 30 cast iron, ASTM A536 Grade 65-45-12 ductile iron, or fabricated of ASTM A53 Grade B carbon steel pipe and ASTM A36 HR carbon steel plate. The discharge head shall be for above ground discharge with sufficient strength and rigidity to support the attached vertical motor or driver and carry the suspended weight of the attached column and bowl assembly. As required to reduce internal friction losses, a radius or three-piece mitered type elbow shall be used for a smooth transition. The discharge flange shall be faced and drilled to match 150 Class ANSI flange bolt pattern. The discharge size shall be the same as the column pipe. The discharge head shall permit a two-piece head-shaft to be coupled above the stuffing box. The base of the discharge head shall be circular and fully finished on bottom. If the discharge head is to be mounted on a booster can, the base diameter and bolt pattern shall match a 150 Class ANSI flange.

PACKED TYPE STUFFING BOX: The stuffing box shall be of ASTM A48 Class 30 cast iron. The packing box shall have a deep bore with a minimum of five rings of packing and a lantern ring capable of handling 450 PSI and 210° F temperature. Connections for grease inlet and pressure relief shall be provided. The one piece packing gland shall be of ASTM B584 C89833 bronze and secured in place with stainless steel studs and brass nuts. A stuffing box bearing of ASTM B505 89835 bronze shall be provided directly below the packing for stability. A neoprene o-ring shall be used to seal the packing box to the discharge head.

MECHANICAL SEAL ASSEMBLY: The seal housing shall be of ASTM A48 Class 30 cast iron. The housing shall have a 1/8" NPT orifice for seal circulation or lubrication. The design of the mechanical seal system shall provide for easy and visually verifiable pump lateral adjustments. Setting shall not require the disassembly of any portion of the factory preset seal assembly. For pressures up to 600 PSI, a Chesterton 155 shall be used. The rotating face shall be tungsten carbide and the stationary face shall be carbon. All metal seal parts shall be 316 stainless steel. A seal housing bearing of ASTM B505 89835 bronze shall be provided directly below the mechanical seal for stability. A neoprene o-ring shall be used to seal the packing box to the discharge head.

BOOSTER CAN: The booster can shall be fabricated of ASTM A53 Grade B carbon steel pipe and ASTM A36 HR carbon steel plate steel. The booster can shall have a 150 Class ANSI raised face flanged inlet. The head-mounting flange shall match the discharge head base 150 Class ANSI diameter and bolt pattern. The booster can shall be sized per Hydraulic Institute Pump Intake Design standards.

MOTOR COUPLING: The Motor Coupling, when driven with a solid shaft motor, shall be a flanged adjustable three-piece or spacer type four-piece rigid coupling. The coupling shall be of steel, designed to transmit the required torque and horsepower of the attached pump and other rotating elements. The lower half of the coupling shall be keyed to the head-shaft. The upper half shall have a radial key to support down thrust and an axial key to transmit torque. A threaded adjusting nut shall be located between the lower coupling half and the spacer or upper coupling half. The coupling shall be designed to prevent movement due to up thrust, and held concentric by means of machined registers.

Suggested Specifications Booster Can Mounted Open Lineshaft Pump With Above Ground Suction

Pump shall be designed for pumping water at:

Rated capacity of		_____ (GPM)
Total dynamic head of		_____ (TDH)
Minimum bowl efficiency of		_____ %
Water temperature of		_____ °F
Specific gravity of		_____
Running Speed of		_____ (RPM)

BOWL ASSEMBLY: The pump bowls, suction, and discharge cases shall be of close grained ASTM A48 Class 30 cast iron or ASTM A536 Grade 65-45-12 ductile iron as required for pressure handling capability, cast and machined without defect. The top bowl shall be fitted with an ASTM B505 C89835 bronze bearing. The intermediate bowls shall be fitted with fluted neoprene and/ or ASTM B505 C89835 bronze bearings. The suction case shall be fitted with an ASTM B505 C89835 bronze bearing, permanently grease lubricated and provided with an ASTM B505 C89835 bronze sand collar to protect the suction case bearing from abrasives. The impellers shall be made of ASTM B148 C95500 Ni. Al. bronze, cast and machined without defect, statically balanced, and filed for optimum performance, *[(optional) and shall be fitted with replaceable ASTM B148 C95500 Ni. Al. bronze wear rings]* having minimum practical clearance to the mating cylindrical surface of the intermediate bowls and suction case. The impellers shall be securely fastened to the bowl-shaft with tapered collets of ASTM A519 Grade 1018 carbon steel for bowl-shafts 2-3/16" nominal diameter and smaller, and with keyed connections for bowl-shafts larger than 2-3/16" nominal diameter. The water passages of pump bowls size 6" through 14" shall have vitreous porcelain enamel lining and 16" and over shall have ScotchKote™ Fusion-Bonded Epoxy 134 to provide optimum performance. The bowl-shaft shall be ASTM A582 Grade 416 HT stainless steel *[(optional) with hard chrome plating, having a Brinell hardness of no less than 500. The bowl-shaft shall have no less than .007" hard chrome per side]*, shall have pump shaft quality dimensional tolerances of +.000"/-.002", and shall be straightened within .0005" total indicator reading per foot of length. The bowl-shaft shall be of sufficient diameter to transmit the pump horsepower with a safety factor consistent with AWWA pump shaft standards.

COLUMN ASSEMBLY: The column pipe shall be of ASTM A53 Grade B carbon steel. The column pipe shall be flanged having interchangeable sections, not exceeding 10 feet and/ or sized to avoid critical speeds by a safe operational margin. The column flanges shall be of ASTM A36 HR steel and conform to ANSI specifications. The flanged pipe ends shall have a female register accurately machined for drop-in bearing retainers of ASTM A743 CF8 stainless steel. The line-shaft bearings shall be field replaceable neoprene, securely held in place. The neoprene bearings shall have internal grooves to allow for product lubrication of the shaft.

The line-shafts shall be of ASTM A582 Grade 416 HT stainless steel *[(optional) with hard chrome plating, having a Brinell hardness of no less than 500. The line-shaft shall have no less than .007" hard chrome per side]*, shall have pump shaft quality dimensional tolerances of +.000"/-.002", and shall be straightened within .005" total indicator reading. The line-shafts shall be of sufficient diameter to transmit the pump horsepower with a safety factor consistent with AWWA pump shaft standards and/ or sized to avoid critical speeds by a safe operational margin. The shaft threads shall be lathe cut and shall be left hand to prevent loosening during pump operation. The shaft couplings shall be threaded from ASTM A108 Grade 1018 CR carbon steel or ASTM A276 Grade 304 stainless steel. The intermediate line-shaft sections shall be interchangeable and shall not exceed 10 feet in length. The butting ends of the line-shafts shall be machined square to axis of the shaft and shall be recessed to insure proper alignment.

DISCHARGE HEAD: The discharge head shall be fabricated of ASTM A53 Grade B carbon steel pipe and ASTM A36 HR carbon steel plate. The discharge head shall be for above ground discharge with sufficient strength and rigidity to support the attached vertical motor or driver and carry the suspended weight of the attached column and bowl assembly. The suction flange shall be a 150 Class ANSI raised face flange. The suction size shall be sized per Hydraulic Institute Pump Intake Design standards. The discharge flange shall be faced and drilled to match 150 Class ANSI flange bolt pattern. The discharge size shall be the same as the column pipe. The discharge head shall permit a two-piece head-shaft to be coupled above the stuffing box. The base of the discharge head shall be circular and fully finished on bottom. The base diameter and bolt pattern shall match a 150 Class ANSI flange.

PACKED TYPE STUFFING BOX: The stuffing box shall be of ASTM A48 Class 30 cast iron. The packing box shall have a deep bore with a minimum of five rings of packing and a lantern ring capable of handling 450 PSI and 210° F temperature. Connections for grease inlet and pressure relief shall be provided. The one piece packing gland shall be of ASTM B584 C89833 bronze and secured in place with stainless steel studs and brass nuts. A stuffing box bearing of ASTM B505 89835 bronze shall be provided directly below the packing for stability. A neoprene o-ring shall be used to seal the packing box to the discharge head.

MECHANICAL SEAL ASSEMBLY: The seal housing shall be of ASTM A48 Class 30 cast iron. The housing shall have a 1/8" NPT orifice for seal circulation or lubrication. The design of the mechanical seal system shall provide for easy and visually verifiable pump lateral adjustments. Setting shall not require the disassembly of any portion of the factory preset seal assembly. For pressures up to 600 PSI, a Chesterton 155 shall be used. The rotating face shall be tungsten carbide and the stationary face shall be carbon. All metal seal parts shall be 316 stainless steel. A seal housing bearing of ASTM B505 89835 bronze shall be provided directly below the mechanical seal for stability. A neoprene o-ring shall be used to seal the packing box to the discharge head.

BOOSTER CAN: The booster can shall be fabricated of ASTM A53 Grade B carbon steel pipe and ASTM A36 HR carbon steel plate steel. The head-mounting flange shall match the discharge head base 150 Class ANSI diameter and bolt pattern. The booster can shall be sized per Hydraulic Institute Pump Intake Design standards.

Suggested Specifications

Deep Set, Open Lineshaft Pump With Above Ground Discharge

Pump shall be designed for pumping water at:

Rated capacity of	_____ (GPM)
Total dynamic head of	_____ (TDH)
Minimum bowl efficiency of	_____ %
Water temperature of	_____ °F
Specific gravity of	_____
Running Speed of	_____ (RPM)

BOWL ASSEMBLY: The pump bowls, suction, and discharge cases shall be of close grained ASTM A48 Class 30 cast iron or ASTM A536 Grade 65-45-12 ductile iron as required for pressure handling capability, cast and machined without defect. The top bowl shall be fitted with an ASTM B505 C89835 bronze bearing. The intermediate bowls shall be fitted with fluted neoprene and/ or ASTM B505 C89835 bronze bearings. The suction case shall be fitted with an ASTM B505 C89835 bronze bearing, permanently grease lubricated and provided with an ASTM B505 C89835 bronze sand collar to protect the suction case bearing from abrasives. The impellers shall be made of ASTM B148 C95500 Ni. Al. bronze, cast and machined without defect, statically balanced, and filed for optimum performance, [(*optional*) and shall be fitted with replaceable ASTM B148 C95500 Ni. Al. bronze wear rings] having minimum practical clearance to the mating cylindrical surface of the intermediate bowls and suction case. The impellers shall be securely fastened to the bowl-shaft with tapered collets of ASTM A519 Grade 1018 carbon steel for bowl-shafts 2-3/16" nominal diameter and smaller, and with keyed connections for bowl-shafts larger than 2-3/16" nominal diameter. The water passages of pump bowls size 6" through 14" shall have vitreous porcelain enamel lining and 16" and over shall have ScotchKote™ Fusion-Bonded Epoxy 134 to provide optimum performance. The bowl-shaft shall be ASTM A582 Grade 416 HT stainless steel [(*optional*) with hard chrome plating, having a Brinell hardness of no less than 500. The bowl-shaft shall have no less than .007" hard chrome per side], shall have pump shaft quality dimensional tolerances of +.000"/-.002", and shall be straightened within .0005" total indicator reading per foot of length. The bowl-shaft shall be of sufficient diameter to transmit the pump horsepower with a safety factor consistent with AWWA pump shaft standards.

COLUMN ASSEMBLY: The column pipe shall be of ASTM A53 Grade B carbon steel. The pipe weight shall be consistent with industry standard pump column pipe and appropriately sized for the intended service. The column pipe shall be connected by "J" Type straight butt style threaded couplings. The ends of each column pipe shall be machined parallel and threaded so that the ends butt. Intermediate sections of column shall not exceed 10 feet. Top and bottom column pipe sections shall not exceed 5 feet. Drop-in bearing retainers of ASTM A743 CF8 stainless steel shall be used at the end of each column section. The line-shaft bearings shall be field replaceable neoprene, securely held in place. The neoprene bearings shall have internal grooves to allow for product lubrication of the shaft.

The line-shafts shall be of ASTM A582 Grade 416 HT stainless steel [(*optional*) with hard chrome plating, having a Brinell hardness of no less than 500. The line-shaft shall have no less than .007" hard chrome per side], shall have pump shaft quality dimensional tolerances of +.000"/-.002", and shall be straightened within .005" total indicator reading. The line-shafts shall be of sufficient diameter to transmit the pump horsepower with a safety factor consistent with AWWA pump shaft standards and/ or sized to avoid critical speeds by a safe operational margin. The shaft threads shall be lathe cut and shall be left hand to prevent loosening during pump operation. The shaft couplings shall be threaded from ASTM A108 Grade 1018 CR carbon steel or ASTM A276 Grade 304 stainless steel. The intermediate line-shaft sections shall be interchangeable and shall not exceed 20 feet in length. The butting ends of the line-shafts shall be machined square to axis of the shaft and shall be recessed to insure proper alignment.

DISCHARGE HEAD: The discharge head shall be fabricated of ASTM A53 Grade B carbon steel pipe and ASTM A36 HR carbon steel plate. The discharge head shall be for above ground discharge with sufficient strength and rigidity to support the attached vertical motor or driver and carry the suspended weight of the attached column and bowl assembly. The suction flange shall be a 150 Class ANSI raised face flange. The suction size shall be sized per Hydraulic Institute Pump Intake Design standards. The discharge flange shall be faced and drilled to match 150 Class ANSI flange bolt pattern. The discharge size shall be the same as the column pipe. The discharge head shall permit a two-piece head-shaft to be coupled above the stuffing box. The base of the discharge head shall be circular and fully finished on bottom. The base diameter and bolt pattern shall match a 150 Class ANSI flange.

PACKED TYPE STUFFING BOX: The stuffing box shall be of ASTM A48 Class 30 cast iron. The packing box shall have a deep bore with a minimum of five rings of packing and a lantern ring capable of handling 450 PSI and 210° F temperature. Connections for grease inlet and pressure relief shall be provided. The one piece packing gland shall be of ASTM B584 C89833 bronze and secured in place with stainless steel studs and brass nuts. A stuffing box bearing of ASTM B505 89835 bronze shall be provided directly below the packing for stability. A neoprene o-ring shall be used to seal the packing box to the discharge head.

MECHANICAL SEAL ASSEMBLY: The seal housing shall be of ASTM A48 Class 30 cast iron. The housing shall have a 1/8" NPT orifice for seal circulation or lubrication. The design of the mechanical seal system shall provide for easy and visually verifiable pump lateral adjustments. Setting shall not require the disassembly of any portion of the factory preset seal assembly. For pressures up to 600 PSI, a Chesterton 155 shall be used. The rotating face shall be tungsten carbide and the stationary face shall be carbon. All metal seal parts shall be 316 stainless steel. A seal housing bearing of ASTM B505 89835 bronze shall be provided directly below the mechanical seal for stability. A neoprene o-ring shall be used to seal the packing box to the discharge head.

FOUNDATION PLATE: The foundation plate shall be of ASTM A36 HR carbon steel. The foundation plate shall be square with radius corners, equal to or greater than the size of the base of the discharge head. The foundation plate shall be uniformly faced on one side, with four drilled holes provided, one at each corner to accommodate anchor bolts.

MOTOR COUPLING: The Motor Coupling, when driven with a solid shaft motor, shall be a flanged adjustable three-piece or spacer type four-piece rigid coupling. The coupling shall be of steel, designed to transmit the required torque and horsepower of the attached pump and other rotating elements. The lower half of the coupling shall be keyed to the head-shaft. The upper half shall have a radial key to support down thrust and an axial key to transmit torque. A threaded adjusting nut shall be located between the lower coupling half and the spacer or upper coupling half. The coupling shall be designed to prevent movement due to up thrust, and held concentric by means of machined registers.

Suggested Specifications

Deep Set, Enclosed Lineshaft Pump With Above Ground Discharge

Pump shall be designed for pumping water at:

Rated capacity of	_____	(GPM)
Total dynamic head of	_____	(TDH)
Minimum bowl efficiency of	_____	%
Water temperature of	_____	°F
Specific gravity of	_____	
Running Speed of	_____	(RPM)

BOWL ASSEMBLY: The pump bowls, suction, and discharge cases shall be of close grained ASTM A48 Class 30 cast iron or ASTM A536 Grade 65-45-12 ductile iron as required for pressure handling capability, cast and machined without defect. The discharge case shall be fitted with an ASTM B505 89835 bronze bearing extending into the top bowl. A tube adaptor shall provide a means of connecting the shaft enclosing tube to the bowl assembly by use of an ASTM B505 C93200 bronze tube bearing. Drain ports are to be provided with a sufficient area and shape to permit the escape of water that passes through the pump bowl bearings. The intermediate bowls shall be fitted with fluted neoprene and/ or ASTM B505 C89835 bronze bearings. The suction case shall be fitted with an ASTM B505 C89835 bronze bearing, permanently grease lubricated, and provided with an ASTM B505 C89835 bronze sand collar to protect the suction case bearing from abrasives. The impellers shall be made of ASTM B148 C95500 Ni. Al. bronze, cast and machined without defect, statically balanced, and filed for optimum performance, [(optional) and shall be fitted with replaceable ASTM B148 C95500 Ni. Al. bronze wear rings] having minimum practical clearance to the mating cylindrical surface of the intermediate bowls and suction case. The impellers shall be securely fastened to the bowl-shaft with tapered collets of ASTM A519 Grade 1018 carbon steel for bowl-shafts up to 2-3/16" nominal diameter, and with keyed connections for bowl-shafts larger than 2-3/16" nominal diameter. The water passages of pump bowls size 6" through 14" shall have vitreous porcelain enamel lining, and 16" and over shall have ScotchKote™ Fusion-Bonded Epoxy 134, to provide optimum performance. The bowl-shaft shall be ASTM A582 Grade 416 HT stainless steel [(optional) with hard chrome plating, having a Brinell hardness of no less than 500. The bowl-shaft shall have no less than .007" hard chrome per side], shall have pump shaft quality dimensional tolerances of +.000"/-.002", and shall be straightened within .0005" total indicator reading per foot of length. The bowl-shaft shall be of sufficient diameter to transmit the pump horsepower with a safety factor consistent with AWWA pump shaft standards.

COLUMN ASSEMBLY: The column pipe shall be of ASTM A53 Grade B carbon steel. The pipe weight shall be consistent with industry standard pump column pipe and appropriately sized for the intended service. The column pipe shall be connected by "J" Type straight butt style threaded couplings. The ends of each column pipe shall be machined parallel and threaded so that the ends butt. Intermediate sections of column shall not exceed 20 feet. Top and bottom column pipe sections shall not exceed 5 feet.

The shaft enclosing tubes shall be of schedule 80 ASTM A53 Grade B carbon steel. The tube ends shall be bored and internally threaded, and faced parallel so that the ends butt and accurately align. The tube lengths shall be interchangeable not to exceed 60". The top section of tube shall be designed for applying proper tension to the enclosing tube assembly. The enclosing tubing shall be of such overall assembled length to properly match the length of the column pipe and allow for proper tensioning.

The bearings within the shaft enclosing tubes shall be of ASTM B505 C93200 bronze. The bearings serve as couplings for the shaft enclosing tubes, and shall be used at each enclosing tube end to maintain alignment of the line-shaft and to prevent excessive vibration. The bearings shall be machined and externally threaded to accurately align and securely affix the enclosing tube sections. The bearing bore shall be machined and grooved to provide proper lubrication.

The line-shafts shall be of ASTM A108 Grade 1045 carbon steel for oil lubricated application, and shall be of ASTM A582 Grade 416 HT stainless steel for water flush application. The line-shaft shall have pump shaft quality dimensional tolerances of +.000"/-.002", and shall be straightened within .005" total indicator reading per 10 foot section. The line-shafts shall be of sufficient diameter to transmit the pump horsepower with a safety factor consistent with AWWA pump shaft standards. The shaft threads shall be lathe cut and shall be left hand to prevent loosening during pump operation. The shaft couplings shall be threaded from ASTM A108 Grade 1018 CR carbon steel for oil lubricated applications and from ASTM A276 Grade 304 stainless steel for water flush applications. The intermediate line-shaft sections shall be interchangeable and shall not exceed 20 feet in length. The butting ends of the line-shafts shall be machined square to axis of the shaft and shall be recessed to insure proper alignment.

DISCHARGE HEAD: The discharge head shall be of ASTM A48 Class 30 cast iron, ASTM A536 Grade 65-45-12 ductile iron, or fabricated of ASTM A53 Grade B carbon steel pipe and ASTM A36 HR carbon steel plate. The discharge head shall be for above ground discharge with sufficient strength and rigidity to support the attached vertical motor or driver and carry the suspended weight of the attached column and bowl assembly. As required to reduce internal friction losses, a radius or three-piece mitered type elbow shall be used for a smooth transition. The discharge flange shall be faced and drilled to match 150 Class ANSI flange bolt pattern. The discharge size shall be the same as the column pipe. The discharge head shall permit a two-piece head-shaft to be coupled above the stuffing box. The base of the discharge head shall be circular and fully finished on bottom. The stuffing box shall consist of a tension box of ASTM A536 Grade 65-45-12 ductile iron, designed to maintain proper tension of the shaft enclosing tubes. For oil lubricated applications, a dust cover of ASTM A48 Class 30 cast iron will be used above the tension box that will provide a threaded port for attaching means of supplying drip oil to the enclosing tubes. For water flush applications, a packing box of ASTM A48 Class 30 cast iron or ASTM A36 HR carbon steel will seal the enclosing tubes and provide a threaded port for flush water injection.

FOUNDATION PLATE: The foundation plate shall be of ASTM A36 HR carbon steel. The foundation plate shall be square with radius corners, equal to or greater than the size of the base of the discharge head. The foundation plate shall be uniformly faced on one side, with four drilled holes provided, one at each corner to accommodate anchor bolts.

MOTOR COUPLING: The Motor Coupling, when driven with a solid shaft motor, shall be a flanged adjustable three-piece or spacer type four-piece rigid coupling. The coupling shall be of steel, designed to transmit the required torque and horsepower of the attached pump and other rotating elements. The lower half of the coupling shall be keyed to the head-shaft. The upper half shall have a radial key to support down thrust and an axial key to transmit torque. A threaded adjusting nut shall be located between the lower coupling half and the spacer or upper coupling half. The coupling shall be designed to prevent movement due to up thrust, and held concentric by means of machined registers.

Suggested Specifications Submersible Pump With Above Ground Discharge

Pump shall be designed for pumping water at:

Rated capacity of	_____ (GPM)
Total dynamic head of	_____ (TDH)
Minimum bowl efficiency of	_____ %
Water temperature of	_____ °F
Specific gravity of	_____
Running Speed of	_____ (RPM)

BOWL ASSEMBLY: The pump bowls, suction, and discharge cases shall be of close grained ASTM A48 Class 30 cast iron or ASTM A536 Grade 65-45-12 ductile iron as required for pressure handling capability, cast and machined without defect. The top bowl shall be fitted with an ASTM B505 C89835 bronze bearing. The intermediate bowls shall be fitted with fluted neoprene and/ or ASTM B505 C89835 bronze bearings. The suction case shall be fitted with an ASTM B505 C89835 bronze bearing with an ASTM B505 C89835 bronze sand collar to protect the suction case bearing from abrasives. The suction inlet area shall be equal to at least 5 times the impeller eye area, and thoroughly covered by stainless steel screen. The impellers shall be made of ASTM B148 C95500 Ni. Al. bronze, cast and machined without defect, statically balanced, and filed for optimum performance, [(*optional*) and shall be fitted with replaceable ASTM B148 C95500 Ni. Al. bronze wear rings] having minimum practical clearance to the mating cylindrical surface of the intermediate bowls and suction case. The impellers shall be securely fastened to the bowl-shaft with tapered collets of ASTM A519 Grade 1018 carbon steel for bowl-shafts 2-3/16" nominal diameter and smaller, and with keyed connections for bowl-shafts larger than 2-3/16" nominal diameter. The water passages of pump bowls size 6" through 14" shall have vitreous porcelain enamel lining and 16" and over shall have ScotchKote™ Fusion-Bonded Epoxy 134 to provide optimum performance. The motor bracket shall be of ASTM A536 Grade 65-45-12 ductile iron or fabricated of ASTM A53 Grade B carbon steel pipe and ASTM A36 HR carbon steel plate. The bowl-shaft shall be ASTM A582 Grade 416 HT stainless steel [(*optional*) with hard chrome plating, having a Brinell hardness of no less than 500. The bowl-shaft shall have no less than .007" hard chrome per side], shall have pump shaft quality dimensional tolerances of +.000"/-.002", and shall be straightened within .0005" total indicator reading per foot of length. The bowl-shaft shall be of sufficient diameter to transmit the pump horsepower with a safety factor consistent with AWWA pump shaft standards. The coupling connecting the motor to the pump bowl shall be of ASTM A276 Grade 316 stainless steel, keyed or splined to the pump shaft of sufficient size and strength to withstand the maximum torque generated by the motor.

SUBMERSIBLE MOTOR: The motor shall be of the vertical, submersible, induction type, designed for continuous duty, underwater operation with 3 phase, 60 Hz, 230v, 460v or 2300 volt alternating current power. The motor shall be designed with normal starting torque and low starting current. The motor shall have a 1.15 service factor. The motor shall not be loaded in excess of its nameplate rating at design and not be loaded in excess of 115% of its nameplate rating at any condition from zero flow to maximum capacity of the pump. The motor shall be oil or water-filled and shall incorporate a mechanical seal to restrict foreign matter from entering the motor. The thrust bearing shall be of ample capacity to carry the weight of all rotating parts plus the hydraulic thrust and shall be an integral part of the driver. The bearing shall be of such size that the average life rating is based on 5 years continuous operation. The motor leads shall be protected where it passes the bowl assembly to prevent damage from contact with the well casing.

SUBMERSIBLE CABLE: The cable shall be comprised of separate conductors within a single neoprene exterior jacket. Each conductor shall be insulated by synthetic rubber or plastic insulation specifically for continuous immersion in water. Minimum size of cable shall be per NEC ampacity requirements.

DISCHARGE PIPING: The discharge pipe shall be of ASTM A53 Grade B carbon steel. The discharge pipe shall be furnished in 20' random length sections threaded with ANSI B1.20.1 standard taper threads and connected with matching threaded couplings. The pipe weight shall be consistent with industry standard pump discharge pipe and sized such that the intended service fluid velocity in the pipe is no less than 4 ft/sec. and no more than 10 ft/sec.

DISCHARGE HEAD: The discharge head shall be fabricated of ASTM A53 Grade B carbon steel pipe and ASTM A36 HR carbon steel plate. The discharge head shall consist of a long radius elbow and be for above ground discharge with sufficient strength and rigidity to carry the suspended weight of the attached column and pump/ motor assembly. The discharge flange shall be faced and drilled to match 150 Class ANSI flange bolt pattern. The discharge size shall be the same as the column pipe. The discharge head shall have an integral base and lifting lugs of sufficient strength to lift the entire head, discharge pipe, and pump/ motor assembly safely for installation and servicing operations. The base of the discharge head shall be circular and finished on bottom for proper mounting. A threaded connection shall be provided in the head base for a terminal box. The base shall also be provided with threaded openings for a well vent and a water level indicator.

Suggested Specifications Booster Can Mounted Submersible Pump

Pump shall be designed for pumping product at:

Rated capacity of	_____ (GPM)
Total dynamic head of	_____ (TDH)
Minimum bowl efficiency of	_____ %
Product temperature of	_____ °F
Specific gravity of	_____
Running Speed of	_____ (RPM)

BOWL ASSEMBLY: The pump bowls, suction, and discharge cases shall be of close grained ASTM A48 Class 30 cast iron or ASTM A536 Grade 65-45-12 ductile iron as required for pressure handling capability, cast and machined without defect. The top bowl shall be fitted with an ASTM B505 C89835 bronze bearing. The intermediate bowls shall be fitted with fluted neoprene and/ or ASTM B505 C89835 bronze bearings. The suction case shall be fitted with an ASTM B505 C89835 bronze bearing with an ASTM B505 C89835 bronze sand collar to protect the suction case bearing from abrasives. The suction inlet area shall be equal to at least 5 times the impeller eye area, and thoroughly covered by stainless steel screen. The impellers shall be made of ASTM B148 C95500 Ni. Al. bronze, cast and machined without defect, statically balanced, and filed for optimum performance, *[(optional) and shall be fitted with replaceable ASTM B148 C95500 Ni. Al. bronze wear rings]* having minimum practical clearance to the mating cylindrical surface of the intermediate bowls and suction case. The impellers shall be securely fastened to the bowl-shaft with tapered collets of ASTM A519 Grade 1018 carbon steel for bowl-shafts 2-3/16" nominal diameter and smaller, and with keyed connections for bowl-shafts larger than 2-3/16" nominal diameter. The water passages of pump bowls size 6" through 14" shall have vitreous porcelain enamel lining and 16" and over shall have ScotchKote™ Fusion-Bonded Epoxy 134 to provide optimum performance. The motor bracket shall be of ASTM A536 Grade 65-45-12 ductile iron or fabricated of ASTM A53 Grade B carbon steel pipe and ASTM A36 HR carbon steel plate. The bowl-shaft shall be ASTM A582 Grade 416 HT stainless steel *[(optional) with hard chrome plating, having a Brinell hardness of no less than 500. The bowl-shaft shall have no less than .007" hard chrome per side]*, shall have pump shaft quality dimensional tolerances of +.000"/-.002", and shall be straightened within .0005" total indicator reading per foot of length. The bowl-shaft shall be of sufficient diameter to transmit the pump horsepower with a safety factor consistent with AWWA pump shaft standards. The coupling connecting the motor to the pump bowl shall be of ASTM A276 Grade 316 stainless steel, keyed or splined to the pump shaft of sufficient size and strength to withstand the maximum torque generated by the motor.

SUBMERSIBLE MOTOR: The motor shall be of the vertical, submersible, induction type, designed for continuous duty, underwater operation with 3 phase, 60 Hz, 230v, 460v or 2300 volt alternating current power. The motor shall be designed with normal starting torque and low starting current. The motor shall have a 1.15 service factor. The motor shall not be loaded in excess of its nameplate rating at design and not be loaded in excess of 115% of its nameplate rating at any condition from zero flow to maximum capacity of the pump. The motor shall be oil or water-filled and shall incorporate a mechanical seal to restrict foreign matter from entering the motor. The thrust bearing shall be of ample capacity to carry the weight of all rotating parts plus the hydraulic thrust and shall be an integral part of the driver. The bearing shall be of such size that the average life rating is based on 5 years continuous operation. The motor leads shall be protected where it passes the bowl assembly to prevent damage from contact with the well casing.

SUBMERSIBLE CABLE: The cable shall be comprised of separate conductors within a single neoprene exterior jacket. Each conductor shall be insulated by synthetic rubber or plastic insulation specifically for continuous immersion in water. Minimum size of cable shall be per NEC ampacity requirements.

DISCHARGE PIPING: The discharge pipe shall be of ASTM A53 Grade B carbon steel. The discharge pipe shall be furnished in 20' random length sections threaded with ANSI B1.20.1 standard taper threads and connected with matching threaded couplings. The pipe weight shall be consistent with industry standard pump discharge pipe and sized such that the intended service fluid velocity in the pipe is no less than 4 ft/sec. and no more than 10 ft/sec.

DISCHARGE HEAD: The discharge head shall be fabricated of ASTM A53 Grade B carbon steel pipe and ASTM A36 HR carbon steel plate. The discharge head shall consist of a long radius elbow and be for above ground discharge with sufficient strength and rigidity to carry the suspended weight of the attached column and pump/ motor assembly. The discharge flange shall be faced and drilled to match 150 Class ANSI flange bolt pattern. The discharge size shall be the same as the column pipe. The discharge head shall have an integral base and lifting lugs of sufficient strength to lift the entire head, discharge pipe, and pump/ motor assembly safely for installation and servicing operations. The base of the discharge head shall be circular and finished on bottom for proper mounting. A threaded connection shall be provided in the head base for a terminal box. The base shall also be provided with threaded openings for a well vent and a water level indicator.

BOOSTER CAN: The booster can shall be fabricated of ASTM A53 Grade B carbon steel pipe and ASTM A36 HR carbon steel plate steel. The booster can shall have a 150 Class ANSI raised face flanged inlet. The head-mounting flange shall match the discharge head base 150 Class ANSI diameter and bolt pattern. The booster can shall be sized per Hydraulic Institute Pump Intake Design standards.

Suggested Specifications Mixed Flow, Open Lineshaft Pump With Above Ground Discharge

Pump shall be designed for pumping product at:

Rated capacity of	_____ (GPM)
Total dynamic head of	_____ (TDH)
Minimum bowl efficiency of	_____ %
Product temperature of	_____ °F
Specific gravity of	_____
Running Speed of	_____ (RPM)

BOWL ASSEMBLY: The pump bowls and suction bell shall be of close grained ASTM A48 Class 30 cast iron, cast and machined without defect. The bowls shall be fitted with ASTM B505 C93200 bronze bearings. The suction bell shall be fitted with an ASTM B505 C93200 bronze bearing, permanently grease lubricated, and provided with an ASTM B584 C89836 sand collar to protect the suction bell bearing from abrasives. The impellers shall be made of ASTM B584 C89836 bronze, cast and machined without defect, statically balanced, and filed for optimum performance. The impellers shall be securely fastened to the bowl-shaft with keyed connections. The water passages of pump bowls shall have ScotchKote™ Fusion-Bonded Epoxy 134 to provide optimum performance. The bowl-shaft shall be ASTM A582 Grade 416 HT stainless steel [(optional) with hard chrome plating, having a Brinell hardness of no less than 500. The bowl-shaft shall have no less than .007" hard chrome per side], shall have pump shaft quality dimensional tolerances of +.000"/-.002", and shall be straightened within .0005" total indicator reading per foot of length. The bowl-shaft shall be of sufficient diameter to transmit the pump horsepower with a safety factor consistent with AWWA pump shaft standards.

COLUMN ASSEMBLY: The column pipe shall be of ASTM A53 Grade B carbon steel. The column pipe shall be flanged having interchangeable sections, not exceeding 10 feet and/ or sized to avoid critical speeds by a safe operational margin. The column flanges shall be of ASTM A36 HR steel and conform to ANSI specifications. The flanged pipe ends shall have a female register accurately machined for drop-in bearing retainers of ASTM A743 CF8 stainless steel. The line-shaft bearings shall be field replaceable neoprene, securely held in place. The neoprene bearings shall have internal grooves to allow for product lubrication of the shaft.

The line-shafts shall be of ASTM A582 Grade 416 HT stainless steel [(optional) with hard chrome plating, having a Brinell hardness of no less than 500. The line-shaft shall have no less than .007" hard chrome per side], shall have pump shaft quality dimensional tolerances of +.000"/-.002", and shall be straightened within .005" total indicator reading. The line-shafts shall be of sufficient diameter to transmit the pump horsepower with a safety factor consistent with AWWA pump shaft standards and/ or sized to avoid critical speeds by a safe operational margin. The shaft threads shall be lathe cut and shall be left hand to prevent loosening during pump operation. The shaft couplings shall be threaded from ASTM A108 Grade 1018 CR carbon steel or ASTM A276 Grade 304 stainless steel. The intermediate line-shaft sections shall be interchangeable and shall not exceed 10 feet in length. The butting ends of the line-shafts shall be machined square to axis of the shaft and shall be recessed to insure proper alignment.

DISCHARGE HEAD: The discharge head shall be of ASTM A48 Class 30 cast iron, ASTM A536 Grade 65-45-12 ductile iron, or fabricated of ASTM A53 Grade B carbon steel pipe and ASTM A36 HR carbon steel plate. The discharge head shall be for above ground discharge with sufficient strength and rigidity to support the attached vertical motor or driver and carry the suspended weight of the attached column and bowl assembly. As required to reduce internal friction losses, a radius or three-piece mitered type elbow shall be used for a smooth transition. The discharge flange shall be faced and drilled to match 150 Class ANSI flange bolt pattern. The discharge size shall be the same as the column pipe. The discharge head shall permit a two-piece head-shaft to be coupled above the stuffing box. The base of the discharge head shall be circular and fully finished on bottom. If the discharge head is to be mounted on a booster can, the base diameter and bolt pattern shall match a 150 Class ANSI flange.

PACKED TYPE STUFFING BOX: The stuffing box shall be of ASTM A48 Class 30 cast iron. The packing box shall have a deep bore with a minimum of five rings of packing and a lantern ring capable of handling 450 PSI and 210° F temperature. Connections for grease inlet and pressure relief shall be provided. The one piece packing gland shall be of ASTM B584 C89833 bronze and secured in place with stainless steel studs and brass nuts. A stuffing box bearing of ASTM B505 89835 bronze shall be provided directly below the packing for stability. A neoprene o-ring shall be used to seal the packing box to the discharge head.

MECHANICAL SEAL ASSEMBLY: The seal housing shall be of ASTM A48 Class 30 cast iron. The housing shall have a 1/8" NPT orifice for seal circulation or lubrication. The design of the mechanical seal system shall provide for easy and visually verifiable pump lateral adjustments. Setting shall not require the disassembly of any portion of the factory preset seal assembly. For pressures up to 600 PSI, a Chesterton 155 shall be used. The rotating face shall be tungsten carbide and the stationary face shall be carbon. All metal seal parts shall be 316 stainless steel. A seal housing bearing of ASTM B505 89835 bronze shall be provided directly below the mechanical seal for stability. A neoprene o-ring shall be used to seal the packing box to the discharge head.

FOUNDATION PLATE: The foundation plate shall be of ASTM A36 HR carbon steel. The foundation plate shall be square with radius corners, equal to or greater than the size of the base of the discharge head. The foundation plate shall be uniformly faced on one side, with four drilled holes provided, one at each corner to accommodate anchor bolts.

MOTOR COUPLING: The Motor Coupling, when driven with a solid shaft motor, shall be a flanged adjustable three-piece or spacer type four-piece rigid coupling. The coupling shall be of steel, designed to transmit the required torque and horsepower of the attached pump and other rotating elements. The lower half of the coupling shall be keyed to the head-shaft. The upper half shall have a radial key to support down thrust and an axial key to transmit torque. A threaded adjusting nut shall be located between the lower coupling half and the spacer or upper coupling half. The coupling shall be designed to prevent movement due to up thrust, and held concentric by means of machined registers.

Suggested Specifications Mixed Flow, Open Lineshaft Pump With Underground Discharge

Pump shall be designed for pumping product at:	Rated capacity of	_____ (GPM)
	Total dynamic head of	_____ (TDH)
	Minimum bowl efficiency of	_____ %
	Product temperature of	_____ °F
	Specific gravity of	_____
	Running Speed of	_____ (RPM)

BOWL ASSEMBLY: The pump bowls and suction bell shall be of close grained ASTM A48 Class 30 cast iron, cast and machined without defect. The bowls shall be fitted with ASTM B505 C93200 bronze bearings. The suction bell shall be fitted with an ASTM B505 C93200 bronze bearing, permanently grease lubricated, and provided with an ASTM B584 C89836 sand collar to protect the suction bell bearing from abrasives. The impellers shall be made of ASTM B584 C89836 bronze, cast and machined without defect, statically balanced, and filed for optimum performance. The impellers shall be securely fastened to the bowl-shaft with keyed connections. The water passages of pump bowls shall have ScotchKote™ Fusion-Bonded Epoxy 134 to provide optimum performance. The bowl-shaft shall be ASTM A582 Grade 416 HT stainless steel [(optional) with hard chrome plating, having a Brinell hardness of no less than 500. The bowl-shaft shall have no less than .007" hard chrome per side], shall have pump shaft quality dimensional tolerances of +.000"/-.002", and shall be straightened within .0005" total indicator reading per foot of length. The bowl-shaft shall be of sufficient diameter to transmit the pump horsepower with a safety factor consistent with AWWA pump shaft standards.

COLUMN ASSEMBLY: The column pipe shall be of ASTM A53 Grade B carbon steel. The column pipe shall be flanged having interchangeable sections, not exceeding 10 feet and/ or sized to avoid critical speeds by a safe operational margin. The column flanges shall be of ASTM A36 HR steel and conform to ANSI specifications. The flanged pipe ends shall have a female register accurately machined for drop-in bearing retainers of ASTM A743 CF8 stainless steel. The line-shaft bearings shall be field replaceable neoprene, securely held in place. The neoprene bearings shall have internal grooves to allow for product lubrication of the shaft. The discharge flange shall be a 150 Class ANSI raised face flange. The discharge size shall be the same as the column pipe.

The line-shafts shall be of ASTM A582 Grade 416 HT stainless steel [(optional) with hard chrome plating, having a Brinell hardness of no less than 500. The line-shaft shall have no less than .007" hard chrome per side], shall have pump shaft quality dimensional tolerances of +.000"/-.002", and shall be straightened within .005" total indicator reading. The line-shafts shall be of sufficient diameter to transmit the pump horsepower with a safety factor consistent with AWWA pump shaft standards and/ or sized to avoid critical speeds by a safe operational margin. The shaft threads shall be lathe cut and shall be left hand to prevent loosening during pump operation. The shaft couplings shall be threaded from ASTM A108 Grade 1018 CR carbon steel or ASTM A276 Grade 304 stainless steel. The intermediate line-shaft sections shall be interchangeable and shall not exceed 10 feet in length. The butting ends of the line-shafts shall be machined square to axis of the shaft and shall be recessed to insure proper alignment.

MOTOR STAND: The motor stand shall be fabricated of ASTM A53 Grade B carbon steel pipe and ASTM A36 HR carbon steel plate. The motor stand shall be for below ground discharge with sufficient strength and rigidity to support the attached vertical motor or driver and carry the suspended weight of the attached column and bowl assembly. The motor stand shall permit a two-piece head shaft to be coupled above the stuffing box. The base of the motor stand shall be circular and fully finished on bottom.

PACKED TYPE STUFFING BOX: The stuffing box shall be of ASTM A48 Class 30 cast iron. The packing box shall have a deep bore with a minimum of five rings of packing and a lantern ring capable of handling 450 PSI and 210° F temperature. Connections for grease inlet and pressure relief shall be provided. The one piece packing gland shall be of ASTM B584 C89833 bronze and secured in place with stainless steel studs and brass nuts. A stuffing box bearing of ASTM B505 89835 bronze shall be provided directly below the packing for stability. A neoprene o-ring shall be used to seal the packing box to the discharge head.

MECHANICAL SEAL ASSEMBLY: The seal housing shall be of ASTM A48 Class 30 cast iron. The housing shall have a 1/8" NPT orifice for seal circulation or lubrication. The design of the mechanical seal system shall provide for easy and visually verifiable pump lateral adjustments. Setting shall not require the disassembly of any portion of the factory preset seal assembly. For pressures up to 600 PSI, a Chesterton 155 shall be used. The rotating face shall be tungsten carbide and the stationary face shall be carbon. All metal seal parts shall be 316 stainless steel. A seal housing bearing of ASTM B505 89835 bronze shall be provided directly below the mechanical seal for stability. A neoprene o-ring shall be used to seal the packing box to the discharge head.

FOUNDATION PLATE: The foundation plate shall be of ASTM A36 HR carbon steel. The foundation plate shall be square with radius corners, equal to or greater than the size of the base of the discharge head. The foundation plate shall be uniformly faced on one side, with four drilled holes provided, one at each corner to accommodate anchor bolts.

MOTOR COUPLING: The Motor Coupling, when driven with a solid shaft motor, shall be a flanged adjustable three-piece or spacer type four-piece rigid coupling. The coupling shall be of steel, designed to transmit the required torque and horsepower of the attached pump and other rotating elements. The lower half of the coupling shall be keyed to the head-shaft. The upper half shall have a radial key to support down thrust and an axial key to transmit torque. A threaded adjusting nut shall be located between the lower coupling half and the spacer or upper coupling half. The coupling shall be designed to prevent movement due to up thrust, and held concentric by means of machined registers.

Suggested Specifications Mixed Flow, Enclosed Lineshaft Pump With Above Ground Discharge

Pump shall be designed for pumping water at:

Rated capacity of	_____ (GPM)
Total dynamic head of	_____ (TDH)
Minimum bowl efficiency of	_____ %
Water temperature of	_____ °F
Specific gravity of	_____
Running Speed of	_____ (RPM)

BOWL ASSEMBLY: The pump bowls and suction bell shall be of close grained ASTM A48 Class 30 cast iron, cast and machined without defect. A tube adaptor shall provide a means of connecting the shaft enclosing tube to the bowl assembly by use of an ASTM B505 C93200 bronze tube bearing. Drain ports are to be provided with a sufficient area and shape to permit the escape of water that passes through the pump bowl bearings. The bowls shall be fitted with ASTM B505 C93200 bronze bearings. The suction bell shall be fitted with an ASTM B505 C93200 bronze bearing, permanently grease lubricated, and provided with an ASTM B584 C89836 bronze sand collar to protect the suction bell bearing from abrasives. Impeller shall be made of ASTM B584 C89836 bronze, cast and machined without defect, statically balanced, and filed for optimum performance. The impellers shall be securely fastened to the bowl-shaft with keyed connections. The water passages of pump bowls shall have ScotchKote™ Fusion-Bonded Epoxy 134 to provide optimum performance. The bowl-shaft shall be of ASTM A582 Grade 416 HT stainless steel [*optional*] with hard chrome plating, having a Brinell hardness of no less than 500. The bowl-shaft shall have no less than .007" hard chrome per side], shall have pump shaft quality dimensional tolerances of +.000"/-.002", and shall be straightened within .0005" total indicator reading per foot of length. The bowl-shaft shall be of sufficient diameter to transmit the pump horsepower with a safety factor consistent with AWWA pump shaft standards.

COLUMN ASSEMBLY: The column pipe shall be of ASTM A53 Grade B carbon steel. The column pipe shall be flanged having interchangeable sections, not exceeding 10 feet. The column flanges shall be of ASTM A36 HR steel and conform to ANSI specifications. The flanged pipe ends shall have a female register accurately machined for drop-in centering spiders of ASTM A743 CF8 stainless steel.

The shaft enclosing tubes shall be of schedule 80 ASTM A53 Grade B carbon steel. The tube ends shall be bored and internally threaded, and faced parallel so that the ends butt and accurately align. The tube lengths shall be interchangeable not to exceed 60". The top section of tube shall be designed for applying proper tension to the enclosing tube assembly. The enclosing tubing shall be of such overall assembled length to properly match the length of the column pipe and allow for proper tensioning.

The bearings within the shaft enclosing tubes shall be of ASTM B505 C93200 bronze. The bearings serve as couplings for the shaft enclosing tubes, and shall be used at each enclosing tube end to maintain alignment of the line-shaft and to prevent excessive vibration. The bearings shall be machined and externally threaded to accurately align and securely affix the enclosing tube sections. The bearing bore shall be machined and grooved to provide proper lubrication.

The line-shafts shall be of ASTM A108 Grade 1045 carbon steel for oil lubricated application, and shall be of ASTM A582 Grade 416 HT stainless steel for water flush application. The line-shaft shall have pump shaft quality dimensional tolerances of +.000"/-.002", and shall be straightened within .005" total indicator reading per 10 foot section. The line-shafts shall be of sufficient diameter to transmit the pump horsepower with a safety factor consistent with AWWA pump shaft standards. The shaft threads shall be lathe cut and shall be left hand to prevent loosening during pump operation. The shaft couplings shall be threaded from ASTM A108 Grade 1018 CR carbon steel for oil lubricated applications and from ASTM A276 Grade 304 stainless steel for water flush applications. The intermediate line-shaft sections shall be interchangeable and shall not exceed 20 feet in length. The butting ends of the line-shafts shall be machined square to axis of the shaft and shall be recessed to insure proper alignment.

DISCHARGE HEAD: The discharge head shall be of ASTM A48 Class 30 cast iron, ASTM A536 Grade 65-45-12 ductile iron, or fabricated of ASTM A53 Grade B carbon steel pipe and ASTM A36 HR carbon steel plate. The discharge head shall be for above ground discharge with sufficient strength and rigidity to support the attached vertical motor or driver and carry the suspended weight of the attached column and bowl assembly. As required to reduce internal friction losses, a radius or three-piece mitered type elbow shall be used for a smooth transition. The discharge flange shall be faced and drilled to match 150 Class ANSI flange bolt pattern. The discharge size shall be the same as the column pipe. The discharge head shall permit a two-piece head-shaft to be coupled above the stuffing box. The base of the discharge head shall be circular and fully finished on bottom. The stuffing box shall consist of a tension box of ASTM A536 Grade 65-45-12 ductile iron, designed to maintain proper tension of the shaft enclosing tubes. For oil lubricated applications, a dust cover of ASTM A48 Class 30 cast iron will be used above the tension box that will provide a threaded port for attaching means of supplying drip oil to the enclosing tubes. For water flush applications, a packing box of ASTM A48 Class 30 cast iron or ASTM A36 HR carbon steel will seal the enclosing tubes and provide a threaded port for flush water injection.

FOUNDATION PLATE: The foundation plate shall be of ASTM A36 HR carbon steel. The foundation plate shall be square with radius corners, equal to or greater than the size of the base of the discharge head. The foundation plate shall be uniformly faced on one side, with four drilled holes provided, one at each corner to accommodate anchor bolts.

MOTOR COUPLING: The Motor Coupling, when driven with a solid shaft motor, shall be a flanged adjustable three-piece or spacer type four-piece rigid coupling. The coupling shall be of steel, designed to transmit the required torque and horsepower of the attached pump and other rotating elements. The lower half of the coupling shall be keyed to the head-shaft. The upper half shall have a radial key to support down thrust and an axial key to transmit torque. A threaded adjusting nut shall be located between the lower coupling half and the spacer or upper coupling half. The coupling shall be designed to prevent movement due to up thrust, and held concentric by means of machined registers.

Suggested Specifications Mixed Flow, Enclosed Lineshaft Pump With Underground Discharge

Pump shall be designed for pumping product at:

Rated capacity of		_____ (GPM)
Total dynamic head of		_____ (TDH)
Minimum bowl efficiency of		_____ %
Product temperature of		_____ °F
Specific gravity of		_____
Running Speed of		_____ (RPM)

BOWL ASSEMBLY: The pump bowls and suction bell shall be of close grained ASTM A48 Class 30 cast iron, cast and machined without defect. A tube adaptor shall provide a means of connecting the shaft enclosing tube to the bowl assembly by use of an ASTM B505 C93200 bronze tube bearing. Drain ports are to be provided with a sufficient area and shape to permit the escape of water that passes through the pump bowl bearings. The bowls shall be fitted with ASTM B505 C93200 bronze bearings. The suction bell shall be fitted with an ASTM B505 C93200 bronze bearing, permanently grease lubricated, and provided with an ASTM B584 C89836 bronze sand collar to protect the suction bell bearing from abrasives. Impeller shall be made of ASTM B584 C89836 bronze, cast and machined without defect, statically balanced, and filed for optimum performance. The impellers shall be securely fastened to the bowl-shaft with keyed connections. The water passages of pump bowls shall have ScotchKote™ Fusion-Bonded Epoxy 134 to provide optimum performance. The bowl-shaft shall be of ASTM A582 Grade 416 HT stainless steel [*optional*] with hard chrome plating, having a Brinell hardness of no less than 500. The bowl-shaft shall have no less than .007" hard chrome per side], shall have pump shaft quality dimensional tolerances of +.000"/-.002", and shall be straightened within .0005" total indicator reading per foot of length. The bowl-shaft shall be of sufficient diameter to transmit the pump horsepower with a safety factor consistent with AWWA pump shaft standards.

COLUMN ASSEMBLY: The column pipe shall be of ASTM A53 Grade B carbon steel. The column pipe shall be flanged having interchangeable sections, not exceeding 10 feet. The column flanges shall be of ASTM A36 HR steel and conform to ANSI specifications. The flanged pipe ends shall have a female register accurately machined for drop-in centering spiders of ASTM A743 CF8 stainless steel. The discharge flange shall be a 150 Class ANSI raised face flange. The discharge size shall be the same as the column pipe.

The shaft enclosing tubes shall be of schedule 80 ASTM A53 Grade B carbon steel. The tube ends shall be bored and internally threaded, and faced parallel so that the ends butt and accurately align. The tube lengths shall be interchangeable not to exceed 60". The top section of tube shall be designed for applying proper tension to the enclosing tube assembly. The enclosing tubing shall be of such overall assembled length to properly match the length of the column pipe and allow for proper tensioning.

The bearings within the shaft enclosing tubes shall be of ASTM B505 C93200 bronze. The bearings serve as couplings for the shaft enclosing tubes, and shall be used at each enclosing tube end to maintain alignment of the line-shaft and to prevent excessive vibration. The bearings shall be machined and externally threaded to accurately align and securely affix the enclosing tube sections. The bearing bore shall be machined and grooved to provide proper lubrication.

The line-shafts shall be of ASTM A108 Grade 1045 carbon steel for oil lubricated application, and shall be of ASTM A582 Grade 416 HT stainless steel for water flush application. The line-shaft shall have pump shaft quality dimensional tolerances of +.000"/-.002", and shall be straightened within .005" total indicator reading per 10 foot section. The line-shafts shall be of sufficient diameter to transmit the pump horsepower with a safety factor consistent with AWWA pump shaft standards. The shaft threads shall be lathe cut and shall be left hand to prevent loosening during pump operation. The shaft couplings shall be threaded from ASTM A108 Grade 1018 CR carbon steel for oil lubricated applications and from ASTM A276 Grade 304 stainless steel for water flush applications. The intermediate line-shaft sections shall be interchangeable and shall not exceed 20 feet in length. The butting ends of the line-shafts shall be machined square to axis of the shaft and shall be recessed to insure proper alignment.

MOTOR STAND: The motor stand shall be fabricated of ASTM A53 Grade B carbon steel pipe and ASTM A36 HR carbon steel plate. The motor stand shall be for below ground discharge with sufficient strength and rigidity to support the attached vertical motor or driver and carry the suspended weight of the attached column and bowl assembly. The motor stand shall permit a two-piece head shaft to be coupled above the stuffing box. The base of the motor stand shall be circular and fully finished on bottom. The stuffing box shall consist of a tension box of ASTM A536 Grade 65-45-12 ductile iron, designed to maintain proper tension of the shaft enclosing tubes. For oil lubricated applications, a dust cover of ASTM A48 Class 30 cast iron will be used above the tension box that will provide a threaded port for attaching means of supplying drip oil to the enclosing tubes. For water flush applications, a packing box of ASTM A48 Class 30 cast iron or ASTM A36 HR carbon steel will seal the enclosing tubes and provide a threaded port for flush water injection.

FOUNDATION PLATE: The foundation plate shall be of ASTM A36 HR carbon steel. The foundation plate shall be square with radius corners, equal to or greater than the size of the base of the discharge head. The foundation plate shall be uniformly faced on one side, with four drilled holes provided, one at each corner to accommodate anchor bolts.

MOTOR COUPLING: The Motor Coupling, when driven with a solid shaft motor, shall be a flanged adjustable three-piece or spacer type four-piece rigid coupling. The coupling shall be of steel, designed to transmit the required torque and horsepower of the attached pump and other rotating elements. The lower half of the coupling shall be keyed to the head-shaft. The upper half shall have a radial key to support down thrust and an axial key to transmit torque. A threaded adjusting nut shall be located between the lower coupling half and the spacer or upper coupling half. The coupling shall be designed to prevent movement due to up thrust, and held concentric by means of machined registers.



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