



CITY OF SPARTA  
6 Liberty Square  
P.O. Box 30  
Sparta, Tennessee 38583  
931.836.3248  
931.836.3941 fax  
www.spartatn.com

**CITY OF SPARTA  
REQUEST FOR BIDS  
Bid for Turbine Assembly  
September 5, 2023 at 2:30 pm**

The City of Sparta Tennessee will receive sealed bids for the purchase of **Turbine Assembly for Water Plant** until 2:30 p.m. on September 5th, 2023. At that time the bids will be publicly opened and read aloud.

Purchase orders will be issued only after approved by the Sparta Board of Mayor and Aldermen.

The City of Sparta reserves the right to reject any or all bids, to waive any irregularities in a bid. The City of Sparta reserves the right to accept any part, or all of a bid, or to accept that bid, (or bids) which in the judgment of the Board of Mayor and Alderman of the City of Sparta is in the best interest of the City. The purchaser also reserves the right to require a bidder to submit evidence of qualifications as may be deemed necessary by the City Administrator.

**The City of Sparta may make awards to more than one bidder. Prices shall be provided per unit in order to allow purchase of items to be made from more than one vendor if deemed in the best interest of the City.**

For further information regarding submission of a bid and to obtain bid packages, contact the City Administrator at Sparta City Hall, 6 Liberty Square, PO Box 30, Sparta, Tennessee 38583, telephone (931) 836-3248.

The City of Sparta does not discriminate based on race, color or national origin pursuant to Title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000d).



**CITY OF SPARTA  
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September 5, 2023 at 2:30 pm**

**INSTRUCTIONS TO BIDDERS**

Bids are to be addressed to the City Administrator and delivered to the Sparta City Hall, 6 Liberty Square, PO Box 30, Sparta, Tennessee 38583.

Bids must be enclosed in a sealed envelope and must be marked “**Bid for Turbine Assembly**” on the front of the envelope.

All bids must be signed.

Use the Bid Form list on page 3 to provide pricing for individual items. Turbine Assembly must be installed. Please complete all blanks in bid form and submit bid as instructed above.

Bidders may provide bids on items in part or as a whole; i.e. if bidder does not carry all requested items, bidder may bid only on items sold by its company.

If there are question or more information is needed, please call Greg O’Neal, 931.738.2281 or Jason Hale 931.836.2731.

Partial bids will **NOT** disqualify a bid proposal from being considered.

Please include (On a separate sheet of paper following bid form) any information on price breaks for larger quantity purchases.

**CITY OF SPARTA  
REQUEST FOR BIDS  
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September 5, 2023 at 2:30 pm**

Line	Quantity	Description	Unit Price	Total Amount
1	1	Turbine Assembly Motor (model# 5KS447DAJ6008D1)		
		• See Diagram #1		
2	1	4 Stage Water Lube Vertical Assembly (#141ML4TC-14995_B3)		
		• See Diagram #2		
3		Install Labor		
<b>Total Amount</b>				

Date Current Bid Price will expire \_\_\_\_\_

What is freight charge to be applied? \_\_\_\_\_

Estimated Date of Delivery and Installation After PO is Issued?  
\_\_\_\_\_

Company Name \_\_\_\_\_

Address \_\_\_\_\_

Signed \_\_\_\_\_ Phone \_\_\_\_\_ Fax \_\_\_\_\_

Print Name \_\_\_\_\_

Contact Email: \_\_\_\_\_

Iran Divestment Act Tenn. Code Ann. 12-12-106

By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each bidder is not on the list created pursuant to 12-12-106.

Turbine Assembly



**GE INDUSTRIAL MOTORS**  
a **WOLONG** company

# Product Technical Information

7/18/2023

Data shown is for the current revision model #. Ensure your nameplate model # matches.

<b>Model Number:</b>	<b>5KS447DAJ6008D1</b>
<b>Catalog Number:</b>	<b>V4430</b>
<b>Instruction Manual:</b>	<b>GEI-M1045</b>
<b>Connection Diagram:</b>	<b>GEM2034E-FIG19</b>
<b>Outline Drawing:</b>	<b>148CB49VMJLGA0001</b>

## Accessory Connection Diagrams

<b>Bearing Thermocouple:</b>	None	<b>Heater:</b>	3027JE-1C
<b>RTD:</b>	None	<b>Thermistor:</b>	None
<b>Thermostat:</b>	None	<b>Winding Thermocouple:</b>	None
<b>Bearing RTD:</b>	None		

## Table of Contents

Specification	01
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Outline Drawing	03
Connection Drawing(s)	04
Spare parts	05

**Marks:**

<b>MODEL NUMBER:</b>	5KS447DAJ6008D1	<b>Estimated Weight:</b>	2870 Lbs
<b>Outline Drawing:</b>	148CB49VMJKLGAA0001	<b>Time Rating:</b>	CONT
<b>Connection Diagram:</b>	GEM2034E-FIG19	<b>Enclosure:</b>	WPI
<b>Instruction Book:</b>	GEI-M1045	<b>End Construction:</b>	OPEN
<b>Design Code:</b>	49BD1381AB	<b>Ambient Max(°C):</b>	40
<b>Type:</b>	KS	<b>Alt Ambient Max(°C):</b>	--
<b>Frame:</b>	L447TP20	<b>Insulation Class:</b>	H
<b>Phases:</b>	3	<b>NEMA Design:</b>	B
<b>Poles:</b>	4	<b>Nominal Efficiency:</b>	95.8 %
<b>Output Power:</b>	300HP 222KW	<b>Guaranteed Efficiency:</b>	95.0 %
<b>RPM:</b>	1785	<b>3/4 Load Efficiency:</b>	--
<b>Voltage:</b>	460	<b>KVA Code:</b>	G
<b>Hertz:</b>	60	<b>Max KVAR:</b>	79.7
<b>Ampe - FL:</b>	338.0	<b>Power Factor:</b>	87.0
<b>Service Factor:</b>	1.15	<b>Bearing - DE:</b>	6217C3
<b>Alt Service Factor:</b>	--	<b>Bearing - ODE:</b>	235A2536AB01

Enclosure is Weather Protected One

**Stamped Nameplate Notes:**

NEMA ENCLOSURE WP-1, CSA ENCL DP  
 HTR LDS HE1-HE2 115V 145W  
 ROT CCW FACING ODE LEAD/PH SEQ 1-2-3/1-2-3  
 INVERTER DUTY PER NEMA MG1 PART 31  
 ALTERNATE RATING FOR PWM CONTROL:1.0SF 40C AMBIENT  
 VAR TORQUE RANGE 5 -60 HZ  
 UPPER BRG LUBE OIL: 10.2 QTS  
 0 DEG C TO 40 DEG C : ISO 32(MINERAL OR SYNTHETIC)  
 -15 DEG C TO 0 DEG C : ISO 32 SYNTHETIC  
 SUITABLE FOR 250 HP, 380V, 50 HZ WITH  
 341.0 AMPS AND 1485 RPM AT 1.00 SF



Additional Information:

4P, VERT HOLLOW SHAFT HIGH THRUST (2D)  
C/BOX 1260 CU IN - 2(4.00" NPT)  
C/B GRD PLATE  
OIL RESISTANT SLEEVING ON LEADS  
115V HTR LDS TO MAIN CONDUIT BOX  
BEARING LIFE 8760 HRS AT 22277 LB THRUST  
PART WINDING START  
CG: 25.10 IN FROM P-BASE FACE, STAT DEF:= 0.0058 IN  
RCF: 2690 CPM  
NON-REVERSE BALL CARRIER,  
BOLTED COUPLING, BX = 1.688, EW = .375"  
COMMON FOR STD STOCK AS WELL AS FIRE PUMP



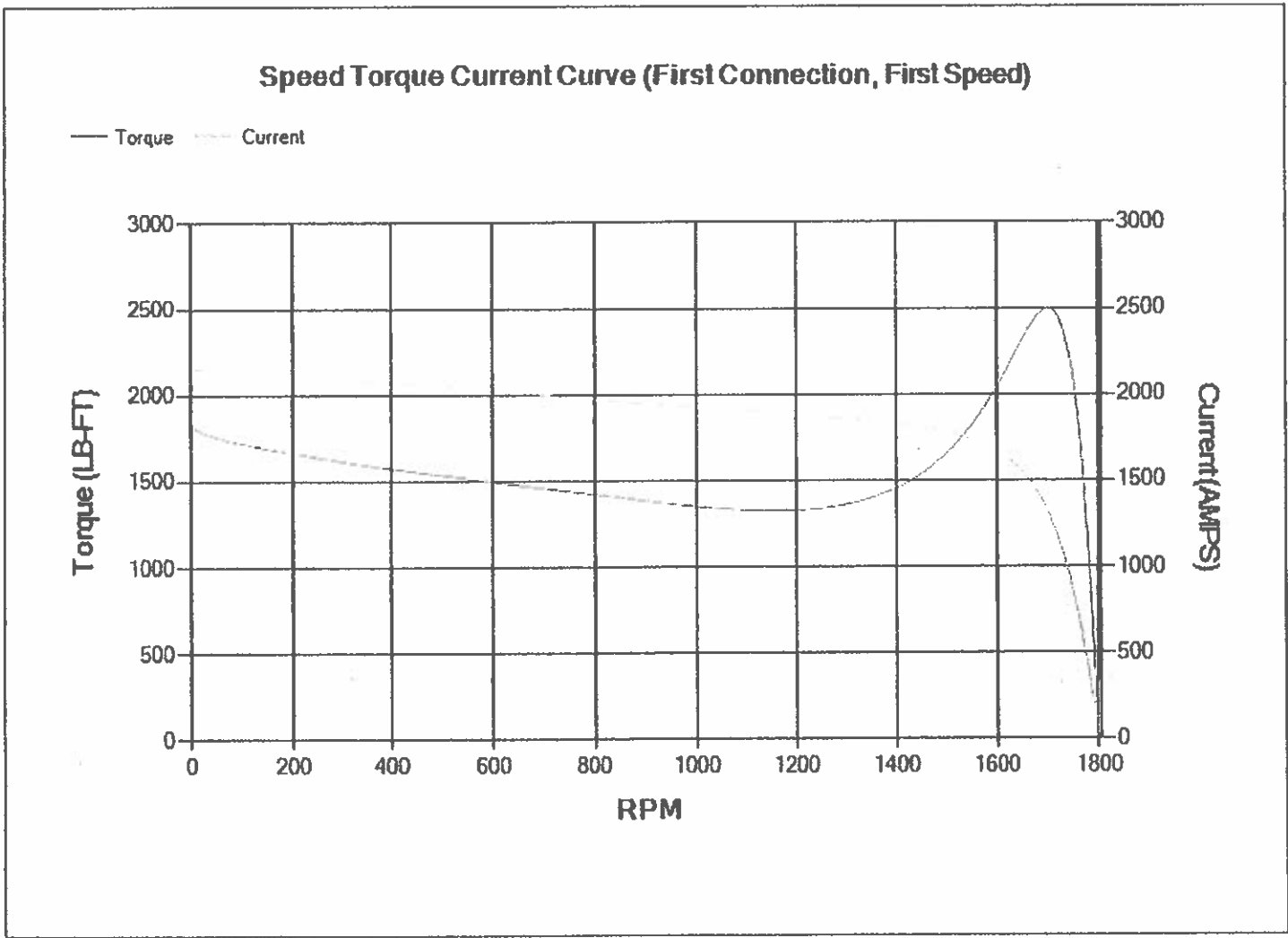
**Performance Characteristics** 1st Winding 1st Connection **Design: 49BD1381AB**  
**Marks:**

LOAD %	125.0	115.0	100.0	75.0	50.0	25.0	0.0
% EFF	94.83	95.03	95.46	95.4	94.95	92.32	0.00
% PF	88.15	87.89	87.08	83.98	76.1	54.88	4.59
AMPS	419.84	386.61	337.77	262.82	194.3	138.55	111.23

TORQ(FL)#FT    883.19                      TORQ(LR)%FL    208.53                      TORQ(BD)%FL    282.56  
 AMPS(LR)        2154.3                      PF AT START        0.34

This motor is capable of two cold or one hot start with a maximum connected load inertia of 4443 Lb-Ft Sq (187.05 Kg-meter Sq) at 100% voltage, where the load torque varies with the square of the speed. Acceleration time with maximum inertia and the above load type is 21 seconds. Safe stall time at 100% voltage is 38 seconds cold, 25 seconds hot. Rotor inertia is 91.5 Lb-Ft Sq (3.85 Kg-meter Sq).

Open Circuit A-C: 0.849                      Short Circuit D-C:                      0.03  
 Short Circuit A-C: 0.038                      X/R Ratio:                                11.463  
 Stator Slots: 72                                Rotor Slots:                                58

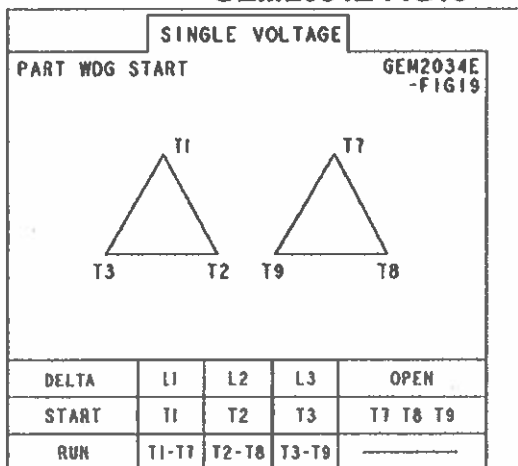




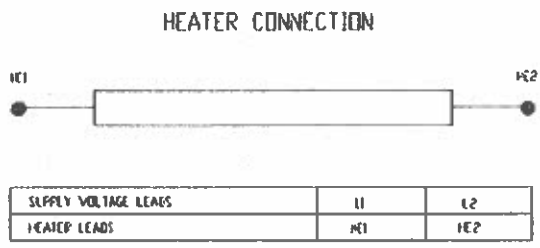


Marks:

**Connection Diagram**  
**GEM2034E-FIG19**



**Heater Connection**  
**3027JE-1C**



End shield Assembly		
Part Description	DE Side Part#	ODE Side Part#
End Shield	115E7661AA1	115E7670LM1
Bearing	235A2522AJ01	235A2536AB01
Slinger/Inproseal	149C4399G06	

Fan & Fan Cover Assembly	
Part Description	Part#
Fan	
Fan Cover	161C1050AA1

Conduit & Accessories Box Assembly	
Part Description	Part#
Conduit Box	179B9058G03

Mechanical Accessories	
Part Description	Part#
Brake	
Tachometer	



Qty	Part #	Description	Price Each	Total
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1	14IML4TC-14995_B3	14IML- 4 Stage Water Lube Vertical Turbine Assembly		
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Conditions: 2714 USGPM @ 283 FT, 1780 RPM, 81.7% Efficient, 234 BHP  
~ 208" TPI, (+/- 1.50")

**\*Head Shaft Assembly Section\***

- 1.9375" x 55.625" 416SS Head Shaft Assembly
  - Bronze Adjusting Nut, Key, Locking Bolt, Water Flinger and Coupling

**\*Discharge Head Assembly Section\***

- Rebuild Existing Discharge Head
  - Rebuild Existing Packing Box
  - High Pressure Packing Kit
- **\*Special Discharge Head Notes:**
  - Sand Blast Discharge Head and Hanger Flange / Paint STD "Blue" Enamel

**\*Column Assembly Section\***

- 2 Pcs.- 10" x .365" Wall Threaded Steel Column Assembly
- **\*Special Column Notes:**
  - REUSE - Layne Hanger Flange
- 1 Pcs.- 10" x 2.50" x .75" Drop-In 316SS Bearing Spider(s) with Glide 400 Polymer Bearings
- 2 Pcs.- 1.9375" 416SS Line Shaft Assembly

**\*Vertical Bowl Assembly Section\***

- Model: 14IML-4 Stage Open Line Shaft Bowl Assembly
  - 2.1875" Dia. 416SS Bowl Shaft with 8.00" x 1.9375" -10 TPI Dia. W/L Projection
  - 10" Ductile Iron Discharge Case
  - Ductile Iron Bowls with 304SS Impellers
  - 10" Ductile Iron Suction Case with Glide 400 Polymer Bearing
  - 18-8SS Fasteners
- 304SS Bolt On Basket Strainer

- **Minimum Submergence from Bottom of Suction for Vortex Suppression = 29" (In).**
  - \*\* This DOES NOT include NPSHr requirements. NPSHr at Duty Point = 23.9 ft.
- **Total Down Thrust: at Duty Point = 4466 Lbs.; at Shutoff Head = 8385 Lbs.**

**\* Approximate Shipping Weight For Above: 1744 Lbs. \***

**\*Estimated time to have above PUMP(s) ready to ship is 2 to 3 weeks A.R.O. based on current inventories and factory schedules.\***

**\*If you need faster shipment, please contact us and we will do our best to serve your specific needs.\***

Ship Via:

**\*\*SEE NOTICES PAGE AT END OF QUOTE\*\***

All Quotations and Contracts are subject to Integrity Pump and Motor Group, LLC Standard Terms and Conditions. Placing an order is acceptance of these terms. Shipment time is approximate based on current inventory and production schedules. \*This Quotation is valid for 15 days from Quote date. \*\*All certified performance tests performed according to Hydraulic Institute standards ANSI/HI 14.6 Grade 2B tolerances for pumps rated with shaft power of 134HP or less and Grade 1B for those over 134HP (unless otherwise stated). Pumps meeting these tolerances will be considered passing.

**Pump:**

Size: 14IML (4 stage)  
 Type: Vertical  
 Synch Speed: 1800 rpm  
 Curve:  
 Specific Speeds:  
 Dimensions:  
 Vertical Turbine:

Speed: 1780 rpm  
 Dia: 11.5 in  
 Impeller: ENCL  
 Ns: 2776  
 Nss: —  
 Suction: 10 in  
 Discharge: 12 in  
 Bowl Size: 14 in  
 Max Lateral: 1.38 in  
 Thrust K Factor: 13 lbf/ft

**Search Criteria:**

Flow: 2700 US gpm      Head: 280 ft

**Fluid:**

Water  
 Density: 62.32 lb/ft<sup>3</sup>  
 Viscosity: 0.9946 cP  
 NPSHa: —

Temperature: 68 °F  
 Vapor Pressure: 0.3391 psi a  
 Atm Pressure: 14.7 psi a

**Motor:**

Standard: NEMA  
 Enclosure: WP1  
 Sizing Criteria: Max Power on Design Curve

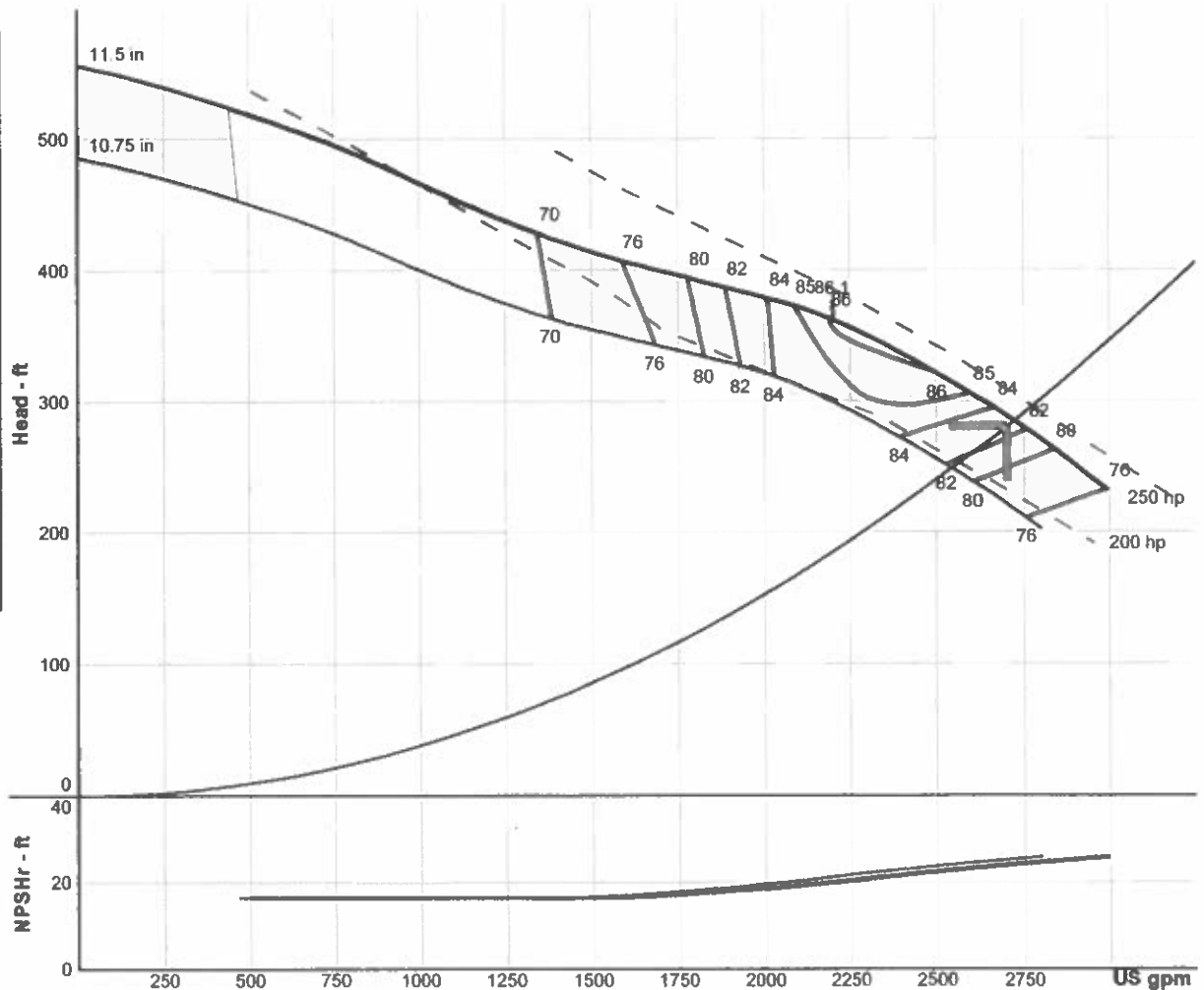
Size: 250 hp  
 Speed: 1800 rpm  
 Frame: 447T

**Pump Limits:**

Temperature: 140 °F  
 Pressure: 650 psi g  
 Sphere Size: 1.3 in

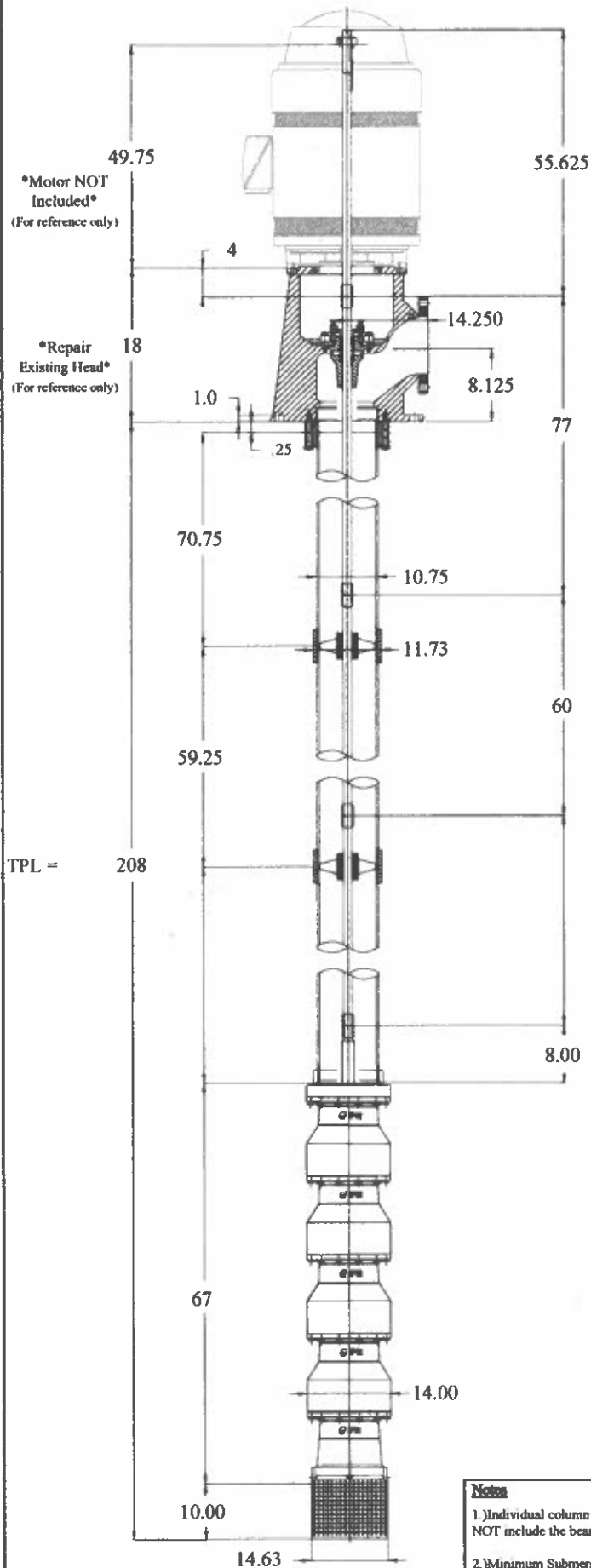
Power: 600 hp  
 Eye Area: 48.2 in<sup>2</sup>

<b>--- Duty Point ---</b>	
Flow:	2714 US gpm
Head:	283 ft
Eff:	81.7%
Power:	234 hp
NPSHr:	23.9 ft
<b>--- Design Curve ---</b>	
Shutoff Head:	557 ft
Shutoff dP:	241 psi
Min Flow:	440 US gpm
BEP:	86.1% @ 2200 US gpm
NOL Power:	236 hp @ 2500 US gpm
<b>--- Max Curve ---</b>	
Max Power:	236 hp @ 2500 US gpm



**Performance Evaluation:**

Flow US gpm	Speed rpm	Head ft	Efficiency %	Power hp	NPSHr ft
3240	1780	—	—	—	—
2700	1780	285	81.9	234	23.8
2160	1780	365	85.5	232	19.7
1620	1780	405	76.6	216	16.9
1080	1780	457	61.6	202	16.5



**APPLICATION SPECIFICATIONS**

Config #: C-14995  
 Job ID:  
 Pump ID:  
 Conditions: 2700 GPM @ 280 FT  
 Nom. RPM: 1800  
 Pump Type: WL Vertical Turbine

**DRIVER SPECIFICATIONS**

Manufacturer: None Selected  
 HP, RPM:  
 Phase/Volt:  
 Frame:  
 Efficiency:  
 Enclosure:

**DISCHARGE HEAD SPECIFICATIONS**

Discharge Head: \*Repair Existing Head\*  
 Discharge Conn.: 10" Flanged  
 Head BD:  
 Head Shaft: 1.9375" x 55.625" 416SS  
 Sealing Type: \*Repair Existing Housing\*  
 Box Bearing: Glide 400 Polymer  
 Foundation Plate: Not Included

**COLUMN & SHAFT SPECIFICATIONS**

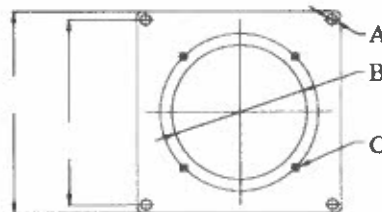
Column: 10" x .365" Wall  
 Type: Threaded Steel  
 Line Shaft: 1.9375" - 10 TPI 416SS  
 Shaft Sleeves: N/A  
 Brg. Spiders: 316SS  
 Bearings: Glide 400 Polymer  
 Oil Tube: N/A

**BOWL ASSEMBLY SPECIFICATIONS**

Bowl Model: 14IML - 4 Stage  
 Discharge: 10" Threaded Adapter  
 Impeller Model: 14IML  
 Base Materials: Ductile Iron / 304SS  
 Bowl Bearings: Glide 400 Polymer  
 Shaft Projection: 8.00" x 1.9375" Dia -10 TPI  
 Bowl Shaft: 2.1875" 416SS  
 Fasteners: 18-8SS  
 Strainer: 304SS Bolt On Basket

Date:

Approved By:



**FOUNDATION PLATE**

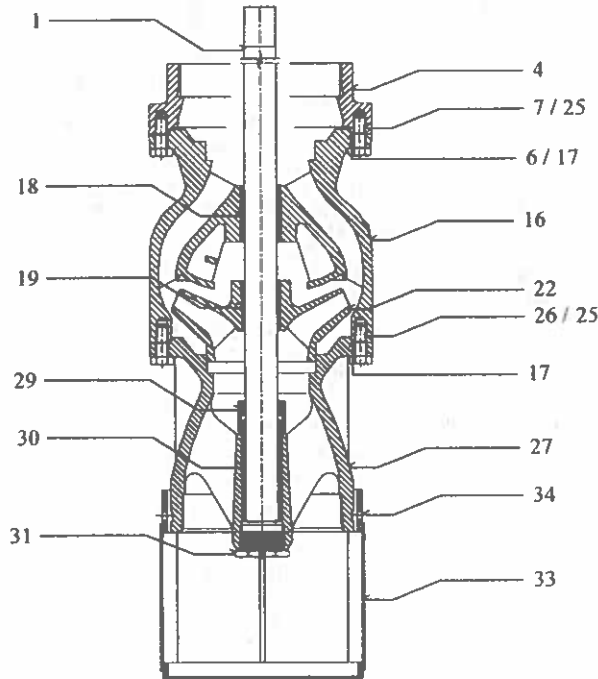
A: (4) 1-1/4" Holes  
 B: Base Hole Dia = "  
 C: (4) .875"-9 Tapped Holes  
 on " Bolt Circle  
 Base Thickness = "

**Notes**

- Individual column dimensions DO NOT include the bearing spider length.
- Minimum Submergence from bottom of suction for vortex suppression: 29" This DOES NOT include NPSHr needs.

DESCRIPTION: 14IML - 4 Stage Water Lube Vertical Complete Assembly		DRW DATE:	SHEET: 1 OF 1
CUSTOMER:	WEIGHT: 1744 Lbs.	SERIAL No.:	REV: 3
		CONFIG No. C-14995	

Item No.	Qty.	Description	Material Grade
1	1	Bowl Shaft	UNS S41600 416 Stainless Steel
4	1	Discharge Threaded Connector	A536 GR. 65-45-12 Ductile Iron
6	1	O-Ring - Discharge Threaded Connector	ASTM D1418 BUNA-N
7	8	Bolt - Discharge Threaded Connector	UNS S30400 18-8 Stainless Steel
16	4	Bowl	A536 GR. 65-45-12 Ductile Iron
17	4	O-Ring - Bowl	ASTM D1418 BUNA-N
18	4	Bearing - Bowl	Glide 400 Polymer
19	4	Collet - Impeller	UNS S31600 316 Stainless Steel
22	4	Impeller	UNS S30400 304 Stainless Steel
25	24	Bolt - Bowl	UNS S30400 18-8 Stainless Steel
26	8	Bolt - Suction Case	UNS S30400 18-8 Stainless Steel
27	1	Suction Case - Threaded	A536 GR. 65-45-12 Ductile Iron
29	1	Sand Collar	Glide 400 Polymer
30	1	Bearing - Suction	Glide 400 Polymer
31	1	Pipe Plug - Suction	Steel
33	1	Strainer - Bolt-On Basket	UNS S30400 304 Stainless Steel
34	4	Bolt - Strainer Basket	UNS S30400 18-8 Stainless Steel



**PROJECT SPECIFICATIONS**

Date: 8/9/2023  
 Job:  
 Config #: C-14995-3  
 GPM: 2700  
 Head FT: 280  
 Pump Model: 14IML - 4 Stage WL  
 Imp. Type: 14IML ENCL  
 Pump Materials: Ductile Iron / 304SS  
 Discharge Size: 10"  
 Suction Size: 10"  
 Bowl Shaft Dia: 2.1875"  
 Shaft Projection: 8.00" x 1.9375" Dia -10 TPI  
 Bowl Assy Weight: 923 L.bs.

**DRIVER INFORMATION**

Mfr: Motor Not Included  
 HP: 300  
 RPM: 1800

DESCRIPTION: 14IML - 4 Stage Water Lube Vertical Complete Assembly

CUSTOMER:	DRW DATE:	SHEET:
		1 OF 1

NOT TO SCALE

ZOOM FOR DETAIL

**NOTICE:** This drawing is the confidential property of Integrity Pump & Motor Group, I.L.C (IPM) and is furnished for your information only and must not be copied or made public, and must be returned upon demand. Manufacturing parts per this drawing is expressly forbidden, except by written authorization from IPM. All rights of invention and design are reserved and patents pending.

WEIGHT	SERIAL No.:	CONFIG No.	REV
1744 L.bs.		C-14995	3

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September 5, 2023 at 2:30 pm**

The City of Sparta does not discriminate based on race, color, or national origin in federal or state sponsored programs, pursuant to Title VI of the Civil Rights Act of 1964 (42 U.S.C 2000d)

For Title VI and IX compliance, it is requested that the following information be voluntarily disclosed and returned with your bid:

GENDER        \_\_\_\_\_ Male        \_\_\_\_\_ Female

RACE        \_\_\_\_\_ Caucasian        \_\_\_\_\_ African American

\_\_\_\_\_ Other (Please Specify)