

QUOTE

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Lakeland, Florida 33811
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ds@tomevans.com

QUOTE NO. 23-0811bDSREV1
DATE August 18, 2023
EXPIRATION DATE September 17, 2023

TO Eric Dial
City of Marco Island
807 E Elkcarn Cir.
Marco Island, FL 34145
edial@cityofmarcoisland.com
239-825-1582

PROJECT NAME SN 746029C Replacement
LOCATION Marco Island NWTP HSP

SALES PERSON	SHIPPING METHOD	SHIPPING TERMS	ESTIMATED LEAD TIME	PAYMENT TERMS
Dennis Szczepanek, P.E.	Included	FOB, Factory	22-24 Weeks	Net 30 Days

QTY	PRODUCT #	DESCRIPTION	UNIT PRICE	LINE TOTAL
1	PX	Peerless Pump Model 16HXB-2 Vertical Turbine Pump with 200HP Motor to duplicate SN 746029C, per attached details	\$ 116,963.30	\$ 116,963.30
1		Freight Included		

Quotation prepared by: ***Dennis Szczepanek, P.E.***

TOTAL \$ 116,963.30
(less applicable sales tax)

This is a quotation on the goods named, subject to the conditions noted below:

1. We do not include sales tax, pressure gauges, anchor bolts, wire, cable, conduit, tools, toolboxes, lubricants, installation, hook-up, field testing, shaft alignment, vibration testing, control panels or any other accessories or ancillary items which are not specifically called out in this scope of supply.
2. Under no circumstances will Tom Evans Environmental, Inc. or its suppliers be liable for any incidental, consequential, liquidated, special or late delivery damages whatsoever.
3. Payment terms are 100% net 10 days from delivery with any unpaid balance 30 days past due being subject to interest at 1-1/2% per month being added to the unpaid balance, with approved credit. Our price is based upon no retainage.
4. Pricing is based upon Tom Evans Environmental's and the manufacturer's Standard Terms and Conditions of Sale. Copies of these documents are available for your review and reference. No other terms or conditions of sale will apply unless accepted in writing by an officer of the Company.
5. Please understand that the shipping date is a estimate only, based upon market conditions existing at the time of this offering and are subject to revision.

To accept this quotation, sign here and return: _____ Date: _____

THANK YOU FOR YOUR BUSINESS!

Tom Evans Environmental, Inc. is Equal Employment Opportunity / Affirmative Action compliant through good faith efforts in employment and business practices.

**SCOPE OF SUPPLY**

Project name	Marco Island NWTP HSP Replacement	Quote Number / ID	2028924
Customer	TOM EVANS ENVIRONMENTAL INC	Model / Stages	16HXB/MC / 2
Tag Number	HSP w/ Motor	Flow, rated	3,300 USgpm
Customer ref. / PO		Differential head / pressure, rated	175.0 ft
		Speed, rated	1770 rpm

Pump

Qty	Description
1	16HXB/MC Bowl Assembly Pump Type: Replacement Pump Serial Number: 746029C 1 Bowl Size: 16HXB Number of Stages: 2 stage Materials of Construction: Materials (Cast Iron, Alum Bronze) Bowl Material: Cast Iron Bowl Configuration (Connection) Top Bowl (Discharge Connection): Threaded Discharge Suction: Bell Suction Line Shaft Bowl Adder: Open Line Shaft (OLS) Shaft, Pump: 1 15/16 inch Pump shaft material (Bowl Shaft): 416 Stainless Steel 2 Efficiency: Premium Efficiency 2 Impeller Wear Rings: Aluminum Bronze Wear Ring 2 Bowl Wear Rings: AlmBronze Wear Ring 1 Suction Accessory: Vortex Suppressor Suction Accessory - Material: 316 Stainless Steel Lateral Travel in Bowl Assembly: Standard Bowl Bearing Materials: Standard (Bronze/Rubber) 2 Impeller Balance: Dynamic (two plane) Balance Dry Pit Application: No 2 Impeller Fastening: 316 Stainless Steel (lock collets) 2 Bowl Bolting: 316 Stainless Steel Column / Line Shaft / Coupling Column Material: Steel Column Pipe Design: Threaded and Coupled Column Diameter: 12 inch Column Pipe: One Piece Column Line Shaft Lubrication: Product Lubrication Line Shaft Sleeves: None 1 Line Shaft Material: 416 SS Line Shaft Coupling Design: Threaded Coupling 1 Line Shaft Coupling Material: 410 SS Line Shaft Bearing Material: Standard (Rubber) Top Shaft Diameter: 1 15/16 inch 1 Top Shaft Material: 17-4PH H1150 SS Column Assembly 1 OLS Threaded Column 12 inch / 1.9375 inch Shaft / One Piece Column, Length Base to Bowl 88 inch



Pump

Qty	Description
	Column Top: (1) OLS Threaded Column 12 inch, Code Length to Base 88 inch, Steel
	Shaft Group of Column
	Shaft, Line, Top: (1) Threaded, D = 1.9375 inch, L = 94.405 inch, 17-4PH H1150 SS
	Discharge Head
1	Discharge Head Assembly: 12x12x20G
	Discharge Head Flange Rating: 125#
	Discharge Head Material: Cast Iron
	Discharge Location: Above Base (floor)
	Line Shaft Construction: Open Line Shaft (OLS)
	Sealing Type: Mechanical Seal
1	Mechanical Seal: JC, Tp 5610, Carbon/Sil-Car, FKM, 316SS
1	Carbon Steel VSS Coupling: Spacer (Flanged with Spacer)
1	Column to Discharge Head Fastener Material: 316 Stainless Steel
	Sole Plate: None
1	Top Column Flange (TCF): Cast Iron - Threaded
	Discharge Head Adjustment
1	Base Drilling for 125/150# ANSI Flange Mounting
	Stuffing Box Bearing Material: Standard (Bronze)
	Driver
	Driver Supplied By: Factory
	Efficiency: Premium
	Motor (Design Types): NEMA
	BD (Base Diameter, Inches): 10
	U (Shaft Diameter): 2.125
	Adapter
	Adapter Required: Yes
1	Adapter Applied: Single Plate Motor Adapter 1 in. height Steel
	Coating / Painting Systems
	System: Class I Coating System per Section 510, page 1 (default Tnemec 21)
1	Outside Bowl Assembly: Class I Coating System
	Inside Bowl Assembly: None
1	Outside Column: Class I Coating System
1	Inside Column: Class I Coating System
1	Outside Discharge Head: Class I Coating System
1	Inside Discharge Head: Class I Coating System
	Assembly / Match Marking / Shipping
1	Factory Assembly for Shipment: Factory Assembled

Testing

Qty	Description
1	Testing
	Tolerance Type: Hyd Ins 14.6 Unilateral (1U)
1	Factory Performance Test - Non Witness
	Guarantee Bowl Efficiency :
	Non Overloading Motor: Motor Nameplate
1	Performance Test Data Sheets
1	Test Curve For Approval - submitted for customer approval (stop/hold of production)
1	Factory Hydrostatic Pressure Test (bowl) - Non-Witness
1	Hydrostatic Pressure Test (discharge head) - Non Witness



Certification & Documentation

Qty	Description
1	Additional Certifications
1	Impeller Balance Certificate

Motor

Qty	Description
1	Driver
1	Motor: Nidec 200HP, 1770RPM, 460/60/3, TEFC, VSS, NRR, 447VPA Frame, Inverter Duty, Ground Lug in Oversized Conduit Box, Short Commercial Test, 115V Space Heater, Accessory Conduit Box, Premium Efficient

Commercial

Qty	Description
1	Commercial Terms
	Incoterms 2020: FCA Freight
	Included
	Named Place: Marco Island, FL

**Pump Performance Datasheet**

Customer	: TOM EVANS ENVIRONMENTAL INC	Quote Number / ID	: 2028924
Customer ref. / PO	:	Peerless Model	: 16HXB/MC
Tag Number	: HSP	Stages	: 2
Service	: 3300 @ 175'	Based on curve number	: 16HXBMC-4601399 Rev May 2020
Quantity	: 1	Date last saved	: 11 Aug 2023 10:38 AM

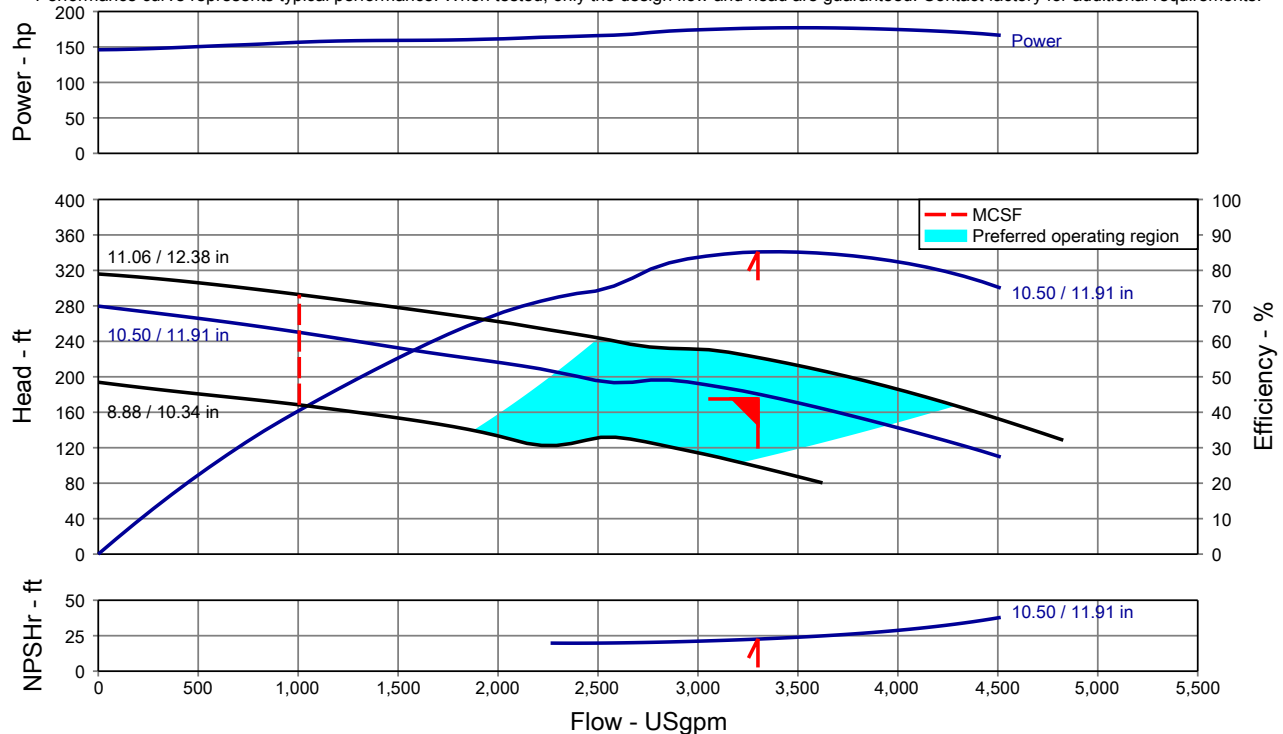
Operating Conditions		Liquid	
Flow, rated	: 3,300 USgpm	Liquid type	: Cold Water
Differential head / pressure, rated (requested)	: 175.0 ft	Additional liquid description	:
Differential head / pressure, rated (actual)	: 180.6 ft	Solids diameter, max	: 0.00 in
Suction pressure, rated / max	: 0.00 / 0.00 psi.g	Solids concentration, by volume	: 0.00 %
NPSH available, rated	: Ample	Temperature, max	: 68.00 deg F
Site Supply Frequency	: 60 Hz	Fluid density, rated / max	: 1.000 / 1.000 SG
Performance		Viscosity, rated	: 1.00 cP
Speed, rated	: 1770 rpm	Vapor pressure, rated	: 0.34 psi.a
Impeller diameter, rated	: 10.50 / 11.91 in	Material	
Impeller diameter, maximum	: 11.06 / 12.38 in	Material selected	: Material Group, Standard
Impeller diameter, minimum	: 8.88 / 10.34 in	Pressure Data	
Efficiency (bowl / pump)	: 85.20 / 84.29 %	Maximum working pressure	: See the Additional Data page
NPSH required / margin required	: 22.6 / 0.0 ft	Maximum allowable working pressure	: See the Additional Data page
Ns (imp. eye flow) / Nss (imp. eye flow)	: 3,271 / 9,581 US Units	Maximum allowable suction pressure	: N/A
MCSF	: 1,006 USgpm	Hydrostatic test pressure	: See the Additional Data page
Head, maximum, rated diameter	: 279.7 ft	Driver & Power Data (@Max density)	
Head rise to shutoff (bowl / pump)	: 54.91 / 56.01 %	Motor sizing specification	: Max power (non-overloading)
Flow, best eff. point (bowl / pump)	: 3,381 / 3,344 USgpm	Margin over specification	: 0.00 %
Flow ratio, rated / BEP (bowl / pump)	: 97.60 / 98.68 %	Service factor	: 1.15
Diameter ratio (rated / max)	: 95.48 %	Power, hydraulic	: 150.4 hp
Head ratio (rated dia / max dia)	: 81.42 %	Power (bowl / pump)	: 176.5 / 177.2 hp
Cq/Ch/Ce/Cn [ANSI/HI 9.6.7-2010]	: 1.00 / 1.00 / 1.00 / 1.00	Max power (non-overloading)	: 177.7 hp
Selection status	: Acceptable	Nameplate motor rating	: 200.0 hp / 149.1 kW

Bowl performance. Adjusted for construction and viscosity.

The duty point represents the head at the bowl.

Performance based on test acceptance - Hyd Ins 14.6 Unilateral (1U)

Performance curve represents typical performance. When tested, only the design flow and head are guaranteed. Contact factory for additional requirements.





"Construction Datasheet"			
Customer	:	Quote Number	: 2028924
Customer Reference	:	Service	: 3300 @ 175'
Item Number	: HSP	Date Last Saved	: 11 Aug 2023 10:38 AM
Pump Size - Stages	: 16HXB/MC - 2	Quantity of Pumps	: 1
Construction		Motor Information	
Bowl construction	: Threaded Discharge		
Impeller type	: Dynamic (two plane) Balance		
Impeller fastening	: 316 Stainless Steel (lock collets)		
Strainer	: Vortex		
Column construction	: Threaded and Coupled		
Column dia (nominal)	: 12.00 in		
Column pipe length	: 88.03 in		
Max column length	: 88.03 in		
Lineshaft diameter	: 1.94 in		
Lineshaft construction	: OLS		
Lineshaft lubrication	: Product Lubrication		
Discharge	: Above Base (floor)		
Materials		Additional information	
Bowl	: Cast iron		
Impeller	: Al Brz C952		
Bowl bearing	: Standard (Bronze/Rubber)		
Bowl shaft	: 416 Stainless Steel		
Bowl wear ring	: AlmBronze Wear Ring		
Impeller wear ring	: Aluminum Bronze Wear Ring		
Strainer	: 316 Stainless Steel		
Column	: Steel		
Lineshaft	: 416 SS		
Bearing retainer / ELS Tube	: 304SS		
Lineshaft bearing	: Standard (Rubber)		
Discharge head	: Cast Iron		
Sole plate	: None	Pit / sump depth : 134 in	
Paint	: Class I	Pump length : 133.65 in	
Approximate Weights		Max pump dia below mounting surface : 24.00 in	
Complete pump	: 1,935 lb	Max sphere size : 1.13 in	
Driver	: 0 lb	Total / best lateral setting : 1 / 0.5	
		Max suction pressure** : 0.00 psi.g	
		Testing	
		Hydraulic performance test : Factory Performance Test - Non Witness	
		Hydrostatic test : Factory Hydrostatic Pressure Test (bowl) - Non-Witness	
		Curve approval : Yes	
		NPSH test : None	
		String test : None	
		Test w/ motor : None	

**Pump Performance - Additional Data**

Project name	: Marco Island NWTP HSP Replacement	Tag Number	: HSP
Commissioned	: TOM EVANS ENVIRONMENTAL INC	Service	: 3300 @ 175'
Representative		Model	: 16HXB/MC
Customer	: TOM EVANS ENVIRONMENTAL INC	Quantity	: 1
Customer ref. / PO	:	Quoted By (Sales Office)	: TOM EVANS ENVIRONMENTAL INC
Quote Number / ID	: 2028924	Quoted By (Sales Engineer)	: Dennis Szczepanek
Date last saved	: 11 Aug 2023 10:38 AM	Speed, rated	: 1770 rpm
Stages	: 2		

Performance Data		Stage, Speed and Solids Limits	
Head, maximum diameter, rated flow	: 221.8 ft	Stages, maximum	: 17
Head, minimum diameter, rated flow	: 98.57 ft	Stages, minimum	: 1
Head, maximum, rated diameter	: 279.7 ft	Pump speed limit, maximum	: 1800 rpm
Efficiency adjustment factor, total	: 1.00	Pump speed limit, minimum	: 1 rpm
Power adjustment, total	: 0.0 hp	Curve speed limit, maximum	: 1800 rpm
Head adjustment factor, total	: 0.95	Curve speed limit, minimum	: 1 rpm
Flow adjustment factor, total	: 1.00	Variable speed limit, maximum	: -
NPSHR adjustment factor, total	: 1.00	Variable speed limit, minimum	: -
NPSH margin dictated by pump supplier	: 0.0 ft	Solids diameter limit	: 1.13 in
NPSH margin dictated by user	: 0.0 ft		
NPSH margin used (added to 'required' values)	: 0.0 ft		
Mechanical Limits		Typical Driver Data	
Torque, rated power, rated speed	: 10.01 hp/100 rpm	Driver speed, full load	: 1780 rpm
Torque, maximum power, rated speed	: 10.04 hp/100 rpm	Driver speed, rated load	: 1782 rpm
Torque, driver power, full load speed	: 11.24 hp/100 rpm	Driver efficiency, 100% load	: N/A
Torque, driver power, rated speed	: 11.24 hp/100 rpm	Driver efficiency, 75% load	: N/A
Torque, pump shaft limit	: -	Driver efficiency, 50% load	: N/A
Radial load, worst case	: -		
Radial load limit	: -		
Impeller peripheral speed, rated	: -		
Impeller peripheral speed limit	: -		

Various Performance Data	Flow (USgpm)	Head (ft)	Efficiency (%)	NPSHr (ft)	Power (hp)
Shutoff, rated diameter	0	279.7	-	-	146.0
Shutoff, maximum diameter	0	315.9	-	-	162.9
MCSF	1,006	250.1	40.53	36.7	156.7
Rated flow, minimum diameter	3,300	98.57	80.91	-	101.5
Rated flow, maximum diameter	3,300	221.8	83.18	-	222.1
BEP flow, rated diameter	3,381	176.7	85.26	23.1	176.9
120% rated flow, rated diameter	3,960	144.9	82.78	28.3	175.0
End of curve, rated diameter	4,515	109.5	75.02	37.9	166.4
End of curve, minimum diameter	3,623	80.36	75.60	0.0	97.2
End of curve, maximum diameter	4,827	128.5	72.59	46.9	215.7
Maximum value, rated diameter	-	279.7	85.26	-	177.7
Maximum value, maximum diameter	-	-	83.88	-	226.7

System differential pressure		@ Density, rated		@ Density, max	
Differential pressure, rated flow, rated diameter (psi)		78.14		78.14	
Differential pressure, shutoff, rated diameter (psi)		121.0		121.0	
Differential pressure, shutoff, maximum diameter (psi)		136.7		136.7	
Discharge pressure		@ Suction pressure, rated	@ Suction pressure, max	@ Suction pressure, rated	@ Suction pressure, max
Discharge pressure, rated flow, rated diameter (psi.g)		78.14	78.14	78.14	78.14
Discharge pressure, shutoff, rated diameter (psi.g)		121.0	121.0	121.0	121.0
Discharge pressure, shutoff, maximum diameter (psi.g)		136.7	136.7	136.7	136.7

Ratios	
Maximum flow / rated flow, rated diameter	: 136.80 %
Head rated diameter / head minimum diameter, rated flow	: 183.17 %

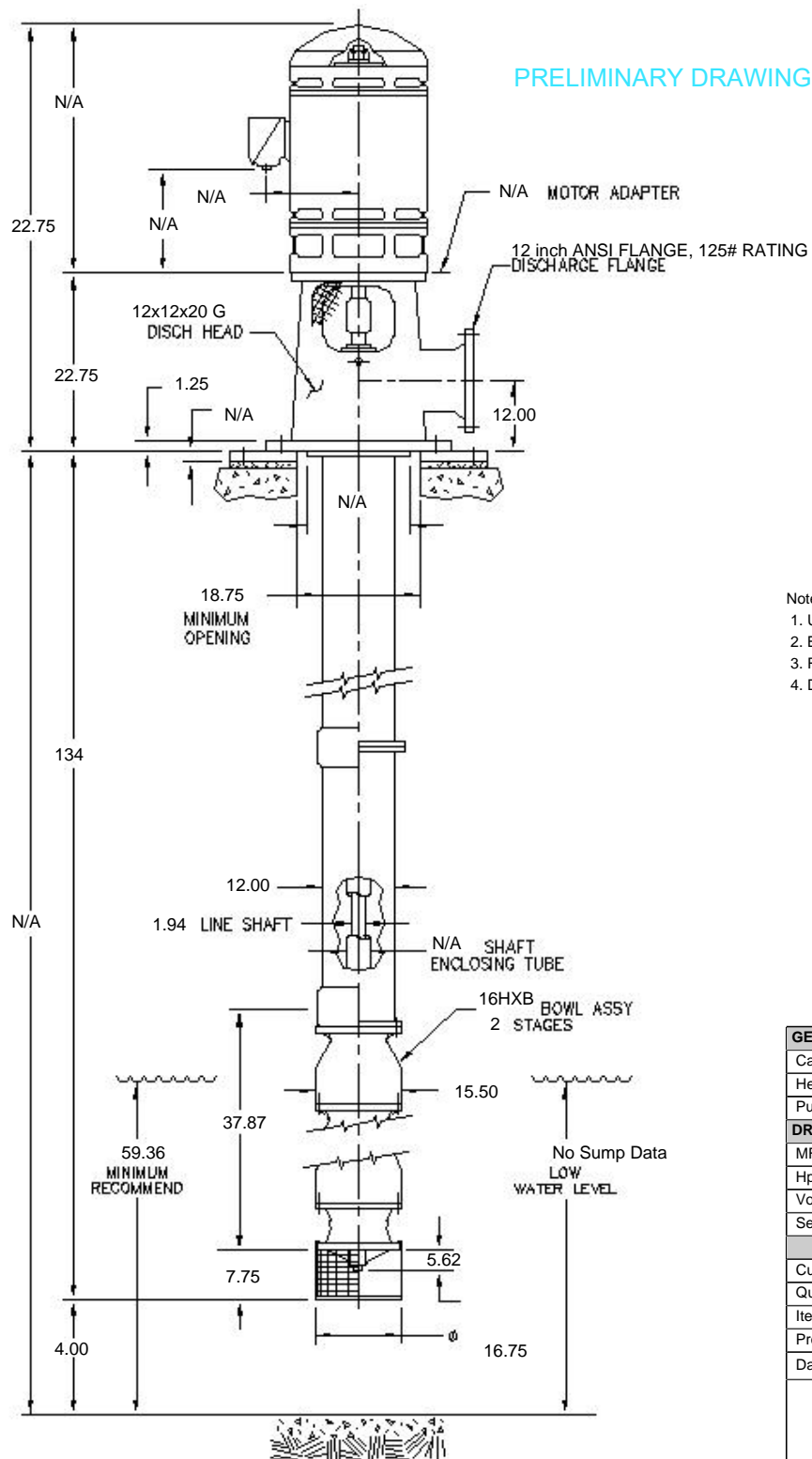
**Pump Performance - Additional Data**

Head and Power Losses				Dimensions	
Friction loss rate, column	: 2.44 %			Minimum clearance below suction bell lip/case	: 11.75 in
Friction loss, column	: 0.18 ft			Minimum well diameter	: 17.50 in
Friction loss, discharge head	: 1.02 ft			Suction nozzle centerline height	: -
Friction loss, can/barrel	: -			Suction to first stage impeller centerline	: 6.38 in
Friction loss, suction bell and strainer	: 0.00 ft			Bowl assembly length, first stage	: 25.75 in
Friction loss, bowl/column adaptor	: 0.07 ft			Bowl assembly length, upper stage	: 12.12 in
Friction loss, total	: 1.27 ft			Bowl assembly length, total	: 37.87 in
Power loss, lineshaft bearings	: 0.1 hp			Suction bearing hub length	: 5.62 in
Power loss, thrust bearing	: 0.5 hp			Strainer length	: 7.75 in
Power loss, total	: 0.7 hp			Bowl to column adaptor length	: 0.00 in
Bowl vs. Pump Performance				Discharge head stick-down	: 0.00 in
Head (bowl / pump)	: 180.6 ft / 178.3 ft			Submersible motor adaptor length	: -
Efficiency (bowl / pump)	: 85.20 % / 84.29 %			Submersible motor length	: -
Power (bowl / pump)	: 176.5 hp / 177.2 hp			Column length	: 88.03 in
NPSH required at first stage impeller eye	: 22.6 ft			Total pump length	: 133.65 in
Weights and Down Thrust				Can / barrel length	: -
Weight, lineshaft	: 0 lb			Stuffing box sleeve diameter	: 0.00 in
Weight, bowl assembly rotating element	: 773 lb			Suction bell diameter	: -
Thrust factor	: 16.72 lb/ft			Minimum submergence to prevent vortexing	: 0.00 in
Thrust, hydraulic (rated / max)	: 3,013 / 6,993 lbf			Actual submergence (based on LLL)	: 126 in
Thrust, bowl shaft end (rated / max)	: 0 / 0 lbf			Discharge head height	: 0.00 in
Thrust, shaft step (rated / max)	: 0 / 0 lbf			Discharge nozzle centerline height	: 12.00 in
Thrust, stuffing box sleeve (rated / max)	: 227 / 227 lbf			Min distance discharge nozzle centerline to suction bell	: 0.00
Thrust, total (rated / max)	: 4,014 / 7,994 lbf			Lineshaft length	: 88.03 in
Thrust bearing capacity	: -			Bowl shaft diameter	: 1.94 in
* Rated thrust @ rated head, density, and suction pressure where applicable				Bowl diameter, outside	: 15.50 in
* Max thrust @ max head, density, and suction pressure where applicable				Bowl diameter, exit	: 11.00 in
Pressure Data	Maximum working pressure (psi.g)	Maximum allowable working pressure (psi.g)	Hydrostatic test pressure (psi.g)	Column diameter, inside	: 12.00 in
Bowl	121.0	303.0	N/A	Column internal obstruction diameter	: 1.94 in
Column	121.0	-	N/A	Can/barrel diameter, inside	: -
Discharge head	121.0	200.0	N/A	Can/barrel obstruction diameter	
Can/Barrel	-	-	-	NPSH	
Torque Limits				NPSH at bowl (available / required)	: Ample / 22.6 ft
Torque, lineshaft limit	: -			NPSH at low liquid level (available / required)	: Ample / 12.7 ft
				NPSH at suction flange (available / required)	: - / -
				Liquid Velocities	
				Column liquid velocity	: 9.61 ft/s
				Discharge head liquid velocity	: 9.47 ft/s
				Can liquid velocity	: -
				Suction nozzle liquid velocity	: -



Pump Performance - Additional Data					
Mixed Stage Performance	Set #1	Set #2	Set #3	Set #4	Alternate First Stage
Model	16HXB/MC	-	-	-	-
Stages	2	-	-	-	-
Based on curve number	16HXBMC-4601399	-	-	-	-
Impeller diameter, rated	11.19 in	-	-	-	-
Impeller diameter, maximum	11.72 in	-	-	-	-
Impeller diameter, minimum	9.61 in	-	-	-	-
Limitations					
Tolerance Type	: Hyd Ins 14.6 Unilateral (1U)	Low liquid level (Measured from bottom of head)		: in	
Head measured at	: Bowl	NPSHa measured at		: Low liquid level	
Pump type	: Complete Pump	Velocity column		: 10.00 ft/s	
Direct connect	: No	Well inside diameter (Enter a value >0 if a diameter check is required)		: in	
Length strategy	: Pump length (T Dimension)	Maximum working pressure strategy		: Maximum head, rated diameter	
Length	: 133.65 in				
Product Line Options					
Suction type	: Bell	Drive shaft type		: VSS	
Bowl discharge type	: Threaded discharge bowl	Discharge location		: Above ground	
Bowl shaft material	: 416 SS	Discharge head material		: Cast Iron	
Bowl shaft diameter	: 1 15/16 inch	Discharge head design		: Type G	
Impeller connection type	: Taper lock	Discharge head size		: 12x12x20	
Column diameter	: 12 inch	Sealing type		: Mechanical seal	
Column construction	: Threaded	Discharge flange rating		: 125lb ANSI flange	
Suction accessory	: Vortex Suppressor	Coupling design		: Threaded coupling	
Lineshaft material	: 416 SS	Top shaft material		: 17-4PH H1150 SS	
Lineshaft diameter	: 1 15/16 inch	Top shaft diameter		: 1 15/16 inch	
Lineshaft lubrication	: Open Lineshaft				
Performance Adjustment Options					
Impeller polished	: Polished	Effective impeller material for galling		: Al Brz C952	
Impeller wear ring	: Al Brz C952	Effective bowl material for galling		: Al Brz C952	
Bowl wear ring	: Al Brz C952	Effective impeller material for polishing		: No Adjustment	

General Arrangement Drawing



Notes

1. Unless otherwise specified, dimensions are in inches
2. Baseplate requires support on all sides.
3. Read instructions before beginning pump assembly or installation.
4. Drawing is preliminary until certified by factory.

APPROXIMATE DRY WEIGHT

Driver	0 lb
Discharge Head	672 lb
Column / Shaft	356 lb / -7 lb
Bowl Assembly	915 lb
Total	1,935 lb

GENERAL DATA

Capacity	3,300 USgpm	Liquid	Cold Water
Head	175.0 ft	Specific Gravity	1.000 SG
Pump Speed	1770 rpm		

DRIVER DATA

MFGR	-	Shaft Type	OLS
Hp	0.0 hp	Enclosure / Type	TEFC
Volt / Ph / Hz	460 / 3 / 0 Hz	Frame / Model	0
Service Factor	1.15		

Customer Name	TOM EVANS ENVIRONMENTAL INC
Quote No	2028924
Item No.	HSP
Project	Marco Island NWTP HSP Replacement
Date	08/11/2023 10:38 AM



2028924-HSP