



Vertical Turbine Submersibles Mix Flow Propellers

TSLCORPORATION

POWER STATION

**Vertical Turbine Pump
2,580 GPM @ 259Ft**



Vertical Turbine Submersibles Mix Flow Propellers

Houston 3/01/18

TSL CORPORATION
Attn.: Mr. Francisco Garcia
Miami. FL.

REF 072618GP

Dear Francisco,
We are pleased to quote you vertical turbine pumps according to your specifications.

1. BLUE RIVER VERTICAL TURBINE PUMP

BOWL	: 316SS
BOWL BEARING	: Marine type
IMPELLERS	: 316SS
COLLECTS	: 316SS
SHAFT	: 316 SS
SUCTION/DISCHARGE	: 316SS
DISCHARGE HEAD	: 12"x12" X20"BD ASTM A53 GRB-ScotchKote 134 lining
FLANGED COLUMN	: 12"X1 11/16"X10' (9 STEPS) 12"X1 11/16"X5' (2 STEPS - TOP and BOTTOM)
COLUMN SHAFT & COUPLING	: 1 11/16" - 316SS
BEARING & BUSHING	: 316SS & EPDM
CONE STRAINER & BUSHING	: 316SS
CAPACITY	: 2,580 GPM
TDH	: 259 Ft.
MODEL	: G14JWJ
STAGES	: 4
DISCHARGE	: 12" Diam.
SPEED	: 1750 RPM
BHP	: 203HP
EFICIENCY	: 84.1%
NPSHr	: 22.3Ft
ELECTRIC MOTOR	: US ELECTRIC MOTOR, Vertical Hollow shaft, 250HP/460v/3/60 NRR/WP1/Premiu Efficient/Marine Duty.



VERTICAL TURBINE PUMP

Data Sheet #	BR 78 - 18	RFQ Number	709-18BR
Project Name	POWER STATION	Client	TSL CORPORATION
TAG Number		Model	G14JWJ - 4 STAGES
Site:		Motor Vendor:	Nidec - US Motors
Quantity:	2	Type:	Vertical Turbine Pump
Unit:	-	Motor Spec.	HOLLOW SHAFT 250HP/460V3/60/ WP1 MARINE DUTY
Service:	Sea Water Lift	P.O. Number	

1. Operating Conditions

	Rated	Min	Max
1,1 Capacity (GPM)	2580	-	-
1,2 Suction Pressure (kPa)	-	-	-
1,3 TDH (Ft)	263	-	-
1,4 Operating Time (day/year)	24/365		
1,5 NPSH available (Ft)	-		
1,6 System Design Operation	<input type="radio"/> Stand Alone <input checked="" type="radio"/> Series		
1,7 Service	<input checked="" type="radio"/> Continuous <input type="radio"/> Intermittent (Starts/Day)		
1,8 System Control Method	<input type="radio"/> Speed <input checked="" type="radio"/> Flow <input type="radio"/> Level <input type="radio"/> Temperature <input type="radio"/> Pressure <i>Pipe Friction Resistance Only</i>		

2. Pumped Fluid

2,1 Liquid:Type or Name Pumping	Sea Water
2,2 Temperature (°F)	-
At Designated Temperature:	
2,3 Specific Gravity	1
2,4 Vapor Pressure (PSI)	-
2,5 Viscosity (SSU)	-
2,6 pH	-
2,7 Initial Boiling Point (°F@PSI)	-
2,8 Liquid:	
<input type="radio"/> Hazardous <input type="radio"/> Flammable <input checked="" type="radio"/> Other -	
2,9 Corrosion/Erosion Caused by:	-
2,10 Solids (%)	- Max. Particle Size - (µm)
2,11 Chloride Concentration (g/l)	-
2,12 H ₂ S Concentration (g/l)	-
2,13 Specific Heat Cp (kJ/kg-K)	-

3. Site Conditions

3,1 Location	<input type="radio"/> Indoor <input checked="" type="radio"/> Outdoor
3,2 Altitud (Ft)	SEA LEVEL Barometer (m) -
3,3 Range of Ambient Temperature (°F)	-
3,4 Relative Humidity Min/Max (%)	-
3,4 Unusual Conditions:	<input type="radio"/> Dust <input type="radio"/> Fumes
3,5 Electrical Area Classification:	<input type="radio"/> Unclassified
<input type="radio"/> Class - Goup - Division - <input type="radio"/> T-Ratings -	

4. Mechanical Data

4,1 Pump Type	<input type="radio"/> VS1 <input type="radio"/> VS2 <input type="radio"/> VS3 <input type="radio"/> VS4 <input type="radio"/> VS5		
4,2 Speed	1800	(rpm)	
4,3 Impeller Type	Enclosed		
Nozzle Connections:			
	Size (in)	Rating	Facing
4,4 Suction			
4,5 Discharge	12"	CLASS 150	FF
4,6 Column Pipe Type	<input checked="" type="radio"/> Flanged <input type="radio"/> Threaded		
Materials and Construction			
4,7 Casing	-		
4,8 Impeller	STAINLESS STEEL-AISI 316		
4,9 Bearings	MARINE TYPE		
4,10 Shaft	STAINLESS STEEL-AISI 316		
4,11 Discharge Head	ASTM A36 STEEL - SCOTCHKOTE 134		
4,12 All Wetted Parts	STAINLESS STEEL-AISI 316		
4,13 Lineshaft	<input checked="" type="radio"/> Open <input type="radio"/> Enclosed		
4,14 Seal Type	<i>Seal Chamber</i> <input type="radio"/> Stuffing Box		
Electrical			
4,15 Voltage / Frecuency / Phase	460V/3/60		
4,16 Service Factor at Site Elevation	1,15		
4,17 Nema design / Insulation Class	NEMA MGI / CLASS F		
4,18 Protection Degree / Enclosure	WPI- MARINE DUTY		
4,19 Operation with VFD	YES		

REV.	DATE	REASON FOR REVISION	BY	CHECK	APPROVED	CLIENT



Date: 2/28/2018

Pump:

Size: G14JWJ(4 stages)
 Speed: 1760 rpm
 Dia: 11.56 in
 Synch speed: 1800 rpm
 Curve: TCX1027
 Specific Speeds:
 Dimensions:
 Vertical Turbine:
 Impeller: G14JWJ
 Ns: 37540
 Nss: ---
 Suction: 14.06 in
 Discharge: 12.00 in
 Bowl size: 14.1 in
 Max lateral: 0.565 in
 Thrust K factor: 24.8 lb/ft

Search Criteria:

Flow: 2580 US gpm Head: 261 ft

Fluid:

Water
 SG: 1
 Viscosity: 0.9946 cP
 NPSHa: ---
 Temperature: 68 °F
 Vapor pressure: 0.3391 psi a
 Atm pressure: 14.7 psi a

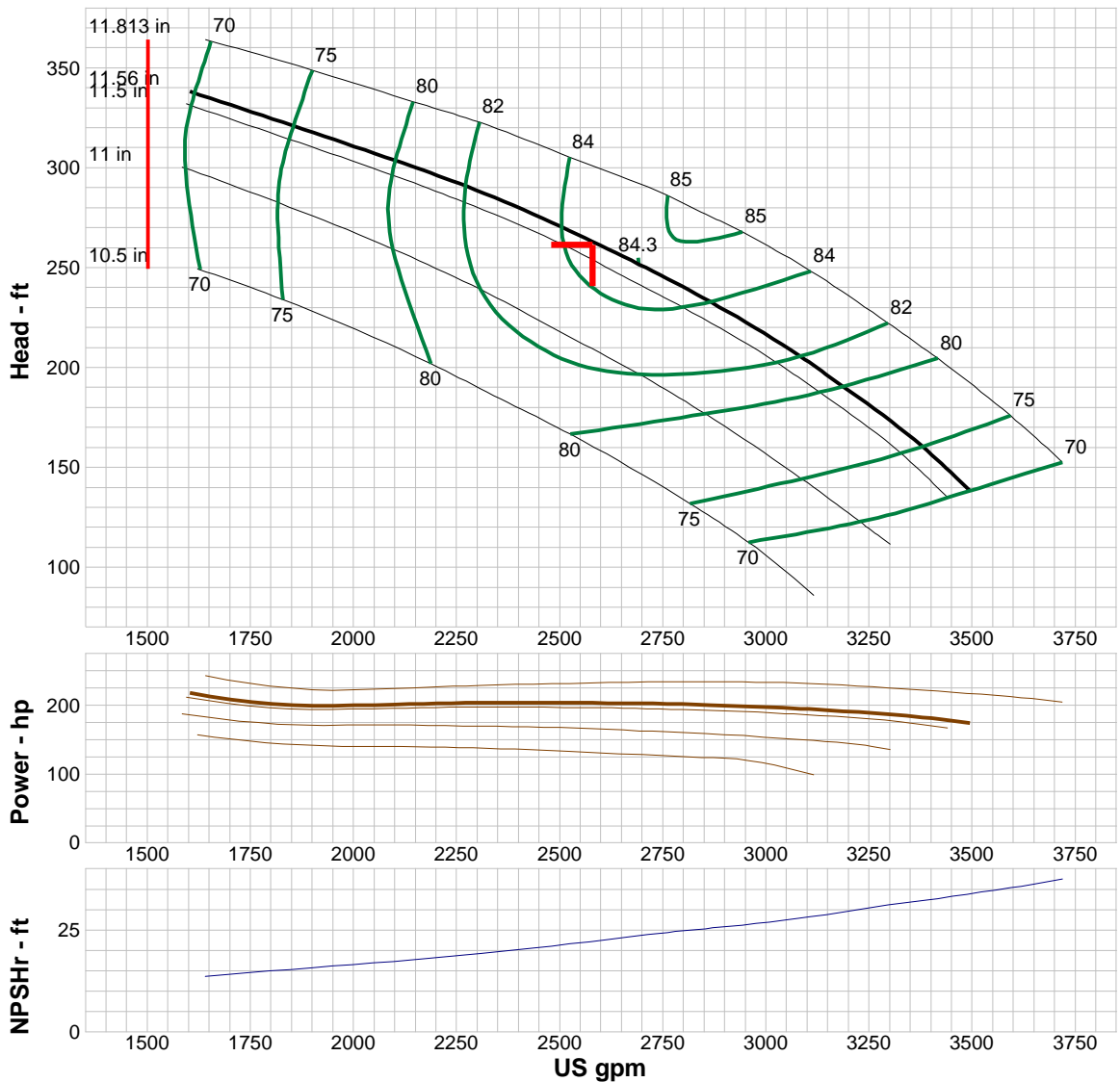
Motor:

Standard: NEMA
 Enclosure: TEFC
 Sizing criteria: Max Power on Design Curve
 Size: 250 hp
 Speed: 1800
 Frame: 447T

Pump Limits:

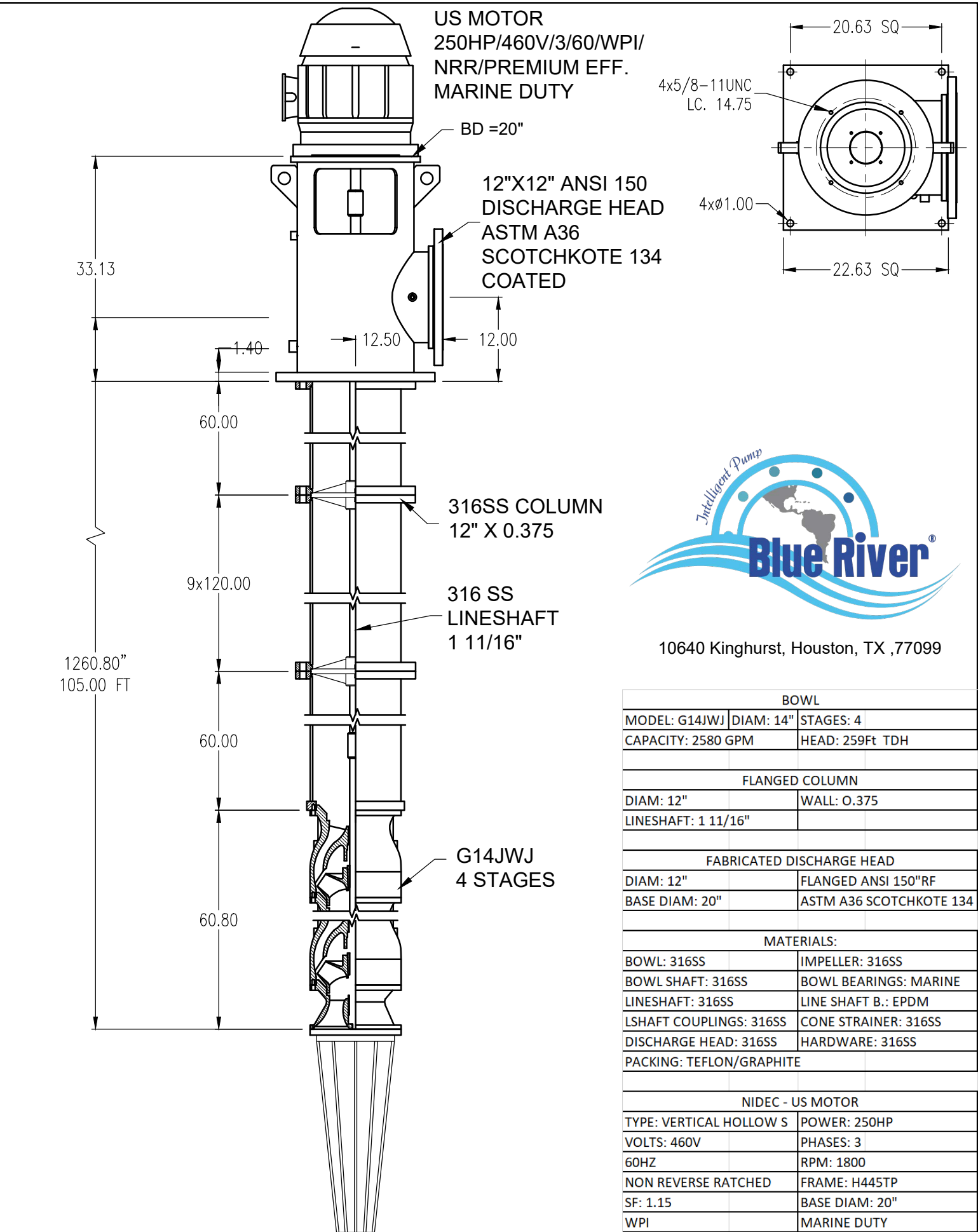
Temperature: --- Power: ---
 Pressure: 380 psi g Eye area: 47.3 in²
 Sphere size: 1.5 in

---- Data Point ----	
Flow:	2580 US gpm
Head:	263 ft
Eff:	84.1%
Power:	203 hp
NPSHr:	22.3 ft
---- Design Curve ----	
Shutoff head:	489 ft
Shutoff dP:	212 psi
Min flow:	1500 US gpm
BEP:	84.3% @ 2691 US gpm
NOL power:	225 hp @ 2691 US gpm
-- Max Curve --	
Max power:	254 hp @ 2756 US gpm



Performance Evaluation:

Flow US gpm	Speed rpm	Head ft	Efficiency %	Power hp	NPSHr ft
3096	1760	204	81.7	195	28.1
2580	1760	263	84.1	203	22.3
2064	1760	306	79.3	201	17.1
1548	1760	342	60.2	221	13
1032	1760	---	---	---	---



BOWL		
MODEL: G14JWJ	DIAM: 14"	STAGES: 4
CAPACITY: 2580 GPM	HEAD: 259Ft TDH	
FLANGED COLUMN		
DIAM: 12"	WALL: 0.375	
LINESHAFT: 1 11/16"		
FABRICATED DISCHARGE HEAD		
DIAM: 12"	FLANGED ANSI 150"RF	
BASE DIAM: 20"	ASTM A36 SCOTCHKOTE 134	
MATERIALS:		
BOWL: 316SS	IMPELLER: 316SS	
BOWL SHAFT: 316SS	BOWL BEARINGS: MARINE	
LINESHAFT: 316SS	LINE SHAFT B.: EPDM	
LSHAFT COUPLINGS: 316SS	CONE STRAINER: 316SS	
DISCHARGE HEAD: 316SS	HARDWARE: 316SS	
PACKING: TEFLON/GRAPHITE		
NIDEC - US MOTOR		
TYPE: VERTICAL HOLLOW S	POWER: 250HP	
VOLTS: 460V	PHASES: 3	
60HZ	RPM: 1800	
NON REVERSE RATCHED	FRAME: H445TP	
SF: 1.15	BASE DIAM: 20"	
WPI	MARINE DUTY	