

Scope of Work
HiPRO SOLICITATION Goulds Pumps

INTRODUCTION: NELHA operates a seawater pumping utility that pumps upward of 30 million gallons of seawater to aquaculture and energy clients at its facility. NELHA is procuring replacement pumps and pump casings for its existing pump system. The pumps have been in our system for ~ 20 years. The pump replacement require to be an exact dimensional match to the current pumps to allow for quick installation to the surrounding intake and discharge piping systems and ancillary equipment supporting the pumps which include vacuum and packing water systems. NELHA is required to install and repair all systems delivering seawater within a 2-hour window of time. Any pumps offered that are not an exact match will need to include in the bid price all piping, hardware adapters, and fittings modification to allow the pumps to work withing the frame work of the current pump station design.

SOLICITATION PUMP MODELS:

1. Qty (1) Goulds Complete Pump 3409L 18 x 14 x 23 (200hp) (Duplicate of SN No. N216H423) or equivalent provided cost of modifications to allow for a perfect match are included in quote.
2. Qty (3) Goulds Pump Case 3409L 18 x 14 x 23 Cast Iron (Duplicate part from SN No. N216H423) equivalent provided cost of modifications to allow for a perfect match are included in quote.
3. Qty (1) Goulds Pump Complete Pump 3410M 6 x 8 - 11 (40hp) (Duplicate part from SN No.2410889) equivalent provided cost of modifications to allow for a perfect match are included in quote.
4. Qty (1) Goulds Pump Complete Pump 3410M 8 x 10 - 12 (100hp) (Duplicate part from SN No. 242C182) equivalent provided cost of modifications to allow for a perfect match are included in quote.

SOLICITATION PUMP SPECIFICATIONS:

1. Qty (1) Goulds Complete Pump 3409L 18 x 14 x 23

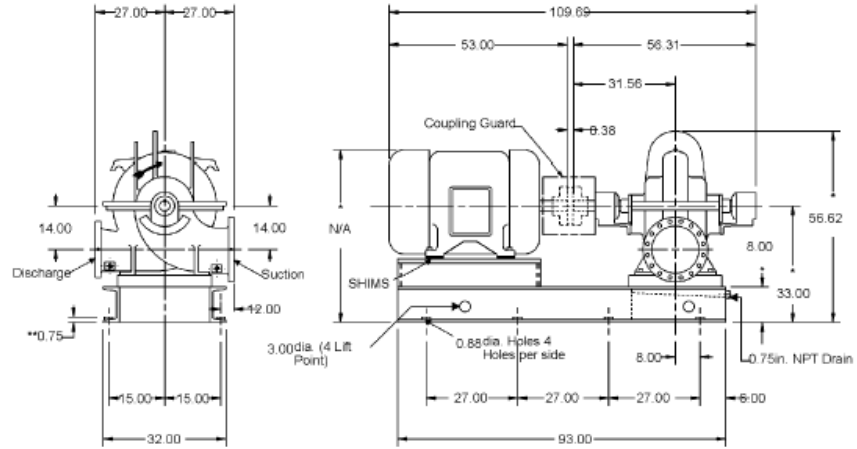
LIQUID:	water, sea , Rated Temp. 70.0 deg F, SP.GR 1.000, Viscosity 1.000 cp, Rated/Max. suction pressure 0.0 / 0.0 psi g
CAPACITY Rated:	7,000.0 gpm
HEAD	94 ft.
PUBLISHED EFFY:	88.5% (CDS)
RATED EFFY:	88.5%
RATED POWER:	190.2 hp (Run out 204.7 hp)
NPSHR:	9.6 ft
DISCH PRESSURE (R):	41.3 psi g (50.1 psi g @ Shut off) based on 0.0 psi g rated suction pressure
PERF. CURVE:	A-7876-10 (Rotation CW viewed from coupling end)
SHUT OFF HEAD:	115.8 ft
MIN. FLOW:	Continuous Stable: 3,905.6 gpm Hydraulic: 3,905.6 gpm Thermal: N/A
CONSTRUCTION:	All iron
CASING:	Cast iron (max.casing pressure @ rated temp. 175.0 psi g)

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CASING WEAR RING:	Nitronic 60
IMPELLER:	Ductile Iron - Enclosed (20.6000 in rated, max=23.0000 in, min=18.4000 in)
IMPELLER WEAR RING:	316SS
CASING GASKETS:	Vellumoid 505
SHAFT MATERIAL:	316SS
SHAFT SLEEVE:	316SS
LUBRICATION:	Grease
GLAND:	Cast Iron Split
BEARINGS:	6316 (Inboard) / 21316 (Outboard)
COUPLING GUARD:	Steel
BASEPLATE:	Channel steel Base # 11
PACKING:	Acrylic yarn impregnated with petroleum lubricants and graphite
FLANGE:	125# flat face
FRAME:	Inpro VBX Labyrinth Seal Single extended shaft
ASSEMBLY & TESTING:	Casing - Standard hydro test Impeller balanced to ISO G6.3
PIPING:	316 Stainless tubing and fittings with 316 needle control valve
BASEPLATE FEATURES:	Drip Pan with NPT drain connection
PAINT:	Goulds Blue standard painting
DRIVER:	Electric Motor
ELECTRIC MOTOR:	200.0 hp (149.1 KW)
PHASE/FREQ/VOLTS:	3/60 Hz/460
INSULATION/SF:	F/1.15
ENCLOSURE:	TEFC - Premium Efficiency
SPEED:	900 RPM
FRAME:	449T

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Pump Specification

SUCT.FLANGE SIZE	18"	DRILLING	ANSI 125#	FACING	FF	FINISH	SMOOTH
DISCH.FLANGE SIZE	14"	DRILLING	ANSI 125#	FACING	FF	FINISH	SMOOTH
PUMP ROTATION (LOOKING AT PUMP FROM MOTOR)	CW						
TYPE OF LUBRICATION	GREASE					COOLED	NO
TYPE OF STUFFING BOX	STANDARD					COOLED	NO
TYPE OF SEALING	PACKING						

Weights and Measurements

PUMP	2,940.0 lb
MOTOR/CPLG	2,550.0/57.0 lb
BASEPLATE	819.0 lb
TOTAL	6,366.0 lb
GR.VOLUME w/BOX	455.1 ft ³
GR.WEIGHT w/BOX	8,642.0 lb

Motor Specification

MOTOR BY	PUMP MFG	MOUNT BY	PUMP MFG	MFG.	PUMP MFG'S CHOICE OR EQUAL	
FRAME	449T	POWER	200.0 hp	RPM	900	
PHASE	3	FREQUENCY	60 HZ	VOLTS	460	
INSULATION	F	S.F.	1.15			
ENCLOSURE	TEFC - PREMIUM EFFICIENCY					

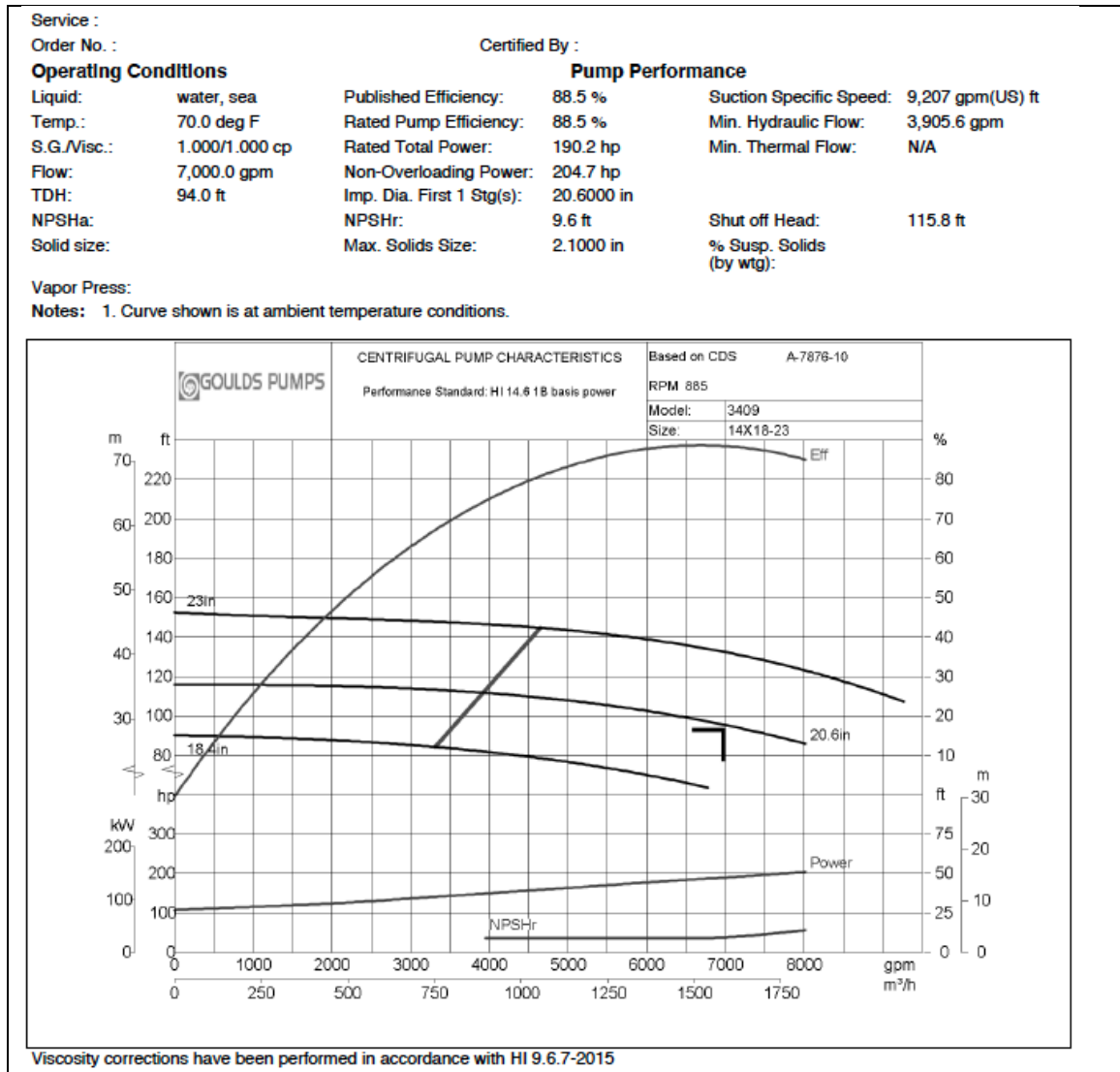
Notes and References

- MTR DIMENSIONS ARE APPROXIMATE
*Tolerance is +0.25 in.
For the rest of the dimensions tolerance is +0.13 in. unless otherwise specified
** Foundation bolt grip thickness
FOR PUMP TAPPED OPENINGS REFER TO DWG.: TB230142 / 3409 bare pump N216H423

Auxiliary Specification

COUPLING BY	CUSTOMER	CPLG TYPE	REXNORD (FALK) T10 1090T
CPL GUARD BY	PUMP MFG	CPLG GUARD MATL	STEEL
BASEPLATE	CHANNEL STEEL Base # 11		
PACKING	ACRYLIC YARN IMPREGNATED WITH PETROLEUM LUBRICANTS AND GRAPHITE		

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2. Qty (3) Goulds Pump Case 3409L 18 x 14 x 23 Cast Iron

CONSTRUCTION:	All iron
CASING:	Cast iron (max.casing pressure @ rated temp. 175.0 psi g)
See Dimensional drawing of casing in item #1 specifications	

3. Qty (1) Goulds Pump Complete Pump 3410M 6 x 8 – 11

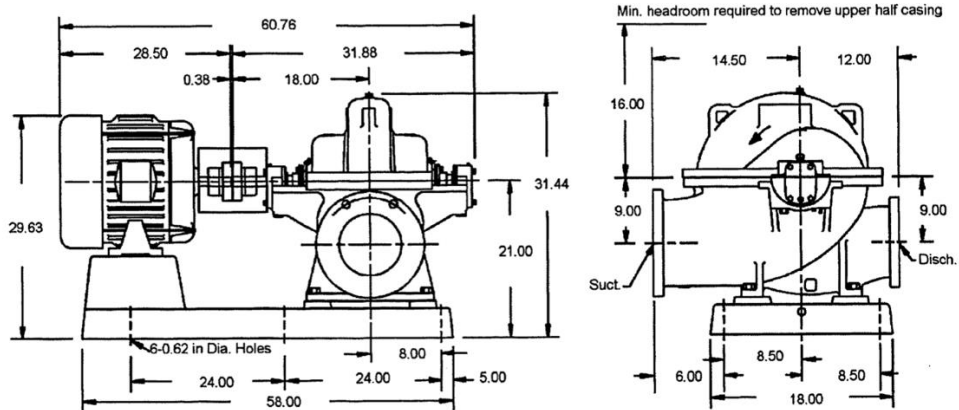
LIQUID:	water, sea , Rated Temp. 70.0 deg F, SP.GR 1.000, Viscosity 1.000 cp, Rated/Max. suction pressure 0.0 / 0.0 psi g
CAPACITY Rated:	1625 gpm
HEAD	70 ft.
PUBLISHED EFFY:	83.0% (CDS)
RATED EFFY:	83.0%
RATED POWER:	35.6 hp

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NPSHR:	12 ft
DISCH PRESSURE (R):	48.1 psi g based on 0.0 psi g rated suction pressure
PERF. CURVE:	3769
SHUT OFF HEAD:	111.0 ft
MIN. FLOW:	586 gpm
CONSTRUCTION:	All iron
CASING:	Cast iron (max.casing pressure @ rated temp. 175.0 psi g)
CASING WEAR RING:	Nitronic 60
IMPELLER:	Cast iron - Enclosed (10.25 in in rated)
IMPELLER WEAR RING:	316SS
CASING GASKETS:	Non asbestos
SHAFT MATERIAL:	316SS
SHAFT SLEEVE:	316SS
LUBRICATION:	Grease
GLAND:	316SS Flush vent and drain with carbon restricting bushing
BEARINGS:	SKF 6207 (Inboard) / SKF 3306 A/C3 (Outboard)
COUPLING GUARD:	Carbon steel
BASEPLATE:	Cast iron D00091A
PACKING:	Acrylic yarn impregnated with petroleum lubricants and graphite
FLANGE:	125# flat face
FRAME:	Labyrinth oil seals - Inpro VBX Safety orange Shaft guard (Carbon Steel) Single extended shaft
ASSEMBLY & TESTING:	Casing - Standard hydro test Impeller balanced to ISO G6.3
PIPING:	316 Stainless tubing and fittings with 316 needle control valve
BASEPLATE FEATURES:	Drip Pan with LIP 261-56
PAINT:	Goulds Blue standard painting
DRIVER:	Electric Motor
ELECTRIC MOTOR:	40.0 hp (29.4 KW)
PHASE/FREQ/VOLTS:	3/60 Hz/460
INSULATION/SF:	F/1.15
ENCLOSURE:	TEFC - Premium Efficiency
SPEED:	1780 RPM
FRAME:	324T

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Pump specification

SUCT.FLANGE SIZE	8"	DRILLING	ANSI 125 #	FACING	FF	FINISH	SMOOTH
DISCH.FLANGE SIZE	6"	DRILLING	ANSI 125 #	FACING	FF	FINISH	SMOOTH
PUMP ROTATION (LOOKING AT PUMP FROM MOTOR)	CW						
TYPE OF LUBRICATION	REGREASABLE BEARINGS					COOLED	NO
TYPE OF STUFFING BOX	N/A					COOLED	NO
TYPE OF SEALING	PACKING						

Weights and Measurements

PUMP	692.0 Lb
MOTOR/CPLG	520.0/16.0 Lb
BASEPLATE	285.0 Lb
TOTAL	1513.0 Lb
GR.VOLUME w/BOX	43.1 ft ³
GR.WEIGHT w/BOX	1729.0 Lb

Motor specification

MOTOR BY	PUMP MFG	MOUNT BY	PUMP MFG	MFG.	US ELECTRIC
FRAME	324T	POWER	40.00 hp	RPM	1800
PHASE	3	FREQUENCY	60Hz	VOLTS	230/460
INSULATION	F	S.F.	1.15		
ENCLOSURE	TEFC PREMIUM EFFICIENCY				

Notes and References

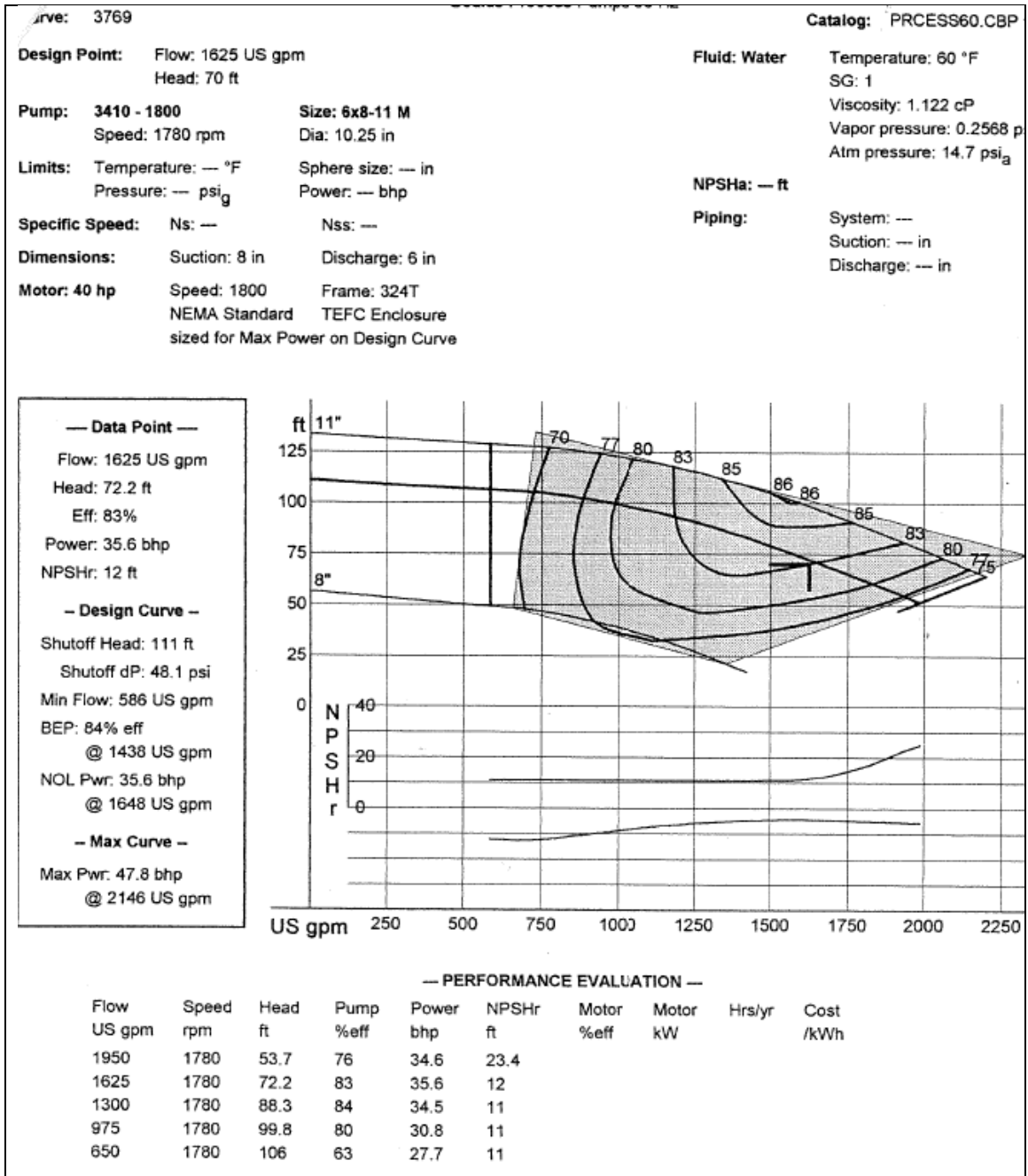
- * INSTALL FOUNDATION BOLTS IN PIPE SLEEVES
- * ALLOW FROM 0.75 to 1.50in. FOR GROUTING. SEE INSTRUCTION BOOK FOR DETAILS.
- * MTR DIMENSIONS ARE APPROXIMATE

Auxiliary specification

COUPLING BY	PUMP MFG	CPLG TYPE	FALK T10 1060T
CPL GUARD BY	PUMP MFG	CPLG GUARD MATL	STEEL
BASEPLATE	FABRICATED STEEL DRIP LIP 261-56		
PACKING	PACKMASTER 1		

FOR PUMP TAPPED OPENINGS REFER TO DWG.: A242184T

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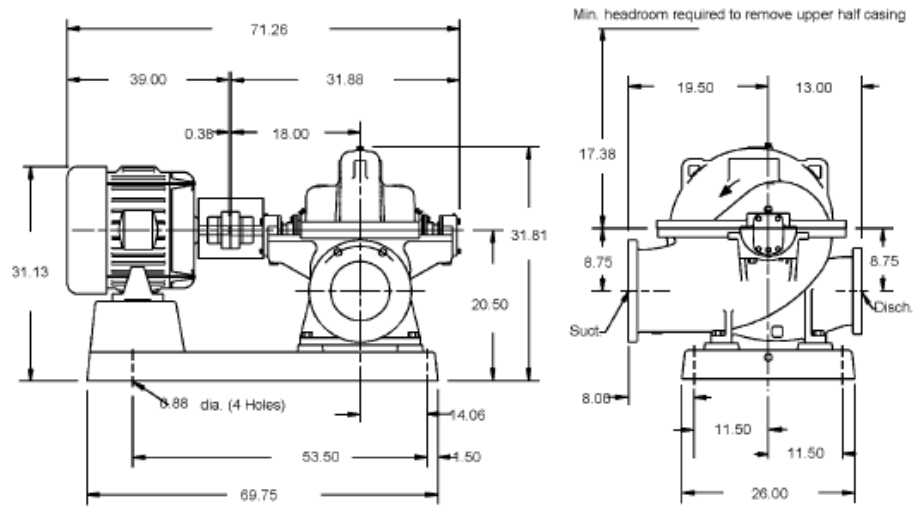
4. Qty (1) Goulds Pump Complete Pump 3410M 8 x 10 - 12

LIQUID:	water, sea , Rated Temp. 70.0 deg F, SP.GR 1.000, Viscosity 1.000 cp, Rated/Max. suction pressure 0.0 / 0.0 psi g
CAPACITY Rated:	3,250.0 gpm
HEAD	95.0 ft.
PUBLISHED EFFY:	86.0% (CDS)
RATED EFFY:	85.5%

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RATED POWER:	92.6 hp (incl. Mech. seal drag 0.52). (Run out 92.7 hp NOL 93.2 hp)
NPSHR:	26.7 ft
DISCH PRESSURE (R):	41.8 psi g (64.5 psi g @ Shut off) based on 0.0 psi g rated suction pressure
PERF. CURVE:	3847-2 (Rotation CW viewed from coupling end)
SHUT OFF HEAD:	149.0 ft
MIN. FLOW:	Continuous Stable: 708.4 gpm Hydraulic: 708.4 gpm Thermal: N/A
CONSTRUCTION:	All iron
CASING:	Cast iron (max.casing pressure @ rated temp. 175.0 psi g)
CASING WEAR RING:	Nitronic 60
IMPELLER:	Cast iron - Enclosed (11.7500 in rated, max=12.0000 in, min=9.0000 in)
IMPELLER WEAR RING:	316SS
CASING GASKETS:	Non asbestos
SHAFT MATERIAL:	316SS
SHAFT SLEEVE:	316SS
LUBRICATION:	Grease
GLAND:	316SS Flush vent and drain with carbon restricting bushing
BEARINGS:	SKF 6207 (Inboard) / SKF 3306 A/C3 (Outboard)
COUPLING GUARD:	Carbon steel
BASEPLATE:	Cast iron D00091A
PACKING:	Goulds SealPlus SP1CS (Carbon vs Silicon Carbide) - (Cartridge - Single)
FLANGE:	125# flat face
FRAME:	Labyrinth oil seals - Inpro VBX Safety orange Shaft guard (Carbon Steel) Single extended shaft
ASSEMBLY & TESTING:	Casing - Standard hydro test Impeller balanced to ISO G6.3
PIPING:	316 Stainless tubing and fittings with 316 needle control valve
BASEPLATE FEATURES:	Drip Pan with LIP 261-56
PAINT:	Goulds Blue standard painting
DRIVER:	Electric Motor
ELECTRIC MOTOR:	100.0 hp (74.6 KW)
PHASE/FREQ/VOLTS:	3/60 Hz/460
INSULATION/SF:	F/1.15
ENCLOSURE:	TEFC - Premium Efficiency
SPEED:	1800 RPM
FRAME:	405T

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Pump Specification

SUCT.FLANGE SIZE	10"	DRILLING	ANSI 125 #	FACING	FF	FINISH	SMOOTH
DISCH.FLANGE SIZE	8"	DRILLING	ANSI 125 #	FACING	FF	FINISH	SMOOTH
PUMP ROTATION (LOOKING AT PUMP FROM MOTOR)	CW						
TYPE OF LUBRICATION	REGREASABLE BEARINGS					COOLED	NO
TYPE OF STUFFING BOX	STANDARD						
TYPE OF SEALING	MECHANICAL SEAL						

Weights and Measurements

PUMP	858.0 lb
MOTOR/CPLG	1,160.0/40.0 lb
BASEPLATE	580.0 lb
TOTAL	2,638.0 lb
GR.VOLUME W/BOX	154.1 ft ³
GR.WEIGHT W/BOX	3,409.0 lb

Motor Specification

MOTOR BY	PUMP MFG	MOUNT BY	PUMP MFG	MFG.	PUMP MFG'S CHOICE OR EQUAL
FRAME	405T	POWER	100 D hp	RPM	1800
PHASE	3	FREQUENCY	60 HZ	VOLTS	460
INSULATION	F	S.F.	1.15		
ENCLOSURE	TEFC - PREMIUM EFFICIENCY				

Notes and References

- MTR DIMENSIONS ARE APPROXIMATE
- INSTALL FOUNDATION BOLTS IN PIPE SLEEVES
- ALLOW FROM 0.75 to 1.50in. FOR GROUTING. SEE INSTRUCTION BOOK FOR DETAILS.
- ** Foundation bolt grip thickness

Auxiliary Specification

COUPLING BY	CUSTOMER	CPLG TYPE	REXNORD (FALE) T10 1080T
CPL GUARD BY	PUMP MFG	CPLG GUARD MATL	CARBON STEEL
BASEPLATE	CAST IRON D00091A		
MECH SEAL	GOULDS SEALPLUS SP1CS (CARBON VS SILICON CARBIDE)		

FOR PUMP TAPPED OPENINGS REFER TO DWG.:
TB290142 / 3410 bare pump 342C1B2

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Job/Inq.No. :
 Purchaser : CBC INC
 End User : NELHA
 Item/Equip.No. : 3410 bare pump 242C182 (Base Offer)

Issued by : Robert Lake
 Quotation No. : B230142
 Rev. : 0
 Date : 09/05/2023

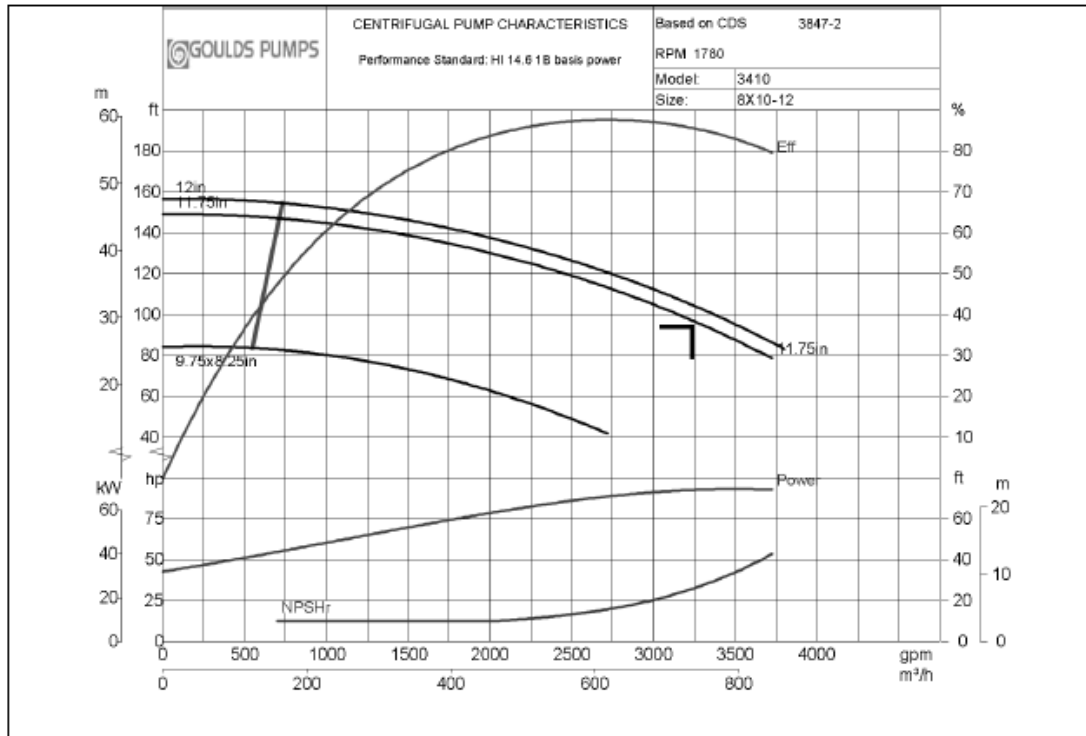
Service :
 Order No. :
 Certified By :

Operating Conditions		Pump Performance			
Liquid:	water, sea	Published Efficiency:	86.0 %	Suction Specific Speed:	8,325 gpm(US) ft
Temp.:	70.0 deg F	Rated Pump Efficiency:	85.5 %	Min. Hydraulic Flow:	708.4 gpm
S.G./Visc.:	1.000/1.000 cp	Rated Total Power:	92.6 hp	Min. Thermal Flow:	N/A
Flow:	3,250.0 gpm	Non-Overloading Power:	93.2 hp		
TDH:	95.0 ft	Imp. Dia. First 1 Stg(s):	11.7500 in		
NPSHa:		NPSHr:	26.7 ft	Shut off Head:	149.0 ft
Solid size:		Max. Solids Size:	1.1000 in	% Susp. Solids (by wtg):	

Vapor Press:

Notes: 1. Curve shown is at ambient temperature conditions.

- Some impeller diameters of this selection will require a taper cut trim. They are indicated in the performance curve below as Major Diameter x Minor Diameter. The Major Diameter is on the suction side of the impeller.



Viscosity corrections have been performed in accordance with HI 9.6.7-2015