OPERATING CONDITIONS

Temp / SG	70° F / SP.GR 1.00
Fluid Type	Water
Lubrication Method	Water (Open Lineshaft)
Vapor Pressure	0.3633 psi
Viscosity	0.9695 cP
Specified Flow	81.00 LitersPerSecond
Total Dynamic Head	127.00 m
Pumping Level	2.000 m TPL
	0.000 ft
Sump/Pit Depth	6.240 M
Documentation	Standard pump installation and operation manual and order data

PERFORMANCE AT 1770 RPM

Bowl Efficiency	88.10 @design, 89.20 Best Efficiency
Run Out Capacity	114.00 LitersPerSecond
Power	152.88 @design, 164.95 NOL (Hp)
Npshr	5.39 m @design
Design Thrust	3440.60 @design (lb)
Shut off Pressure	1605.79 kPa

MATERIALS AND DIMENSIONS

Bowl	Cast iron with glass enamel		
Suction Bell	Cast Iron CL30		
Bowl Wear Ring	Not Included		
Impeller	316SS Impeller		
Diameter	218.0006 mm		
Impeller Wear Ring	Not Included		
Impeller Balance	Manufacturer's Standard		
Impeller Lock Method	Taper lock	Key Material	None
Bowl Shaft	416SS, 1.6875 inch diam.		
Suction Bearing	Bronze C90300 "G" Modified		
Bowl Bearings	Bronze C90300 "G" Modified		
Rifled Drill Shaft	No		
Collets	Carbon steel		
Strainer Type	Galvanized Steel Clip On-Bell Type Strainer		
Tube Bearing Adapter Material	Not Included		
Column	Carbon Steel,8" [203mm] (in) diam., 12.86 ft , Threaded		
Column Shaft Diameter	416SS, 1.5000 (in) diam.		
Column Bearing Retainer	304SS		
Lineshaft Bearings	Rubber EPDM		
Column Bearing Options	Not Included		
Max Bearing Space	10 ft (3 m) Spacing		
Lineshaft Coupling	416SS		

Column Shaft Sleeve	Not Included
Tube Material	Carbon Steel
Discharge Head	Carbon Steel Fab
Discharge Head Style	FF
Discharge Flange	8" [203mm] (in), 150#
Head Shaft Coupling	416SS Threaded
Steel Sub Base	Not Included
150# Disch Companion Flange	Not Included
300# Disch Convenience Flange	Not Included
Head Bolting	Carbon steel
Head Sleeve	None
Thrust Pot	Not Required
Sealing Method	Packing
Packing	Acrylic yarn and graphite
Mechanical Seal	Not Included
Sealing Features	

DRIVER INFORMATION

Motor Type	Standard
Motor Manufacturer	US Motors
Rating	200 Hp [149 kW]
Efficiency Level	PREM
Motor Part Number	H200S2A2GE-WVNU-000A0C000
Enclosure	WPI
Phase / Frequency / Volts	3 / 60 Hz / 460PWS
Speed	1800 RPM

TESTING

Hydrostatic:	None
Performance:	None
Vibration:	None
NPSH:	None
Post Inspection:	None
Final Inspection:	None
Other:	None

COATING

Coating Information:	Water Technology Standard Blue Enamel; Bowl Assembly - STD; Column Assembly - STD; Head Assembly - STD

ADDITIONAL FEATURES

Additional Bowl Features	
Additional Column Features	
Additional Head Features:	

Additional Driver Features:

Additional Can features:

Additional Misc features:

WEIGHTS

Total bowl weight	896 lbs
Total column weight	525 lbs
Discharge head weight	573.00 lbs
Driver weight	1600.00 lbs
Approximate net weight	3594.00 lbs

Our offer does not include specific review and incorporation of any Statutory or Regulatory Requirements and the offer is limited to the requirements of the design specifications. Should any Statutory or Regulatory requirements need to be reviewed and incorporat ed then the Customer is responsible to identify those and provide copies for review and revision of our offer.

Our quotation is offered in accordance with our comments and exceptions identified in our proposal and governed by our standard t erms and conditions of sale – Xylem Americas attached hereafter.

For units requiring performance test, all performance tests will be conducted per ANSI/HI 14.6 standards unless otherwise noted in the selection software submittal documents. Test results meeting with grade 2B tolerances for pumps with a rated shaft power of 1 34HP or less and grade 1B for greater than 134HP will be considered passing.

Customer is responsible for verifying that the recommendations made and the materials selected are satisfactory for the Custo mer's intended environment and Customer's use of the selected pump. Customer is responsible for determining the suitability of Xylem recommendations for all operating conditions within Customer's and/or End User's control. Xylem disclaims all warranties, express or implied warranties, including, but not limited to, warranties of merchantability and fitness for a parti cular purpose and all express warranties other than the limited express warranty set forth in the attached standard terms and conditions of sale – Xylem Americas attached hereafter.

Xylem does not guarantee any pump intake configuration. The hydraulic and structural adequacies of these structures are the sole responsibility of the Customer or his representatives. Further, Xylem accepts no liability arising out of unsatisfactory pump intake field operating conditions.

The Customer or his representatives are referred to the Hydraulic Institute Standards for recommendations on pump intake design. To optimize the hydraulic design of a field pump intake configuration, the Customer should strongly consider performing a detail ed scale model pump intake study. However, the adequacies of these recommendations are the sole responsibility of the Customer.

HYDRAULIC ANALYSIS

OVERALL PUMP PARAMETERS

Capacity:	81.00 LitersPerSecond	Total Dynamic Head:	127.00 m
Total Pump Length:	0.000 ft	Impeller Trim:	218.0006 mm
Pump Type:	VIT - Short Set Lineshaft Turbine Pumps	Head Type:	Type FF (Fabricated F-Head)
Pump K-Factor:	7.5300 lbs/ft	Number of Stages:	6
Additional Pump K-Factor:	7.5300 lbs/ft	Pumping Level:	2.000 m
Pump Operating Speed [RPM]:	1770		

LINE SHAFT RELATED DATA

Shaft Diameter:	1.5000 inch	Shaft Limit :	256 Hp
Shaft Material:	416SS	Material Correction Fact:	1.18
Line Shaft Length:	154.29 inch	Shaft Elongation:	0.00945 inch
Line Shaft Type:	Water (Open Lineshaft)	Impeller Running Clearance:	0.13 inch

BOWL DATA

Total Bowl Length:	83.37 inch	Bowl Shaft Limit:	370 Hp
Bowl Shaft Diameter:	1.6875 inch	Bowl Shaft Material:	416SS
Bowl Diameter:	11.750 inch		

COLUMN DATA

Column Diameter:	8 inch	Column Elongation:	0.00209 inch
Column Wall Thickness:	0.320 inch	Shut Off Column Elongation:	0.00281 inch
Column Load:	3824.60 lb		

HORSEPOWER DATA

Shaft Friction Loss:	0.14234 Hp	Thrust Load Loss:	0.44384 Hp
Bowl Hp at Design:	114 kW	Rating:	200 Hp [149 kW]

OTHER DATA

Hydraulic Thrust:	3137.20 lb	Thrust at Design:	3440.60 lb
Thrust at Shut Off:	4378.15 lb	Actual Head Above Grade:	408.22 ft
Available Lateral:	25.40 mm	Design Lateral:	0.13736 inch
Shut Off Lateral:	0.13978 inch		
Suction Head:	0.00 m	Shut Off Discharge Pressure:	1605.79 kPa
Column Loss:	0.56 ft	NPSH Actual:	25.48 ft
Head Loss:	1.33 ft	NPSHr:	5.39 m @design
Total Loss:	1.89 ft	NPSH Margin:	7.80 ft

EFFICIENCY DATA

Bowl Efficiency:	89.20 %	Overall Efficiency:	83.70 %
Motor Efficiency:	95.80 %	KWH per 1000 gallons:	1.56
Pump Efficiency:	87.40 %		

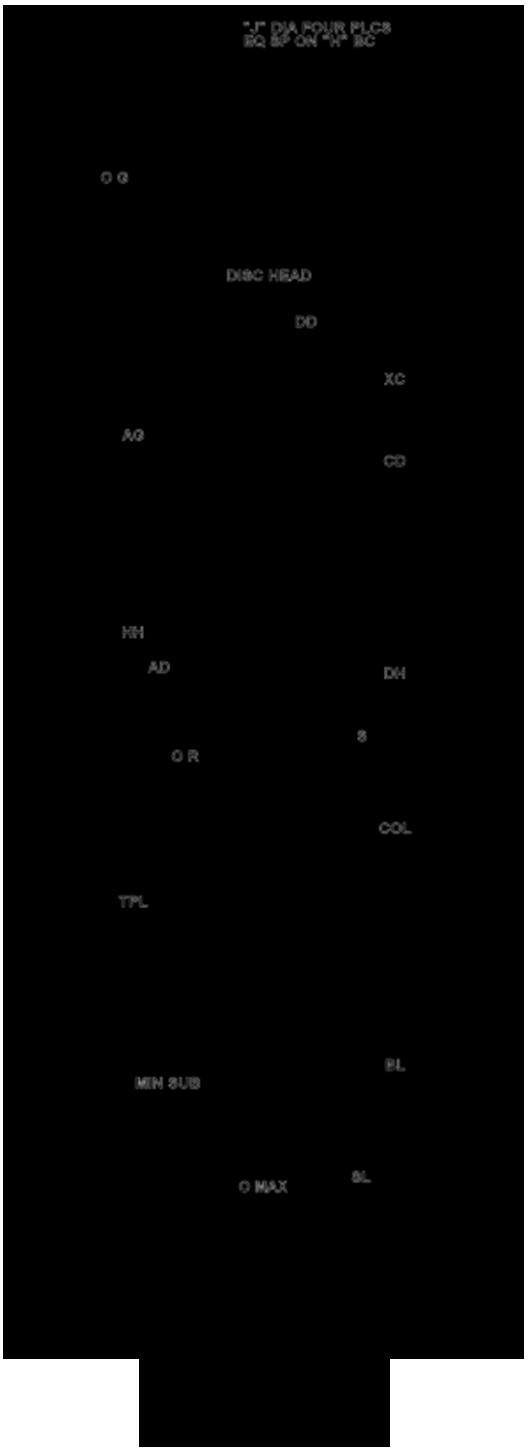
FLUID DATA

Fluid Type:	Water	Specific Gravity:	0.9999
Temperature:	70°F	Viscosity:	0.9695 cP

COMPONENT WEIGHTS

Bowl Weight:	896 lbs	Column Weight:	525 lbs
Head Weight:	573 lbs	Can Weight:	0 lbs
Driver Weight:	1600 lbs	Total Pump Weight:	3594 lbs

OUTLINE DRAWING



DIMENSIONS

AD	1.63	inch
AG	50.06	inch
BD	16.5	inch
BL	83.37	inch
CD	44.78	inch
CL	0.00	inch
COL	154.32	inch
DD	15.50	inch
MIN SUB	28.58	inch
DH	9.50	inch
G	23.50	inch
H	21.25	inch
HH	30.00	inch
J	1.13	inch
L	0.00	inch
M		
R	12.25	inch
S	2.06	inch
SL	2.01	inch
SU	0.00	inch
SUT	0.00	inch
TUBE	0.00	inch
TPL	0.00	inch
UG	0.00	inch
V	0.00	inch
W	0.00	inch
X	0.00	inch
XC	5.13	inch
Y	0.00	inch
Z	0.00	inch
Max Dia	12.13	inch
Discharge	(150 #) 8" [203mm]	inch
Suction	(150 #) 10	inch

Weights

Total bowl	896.00	lb
Total column	525	lb
Discharge head	573.00	lb
Driver	1600.00	lb
Approx weight	3594.00	lb

PUMP DATA

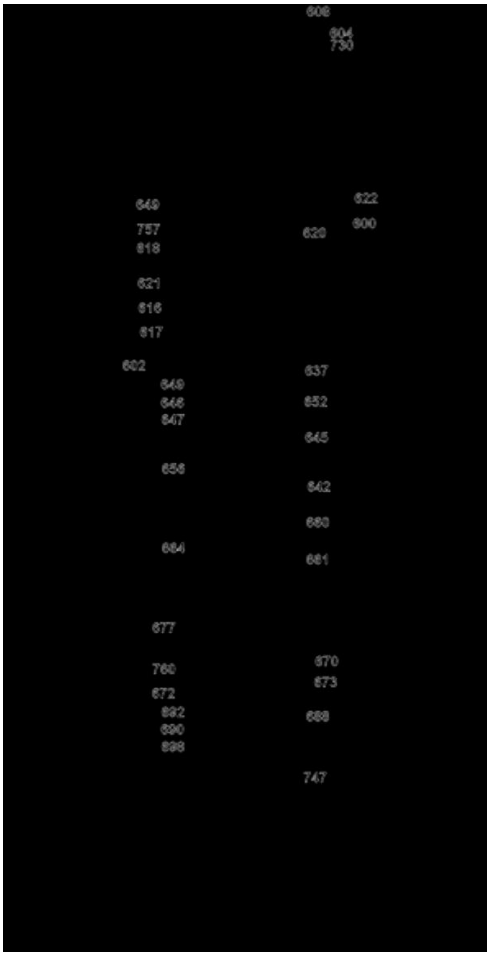
No. of Units	1.00
Model:	VIT-FFTM 12CHC
Stages:	6
Col Size:	8" [203mm]
Shaft:	1.5000 in dia
Flow:	81.00 LitersPerSecond
Head:	127.00 m
Driver Mfr:	US Motors
Driver Type:	VHS
Rating:	200 Hp [149 kW]
Speed:	1800 RPM
Phase:	3
Frequency:	60 Hz
Voltage:	460PWS

No.	NOTES
1	*Total Pump Length ± 1.0 inch.*
2	*Tolerance on all dimensions is .12 or ± .12 inch per 5 ft, whichever is greater.*
3	*All dimensions shown are in inches unless otherwise specified.*
4	*Drawing not to scale.*
5	*½" NPT – Gauge Conn (plugged)*
6	*Driver may be rotated at 90º intervals about vertical centerline for details refer to driver dimension drawing.*
7	*Before starting pump, impeller must be lifted 0.19 inch.*
8	*This assembly has been designed so that its natural frequency responses avoid the specific operating speeds by an adequate safety margin. The design has assumed the foundation to be rigid.*

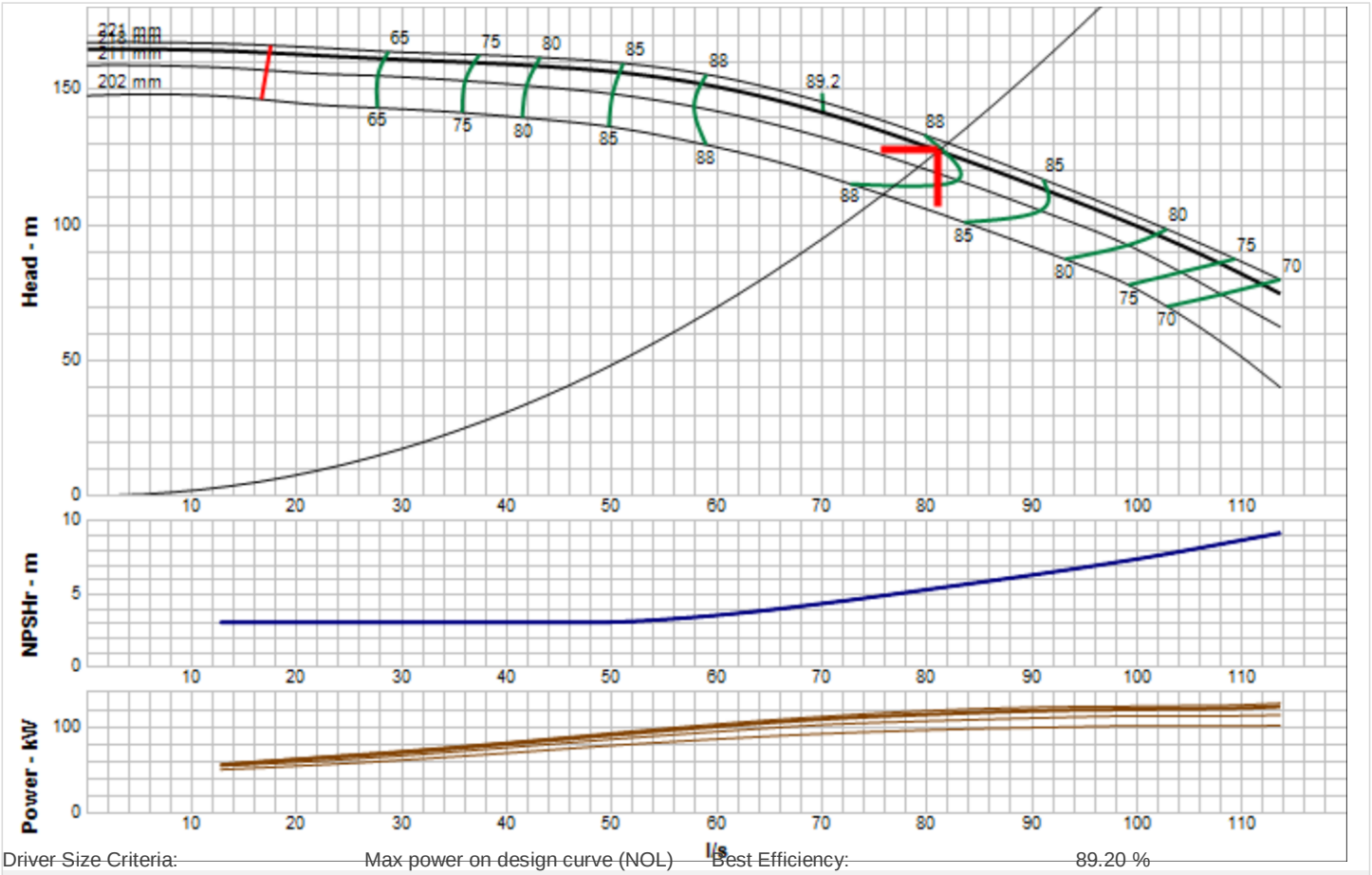
CROSS SECTIONAL

BILL OF MATERIAL

ITEM	Part Name	CODE	MATERIAL	ASTM#
Discharge Head Assembly				
600	Head – Discharge	9645	Carbon Steel Fab	A53
602	Head – Base Plate	N/A	Not Included	N/A
604	Nut – Adjusting	2242	Carbon Steel 1018	A108-99
608	Headshaft	2227	416SS	A582M-95b
616	Housing	1003	Cast Iron CL30	A48-94-ae1
617	Bearing-Housing	1109	Bronze C90300 "G" Modified	B584-00
618	Gland-Split	1203	316SS	A744M-00
620	Packing	5026	Acrylic yarn and graphite	ML402-99
621	O-Ring	5302	Nitrile Buna N	D4322-96
622	Slinger	5121	Rubber EPDM	D3568-98
648	Head Sleeve	N/A	None	N/A
730	Key-Motor Gib	2242	Carbon Steel 1018	A108-99
757	Screw-Gland Adj	2229	SST 316	A276-00a
Column and Lineshaft Assembly				
637	Hanger Flange	1003	Cast Iron CL30	A48-94ae1
642	Column Pipe	9645	Carbon Steel	A53
645	Column-Coupling	9645	Carbon Steel	A53
646	Lineshaft	2227	416SS	A582M-95b
649	Lineshaft Coupling	2265	416SS	A582M-95b
652	Retainer-Bearing	1205	304SS	A744M-00
656	Lineshaft Bearing	5121	Rubber EPDM	D3568-98
Bowl Assembly				
660	Bowl-Shaft	2227	416SS	A582M-95b
664	Bearing – Disc Bowl	1109	Bronze C90300 "G" Modified	B584-00
670	Bowl-Inter	6911	Cast Iron CL30 Enamel	A48-94e1
672	Bearing-Int Bowl	1109	Bronze C90300 "G" Modified	B584-00
673	Impeller	1203	316SS	A744M-00
677	Collet-Impeller	2242	Carbon steel	A108-99
674	Key-Impeller	N/A	None	N/A
680	Wear Ring-Bowl	N/A	Not Included	N/A
681	Wear Ring-Impeller	N/A	Not Included	N/A
688	Bell-Suction	690	Cast Iron CL30	1003
690	Bearing-Suction	1109	Bronze C90300 "G" Modified	B584-00
692	Sandcollar	1205	304SS	A744M-00
698	Clip On-Bell Type Strainer	6952	Galvanized Steel	A123
747	Plug-Pipe	1046	Malleable Iron	A197
760	Capscrew-Hex	2229	316SS	A276-00a



PERFORMANCE CURVE



Driver Size Criteria:	Max power on design curve (NOL)	Best Efficiency:	89.20 %
Speed:	1770	Flow at BEP:	70.00 LitersPerSecond
Impeller Trim:	218.0006 mm	Min Flow:	17.50 LitersPerSecond
Frequency:	60 Hz	Derate Factor:	0.0000
Additional Impeller Trim:	218.008 mm	NPSH Required:	5.39 m
Impeller Maximum Trim:	221.0003 mm	NPSH Actual:	25.48 ft
Specified Flow:	81.00 LitersPerSecond	Shut-Off Head:	164.00 m
Specified Head:	127.00 m	Fluid Type:	Water
Head at Design:	127.00 m	Temperature / Specifc Gravity:	70°F / 1.00
Efficiency at Design:	88.10 %	Viscosity:	0.9695 cP
Power at Design:	114.00 kW	Allowable Sphere Size:	23.88 mm
Flow on Design Trim at Max Power:	114 LitersPerSecond	Thrust K Factor:	7.5300 lbs/ft
Max Power on Design Curve:	123.00 kW	Additional Thrust K Factor:	7.5300 lbs/ft
Run-Out Flow:	0.00 LitersPerSecond	Max Lateral:	25.40 mm
Run-Out Head:	0 m		