

**Customer Price Sheet Total Only**

Project name	SN - Veracruz, Veracruz	Quote Number / ID	FEM.0162-03-2
Customer		Model / Stages	10MAF / 8
Tag Number	001 CIA 500 GPM @ 130 PSI	Flow, rated	500 USgpm
Customer ref. / PO		Differential head / pressure, rated	135.00 psi
		Speed, rated	1760 rpm

Total

Grand Total		Lead Time Total	
-------------	--	-----------------	--

Pump

Qty	Description
1	10MAF Fire Pump System Mount PumpType: New Pump Scope of Supply: Fire Pump with driver and controller Pump Pump model: 10MAF 8 Stage Selected pump listing: FM/UL Listed Nameplate units: US Bowl Assembly Number of Stages: 8 Stage Materials of Construction: Material Group A, CIE Bowl/Brz Imp Standard Material Group: Mtl-GrpA BowlMaterial: Cast Iron Impeller Material: Aluminum Bronze Bowl Configuration: L4 Suction: Bell Suction Suction Accessory: Basket Strainer Suction Accessory Material: Aluminum Bronze Line Shaft Type: Open Line Shaft
8	Efficiency: Standard Efficiency Impeller Filing: Standard, Fig.1 to A = 1/8 in Impeller Wear Ring: None Bowl Wear Ring: None
1	Bowl Bearing Material: Standard (Bronze/Rubber) Impeller Fastening: 303 Stainless steel (lock collets)
8	Bowl Bolting: 18-8 Stainless Steel Column / Line Shaft / Coupling Column Diameter: 6 inch Column Pipe Sections: 10 Ft Bearing Spacing Column Connection: Threaded
1	Line Shaft Material: 416 SS Line Shaft Size: 1 3/16 inch Line Shaft Coupling material: 410 SS Top Shaft Diameter: 1 3/16 inch Top Shaft Material: 416 SS
1	Line Shaft Bearing: Standard (Rubber) Column Assembly
1	OLS Threaded Column 6 inch / 1.1875 inch Shaft / 10 Ft Bearing Spacing, Length Base to Bowl 28 inch Column top: (1) OLS Threaded Column T&C 6 inch, Code Length to Base 28 inch, Steel



Pump

Qty	Description
	Shaft Group of Column
	Line shaft top: (1) Threaded, D = 1.1875 inch, L = 32.2175 inch, 416 SS
	Top Shaft and Nut
1	Top Shaft and Nut: Top Shaft & Nut
	Discharge Head
1	Discharge Head Size: 6x6x12G
	Discharge Head Material: Cast Iron
	Flange Rating: 125lb
	Sealing Type: Packed Stuffing Box
	Stuffing Box Bearing Material: Standard (Bronze)
1	Sole Plate: Steel
	Adders
1	Adders: 316SS Gland T-Bolts & Nuts
	Coating/ Painting Systems
	System: Standard Factory Paint - Enamel
	Outside Bowl Assembly: Standard factory paint - enamel
	Inside Bowl Assembly: Standard Coating: Glass or Scotchkote 134
	Outside Column: Standard factory paint - enamel
	Inside Column: None
	Outside Discharge Head: Standard factory paint - enamel
	Inside Discharge Head: None
	Testing
	Assembly / Match Marking
1	Factory Assembly for Shipment: Factory Assembled
	Driver Type
	Engine speed: All Speeds
	Right Angle Gear (RAG)
	RAG Max Thrust: Standard Max Thrust: 5000
	Direct Ship RAG: No

Testing

Qty	Description
1	Fire Pump System
	Pump
	Testing
	Performance Tests
	Performance Tests: Non-witnessed Performance Test
	Hydrostatic Pressure Tests
	Hydrostatic Pressure Tests: Non-witnessed Hydrostatic Test

Certification & Documentation

Qty	Description
1	Fire Pump System
	Pump
	Testing
	Documents
	Drawings
1	Drawings: Standard dimensional print on 'A' size format - factory generated
1	Drawings: Standard cross sectional print on 'A' size format - factory generated
1	Drawings: Standard computer generated BOM (standard ERP output)
	Installation and Operation manuals (IOMs)



Certification & Documentation

Qty	Description
1	Installation and Operation manuals (IOMs): Standard Peerless IOM (www.peerlesspump.com)

Driver

Qty	Description
1	Fire Pump System Driver Type Engine manufacturer: All engines Engine cooling type: Heat exchanger cooled Pressure limiting: No Emission tier: Any Direct Ship Engine: No
1	Engine: Clarke JU4H-UF22, 72hp, 2350rpm, Emission tier level T1
1	Engine voltage: 12 Volt DC
1	Cooling loop: FM Steel Cooling loop
1	Drive shaft: UL Listed drive-shaft, flywheel adapter, companion flange, & guard
1	Torsional coupling: VT Torsional coupling
1	Engine Base Plate: VT Base Plate Water jacket heater voltage: 115/120 VAC Flexible exhaust connector: 4" NPT Flex Exhaust Standard Size
1	Battery kits: 12 V Battery kit (Lead acid dry batteries, rack, and cables)
1	EIEO Silencer: 4 inch Industrial grade
	Right Angle Gear (RAG) RAG required: Yes RAG rotation: Standard (Horizontal - CW, Vertical CCW)
1	Discharge head adapter: Single Plate Adapter 1in. 056
1	RAG: DeRan Model G80A RAG Options
1	RAG Options: Factory Mutual FM Label (Required)

Controller

Qty	Description
1	Fire Pump System Pump Base mounted controller adapter: No Main Controller Fire pump controller Controller brand: Tornatech Controller voltage: 120 V Controller charger voltage: 12 V Controller frequency: 60 Hz Direct Ship Controller: No
1	Controller type: Tornatech GPD Diesel Engine Driven Fire Pump Controller, 120V, 60hz Controller additional options Enclosure: - NEMA 2 Enclosure type: NEMA Type 2 Pressure transducers
1	Pressure transducers: - Standard pressure transducer Climate protection
1	Climate protection: -D12 Tropicalization Mounting stands: - None



Controller

Qty	Description
1	Fuel Fill Monitor Fuel Fill Monitor: None Controller Language Options Selected Language: Spanish

Jockey Pump

Qty	Description
1	Jockey pump, controller, and options Pump and motor Jockey pump supply: Factory quoted Frequency: 60 Hz Phase: Three Voltage: 460 V Horsepower: 1.5 hp
1	Jockey pump selected: ADDER: Grundfos submersible pump model 16S15-14 1.5HP 460V/3PH/60HZ 5 GPM @ 140 PSI, PN 10153614 Jockey pump companion flange kit: None

Jockey Pump Controller

Qty	Description
1	Jockey pump, controller, and options Jockey pump controller Jockey pump controller required: Yes Manufacturer: Tornatech Voltage: 440-480 V Frequency: 60 Hz Direct ship jockey pump controller: No
1	Jockey pump controller selected: Tornatech Controller JPLT, Across the line starter, 1.50hp, 440-480V, 3Ph, 60hz Jockey pump controller additional options Enclosure: - NEMA 2 Enclosure type: NEMA Type 2 Climate protection
1	Climate protection: -D21 Tropicalization Application options: - None
1	Jockey Pump Controller Language Options Selected Language: Spanish

Accessories

Qty	Description
1	Fire Pump System Driver Type Fuel tank Tank standard: None selected Leak sensor: No Direct reading fuel gauge: None Fuel system Fuel System Selected: None Jockey pump, controller, and options Pump and motor Jockey pump casing relief valve: None selected



Accessories

Qty	Description
	Accessories
	Fire Pump Accessories
1	Discharge Gauge: 0 - 600 psi
1	Air Release Valve: Cla-Val 33ATD 2" NPT

Commercial

Qty	Description
1	Product Shipping
	Product Shipping
1	Shipping Container: Skid with bird cage
	Commercial Terms
	Commercial Terms
1	Incoterms 2020: EXW
	Order is subject to storage fee if not picked up after 10 working days when goods are made ready.
	Named Place: Seller's Facility

**Pump Performance Datasheet**

Customer	:	Quote Number / ID	:	FEM.0162-03-2
Customer ref. / PO	:	Peerless Model	:	10MAF
Tag Number	:	Stages	:	8
Service	:	Based on curve number	:	10MAHC-2624288_60 Rev Oct 2021
Quantity	:	Date last saved	:	13 Mar 2024 1:10 AM
Operating Conditions		Liquid		
Flow, rated	: 500 USgpm	Liquid type	:	Cold Water
Differential head / pressure, rated (requested)	: 135.00 psi	Additional liquid description	:	
Differential head / pressure, rated (actual)	: 139.74 psi	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	:	20.00 deg C
Site Supply Frequency	: 60 Hz	Fluid density, rated / max	:	1.000 / 1.000 SG
NPSHA Limits		Viscosity, rated	:	1.00 cP
Speed, rated	: 1760 rpm	Vapor pressure, rated	:	0.34 psi.a
Impeller diameter, rated	: 6.94 / 6.94 in	Material		
Impeller diameter, maximum	: 7.13 / 7.13 in	Material selected	:	Material Group A, CIE Bowl/Brz
Impeller diameter, minimum	: 6.63 / 6.63 in			Imp Standard
Flow, rated	: 500 USgpm	Pressure Data		
Head, rated	: 139.74 psi	Maximum working pressure	:	See the Additional Data page
Power, rated	: 54.19 hp	Maximum allowable working pressure	:	See the Additional Data page
Power required at 150% flow	: 60.44 hp	Maximum allowable suction pressure	:	N/A
Peak power	: 60.89 hp	Hydrostatic test pressure	:	See the Additional Data page
Efficiency, rated	: 75.21 %			
Flow at 150%	: 750 USgpm			
Head at 150%, actual/limit	: 104.95 / 87.75 psi			
Head at shutoff, actual/limit	: 167.04 / 189.00 psi			

Bowl performance. Adjusted for construction and viscosity.

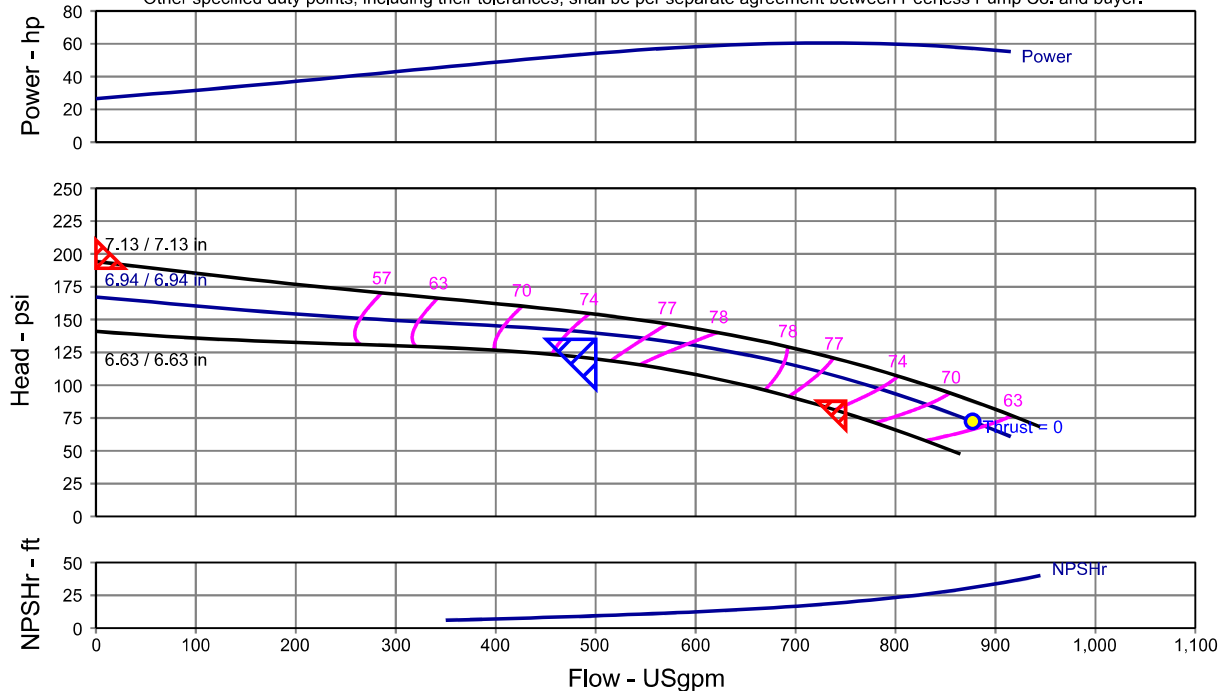
The duty point represents the head at the bowl.

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

The rated point is the only guaranteed point (within the specified HI grade) on the performance curve.

The published closed valve head has a +6% tolerance.

Other specified duty points, including their tolerances, shall be per separate agreement between Peerless Pump Co. and buyer.





Construction Datasheet

Customer	:	Quote Number / ID	: FEM.0162-03-2
Customer ref. / PO	:	Service	: -
Tag Number	: 001 CIA 500 GPM @ 130 PSI	Date last saved	: 13 Mar 2024 1:10 AM
Pump Size - Stages	: 10MAF	Quantity	: 1
Construction		Listings and Approvals	
Bowl construction	Threaded Discharge Bowl	UL	Yes
Impeller type	Enclosed	FM	Yes
Impeller fastening	303 Stainless steel (lock collets)	ULC	No
Strainer	Basket Strainer	CE	No
Column construction	Threaded	NSF61	No
Column dia (nominal)	6.00 in	Engine Information	
Column pipe length	10 Ft Bearing Spacing	Manufacturer	Clarke
Max column length	36.80 in	Model	JU4H-UF22
Lineshaft diameter	1.19 in	Cooling type	Heat exchanger cooled
Lineshaft construction	Open Line Shaft	Rated speed	2350 rpm
Lineshaft lubrication	-	Rated power	72.00 hp
Discharge	6x6x12G	Derated power	70.44 hp
Materials		Engine voltage	12 V
Bowl	Material Group A, CIE Bowl/Brz Imp Standard	Preheater voltage	115/120 VAC
Impeller	Material Group A, CIE Bowl/Brz Imp Standard	Fuel supply	0.50 in
Bowl bearing	Standard (Bronze/Rubber)	Tier	T1
Bowl shaft	416 Stainless Steel	Silencer type	Industrial grade
Bowl wear ring	None	Silencer size	4.00 in
Impeller wear ring	None	Silencer configuration	EIEO
Strainer	Aluminum Bronze	Flexible exhaust connection	4.00 in
Column	Steel	Drive shaft type	UL
Lineshaft	416 SS	Tank	None
Bearing retainer / ELS Tube	Standard (Rubber)	Torsional coupling	Yes
Lineshaft bearing	Standard (Rubber)	Batteries	Yes
Discharge head	Cast Iron	Rack and cables	Yes
Sole plate	Steel	Cooling loop size	0.50 in
Paint	Peerless Fire Red	Cooling loop material	Steel
Additional information		ULC fuel lines	No
Pit / sump depth	3.00 m	Fuel system	No
Pump length	2.70 m	Ventilation	Standard ventilation
Max pump dia below mounting surface	-	Right Angle Gear	
Max sphere size	0.69 in	Manufacturer	DeRan
Total / best lateral setting	0.718 / 0.125	Model	G80A
Max suction pressure**	0.00 psi.g	Type	-
Additional information		Gear Ratio	4:3
Hydraulic performance test	Non-witnessed per HI 14.6 1U	HP Rating	80.00 hp
Hydrostatic test	Non-witnessed	Downthrust Capacity	5,000 lb
Curve approval	No	Marine Package	No
NPSH test	N/A	FM Approval	Yes
String test	N/A	Approximate Weights	
Test w/ motor	No	Complete pump	1,169 lb
		Right Angle Gear (if applicable)	320 lb
		Driver	910 lb
		Base	N/A

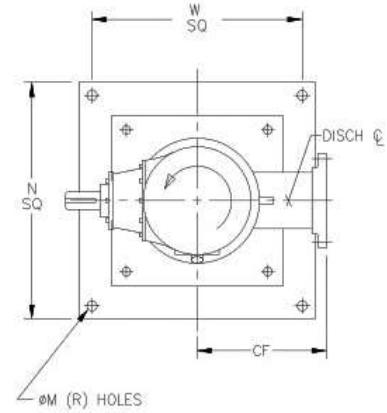
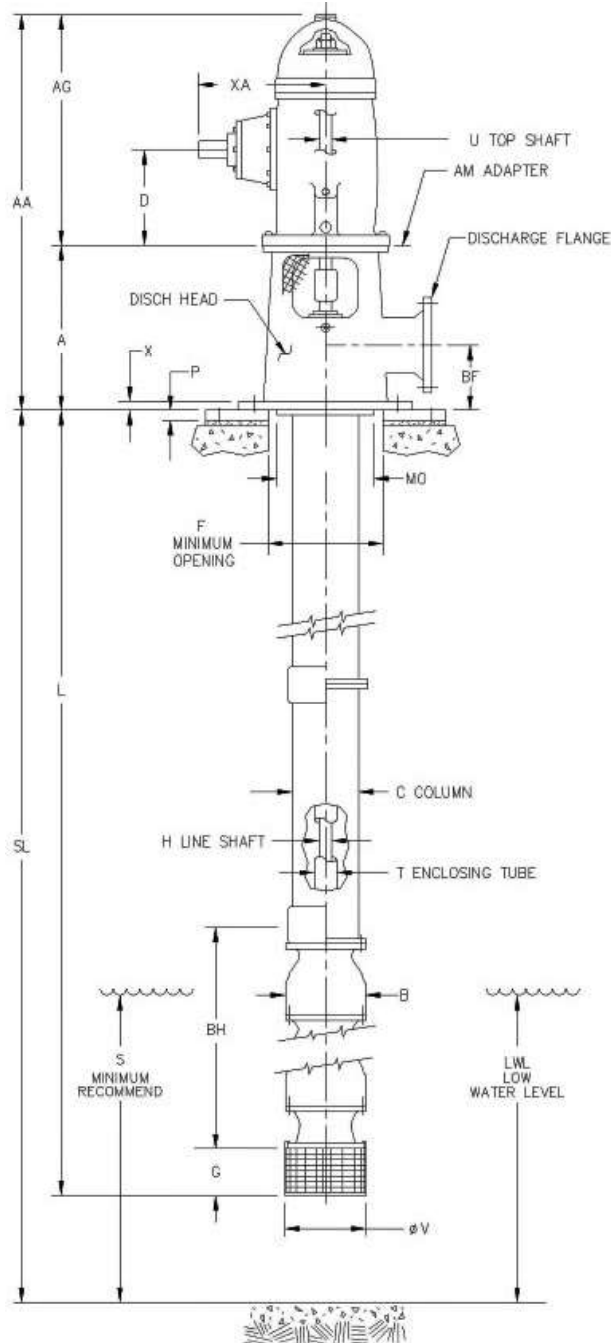
**Pump Performance - Additional Data**

Project name : SN - Veracruz, Veracruz		Tag Number : 001 CIA 500 GPM @ 130 PSI				
Commissioned :		Service :				
Representative :		Model : 10MAF				
Customer :		Quantity : 1				
Customer ref. / PO :		Quoted By (Sales Office) : Indianapolis (default)				
Quote Number / ID : FEM.0162-03-2		Quoted By (Sales Engineer) : Emmanuel Medina				
Date last saved : 13 Mar 2024 1:10 AM		Speed, rated : 1760 rpm				
Stages : 8						
Performance Data		Stage, Speed and Solids Limits				
Head, maximum diameter, rated flow : 154.10 psi		Stages, maximum : 28				
Head, minimum diameter, rated flow : 119.98 psi		Stages, minimum : 1				
Head, maximum, rated diameter : 167.04 psi		Pump speed limit, maximum : 1800 rpm				
Efficiency adjustment factor, total : 0.98		Pump speed limit, minimum : 1 rpm				
Power adjustment, total : 1.00 hp		Curve speed limit, maximum : 3600 rpm				
Head adjustment factor, total : 1.00		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 : 0.69 in				
NPSH margin dictated by user : 0.0 ft		Typical Driver Data				
NPSH margin used (added to 'required' values) : 0.0 ft		Driver speed, full load : 1780 rpm				
Mechanical Limits		Driver speed, rated load : 1782 rpm				
Torque, rated power, rated speed : 3.10 hp/100 rpm		Driver efficiency, 100% load : N/A				
Torque, maximum power, rated speed : 3.46 hp/100 rpm		Driver efficiency, 75% load : N/A				
Torque, driver power, full load speed : 3.37 hp/100 rpm		Driver efficiency, 50% load : N/A				
Torque, driver power, rated speed : 3.37 hp/100 rpm						
Torque, pump shaft limit : -						
Radial load, worst case : -						
Radial load limit : -						
Impeller peripheral speed, rated : -						
Impeller peripheral speed limit : -						
Various Performance Data		Flow (USgpm)	Head (psi)	Efficiency (%)	NPSHr (ft)	Power (hp)
Shutoff, rated diameter		0	167.04	-	-	26.62
Shutoff, maximum diameter		0	194.28	-	-	36.84
MCSF		-	-	-	-	-
Rated flow, minimum diameter		500	119.98	76.35	-	45.83
Rated flow, maximum diameter		500	154.10	74.29	-	60.50
BEP flow, rated diameter		641	124.66	78.43	14.0	59.44
120% rated flow, rated diameter		600	130.18	78.13	12.4	58.31
End of curve, rated diameter		915	60.79	58.83	35.7	55.17
End of curve, minimum diameter		865	47.56	56.63	32.5	42.38
End of curve, maximum diameter		945	68.25	58.88	37.6	63.87
Maximum value, rated diameter		-	167.04	78.43	-	60.89
Maximum value, maximum diameter		-	-	78.22	-	67.69
System differential pressure		@ Density, rated		@ Density, max		
Differential pressure, rated flow, rated diameter (psi)		139.7		139.7		
Differential pressure, shutoff, rated diameter (psi)		167.0		167.0		
Differential pressure, shutoff, maximum diameter (psi)		194.3		194.3		
Discharge pressure		@ Suction pressure, rated	@ Suction pressure, max	@ Suction pressure, rated	@ Suction pressure, max	
Discharge pressure, rated flow, rated diameter (psi.g)		139.7	139.7	139.7	139.7	
Discharge pressure, shutoff, rated diameter (psi.g)		167.0	167.0	167.0	167.0	
Discharge pressure, shutoff, maximum diameter (psi.g)		194.3	194.3	194.3	194.3	
Ratios						
Maximum flow / rated flow, rated diameter : 183.07 %			Head rated diameter / head minimum diameter, rated flow : 116.47 %			

**Pump Performance - Additional Data**

Head and Power Losses				Dimensions					
Power loss, lineshaft bearings		: 0.03 hp		Minimum clearance below suction bell lip/case : 12.00 in					
Power loss, thrust bearing		: 0.37 hp		Minimum well diameter : 12.00 in					
Power loss, total		: 0.40 hp		Suction nozzle centerline height : -					
Bowl vs. Pump Performance				Suction to first stage impeller centerline : 6.00 in					
Head (bowl / pump)		: 139.74 psi / 138.05 psi		Bowl assembly length, first stage : 16.81 in					
Efficiency (bowl / pump)		: 75.21 % / 74.51 %		Bowl assembly length, upper stage : 7.50 in					
Power (bowl / pump)		: 54.19 hp / 54.59 hp		Bowl assembly length, total : 69.31 in					
NPSH required at first stage impeller eye		: 9.4 ft		Suction bearing hub length : 0.38 in					
Weights and Down Thrust				Strainer length : 8.63 in					
Weight, lineshaft		: 0 lb		Bowl to column adaptor length : 0.00 in					
Weight, bowl assembly rotating element		: 789 lb		Discharge head stick-down : 0.00 in					
Thrust factor		: 6.24 lb/ft		Submersible motor adaptor length : -					
Thrust, hydraulic (rated / max)		: 2,010 / 3,493 lbf		Submersible motor length : -					
Thrust, bowl shaft end (rated / max)		: 0 / 0 lbf		Column length : 0.93 m					
Thrust, shaft step (rated / max)		: 0 / 0 lbf		Total pump length : 2.91 m					
Thrust, stuffing box sleeve (rated / max)		: 0 / 0 lbf		Can / barrel length : -					
Thrust, total (rated / max)		: 2,799 / 4,282 lbf		Stuffing box sleeve diameter : 1.19 in					
Thrust bearing capacity		: -		Suction bell diameter : -					
* Rated thrust @ rated head, density, and suction pressure where applicable				Minimum submergence to prevent vortexing : 25.00 in					
* Max thrust @ max head, density, and suction pressure where applicable				Actual submergence (based on LLL) : 66.74 in					
Pressure Data		Maximum working pressure (psi.g)	Maximum allowable working pressure (psi.g)	Hydrostatic test pressure (psi.g)	Discharge head height : 17.00 in				
Bowl	167.0	497.0	N/A		Discharge nozzle centerline height : 0.00 in				
Column	167.0	-	N/A		Min distance discharge nozzle centerline to suction bell : 0.00				
Discharge head	165.6	175.0	N/A		Lineshaft length : 1.37 m				
Can/Barrel	-	-	-		Bowl shaft diameter : 1.19 in				
Torque Limits					Bowl diameter, outside : 9.53 in				
Torque, lineshaft limit		: -			Bowl diameter, exit : 5.00 in				
					Column diameter, inside : 6.07 in				
					Column internal obstruction diameter : 1.19 in				
					Can/barrel diameter, inside : -				
					Can/barrel obstruction diameter				
					NPSH				
					NPSH at bowl (available / required)				: Ample / 9.4 ft
					NPSH at low liquid level (available / required)				: Ample / 4.3 ft
					NPSH at suction flange (available / required)				: - / -
					Liquid Velocities				
					Column liquid velocity				: 5.77 ft/s
Discharge head liquid velocity				: 5.77 ft/s					
Can liquid velocity				: -					
Suction nozzle liquid velocity				: -					
Limitations									
Head measured at		: Bowl		Length strategy : Sump depth					
Pump type		: Complete Pump		Length : 3.00 m					
Direct connect		: No		Low liquid level (Measured from bottom of head) : 1.00 m					
Product Line Options									
Suction type		: Bell		Lineshaft diameter : 1 3/16 inch					
Bowl shaft material		: 416 SS		Lineshaft lubrication : Open Lineshaft					
Column diameter		: 6 inch		Discharge head size : 6x6x12G					
Column construction		: Threaded		Top shaft material : 416 SS					
Lineshaft material		: 416 SS		Top shaft diameter : 1 3/16 inch					
Performance Adjustment Options									
Impeller polished		: Not polished		Bowl wear ring : None					
Impeller wear ring		: None							

General Arrangement



Approximate Dry Weight	
Gear	320 lb
Discharge Head	305 lb
Column and Shaft	75 lb
Bowl Assembly	789 lb
Total	1,489 lb

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
5. Discharge Head: 6x6x12G, Flange Rating: 125lb

V	11.38	C	6.00	MO	9.75	U	1.19	N	22.00
G	8.50	H	1.19	A	17.00	AG	26.62	W	19.00
B	9.53	T	-	X	1.00	D	11.43	CF	11.44
BH	69.31	SL	118	P	0.88	XA	18.00	M	1.00
LWL	78.74	L	106	BF	7.5	AA	43.62	R	4
S	39.58	F	13.38	AM	1	-	-	-	-

General Data

Rated Flow	500 USgpm	Listing / Approval	FM/UL Listed
Head (Bowl)	135.00 psi	Rated Speed	1760 rpm
Model	10MAF	Liquid	Cold Water
Stages	8	Specific Gravity	0.998 SG

Driver Data

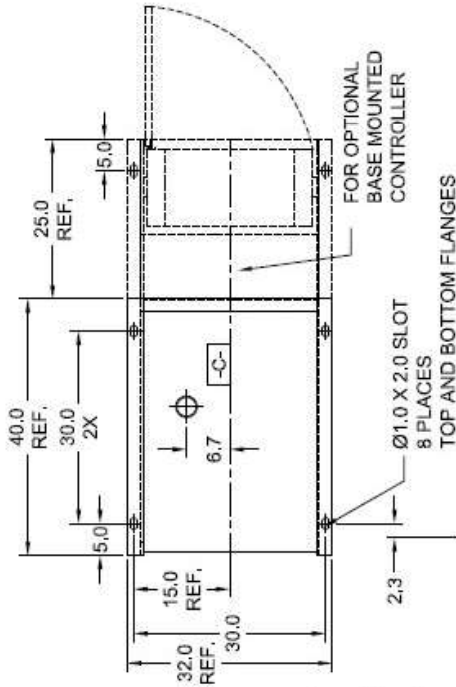
Manufacturer	DeRan	Shaft Type	VHS
Model	G80A	Ratio	4:3
-	- / - / -	-	-
-	-	-	-

Customer	
Quote No.	2199058
Item No.	001 CIA 500 GPM @ 130 PSI
Project	SN - Veracruz, Veracruz
Date	13 Mar 2024 1:10 AM



**PEERLESS
PUMP**

- **-A-** MOUNTING FACE OF FLYWHEEL
- **-B-** ENGINE CRANKSHAFT HORIZONTAL CENTERLINE
- **-C-** ENGINE CRANKSHAFT VERTICAL CENTERLINE
- **-D-** PUMP SHAFT HORIZONTAL CENTERLINE

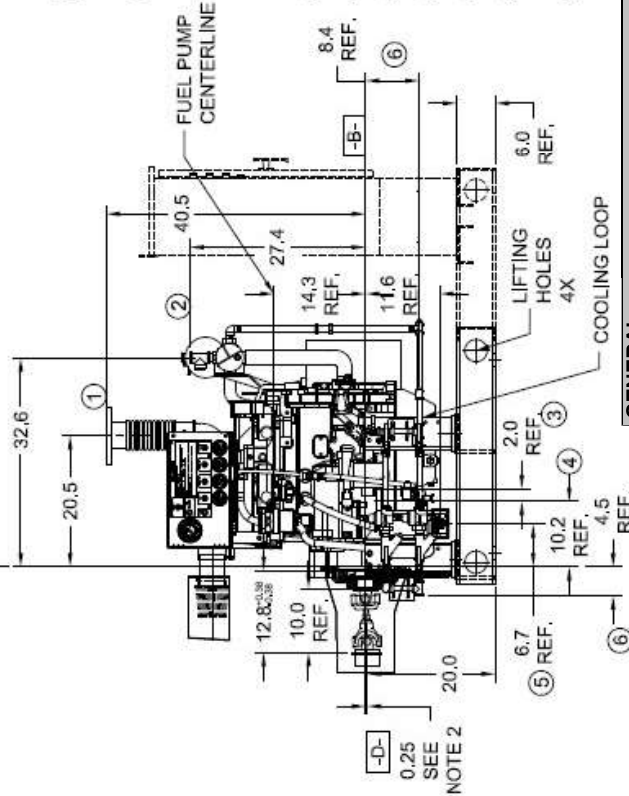


LISTED DRIVESHAFT		
ENGINE MODEL	DRIVESHAFT MODEL	COUPLING MODEL
JU4H-JF10*, 12*, 14*, 20*, 22*, 24	CD8T0-SC	TC15-11;541 FS

(*) PLD OPTION AVAILABLE FOR THIS MODEL

ITEM NO.	DESCRIPTION	CONNECTION SIZE
1	EXHAUST OUTLET CONNECTION	4" 130W EXHAUST
2	RAW WATER OUTLET	SEE NOTE 6.
3	FUEL SUPPLY CONNECTION (FARSIDE)	1/2" NPTF
4	FUEL RETURN CONNECTION (FARSIDE)	3/8" NPTF
5	HEATER JUNCTION BOX	VOLTAGE REQUIREMENTS: AC CONNECTION HEATER 1000 WATTS STD. 115 VAC 45W-10% OPT. 230 VAC 45W-10%
6	RAW WATER INLET	SEE NOTE 7.

1. GENERAL TOLERANCE: UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN INCHES AND VARY 0.38".
2. THE DRIVE SHAFT IS DESIGNED TO OPERATE AT A 2° ANGLE WITH THE INPUT AND OUTPUT SHAFTS IN PARALLEL. THE ENGINE CRANKSHAFT IS TO BE SET WITH A PARALLEL OFFSET OF 0.25 ± 0.09 INCHES VERTICALLY ABOVE THE PUMP SHAFT AND 0.00" ± 0.09 INCH PARALLEL OFFSET HORIZONTALLY RIGHT OR LEFT OF THE PUMP SHAFT. REFER TO THE CERTIFIED DRIVESHAFT INSTRUCTIONS MANUAL FOR ALIGNMENT INSTRUCTIONS.
3. BASE MUST BE COMPLETELY FILLED WITH GROUT PER NFPA 20.
4. ENGINE IS CW (CLOCKWISE) ROTATION WHEN VIEWED FROM THE HEAT EXCHANGER FRONT.
5. SUCTION AND DISCHARGE FLANGES DRILLED PER ANSI B16.1 (IF APPLICABLE).
6. RAW WATER OUTLET SIZE VARIES BASED UPON SITE CONDITIONS; DEFAULT SIZE: 1" NPT
7. RAW WATER INLET SIZE VARIES BASED ON SITE CONDITIONS.
8. CAUTION: ALL PLUMBING MUST BE SUPPORTED AND/OR ISOLATED SO THAT NO WEIGHT OR STRESS IS APPLIED TO ANY ENGINE COMPONENT.
9. CAUTION: SPREADER BARS REQUIRED TO MOVE PACKAGE. DAMAGE DUE TO IMPROPER HANDLING IS NOT WARRANTABLE.



GENERAL			
Pump Model	10MAF		
Listing / Approval	FM/UL Listed		Customer
Rated Flow	500 USgpm	Liquid	Quote No.
Rated Pressure	135.0 psi	Specific Gravity	Item No.
Rated Speed	1760 rpm	Model	Project
			Date

EF.
Certified for:

Project:
Customer:
Item / P.O.:
Quote No.:
Pump Model:

ALL VIEWS 3rd ANGLE PROJECTION



**Customer Price Sheet Total Only**

Project name	SN - Veracruz, Veracruz	Quote Number / ID	FEM.0162-03-2
Customer		Model / Stages	10MAF / 8
Tag Number	002 CIE 500 GPM @ 130 PSI	Flow, rated	500 USgpm
Customer ref. / PO		Differential head / pressure, rated	135.00 psi
		Speed, rated	1760 rpm

Total

Grand Total		Lead Time Total	
-------------	--	-----------------	--

Pump

Qty	Description
1	10MAF Fire Pump System Mount PumpType: New Pump Scope of Supply: Fire Pump with driver and controller Pump Pump model: 10MAF 8 Stage Selected pump listing: FM/UL Listed Nameplate units: US Bowl Assembly Number of Stages: 8 Stage Materials of Construction: Material Group A, CIE Bowl/Brz Imp Standard Material Group: Mtl-GrpA BowlMaterial: Cast Iron Impeller Material: Aluminum Bronze Bowl Configuration: L4 Suction: Bell Suction Suction Accessory: Basket Strainer Suction Accessory Material: Aluminum Bronze Line Shaft Type: Open Line Shaft
8	Efficiency: Standard Efficiency Impeller Filing: Standard, Fig.1 to A = 1/8 in Impeller Wear Ring: None Bowl Wear Ring: None
1	Bowl Bearing Material: Standard (Bronze/Rubber) Impeller Fastening: 303 Stainless steel (lock collets)
8	Bowl Bolting: 18-8 Stainless Steel Column / Line Shaft / Coupling Column Diameter: 6 inch Column Pipe Sections: 10 Ft Bearing Spacing Column Connection: Threaded
1	Line Shaft Material: 416 SS Line Shaft Size: 1 3/16 inch Line Shaft Coupling material: 410 SS Top Shaft Diameter: 1 3/16 inch Top Shaft Material: 416 SS
1	Line Shaft Bearing: Standard (Rubber) Column Assembly
1	OLS Threaded Column 6 inch / 1.1875 inch Shaft / 10 Ft Bearing Spacing, Length Base to Bowl 28 inch Column top: (1) OLS Threaded Column T&C 6 inch, Code Length to Base 28 inch, Steel



Pump

Qty	Description
	Shaft Group of Column
	Line shaft top: (1) Threaded, D = 1.1875 inch, L = 33.2175 inch, 416 SS
	Top Shaft and Nut
1	Top Shaft and Nut: Top Shaft & Nut
	Discharge Head
1	Discharge Head Size: 6x6x12G
	Discharge Head Material: Cast Iron
	Flange Rating: 125lb
	Sealing Type: Packed Stuffing Box
	Stuffing Box Bearing Material: Standard (Bronze)
1	Sole Plate: Steel
	Adders
1	Adders: 316SS Gland T-Bolts & Nuts
	Coating/ Painting Systems
	System: Standard Factory Paint - Enamel
	Outside Bowl Assembly: Standard factory paint - enamel
	Inside Bowl Assembly: Standard Coating: Glass or Scotchkote 134
	Outside Column: Standard factory paint - enamel
	Inside Column: None
	Outside Discharge Head: Standard factory paint - enamel
	Inside Discharge Head: None
	Testing
	Assembly / Match Marking
1	Factory Assembly for Shipment: Factory Assembled

Testing

Qty	Description
1	Fire Pump System
	Pump
	Testing
	Performance Tests
	Performance Tests: Non-witnessed Performance Test
	Hydrostatic Pressure Tests
	Hydrostatic Pressure Tests: Non-witnessed Hydrostatic Test

Certification & Documentation

Qty	Description
1	Fire Pump System
	Pump
	Testing
	Documents
	Drawings
1	Drawings: Standard dimensional print on 'A' size format - factory generated
1	Drawings: Standard cross sectional print on 'A' size format - factory generated
1	Drawings: Standard computer generated BOM (standard ERP output)
	Installation and Operation manuals (IOMs)
1	Installation and Operation manuals (IOMs): Standard Peerless IOM (www.peerlesspump.com)



Driver

Qty	Description
1	Fire Pump System Driver Type Motor supplied by: Standard factory motor Motor voltage: 460 V Frequency: 60 Hz Starting method: Wye-delta Motor enclosure: Weather Protected I Motor efficiency: Any Motor manufacturer: All motors Adapter required: No Direct Ship Motor: No
1	Motor: Motor-electric, 60hp, 460V, 60Hz, 1800 rpm GE, EPACT, (BD 12)

Controller

Qty	Description
1	Main Controller Fire pump controller Controller brand: Tornatech Controller voltage: 440-480 V Transfer switch: No Controller frequency: 60 Hz Direct Ship Controller: No
1	Controller type: Tornatech GPY Reduced voltage Y-Delta open starter, 60-60hp, 440-480V, 60hz Controller additional options Enclosure: - NEMA 2 Enclosure type: NEMA Type 2 Pressure transducers
1	Pressure transducers: - Standard pressure transducer
1	Withstand Ratings (Controller): - Standard (see manufacturer documentation for value) Climate protection
1	Climate protection: -D15 Tropicalization
	Controller Language Options
1	Selected Language: Spanish

Jockey Pump

Qty	Description
1	Jockey pump, controller, and options Pump and motor Jockey pump supply: None

Accessories

Qty	Description
1	Accessories Fire Pump Accessories
1	Discharge Gauge: 0 - 600 psi
1	Air Release Valve: Cla-Val 33ATD 2" NPT



Commercial

Qty	Description
1	Product Shipping
	Product Shipping
1	Shipping Container: Skid with bird cage
	Commercial Terms
	Commercial Terms
1	Incoterms 2020: EXW
	Order is subject to storage fee if not picked up after 10 working days when goods are made ready.
	Named Place: Seller's Facility

**Pump Performance Datasheet**

Customer	:	Quote Number / ID	:	FEM.0162-03-2
Customer ref. / PO	:	Peerless Model	:	10MAF
Tag Number	:	Stages	:	8
Service	:	Based on curve number	:	10MAHC-2624288_60 Rev Oct 2021
Quantity	:	Date last saved	:	13 Mar 2024 1:17 AM

Operating Conditions		Liquid	
Flow, rated	: 500 USgpm	Liquid type	: Cold Water
Differential head / pressure, rated (requested)	: 135.00 psi	Additional liquid description	:
Differential head / pressure, rated (actual)	: 139.74 psi	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	: 20.00 deg C
Site Supply Frequency	: 60 Hz	Fluid density, rated / max	: 1.000 / 1.000 SG
NFWA Limits		Viscosity, rated	: 1.00 cP
Speed, rated	: 1760 rpm	Vapor pressure, rated	: 0.34 psi.a
Impeller diameter, rated	: 6.94 / 6.94 in	Material	
Impeller diameter, maximum	: 7.13 / 7.13 in	Material selected	: Material Group A, CIE Bowl/Brz Imp Standard
Impeller diameter, minimum	: 6.63 / 6.63 in	Pressure Data	
Flow, rated	: 500 USgpm	Maximum working pressure	: See the Additional Data page
Head, rated	: 139.74 psi	Maximum allowable working pressure	: See the Additional Data page
Power, rated	: 54.19 hp	Maximum allowable suction pressure	: N/A
Power required at 150% flow	: 60.44 hp	Hydrostatic test pressure	: See the Additional Data page
Peak power	: 60.89 hp		
Efficiency, rated	: 75.21 %		
Flow at 150%	: 750 USgpm		
Head at 150%, actual/limit	: 104.95 / 87.75 psi		
Head at shutoff, actual/limit	: 167.04 / 189.00 psi		

Bowl performance. Adjusted for construction and viscosity.

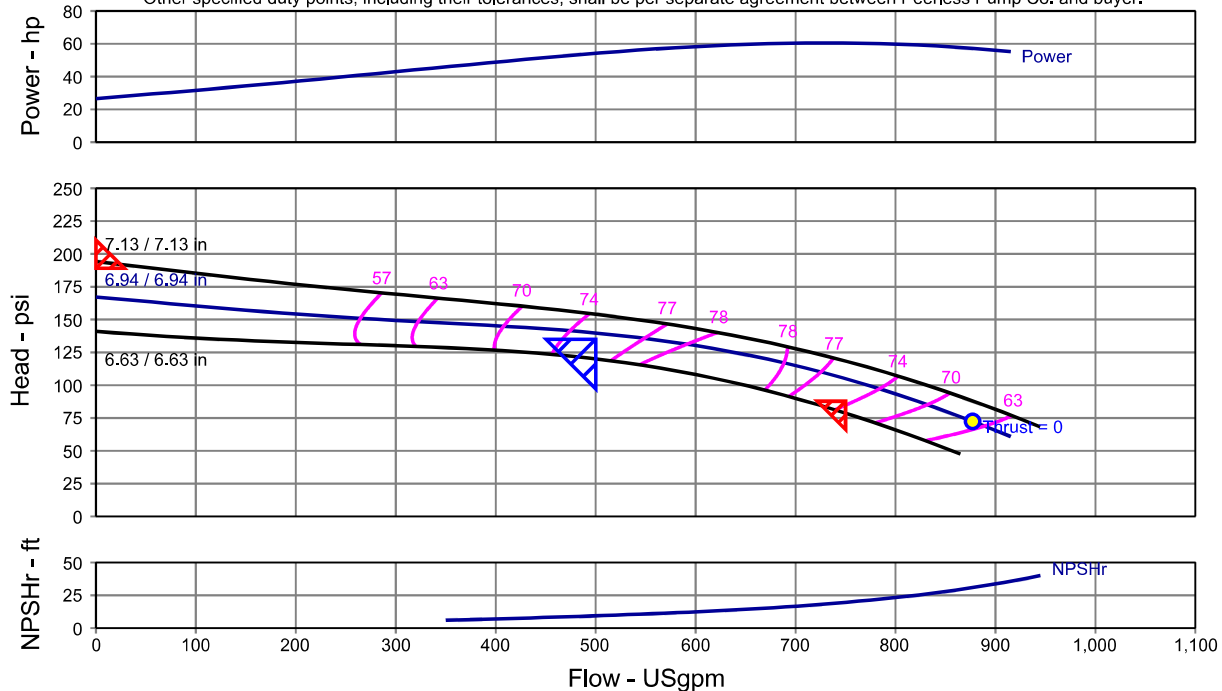
The duty point represents the head at the bowl.

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

The rated point is the only guaranteed point (within the specified HI grade) on the performance curve.

The published closed valve head has a +6% tolerance.

Other specified duty points, including their tolerances, shall be per separate agreement between Peerless Pump Co. and buyer.



**Construction Datasheet**

Customer	:	Quote Number / ID	: FEM.0162-03-2
Customer ref. / PO	:	Service	: -
Tag Number	: 002 CIE 500 GPM @ 130 PSI	Date last saved	: 13 Mar 2024 1:17 AM
Pump Size - Stages	: 10MAF	Quantity	:1
Construction		Listings and Approvals	
Bowl construction	Threaded Discharge Bowl	UL	Yes
Impeller type	Enclosed	FM	Yes
Impeller fastening	303 Stainless steel (lock collets)	ULC	No
Strainer	Basket Strainer	CE	No
Column construction	Threaded	NSF61	No
Column dia (nominal)	6.00 in	Electric Motor Information	
Column pipe length	10 Ft Bearing Spacing	Motor Type	N/A
Max column length	36.80 in	Manufacturer	GE
Lineshaft diameter	1.19 in	Material Number	-
Lineshaft construction	Open Line Shaft	Manufacturer catalog number	-
Lineshaft lubrication	-	Rated power	60.00 hp
Discharge	6x6x12G	Derated power	69.00 hp
Materials		Installation elevation	0.00 in
Bowl	Material Group A, CIE Bowl/Brz Imp Standard	Installation temperature (max)	37.00 deg C
Impeller	Material Group A, CIE Bowl/Brz Imp Standard	Voltage	460 V
Bowl bearing	Standard (Bronze/Rubber)	Phase	3
Bowl shaft	416 Stainless Steel	Frequency	60 Hz
Bowl wear ring	None	Rated speed	1800 rpm
Impeller wear ring	None	Number of Poles	4
Strainer	Aluminum Bronze	Service Factor	1.15
Column	Steel	Starting Method	Wye-Delta
Lineshaft	416 SS	Frame Size	364TP
Bearing retainer / ELS Tube	Standard (Rubber)	Enclosure	WPI
Lineshaft bearing	Standard (Rubber)	Steady Bushing	-
Discharge head	Cast Iron	Efficiency Class	EPACT
Sole plate	Steel	Testing	
Paint	Peerless Fire Red	Hydraulic performance test	Non-witnessed per HI 14.6 1U
Additional information		Hydrostatic test	Non-witnessed
Pit / sump depth	3.00 m	Curve approval	No
Pump length	2.70 m	NPSH test	N/A
Max pump dia below mounting surface	-	String test	N/A
Max sphere size	0.69 in	Approximate Weights	
Total / best lateral setting	0.718 / 0.125	Complete pump	1,169 lb
Max suction pressure**	0.00 psi.g	Driver	0 lb
		Base	-1 lb

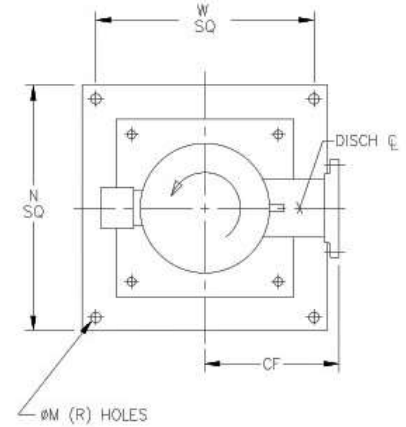
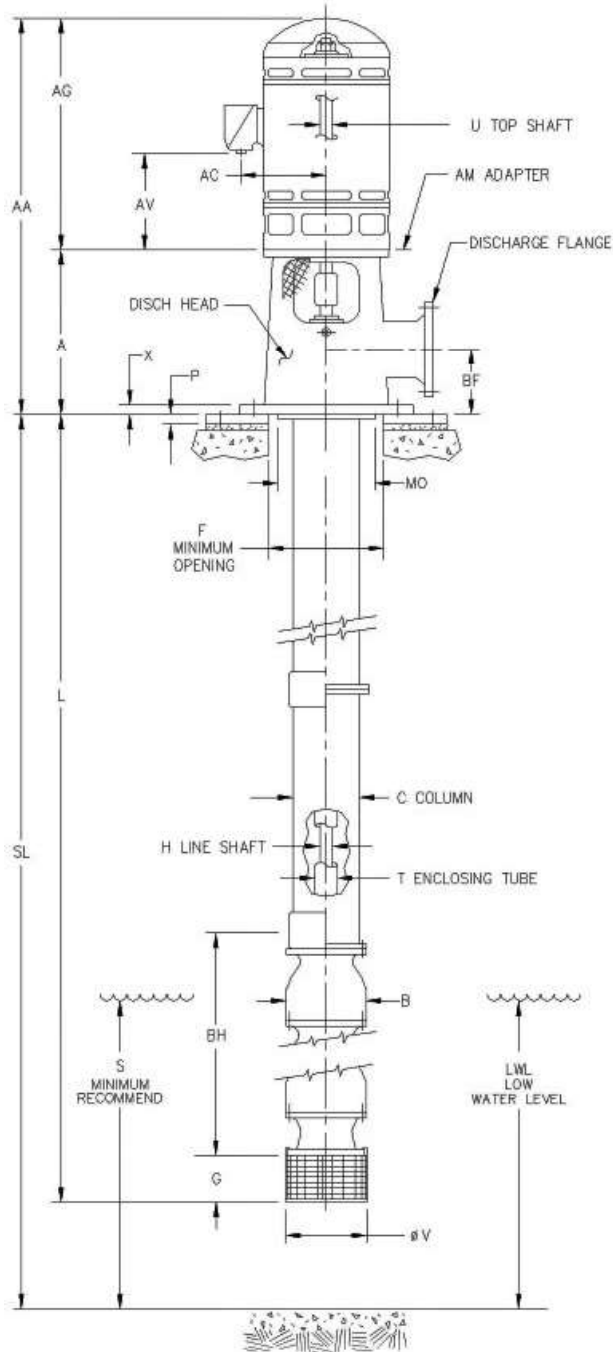
**Pump Performance - Additional Data**

Project name : SN - Veracruz, Veracruz		Tag Number : 002 CIE 500 GPM @ 130 PSI				
Commissioned :		Service :				
Representative :		Model : 10MAF				
Customer :		Quantity : 1				
Customer ref. / PO :		Quoted By (Sales Office) : Indianapolis (default)				
Quote Number / ID : FEM.0162-03-2		Quoted By (Sales Engineer) : Emmanuel Medina				
Date last saved : 13 Mar 2024 1:17 AM		Speed, rated : 1760 rpm				
Stages : 8						
Performance Data		Stage, Speed and Solids Limits				
Head, maximum diameter, rated flow : 154.10 psi		Stages, maximum : 28				
Head, minimum diameter, rated flow : 119.98 psi		Stages, minimum : 1				
Head, maximum, rated diameter : 167.04 psi		Pump speed limit, maximum : 1800 rpm				
Efficiency adjustment factor, total : 0.98		Pump speed limit, minimum : 1 rpm				
Power adjustment, total : 1.00 hp		Curve speed limit, maximum : 3600 rpm				
Head adjustment factor, total : 1.00		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 : 0.69 in				
NPSH margin dictated by user : 0.0 ft						
NPSH margin used (added to 'required' values) : 0.0 ft		Typical Driver Data				
Mechanical Limits		Driver speed, full load : 1780 rpm				
Torque, rated power, rated speed : 3.10 hp/100 rpm		Driver speed, rated load : 1782 rpm				
Torque, maximum power, rated speed : 3.46 hp/100 rpm		Driver efficiency, 100% load : N/A				
Torque, driver power, full load speed : 3.37 hp/100 rpm		Driver efficiency, 75% load : N/A				
Torque, driver power, rated speed : 3.37 hp/100 rpm		Driver efficiency, 50% load : N/A				
Torque, pump shaft limit : -						
Radial load, worst case : -						
Radial load limit : -						
Impeller peripheral speed, rated : -						
Impeller peripheral speed limit : -						
Various Performance Data		Flow (USgpm)	Head (psi)	Efficiency (%)	NPSHr (ft)	Power (hp)
Shutoff, rated diameter		0	167.04	-	-	26.62
Shutoff, maximum diameter		0	194.28	-	-	36.84
MCSF		-	-	-	-	-
Rated flow, minimum diameter		500	119.98	76.35	-	45.83
Rated flow, maximum diameter		500	154.10	74.29	-	60.50
BEP flow, rated diameter		641	124.66	78.43	14.0	59.44
120% rated flow, rated diameter		600	130.18	78.13	12.4	58.31
End of curve, rated diameter		915	60.79	58.83	35.7	55.17
End of curve, minimum diameter		865	47.56	56.63	32.5	42.38
End of curve, maximum diameter		945	68.25	58.88	37.6	63.87
Maximum value, rated diameter		-	167.04	78.43	-	60.89
Maximum value, maximum diameter		-	-	78.22	-	67.69
System differential pressure		@ Density, rated		@ Density, max		
Differential pressure, rated flow, rated diameter (psi)		139.7		139.7		
Differential pressure, shutoff, rated diameter (psi)		167.0		167.0		
Differential pressure, shutoff, maximum diameter (psi)		194.3		194.3		
Discharge pressure		@ Suction pressure, rated	@ Suction pressure, max	@ Suction pressure, rated	@ Suction pressure, max	
Discharge pressure, rated flow, rated diameter (psi.g)		139.7	139.7	139.7	139.7	
Discharge pressure, shutoff, rated diameter (psi.g)		167.0	167.0	167.0	167.0	
Discharge pressure, shutoff, maximum diameter (psi.g)		194.3	194.3	194.3	194.3	
Ratios						
Maximum flow / rated flow, rated diameter : 183.07 %		Head rated diameter / head minimum diameter, rated flow : 116.47 %				

**Pump Performance - Additional Data**

Head and Power Losses				Dimensions					
Power loss, lineshaft bearings		: 0.03 hp		Minimum clearance below suction bell lip/case : 12.00 in					
Power loss, thrust bearing		: 0.37 hp		Minimum well diameter : 12.00 in					
Power loss, total		: 0.40 hp		Suction nozzle centerline height : -					
Bowl vs. Pump Performance				Suction to first stage impeller centerline : 6.00 in					
Head (bowl / pump)		: 139.74 psi / 138.05 psi		Bowl assembly length, first stage : 16.81 in					
Efficiency (bowl / pump)		: 75.21 % / 74.51 %		Bowl assembly length, upper stage : 7.50 in					
Power (bowl / pump)		: 54.19 hp / 54.59 hp		Bowl assembly length, total : 69.31 in					
NPSH required at first stage impeller eye		: 9.4 ft		Suction bearing hub length : 0.38 in					
Weights and Down Thrust				Strainer length : 8.63 in					
Weight, lineshaft		: 0 lb		Bowl to column adaptor length : 0.00 in					
Weight, bowl assembly rotating element		: 789 lb		Discharge head stick-down : 0.00 in					
Thrust factor		: 6.24 lb/ft		Submersible motor adaptor length : -					
Thrust, hydraulic (rated / max)		: 2,010 / 3,493 lbf		Submersible motor length : -					
Thrust, bowl shaft end (rated / max)		: 0 / 0 lbf		Column length : 0.93 m					
Thrust, shaft step (rated / max)		: 0 / 0 lbf		Total pump length : 2.91 m					
Thrust, stuffing box sleeve (rated / max)		: 0 / 0 lbf		Can / barrel length : -					
Thrust, total (rated / max)		: 2,799 / 4,282 lbf		Stuffing box sleeve diameter : 1.19 in					
Thrust bearing capacity		: -		Suction bell diameter : -					
* Rated thrust @ rated head, density, and suction pressure where applicable				Minimum submergence to prevent vortexing : 25.00 in					
* Max thrust @ max head, density, and suction pressure where applicable				Actual submergence (based on LLL) : 66.74 in					
Pressure Data		Maximum working pressure (psi.g)	Maximum allowable working pressure (psi.g)	Hydrostatic test pressure (psi.g)	Discharge head height : 17.00 in				
Bowl	167.0	497.0	N/A		Discharge nozzle centerline height : 0.00 in				
Column	167.0	-	N/A		Min distance discharge nozzle centerline to suction bell : 0.00				
Discharge head	165.6	175.0	N/A		Lineshaft length : 1.37 m				
Can/Barrel	-	-	-		Bowl shaft diameter : 1.19 in				
Torque Limits					Bowl diameter, outside : 9.53 in				
Torque, lineshaft limit		: -			Bowl diameter, exit : 5.00 in				
					Column diameter, inside : 6.07 in				
					Column internal obstruction diameter : 1.19 in				
					Can/barrel diameter, inside : -				
					Can/barrel obstruction diameter				
					NPSH				
					NPSH at bowl (available / required)				: Ample / 9.4 ft
					NPSH at low liquid level (available / required)				: Ample / 4.3 ft
					NPSH at suction flange (available / required)				: - / -
					Liquid Velocities				
					Column liquid velocity				: 5.77 ft/s
Discharge head liquid velocity				: 5.77 ft/s					
Can liquid velocity				: -					
Suction nozzle liquid velocity				: -					
Limitations									
Head measured at		: Bowl		Length strategy : Sump depth					
Pump type		: Complete Pump		Length : 3.00 m					
Direct connect		: No		Low liquid level (Measured from bottom of head) : 1.00 m					
Product Line Options									
Suction type		: Bell		Lineshaft diameter : 1 3/16 inch					
Bowl shaft material		: 416 SS		Lineshaft lubrication : Open Lineshaft					
Column diameter		: 6 inch		Discharge head size : 6x6x12G					
Column construction		: Threaded		Top shaft material : 416 SS					
Lineshaft material		: 416 SS		Top shaft diameter : 1 3/16 inch					
Performance Adjustment Options									
Impeller polished		: Not polished		Bowl wear ring : None					
Impeller wear ring		: None							

General Arrangement



Approximate Dry Weight	
Motor	-1 lb
Discharge Head	305 lb
Column and Shaft	75 lb
Bowl Assembly	789 lb
Total	1,168 lb

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
5. Discharge Head: 6x6x12G, Flange Rating: 125lb

General Data

Rated Flow	500 USgpm	Listing / Approval	FM/UL Listed
Head (Bowl)	135.00 psi	Rated Speed	1760 rpm
Model	10MAF	Liquid	Cold Water
Stages	8	Specific Gravity	0.998 SG

Motor Data

Manufacturer	GE	Shaft Type	VHS
Hp	60.00 hp	Enclosure	WPI
Volt / Ph / Hz	460 V / 3 / 60	Frame	364TP
Service Factor	1.15		

Customer	
Quote No.	2199058
Item No.	002 CIE 500 GPM @ 130 PSI
Project	SN - Veracruz, Veracruz
Date	13 Mar 2024 1:17 AM

V	11.38	C	6.00	MO	9.75	U	1.19	N	22.00
G	8.50	H	1.19	A	17.00	AG	-1.00	W	19.00
B	9.53	T	-	X	1.00	AV	-	CF	11.44
BH	69.31	SL	118	P	0.88	AC	-	M	1.00
LWL	78.74	L	106	BF	7.5	AA	-1.00	R	4
S	39.58	F	13.38	AM	-	-	-	-	-