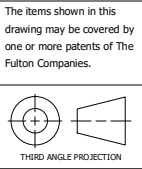


-	- INITIAL RELEASE -	-	-	-	-
REV	REVISION DESCRIPTION	B.O.M.	ELEC. ENG.	MECH. ENG.	CHECKED
REVISION HISTORY					

UNLESS OTHERWISE NOTED DIMENSIONS ARE IN INCHES
TOLERANCES
FRACTION & WHOLE VALUE
(1) PLACE DEC.
(2) PLACE DEC.
(3) PLACE DEC.
ANGLE
SURFACE FINISH

This design and drawings are
proprietary and are the
exclusive property of The
Fulton Companies. The
corporation does not permit
their use except with prior
written consent.



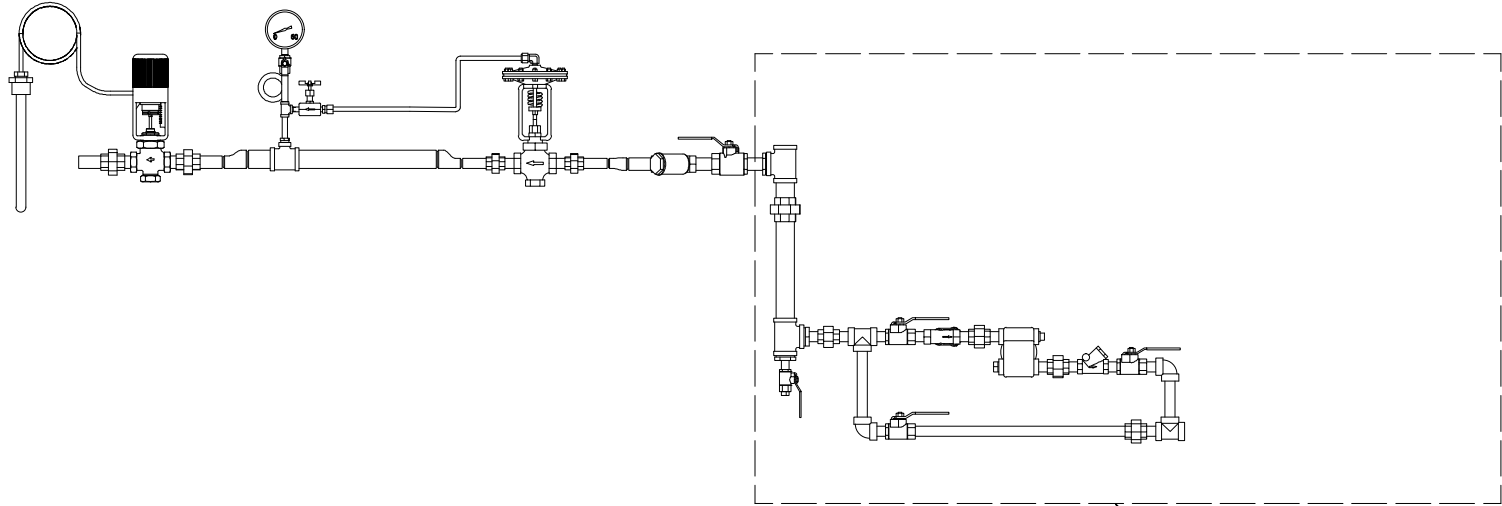
DRAWN BY: A. SHROCK	8/15/2022
CHECKED BY:	
B.O.M. REVIEW:	

MECHANICAL REVIEW:	
ELECTRICAL REVIEW:	
APPROVED BY: C.F.	8/19/2022

JOB NUMBER: 22720
PROJECT NAME: MOTIF
PROJECT MANAGER: C. FITZGERALD

DESCRIPTION:
HT-60 STAINLESS STEEL FEEDWATER SYSTEM
WITH DUPLEX GRUNDFOS PUMPS, PREHEAT KIT,
SQUARE-D FLOAT, CHEM FEED, AND PANEL BOX

 Fulton Steam Solutions, Inc.	
DRAWING NUMBER B91-8648	REVISION -



RECOMMENDED PREHEAT PIPING

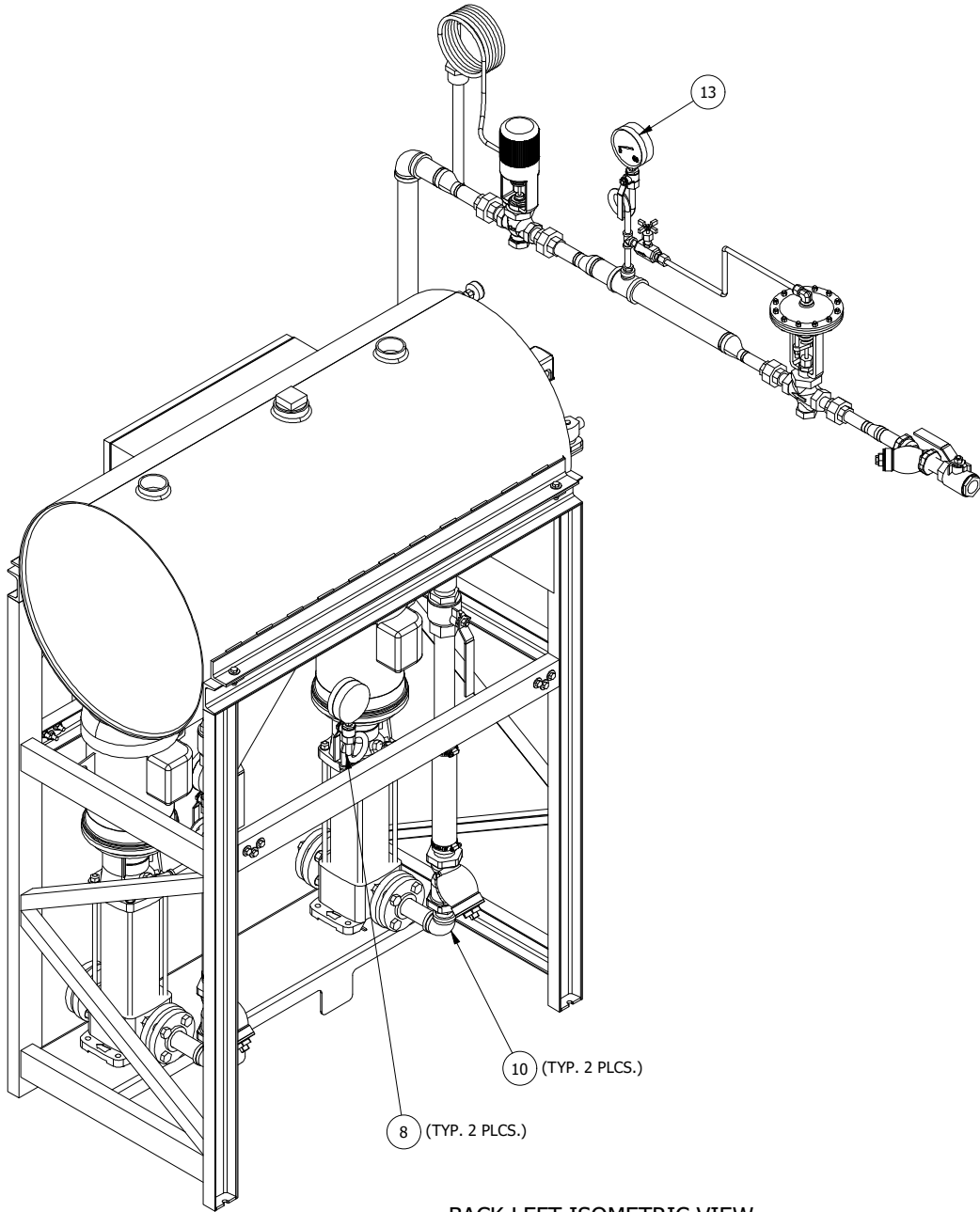
SUPPLIED BY OTHERS UNLESS FEEDWATER
SYSTEM IS SKID MOUNTED BY FULTON

CUSTOMER CONNECTIONS			
ITEM	DESCRIPTION	SIZE	TYPE
A	COLD WATER INLET	3/4"	N.P.T.
B	OVERFLOW	1"	N.P.T.
C	DRAIN	1"	N.P.T.
D	VENT	2"	N.P.T.
E	CONDENSATE RETURN	2"	N.P.T.
F	PUMP DISCHARGE (2X)	1 1/4"	N.P.T.
G	STEAM INLET	1"	N.P.T.
H	TEMPERATURE SENSOR	1"	N.P.T.
J	CHEMICAL FEED INJECTION	1/2"	N.P.T.
K	MAGNESIUM ANODE (PLUGGED)	3/4"	N.P.T.

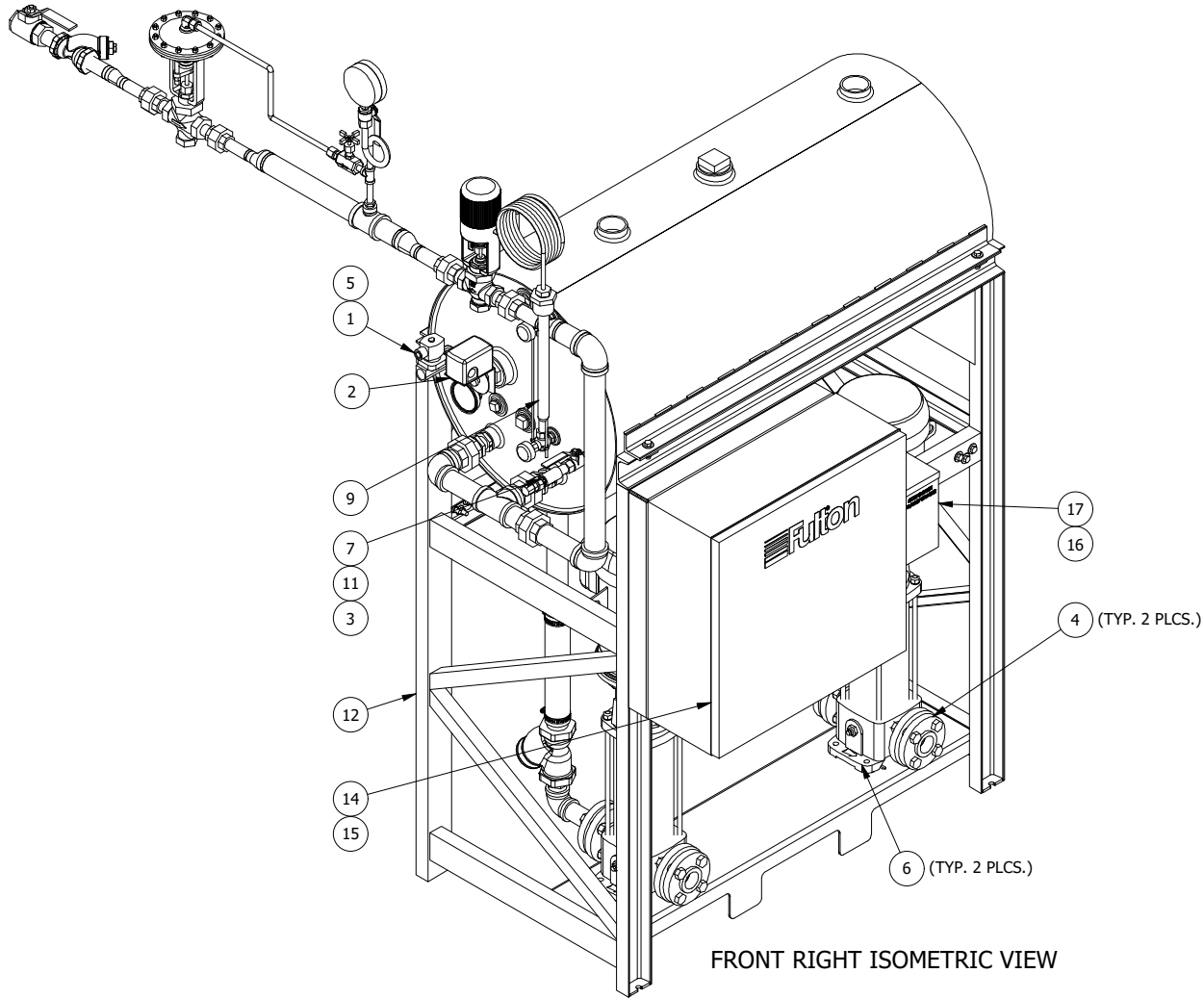
EQUIPMENT SPECIFICATION CHART	
FULL CAPACITY	89 GALLONS
APPROXIMATE SHIPPING WEIGHT:	997 LBS
APPROXIMATE OPERATING WEIGHT:	1,306 LBS
APPROXIMATE FLOODED WEIGHT:	1,590 LBS

- NOTES:
- ALL CLEARANCES ARE FACTORY RECOMMENDATIONS. CONSULT LOCAL JURISDICTION FOR EXACT CODE COMPLIANCE.
 - FULTON RECOMMENDS MINIMUM CLEARANCE OF 36" IN FRONT OF ELECTRICAL PANELS.
 - LOCAL CODE OR SEISMIC RESTRAINT MAY REQUIRE ADDITIONAL FIELD SUPPORTS. THESE SUPPORTS ARE TO BE ADDED IN THE FIELD BY OTHERS.
 - PLEASE REFER TO THE O&M MANUAL FOR ADDITIONAL INFORMATION REGARDING CLEARANCES AND INSTALLATION INSTRUCTIONS.
 - FOOTPAD MOUNTING HOLES ARE 1/2" SLOTS.
 - ALL DIMENSIONS INSIDE () DENOTE REFERENCE DIMENSIONS.
 - ALL DIMENSIONS INSIDE □ DENOTE OVERALL DIMENSIONS.
 - PRE-HEAT KIT TO BE LEVEL OR PITCHED TOWARDS FEEDWATER TANK


BILL OF MATERIAL					BILL OF MATERIAL				
ITEM	PART NUMBER	DESCRIPTION	QTY	U.O.M.	ITEM	PART NUMBER	DESCRIPTION	QTY	U.O.M.
9	4-75-000508	HT FEEDWATER TANK TRIM KIT WITHOUT FLOAT	1	EA.	1	2-30-000090	3/4" WATER SOLENOID 120 VOLT	1	EA.
10	6-08-000002	1 1/2" TO 1 1/4" PUMP SUCTION WITH Y STRAINER FOR HT FEEDWATER SYSTEM	2	EA.	2	2-30-000586	SQUARE D HG-34R FLOAT CONTROL	1	EA.
11	7-21-000051	STAINLESS STEEL CHEMICAL FEED INJECTOR	1	EA.	3	2-30-001575	3/8" INJECTION VALVE	1	EA.
12	7-75-060020	HT-60 TANK AND STAND ASSEMBLY	1	EA.	4	2-30-005090	CR1,3,5 PUMP MATING FLANGE SET (91122260)	2	EA.
13	B40-8735	HT-60 STEAM INJECTION PRE-HEAT KIT (200 PSI)	1	EA.	5	2-35-001134	3/4" X 2" - NPT BRASS SCH 40 NIPPLE	1	EA.
14	SEE ELECTRICAL	24" X 24" X 8" PANEL BOX	1	EA.	6	2-MP-000154	GRUNFOS CR-3-17 PUMP, 1.25" ANSI CONNECTION, 3 HP 208/230/460/60/3 TEFEC MOTOR HQQE SEALS	2	EA.
15	SEE ELECTRICAL	24" x 24" PANEL BOX MOUNTING BRACKET	1	EA.	7	3-31-000000	4-80 HP CHEMICAL FEED INJECTION ASSEMBLY	1	EA.
16	SEE ELECTRICAL	FLAT STEPDOWN TRANSFORMER MOUNTING PLATE	1	EA.	8	4-50-000032	PRESSURE GAUGE ASSEMBLY FOR VERTICAL MULTISTAGE PUMPS (0-300 PSI GUAGE)	2	EA.
17	SEE ELECTRICAL	STEPDOWN TRANSFORMER	1	EA.					

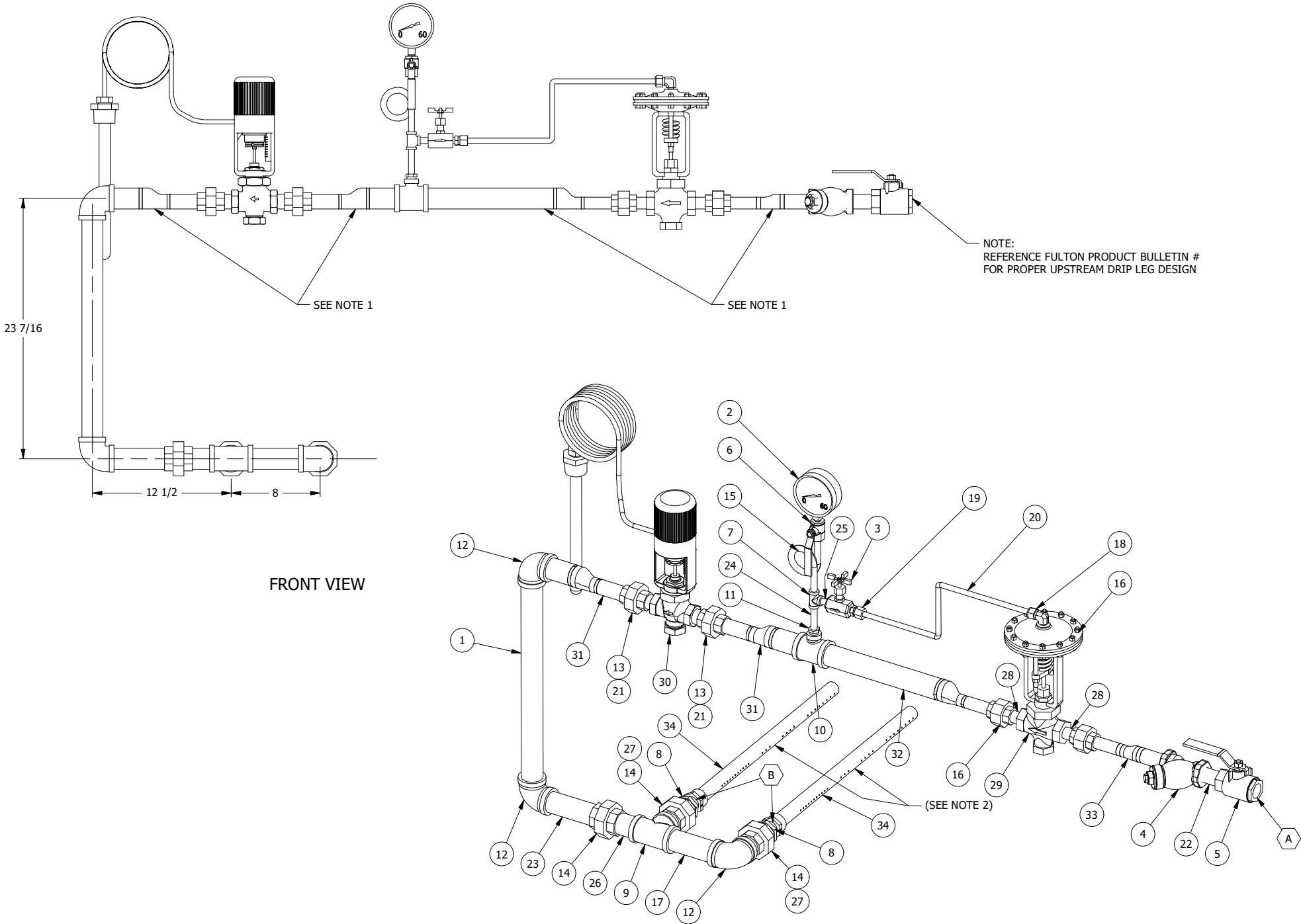


BACK LEFT ISOMETRIC VIEW



FRONT RIGHT ISOMETRIC VIEW



-	- INITIAL RELEASE -	-	-	-	-	-	UNLESS OTHERWISE NOTED DIMENSIONS ARE IN INCHES TOLERANCES FRACTION & WHOLE VALUE ± 1/8 (1) PLACE DEC. ± 0.03 (2) PLACE DEC. ± 0.015 (3) PLACE DEC. ± 0.005 ANGLE ± 0.5 DEG SURFACE FINISH 250 MICRO-INCHES	This design and drawings are proprietary and are the exclusive property of The Fulton Companies. The corporation does not permit their use except with prior written consent.	The items shown in this drawing may be covered by one or more patents of The Fulton Companies.	DRAWN BY: A. SHROCK 8/15/2022	MECHANICAL REVIEW:	JOB NUMBER: 22720	DESCRIPTION: HT-60 STAINLESS STEEL FEEDWATER SYSTEM WITH DUPLEX GRUNDFOS PUMPS, PREHEAT KIT, SQUARE-D FLOAT, CHEM FEED, AND PANEL BOX	 Fulton Steam Solutions, Inc.	DRAWING NUMBER B91-8648	REVISION -
REV	REVISION DESCRIPTION	B.O.M.	ELEC. ENG.	MECH. ENG	CHECKED	APPROVED				CHECKED BY:	ELECTRICAL REVIEW:	PROJECT NAME: MOTIF				
										B.O.M. REVIEW:	APPROVED BY: C.F. 8/19/2022	PROJECT MANAGER: C. FITZGERALD				
REVISION HISTORY																
														SHEET 2 OF 2		



BILL OF MATERIAL				
ITEM	PART NUMBER	DESCRIPTION	QTY	U.O.M.
1	2-10-000118	1 1/2" SCH. 80 PIPE	1.75	FT.
2	2-30-000334	60# STEAM GAUGE W/ LOGO	1	EA.
3	2-30-000453	1/4" N.P.T. CARBON STEEL NEEDLE VALVE (60B-101-24)	1	EA.
4	2-30-004060	1" NPT DI 300# 20 MESH TITAN Y-STRAINER (TTNYS12DI-1)	1	EA.
5	2-30-005057	1" FULL PORT BALL VALVE	1	EA.
6	2-30-005062	1/4" FULL PORT BALL VALVE	1	EA.
7	2-35-000204	1/4" THREADED TEE	1	EA.
8	2-35-000216	1 1/2" X 1" 150# BUSHING	2	EA.
9	2-35-000225	1 1/2" THREADED TEE	1	EA.
10	2-35-000246	1 1/2" x 1 1/2" x 1/2" THREADED REDUCING TEE	1	EA.
11	2-35-000262	1/2" X 1/4" 150# BUSHING	1	EA.
12	2-35-000274	1 1/2" THREADED ELBOW	3	EA.
13	2-35-000284	1" 150# CARBON STEEL UNION	2	EA.
14	2-35-000296	1 1/2" 150# CARBON STEEL UNION	3	EA.
15	2-35-000390	1/4" SMLS STEEL SYPHON, SCH.80	1	EA.
16	2-35-000715	3/4" 3000# UNION	2	EA.
17	2-35-001110	1 1/2" X 5 1/2" - NPT SCH 80 NIPPLE (SA-53 - ERW)	1	EA.
18	2-35-001832	1/4" NPT X 1/2" COMP 90 DEGREE BRASS COMPRESSION ELBOW	1	EA.
19	2-35-001836	1/4" N.P.T. X 1/2" COMP. BRASS COMPRESSION FITTING.	1	EA.
20	2-35-001838	3/8" I.D. COPPER TUBING	1.929	FT.
21	2-35-003008	1" X 2" - NPT SCH 80 WELDED NIPPLE (A53 TYPE E GR. B)	4	EA.
22	2-35-003010	1" X 3" - NPT SCH 80 WELDED NIPPLE (A53 TYPE E GR. B)	1	EA.
23	2-35-003020	1 1/2" X 6" - NPT SCH 80 WELDED NIPPLE (A53 TYPE E GR. B)	1	EA.
24	2-35-003031	1/4" X 3" - NPT SCH 80 WELDED NIPPLE (A53 TYPE E GR. B)	1	EA.
25	2-35-003032	1/4" X 1 1/2" - NPT SCH 80 WELDED NIPPLE (A53 TYPE E GR. B)	1	EA.
26	2-35-003037	1 1/2" X 3" - NPT SCH 80 WELDED NIPPLE (A53 TYPE E GR. B)	1	EA.
27	2-35-003041	1 1/2" X 2" - NPT SCH 80 WELDED NIPPLE (A53 TYPE E GR. B)	2	EA.
28	2-35-003044	3/4" X 2" - NPT SCH 80 WELDED NIPPLE (A53 TYPE E GR. B)	2	EA.
29	2-40-000361	3/4" PRESSURE REGULATING VALVE 455 SERIES WITH 15-45 PSI SPRING	1	EA.
30	2-40-001024	1" TEMPERATURE REGULATING VALVE W91 SERIES (150-210 DEG)	1	EA.
31	5-09-000002	HT/VT 30-60 WELDED REDUCING ASSEMBLY FOR PREHEAT KIT (1 1/2" X 1")	2	EA.
32	5-09-000003	HT/VT 30-60 WELDED REDUCING ASSEMBLY FOR PREKEAT KIT (1 1/2" X 3/4")	1	EA.
33	5-09-000004	WELDED REDUCING ASSEMBLY (1" X 3/4")	1	EA.
34	7-21-000041	VT/HT 50-100 LOW PRESSURE SPARGE TUBE ASSEMBLY	2	EA.

CUSTOMER CONNECTIONS			
ITEM	DESCRIPTION	SIZE	TYPE
A	HIGH PRESSURE INLET	1"	N.P.T.
B	STEAM OUTLET (2X)	1 1/4"	N.P.T.

- NOTES:
1. ALIGN ECCENTRIC REDUCERS WITH FLAT SIDE DOWN.
 2. USE NOTCHES ON SPARGE TUBE TO ALIGN HOLES HORIZONTALLY.

-	- INITIAL RELEASE -	-	-	-	-	-	UNLESS OTHERWISE NOTED DIMENSIONS ARE IN INCHES TOLERANCES FRACTION & WHOLE VALUE ± 1/8 (1) PLACE DEC. ± 0.03 (2) PLACE DEC. ± 0.015 (3) PLACE DEC. ± 0.005 ANGLE ± 0.5 DEG SURFACE FINISH 250 MICRO-INCHES	This design and drawings are proprietary and are the exclusive property of The Fulton Companies. The corporation does not permit their use except with prior written consent.	The items shown in this drawing may be covered by one or more patents of The Fulton Companies.	DRAWN BY: A. SHROCK 8/12/2022	MECHANICAL REVIEW:	JOB NUMBER:	DESCRIPTION: HT-60 STEAM INJECTION PRE-HEAT KIT (200 PSI)	 Fulton Steam Solutions, Inc.	
REV	REVISION DESCRIPTION	B.O.M.	ELEC. ENG	MECH. ENG	CHECKED	APPROVED			 THIRD ANGLE PROJECTION	CHECKED BY:	ELECTRICAL REVIEW:	PROJECT NAME:		DRAWING NUMBER B40-8735	REVISION -
REVISION HISTORY										B.O.M. REVIEW:	APPROVED BY: C.F. 8/19/2022	PROJECT MANAGER:		SHEET 1 OF 1	

REVISION HISTORY

100

101

102

103

104

105

106

107

108

109

110

111

112

113

114

115

116

117

118

119

120

121

122

123

124

125

126

127

FIELD WIRING: USE COPPER CONDUCTORS ONLY
60°C (140°F) FOR TERMINALS RATED LESS THAN 100 AMPERES, OR
75°C (167°F) FOR TERMINAL RATED LESS THAN 100 AMPERES AND THAT DO NOT
ACCEPT THE REQUIRED 60°C CONDUCTOR, OR
75°C (167°F) FOR TERMINALS RATED 100 AMPERES OR MORE

130

131

132

133

134

135

136

137

138

139

140

141

142

143

144

145

146

147

148

149

150

151

152

153

154

155

156

157

160

161

162

163

164

165

166

167

168

169

170

171

172

173

174

175

176

177

178

179

180

181

182

183

184

185

186

187

PNL

TB1-	
#s	J
1-1	○
N-1	○
⏏	○
⏏	○
⏏	○
N	●
N	●
N	●
H	●
H	●
H	●

FEED WATER SIGNAL FROM BOILER (120VAC) (NOTE 1)

188

189

190

191

192

193

194

195

196

197

198

199

NOTES:
1. ALL FIELD WIRING, CONDUIT (---) BY OTHERS.
2. (XX) DENOTES WIRE NUMBERS.
3. (*) INDICATES COMPONENTS THAT ARE MOUNTED INSIDE THE PANEL BOX.
4. FIELD WIRING TO CLASS CC FUSE BLOCKS TO BE TORQUE ⌀ 17.7 IN. LBS.
5. CONDUIT HAS BEEN SUPPLIED (-----) WIRING TO BE INSTALLED BY OTHERS.
6. COMPONENTS SUPPLIED BY OTHERS.
7. DISCONNECTING MEANS SHALL BE PROVIDED BY THE INSTALLER.

-

INITIAL RELEASE

-

-

-

-

-

REV

REVISION DESCRIPTION

B.O.M.

ELEC. ENG

MECH. ENG

CHECKED

APPROVED

REVISION HISTORY

UNLESS OTHERWISE NOTED:
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± 1/16
(2) PLACE DEC. ± .01
(3) PLACE DEC. ± .005
ANGLES ± 2 DEG.
SURFACE FINISH
250 MICRO-INCHES

This design and drawings are
proprietary and are the
exclusive property of The
Fulton Companies. The
corporation does not permit
their use except with prior
written consent.

The items shown in this
drawing may be covered by
one or more patents of The
Fulton Companies.

DRAWN BY:
MP
8/8/2022

CHECKED BY:
N / A
N / A

B.O.M. REVIEW
N / A

MECH. ENG:
SK
8/10/2022

APPROVED BY:
MP
8/10/2022

JOB NUMBER:
22720

PROJECT NAME:
ELECTRICAL SCHEMATIC OF A DUPLEX FEED
WATER / RETURN TANK

PROJECT MANAGER:


DESCRIPTION:
ELECTRICAL SCHEMATIC OF A DUPLEX FEED
WATER / RETURN TANK

FULTON THERMAL CORPORATION

DRAWING NUMBER
B53-14447

REV
-

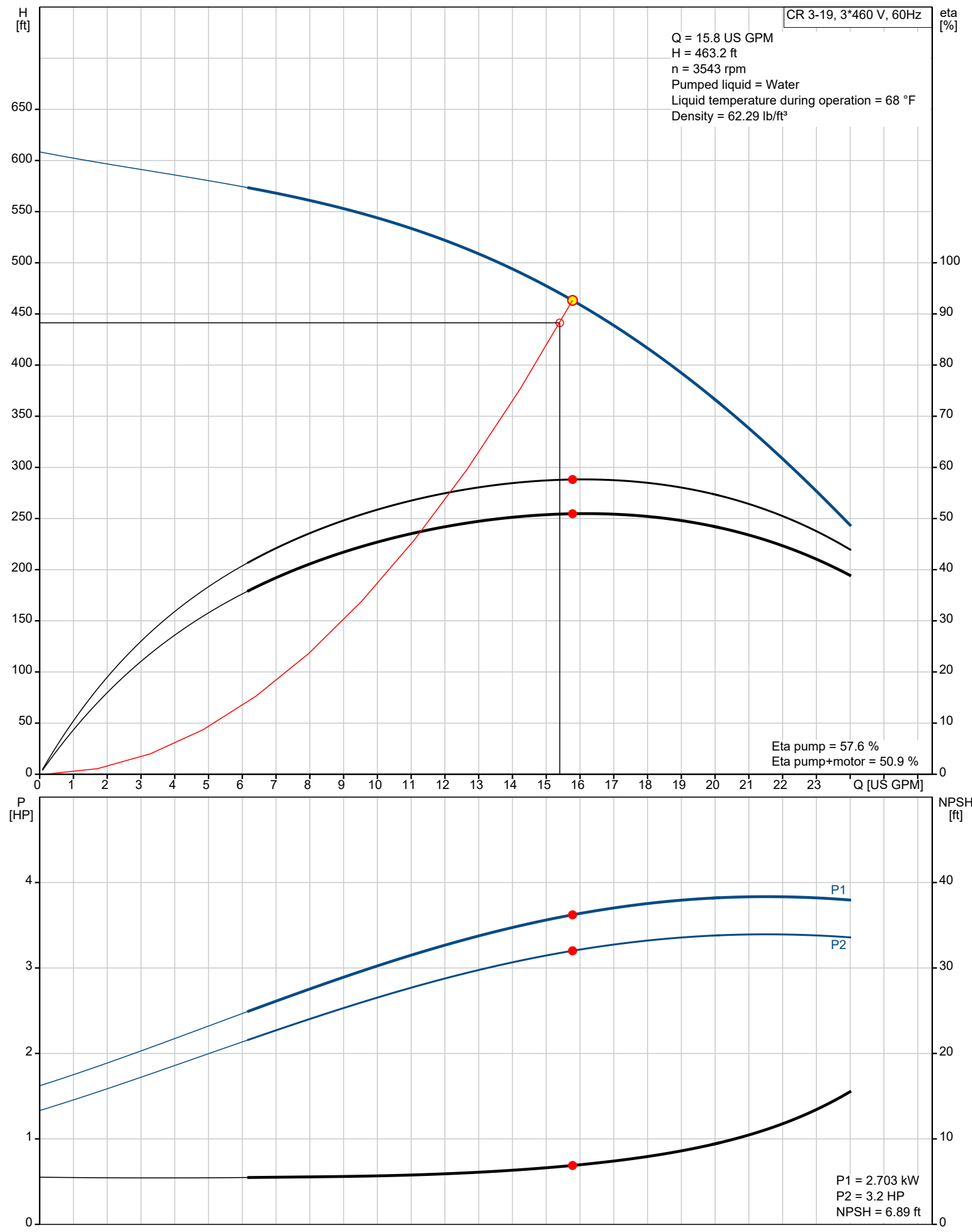
SHEET 1 OF 1

Qty.	Description
1	<p>CR 3-19 A-FGJ-A-E-HQQE</p>  <p>Product No.: 99916353</p> <p>Vertical, multistage centrifugal pump with inlet and outlet ports on same the level (inline). The pump head and base are in cast iron – all other wetted parts are in stainless steel. A cartridge shaft seal ensures high reliability, safe handling, and easy access and service. Power transmission is via a rigid split coupling. Pipe connection is via combined DIN-ANSI-JIS flanges.</p> <p>The pump is fitted with a 3-phase, fan-cooled asynchronous motor.</p> <p>Liquid:</p> <p>Pumped liquid: Water</p> <p>Liquid temperature range: -4 .. 248 °F</p> <p>Selected liquid temperature: 68 °F</p> <p>Density: 62.29 lb/ft³</p> <p>Technical:</p> <p>Pump speed on which pump data are based: 3461 rpm</p> <p>Actual calculated flow: US GPM</p> <p>Resulting head of the pump: ft</p> <p>Pump orientation: Vertical</p> <p>Shaft seal arrangement: Single</p> <p>Code for shaft seal: HQQE</p> <p>Approvals: CURUS</p> <p>Approvals for drinking water: NSF/ANSI 61</p> <p>Curve tolerance: ISO9906:2012 3B</p> <p>Materials:</p> <p>Base: Cast iron EN 1561 EN-GJL-200 ASTM A48-25B</p> <p>Impeller: Stainless steel EN 1.4301 AISI 304</p> <p>Bearing: SIC</p> <p>Installation:</p> <p>t max amb: 104 °F</p> <p>Maximum operating pressure: 362.59 psi</p> <p>Max pressure at stated temp: 363 psi / 250 °F 363 psi / -4 °F</p> <p>Type of connection: DIN / ANSI / JIS</p> <p>Size of inlet connection: DN 25/32</p> <p>Size of outlet connection: DN 25/32</p> <p>Pressure rating for connection: PN 25</p> <p>Flange rating inlet: 250 lb</p> <p>Flange size for motor: 182TC</p> <p>Electrical data:</p> <p>Motor standard: NEMA</p> <p>Motor type: WEG</p> <p>IE Efficiency class: IE3 / NEMA Premium</p> <p>Rated power - P2: 5 HP</p> <p>Power (P2) required by pump: 5 HP</p> <p>Mains frequency: 60 Hz</p> <p>Rated voltage: 3 x 208-230/460 V</p> <p>Service factor: 1.15</p> <p>Rated current: 13,1-11,8/5,9 A</p> <p>Starting current: 780-780 %</p>

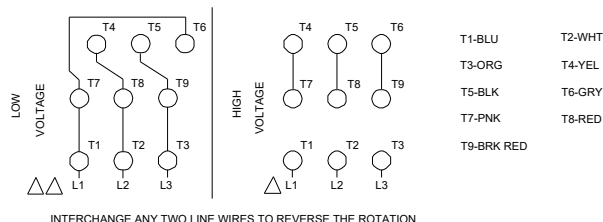
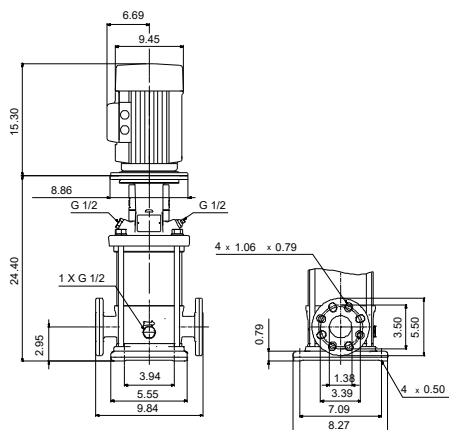
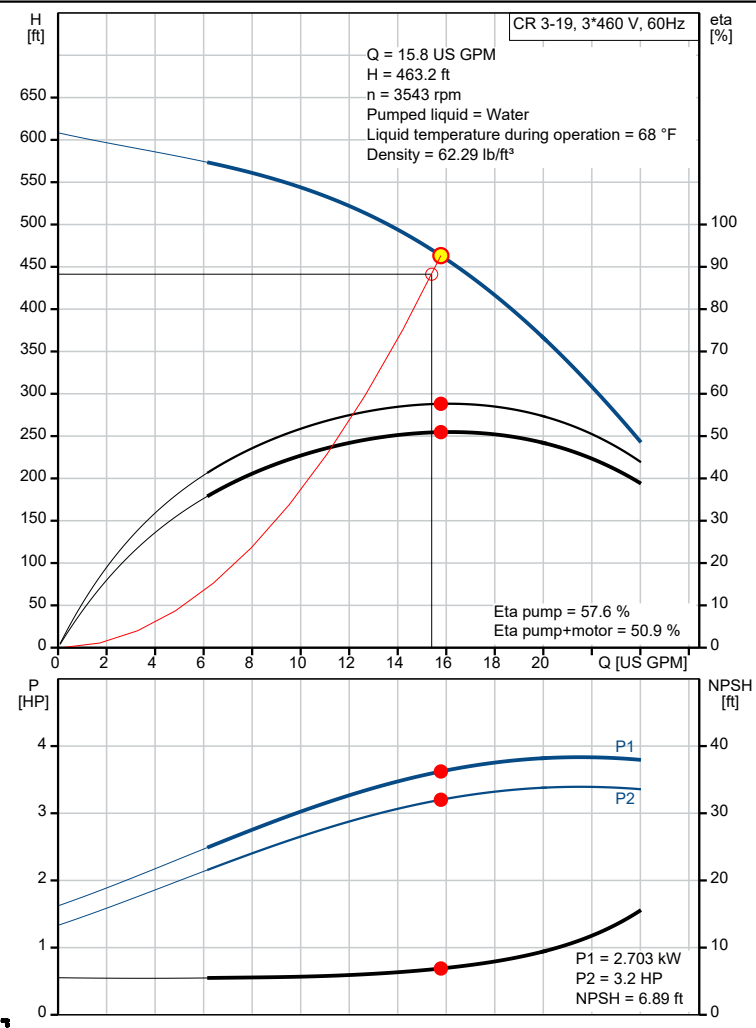
Qty.	Description
------	-------------

1	Cos phi - power factor:	0.89
	Rated speed:	3500 rpm
	Efficiency:	IE3 88,5%
	Motor efficiency at full load:	88.5 %
	Motor efficiency at 3/4 load:	88.5 %
	Motor efficiency at 1/2 load:	87.5 %
	Number of poles:	2
	Enclosure class (IEC 34-5):	IP55
	Insulation class (IEC 85):	F
	Motor No:	99882380
	Controls:	
	Frequency converter:	NONE
	Others:	
	Net weight:	150 lb
	Gross weight:	168 lb
	Shipping volume:	10.1 ft ³

99916353 CR 3-19 A-FGJ-A-E-HQQE 60 Hz



Description	Value
General information:	
Product name:	CR 3-19 A-FGJ-A-E-HQQE
Product No:	99916353
EAN number:	5715114111027
Technical:	
Pump speed on which pump data are based:	3461 rpm
Actual calculated flow:	15.8 US GPM
Resulting head of the pump:	463.2 ft
Maximum head:	595.2 ft
Stages:	19
Impellers:	19
Number of reduced-diameter impellers:	0
Low NPSH:	N
Pump orientation:	Vertical
Shaft seal arrangement:	Single
Code for shaft seal:	HQQE
Approvals:	CURUS
Approvals for drinking water:	NSF/ANSI 61
Curve tolerance:	ISO9906:2012 3B
Pump version:	A
Model:	A
Cooling:	IC 411
Materials:	
Base:	Cast iron
Base:	EN 1561 EN-GJL-200
Base:	ASTM A48-25B
Impeller:	Stainless steel
Impeller:	EN 1.4301
Impeller:	AISI 304
Material code:	A
Code for rubber:	E
Bearing:	SIC
Installation:	
t max amb:	104 °F
Maximum operating pressure:	362.59 psi
Max pressure at stated temp:	363 psi / 250 °F
Max pressure at stated temp:	363 psi / -4 °F
Type of connection:	DIN / ANSI / JIS
Size of inlet connection:	DN 25/32
Size of outlet connection:	DN 25/32
Pressure rating for connection:	PN 25
Flange rating inlet:	250 lb
Flange size for motor:	182TC
Connect code:	FGJ
Liquid:	
Pumped liquid:	Water
Liquid temperature range:	-4 .. 248 °F
Selected liquid temperature:	68 °F
Density:	62.29 lb/ft³
Electrical data:	
Motor standard:	NEMA
Motor type:	WEG
IE Efficiency class:	IE3 / NEMA Premium
Rated power - P2:	5 HP
Power (P2) required by pump:	5 HP
Mains frequency:	60 Hz
Rated voltage:	3 x 208-230/460 V
Service factor:	1.15
Rated current:	13,1-11,8/5,9 A
Starting current:	780-780 %
Full load SF current:	13.6/6.79 A
Cos phi - power factor:	0.89
Rated speed:	3500 rpm
Efficiency:	IE3 88,5%
Motor efficiency at full load:	88.5 %





Company name:

Created by:

Phone:

Date:

21/09/2022

Description	Value
Motor efficiency at 3/4 load:	88.5 %
Motor efficiency at 1/2 load:	87.5 %
Number of poles:	2
Enclosure class (IEC 34-5):	IP55
Insulation class (IEC 85):	F
Built-in motor protection:	NONE
Motor No:	99882380
Controls:	
Frequency converter:	NONE
Others:	
Net weight:	150 lb
Gross weight:	168 lb
Shipping volume:	10.1 ft ³

99916353 CR 3-19 A-FGJ-A-E-HQQE 60 Hz

