MechantekCorp MurphyTechnical

Your fire pump partner for over 20 years.

Submittal

Fire Pump System

Date: 2-29-2024
P1551-11644 Rev01

Job:	Homewood Suites -Puyallup, WA	Discount Fire Protection McBride, Tim
Prepared By:	Lupe Godinez (817) 756-7473 x305	

	Items Included
1	FP Curve: 3PVF8, Peerless Pumps Series PVF, VIL,125#/125#, 3-in/3-in
2	FP Dimensions: 3PVF8, Peerless Pumps Series PVF, VIL,125#/125#, 3-in/3-in
3	FP Driver: 30 HP, 3600 RPM, 200v/3Ph/60Hz, ODP, High Eff Electric Motor
4	FP controller: Tornatech GPA, Full Svc - Across The Line, No ATS
5	Casing Relief Valve: Cla-Val 3/4" 55L, 20-300 psig
6	Hose Test Header: 3" x 1-Way, Valve/Cap/Chain, Standard
7	Jockey Pump Vertical 3/4 HP & Controller w/ Minimum Run Timer
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Other Information

Please contact us at 817.430.2400 with any questions or comments.

Pump Performance Datasheet

Customer	: Mechantek Corp	Quote Number / ID	: P1551-11644
Customer ref. / PO	:	Peerless Model	: 3PVF8
Tag Number	: Rev01	Stages	: 1
Service	:	Based on curve number	: 3PVF8-3500 Rev FEB 2022
Quantity	: 1	Date last saved	: 29 Feb 2024 7:37 PM

Operating Conditions

Flow, rated	: 200 USgpm
Differential head / pressure, rated (requested)	: 100.00 psi
Differential head / pressure, rated (actual)	: 100.2 psi
Suction pressure, rated / max	: 60.00 / 70.00 psi.g
NPSH available, rated	: Ample
Site Supply Frequency	: 60 Hz

NFPA Limits

Speed, rated	: 3500 rpm
Impeller diameter, rated	: 7.83 in
Impeller diameter, maximum	: 8.00 in
Impeller diameter, minimum	: 5.73 in
Flow, rated	: 200 USgpm
Head, rated	: 100.2 psi
Power, rated	: 23.6 hp
Power required at 150% flow	: 27.4 hp
Peak power	: 32.3 hp
Efficiency, rated	: 49.47 %
Flow at 150%	: 300 USgpm
Head at 150%, actual/limit	: 93.97 / 65.00 psi
Head at shutoff, actual/limit	: 101.6 / 140.0 psi

Liquid

Liquid type	: Cold Water
Additional liquid description	:
Solids diameter, max	: 0.00 in
Solids concentration, by volume	: 0.00 %
Temperature, max	: 68.00 deg F
Fluid density, rated / max	: 1.000 / 1.000 SG
Viscosity, rated	: 1.00 cP
Vapor pressure, rated	: 0.34 psi.a

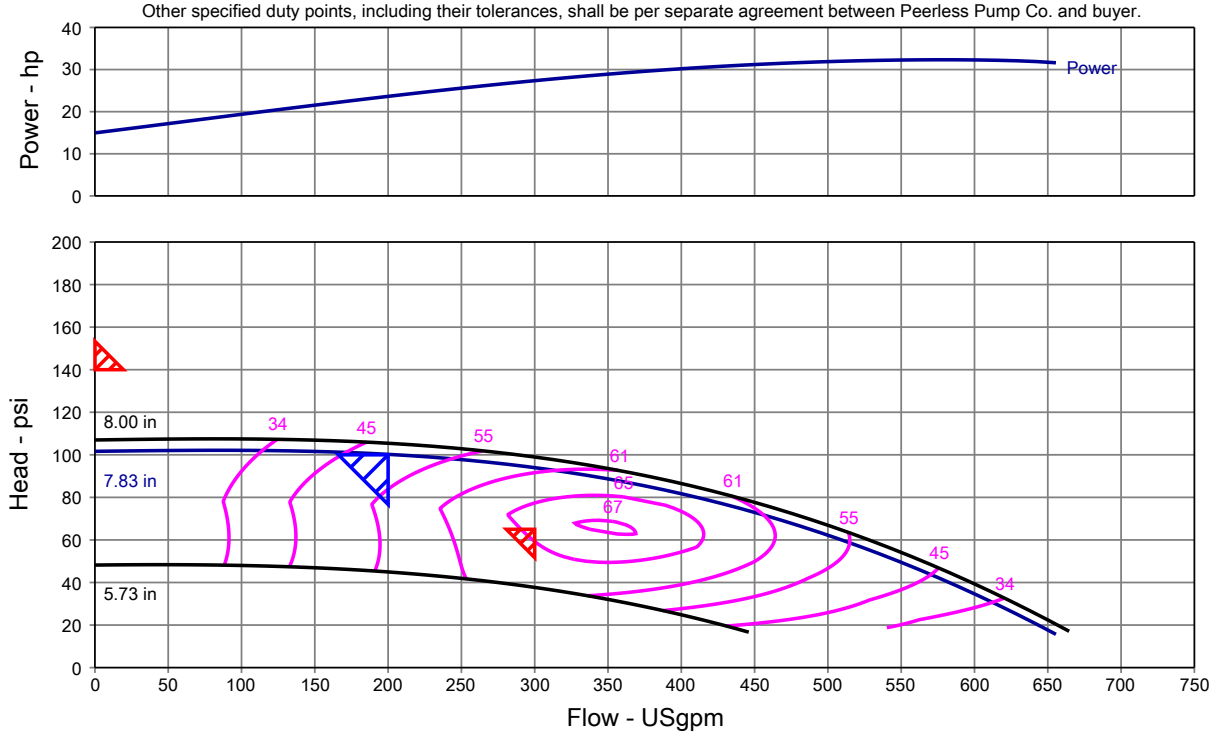
Material

Material selected	: Cast Iron

Pressure Data

Maximum working pressure	: 172.1 psi.g
Maximum allowable working pressure	: 175.0 psi.g
Maximum allowable suction pressure	: N/A
Hydrostatic test pressure	: N/A

Performance based on test acceptance - Hyd Inst 14.6 Unilateral (1U)
The rated point is the only guaranteed point (within the specified HI grade) on the performance curve.
The published closed valve head has a +6% tolerance.
Other specified duty points, including their tolerances, shall be per separate agreement between Peerless Pump Co. and buyer.



Pump Performance Curve

Performance based on test acceptance - Hyd Inst 14.6 Unilateral (1U)
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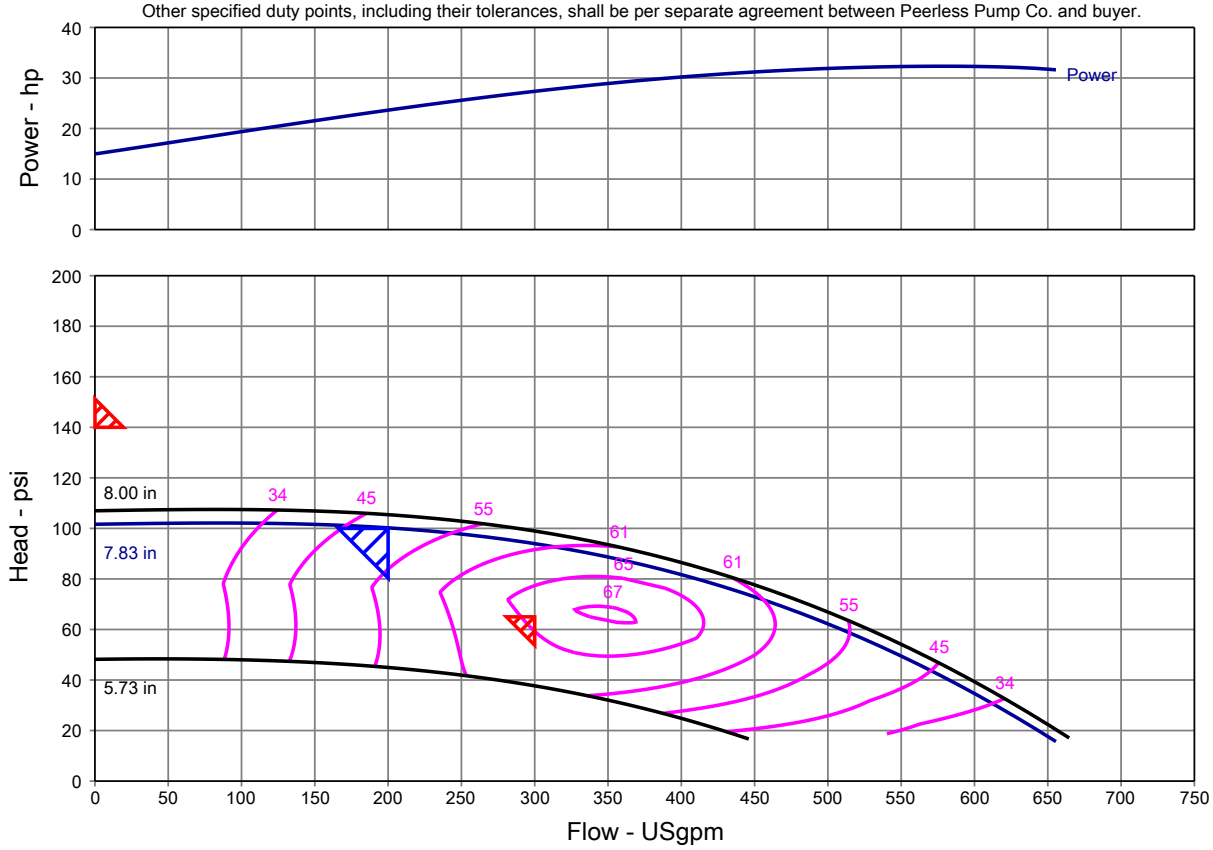


Customer	: Mechantek Corp	Peerless Model	: 3PVF8
Customer ref. / PO	:	Stages	: 1
Tag Number	: Rev01	Speed, rated	: 3500 rpm
Service	:	Based on curve number	: 3PVF8-3500 Rev FEB 2022
Quantity	: 1	Efficiency	: 49.47 %
Quote Number / ID	: P1551-11644	Rated power (based on duty point)	: 23.6 hp
Date last saved	: 29 Feb 2024 7:37 PM	Max power (non-overloading)	: 32.3 hp
Flow, rated	: 200 USgpm	NPSH required	: -
Differential head / pressure, rated	: 100.00 psi	Viscosity	: 1.00 cP
Fluid density, rated / max	: 1.000 / 1.000 SG	Cq/Ch/Ce/Cn [ANSI/HI 9.6.7-2010]	: 1.00 / 1.00 / 1.00 / 1.00

Flow (USgpm)	Head (psi)	Efficiency (%)	Power (hp)	NPSHr (ft)	Thrust, total (lbf)
0	101.6	0.00	15.0	-	-
73	102.1	23.87	18.2	-	-
146	101.7	40.45	21.4	-	-
219	99.45	52.00	24.4	-	-
291	94.73	59.48	27.1	-	-
364	86.88	63.00	29.3	-	-
437	75.39	62.09	31.0	-	-
510	59.87	55.67	32.0	-	-
583	40.01	42.08	32.3	-	-
656	15.65	18.93	31.6	-	-

Construction Datasheet

Customer	: Mechantek Corp	Quote Number / ID	: P1551-11644
Customer ref. / PO	:	Service	: -
Tag Number	: Rev01	Date last saved	: 29 Feb 2024 7:37 PM
Pump Model	: 3PVF8	Quantity	: 1

Construction

Direction of Rotation (viewed from drive end)	Clockwise (RH)
Suction Flange Diameter	3.00 in
Suction Flange Rating	125lb ANSI Flat faced
Discharge Flange Diameter	3.00 in
Dicharge Flange Rating	125lb ANSI Flat faced
Impeller Diameter	7.83 in
Maximum Working Pressure	172.1 psi.g
Pump Seal	Packing seal

Materials

Pump Casing	Cast Iron
Impeller	Silicon Brass
Pump Shaft	Carbon steel
Shaft Sleeve	Bronze with O-ring
Case Ring	Bismuth tin bronze
Impeller wear ring	Integral
Paint	Peerless Fire Red

Electric Motor Information

Motor Type	Foot Mount J Frame
Manufacturer	WEG
Material Number	99845615
Manufacturer catalog number	03036OP3VFP284JPV-W4
Rated power	30.0 hp
Derated power	34.5 hp
Installation elevation	0.00 in
Installation temperature (max)	99.00 deg F
Voltage	200 V
Phase	3
Frequency	60 Hz
Rated speed	3600 rpm
Number of Poles	2
Service Factor	1.15
Starting Method	Direct-on-line
Frame Size	284JPV
Enclosure	ODP
Efficiency Class	IE2

Listings and Approvals

UL	Yes
FM	Yes
ULC	No
CE	No
NSF61	No
NSF61	No

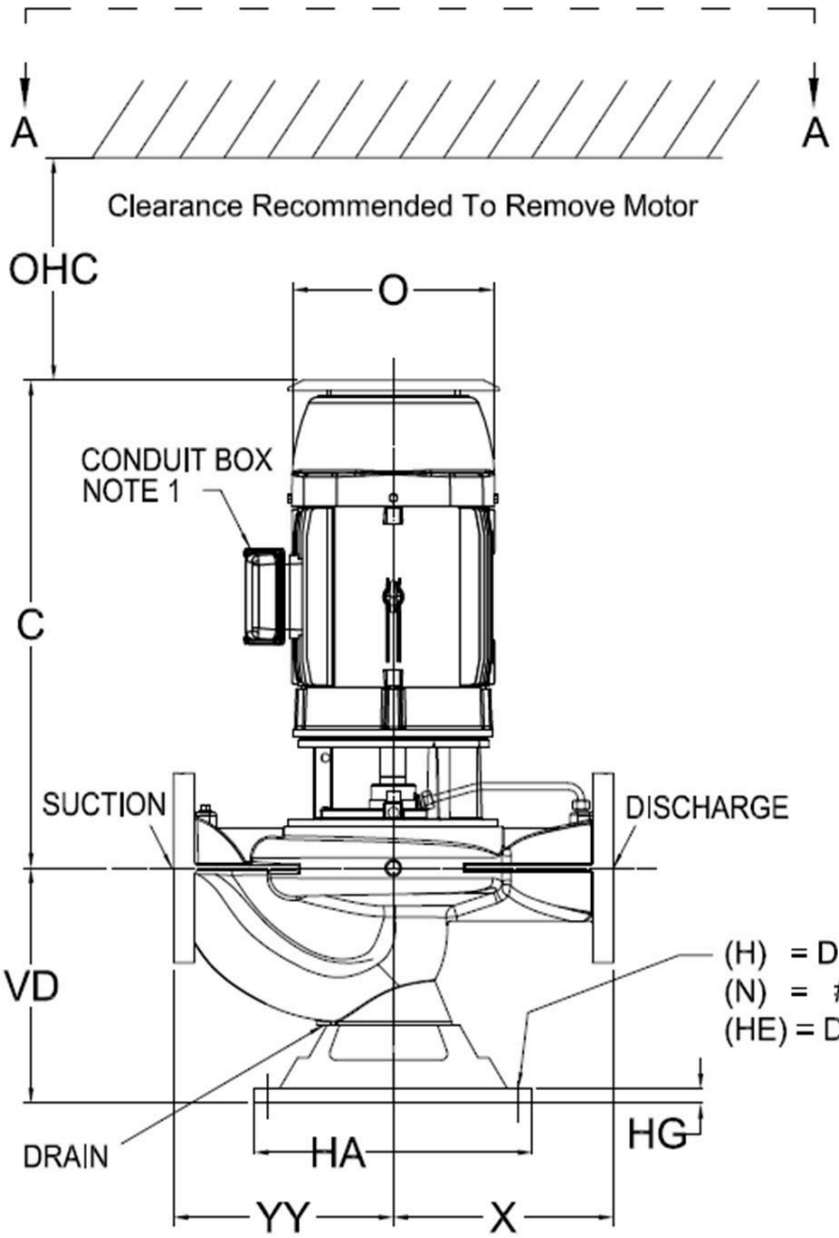
Testing

Hydraulic performance test	Non-witnessed per HI 14.6 1U
Hydrostatic test	Non-witnessed
Curve approval	No
NPSH test	N/A
String test	N/A
Test w/ motor	No

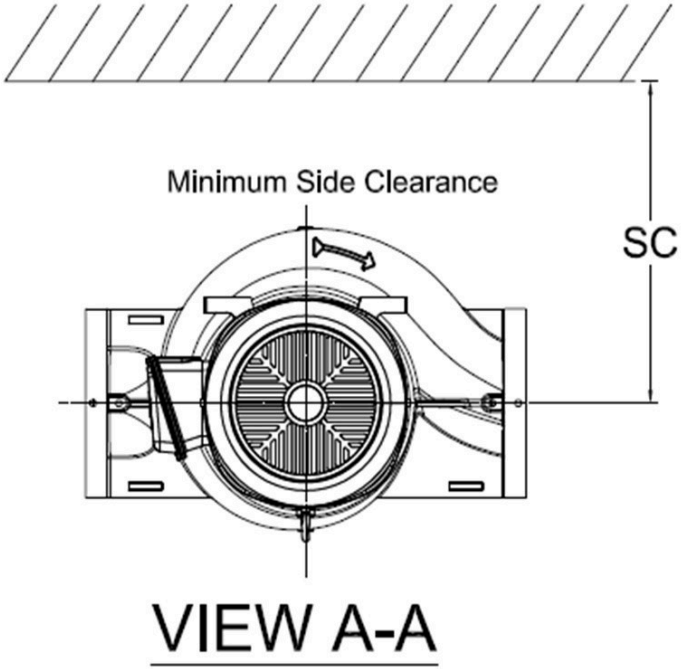
Approximate Weights

Complete pump	119 lb
Driver	364 lb

General ArrangementGeneral Arrangement



Installing Contractor(s) To Install Equipment In Accordance With Latest Editions Of National Electric Code, Local Codes And NFPA Pamphlet No. 20 Applicable TO Fire Pump Installations.



NOTE 1
CONDUIT BOX IS LOCATED 45 DEG FROM SUCTION WHEN VIEWED FROM TOP AND MAY BE ROTATED IN 90 DEG INCREMENTS

GENERAL	
Pump Model	3PVF8
Listing / Approval	FM/UL Listed
Rated Flow	200 USgpm
Liquid	Cold Water
Rated Pressure	100.00 psi
Specific Gravity	0.99824
Rated Speed	3500 rpm
MOTOR	
Manufacturer	WEG
Enclosure	ODP
Hp	30.0 hp
Frame	284JPV
Volt/Ph/Hz	200V / 3Ph / 60Hz
Service Factor	1.15
Customer	Mechantek Corp
Quote No.	P1551-11644
Item No.	Rev01
Project	Homewood Suites
Date	29 Feb 2024

OHC	6.00 in	**HA**	10.00 in	**SC**	18.00 in	**Discharge**	3.00 in
O	15.75 in	**HG**	0.56 in	**H**	0.50 in	**Suction**	3.00 in
C	39.00 in	**YY**	9.50 in	**N**	4.00 in		
VD	8.94 in	**X**	8.50 in	**HE**	8.88 in		

DATA SHEET

Three Phase Induction Motor - Squirrel Cage

Customer	:

Product line	: W40 JP Pump High Efficiency Three-Phase	Product code :	14830168
		Catalog # :	03036OP3VFP284JPV-W4

Frame	: 284/6JP	Locked rotor time	: 28s (cold) 16s (hot)
Output	: 30 HP (22 kW)	Temperature rise	: 80 K
Poles	: 2	Duty cycle	: Cont.(S1)
Frequency	: 60 Hz	Ambient temperature	: -20°C to +40°C
Rated voltage	: 200/400 V	Altitude	: 1000 m.a.s.l.
Rated current	: 80.3/40.1 A	Protection degree	: IP23
L. R. Amperes	: 498/249 A	Cooling method	: IC01 - ODP
LRC	: 6.2x(Code G)	Mounting	: W-6
No load current	: 25.3/12.7 A	Rotation[1]	: Both (CW and CCW)
Rated speed	: 3540 rpm	Starting method	: Direct On Line
Slip	: 1.67 %	Approx. weight[3]	: 325 lb
Rated torque	: 43.9 ft.lb		
Locked rotor torque	: 170 %		
Breakdown torque	: 260 %		
Insulation class	: F		
Service factor	: 1.15		
Moment of inertia (J)	: 1.59 sq.ft.lb		
Design	: B		

Output	25%	50%	75%	100%
Efficiency (%)	90.0	90.2	91.0	91.0
Power Factor	0.50	0.74	0.83	0.87

Foundation loads

Max. traction

Max. compression

		Drive end	Non drive end
Bearing type	:	6311 Z C3	6211 Z C3
Sealing	:	Without Bearing Seal	Without Bearing Seal
Lubrication interval	:	11517 h	14226 h
Lubricant amount	:	18 g	11 g
Lubricant type	:	Mobil Polyrex EM	

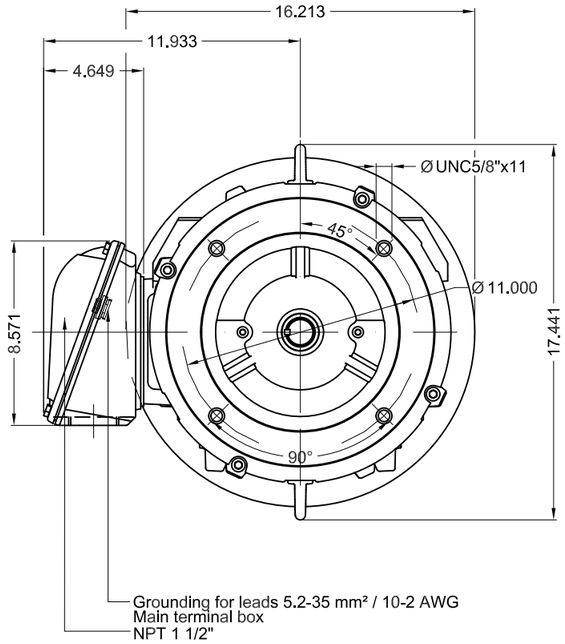
Notes

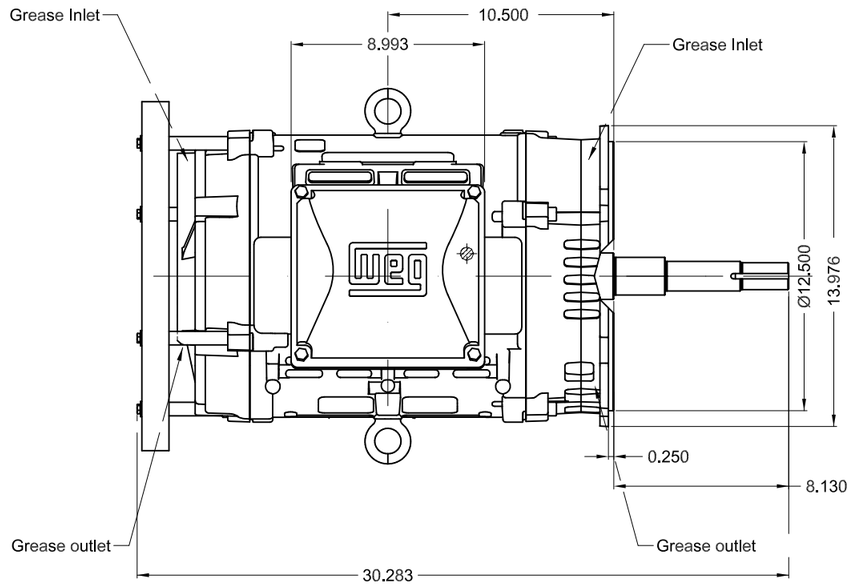
This revision replaces and cancel the previous one, which must be eliminated.
(1) Looking the motor from the shaft end.
(2) Measured at 1m and with tolerance of +3dB(A).
(3) Approximate weight subject to changes after manufacturing process.
(4) At 100% of full load.

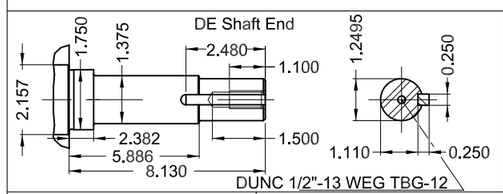
These are average values based on tests with sinusoidal power supply, subject to the tolerances stipulated in NEMA MG-1.

Rev.	Changes Summary	Performed	Checked	Date

Performed by				
Checked by			Page	Revision
Date	05/02/2020		1 / 1	







Color RAL 3002
Painting plan 203A
Mounting NEMA W-6
Mounting V18

30 HP 02 Poles 60Hz | A

					ESC	1:7	
ECM	LOC	SUMMARY OF MODIFICATIONS	EXECUTED	CHECKED	RELEASED	DATE	VER

EXECUTED	PIRWBUSER	THREE PHASE W40 MOTOR HIGH EFF	PREVIEW
CHECKED		FRAME 284/6JP IP23 ODP	WDD
RELEASED			
REL DT.		WMO Jaragua do Sul Product Engineering	SHEET 1 / 1

Dimensions in inches
XME A3

WEG W40

CC029A

Inverter Duty Motor

68YN LISTED EX5990 FIRE PUMP MOTOR

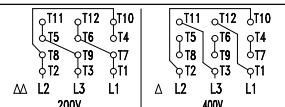
MOD.T01#FOX0H

C SP US Energy Verified

For use on PWM, VT 1000:1, CT 3:1, 1.0SF

MODEL 030360P3VFP284JPV-W4
MADE IN BRAZIL
14830168

PH 3	FR 284/6JP	HP(kW) 30.0(22.0)	Hz 60
V 200/400	A 80.3/40.1		IP23
NEMA NOM EFF	91.0 %	RPM 3540	
ENCL ODP	DUTY CONT.	INS. CL. F	ΔT 80 K
PF 0.87	DES B	CODE G	AMB. 40°C
SF 1.15	SFA 92.3/46.1	ALT 1000 m.a.s.l.	



DE → 6311-Z-C3

NDE → 6211-Z-C3

MOBIL POLYREX EM

18 g 11517 h

324 Lbs

TORNATECH

Project: Homewood Suites - Puyallup WA

Customer: Discount Fire Protection

Engineer: _____

Pump Manufacturer: Peerless Pumps

Technical Data
Submittal Document

GPx Series

Full Service
Electric Fire Pump Controller

Contents:

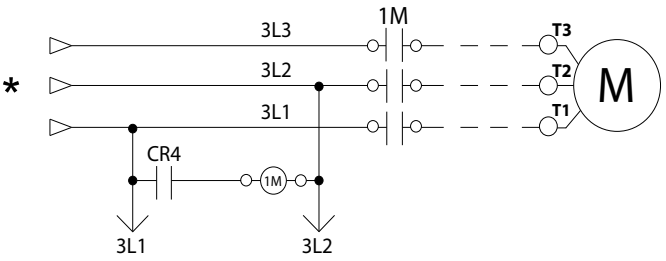
Note: The drawings included in this package are for controllers covered under our standard offering. Actual AS BUILT drawings may differ from what is shown in this package.

c UL us FM APPROVED N.Y.C. APPROVED CE

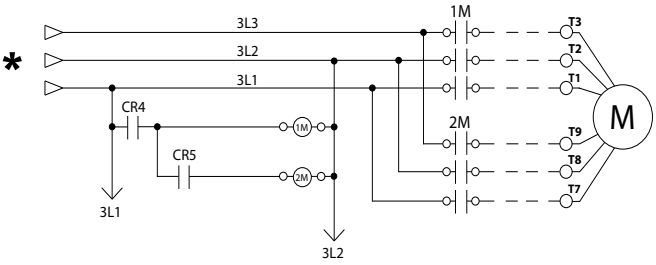
March 2023

Select starting method

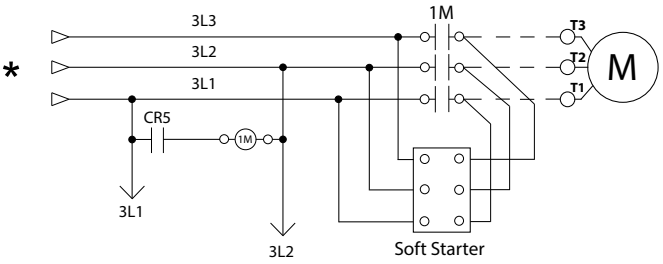
☑ Model GPA
Across the line



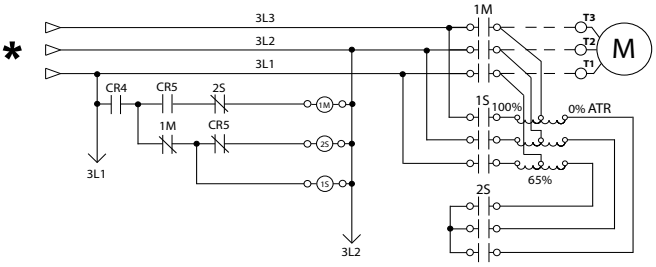
☐ Model GPP
Partwinding



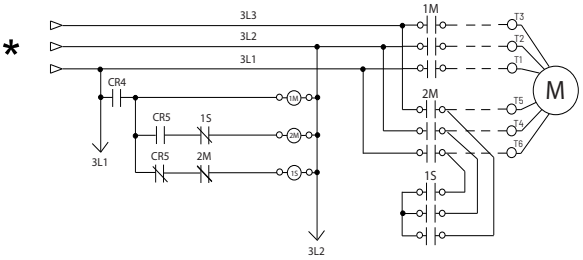
☐ Model GPS
Soft Start Soft Stop



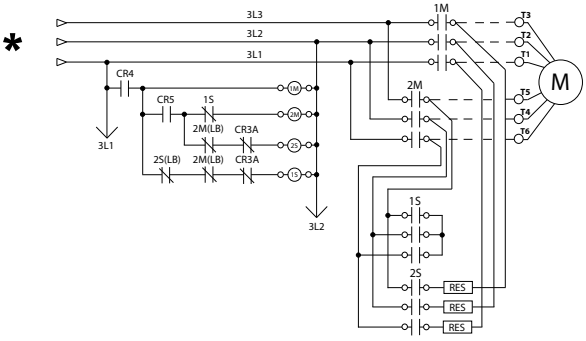
☐ Model GPR
Autotransformer



☐ Model GPY
Wye-Delta Open



☐ Model GPW
Wye-Delta Closed



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

Standard, Listings, Approvals and Certifications	**Built to NFPA 20 (latest edition)**		
	Underwriters Laboratory (UL)	UL218 - Fire Pump Controllers	
	FM Global	Class 1321/1323	
	New York City	Accepted for use in the City of New York by the Department of Buildings	
	CE Mark	Various EN, IEC & CEE directives and standards	
	Built in Canada or U.A.E	Built in Europe	
	☐ CE Mark Option	Supplied as Standard	
Enclosure	**Protection Rating**		
	Built in Canada or U.A.E	Built in Europe	
	☑ Standard: NEMA 2	☐ Standard: IP55	
	Optional		
	☐ NEMA 12	☐ NEMA 4X-304 sst painted	☐ IP54
	☐ NEMA 3	☐ NEMA 4X-304 sst brushed finish	☐ IP55
	☐ NEMA 3R	☐ NEMA 4X-316 sst painted	☐ IP65
	☐ NEMA 4	☐ NEMA 4X-316 sst brushed finish	☐ IP66
	Accessories • Bottom entry gland plate • Lifting Lugs • Keylock handle	**Paint Specifications** • Red RAL3002 • Powder coating • Glossy textured finish	

Shortcircuit Withstand Rating	**200V to 208V 60Hz**	**220V to 240V 60Hz**	**380V to 415V 50 Hz / 60Hz**	**440V to 480V 60Hz**	**575V to 600V 60Hz**
		HP (kw)			
☑ **Standard 100kA**	5 - 150 (3.7 - 110)	5 - 200 (3.7 - 149)	5 - 300 (3.7 - 223)	5 - 400 (3.7 - 298)	N/A
☐ **Optional 150kA**					
☐ **Standard 50kA**	200 (149)	250 (186)	350 - 450 (261-335)	450 - 500 (335 - 373)	5 - 500 (3.7- 373)
☐ **Optional 100kA**	N/A	N/A	350 - 500 (261 - 373)	450 - 500 (335 - 373)	
☐ **Optional 200kA**	5 - 150 (3.7 - 110)	5 - 200 (3.7 - 149)	5 - 300 (3.7 - 223)	5 - 400 (3.7 - 298)	N/A

*Please see Disconnecting Means details on page 4

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	• Isolating switch and circuit breaker assembly: - Door interlocked in the ON position - Isolating switch rated not less than 115% of motor full load current - 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
☐	D5	Pressure transducer and run test solenoid valve for fresh water rated for 0-500PSI (for factory calibration purposes only)
☐	D5D	Pressure transducer and run test solenoid valve for sea water rated for 0-500PSI
☐	D10	Omit mounting feet (when applicable)
☐	D13	High withstand rating for: • 200V to 208V @ 150HP max. = 150kA* • 200V to 208V @ 200HP = 100kA* • 220V to 240V @ 200HP max. = 150kA* • 220V to 240V @ 250HP = 100kA* • 380V to 415V @ 300HP max. = 150kA* • 380V to 415V @ 350HP to 450HP = 100kA* • 440V to 480V @ 400HP max. = 150kA* • 440V to 480V @ 450HP to 500HP = 100kA* • 600V @ 500HP max. = 100kA*
☐	D13A	High withstand rating for: • 380V to 480V = 65kA* • 600V = 25kA*
☐	D13B	High withstand rating for: • 200V to 208V @ 150HP max. = 200kA* • 220V to 240V @ 200HP max. = 200kA* • 380V to 415V @ 300HP max. = 200kA* • 440V to 480V @ 400HP max. = 200kA*
☐	D14	Anti-condensation heater & thermostat
☐	D14A	Anti-condensation heater & humidistat
☐	D14B	Anti-condensation heater & thermostat & humidistat

*For fire pump controller section only.
Note: Options chosen from this page are not electrically represented on the wiring schematics in this submittal package.

☐ 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
☐ D43	Seismic Certification compliant to CBC 2019, IBC 2018 rigid base/wall mounted only
☐ D44	Special Seismic Certification compliant to OSHPD rigid base/wall mounted only

☐ L01	Other language and English (bilingual)
☐ L02	French
☐ L03	Spanish
☐ L04	German
☐ L05	Italian
☐ L06	Polish
☐ L07	Romanian
☐ L08	Hungarian
☐ L09	Slovak
☐ L10	Croatian
☐ L11	Czech
☐ L12	Portuguese
☐ L13	Dutch
☐ L14	Russian
☐ L15	Turkish
☐ L16	Swedish
☐ L17	Bulgarian
☐ L18	Thai
☐ L19	Indonesian
☐ L20	Slovenian
☐ L21	Danish
☐ L22	Greek
☐ L23	Arabic
☐ L24	Hebrew
☐ L25	Chinese

Additional Options:

☐ _____

☐ _____

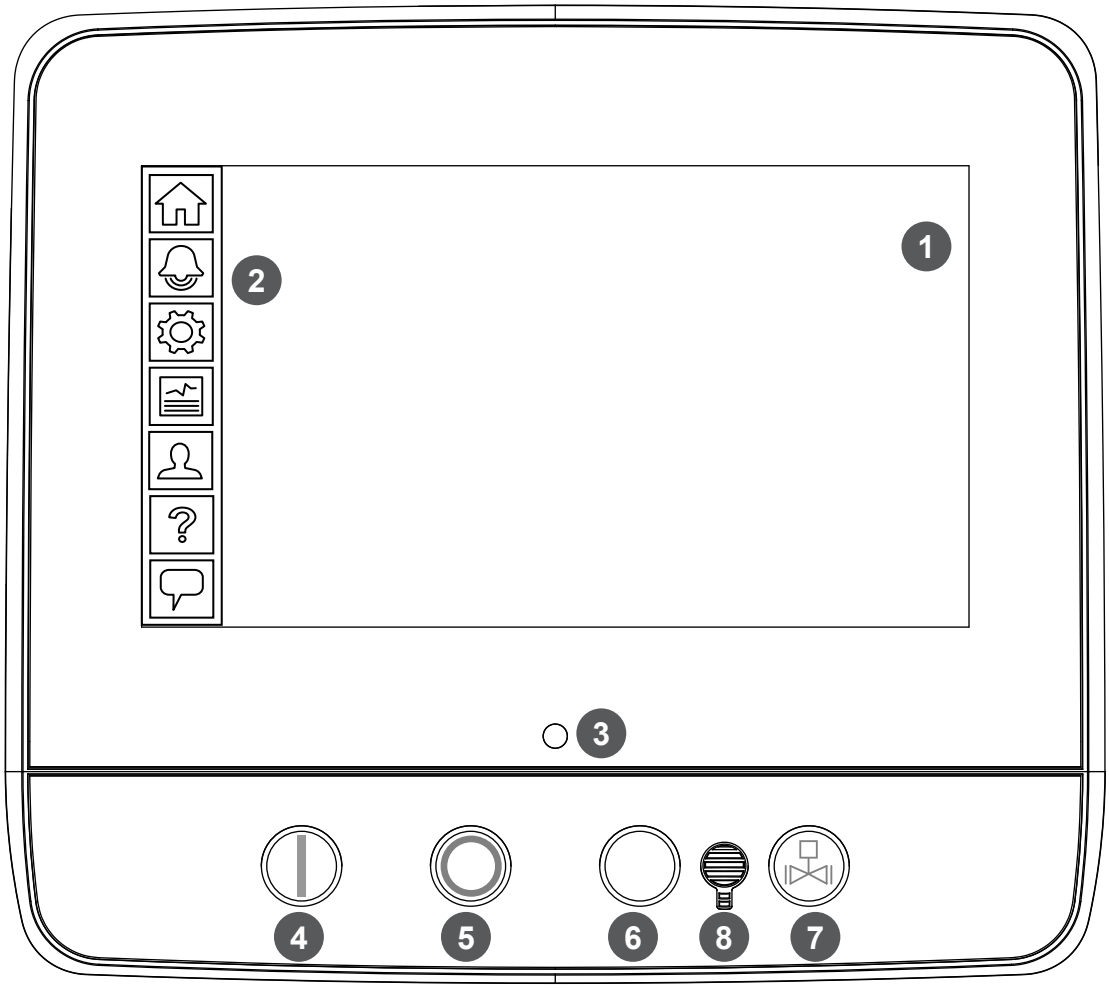
☐ _____

☐ _____

☐ _____

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	07/02/23
FINAL APPROVAL	FC	23/02/23

ELECTRIC FIRE PUMP CONTROLLER

MODEL: GPA/GPP/GPY

BUILT TO THE LATEST EDITION OF THE NFPA20 & NFPA70

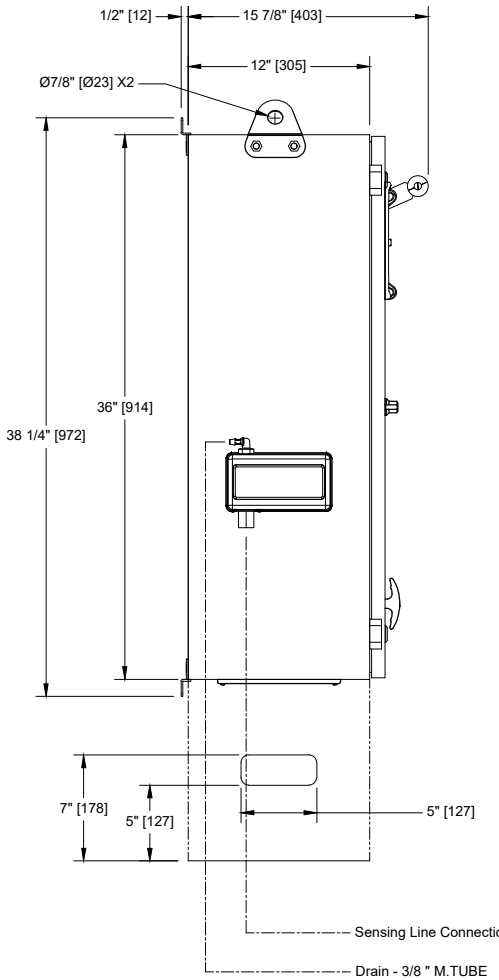
NYC Dpt of Building Approved

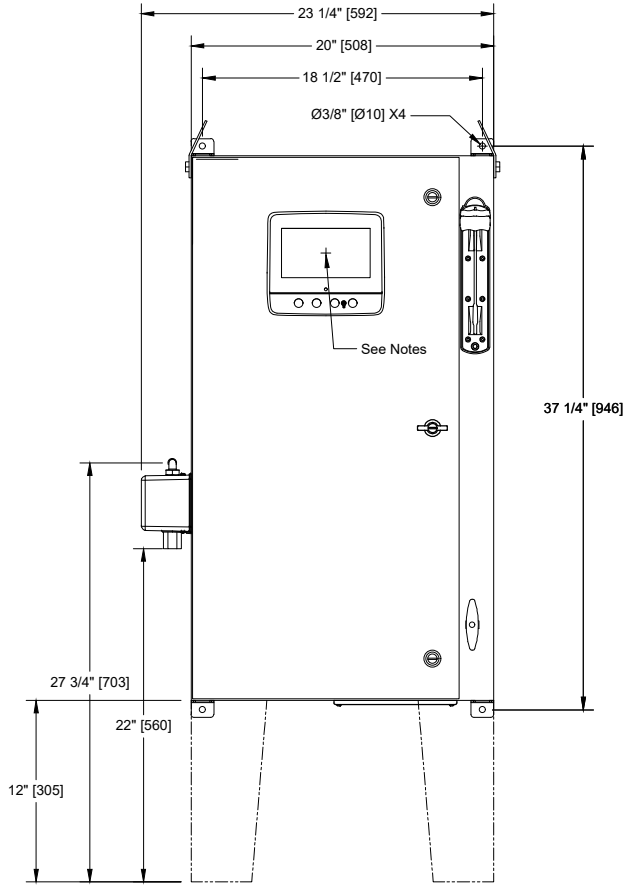
THIRD ANGLE PROJECTION

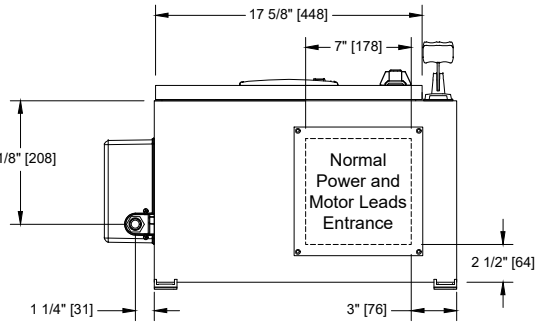
DRAWING NUMBER GPX-DI810 /E

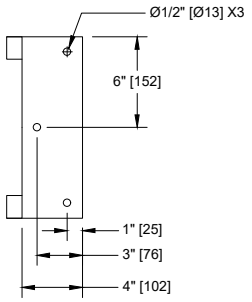
DWG REV. 0

SHEET 1 OF 1









Voltage / Power Table		
Voltage	Min HP	Max HP
208	5	30
220 - 240	5	30
380 - 400 - 415	5	60
440 - 480	5	60
600	5	75

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	28/02/27
FINAL APPROVAL	FC	28/02/27

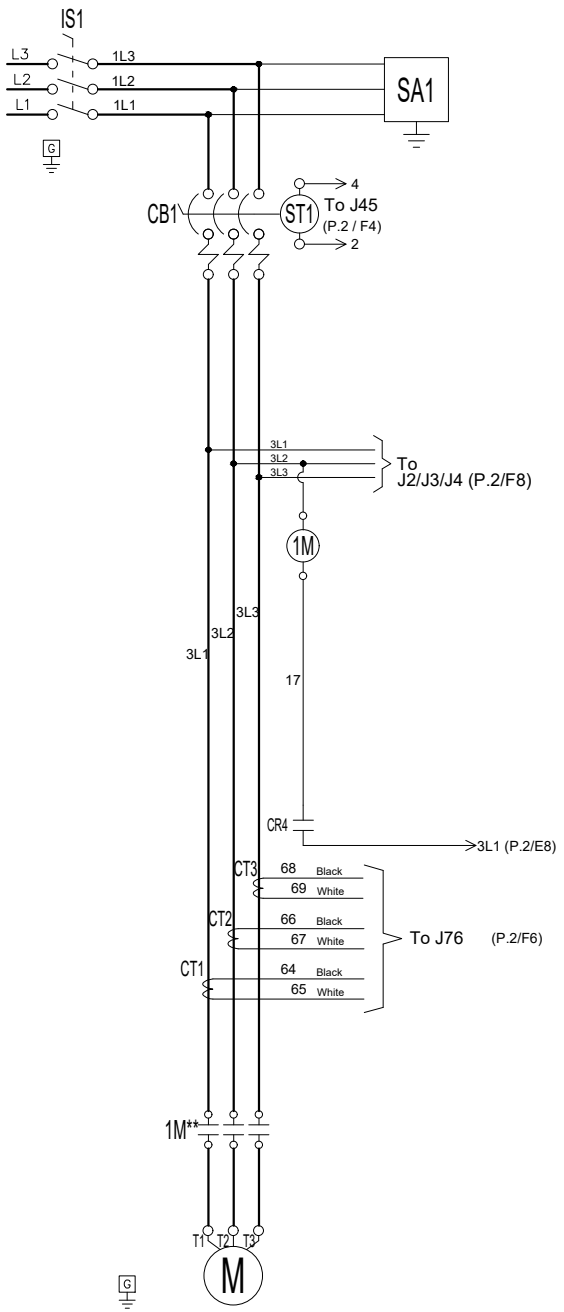
ELECTRIC FIRE PUMP CONTROLLER
FULL VOLTAGE / ACROSS THE LINE

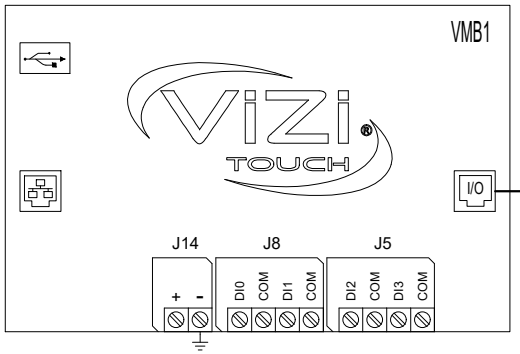
MODEL: GPA

BUILT TO THE LATEST EDITION OF THE NFPA20 & NFPA70

NYC Dpt of Building Approved

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





To I/O
Electric Board
UP
(P.2 / E2)

Legend	
1M	Contactor
AB	Alarm Bell
CB	Circuit Breaker
CR	Control Relay
CT	Current Transformer
EB	Electric I/O Board
IS	Isolating Switch
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	28/02/27
FINAL APPROVAL	FC	28/02/27

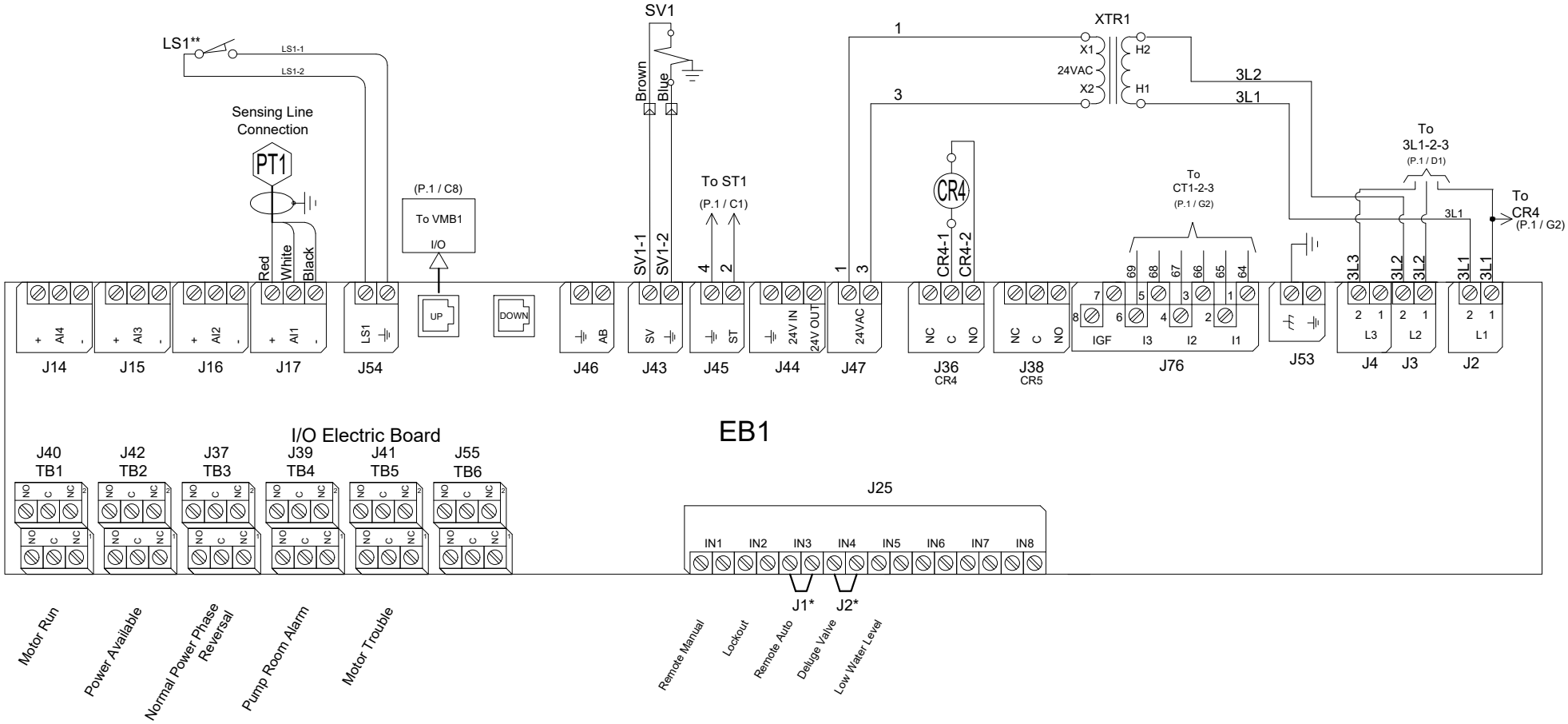
ELECTRIC FIRE PUMP CONTROLLER
FULL VOLTAGE / ACROSS THE LINE

MODEL: GPA

BUILT TO THE LATEST EDITION OF THE NFPA20 & NFPA70

NYC Dpt of Building Approved

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



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

TORNATECH

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

ELECTRIC FIRE PUMP CONTROLLER

MODEL: GPX

BUILT TO THE LATEST EDITION OF THE NFPA20 & NFPA70

NYC Dpt of Building Approved

DRAWING NUMBER GPX-TD800/E

DWG REV. 0

SHEET 1 OF 1

COPPER CONDUCTORS for Isolating Switch (IS1).
Field Wiring According to Bending Space (AWG or MCM). Terminals L1 - L2 - L3

Bending Space	5 " (127 mm)							8 " (203 mm)		
HP / Voltage	5	7.5	10	15	20	25	30	40	50	60
208	1x (10 to 1/0)	1x (8 to 1/0)	1x (8 to 1/0)	1x (6 to 1/0)	1x (4 to 1/0)	1x (3 to 1/0)	1x (2 to 1/0)	1x (1/0 to 3/0)	1x (3/0 to 250)	1x (4/0 to 250)
220 to 240	1x (10 to 1/0)	1x (10 to 1/0)	1x (8 to 1/0)	1x (6 to 1/0)	1x (4 to 1/0)	1x (4 to 1/0)	1x (3 to 1/0)	1x (1 to 3/0)	1x (2/0 to 3/0)	1x (3/0 to 250)
380 to 416	1x (10 to 1/0)	1x (10 to 1/0)	1x (10 to 1/0)	1x (8 to 1/0)	1x (8 to 1/0)	1x (6 to 1/0)	1x (6 to 1/0)	1x (4 to 1/0)	1x (3 to 1/0)	1x (3 to 1/0)
440 to 480	1x (10 to 1/0)	1x (10 to 1/0)	1x (10 to 1/0)	1x (10 to 1/0)	1x (8 to 1/0)	1x (8 to 1/0)	1x (6 to 1/0)	1x (6 to 1/0)	1x (4 to 1/0)	1x (3 to 1/0)
600	1x (10 to 1/0)	1x (10 to 1/0)	1x (10 to 1/0)	1x (10 to 1/0)	1x (10 to 1/0)	1x (8 to 1/0)	1x (8 to 1/0)	1x (6 to 1/0)	1x (6 to 1/0)	1x (4 to 1/0)

Bending Space	12 " (305 mm)				16 " (406 mm)						
HP / Voltage	75	100	125	150	200	250	300	350	400	450	500
208	2x (1/0 to 500)	2x (2/0 to 500)	2x (4/0 to 500)	2x (250 to 500)	3x (4/0 to 500)	--------	--------	--------	--------	--------	--------
220 to 240	1x (250)	2x (2/0 to 500)	2x (3/0 to 500)	2x (4/0 to 500)	2x (350 to 500)	3x (250 to 500)	--------	--------	--------	--------	--------
380 to 416	1x (1/0 to 3/0)	1x (3/0 to 250)	1x (250)	2x (1/0 to 500)	2x (3/0 to 500)	2x (4/0 to 500)	2x (300 to 500)	2x (400 to 500)	3x (250 to 500)	3x (300 to 500)	--------
440 to 480	1x (1 to 3/0)	1x (2/0 to 3/0)	1x (3/0 to 250)	1x (4/0 to 250)	2x (1/0 to 500)	2x (3/0 to 500)	2x (4/0 to 500)	2x (300 to 500)	2x (350 to 500)	2x (400 to 500)	3x (250 to 500)
600	1x (3 to 1/0)	1x (1 to 3/0)	1x (2/0 to 3/0)	1x (3/0 to 250)	1x (250)	2x (2/0 to 500)	2x (3/0 to 500)	2x (4/0 to 500)	2x (250 to 500)	2x (300 to 500)	2x (350 to 500)
Bending Space	5 " (127 mm)	8 " (203 mm)				12 " (305 mm)					

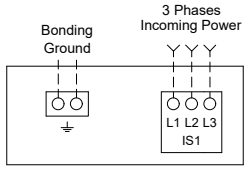
ALUMINUM CONDUCTORS for Isolating Switch (IS1).
Field Wiring According to Bending Space (AWG or MCM). Terminals L1 - L2 - L3

Bending Space	5 " (127 mm)							8 " (203 mm)		10 " (254 mm)
HP / Voltage	5	7.5	10	15	20	25	30	40	50	60
208	1x (10 to 1/0)	1x (6 to 1/0)	1x (6 to 1/0)	1x (4 to 1/0)	1x (3 to 1/0)	1x (1 to 1/0)	1x (1/0)	1x (3/0)	1x (4/0 to 250)	1x (300) ** or 1x (250) 90°C *
220 to 240	1x (10 to 1/0)	1x (8 to 1/0)	1x (6 to 1/0)	1x (4 to 1/0)	1x (3 to 1/0)	1x (2 to 1/0)	1x (1 to 1/0)	1x (2/0 to 3/0)	1x (3/0) 90°C *	1x (250)
380 to 416	1x (10 to 1/0)	1x (10 to 1/0)	1x (10 to 1/0)	1x (6 to 1/0)	1x (6 to 1/0)	1x (4 to 1/0)	1x (4 to 1/0)	1x (2 to 1/0)	1x (1 to 1/0)	1x (1/0)
440 to 480	1x (10 to 1/0)	1x (10 to 1/0)	1x (10 to 1/0)	1x (8 to 1/0)	1x (6 to 1/0)	1x (6 to 1/0)	1x (6 to 1/0)	1x (4 to 1/0)	1x (2 to 1/0)	1x (1 to 1/0)
600	1x (10 to 1/0)	1x (10 to 1/0)	1x (10 to 1/0)	1x (10 to 1/0)	1x (8 to 1/0)	1x (6 to 1/0)	1x (6 to 1/0)	1x (4 to 1/0)	1x (4 to 1/0)	1x (2 to 1/0)

Bending Space	12 " (305 mm)				16 " (406 mm)						
HP / Voltage	75	100	125	150	200	250	300	350	400	450	500
208	2x (2/0 to 500)	2x (4/0 to 500)	2x (300 to 500)	2x (350 to 500)	3x (300 to 500)	--------	--------	--------	--------	--------	--------
220 to 240	1x (350) ** N/A	2x (3/0 to 500)	2x (250 to 500)	2x (300 to 500)	2x (500)	3x (400 to 500)	--------	--------	--------	--------	--------
380 to 416	1x (3/0)	1x (250 to 350)	1x (350) ** N/A	2x (3/0 to 500)	2x (4/0 to 500)	2x (300 to 500)	2x (500)	3x (300 to 500)** 2x (500) 90°C *	3x (350 to 500)	3x (400 to 500)	--------
440 to 480	1x (1/0 to 3/0)	1x (3/0)	1x (250)	1x (300 to 350)** 1x (250) 90°C *	2x (3/0 to 500)	2x (250 to 500)	2x (300 to 500)	2x (400 to 500)	2x (500)	2x (500) 90°C *	3x (350 to 500)
600	1x (1 to 1/0)	1x (2/0 to 3/0)	1x (3/0) 90°C *	1x (4/0 to 250)	1x (350 to 500)	2x (3/0 to 500)	2x (4/0 to 250)	2x (300 to 500)	2x (350 to 500)	2x (400 to 500)	2x (500)
Bending Space	5 " (127 mm)	8 " (203 mm)			12 " (305 mm)						

*For standard enclosure, use 90°C aluminium wire. Consult Factory for Use of Conductors Rated Lower than 90°C.
**Consult Factory

Power Terminals



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.

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

ELECTRIC FIRE PUMP CONTROLLER

MODEL: GPA/GPR/GPS

BUILT TO THE LATEST EDITION OF THE NFPA20 & NFPA70

NYC Dpt of Building Approved

DRAWING NUMBER GPX-TD801/E

DWG REV. 0

SHEET 1 OF 1

COPPER CONDUCTORS for Motor Connection (1M).
Field Wiring According to Bending Space (AWG or MCM). Terminals T1 - T2 - T3

HP / Voltage	5	7.5	10	15	20	25	30	40	50	60
208	1x (10 to 2)	1x (8 to 2)	1x (8 to 2)	1x (6 to 2)	1x (4 to 2)	1x (3 to 2/0)	1x (2 to 2/0)	1x (1/0 to 3/0)	1x (3/0)	1x (4/0 to 300)
220 to 240	1x (10 to 2)	1x (10 to 2)	1x (8 to 2)	1x (6 to 2)	1x (4 to 2)	1x (4 to 2/0)	1x (3 to 2/0)	1x (1/0 to 3/0)	1x (2/0 to 3/0)	1x (3/0)
380 to 416	1x (10 to 2)	1x (10 to 2)	1x (10 to 2)	1x (8 to 2)	1x (8 to 2)	1x (6 to 2)	1x (6 to 1/0)	1x (4 to 2)	1x (3 to 2/0)	1x (1 to 2/0)
440 to 480	1x (10 to 2)	1x (10 to 2)	1x (10 to 2)	1x (10 to 2)	1x (8 to 2)	1x (8 to 2)	1x (6 to 2)	1x (6 to 2)	1x (4 to 2/0)	1x (3 to 2/0)
600	1x (10 to 2)	1x (10 to 2)	1x (10 to 2)	1x (10 to 2)	1x (10 to 2)	1x (8 to 2)	1x (8 to 2)	1x (6 to 2)	1x (6 to 2)	1x (4 to 2/0)

HP / Voltage	75	100	125	150	200	250	300	350	400	450	500
208	1x (300)	2x (2/0 to 300)	2x (4/0 to 300)	2x (250 to 300)	2x (400 to 600)	--------	--------	--------	--------	--------	--------
220 to 240	1x (250 to 300)	2x (2/0 to 300)	2x (3/0 to 300)	2x (4/0 to 300)	2x (350 to 500)	2x (500 to 600)	--------	--------	--------	--------	--------
380 to 416	1x (1/0 to 3/0)	1x (3/0)	1x (250 to 300)	1x (300)	2x (3/0 to 300)	2x (4/0 to 300)	2x (300)	2x (400 to 500)	2x (500 to 600)	2x (600)	
440 to 480	1x (1 to 1/0)	1x (2/0 to 3/0)	1x (3/0)	1x (4/0 to 300)	2x (1/0 to 300)	2x (3/0 to 300)	2x (4/0 to 300)	2x (300)	2x (350 to 500)	2x (400 to 600)	2x (500 to 600)
600	1x (3 to 1/0)	1x (1 to 1/0)	1x (2/0 to 3/0)	1x (3/0)	1x (250 to 300)	2x (2/0 to 300)	2x (3/0 to 300)	2x (4/0 to 300)	2x (250 to 300)	2x (300)	2x (350 to 500)

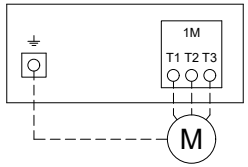
ALUMINUM CONDUCTORS for Contactor (1M).
Field Wiring According to Bending Space (AWG or MCM). Terminals T1 - T2 - T3

HP / Voltage	5	7.5	10	15	20	25	30	40	50	60
208	1x (10 to 2/0) **	1x (10 to 2/0) **	1x (6 to 2/0) **	1x (4 to 2/0) **	1x (2 to 2/0) **	1x (1 to 2/0) **	1x (1/0 to 2/0) **	1x (2/0) 90°C *	Consult Factory	1x (300)
220 to 240	1x (10 to 2/0) **	1x (10 to 2/0) **	1x (8 to 2/0) **	1x (4 to 2/0) **	1x (3 to 2/0) **	1x (2 to 2/0) **	1x (1 to 2/0) **	1x (2/0)	1x (3/0) 90°C *	Consult Factory
380 to 416	1x (12 to 2/0) **	1x (12 to 2/0) **	1x (10 to 2/0) **	1x (8 to 2/0) **	1x (6 to 2/0) **	1x (6 to 2/0) **	1x (4 to 2/0) **	1x (2 to 2/0) **	1x (1 to1/0)	1x (1/0)
440 to 480	1x (12 to 2/0) **	1x (12 to 2/0) **	1x (10 to 2/0) **	1x (10 to 2/0) **	1x (8 to 2/0) **	1x (6 to 2/0) **	1x (6 to 2/0) **	1x (4 to 2/0) **	1x (2 to 1/0)	1x (1 to 1/0)
600	1x (12 to 2/0) **	1x (12 to 2/0) **	1x (12 to 2/0) **	1x (10 to 2/0) **	1x (10 to 2/0) **	1x (8 to 2/0) **	1x (8 to 2/0) **	1x (4 to 2/0) **	1x (4 to 2/0) **	1x (2 to 1/0)

HP / Voltage	75	100	125	150	200	250	300	350	400	450	500
208	1x (300) 90°C *	2x (4/0 to 300)	2x (300)	2x (300) 90°C *	2x (600)	--------	--------	--------	--------	--------	--------
220 to 240	1x (300) 90°C *	2x (3/0 to 300)	2x (250 to 300)	2x (300)	2x (500)	2x (600)	--------	--------	--------	--------	--------
380 to 416	1x (3/0)	Consult Factory	1x (300) 90°C *	Consult Factory	2x (4/0 to 300)	2x (300)	Consult Factory	2x (600)	2x (600) 90°C *	2x (600) 90°C *	--------
440 to 480	1x (1/0)	1x (3/0)	Consult Factory	1x (300)	2x (3/0 to 300)	2x (250 to 300)	2x (300)	2x (300) 90°C *	2x (500)	2x (600)	2x (600) 90°C *
600	1x (1 to 1/0)	Consult Factory	1x (3/0) 90°C *	Consult Factory	1x (300) 90°C *	2x (3/0 to 300)	2x (4/0 to 300)	2x (300)	2x (300) 90°C *	2x (300) 90°C *	Consult Factory

*For standard enclosure, use 90°C aluminium wire. Consult Factory for Use of Conductors Rated Lower than 90°C.
**Option V659 required.

Motor Terminals



Models: GPA/GPR/GPS

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.

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

ELECTRIC FIRE PUMP CONTROLLER

MODEL: GPX

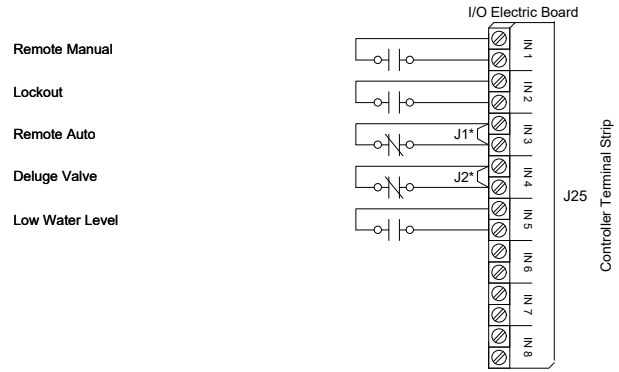
BUILT TO THE LATEST EDITION OF THE NFPA20 & NFPA70

NYC Dpt of Building Approved

DRAWING NUMBER: GPX-TD803/E
DWG REV. 0
SHEET 1 OF 1

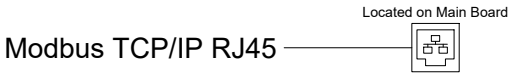
Field Connections

Terminals Wire Size:
24 - 12 AWG
0.5 Nm



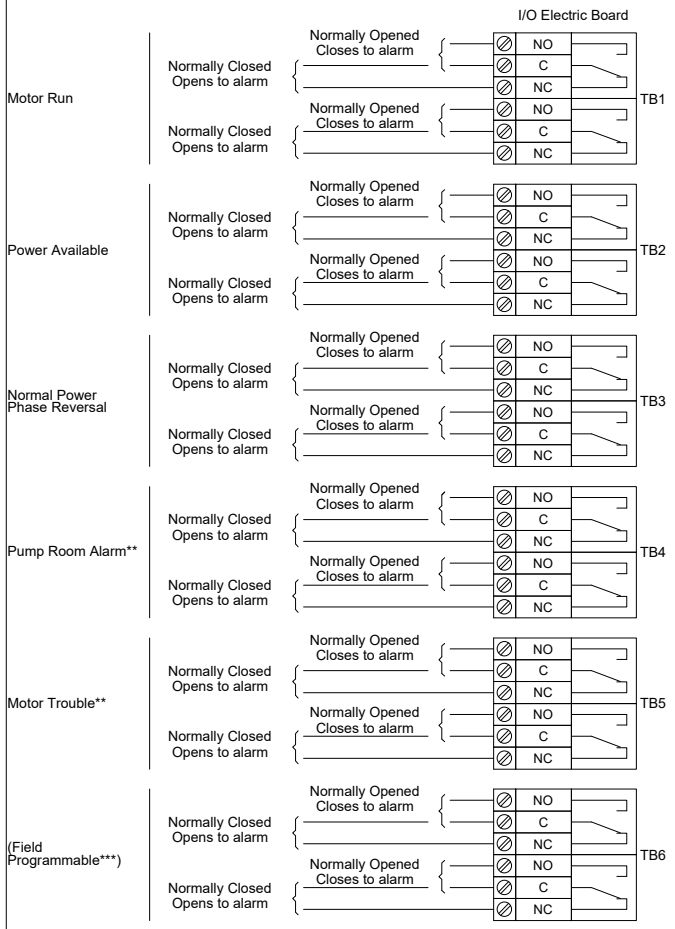
Network Connections

Terminals Wire Size:
Shielded Female Connector RJ45



Alarm Contacts

Terminals Wire Size:
24 - 12 AWG
0.5 Nm



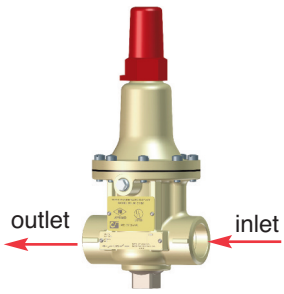
* Remove jumper to use this feature
** Re-assignable
*** Not available on GPS models

CLA-VAL™

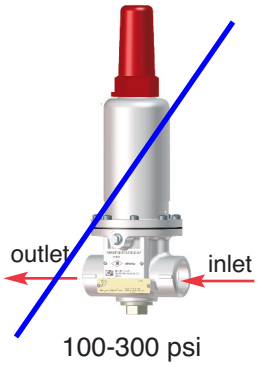
— MODEL — **55L-60**

Pressure Relief Valve/ Pump Casing Relief Valve

1/2″ and 3/4″ Globe Configuration

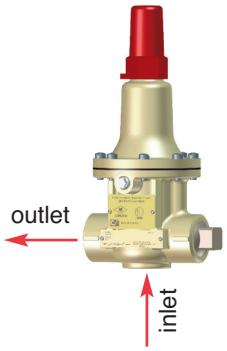


0-75 psi
20-200 psi
20-300 psi

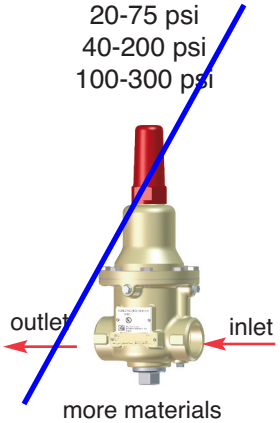


100-300 psi

1/2″, 3/4″ and 1″ Angle Configuration



1″ Size
20-75 psi
40-200 psi
100-300 psi



more materials available

- **Sizes 1/2″ and 3/4″ are UL Listed and FM Approved for use as Fire Pump Casing Relief Valves**
- **The 1″ model is UL Listed for use as a Fire Pump Casing Relief Valve**
- **Direct Acting - Precise Pressure Control**
- **Drip Tight Closure**
- **No Packing Glands or Stuffing Boxes**
- **Globe or Angle configurations available**
- **Sensitive to Small Pressure Variations**
- **Meets low lead requirements**
- **Available in Cast Bronze, 316 Stainless Steel, Monel & Super Duplex Stainless Steel**

The Cla-Val Model 55L-60 **(UL Listed, FM Approved)** Pressure Relief Valve is a direct-acting, spring loaded, diaphragm type relief valve. The valve may be installed in any position and will open and close within very close pressure limits. The bottom plug may be removed and installed in the inlet to convert it to an angle pattern flow path.

The Model 55L-60 is normally held closed by the force of the compression spring above the diaphragm. When the controlling pressure applied under the diaphragm exceeds the spring setting, the disc is lifted off its seat, permitting flow through the control. When control pressure drops below the spring setting, the spring forces the control back to its normally closed position. The controlling pressure is applied to the chamber beneath the diaphragm through an internal passage. A gauge port is provided for accurate pressure setting.

Pressure adjustment is done by turning the adjusting screw to vary the spring load on the diaphragm. The 55L-60 is available in pressure ranges suited to agency approval tests. To prevent tampering, the adjustment cap can be wire sealed by using the lock wire holes provided in the cap and cover.

UL LISTED

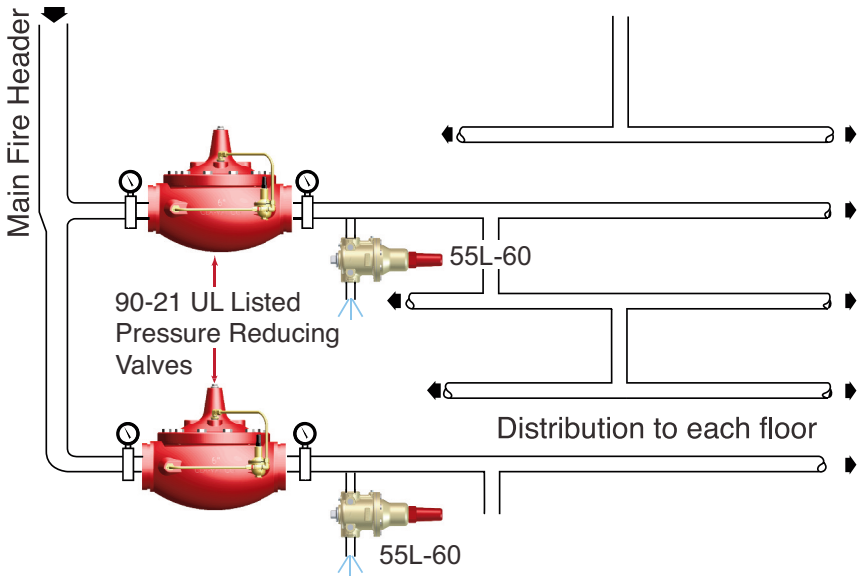
FM APPROVED

Fire Protection System Service
The **Model 55L-60** is typically used in a fire protection system to trim water pressure, thus preventing pressure build-up whenever line pressure exceeds the setting of the spring.

The 55L-60 will relieve excess pressure to atmosphere to prevent damage to the distribution network.

NOTE: Model 55L-60 is not suitable for discharging the full-rated pump capacity of a fire pump. See Model 50B-4KG1 Fire Pump Relief Valve for such applications.

Typical Application for Fresh Water or Seawater Service



Specifications

Size 1/2", 3/4" and 1" Threaded NPT

Temperature Range Water, Air: to 180°F Max.

Materials

Body & Cover: Cast Bronze UNS C87850 -Standard
Stainless Steel ASTM A743-CF-16F
Monel
Super Duplex Stainless Steel

Trim: 303 Stainless Steel
Monel

Rubber: Buna-N® Synthetic Rubber

Pressure Ratings Cast Bronze 400 psi Max.
Stainless Steel 400 psi Max.

Other Materials Available on special order

Adjustment Ranges UL Listed

10 to 75 psi • 20 to 200 psi • 20 to 300 psi • 100 to 300 psi

Adjustment Ranges FM Approved

0 to 75 psi • 20 to 200 psi • 20 to 300 psi • 100 to 300 psi

Pressure Drop Chart (Full Open Valve)

Valve Size	C_V Factor	Max Flow (GPM)
1/2"	6	25
3/4"	8.5	40
1"	12.8	65

Standard Factory Set Points* (1/2", 3/4", 1")

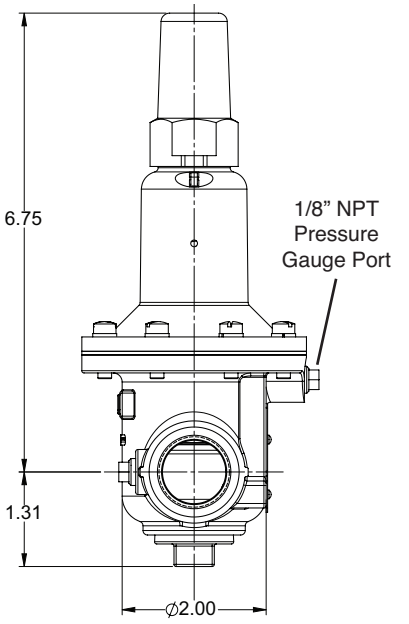
0 -75 psi	20 - 200 psi	20 - 300 psi	100 - 300 psi
50 psi	60 psi	60 psi	100 psi

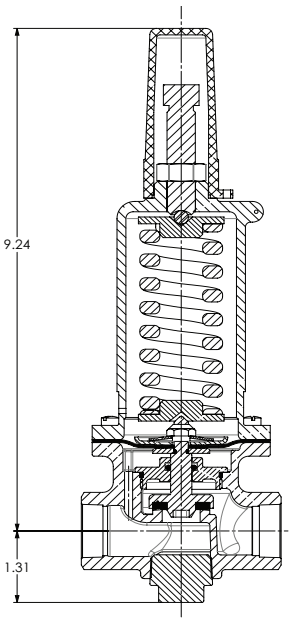
* Custom set points available upon request

When Ordering, Please Specify

1. Catalog No. 55L-60
2. Valve Size
3. Adjustment Range Desired
4. Optional Materials

Dimensions (1/2″ and 3/4″)

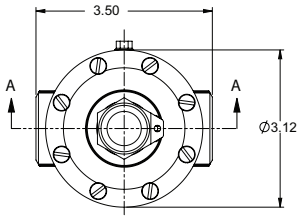




100 to 300 psi

0 to 75 psi
20 to 200 psi
20 to 300 psi

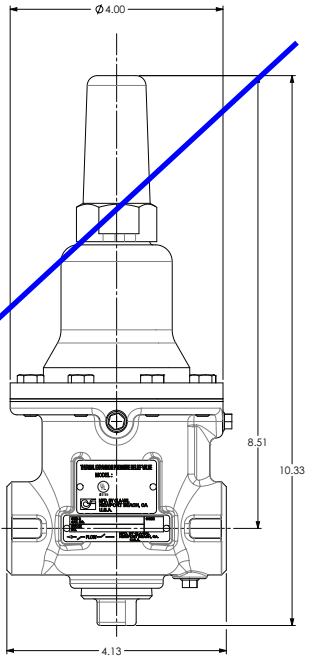
(applies to both configurations)



dimensions shown in inches

Dimensions (1″):

Spring Range:
20-75
40-200
100-300



CLA-VAL

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800-942-6326 • Web Site: www.cla-val.com • E-mail: info@cla-val.com

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Phone: 905-563-4963
www.cla-val.com
E-mail sales@cla-val.ca

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Phone: 41-21-643-15-55
www.cla-val.ch
E-mail: cla-val@cla-val.ch

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Tunbridge Wells
Kent TN1 2 DH England
Phone: 44-1892-514-400
www.cla-val.ch
E-mail: info@cla-val.ch

CLA-VAL FRANCE
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45 Kennaway Road
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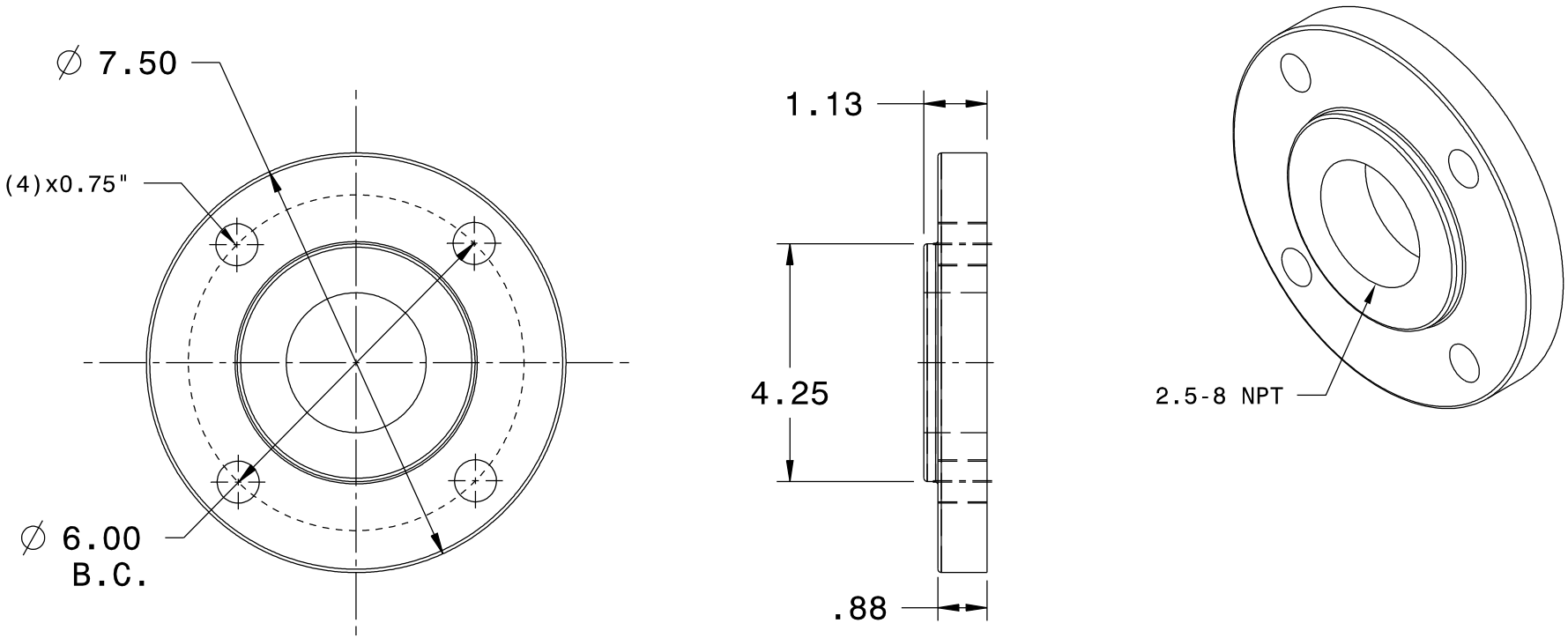
New Zealand
Phone: 64-39644860
www.cla-valpacific.com
E-mail: info@cla-valpacific.com

E-55L-60 (R-03/2021)



Basic Material No:			
Dimension of basic material:			
Type of basic material:			
		Drawing type: Part Drawing	
		Nominal net mass: kg	
		Projection:	
ECM No.	Date - Init	All dimensions are in INCH	

PEERLESS PUMP® Indianapolis, In 46207-7026 USA
Indianapolis, In
46207-7026 USA
Proprietary Data

Description:
3" STD 125# FF COMP FLG W/ 2- 1/2" NPT

Scale:	Drawer:	Date:
1:1	41119	2021-06-04
	Approver:	Date:

Master No:

Drawing No: 2692643

Page: 1 of: 1

Part Version: Doc. Revision:

GRUNDFOS **DATA BOOKLET**

CR, CRI, CRN, CRE, CRIE, CRNE

Vertical multistage centrifugal pumps
60 Hz

BE > THINK > INNOVATE >

GRUNDFOS

Pump

The CR and CRE pump is a non-self-priming, vertical multistage centrifugal pump. The pumps are available with a Grundfos standard motor (CR pumps) or a frequency-controlled motor (CRE pumps).

The pump consists of a base and a pump head. The chamber stack and the outer sleeve are secured between the pump head and the base by means of staybolts. The base has suction and discharge ports on the same level (in-line).

All pumps are equipped with a maintenance-free mechanical shaft seal of the cartridge type.

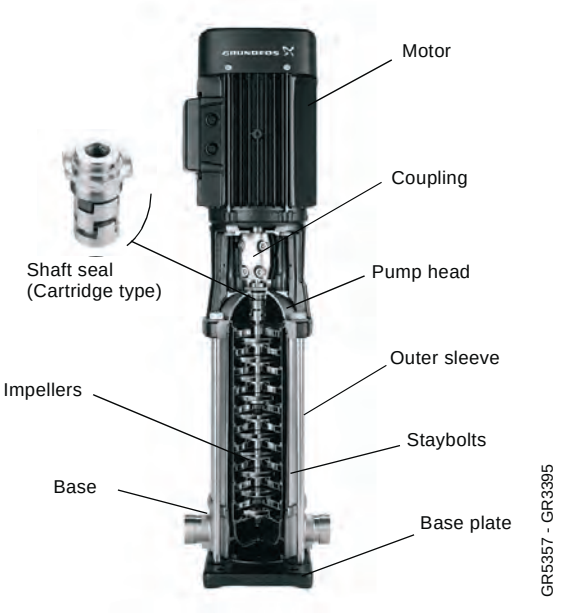


Fig. 3 CR pump

CR pump with ANSI/NSF 61 listing is available. See UL file MH26400 or contact Grundfos.

Motor

Grundfos standard motors - ML and Baldor® motors

CR, CRI and CRN pumps are fitted with a Grundfos specified motor. The motors are all heavy-duty 2-pole, NEMA C-face motors.

Frequency-controlled motors - MLE motors

CRE, CRIE and CRNE pumps are fitted with a totally enclosed, fan-cooled, 2-pole motor with integrated variable frequency drive.

From 0.5 Hp to 1.5 Hp Grundfos offers CRE pumps fitted with single-phase MLE motors (1 x 208-230 V). From 1.0 Hp to 10 Hp Grundfos offers CRE pumps fitted with three-phase MLE motors (3 x 460-480 V). From 1.5 Hp to 7.5 Hp Grundfos offers CRE pumps fitted with three-phase MLE motors (3 x 208-230 V).

Electrical data

Mounting designation	NEMA
Insulation class	F & B
Efficiency class*	Energy efficient Premium efficiency - on request for 15 Hp and above
Enclosure class	TEFC - Totally Enclosed Fan Cooled (Grundfos standard) ~~ODP - Open Drip Proof - on request~~
60 Hz Standard voltages	~~1 x 115/208-230 V~~ 3 x 208-230/460 V ~~3 x 575 V~~
Approvals	The motors are rated for: Baldor ML/MLE

* 1 - 10 Hp ML motors are premium efficiency as standard

Optional motors

The Grundfos standard range of motors covers a wide variety of application demands. However, for special applications or operating conditions, custom-built motor solutions can be provided.

For special applications or operating conditions, Grundfos offers custom-built motors such as:

- explosion proof motors,
- motors with anti-condensation heating unit,
- low-noise motors,
- premium efficiency motors,
- motors with thermal protection.

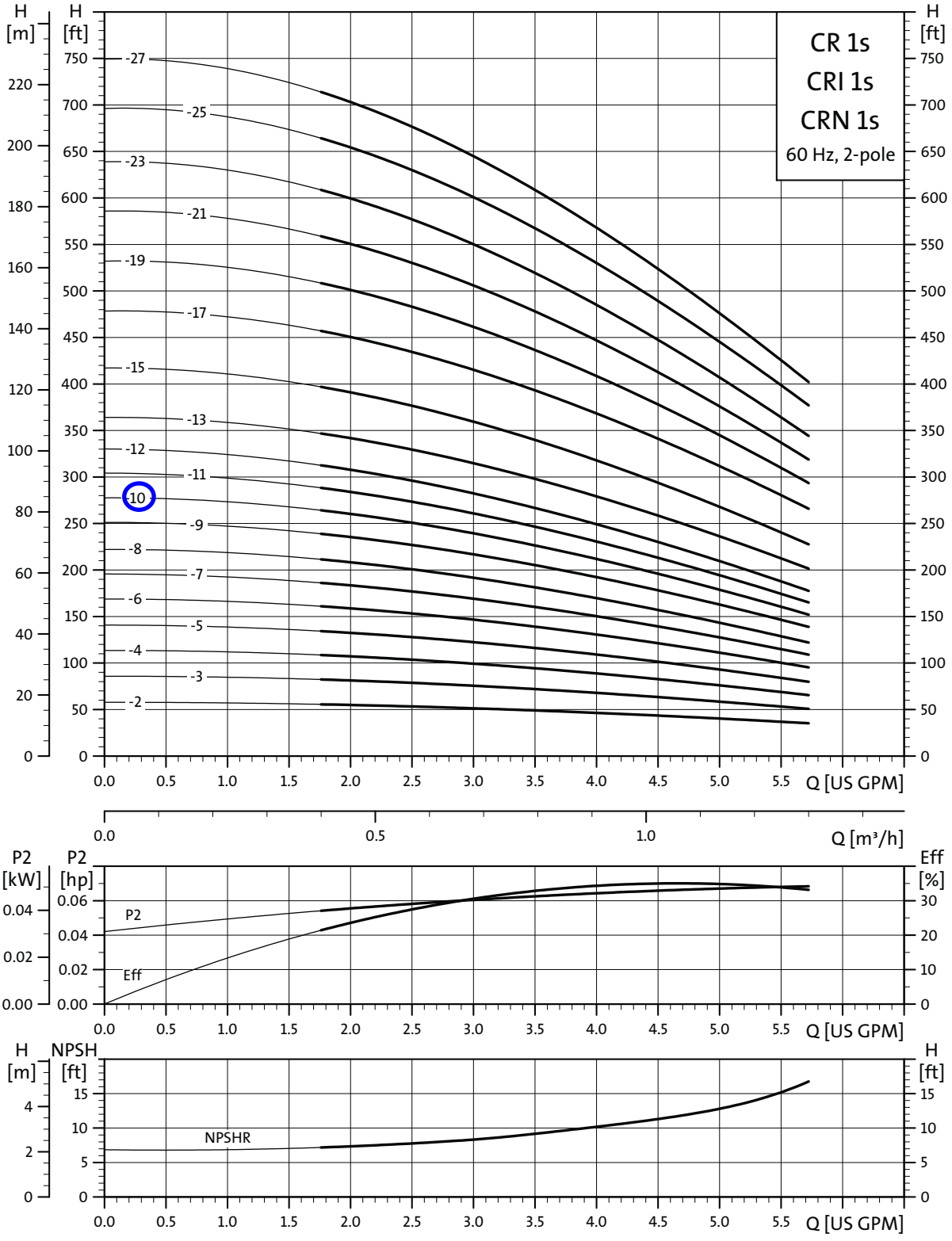
Motor protection

Single-phase Grundfos specified motors up to 7.5 hp have a built-in thermal overload switch.

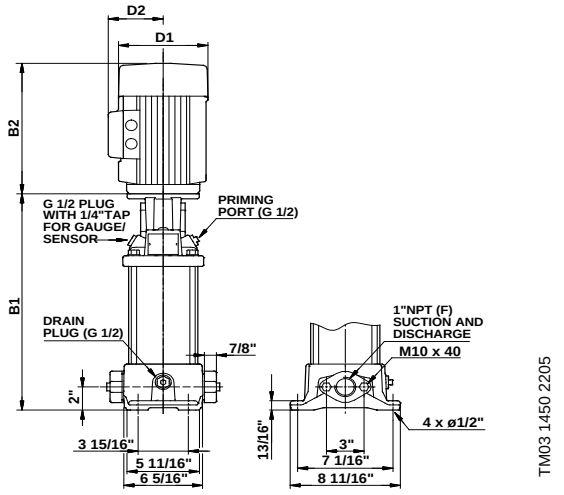
Three-phase motors **must** be connected to a motor starter in accordance with local regulations.

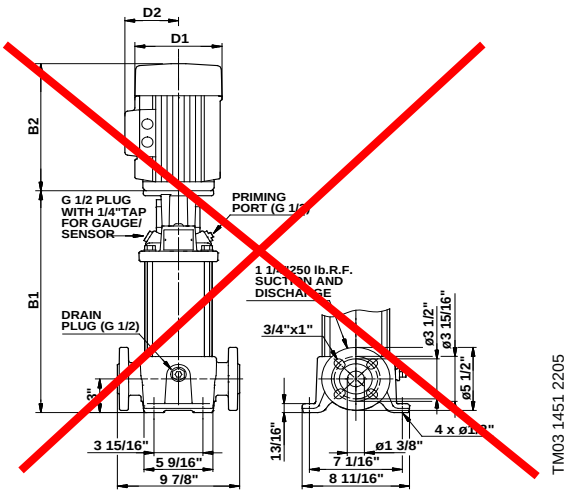
Performance curves/ Technical data

CR, CRI, CRN 1s



Technical data





Pump type	P2 [hp]	Ph.	Oval*	ANSI dimensions [inch]				Ship Wt. [lbs.]
				B1	TEFC			
					D1	D2	B1+B2	
CR 1s-2	1/3	1	•	11.97	6.19	5.18	21 26	69
		3	•	11.97	5.55	4.57	19.41	67
CR 1s-3	1/3	1	•	11.97	6.19	5.18	21 26	69
		3	•	11.97	5.55	4.57	19.41	67
CR 1s-4	1/3	1	•	12 68	6.19	5.18	21 97	70
		3	•	12 68	5.55	4.57	20.12	68
CR 1s-5	1/3	1	•	13 39	6.19	5.18	22 68	71
		3	•	13 39	5.55	4.57	20 83	69
CR 1s-6	1/2	1	•	14 09	6.19	5.18	23 38	75
		3	•	14 09	5.55	4.57	21 53	70
CR 1s-7	1/2	1	•	14 80	6.19	5.18	24 09	76
		3	•	14 80	5.55	4.57	22 24	71
CR 1s-8	1/2	1	•	15 51	6.19	5.18	24 80	77
		3	•	15 51	5.55	4.57	22 95	72
CR 1s-9	3/4	1	•	16 22	6.19	5.18	26.13	82
		3	•	16 22	5.55	4.57	23 66	73
CR 1s-10	3/4	1	•	16 93	6.19	5.18	26 84	83
		3	•	16 93	5.55	4.57	24 37	74
CR 1s-11	3/4	1	•	17 64	6.19	5.18	27 55	84
		3	•	17 64	5.55	4.57	25 08	75
CR 1s-12	3/4	1	•	18 35	6.19	5.18	28 26	85
		3	•	18 35	5.55	4.57	25.79	76
CR 1s-13	1	1	•	19 06	7.19	5.73	30 25	101
		3	•	19 06	5.55	4.57	26 50	77
CR 1s-15	1	1	•	20.47	7.19	5.73	31 66	103
		3	•	20.47	5.55	4.57	27 91	78
CR 1s-17	1 1/2	1	•	21 89	7.19	5.73	33 57	107
		3	•	21 89	5.55	4.57	30 51	84
CR 1s-19	1 1/2	1	-	23 31	7.19	5.73	34 99	109
		3	-	23 31	5.55	4.57	31 93	86
CR 1s-21	1 1/2	1	-	24.72	7.19	5.73	36.40	111
		3	-	24.72	5.55	4.57	33 34	88
CR 1s-23	1 1/2	1	-	26.14	7.19	5.73	37 82	113
		3	-	26.14	5.55	4.57	34.76	90
CR 1s-25	2	1	-	27 56	7.19	5.73	40.12	126
		3	-	27 56	7.01	4.33	38.78	116
CR 1s-27	2	1	-	28 98	7.19	5.73	41 54	127
		3	-	28 98	7.01	4.33	40 20	118

All dimensions in inches unless otherwise noted.

*Oval flanged pump B1 and B1+B2 dimension is one inch less than ANSI flanged pump and weight is approximately 9 lbs. less.

• Available

TORNATECH

Project: _____

Customer: _____

Engineer: _____

Pump Manufacturer: _____

Technical Data
Submittal Document

Model JPLT

Across the Line Start
Jockey Pump Controller

Contents:

Data Sheets
Dimensional Data
Wiring Schematics
Field Connections

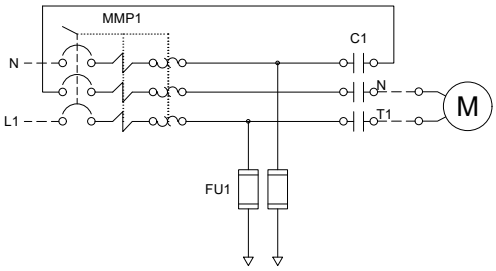
Note: The drawings included in this package are for controllers covered under our standard offering. Actual AS BUILT drawings may differ from what is shown in this package.

c UL us N.Y.C. APPROVED CE OPTIONAL

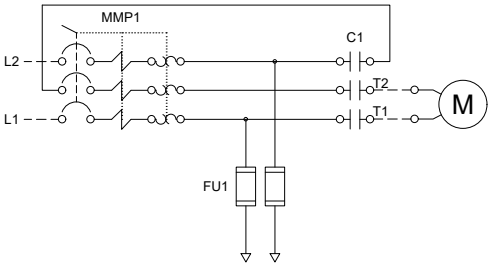
August 2023

Select Incoming Voltage

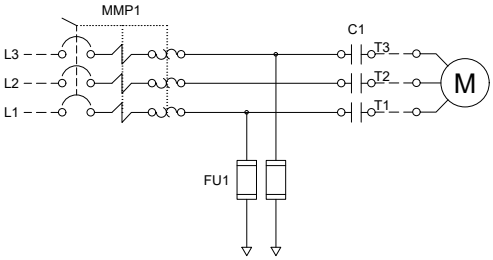
☐ **110-120V**



☐ **220-240V**



■ **200-600V**



c UL us
N.Y.C. APPROVED
CE OPTIONAL

Listing	Underwriters Laboratory (UL)	UL508A - Industrial 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 3 ☐ NEMA 3R ☐ NEMA 4 ☐ NEMA 4X-304 sst painted ☐ NEMA 4X-304 sst brushed finish ☐ NEMA 4X-316 sst painted ☐ NEMA 4X-316 sst brushed finish	
	Accessories • Wall mounting lugs (x4)	**Paint Specifications** • Red RAL3002 • Powder coating • Glossy textured finish

Short circuit current rating

	Voltage						
HP	**110 - 120V**	**220 - 240V**	**200 - 208V**	**220 - 240V**	**380 - 415V**	**440 - 480V**	**600V**
0.25	65kA	65kA	65kA	65kA	65kA	65kA	10kA
0.5	65kA	65kA	65kA	65kA	65kA	65kA	10kA
0.75	42kA	65kA	65kA	65kA	65kA	65kA	10kA
1	42kA	65kA	65kA	65kA	65kA	65kA	10kA
1.5	42kA	65kA	65kA	65kA	65kA	65kA	10kA
2	42kA	65kA	65kA	65kA	65kA	65kA	10kA
3	CF	42kA	65kA	65kA	65kA	65kA	10kA
4	CF	42kA	42kA	42kA	65kA	65kA	10kA
5	CF	42kA	42kA	42kA	65kA	65kA	10kA
5.5	CF	CF	42kA	42kA	65kA	65kA	10kA
7.5	CF	CF	42kA	42kA	42kA	65kA	10kA
10	CF	CF	CF	42kA	42kA	42kA	10kA
15	CF	CF	CF	CF	42kA	42kA	5kA
20	CF	CF	CF	CF	CF	42kA	5kA
25	CF	CF	CF	CF	CF	CF	5kA

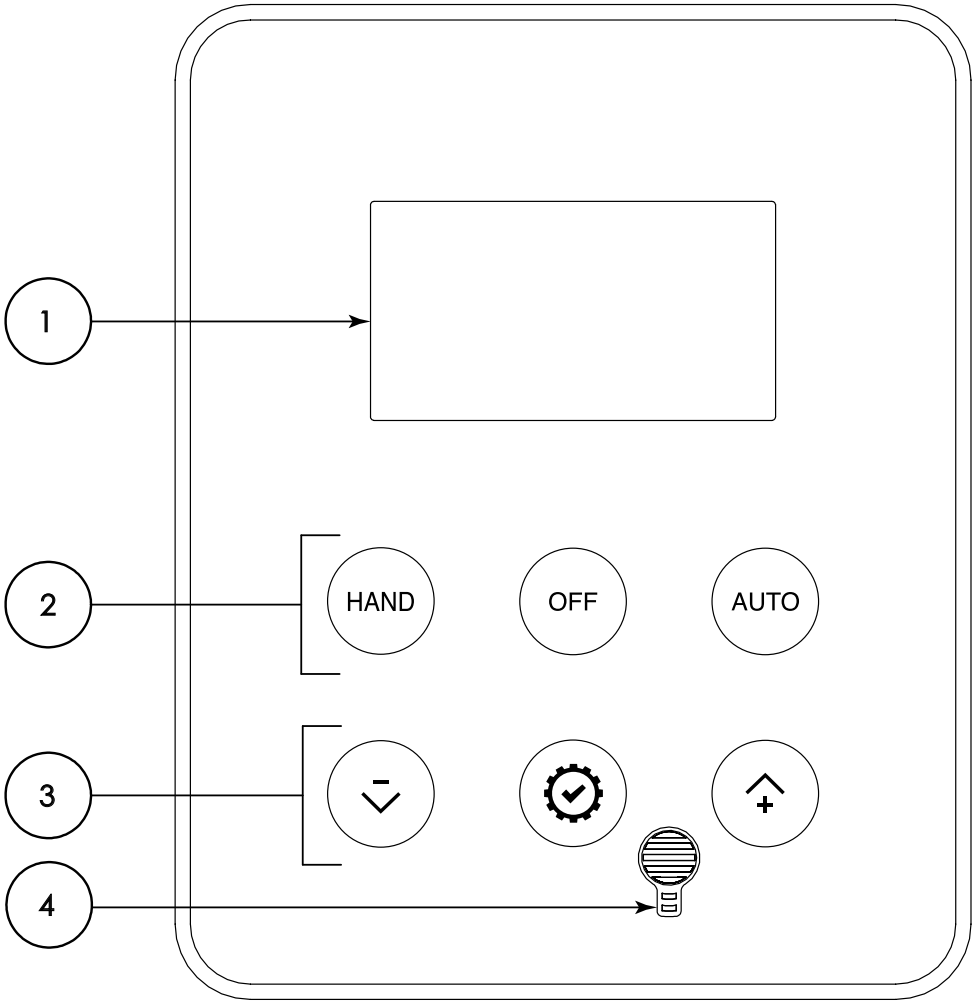
Fuseless Motor Starter	• Type -F fuse-less magnetic motor starter • Rotary handle, padlockable • Door interlocked		
Control Circuit	• 24V.AC		
ViZiLT Operator Interface	• High luminosity alphanumeric digital display • HAND-OFF-AUTO pushbuttons • MENU navigation pushbuttons		
Pressure Sensing	• Pressure transducer for fresh water application 316 stainless steel construction • Rated for 0-600psi working pressure • Pressure sensing line connection 1/2” brass Male NPT		
Visual Indications	• H-O-A position • System pressure • Cut-out and Cut-In pressure setting • Manual motor run • Automatic motor run • Motor overload • Pump start counter • Elapsed time meter (hours / non-resettable)		
Timers	• Minimum run timer (off delay) • Delay start timer (on delay) • Visual countdown		
Counters	• Pump start counter • Elapsed timer meter (hours / non-resettable)		
Operators	• Main disconnect handle • HAND-OFF-AUTO pushbuttons • MENU navigation pushbuttons		
Operation	Automatic Start	Start on pressure drop	
	Manual Start	Start pushbutton	
	Stopping	Stop pushbutton	
	Timers	Field adjustable & visual countdown	• Minimum run timer (off delay) • Delay start timer (on delay)

☐ A4	Elapsed time meter (time totalizer)
☐ A5	Motor run alarm contact
☐ A6	Loss of power alarm contact
☐ A7	Overload or short circuit alarm contact
☐ D11D	Pressure transducer 0-600psi with ½" MNPT 316 stainless steel bushing
☐ D14	Export packing for 1 controller
☐ D13A	Externally mounted wetted parts
☐ D14	Export packing for 1 controller
☐ D18	Audible alarm
☐ D19	Anti-condensation heater and thermostat
☐ D20	Anti-condensation heater and humidistat
☐ D21	Tropicalization
☐ D22	Phase reversal / failure pilot light and alarm contact
☐ D23	Controller power healthy pilot light and alarm contact
☐ D24	Pump failure via current sensing relay with pilot light and dry alarm contact
☐ D25	Low zone pump control function
☐ D26	Mid zone pump control function
☐ D27	High zone pump control function
☐ D28	Selector switch in auto alarm contacts
☐ D29	Selector switch in off alarm contacts
☐ D30	Motor heater circuit
☐ D35	Seismic Certification compliant to CBC 2019, IBC 2018 rigid base/wall mounted only
☐ D36	Special Seismic Certification compliant to OSHPD rigid base/wall mounted only
☐ D37	100kA high short circuit withstand rating for 200V to 600V

☐ L01	Other language and English (bilingual)
☐ L02	French
☐ L03	Spanish
☐ L04	German
☐ L05	Italian
☐ L06	Polish
☐ L07	Romanian
☐ L08	Hungarian
☐ L09	Slovak
☐ L10	Croatian
☐ L11	Czech
☐ L12	Portuguese
☐ L13	Dutch
☐ L14	Russian
☐ L15	Turkish
☐ L16	Swedish
☐ L17	Bulgarian
☐ L18	Thai
☐ L19	Indonesian
☐ L20	Slovenian
☐ L21	Danish
☐ L22	Greek
☐ L23	Arabic
☐ L24	Hebrew
☐ L25	Chinese

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

ViZiLT Operator Interface



1 - High luminosity alphanumeric digital display
2 - HAND-OFF-AUTO pushbuttons
3 - MENU navigation pushbuttons
4 - Audible Alarm

TORNATECH

	BY	DD/MM/YY
DRAWN BY	ACD	15/05/23
FINAL APPROVAL	FC	15/05/23

JOCKEY PUMP CONTROLLER

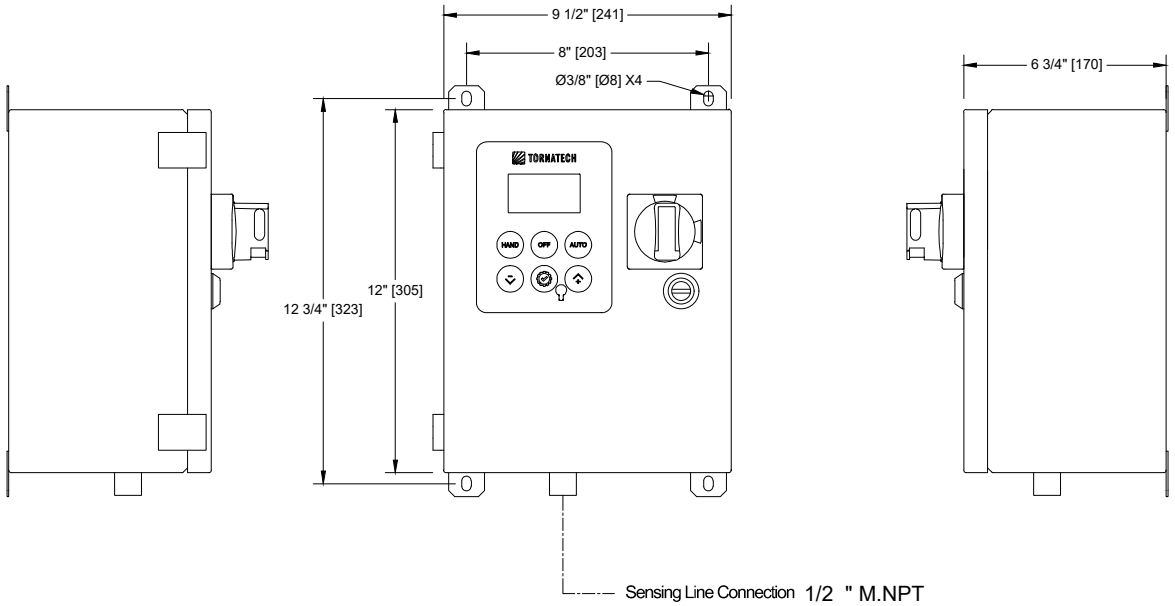
MODEL: JPLT

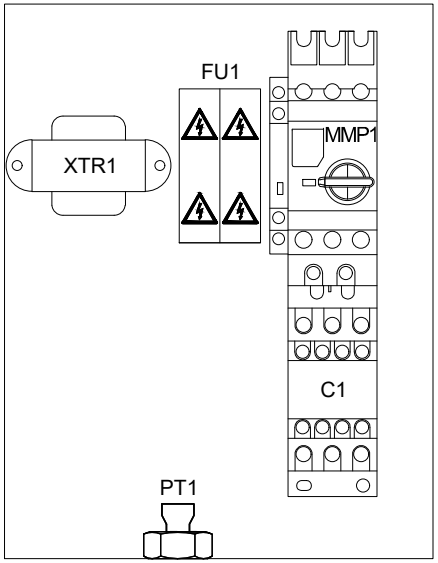
BUILT TO THE LATEST EDITION OF THE UL 508A

NYC Dpt of Building Approved

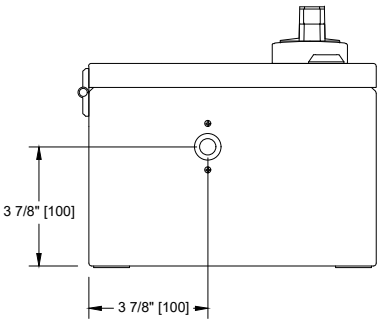
THIRD ANGLE PROJECTION

DRAWING NUMBER JPLT-DI001/E
DWG REV. 0
SHEET 1 OF 1





Standard Internal Layout



Voltage / Power Table	
Voltage	Max HP
1 Phase	
110 - 120	2
200 - 208	5
220 - 240	5
3 Phases	
200 - 208	7.5
220 - 240	10
380 - 400 - 415	15
440 - 480	20
600	25

Notes:
- Standard NEMA: NEMA 2
- Standard Paint: Textured Red RAL 3002.
- All Dimensions are in Inches [Millimeters]
- Use Watertight Conduit and Connector Only.
- Protect Equipment Against Drilling Chips.
- Door Swing Equal to Door Width

Drawing for information only.
Manufacturer reserves the right to modify this drawing without notice.
Contact manufacturer for "As Built" drawing.
*Dimensions may change depending on option required. Consult Factory for exact dimensions.

TORNATECH

	BY	DD/MM/YY
DRAWN BY	ACD	15/05/23
FINAL APPROVAL	FC	15/05/23

JOCKEY PUMP CONTROLLER ACROSS THE LINE / 3 PHASES

MODEL: JPLT

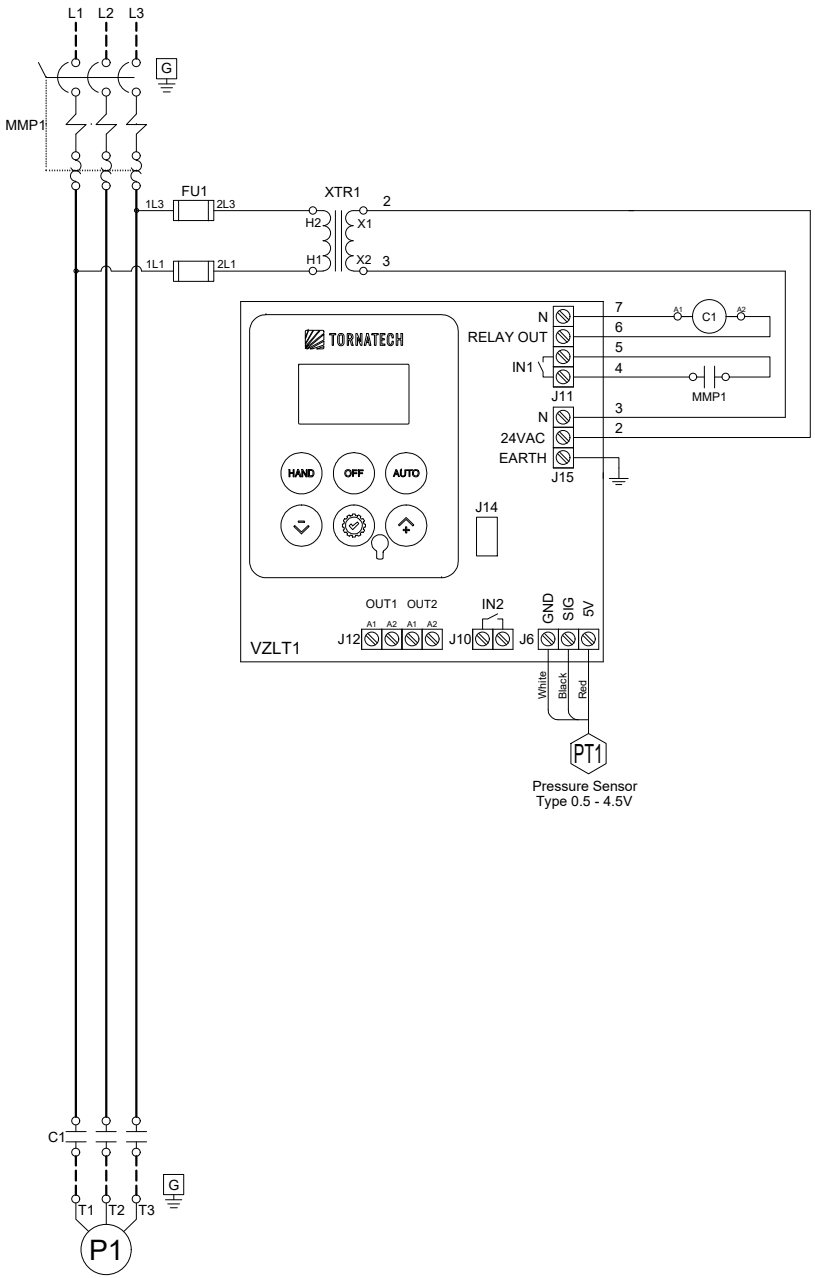
BUILT TO THE LATEST EDITION OF THE UL 508A

NYC Dpt of Building Approved

DRAWING NUMBER JPLT-WS003/E

DWG REV. 0

SHEET 1 OF 1



TORNATECH

		BY	DD/MM/YY
DRAWN BY		ACD	15/05/23
FINAL APPROVAL		FC	15/05/23

JOCKEY PUMP CONTROLLER ACROSS THE LINE / 3 PHASES

MODEL: JPLT

BUILT TO THE LATEST EDITION OF THE UL 508A

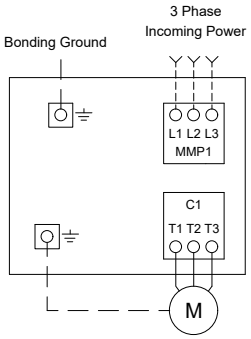
NYC Dpt of Building Approved

DRAWING NUMBER JPLT-TD003/E

DWG REV. 0

SHEET 1 OF 1

Power Connections and Motor Connections



Line Terminals (L1,L2,L3,GND)							
Maximum Motor Horsepower					Wire Size Copper Only	Torque	Wire Size Ground Copper Only
200-208V	220-240V	380-416V	440-480V	575-600V			
7.5HP	10HP	15HP	20HP	25HP	#14 AWG - #8 AWG	2.5 Nm	#14 AWG - #2 AWG

Motor Terminals (T1,T2,T3,GND)							
Maximum Motor Horsepower					Wire Size Copper Only	Torque	Wire Size Ground Copper Only
200-208V	220-240V	380-416V	440-480V	575-600V			
3HP	4HP	5.5HP	7.5HP	10HP	#14 AWG - #10 AWG	1.7 Nm	#14 AWG - #2 AWG
7.5HP	10HP	15HP	20HP	25HP	#14 AWG - #8 AWG	2.5 Nm	#12 AWG - #2 AWG