TALCO FIRE SYSTEMS

RESIDENTIAL & COMMERCIAL FIRE PUMP SPECIALISTS
6040 NE 112TH AVE. PORTLAND, OREGON 97220
PHONE: 800-878-8055 WWW.TALCOFIRE.COM

ULV-200

3 x 3 - 7A

200GPM UL Fire Pump System

NFPA-20 Submittal Packet

8-1-2024

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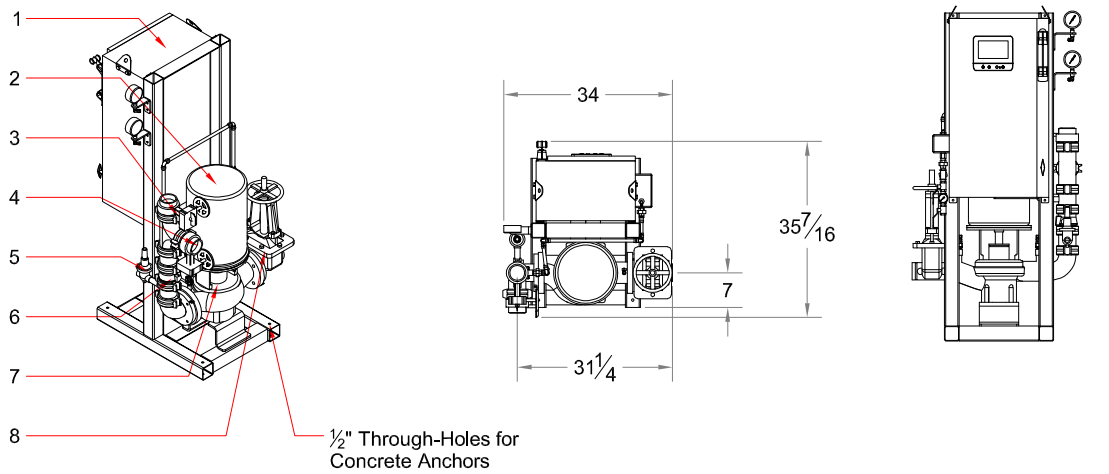
6040 NE 112TH AVE. PORTLAND, OR 97220
800-878-8055 WWW.TALCOFIRE.COM

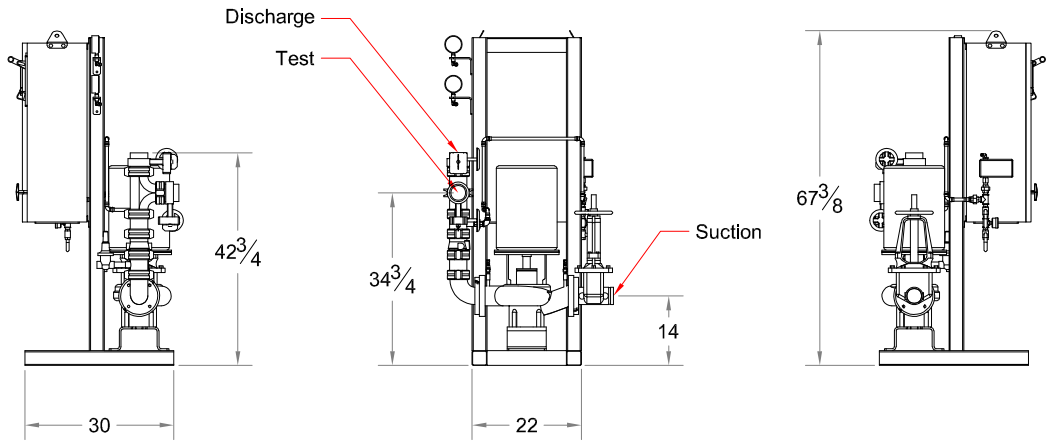
NFPA-20 Fire Pump

3-383-7A

ULV-200

Compact Residential Package
Design Condition: 200GPM @ 50PSI





System Components per NFPA-20

System Specifications:

Motor
-10 Horsepower Electric
-230 Volt, 46 Amp
-Single Phase
-3450 RPM

Pump
-UL Vertical Inline Fire Pump
-3" Suction (Grooved)
-3" Discharge (Grooved)
-3" Test Connection (Grooved)
-175 PSI max working pressure

System Components (UL Listed by Manufacturer)
-1- Limited Service Fire Pump Controller
-2- Electric Motor (UL Recognized)
-3- Discharge Butterfly Valve (Monitored)
-4- Test Connection Butterfly Valve (Monitored)
-5- Case Relief Valve
-6- Check Valve
-7- Vertical Inline Fire Pump
-8- Suction OS&Y (Monitored)

Dimensions
-36" Depth
-68" Height
-34" Width

*All dimensions are approximate and subject to change without notice.

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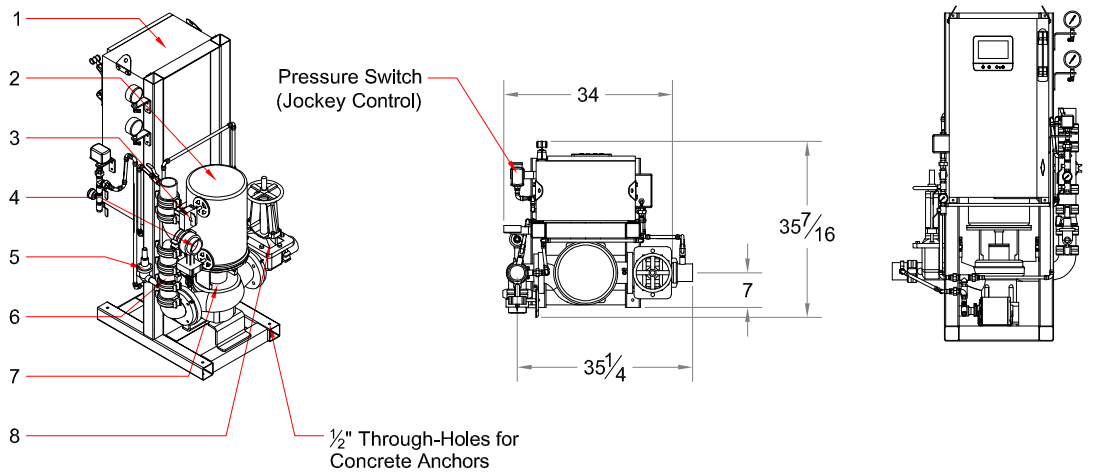
NFPA-20 Fire Pump

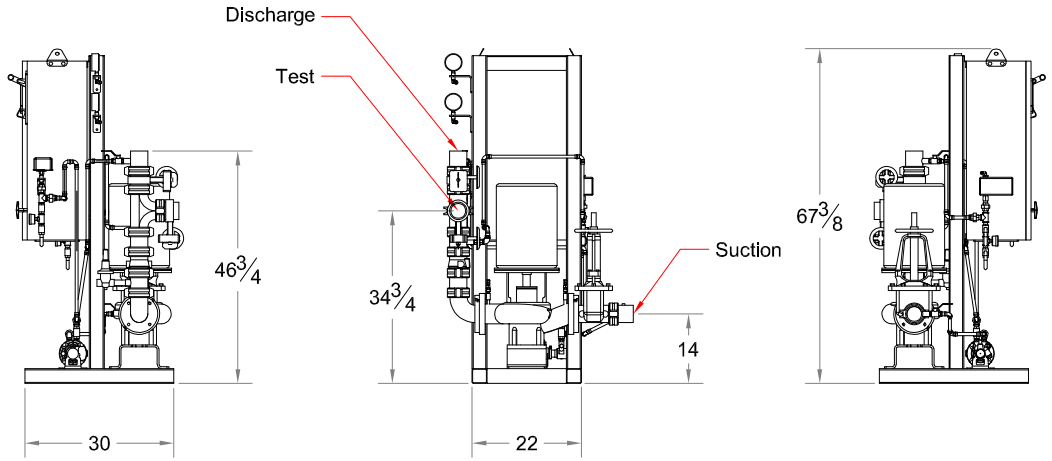
3-383-7A

with Jockey Pump

ULV-200

Compact Residential Package
Design Condition: 200GPM @ 50PSI





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-68" Height
-36" Width

*All dimensions are approximate and subject to change without notice.

900 Series
Single Stage Inline Fire Pumps

Listed

Built Per
N.F.P.A. 20

AURORA®

PENTAIR PUMP GROUP

Aurora 383 Series Pumps

VERTICAL Inline Close Coupled Fire Pumps are specifically designed for vertical mounting. The suction and discharge nozzles are located on the same centerline 180° apart. Vertical pumps significantly reduce required mounting space. They are easy to maintain. Simply remove eight capscrews and the motor and bracket assembly is easily removed fiom the casing without disturbing the piping. The impeller is direct coupled to the motor shaft for easy maintenance, to minimize impeller run out and to reduce noise.

The inline casing is heavily ribbed to resist pipe strain and is provided with a support to simplify mounting to a base or foundation. Packing is provided when suction pressure is greater than 30 PSIG; packing with lantern ring and flush line is furnished for suction pressures of 30 PSIG or less. Look through this bulletin for additional details & specifications.

Back pull-out inline case design simplifies disassembly. The suction and discharge piping or alignment is not disturbed as the casing remains in the pipeline. Simply remove the motor and bracket assembly for service or inspection.

Computer machined major components with 360° registered fits assure parts concentricity.

Note: Front case wearing rings are standard on all size pumps. Rear case rings are standard on all sizes except the 2x2x9C. The 2x2x9C does not require a wear ring.

STANDARD

Bronze fitted pump construction
Bronze shaft sleeve
Split bronze packing gland
Carbon steel shaft
125# ANSI flange drilling
Dynamically balanced vacuum cast impeller
Stainless Steel impeller screw & washer
Bronze case wearing ring(s)
Graphite impregnated acrylic packing
Motor:
NEMA-HI JP
Factory performance tested in accordance with NFPA-20

ACCESSORIES

Suction and discharge pressure gauges
Air release valve
Circulation relief valve
Hose valve header
Hose valves
Flow meter
Jockey pump
Optional flange drillings
125 lb suction - 250 lb discharge
250 lb suction and discharge

1 BACK PULL-OUT CASING with inline suction and discharge.

2 CASE WEARING RING prevents wear on casing and is easily and inexpensively replaced.

3 SUPPORT simplifies mounting. The pump can be fastened to the floor, a base or foundation.

4 DYNAMICALLY BALANCED IMPELLER is keyed to the shaft and secured by a capscrew and washer. Vacuum casting and quality controlled manufacturing process assures consistent high performance. Enclosed design provides high efficiency and low wear for long service life.

5 CARBON STEEL SHAFT is designed for minimum deflection at maximum load.

6 TWO PIECE BRONZE PACKING GLAND provides easy packing maintenance.

7 FACTORY PERFORMANCE TEST guarantees performance at specified pump operating conditions.

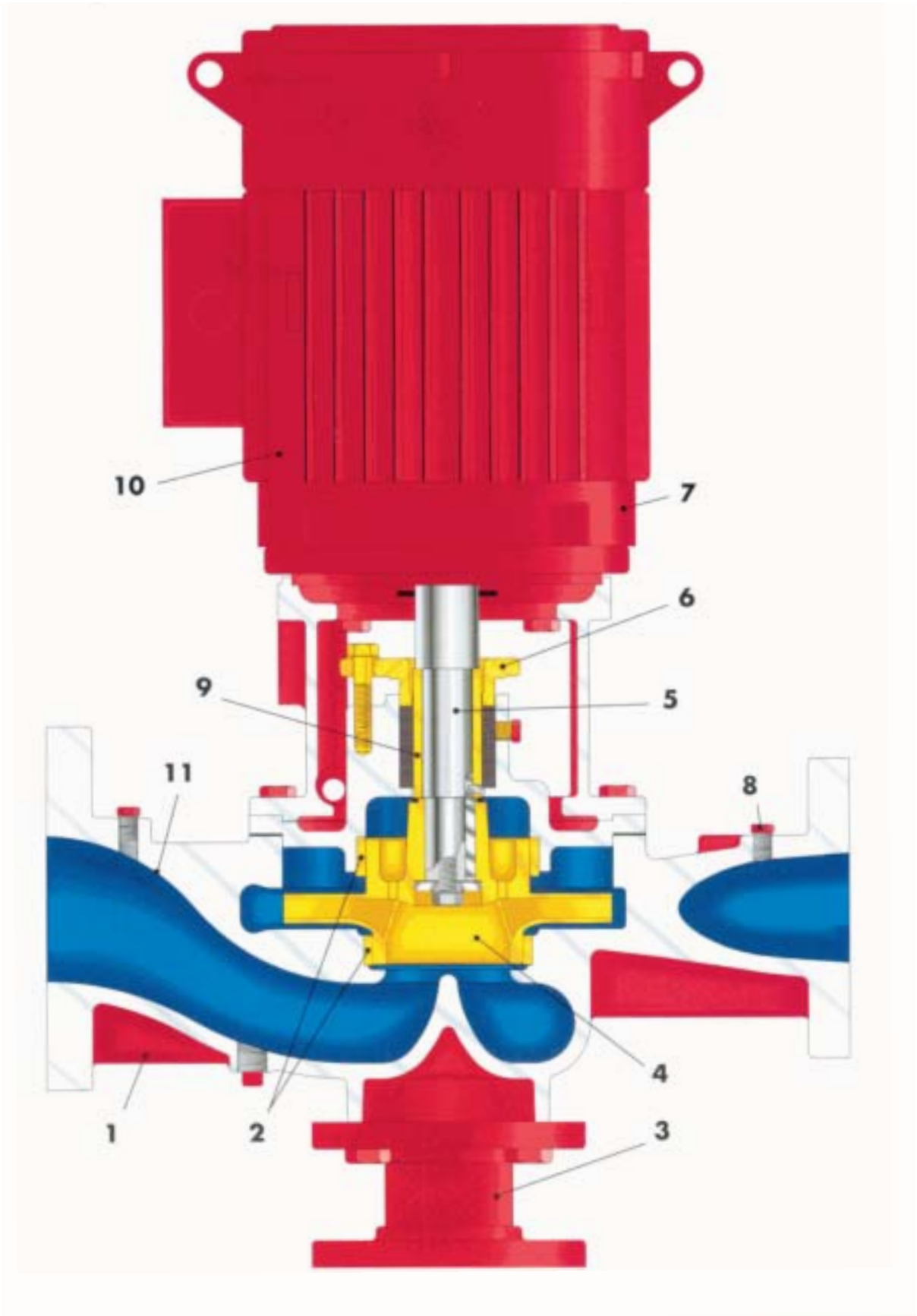
8 FLUSH LINE with valve (when used) from discharge provides easy water seal adjustment to lantern ring.

9 BRONZE SHAFT SLEEVE extends full length of stuffing box to protect motor shaft. The shaft sleeve is slip fit over the shaft and then is keylocked. Shaft sleeve and impeller screw are sealed by “O”-ring gaskets to eliminate corrosion of the shaft by the pumped liquid.

10 STANDARD MOTOR approved for 383 Series pump service by NEMA and the HYDRAULIC INSTITUTE provides low noise level pump operation.

11 VOLUTE TYPE SUCTION inlet pre-rotates suction liquid.

Vertical Fire Pump Features

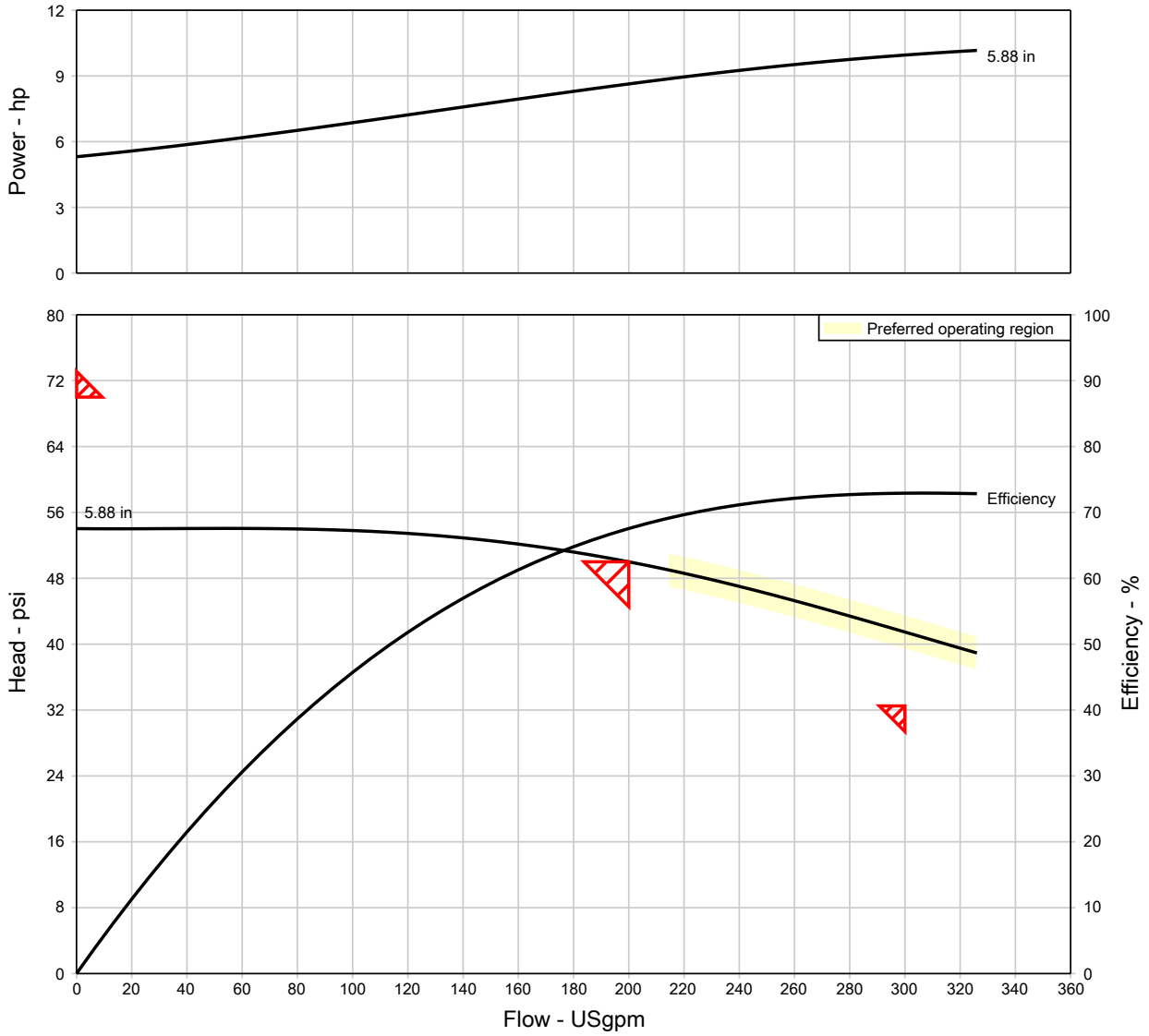


Customer : TALCO INDUSTRIES, INC.

Project name : 200 @ 50

Pump Performance Curve

Encompass 3.0 - 24.3.4



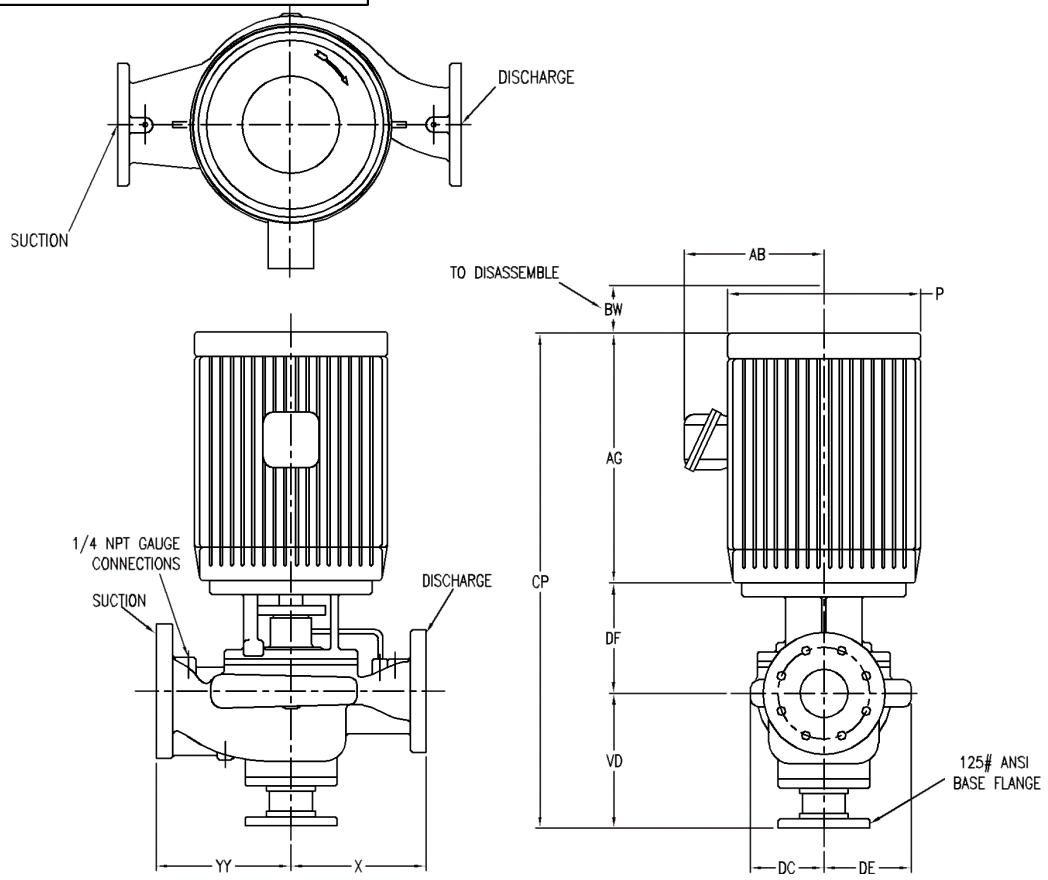
Item Number / Tags	: 001
Service	:
Quantity	: 1
Quote number	: 243627
Date last saved	: 30 Oct 2024 4:51 PM
Flow, rated	: 200.0 USgpm
Differential head / pressure, rated	: 50.00 psi
Flange rating (suction / discharge)	: 125/125
Secondary Point (150% of rated flow)	: 300.0 USgpm
Secondary Point (65% of rated head)	: 32.50 psi
Max Shutoff per NFPA	: 70.00 psi

Size	: 3-383-7A
Stages	: 1
Driver type	: Motor
Frequency	: 60 Hz
Speed, rated	: 3500 rpm
Based on curve number	: 383-3X3X7A-3500
Efficiency	: 67.56 %
Max working pressure, allowable	: 175.0 psi.g
Max Shutoff Head (Calculated)	: 56.74 psi
Max suction pressure, allowable	: 118.3 psi.g
Pump shutoff w/ suction pressure	: 66.74 psi.g
Power driver, minimum	: 10.00 hp

General Arrangement

⚠ WARNING

DO NOT OPERATE THIS MACHINE WITHOUT PROTECTIVE GUARD IN PLACE. ANY OPERATION OF THIS MACHINE WITHOUT PROTECTIVE GUARD CAN RESULT IN SEVERE BODILY INJURY.



X	YY	BW	VD	DF	DC
9.50	9.50	4.50	10.25	8.81	5.19

DE	AG	P	AB	CP	Base Flange Size
6.13	17.00	12.25	7.63	36.00	3.00

NOTES:

Not for construction, installation, or application purposes unless certified.

All dimensions are in inches

Dimensions may vary ± .38" (10mm) due to normal manufacturing tolerances.

See configuration for estimated total weight.

Pump Data	
Series	Inline
Model	3-383-7A
Size	3x3x7A
Flow	200.0 USgpm
Rated Pressure	50.00 psi.g
RPM	3500 rpm
Rotation	Right handed
Liquid Type	Water
Discharge Size	3.00 in
Suction Size	3.00 in
Impeller Diameter	5.87 in
Connection Type	125/125
Base Type	Pipe flange support
-	-
Pump Materials of Construction	
Pump	Bronze fitted with Cast Iron casing
Shaft	Carbon Steel
Motor Data	
Power	10.00 hp
Phase	1
Frequency	60 Hz
Volts	230 V
RPM	3600
Frame	215JP
Service Factor	1.15
Enclosure	ODP
Manufacturer	Weg
Site Information	
Elevation	300.0 ft
Temperature	77.00 deg F
Estimated Weights	
Pump	153.0 lb
Driver	0.00 lb

Quote Information			
Customer	TALCO INDUSTRIES, INC.		
Customer Quote	0		
Job Name	Default		
Market	-		
PENTAIR		Quote Item	001
		Quote Date	10 Oct 2023

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PHONE: 800-878-8055 WWW.TALCOFIRE.COM

Fire Pump Controller

TORNATECH

Project: _____

Customer: _____

Engineer: _____

Pump Manufacturer: _____

Technical Data
Submittal Document

Model GPL

Limited Service Full Voltage
Across the Line Start
Electric Fire Pump Controller

Contents:

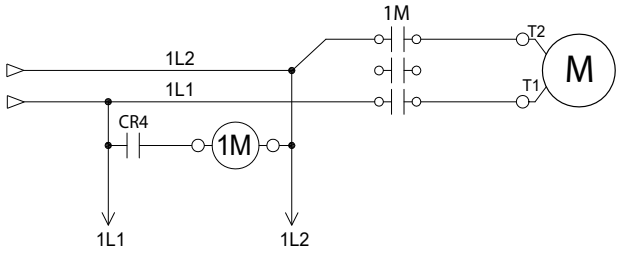
Data Sheets
Dimensional Data
Wiring Schematics
Field Connections

Note: The drawings included in this package are for controllers covered under our standard offering. Actual AS BUILT drawings may differ from what is shown in this package.

c UL us N.Y.C. APPROVED CE

May 2024

From normal incoming power through Disconnecting Means (IS/CB)*



c UL us
N.Y.C. APPROVED
CE

Standard, Listings, Approvals and Certifications	Built to NFPA 20 (latest edition)	
	Underwriters Laboratory (UL)	• UL218 - Fire Pump Controllers
	New York City	Accepted for use in the City of New York by the Department of Buildings
	Optional	
	☐ CE Mark	Various EN, IEC & CEE directives and standards

Enclosure

Protection Rating
☑ Standard: NEMA 2

Optional

☐ NEMA 12	☐ NEMA 4X-304 sst painted
☐ NEMA 3	☐ NEMA 4X-304 sst brushed finish
☐ NEMA 3R	☐ NEMA 4X-316 sst painted
☐ NEMA 4	☐ NEMA 4X-316 sst brushed finish

Accessories
- Bottom entry gland plate
- Lifting Lugs
- Keylock handle

Paint Specifications
- Red RAL3002
- Powder coating
- Glossy textured finish

Shortcircuit Withstand Rating	120V to 240V - 1ph - 60Hz
☑ Standard	100,000A

Limitations	• Across the line starting only • Horsepower rating of maximum 30hp • Can only be installed where acceptable by the authority having jurisdiction • Not accepted in FM insured property
Ambient Temperature Rating	~~**Standard**:~~ ~~☐ 4°C to 40°C / 39°F to 104°F~~ **Optional**: ☑ 4°C to 55°C / 39°F to 131°F Controllers built in Dubai, UAE (Tornatech FZE) are supplied standard with 55°C rating.
Surge Suppression	Surge arrestor rated to suppress surges above line voltage
Disconnecting Means	• Door interlocked in the ON position • Circuit breaker continuous rating not less than 115% of motor full load current • Overcurrent sensing non-thermal type, magnetic only • Instantaneous trip setting of not more than 20 times the motor full load current • Common flange mounted operating handle
Service Entrance Rating	Suitable as service entrance equipment
Emergency Start Handle	• Flange mounted • Pull and latch activation • Integrated limit switch • Across the line start (direct on line)
Locked Rotor Protector	• Operate shunt trip to open circuit breaker • Factory set at 600% of motor full load current • Trip between 8 and 20 seconds
Electrical Readings	• Voltage phase to phase (normal power) • Amperage of each phase when motor is running
Pressure Readings	• Continuous system pressure display • Cut-in and Cut-out pressure settings
Pressure and Event recorder	• Pressure readings with date stamp • Event recording with date stamp • Under regular maintained operation, events are stored in memory for the life of the controller. • Data viewable on operator interface display screen • Downloadable by USB port to external memory device
Pressure Sensing	• Pressure transducer and run test solenoid valve assembly for fresh water application • Pressure sensing line connection 1/2” Female NPT • Drain connection 3/8” • Rated for 0-500PSI working pressure (standard display at 0-300PSI) • Externally mounted with protective cover

Audible Alarm	Alarm buzzer - 85dB at 3 meters
Visual Indications	• Power available • Motor run • Periodic test • Manual start • Deluge valve start • Remote automatic start • Remote manual start • Emergency start • Pump on demand/Automatic start • Pump room temperature (ºF or ºC) • Lockout
Visual & Audible Alarms	Visual • Control voltage not healthy • Invalid cut-in • Lock rotor current • Loss of power • Low ambient temperature • Low water level • Motor trouble • Phase reversal (normal power) • Overcurrent • Overvoltage • Phase loss L1 • Phase loss L2 • Phase loss L3 • Phase unbalanced • Pressure transducer fault detected • Pump on demand • Pump room alarm • Service required • Undercurrent • Undervoltage • Check weekly test solenoid • Weekly test cut-in reached Visual and audible • Fail to start
Remote Alarm Contacts	DPDT-8A-250V.AC • Power available • Phase reversal • Motor run • Common pump room alarm (field re-assignable)** • Overvoltage • Undervoltage • Phase unbalance • Low pump room temperature • High Pump room temperature • Common motor trouble (field re-assignable)** • Overcurrent • Fail to start • Undercurrent • Ground fault • Free (field programmable)**

**Tornatech reserves the right to use any of these three alarm points for special specific application requirements.

ViZiTouch V2.1 Operator Interface	• Embedded microcomputer with software PLC logic • 7.0” color touch screen (HMI technology) • Upgradable software • Multi-language		
Communication Protocol Capability	• Protocol: Modbus • Connection type: Shielded female connector RJ45 • Frame Format: TCP/IP • Addresses: See bulletin MOD-GPx		
Operation	**Automatic Start**	• Start on pressure drop • Remote start signal from automatic device • Deluge valve start	
	Manual Start	• Start pushbutton • Run test pushbutton • Remote start from manual device	
	Stopping	• Manual with Stop pushbutton • Automatic after expiration of minimum run timer ***	
	Timers	Field Adjustable & Visual Countdown	• Minimum run timer ***(off delay) • Sequential start timer (on delay) • Periodic test timer
	Actuation	Visual Indication	• Pressure • Non-pressure
	Mode		• Automatic • Non-automatic

***Can only be used if approved by the AHJ

☐ A4	Flow switch provision
☐ A8	Foam pump application w/o pressure transducer and run test solenoid valve.
☐ A9	Low zone pump control function
☐ A10	Middle zone pump control function
☐ A11	High zone pump control function
☐ A13	Non-pressure actuated controller w/o pressure transducer and run test solenoid valve
☐ A16	Lockout/interlock circuit from equipment installed inside the pump room
☐ B11	Built in alarm panel (120V.AC supervisory power) providing indication for: • Audible alarm & silence pushbutton for motor run, phase reversal, loss of phase. • Pilot lights for loss of phase & supervisory power available
☐ B11B	Built in alarm panel same as B11 but 220-240VAC supervisory power
☐ B19A	High motor temperature c/w thermoster relay and alarm contacts (DPDT)
☐ B19B	High motor temperature c/w PT100 relay and alarm contacts (DPDT)
☐ B21	Ground fault alarm detection c/w visual indication and alarm contact (DPDT)
☐ C1	Extra motor run alarm contact (DPDT)
☐ C4	Periodic test alarm contact (DPDT)
☐ C6	Low discharge pressure alarm contact (DPDT)
☐ C7	Low pump room temperature alarm contact (DPDT)
☐ C10	Low water reservoir level alarm contact (DPDT)
☐ C11	High electric motor temperature alarm contact (DPDT)
☐ C12	High electric motor vibration c/w visual indication and alarm contact (DPDT)
☐ C14	Pump on demand / automatic start alarm contact (DPDT)
☐ C15	Pump fail to start alarm contact (DPDT)
☐ C16	Control voltage healthy alarm contact (DPDT)
☐ C17	Flow meter valve loop open c/w visual indication and alarm contact (DPDT)
☐ C18	High water reservoir level c/w visual indication and alarm contact (DPDT)

☐ C19	Emergency start alarm contact (DPDT)
☐ C20	Manual start alarm contact (DPDT)
☐ C21	Deluge valve start alarm contact (DPDT)
☐ C22	Remote automatic start alarm contact (DPDT)
☐ C23	Remote manual start alarm contact (DPDT)
☐ C24	High pump room temperature alarm contact (DPDT)
☐ C25	Second set of standard alarm contacts (DPDT) (Typical for city of Los Angeles and Denver)
☐ Cx	Additional visual and alarm contact (Specify function) (DPDT)
☐ D1	Low suction pressure transducer for fresh water rated at 0-300PSI with visual indication and alarm contact
☐ D1A	Low suction pressure transducer for sea water rated at 0-300PSI with visual indication and alarm contact
☐ D13A	High withstand rating for • 380V to 480V = 65kA* • 600V = 25kA*
☐ D14	Anti-condensation heater & thermostat
☐ D14A	Anti-condensation heater & humidistat
☐ D14B	Anti-condensation heater & thermostat & humidistat
☐ D15	Tropicalization
☐ D18	CE Mark with factory certificate
☐ D26	Modbus with RTU frame format and RS485 connection
☐ D27	Motor heater connection (external single phase power source and heater on/off contact)
☐ D27A	Motor heater connection (internal single phase power source and heater on/off contact)
☐ D28	Customized drawing set
☐ D34A	Field programmable I/O board - 5 Input / 5 output
☐ D36	Redundant pressure transducer for fresh water rated for 0-500PSI
☐ D36A	Redundant pressure transducer for sea water rated for 0-500PSI

Note: Options chosen from this page are not electrically represented on the wiring schematics in this submittal package.

☐ L01	Other language and English (bilingual)
☐ L02	French
☐ L03	Spanish
☐ L04	German
☐ L05	Italian
☐ L06	Polish
☐ L07	Romanian
☐ L08	Hungarian
☐ L09	Slovakian
☐ L10	Croatian
☐ L11	Czech
☐ L12	Portuguese
☐ L13	Dutch
☐ L15	Turkish
☐ L16	Swedish
☐ L21	Danish
☐ L25	Chinese
☐ L28	Finnish
☐ L29	Norwegian

Additional Options:

☐ _____

☐ _____

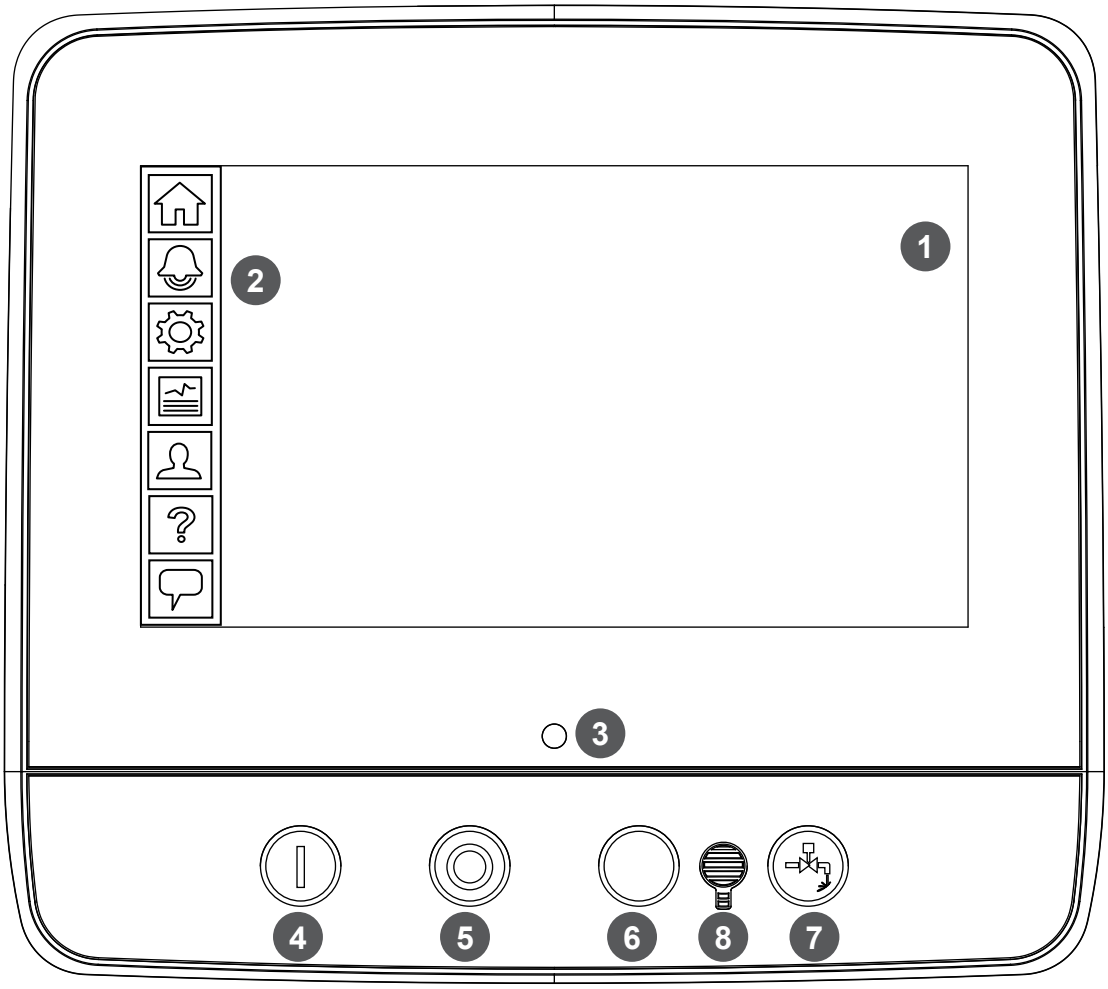
☐ _____

☐ _____

☐ _____

Note: Options chosen from this page are not electrically represented on the wiring schematics in this submittal package.

ViZiTouch V2.1 Operator Interface



1 - Color touch screen
2 - Onscreen menu
- HOME page
- ALARM page
- CONFIGURATION page
- HISTORY page
- SERVICE page
- MANUAL page
- LANGUAGES page

3 - Power LED (3 colors)
4 - START button
5 - STOP button
6 - Not Used
7 - RUN TEST button
8 - Alarm buzzer

TORNATECH

	BY	DD/MM/YY
DRAWN BY	ACD	28/02/23
FINAL APPROVAL	FC	28/02/23

LIMITED SERVICE PUMP CONTROLLER

MODEL: GPL

BUILT TO THE LATEST EDITION OF THE NFPA20 & NFPA70

NYC Dpt of Building Approved

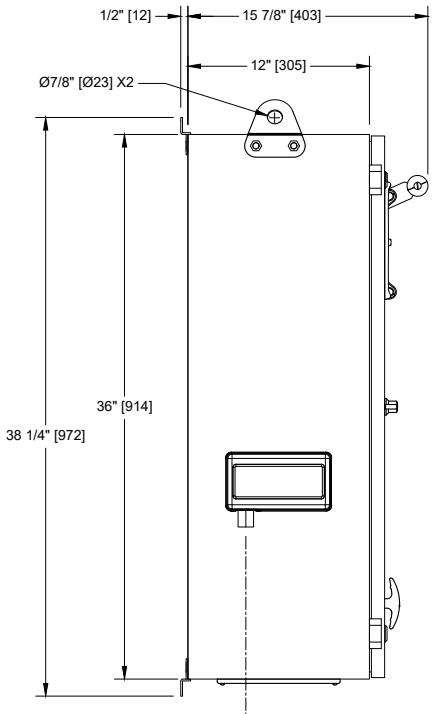
THIRD ANGLE PROJECTION

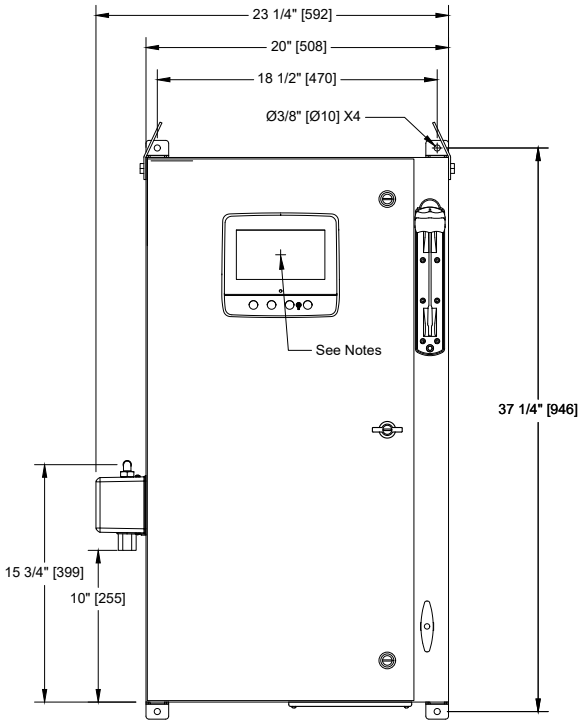
DRAWING NUMBER GPL-DI800/E

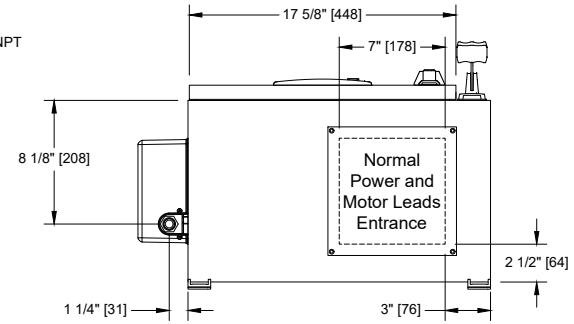
DWG REV. 0

SHEET 1 OF 1

Voltage / Power Table		
Voltage	Min HP	Max HP
1 Phase		
110 - 120	1	7.5
208	3	15
220 - 240	3	15
3 Phases		
208	3	30
220 - 240	3	30
380 - 400 - 415	3	30
440 - 480	3	30
600	3	30







Notes:

- Standard NEMA: NEMA 2
- Standard paint : textured red RAL 3002.
- All dimensions are in inches [millimeters].
- Center of screen: 29-5/8" [751] from bottom (no feet).
- Bottom conduit entrance through removable gland plate recommended.
- Use watertight conduit and connector only.
- Protect equipment against drilling chips.
- Door swing equal to door width.

TORNATECH

	BY	DD/MM/YY
DRAWN BY	ACD	28/02/23
FINAL APPROVAL	FC	28/02/23

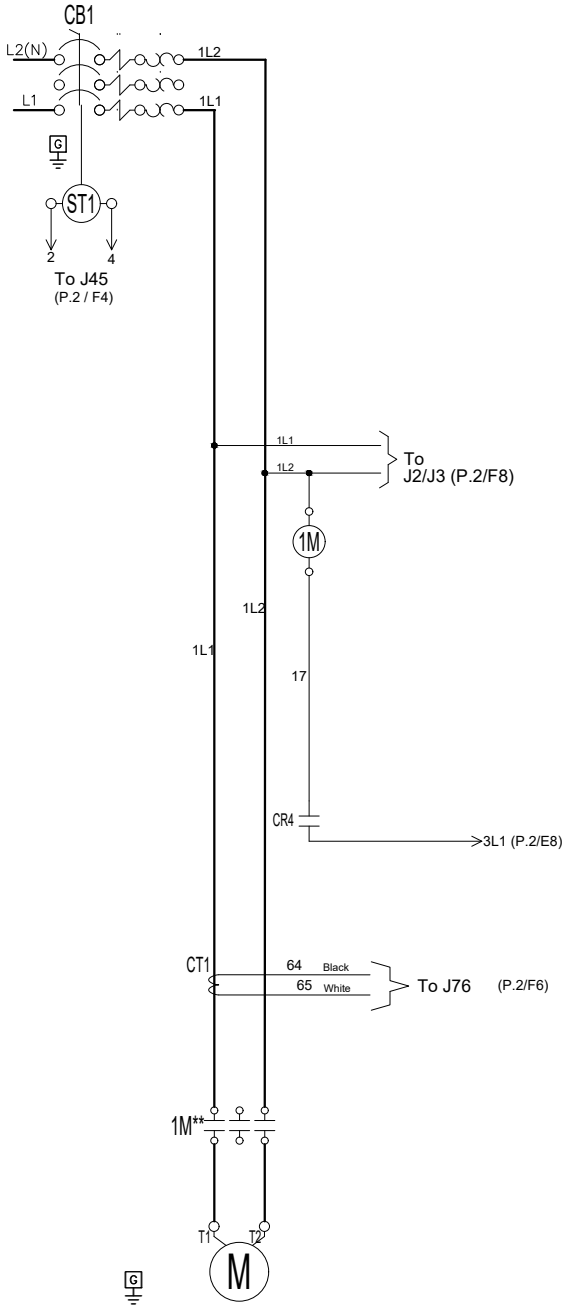
LIMITED SERVICE PUMP CONTROLLER ACROSS THE LINE / 1 PHASE

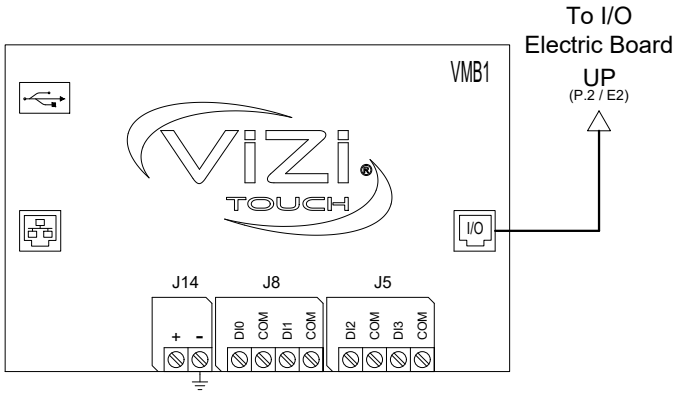
MODEL: GPL

BUILT TO THE LATEST EDITION OF THE NFPA20 & NFPA70

NYC Dpt of Building Approved

DRAWING NUMBER GPL-WS800/E
DWG REV. 0
SHEET 1 OF 2





Legend	
1M	Contactor
AB	Alarm Bell
CB	Circuit Breaker
CR	Control Relay
CT	Current Transformer
EB	Electric I/O Board
J	Jumper
LS	Limit Switch
PT	Pressure Transducer
SA	Surge Arrester
ST	Shunt Trip
SV	Solenoid Valve
VMB	Main Board
XTR	Transformer

TORNATECH

	BY	DD/MM/YY
DRAWN BY	ACD	28/02/23
FINAL APPROVAL	FC	28/02/23

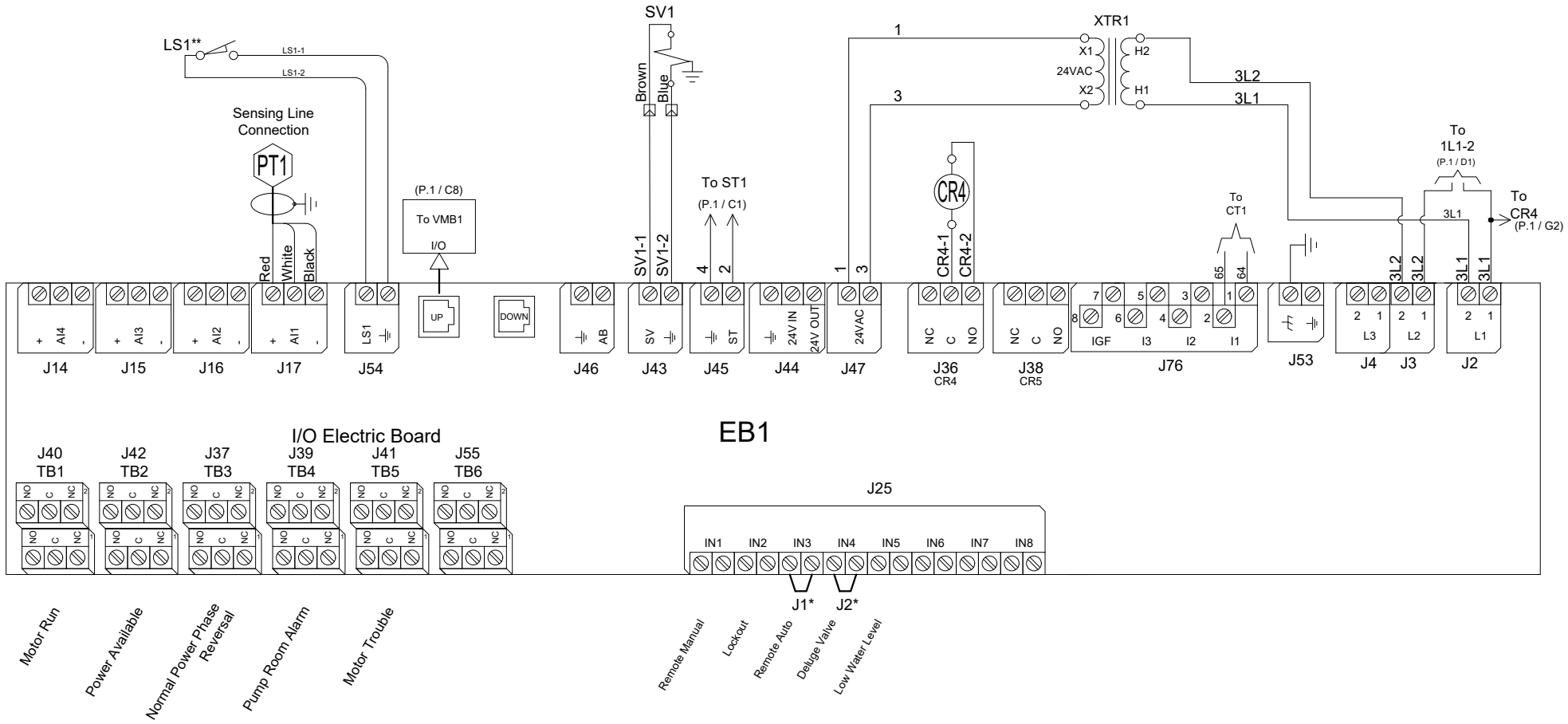
LIMITED SERVICE PUMP CONTROLLER ACROSS THE LINE / 1 PHASE

MODEL: GPL

BUILT TO THE LATEST EDITION OF THE NFPA20 & NFPA70

NYC Dpt of Building Approved

DRAWING NUMBER GPL-WS800/E
DWG REV. 0
SHEET 2 OF 2



* Remove jumper to use this feature
** Contact closes when emergency start is in "ON" position

		BY	DD/MM/YY
DRAWN BY		ACD	28/02/23
FINAL APPROVAL		FC	28/02/23

LIMITED SERVICE PUMP CONTROLLER

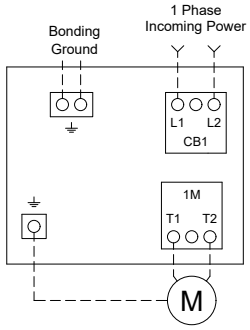
MODEL: GPL

BUILT TO THE LATEST EDITION OF THE NFPA20 & NFPA70

NYC Dpt of Building Approved

DRAWING NUMBER GPL-TD800/E
DWG REV. 0
SHEET 1 OF 1

Power Terminals
Model : GPL 1 Phase



Notes:
1 - For proper wire sizing, refer to NFPA70 and NEC (USA) or CEC (Canada) or local code.
2 - Controller suitable for service entrance in USA.
3 - For more accurate motor connections refer to motor manufacturer or motor nameplate.
4 - Controller is phase sensitive. Incoming lines must be connected in ABC sequence.
5 - Field wiring and lug sizes are based on copper conductors only. Do not use aluminum conductors.

Circuit breaker (CB) Field Wiring according to Bending Space (AWG or MCM). TERMINALS L1 - L2

Bending Space	3 " (76 mm)					
HP / Voltage	1	3	5	7.5	10	15
120	1x (10 to 1)	1x (8 to 1)	1x (6 to 1)	1x (4 to 1)	N/A	N/A
208	N/A	1x (10 to 1)	1x (8 to 1)	1x (6 to 1)	1x (4 to 1)	1x (3 to 1)
220 to 240	N/A	1x (10 to 1)	1x (8 to 1)	1x (8 to 1)	1x (6 to 1)	1x (3 to 1)

(Use Copper Conductors Only)

Wiring Size for motor connection for Model GPL (AWG or MCM). TERMINALS T1 - T2

HP / Voltage	1	3	5	7.5	10	15
120	1x (10 to 1)	1x (8 to 1)	1x (6 to 1)	1x (4 to 1)	N/A	N/A
208	N/A	1x (10 to 1)	1x (8 to 1)	1x (6 to 1)	1x (4 to 1)	1x (3 to 1)
220 to 240	N/A	1x (10 to 1)	1x (8 to 1)	1x (8 to 1)	1x (6 to 1)	1x (3 to 1)

(Use Copper Conductors Only)

Drawing for information only.
Manufacturer reserves the right to modify this drawing without notice.
Contact manufacturer for "As Built" drawing.

TORNATECH

		BY	DD/MM/YY
DRAWN BY		ACD	28/02/23
FINAL APPROVAL		FC	28/02/23

LIMITED SERVICE PUMP CONTROLLER

MODEL: GPL

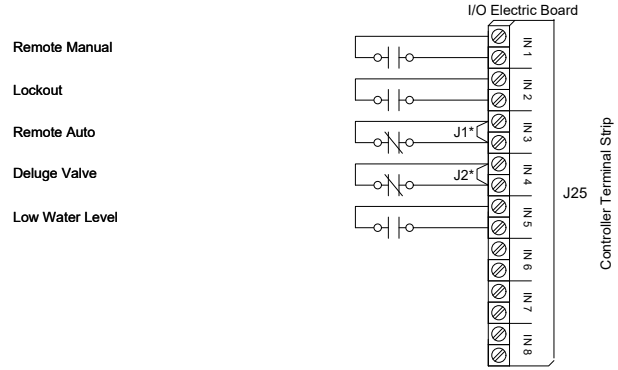
BUILT TO THE LATEST EDITION OF THE NFPA20 & NFPA70

NYC Dpt of Building Approved

DRAWING NUMBER GPX-TD802/E
DWG REV. 0
SHEET 1 OF 1

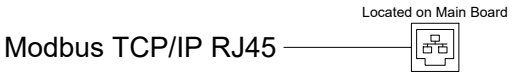
Field Connections

Terminals Wire Size:
24 - 12 AWG
0.5 Nm



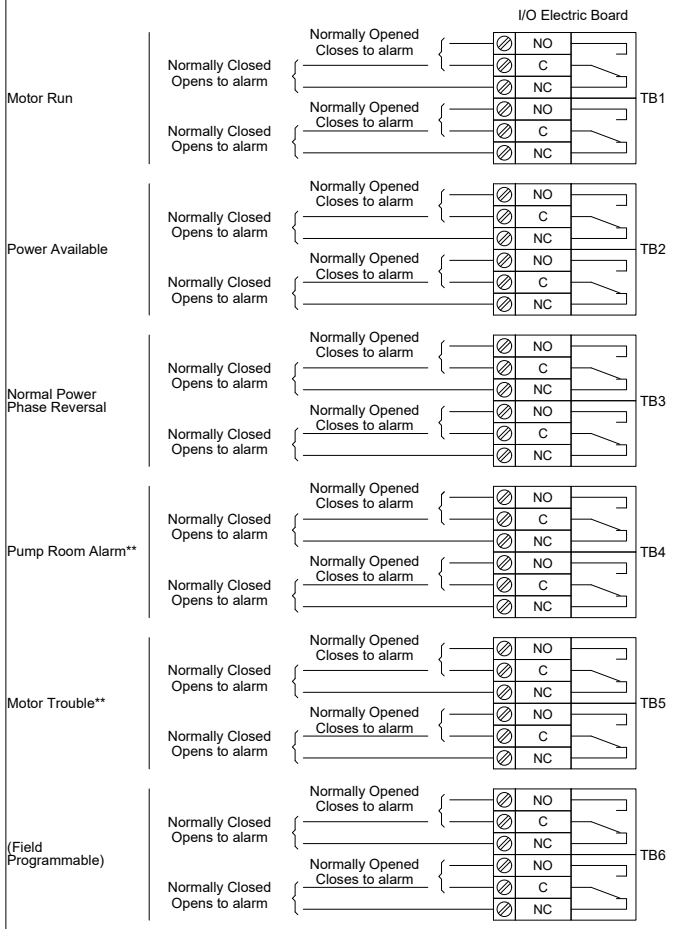
Network Connections

Terminals Wire Size:
Shielded Female Connector RJ45



Alarm Contacts

Terminals Wire Size:
24 - 12 AWG
0.5 Nm



* Remove jumper to use this feature
** Re-assignable

TALCO FIRE SYSTEMS

RESIDENTIAL & COMMERCIAL FIRE PUMP SPECIALISTS
6040 NE 112TH AVE. PORTLAND, OREGON 97220
PHONE: 800-878-8055 WWW.TALCOFIRE.COM

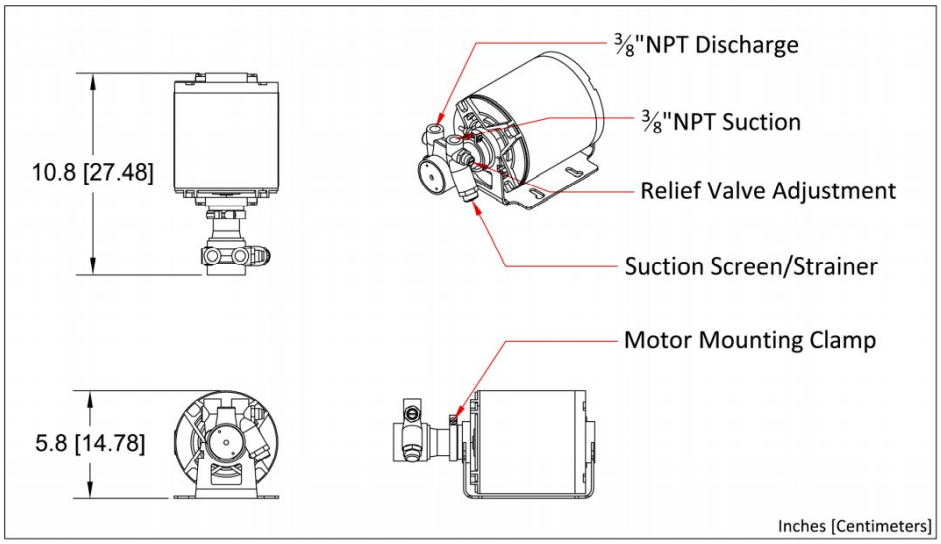
Jockey Pump

(Optional Equipment)

INNOVATIVE PUMP SOLUTIONS

Talco ULV Jockey Pump

- High Quality Rotary Vane Pump
  - 1.8GPM @ 240PSI
- 1/3HP* 200V-240V Electric Motor
  - Resilient Mounted
  - Permanently Lubricated
- Integrated Recirculation Relief Valve
  - Factory Set to 170PSI
  - No External Discharge
- Removable Mesh Suction Strainer
  - Cleanable & Reusable



Dimensions are approximate.
*Motor HP subject to change without notice based on availability.

503-688-1231 www.talcofire.com 6040 NE 112th Ave, Portland OR

TALCO FIRE SYSTEMS

Commercial Pressure Switches

Electromechanical Square D Brand 9013
For power circuits, FRG, FHG, and G

Environmental characteristics

Pressure switch type		FRG	FHG	G
Conformity to standards		UL 508, NEC Article 430-84, ANSI /NSF Standard 61, FDA 21CFR.2600		
Product Certifications		UL File E12158 CCN NKPZ , CSA File LR 25490 Class 321106		
Protective treatment		N/A		
Ambient air temperature	°C	For operation, 0 °C (32 °F) min to 125 °C (257 °F) max For storage, -30 °C (-22 °F) min to 70 °C (158 °F) max		
Fluids controlled		Fresh water, or sea water (with Form Q)		
Materials		Cover: polypropylene, Noryl® thermoplastic resin or equivalent for Type 3R, Component material in contact with fluid: flange, zinc plated or equivalent (fluid entry), nitrile or equivalent rubber (diaphragm)		
Operating position		NEMA Type 1, and Type IP20 in any position, NEMA Type 3R in the vertical position only		
Vibration resistance		—		
Shock resistance		—		
Electric shock protection		—		
Degree of protection		NEMA Type 1, IP20 and NEMA Type 3R (some references) must be mounted in vertical position to maintain enclosure rating		
Operating rate	cycles/m	10		
Repeat accuracy		+/- 3 % of the range		
Fluid connection		1/8" NPSF internal, 1/4" NPSF internal, 1/2"NPT External, 1/4" Bayonet (barbed), 90 deg. Elbow 1/4" Bayonet, Four Way Flange, 3/8" NPSF (Internal), 1/4" Flare, other specials		
Electrical connection		2 open side entries, 3/4" diameter, with two flats		3 Conduit 1/2" Knockouts

Contact block characteristics

Type of contacts		One 2 pole, 2 N/C (4 terminal) contacts, snap action
Resistance across terminals	m Ω	< 25
Terminal referencing		N/A
Short-circuit protection	A	5,000
Connection		Screw clamp terminals. Clamping capacity up to #10 AWG (5.261 mm^2)
Electrical durability	cycles	100,000
Mechanical durability	cycles	300,000

Electrical Ratings

1 Pole

Power ratings of controlled motors

Note:
Type FRG and G are all Form H

▲ Includes
FHG 2, 3, 4, 9, 12, 13, 14, 19, 42, 44, 49

Voltage		FRG ~ 1-phase	FRG ~ 3-phase	FRG ⎓	FHG ▲■ ~ 1-phase	FHG ▲■ ~ 3-phase	FHG ▲■ ⎓	G ~ 1-phase	G ~ 3-phase	G ⎓
32 V		—	—	—	—	—	—	—	—	—
115 V		0.75 kW (1 HP)	—	0.18 kW (.25 HP)	1.1 kW (1.5 HP)	1.5 kW (2 HP)	0.18 kW (.25 HP)	0.75 kW (1 HP)	—	0.37 kW (.50 HP)
230 V		0.75 kW (1 HP)	—	0.18 kW (.25 HP)	1.5 kW (2 HP)	2.2 kW (3 HP)	0.18 kW (.25 HP)	1.5 kW (2 HP)	—	0.37 kW (.50 HP)
460 / 575 V		—	—	—	—	0.75 kW (1 HP)	—	1.5 kW (2 HP)	—	—

2 Pole

Power ratings of controlled motors

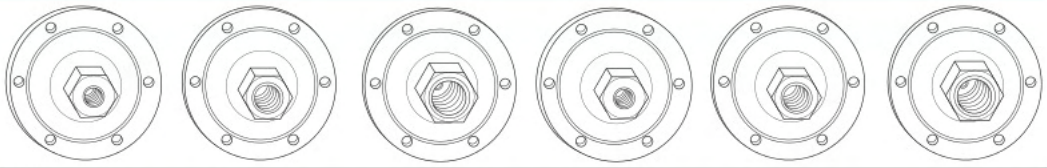
■ Includes
FHG 22, 24, 29, 32, 33, 34, 39, 52, 54, 59

Voltage		FRG ~ 1-phase	FRG ~ 3-phase	FRG ⎓	FHG ▲■ ~ 1-phase	FHG ▲■ ~ 3-phase	FHG ▲■ ⎓	G ~ 1-phase	G ~ 3-phase	G ⎓
32 V		—	—	0.18 kW (.25 HP)	—	—	—	—	—	—
115 V		0.75 kW (1 HP)	0.75 kW (1 HP)	0.18 kW (.25 HP)	1.5 kW (2 HP)	2.2 kW (3 HP)	0.37 kW (.50 HP)	1.5 kW (2 HP)	2.2 kW (3 HP)	0.75 kW (1 HP)
230 V		0.75 kW (1 HP)	0.75 kW (1 HP)	0.18 kW (.25 HP)	2.2 kW (3 HP)	3.7 kW 5 HP)	0.37 kW (.50 HP)	2.2 kW (3 HP)	3.7 kW 5 HP)	0.75 kW (1 HP)
460 / 575 V		—	—	—	—	0.75 kW (1 HP)	—	3.7 kW (5 HP)	3.7 kW (5 HP)	—

Commercial Pressure Switches

Electromechanical Square D Brand 9013
For power circuits G
2-pole 2 N/C contacts
Degree of protection IP20, NEMA Type 1, 7 & 9

Flange Style



Adjustable range of switching point
Contacts open on rising pressure
2 Pole

Fluid connections	1/8" NPSF internal	1/4" NPSF internal	3/8" NPSF internal	1/8" NPSF internal	1/4" NPSF internal	3/8" NPSF internal
References						
NEMA Type 1, IP20	9013GHG1	9013GHG2	9013GHG3			
NEMA Type 7, NEMA Type 9				9013GHR1	9013GHR2	9013GHR3
Fluids / Pressure controlled	Water or Air	Water or Air	Water or Air	Water or Air	Water or Air	Water or Air
Pressure range						
Cut-0ut PSIG (bar)	60-200	60-200	60-200	65-200	65-200	65-200
Cut-In PSIG (bar)	40-170	40-170	40-170	35-150	35-150	35-150
Weight lbs (kg)	2 lbs (0.91)	2 lbs (0.91)	2 lbs (0.91)	8 lbs (3.62)	8 lbs (3.62)	8 lbs (3.62)
Complementary characteristics not shown under general characteristics						
Differential PSIG (bar)	20-40 (1.4-2.8)	20-40 (1.4-2.8)	20-40 (1.4-2.8)	30-50 (2.1-3.5)	30-50 (2.1-3.5)	30-50 (2.1-3.5)
Maximum permissible pressure PSIG (bar)	80 (5.5)	80 (5.5)	80 (5.5)	80 (5.5)	80 (5.5)	200 (13.8)
Mechanical life	300, 000 operating cycles					
Cable entry	3 Conduit 1/2" Knockouts	3 Conduit 1/2" Knockouts	3 Conduit 1/2" Knockouts	2 3/4"-14 NPT	2 3/4"-14 NPT	2 3/4"-14 NPT
Pressure switch type	Diaphragm					

Ordering Information

1 *Specify Class 9013 Type G.*
2 *Select pressure code and add code designation to end of type number. Be sure that pressure code falls within the limits of the device as shown in the device listings.*
3 *If special features are desired, add the appropriate Form letter to the Class and Type. Arrange Form letters in alphabetical sequence when ordering more than one special feature.*
4 *Place packaging code at end of sequence with other forms when ordering.* If no packaging code is indicated, devices will be shipped individually packaged.
For standard pack of 10 devices per box C10
Available on GHB, GHG, GSB, and GSG

See page 25 for Form C10.

Pressure Codes

Below is the pressure code table.
Existence of a code does not imply that the code is available for any or all devices.

Settings	**Code**
20-40 PSI	J20
30-50 PSI	J21
40-20 PSI	J23
40-60 PSI	J24
60-80 PSI	J25
70-90 PSI	J26
70-100 PSI	J28
75-100 PSI	J29
80-100 PSI	J30
90-120 PSI	J31
100-80 PSI	J51
100-125 PSI	J53
110-125 PSI	J54
110-150 PSI	J56
120-150 PSI	J57
125-150 PSI	J58
125-175 PSI	J60
130-175 PSI	J61
140-170 PSI	J66
140-175 PSI	J62
145-175 PSI	J63
150-120 PSI	J64
150-175 PSI	J67
215-250 PSI	J65
Specify pressure settings	J99

TALCO FIRE SYSTEMS

RESIDENTIAL & COMMERCIAL FIRE PUMP SPECIALISTS
6040 NE 112TH AVE. PORTLAND, OREGON 97220
PHONE: 800-878-8055 WWW.TALCOFIRE.COM

Valves & Fittings

Reliable®

Model L399 OS&Y Gate Valve

cULus Listed, FM Approved

Product Description

The Reliable Model L399 OS&Y Gate valves are UL Listed and FM Approved resilient seated indicating control valves for fire protection systems. Reliable L399 OS&Y Gate Valves are available with grooved outlets that conform to AWWA C606 / ISO 6182-12, ANSI/ASME B16.1 flanged outlets compatible with both Class 150 and Class 125 flanges, and ISO 7005-1 flanged outlets compatible with both PN10 and PN16 flanges. They are available in 2" (50mm), 2-1/2" (65mm), 3" (80mm), 4" (100mm), 6" (150mm), 8" (200mm), 10" (250mm), and 12" (300mm) nominal sizes. The valves are listed for 300 psi (20.7 bar) working pressure. Verify that appropriate end connections and fittings are used for the system pressure prior to installation.

Maintenance

The owner is responsible for maintaining the fire protection system in proper operating condition. Any system maintenance or testing that involves placing a control valve out of service will eliminate the fire protection that is provided by the fire protection system.

The Reliable OS&Y Gate valves and associated equipment shall periodically be given a thorough inspection and test. NFPA 25, "Inspection, Testing and Maintenance of Water Based Fire Protection Systems," provides minimum maintenance requirements.

Ordering Information

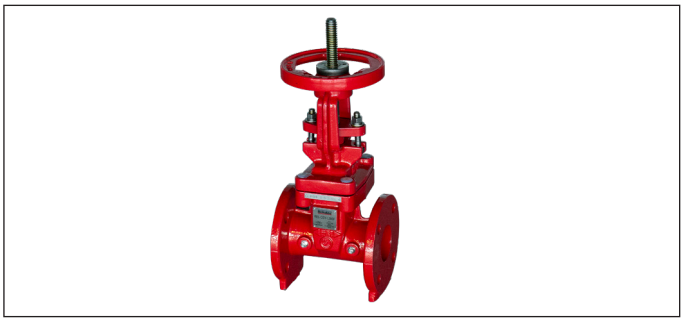
Specify the following when ordering:

Reliable Model L399 OS&Y Gate Valve

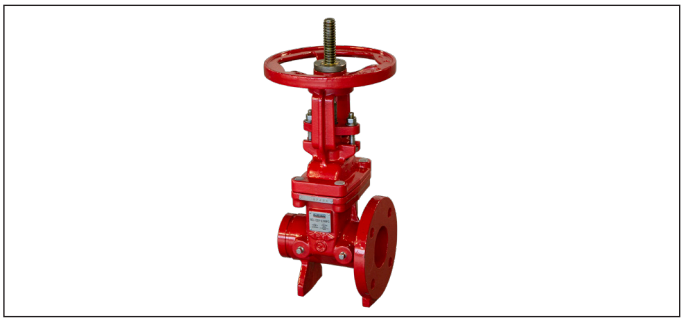
Valve Size

End Connection

- Flange x Flange
- Flange x Groove
- Groove x Groove



Flange x Flange



Flange x Groove

Groove x Groove

Guarantee

For Reliable Automatic Sprinkler Co., Inc. guarantee, terms, and conditions, visit www.reliablesprinkler.com.

End Configuration Options **Table A**

Model	End Connections	Sizes in (mm)	Approvals
REL-OSY-L399F	Flange x Flange	2" (50), 2-1/2" (65), 3" (80), 4" (100), 6" (150), 8" (200), 10" (250), 12" (300)	cULus Listed, FM Approved
REL-OSY-L399FG	Flange x Groove		
REL-OSY-L399GG	Groove x Groove		

OS&Y Gate Valves

Technical Specifications
Pressure Rating:
300 psi (20.7 bar)

Material Specifications
Body: Ductile Iron A536 65-45-12
Wedge: Ductile Iron EPDM Coated
Wedge Nut: Stainless Steel AISI 304
Stem: Stainless Steel AISI 304
Bonnet: Ductile Iron A536 65-45-12
Gasket: EPDM Commercial
Packing: Graphite
Stem Nut: Bronze ASTM B62
Handwheel: Ductile Iron A536 65-45-12

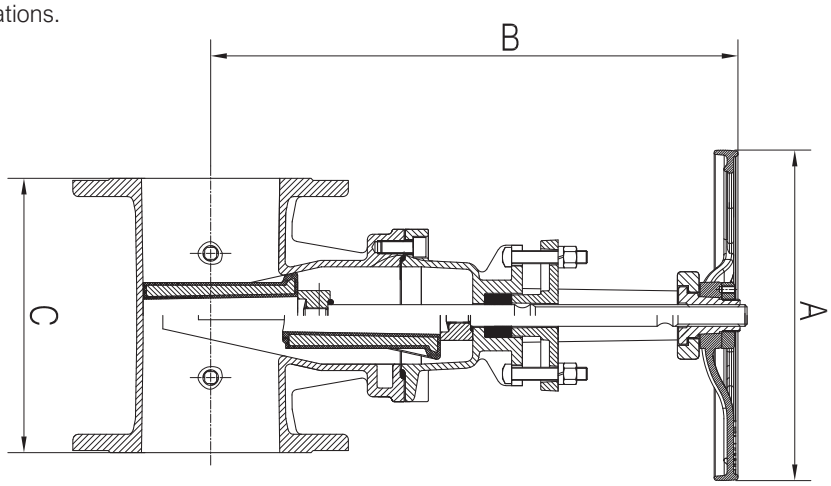
End Connections
Groove x Groove
Flange x Groove
Flange x Flange

Specifications
Groove: AWWA C606 / ISO 6182-12
ANSI/ASME Flanges: ANSI/ASME B16.1
Class 125 / 150 with raised face
ISO Flanges: ISO 7005-1 PN10 / PN16 with raised face

Listings and Approvals
cULus Listed
FM Approved

Reliable OS&Y Gate Valve Dimensions — **Figure 1**

Note: Flanged valve shown. Dimension C (end to end) is the same for all end configurations.



Reliable OS&Y Gate Valve Dimensions - in. (mm) — **Table B**

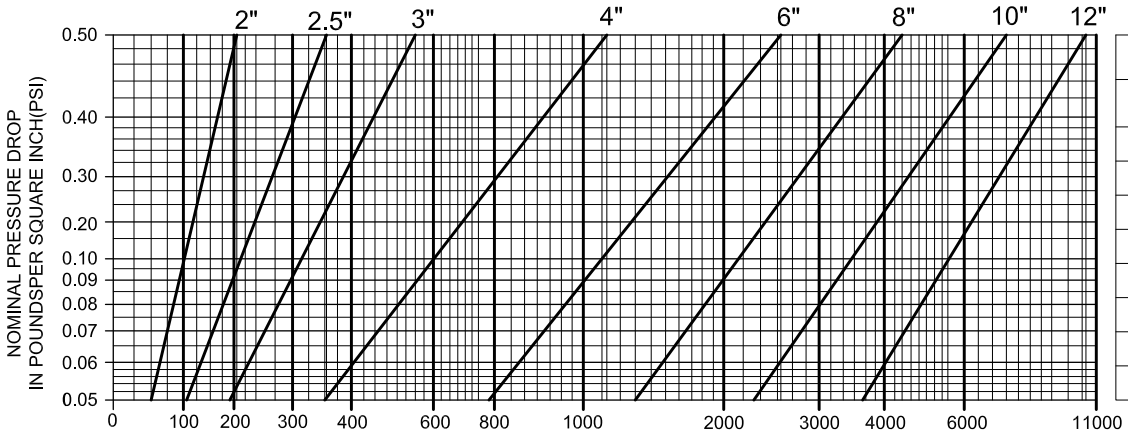
Valve Size	A	B	C	Tap Size	Approximate Number of Handwheel Turns from Open to Close
2” (50)	7-3/16” (183)	16-3/16” (411)	7” (178)	1/2” NPT	12
2-1/2” (65)	7-3/16” (183)	16-3/16” (411)	7-1/2” (191)	1/2” NPT	16
3” (80)	9-15/16” (253)	18-3/16” (462)	8” (203)	1/2” NPT	16
4” (100)	9-15/16” (253)	20-1/4” (514)	9” (229)	1/2” NPT	20
6” (150)	12-1/16” (306)	27-15/16” (709)	10-1/2” (267)	3/4” NPT	30
8” (200)	14” (355)	36-1/3” (922)	11-1/2” (292)	3/4” NPT	33
10” (250)	17-1/2” (445)	43-15/16” (1116)	13” (330)	1” NPT	41
12” (300)	17-1/2” (445)	51-3/16” (1300)	14” (356)	1” NPT	50

Note: Model L399 OS&Y valves manufactured before August 2022 may have a 1/4” FNPT tap on all sizes of valves.

Reliable OS&Y Gate Valve Weights **Table C**

Valve Size in (mm)	FLG x FLG lbs (kg)	FLG x GRV lbs (kg)	GRV x GRV lbs (kg)
2” (50)	33.9 (15.4)	33.8 (15.4)	25.9 (11.8)
2-1/2” (65)	39.8 (18.1)	35.5 (16.1)	29.7 (13.5)
3” (80)	46 (20.9)	41.2 (18.7)	34.8 (15.8)
4” (100)	58.4 (26.6)	48.7 (22.1)	38 (17.3)
6” (150)	99.9 (45.4)	86.4 (39.3)	71.9 (32.7)
8” (200)	183.2 (83.3)	171.2 (77.8)	147.6 (67.1)
10” (250)	230.2 (104.7)	211.6 (96.2)	181.7 (82.6)
12” (300)	386.8 (175.8)	359.7 (163.5)	308.4 (140.2)

Friction Loss **Figure 2**



Cv Gate Valve	
Nominal Diameter (Inches)	Cv
2"	301
2.5"	500
3"	796
4"	1579
6"	3552
8"	6314
10"	10465
12"	15069

Supervisory Switch Compatiblity

Reliable Model L399 OS&Y gate valves are compatible with multiple supervisory switches manufactured by others. These switches are designed to monitor the valve in a normally open condition and utilize a preexisting groove machined in the valve stem during manufacture. Reliable Model L399 OS&Y gate valve are provided with this groove and should not require any modification to the valve stem in order to install the supervisory switch. All sizes of Reliable Model L399 OS&Y gate valve are compatible with the following supervisory switches:

- Potter® OSYSU Series Supervisory Switch
- Potter® OSYSU-CRH Series Supervisory Switch
- Potter® OSYSU-EX Series Supervisory Switch
- Potter® OSYSU-EX-O Series Supervisory Switch
- Safe Signal® OSY2 Series Supervisory Switch
- Safe Signal® OSY2A Series Supervisory Switch
- Safe Signal® OSYEXP Series Supervisory Switch

P/N 9999970583

POTTER
The Symbol of Protection

OSYSU Series

Outside Screw and Yoke Valve Supervisory Switch

Features

- NEMA 4X* (IP 65) and 6P (IP 67)

  **Enclosure is 4X. For additional corrosion protection of mounting hardware, use model OSYSU-2 CRH*
- -40º to 140º (-40ºC to 60ºC) operating temperature range
- Visual switch indicators
- Two conduit entrances
- Adjustable length trip rod
- Accomodates up to 12AWG wire
- Three position switch detects tampering and valve closure
- Knurled mounting bracket prevents slipping
- Fine adjustment feature for fast, easy installation
- RoHS compliant
- One or two SPDT contact models (-1,-2)

NOTICE

Before any work is done on the fire sprinkler or fire alarm system, the building owner or their authorized representative shall be notified. Before opening any closed valve, ensure that opening the valve will not cause any damage from water flow due to open or missing sprinklers, piping, etc.

Important: This document contains important information on the installation and operation of OS&Y valve supervisory switches. Please read all instructions carefully before beginning installation. A copy of this document is required by NFPA 72 to be maintained on site.

Description

The OSYSU is used to monitor the open position of an OS&Y (outside screw and yoke) type gate valve. This device is available in two models; the OSYSU-1, containing one set of SPDT (Form C) contacts and the OSYSU-2, containing two sets of SPDT (Form C) contacts. These switches mount conveniently to most OS&Y valves ranging in size from 2" to 12" (50mm to 300mm). They will mount on some valves as small as ½" (12,5mm).
The cover is held in place by two tamper resistant screws that require a special tool to remove. The tool is furnished with each device.

Testing

The operation of the OSYSU and its associated protective monitoring system shall be inspected, tested, and maintained in accordance with all applicable local and national codes and standards and/or the Authority Having Jurisdiction (manufacturer recommends quarterly or more frequently). A minimum test shall consist of turning the valve wheel towards the closed position. The OSYSU shall operate within the first two revolutions of the wheel. Fully close the valve and ensure that the OSYSU does not restore. Fully open the valve and ensure that the OSYSU restores to normal only when the valve is fully opened.

⚠ CAUTION

Close the valve fully to determine that the stem threads do not activate the switch. The switch being activated by the stem threads could result in a ***false valve open*** indication.

Technical Specifications

Dimensions	See Fig 8
Weight	1.6 lbs (0,73 kg)
Enclosure	Cover: Die Cast Finish: Red Powder Coat Base: Die Cast Finish: Black Powder Coat All parts have corrosion resistant finishes
Cover Tamper	Tamper Resistant Screws Optional Cover Tamper Switch Available
Contact Ratings	OSYSU-1: One Set of SPDT (Form C) OSYSU-2: Two Sets of SPDT (Form C) 10.0 Amps at 125/250 VAC 2.0 Amps at 30VDC Resistive 10 mAmps minimum at 24 VDC
Environmental Limitations	-40º F to 140ºF (-40ºC to 60ºC) NEMA 4X (IP 65) and NEMA 6P (IP 67) Enclosure (Use suitably rated conduit and connector) Indoor or Outdoor Use (See OSYSU-EX Bulletin 5400705 for Hazardous locations)
Conduit Entrances	Two Knockouts for 1/2" conduit provided (See Notice on Page 6 and Fig. 9 on Page 5)
Service Use	NFPA 13, 13D, 13R, 72

Specifications subject to change without notice

Reliable®

Model BFG-300 Supervised Butterfly Valve Grooved

cULus Listed, FM Approved

Product Description

The Reliable Model BFG-300 Supervised Butterfly valves are cULus Listed and FM Approved for fire protection systems. Reliable Supervised Butterfly Valves valves have AWWA C606 grooved end connections. They are available in 2-1/2" (65mm), 3" (80mm), 4" (100mm), 6" (150mm), and 8" (200mm) nominal sizes. The valves are listed for 300 psi (20.7 bar) working pressure. The maximum working temperature for the valves is 250°F (120°C).

Maintenance

The owner is responsible for maintaining the fire protection system in proper operating condition. Any system maintenance or testing that involves placing a control valve out of service will eliminate the fire protection that is provided by the fire protection system.

The Reliable Supervised Closed Butterfly valves and associated equipment shall periodically be given a thorough inspection and test. NFPA 25, "Inspection, Testing and Maintenance of Water Based Fire Protection Systems," provides minimum maintenance requirements.

Guarantee

For Reliable Automatic Sprinkler Co., Inc. guarantee, terms, and conditions, visit www.reliablesprinkler.com.

Supervised Grooved Butterfly Valve - Supervised Open

Supervised Grooved Butterfly Valve - Supervised Closed

Ordering Information

Specify the following when ordering:

Model BFG-300 Butterfly Valve

Supervision

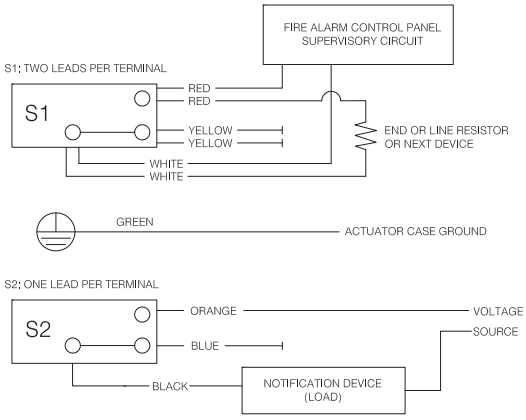
- Valve Supervised Open (yellow indicator)
- Valve Supervised Closed (white indicator)

Valve Size

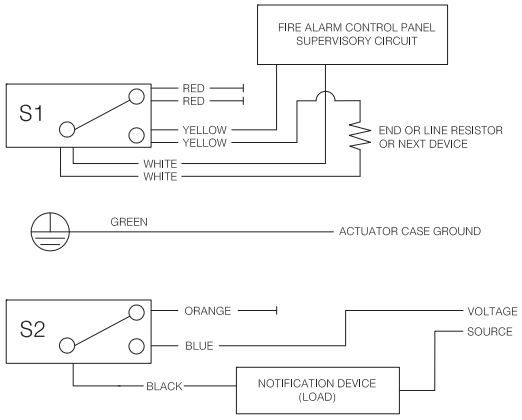
- 2-1/2" (65mm)
- 3" (80mm)
- 4" (100mm)
- 6" (150mm)
- 8" (200mm)

Reliable Supervised Butterfly Valve Wiring Diagram - Valve in Supervised Position **Figure 1**

Supervised Normally Open Valve



Supervised Normally Closed Valve



Notes: Rated: 5A-1/6HP-125/250VAC
0.5A - 125VDC
0.25A - 250DC

Check Valves

UL LISTED AND FM APPROVED

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LISTED VALVE NOW AVAILABLE IN 1½" SIZE

- Brass Body* (C38000) for superior corrosion resistance
- Listed valves available in the following sizes: 1 ½"**, 2", 2 ½", 3" and 4"
- Available Grooved, Threaded, or Thread by Groove reducing the need for additional fittings and minimizing installation time.
- Pressure rated to up to 300 PSI
- Tapped and plugged for easy use of accessories such as ball drips or gauges

c UL us LISTED

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*Contains lead. Not for use in water systems intended for human consumption.
**1 ½" size is UL/ULc listed only

TALCO FIRE SYSTEMS

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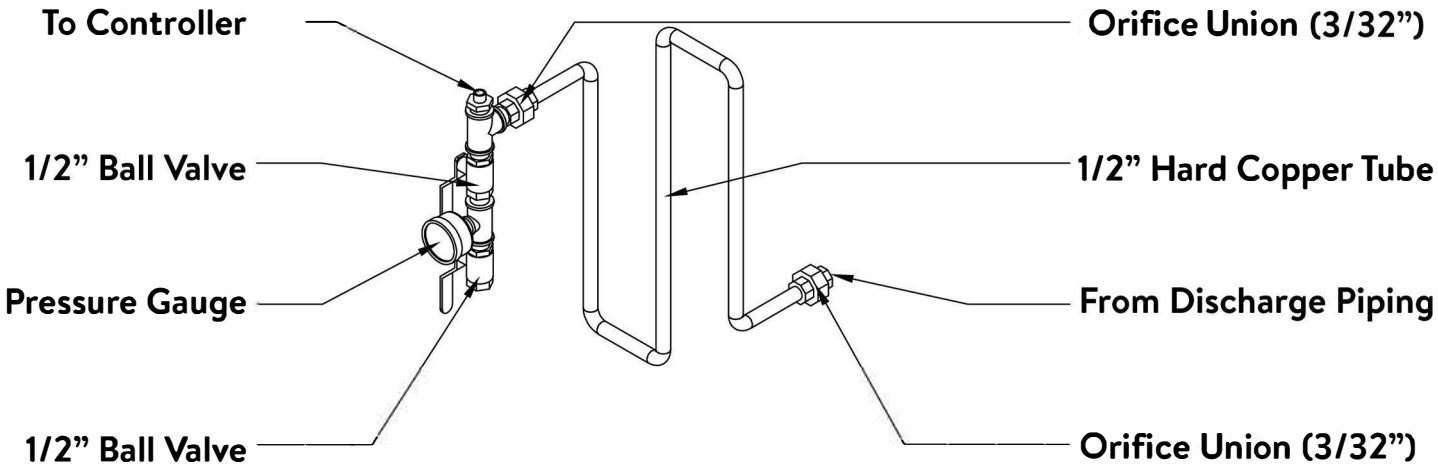
NFPA20 Sensing Line Detail



Pressure Sensing Lines constructed in accordance with NFPA 20: All brass or copper components, orifice unions at connections to both discharge piping & controller valve assembly, minimum 60" hard copper tubing between unions.