



CAMPUS PLANNING, DESIGN & CONSTRUCTION

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ADDENDUM NO. 1 - OUTLINE AND SUMMARY INFORMATION

Project Name: Plant Bio-Science Chiller Replacement PPA No.: 20-0109
Location: Montana State University - Bozeman Date: 12-10-20
Owner: State of Montana, MSU - Bozeman
Plew Building 6th and Grant, PO Box 172760
Bozeman, Montana 59717-2760

To: *All Plan Holders of Record*

*The Plans and Specification prepared by **MSU Engineering and Utilities** dated **November 16, 2020** shall be clarified and added as follow. The bidder proposes to perform all the following clarifications or changes. It is understood that the Base Bid shall include any modification of Work or Additional Work that may be required by reason of the following change or clarifications.*

The Bidders are to acknowledge the receipt of this Addendum by inserting its number and date into their Bid Forms. Failure to acknowledge may subject the Bidder to disqualification and rejection of the bid. This Addendum forms part of the Contract Documents as if bound therein and modifies them as follows:

1. AMENDMENTS TO THE PROJECT MANUAL

a. Mechanical Specifications:

- i. Section 1.a. Demolition and Installation Requirements: Add paragraph 1.a.vi. to read “Chiller pump serves both chiller and fluid cooler. Chiller pump replacement to be arranged and coordinated with all trades and Owner to minimize length of pump outage. Owner would like new pump to be installed as soon as possible in February, since there will be no cooling for processes in building while pump is being replaced. Coordinate timing and length of outage with Owner no less than one week before pump replacement.”
- ii. Section 1.c Replace Chiller Pump with New OFCI Pump:
 - (1) Change paragraph 1.c.ii to read “Install new electrical service for pump per electrical drawings. Disconnect existing pump and remove wiring and conduit back to starter. Leave starter and upstream electrical service in place.”
 - (2) Add paragraph 1.c.iv to read “Extend controls for new pump to new combination starter in new location shown on Sheet E1.0”.
- iii. Section 2.d. Utility Shutdowns: Change from 72-hour notice to minimum of 3 working days. 5 working days preferred.

- iv. Section 3 Chilled Water Supply and Return Piping (CHS, CHR): Add paragraph 3.b: Provide weld-o-let or thread-o-let fittings for small pipe connections at gages, PT plugs, and similar. No “saddle tap” fittings.
- v. Section 6.b.i. Butterfly Valves: Change to read “Ductile iron body with EPDM coated disc and grooved ends. Bubble-tight seal in both directions. Manual lever-lock handle with memory stop. Similar to Victaulic 7A2.
- vi. Section 8.d Chilled Water System Fill: Note that existing glycol is not “JeffCool” as indicated. It is “NorKool N507” propylene glycol.
- vii. Section 11 Chiller Pump CCP-1 Controls:
 - (1) Change paragraph 11.a to read “Maintain current pump control based on signal from DDC system. Pump serves both chiller and fluid cooler”.
 - (2) Add paragraph 11.c to read “Extend controls for new pump to new combination starter in new location shown on Sheet E1.0”.

2. AMENDMENTS TO THE DRAWINGS

- a. Electrical Sheet E1.0 - First Floor Power Plan:
 - i. Add attached Sheet E1.0 to construction documents.
 - ii. Add sentences to note 2 to read “Disconnect existing pump and remove wiring and conduit back to starter. Leave starter and upstream electrical service in place.”
 - iii. Modify second sentence of note 4 to read “Support conduit on Uni-Strut posts secured to slab. Coordinate location and height with Owner to ensure proper access to chiller equipment”.
- b. Sheet 3, Chiller Area Demolition Plan:
 - i. Note that 6” valve in CHR piping is to be relocated, not removed.
 - ii. Change note at 6” CHS valve to read “This valve and others are required to isolate chiller and/or chiller pump from system. Coordinate valve closures with Owner for isolating chiller and/or chiller pump from remainder of system.”
 - iii. Disregard electrical notes. See Electrical Sheet E1.0 provided with this addendum.
- c. Sheet 4, Chiller Area Plan:
 - i. Note that relocated 6” valve is to be reinstalled at outlet of elbow at bottom of CHR riser near bottom right side of drawing. Elbow at bottom of riser is to be rotated with outlet to east, then valve, and then 90-degree elbow to the north. Remainder of piping shown for CHR piping to be same.
 - ii. 6” valve in CHR is to be relocated as quickly as possible. This valve and others are required to isolate chiller and/or chiller pump from system. Coordinate valve closures with Owner for isolating chiller and/or chiller pump from remainder of system.”

iii. Change note at 6" CHS valve to read "This valve and others are required to isolate chiller and/or chiller pump from system. Coordinate valve closures with Owner for isolating chiller and/or chiller pump from remainder of system."

iv. Disregard electrical notes. See Electrical Sheet E1.0 provided with this addendum.

d. Sheet 5, Chiller Diagram:

i. Note relocated 6" valve in 6" CHR piping upstream of 6" to 4" reducer.

e. Sheet 6, Chiller Pump Diagram:

i. Disregard electrical notes. See Electrical Sheet E1.0 provided with this addendum.

ii. Add note "Salvage pump to Owner".

iii. Change note at pump inlet valve to read "This valve and others are required to isolate chiller and/or chiller pump from system. Coordinate valve closures with Owner for isolating chiller and/or chiller pump from remainder of system."

3. AMENDMENTS TO EQUIPMENT INFORMATION

a. New Chiller Pump Data Sheets: Replace data sheets for new chiller pump with attached. Pump is same model but new data sheets include motor, flow, and pressure information.

4. PRE-BID MEETING INFORMATION

a. Reviewed bidding requirements stated in project manual including permits, bid date, bid security, PLM bonds, state tax, prevailing wages, insurance, completion date, and liquidated damages.

b. Noted that schedule is important due to impact on research activities. Need to get chiller operational as indicated in documents so that chiller will be available before warmer weather returns.

c. Noted that chiller is currently scheduled to arrive first week of February.

d. Reviewed issues related to new electrical service for new chiller pump.

i. New service requirements will be issued in addendum.

ii. Walked path for new electrical service. All ceilings along route are exposed or T-bar, except at Men's toilet room. Toilet room has ceiling access door and space above ceiling.

iii. New conduit in corridors does not need to be painted. Corridor walls are to be assumed to be fire-rated, so penetrations will need to be treated as such.

iv. Electrical service for new pump can be installed during normal working hours.

e. Deadline for substitutions and addenda items is Dec 9. Addendum will be issued on Dec 10.

5. PRIOR APPROVALS

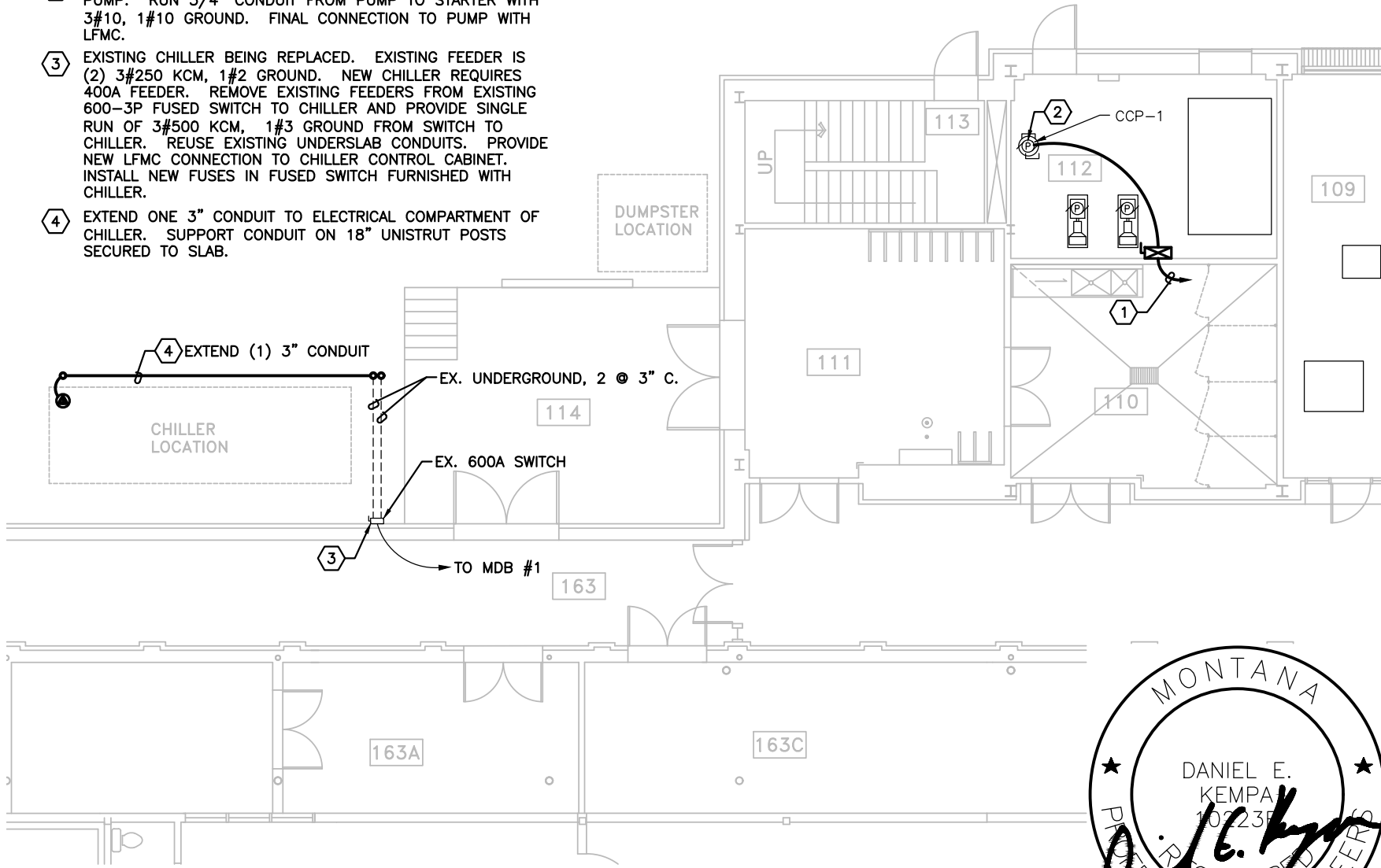
a. None.

6. ATTACHMENTS

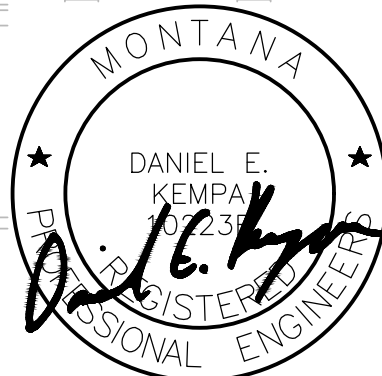
- a. Electrical Sheet 1.0 – First Floor Power Plan
- b. Revised Chiller Pump Data Sheets
- c. Pre-bid meeting attendance list

SPECIFIC SHEET NOTES:

- ① ADD NEW 40A-3P BREAKER TO PANEL 1HA IN AVAILABLE SPACES. PANEL IS LOCATED IN SEPARATE MECHANICAL ROOM APPROXIMATELY 70' DOWN HALLWAY. RUN 3/4" CONDUIT WITH 3#8, 1#10 GROUND FROM PANEL TO NEW STARTER. COORDINATE ROUTE WITH OWNER. STARTER FURNISHED BY OWNER. CONTRACTOR SHALL PROVIDE OVERLOAD HEATERS SIZED TO FLA OF NEW PUMP MOTOR.
- ② EXISTING 5 HP PUMP BEING REPLACED WITH NEW 15 HP PUMP. RUN 3/4" CONDUIT FROM PUMP TO STARTER WITH 3#10, 1#10 GROUND. FINAL CONNECTION TO PUMP WITH LFMC.
- ③ EXISTING CHILLER BEING REPLACED. EXISTING FEEDER IS (2) 3#250 KCM, 1#2 GROUND. NEW CHILLER REQUIRES 400A FEEDER. REMOVE EXISTING FEEDERS FROM EXISTING 600-3P FUSED SWITCH TO CHILLER AND PROVIDE SINGLE RUN OF 3#500 KCM, 1#3 GROUND FROM SWITCH TO CHILLER. REUSE EXISTING UNDERSLAB CONDUITS. PROVIDE NEW LFMC CONNECTION TO CHILLER CONTROL CABINET. INSTALL NEW FUSES IN FUSED SWITCH FURNISHED WITH CHILLER.
- ④ EXTEND ONE 3" CONDUIT TO ELECTRICAL COMPARTMENT OF CHILLER. SUPPORT CONDUIT ON 18" UNISTRUT POSTS SECURED TO SLAB.



N 1 FIRST FLOOR POWER PLAN
SCALE: NOT TO SCALE



ISSUE:	
DRAWING NUMBER	E1.0
DATE	12/09/20
PROJECT NUMBER	202501

ELECTRICAL PLAN
MSU PLANT BIO SCIENCE
CHILLER REPLACEMENT
BOZEMAN MONTANA
20-0109

524 FIRST AVENUE S
 GREAT FALLS, MT 59401
 PH 406.452.9558
 FX 406.727.9720





KV Series Pump | Submittal Data

Vertical Close Coupled Pumps

Submittal No: 301-1104D | Model: 4009D | RPM: 1760 - 60 Hz | Effective: December 31, 2019 | Supersedes: New

JOB: Plant Bio Chiller

REPRESENTATIVE: Vemco

ENGINEER: _____

CONTRACTOR: _____

PRODUCT DATA

ITEM NO. _____ MODEL NO. 4009D

IMPELLER DIAMETER 9.4 HORSEPOWER 15

GPM 410 VOLTAGE 208-230/460/60/3

HEAD/FT 83 RPM 1760

WEIGHT _____ PUMP/MOTOR 525.6

SUPPORT STAND OPTION YES NO
(Ductile Iron ASTM A536-84 Grade 65-45-12)

DIMENSIONS

Model No. | 4009D
 Flange Size (Suction x Discharge) | 4 x 4 (102 x 102)

HORSEPOWER	5	7.5	10	15
MOTOR FRAME TEFC	184JM	213JM	215JM	254JM
MOTOR FRAME ODP	184JM	213JM	215JM	254JM
WEIGHT WITHOUT OPTIONAL STAND LBS (KG)	322.9 (146)	383.4 (174)	398.8 (181)	525.6 (238)
WEIGHT WITH OPTIONAL STAND LBS (KG)	374.8 (170)	435.3 (197)	450.7 (204)	577.6 (262)
FLANGE SIZE ASA	4 (102)			
A*	ANSI CLASS 125: 12.5 (318)			
	ANSI CLASS 250: 12.82 (326)			
B*	ANSI CLASS 125: 12.5 (318)			
	ANSI CLASS 250: 12.82 (326)			
C	6.77 (172)			
D	12.59 (320)			
E MAX	15.26 (388)	16.64 (423)	18.11 (460)	20.05 (509)
F	7.29 (185)			
G	8.44 (214)			
J DIA	7.88 (200)	9.56 (243)	9.56 (243)	12.94 (329)
K	4			
L	3/8-16 UNC-2B			
M	4.87 (124)			
N	6.5 (165)			
P	12.63 (321)			
Q	0.75 (19)			
R	10.63 (270)			

*A & B Dimensions apply for all pump sizes.

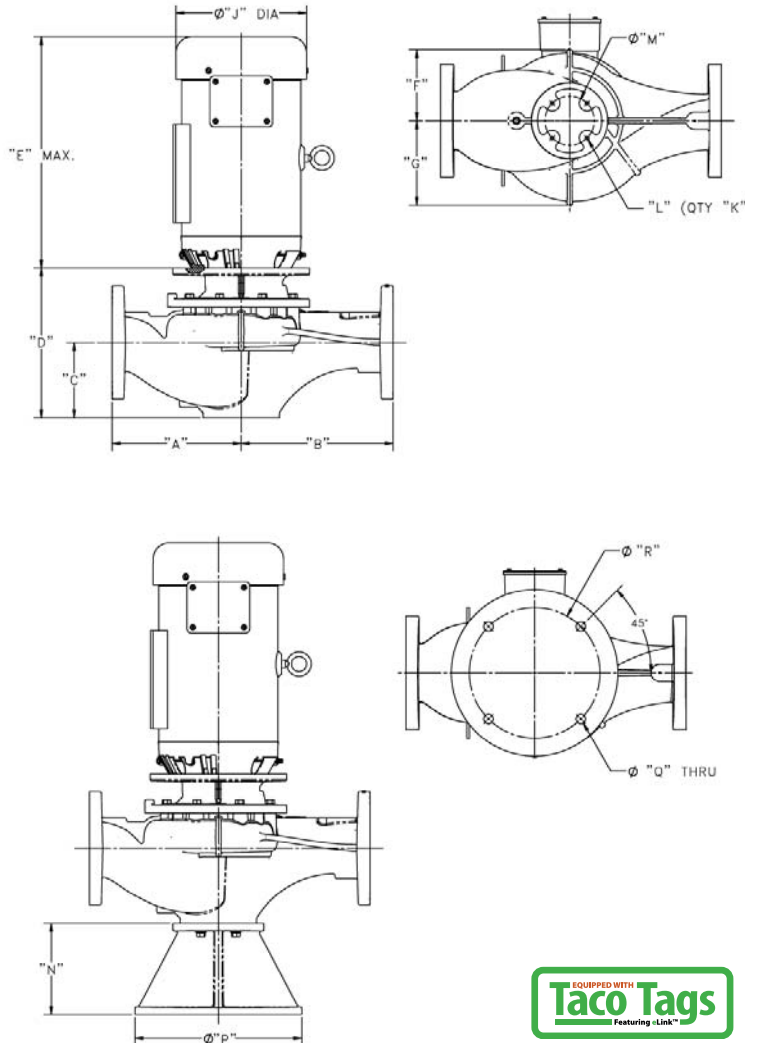
English dimensions are in inches. Metric dimensions are in millimeters. Metric data is presented in (). Do not use for construction purposes unless certified.

Configuration	DOE Basic Model Number	PEI Value		Energy Rating
Bare Pump	KV4009D-4P-BP	PEI _d	0.9	10
Pump + Motor	KV4009D-4P-PM	PEI _d	0.9	10

OPERATING SPECIFICATIONS

FLANGE	PRESSURE	TEMPERATURE
ANSI Class 125	175 PSIG* (1210 KPA)	250°F (120°C)
ANSI Class 250	300 PSIG** (2070 KPA)	250°F (120°C)

Motors: All NEMA Standard (JM Frame)
 * In accordance with ANSI Standard B16.1 Class 125
 ** In accordance with ANSI Standard B16.1 Class 250



MATERIALS OF CONSTRUCTION		CASING	COVER	IMPELLER	WEAR RING	SHAFT	SHAFT SLEEVE	MECHANICAL SEAL	SEAL FLUSH LINE ASSEMBLY	SUPPORT STAND	
STANDARD CONSTRUCTION	BRONZE FITTED	125# FLANGE	Cast Iron ASTM A48/A48M-03 Class 30A	Cast Iron ASTM A48/A48M-03 Class 30A	Bronze ASTM B584 ALLOY C83600 or C84400	N/A	Carbon Steel	Bronze ASTM B584-98A C92200	Ceramic/EPT	Copper & Brass C3600	N/A
	250# FLANGE	Ductile Iron ASTM A536-84 Grade: 65-45-12	Cast Iron ASTM A48/A48M-03 Class 30A	Bronze ASTM B584 ALLOY C83600 or C84400	N/A	Carbon Steel	Bronze ASTM B584-98A C92200	Ceramic/EPT	Copper & Brass C3600	N/A	
OPTIONAL		125# OR 250#	N/A	N/A	Stainless Steel ASTM A351/A 351M-08	Bronze ASTM B584-98A C92200	N/A	Stainless Steel TYPE 303 ASTM A276	Tungsten Carbide/EPT or Silicon-Carbide/EPT	N/A	Ductile Iron ASTM A536-84 Grade 65-45-12

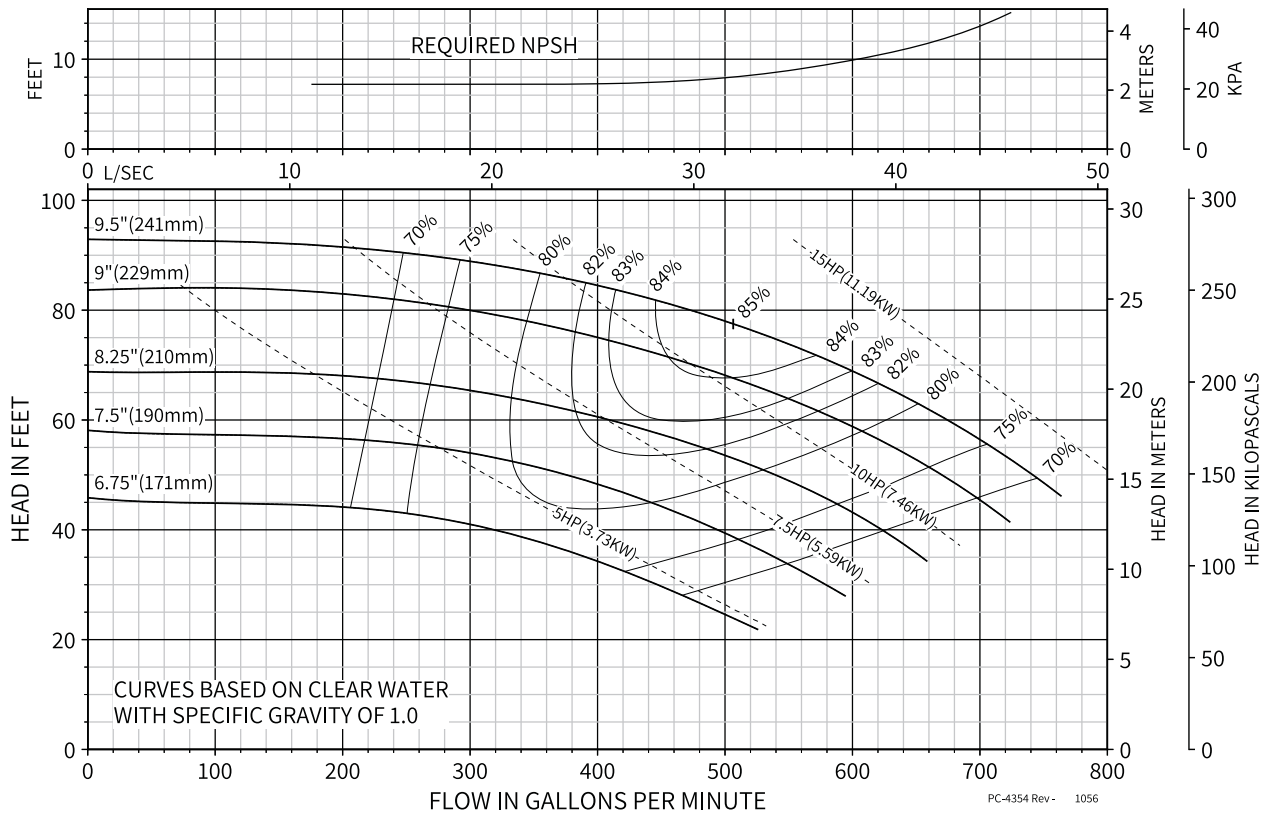
N/A - Not Available



KV Series | Model: 4009D | 1760 RPM

Curve No. 4354 | Min. Imp. Dia. 6.75" | Size 4x4x9.5 | December 18, 2019

Energy Efficiency Rating: DOE Basic Model Number: KV4009D-4P-PM
Pump & Motor: PE_{CL}: 0.9 | ER_{CL}: 10



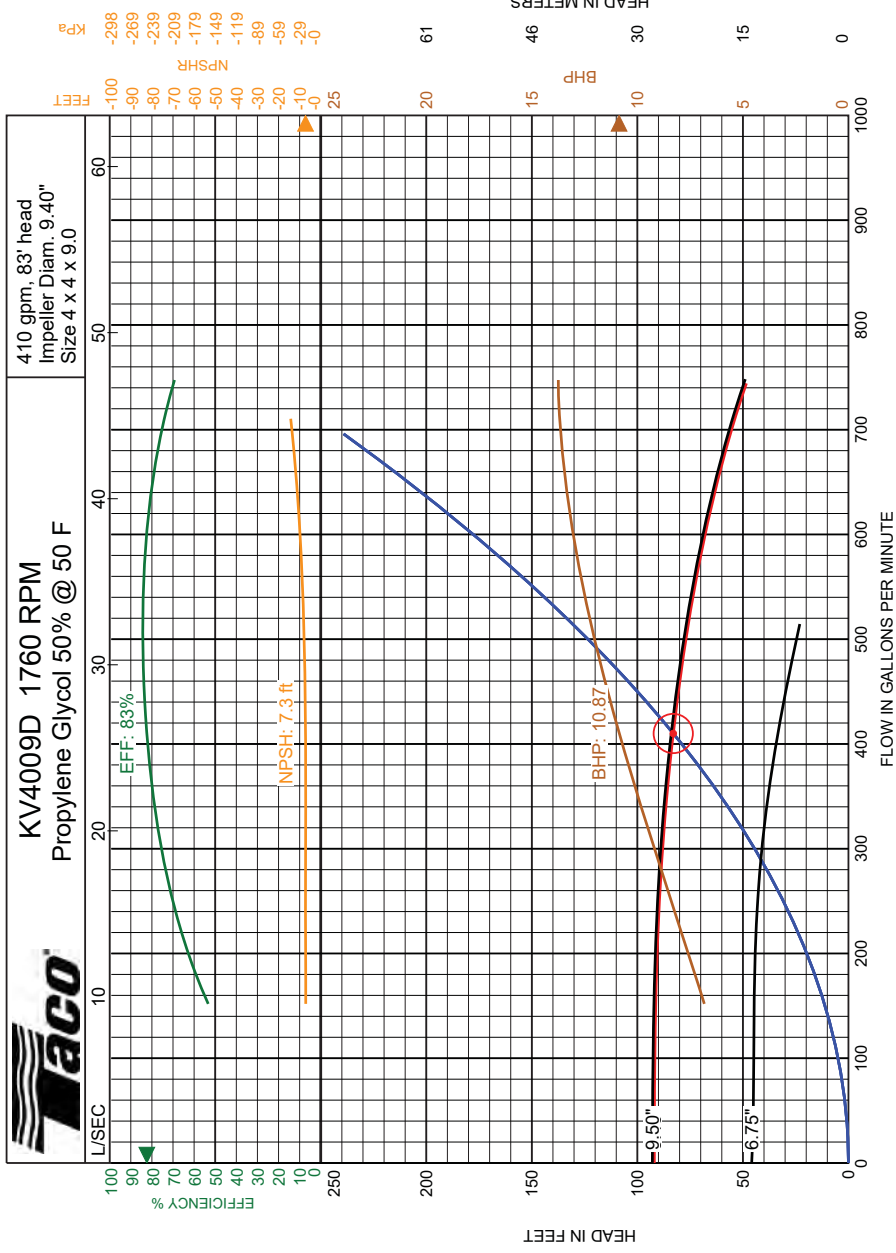
COMMENTS



Model:

Tag:

Flow Rate (GPM): 410
Head (FT): 83
Working Fluid: Propylene Glycol
 50% @ 50 F
Efficiency (%): 83%
Construction: Iron
Design Hp: 10.87
No I Hp: 13.74
Motor Hp: 15
Npsh (Ft): 7
RPM: 1760



PLANT BIO
chiller

12/1/20

Pre-Bid Mtg Attendance

Name	Company	Email	Phone
Brian Beardon	Johnson Controls	Brian.Beardon@jci.com	406-511-1672
Brandon Karroll	Johnson Controls	Brandon.Filler.Karroll@JCI.com	706-512
Dan Bokma	Williams Plumbing	dbokma@willplumb.com	587-0969
Scott Horning	Williams	shorning@willplumb.com	922-3124
NIKU LITTLE	ATLAS	build.atlas.llc@comcast.com	781-926
Joe Miller	Apollo	Joe.Miller@apollomech.com	499 2246
DREW LOFTUS	APOLLO MECH	DREW.LOFTUS@APOLLOMECH.COM	406-210-6537
Loras O'Toole	MSU	loras@montana.edu	406-994-7092
Neil Jorgensen	MSU	neiljorgensen@montana.edu	994-2107