

END SUCTION FIRE PUMP SUBMITTAL



Fire Pump System

FLOW RATE(GPM)

750

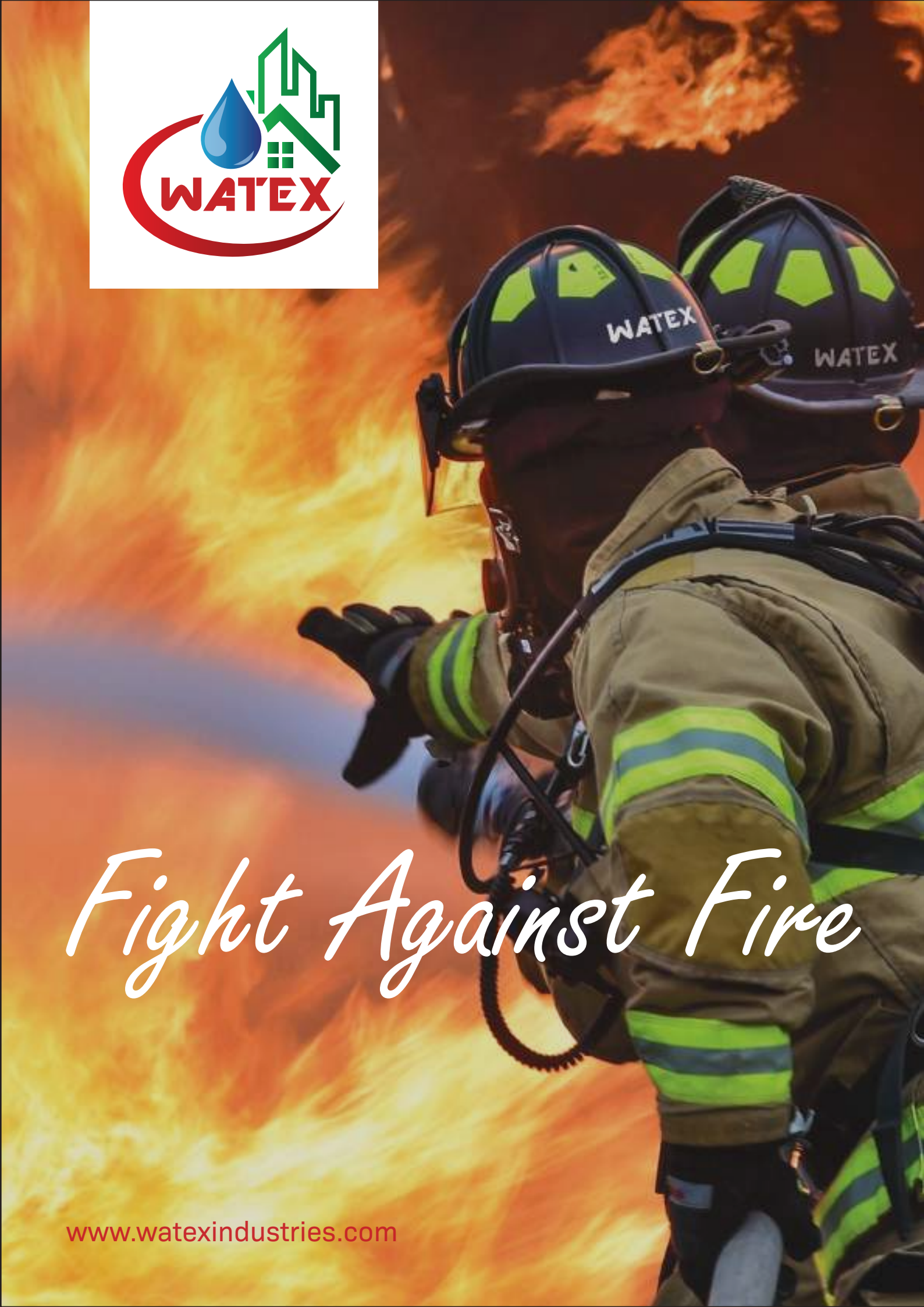
PRESSURE(BAR)

8

ELECTRIC DRIVEN + DIESEL DRIVEN + JOCKEY PUMP

Fight Against Fire

www.watexindustries.com

The background of the entire image is a photograph of two firefighters. They are wearing dark blue helmets with yellow reflective stripes and the word "WATEX" in white. They are also wearing tan fire-resistant suits with yellow reflective stripes. They are positioned in front of a large, intense fire that fills the background with bright orange and yellow flames. The firefighter in the foreground is holding a hose, and both are looking towards the fire.

Fight Against Fire

www.watexindustries.com





**WATEX Pumps Industries,
established in 2009 has since been
providing reputable firefighting
equipment that is consumer friendly
and at reasonable prices.**

We feel privileged to offer extensively engaging design, assembly as well as marketing high technology pumping systems and services to the ever-increasing infrastructural demands of UAE. WATEX Pumps supplies these products to authorities like DEWA, SEWA etc. as well as offering pumping solutions to local municipalities.

We strive to provide the latest technology and internationally-approved brands at affordable prices to all our customers. We believe in creating and maintaining consumer relationships in order to build mutual trust.



Our Vision

Thinking, Planning, Implementing & Focusing on high manufacturing Standards to prepare every place safe for you



Our Mission

To spread power of water against fire by manufacturing pumps with high quality & service for life according to global standards



ABOUT US

WATEX Pumps Industries is privileged to be associated with the ever-increasing infrastructural demands of UAE.

WATEX Pumps industries, established in 2009 has earned a reputation pumps and fire fighting products at competitive pricing with the added benefit of a customer friendly environment.

We strive to provide the latest technology and international approved brands at affordable prices to all our customers. Our core competency is our customer relationship. We have built a trust with our everyday consumer, which has provided us with regular business for over two decades.

Why Choose Us

We strongly believe in great customer service and work towards the same. In doing so, we offer extended warranties and special offers that are provide by our suppliers and product manufacturers. Our staff is educated about the products are available for any questions or concerns you might have. WATEX PUMPS INDUSTRIES can offer to you a wide range of different types of pumps to be suitable for all applications, this all is between your hand by following the lastest updates of Global standerds we can ensure the 100% qualified pumps.

It is our mission to effectively provide high quality pumping systems in the United Arab Emirates and contribute to a better quality of life.

OUR SERVICES

- **Firefighting pumps**
- **Water pumps**
- **Industrial Pumps**
- **Firefighting equipment**
- **Installation**
- **Testing commissioning**
- **Maintenance services**
- **Repairing services**
- **AMC**
- **Supply of assembled control panel**

Available In:

- **UAE**

Abu Dhabi, Dubai, Sharjah, Ajman,
Umm Al Quwain, Ras Al Khaimah and
Fujairah

- **JORDAN**

Amman



CEO's Message

The company highly values its clients, viewing the clients of any company as vital to the company's success. It therefore places top priority on seeking out the most highly qualified and skilled employees to provide its clients needs on a continuous & regular basis.

We are highly proud to have been awarded UL, FM, LPCB & ISO certifications an internationally recognised standards that ensures services meet the needs of clients through an effective quality management system.

Eng. Nedal Mahmoud
MD



PRODUCTION FACILITY



**Design
Manufacturing
Testing**





Operation Test

Our pump is to be subjected to an operation test at rated speed under applicable requirements. Performance curve are plotted showing the efficiency, brake horsepower (KW) and total head developed at shutoff at rated capacity at 150 percent of rated capacity and at selected intermediate capacities exceeding 150 percent of rated capacity.

Impeller & Shaft Balancing Test

The sample impeller is to be installed in a calibrated dynamic balancing test apparatus. The impeller is to be evaluated in two correction planes as described in the standard for mechanical vibration -balance quality requirements of rigid rotors.



Hydrostatic Pressure Test

Readings are to be taken of the maximum impeller imbalance and the location of the imbalance in the impeller for each plane.

There still be no rupture or leakage through the castings at the test pressure to be suitable as our fire fighting product.

DIESEL FIRE PUMP

<u>Diesel Pump:</u>	
Pump Approval	
Make	WATEX- Made in UAE
Rated Flow	750 US GPM
Rated Pressure	8 BAR
Pump Type	End Suction
Pump Model	WE 100-260
Pump Speed	2900 RPM
Casing	CAST IRON
Impeller	STAINLESS STEEL/BRONZE
Shaft	STAINLESS STEEL
Shaft Sleeves	Bronze

<u>Engine:-</u>	
Pump Approval	
Make	KIRLOSKAR
Model	KFP4R-UF16R2
Cooling Method	Heat Exchange
Rated KW	116HP
Speed	3000 RPM

<u>Accessories:</u>	
Approval:	
Fuel Tank:	Watex Tank 120US Gallons
Exhaust Silencer	4" Flanged
Battery	12 VDC
Flow Meter	6" GERAND

ELECTRIC FIRE PUMP

<u>Electric Pump:</u>	
Make	Watex - Made in UAE
Rated Flow	750 US GPM
Rated Pressure	8 BAR
Pump Type	End Suction
Pump Model	WE 100-260
Pump Speed	2950 RPM
Casing	CAST IRON
Impeller	STAINLESS STEEL/BRONZE
Shaft	STAINLESS STEEL
Shaft Sleeves	Bronze
Pump Approval	

<u>Motor:</u>	
Make	MARATHON
Enclosure	NEEMA
Model	365TSTDCD4010
Voltage	415V, 50HZ, 3PH
Rating	100HP
Speed	2965
Service Factor	1.15
Protection	CLASS F
Insulation	IP23
Motor Approval	

JOCKEY PUMP

<u>JOCKEY PUMP:</u>	
Make	Watex - UAE
Duty Flow	22 GPM/90M
Pump Type	Vertical Multistage
Pump Model	RV4-12
RPM	2900
Casing	Stainless Steel
Impeller	Stainless Steel
Suction Connection	1 $\frac{1}{4}$ " Flanged to PN 25
Pump Approval	

Motor:	
Type	TEFC (IP 55)
Power Supply	3 Phase, 415Volt, 50 Hz 2.2 KW

FIRE PUMP CONTROLLERS

Diesel Pump Controller:

Approval



Make

Tornatech

Model

GPD-12-220

Supply Voltage

208V-240V

Enclosure

NEMA 3

Mounting

Wall Mounted

Electric Pump Controller:

Approval



Make

Tornatech

Model

GPY-415\100\3\50

Rating

100 HP

Supply Voltage

3Ph, 415V, 50Hz

Enclosure

NEMA 3

Mounting

Floor

Jockey Pump Controller:

Approval



Make

Tornatech

Model

JP3-415\5.5\3\50

Rating

5.5 HP

Supply Voltage

3Ph, 415V, 50Hz

Enclosure

NEMA 3

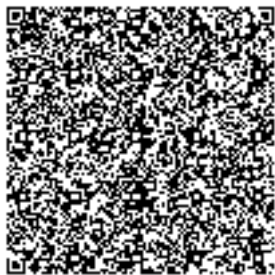
Mounting

Wall Mounted

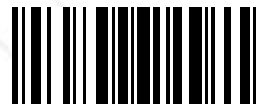
	Vendor Ref. No. NIL	
	Vendor Doc. No. A	
Contractor Name:	Contractor Ref. No. -	
Project Name: NA	Contractor Job No. -	

CERTIFICATE

0	Issued for approval	LL	PG		
Rev.	Description	Prepared	Checked	Approved	Date



Industrial License / رخصة صناعية



Regular License - رخصة عادية

License No. 73793 رقم الرخصة

ACCI No. 86697 رقم الغرفة

Register No. 76961 رقم السجل التجاري

License Details	تفاصيل الرخصة	Renew License / تجديد رخصة
Trade Name	WATEX PUMPS INDUSTRIES	الاسم التجاري و اتكس لصناعة المضخات
Legal Form	Sole Establishment	الشكل القانوني مؤسسة فردية
Expire Date	2023-12-01 تاريخ الانتهاء	Issue Date 2015-12-07 تاريخ الاصدار

Role / الصفة	Passport / رقم الجواز	Nationality / الجنسية	Member Name / اسم صاحب الترخيص
مالك Owner - Proprietor	CP8909715	الإمارات العربية المتحدة United Arab Emirates-The UAE	امينه حسين عبدالله محمد المرزوقي AMINA HUSAIN ABDULLA MOHAMED ALMARZOOQI
مدير Manager - Director	R0181839	الدومينيكا Dominica	محمود نضال محمود احمد MAHMOUD NEDAL MAHMOUD AHMAD

Activites	الأنشطة
Pumps Manufacturing	صناعة المضخات

صندوق البريد P.O. Box	تاريخ انتهاء عقد الاجار Contract Expiry Date	اسم المؤجر / Lessor	العنوان / Address
33404	2023-02-14	حسن عبدالله محمد السعيد	معرض رقم 16، عجمان الصناعية 1 Exhibition-Showroom No. 16, Ajman Industrial 1

ملاحظات

Emp No. رقم الموظف	Voucher Date. 2022-10-19 تاريخ الايصال	Voucher No. 30191587 رقم الايصال
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Print Date 2022-10-19 تاريخ الطباعة



Industrial Production License		رخصة إنتاج صناعي
Record Number	IL017158	رقم القيد
Trade Name	واتكس لصناعة المضخات Watex Pumps Industries	الإسم التجاري
Record Date	06/11/2018	تاريخ القيد
Expiry Date	26/09/2023	تاريخ الانتهاء
Legal Form	شركة الشخص الواحد Sole Proprietorship	الشكل القانوني
Phone Number	065275838	رقم الهاتف
Address	Ajman Ajman Industrial new industrial area amman street shed 16 عجمان عجمان الصناعية	العنوان

License Owners		أصحاب الترخيص	
Nationality	الجنسية	Name	الإسم
United Arab Emirates	الإمارات العربية المتحدة	amina husain abdulla mohamed almarzooqi	امينة حسين عبدالله مجد المرزوقي

Activities	الأنشطة
pump manufacture	صناعة المضخات





CERTIFICATE OF REGISTRATION

WATEX PUMPS INDUSTRIES

Exhibition-Showroom No. 16, Ajman Industrial 1, Ajman, UAE.

Has been assessed by UCS and found to be in compliance with the requirements of the management system standard.

ISO 9001:2015 Quality Management System

Scope of Registration

Design, Manufacture, Assemble, Balancing, Lathing, Supply, Installation, Testing and commissioning of fire pumps, Water pumps, Fire and water control panels, Firefighting systems, fire alarm systems and accessories, Fire hose reels, Cabinets, Extinguishers, Valves and Doors.

Certificate Number: UCSQMS2012120

Registration Date: 17/12/2020

Expiry Date: 17/12/2023

First Surveillance Audit: 16/12/2021

Second Surveillance Audit: 16/12/2022

Universal Certification & Services FZE
Authorized Signatory



Universal Certification & Services FZE (UCS). is Accredited by ASIB (Accred Services International Board (Europe) Limited
Certification Body Registration Reference: 2020107 Registered Office: 0078, Ajman Free Zone, Ajman, United Arab Emirates.
Accreditation Body Registered Office: Kemp House, 160 City Road, London, United Kingdom.
This certificate remains valid while the holder maintains the management system in accordance
with the standard(s) above, which will be periodically audited by UCS.
The certificate is property of UCS and must be returned on request.
Validity of this certificate may be confirmed at www.ucsiso.com.

CERTIFICATE OF COMPLIANCE

Certificate Number EX27019
Report Reference EX27019-2018-11-05
Date 2022-February-25

Issued to:

Watex Pumps Industries
New Industrial Area Amman St, Shed #16
Ajman AE

**This is to certify that
representative samples of**

CENTRIFUGAL FIRE PUMPS, END SUCTION

Models WE 50-260, WE 50-315, WE 65-260, WE-65-315,
WE 80-260, WE 80-315, WE 100-260, WE 100-315, WE
65-250, WE 80-250, WE 125-315

Have been investigated by UL in accordance with the
Standard(s) indicated on this Certificate.

Standard(s) for Safety: ANSI/CAN/UL 448, Standard for Pumps for Fire-Protection
Service

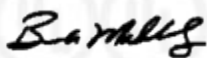
Additional Information: See the UL Online Certifications Directory at
<https://iq.ulprospector.com> for additional information

This Certificate of Compliance does not provide authorization to apply the UL Mark. Only the UL Follow-Up
Services Procedure provides authorization to apply the UL Mark.

Only those products bearing the UL Mark should be considered as being UL Certified and covered under UL's
Follow-Up Services.

Look for the UL Certification Mark on the product.

This is to certify that representative samples of the product as specified on this certificate were tested according
to the current UL requirements



Bruce Mahrenholz, Director North American Certification Program

UL LLC

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contact a local UL Customer Service Representative at <http://ul.com/aboutul/locations/>





QYLU.EX15277 - INTERNAL-COMBUSTION ENGINES FOR DRIVING STATIONARY FIRE PUMPS

Internal-combustion Engines for Driving Stationary Fire Pumps

See General Information for Internal-combustion Engines for Driving Stationary Fire Pumps

KIRLOSKAR OIL ENGINES LTD

Plot D/1, Five Star MIDC, Kagal
Hatkangale Industrial Area
Vill : Talandage
Kolhapur, MH 416202 INDIA

EX15277

DIESEL ENGINES RATED FOR USE WITHIN SPEED RANGES

Model	No. of Cylinders	Minimum		Maximum	
		Rated Speed (rpm)	Rated HP	Rated Speed (rpm)	Rated HP
KFP4R-UF05	4	2800	57	3000	55
KFP4R-UF08	4	2800	77	3000	76
KFP4R-UF16R1	4	2800	105	3000	152
KFP4R-UF16R2	4	2800	146	3000	116
KFP6R-UF26R1	6	2800	251	3000	247
KFP6R-UF26R2	6	2800	164	3000	217

DIESEL ENGINES RATED AT SPECIFIC SPEEDS

Model	No. of Cylinders	Rated HP	Rated Speed (rpm)
KFP4R-UF07	4	62	1760
	4	70	2100
	4	74	2200
	4	74	2350
	4	77	2600
KFP4R-UF15	4	108	1760
	4	111	2100
	4	117	2200

	4	143	2350
	4	151	2600
KFP6R-UF25	6	169	1760
	6	191	2100
	6	196	2200
	6	203	2350
	6	225	2600
KFP6S-UF35	6	288	1760
	6	336	2100
	6	332	2200
	6	330	2350

Last Updated on 2018-09-14

The appearance of a company's name or product in this database does not in itself assure that products so identified have been manufactured under UL's Follow-Up Service. Only those products bearing the UL Mark should be considered to be Certified and covered under UL's Follow-Up Service. Always look for the Mark on the product.

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CERTIFICATE OF COMPLIANCE

Certificate Number 20161116-EX5190
Report Reference EX5190-20161116
Issue Date 2016-NOVEMBER-16

Issued to: Regal Beloit America Inc
1946 W Cook Rd
Fort Wayne IN 46818

This is to certify that
representative samples of FIRE PUMP MOTORS
Refer to Addendum Page for Models

Have been investigated by UL in accordance with the
Standard(s) indicated on this Certificate.

Standard(s) for Safety: UL 1004-1, Rotating Electrical Machines – General
Requirements
UL 1004-5, Safety for Fire Pump Motors

Additional Information: See the UL Online Certifications Directory at
www.ul.com/database for additional information

Only those products bearing the UL Certification Mark should be considered as being covered by UL's
Certification and Follow-Up Service.

Look for the UL Certification Mark on the product.



Bruce Mahrenholz, Director North American Certification Program

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CERTIFICATE OF COMPLIANCE

Certificate Number 20161116-EX5190
Report Reference EX5190-20161116
Issue Date 2016-NOVEMBER-16

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

Fire Pump Motors with ODP (Open Drip Proof) enclosures, and NEMA Frame sizes 143T, 145T, 182T, 184T, 213T, 215T, 254T, 256T, 284T, 286T, 324T, 326T, 364T, 365T, 404T, 405T, 444T, 445T, 447T, and 449T.

Model number may or may not begin with 0 through 9 or any Letter A through Z; may be followed by a letter A through N; followed by 143, 145, 182, 184, 213, 215, 254, 256, 284, , , 286, , , 324, 326, 364, , , 365, , , 404, , , 405, , , 444, , , 445, , , 447, , , or 449; followed by the letter T or letters TS; followed by the Letter T; followed by one Character D; followed by one Letter B or C or ; may be followed by any letter A through Z; followed by one to five Digits 0 through 99999; which may or may not be followed by any Letter A through Z; which may or may not be followed by Letter A through Z; which may or may not be followed by the Letter R and one to three Digits 1 through 999; all followed by Letter H.

Alternate Model number - Model number may or may not begin with 0 through 9 or any Letter A through Z; may be followed by any Letter A through N; followed by 143, 145, 182, 184, 213, 215, 254, 256, 284, 286, 324, 326, 364, 365, 404, 405, 444, 445, 447, or 449; followed by the letter T or letters TS; followed by the Letter T; followed by one Character D; followed by one Letter B or C; may be followed by any letter A through Z; followed by one to five Digits 0 through 99999; which may or may not be followed by the addition of a dash followed by a one to six digit number; which may or may not be followed by any Letter A through Z; which may or may not be followed by Letter A through Z; all followed by letter H.

Alternate Model number – Model PRODUCT which may be followed by 0 through 9 or A through Z; may be followed by 0 through 9 or A through Z; followed by LM; followed by a five or six digit number; may or may not be followed by A through Z; may or may not be followed by A through Z; may or may not be followed by R; may or may not be followed by 0 through 999 or one or two letters A through Z; all followed by letter H.

Alternate Model number – Model P followed by E, J, L, M, or N; followed by 0 through 9; followed by two letters AA through ZZ; followed by two digits 00 through 99; followed by any letter A through Z.



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CERTIFICATE OF COMPLIANCE

Certificate Number 20140708-EX3971
Report Reference EX3971-20061111
Issue Date 2014-JULY-08

Issued to:

TORNATECH INC

132

7075 PLACE ROBERT-JONCAS

ST LAURENT

QC H4M 2Z2 CANADA

This is to certify that
representative samples of

PUMP CONTROLLERS, FIRE

Fire Pump Controllers, Models GPL, GPA, GPP, GPR,
GPS, GPV, GPY and GPW.

Transfer Switches, Models GLU and GPU

Have been investigated by UL in accordance with the
Standard(s) indicated on this Certificate.

Standard(s) for Safety:

See Addendum Page

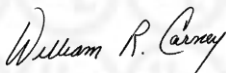
Additional Information:

See the UL Online Certifications Directory at
www.ul.com/database for additional information

Only those products bearing the UL Listing Mark for the US and Canada should be considered as being covered by UL's Listing and Follow-Up Service meeting the appropriate requirements for US and Canada.

The UL Listing Mark for the US and Canada generally includes: the UL in a circle symbol with "C" and "US" identifiers:  the word "LISTED"; a control number (may be alphanumeric) assigned by UL; and the product category name (product identifier) as indicated in the appropriate UL Directory.

Look for the UL Listing Mark on the product.



William R. Carney, Director, North American Certification Programs
UL LLC

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CERTIFICATE OF COMPLIANCE

Certificate Number 20140708-EX3971
Report Reference EX3971-20030507
Issue Date 2014-JULY-08

Issued to:

TORNATECH INC

132

7075 PLACE ROBERT-JONCAS

ST LAURENT

QC H4M 2Z2 CANADA

**This is to certify that
representative samples of**

PUMP CONTROLLERS, FIRE

GPD Series controller for engine-driven centrifugal fire
pumps

Have been investigated by UL in accordance with the
Standard(s) indicated on this Certificate.

Standard(s) for Safety:

UL218, Fire Pump Controllers

UL508, Industrial Control Equipment

CSA C22.2 No. 263-09, Fire Pump Controllers

CAN/CSA C22.2 No. 14-13, Industrial Control Equipment

NFPA20 (2010), Installation of Stationary Pumps for Fire
Protection

Additional Information:

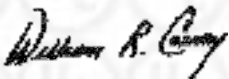
See the UL Online Certifications Directory at
www.ul.com/database for additional information

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"US" identifiers:  the word "LISTED"; a control number (may be alphanumeric) assigned by UL; and the product category name (product identifier) as indicated in the appropriate UL Directory.

Look for the UL Listing Mark on the product.



William R. Carney, Director, North American Certification Programs
UL LLC

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CERTIFICATE OF COMPLIANCE

Certificate Number 20140708-E158750
Report Reference E158750-19940223
Issue Date 2014-JULY-08

Issued to: **TORNATECH INC**
132
7075 PLACE ROBERT-JONCAS
ST LAURENT
QC H4M 2Z2 CANADA

This is to certify that
representative samples of

INDUSTRIAL CONTROL PANELS

Industrial control panels. Includes **lockey pump controller Model JP** remote alarm panel for electric fire pump controllers Model APE, remote alarm panel for diesel engine fire pump controllers Model APD, and low pressure shutdown panel Model APL. These models are not exhaustive.

Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.

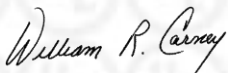
Standard(s) for Safety: UL 508, Standard for Industrial Control Panels
CSA C22.2 NO. 14, Industrial Control Equipment

Additional Information: See the UL Online Certifications Directory at
www.ul.com/database for additional information

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The UL Listing Mark for the US and Canada generally includes: the UL in a circle symbol with "C" and "US" identifiers:  the word "LISTED"; a control number (may be alphanumeric) assigned by UL; and the product category name (product identifier) as indicated in the appropriate UL Directory.

Look for the UL Listing Mark on the product.



William R. Carney, Director, North American Certification Programs
UL LLC

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CERTIFICATE OF COMPLIANCE

Certificate Number 20190514-MH63509
Report Reference MH63509-20190507
Issue Date 2019-MAY-14

Issued to:

Watex Pumps Industries

New Industrial Area Amman St, Shed 16

Ajman UNITED ARAB EMIRATES

**This certificate confirms that
representative samples of**

ABOVEGROUND FLAMMABLE-LIQUID TANKS

Aboveground tanks for flammable and combustible liquids with or without supports.

Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.

Standard(s) for Safety:

UL 142, Steel Aboveground Tanks for Flammable and Combustible Liquids

Additional Information:

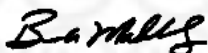
See the UL Online Certifications Directory at <https://iq.ulprospector.com> for additional information.

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Look for the UL Certification Mark on the product.

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Bruce Mahrenholz, Director North American Certification Program

UL LLC

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Certificate of Compliance

This certificate is issued for the following:

Diesel Engine Fire Pump Drivers
(see listing attached)

Prepared for:

Kirloskar Oil Engines Ltd
Laxmanrao Kirloskar Road
Khadki Pune, 411 003
India

Manufactured at:

Kirloskar Oil Engines Ltd.
Plot D/1, Five Star MIDC, Kagal Hatkangale Industrial Area
Khadki Village of Talandge, Kolhapur
Maharashtra, 416202 India

FM Approvals Class: 1333 (February 2018)

Approval Identification: 3058182

Approval Granted: October 5, 2018

To verify the availability of the Approved product, please refer to www.approvalguide.com

Said Approval is subject to satisfactory field performance, continuing Surveillance Audits, and strict conformity to the constructions as shown in the Approval Guide, an online resource of FM Approvals.

David Fuller
VP - Manager of Fire Protection
FM Approvals
1151 Boston-Providence Turnpike
Norwood, MA 02062 USA





Certificate of Compliance

Model	Rated Power, hp	Rated Power, kW	Rated Speed, r/min
KFP4R-UF05	57	42	2800
KFP4R-UF05	56	41.7	2900
KFP4R-UF05	55	41	3000
KFP4R-FM05D1	43	32	2900
KFP4R-UF08	77	57	2800
KFP4R-UF08	77	57	2900
KFP4R-UF08	76	56	3000
KFP4R-UF16R1	105	78	2800
KFP4R-UF16R1	128	95	2900
KFP4R-UF16R1	152	113	3000
KFP4R-UF16R2	146	108	2800
KFP4R-UF16R2	131	97	2900
KFP4R-UF16R2	116	86	3000
KFP6R-UF26R1	251	187	2800
KFP6R-UF26R1	249	185	2900
KFP6R-UF26R1	247	184	3000
KFP6R-UF26R2	164	122	2800
KFP6R-UF26R2	191	142	2900
KFP6R-UF26R2	217	161	3000
KFP4R-UF07	77	57	2600
KFP4R-UF07	74	55	2350
KFP4R-UF07	74	55	2200
KFP4R-UF07	70	52	2100
KFP4R-UF07	62	46	1760
KFP4R-UF15	151	112	2600
KFP4R-UF15	143	106	2350
KFP4R-UF15	117	87	2200
KFP4R-UF15	111	83	2100
KFP4R-UF15	108	80	1760
KFP6R-UF25	225	168	2600
KFP6R-UF25	203	151	2350
KFP6R-UF25	196	146	2200
KFP6R-UF25	191	142	2100
KFP6R-UF25	169	126	1760
KFP6S-UF35	330	246	2350
KFP6S-UF35	332	247	2200
KFP6S-UF35	336	250	2100
KFP6S-UF35	288	215	1760



Member of the FM Global Group



Certificate of Compliance

This certificate is issued for the following:

**Controllers for Electric Motor Driven and
Diesel Engine Driven Fire Pumps**

**Model GPx Series electric motor driven and
Model GPD diesel engine driven fire pump controllers
manufactured at Tornatech FZE in Dubai, UAE**

Prepared for:

TornaTech Inc.
7075 Pl Robert-Joncas, #132
St Laurent, QC H4M 2Z2
Canada

Manufactured at:

TornaTech FZE
Warehouse CC-4 near R/A 08
P.O. Box 18435, Jebel Ali
Dubai, United Arab Emirates

FM Approvals Class: 1321/1323

Approval Identification: 0003052698

Approval Granted: June 24, 2014

To verify the availability of the Approved product, please refer to www.approvalguide.com

Said Approval is subject to satisfactory field performance, continuing Surveillance Audits, and strict conformity to the constructions as shown in the Approval Guide, an online resource of FM Approvals.

A handwritten signature in black ink, appearing to read 'Richard B. Dunne', is written over a horizontal line.

Richard B. Dunne
Manager, Fire Protection
FM Approvals
1151 Boston-Providence Turnpike
Norwood, MA 02062



Member of the FM Global Group

Fire Pump Flowmeter Systems

Fire pump flowmeters may be used to determine the discharge of a fire pump. Water from the pump is temporarily directed through the flowmeter, then to atmospheric drain or back to the water supply source.

These flowmeters are calibrated to measure the fire pump output directly in gal/min (dm³ /min). A control valve is provided in the flowmeter line. This valve must be completely closed, except when the flowmeter is in use. Unless otherwise noted in the listing, these systems have 175 psi (1205 kPa) rated working pressure.

Fire Pump Flowmeter Systems

Pump Rating, gal/min (dm³ /min)	Nominal Meter Line Size in.	Model Designation	
		Venturi (1)	Orifice (2)
25 (95)	1 1/4	GV-25-1 1/4	-
50 (190)	2	GV-50-2	-
100 (380)	2 1/2	GV-100-2 1/2	GO-100-2 1/2
150 (570)	3	GV-150-3	GO-150-3
200 (755)	3, 4	GV-200-3, 4	GO-200-3, 4
250 (945)	4, 5	GV-250-4, 5	GO-250-4, 5
300 (1135)	4	GV-300-4	GO-300-4
400 (1515)	4, 5	GV-400-4, 5	GO-400-4, 5
450 (1705)	4, 5	GV-450-4, 5	GO-450-4, 5
500 (1895)	5, 6	GV-500-5, 6	GO-500-5, 6
750 (2840)	5, 6	GV-750-5, 6	GO-750-5, 6
1000 (3785)	6, 8	GV-1000-6, 8	GO-1000-6, 8
1250 (4730)	6, 8	GV-1250-6, 8	GO-1250-6, 8
1500 (5680)	8, 10	GV-1500-8, 10	GO-1500-8, 10
2000 (7570)	8, 10	GV-2000-8, 10	GO-2000-8, 10
2500 (9465)	8, 10	GV-2500-8, 10	GO-2500-8, 10
3000 (11 355)	8, 10	GV-3000-8, 10	GO-3000-8, 10
3500 (13 245)	10, 12	GV-3500-10, 12	GO-3500-10, 12

4000 (15 140)	10, 12	GV-4000-10, 12	GO-4000-10, 12
4500 (17 035)	10, 12	GV-4500-10, 12	GO-4500-10, 12
5000 (18 925)	10, 12	GV-5000-10, 12	GO-5000-10, 12

Each system consists of a Gerand Venturi (GV) or a Gerand Orifice (GO), a differential meter reading in gpm or dm³ /min and associated fittings.

GV systems can be equipped with either a 4 1/2 in. dial meter (Gerand Model K or Gerand Model G) or a 6 in. dial meter (Gerand Model M). GO systems are only available with a 4 1/2 in. dial meter (Gerand Model I). Permanent installations (wall or panel mount) or portable installations are available on all systems. Rated working pressure is 500 psi (3445 kPa) except that:

GV systems with Model M dial meter have a rated working pressure of 175 psi (1205 kPa).

GV systems with Model K or Model G dial meter and Class 150 flanges have a rated working pressure of 275 psi (1905 kPa).

The following end-connection styles are available:

Venturi (1)VS. Brass screw ends, 1 1/4 through 2 1/2 in.

Venturi (1)VW-B. Steel butt-welded ends, 2 1/2 through 12 in.

Venturi (1)V-GE. Steel grooved ends, 2 1/2 through 12 in.

Venturi (1)VW-F. Steel flanged ends, 2 1/2 through 12 in. Class 150 flanges rated at 275 psi (1905 kPa). Class 300 flanges rated at 500 psi (3445 kPa).

Orifice (2). Steel socket-welded ends with adaptability for flanging, 2 1/2 through 12 in.

Company Name:	Quest Engineering dba Gerand Engineering
Company Address:	2300 Edgewood Avenue South, St. Louis Park, Minnesota 55426, USA
Company Website:	http://gerandengineeringco.com
New/Updated Product Listing:	Yes
Listing Country:	United States of America
Certification Type:	FM Approved
Primary Class of Work:	1046-Fire Pump Flow Meters

	Vendor Ref. No. NIL	
	Vendor Doc. No. A	
Contractor Name:	Contractor Ref. No. -	
Project Name: NA	Contractor Job No. -	

FIRE PUMP HEAD

0	Issued for approval	LL	PG		
Rev.	Description	Prepared	Checked	Approved	Date

End Suction Fire Pump



Series of WE (WATEX End Suction) fire pumps are serialization products as Horizontal Single Stage, Single Flow Volute Casing Centrifugal pumps with axial Inlet which designed according to NFPA 20 for fire fighting Applications.

Models

- WE 32 - 200 • WE 32 - 260 • WE 50 -260 • WE 50 - 315
- WE 65 - 260 • WE 65 - 315 • WE 80- 260 • WE 80 - 315
- WE 100 - 260

End Suction Type

Rated Flow - Q up to 1000 GPM

Pressure - P up to 229psi

Temperature - T up to 105 C

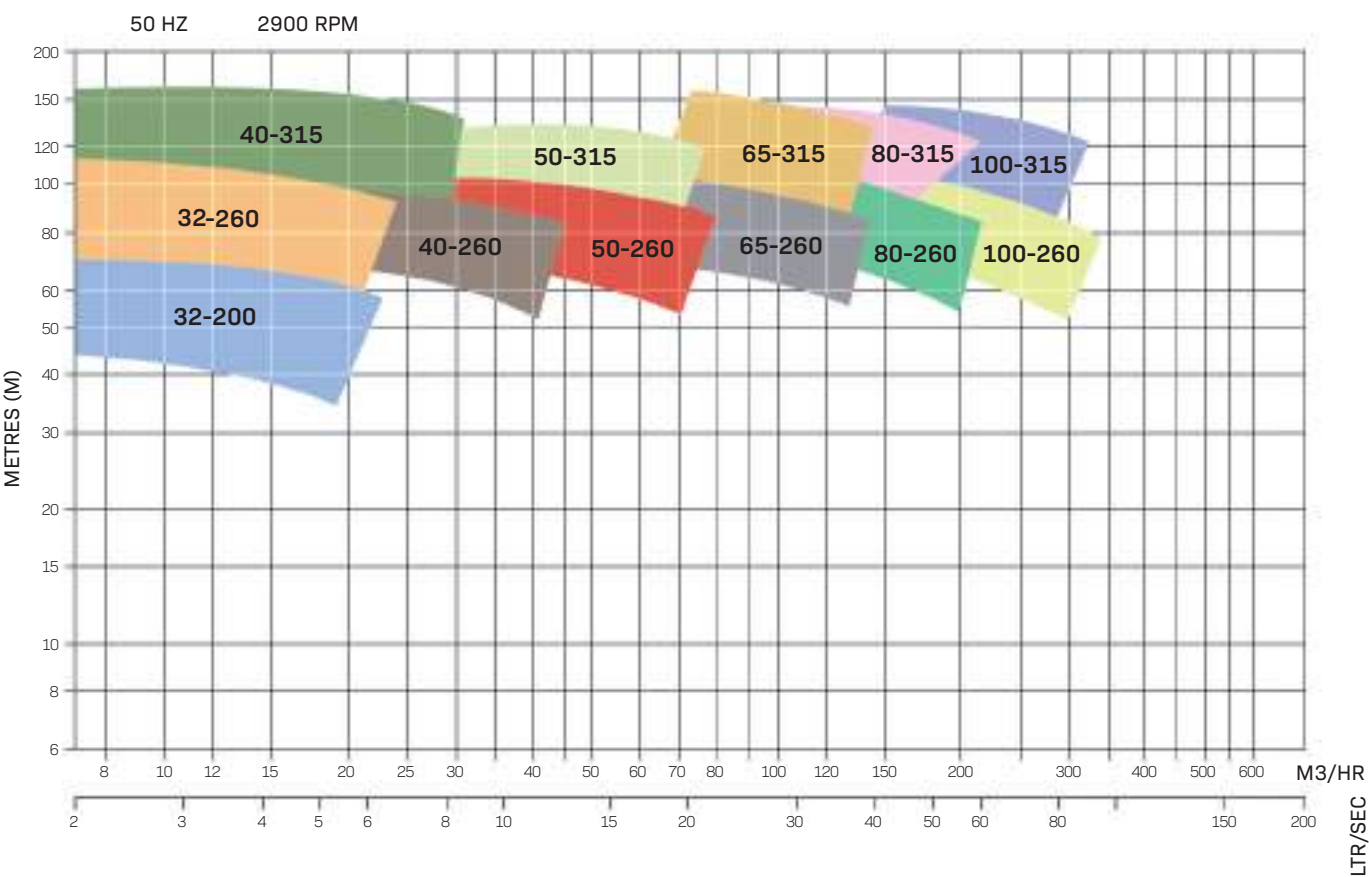
Shaft Sealing Soft Packing



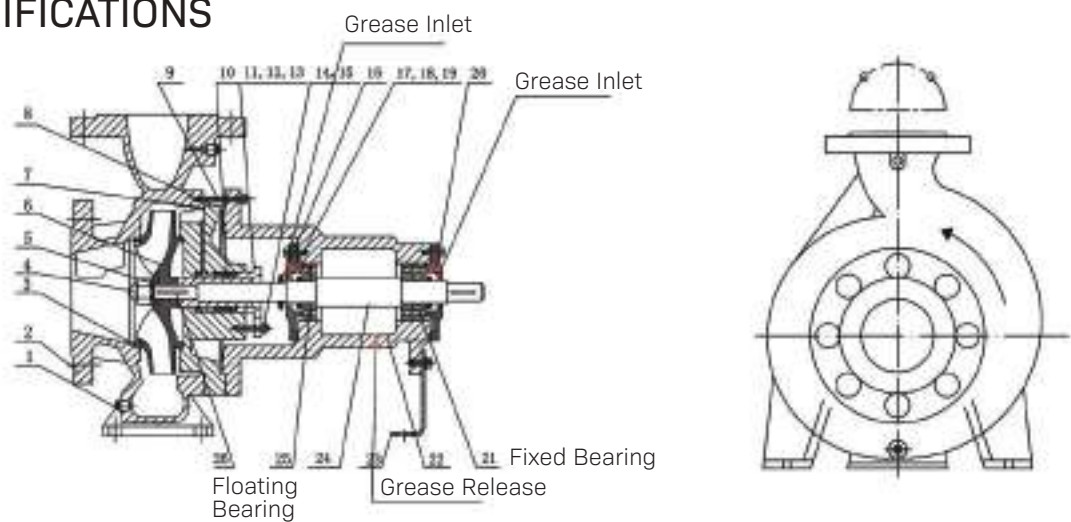
Features

- Designing applies to NFPA20 Standards and specification in accordance with UL448 and FM approval
- Max shaft power point is attained by hydraulic performance incited of pump cavitation, which truly qualified for NFPA20 requirements, as well as ensure safety and reliability of pump units
- Adaptable of electric motor and combustion engine as prime mover
- Varied revolong speed or performance pumps can be supplied according to user's requests
- Max shaft power point is closed to the point of 150% rated capacitym therefore the power and cost are low
- Pressure at shut off point small which require lower pressure rating of fittings or accessories, save cost for whole unit
- Single model covers wide performance range, no need to purchase different models with benefits clients by reducing inventory and shorten delivery

PRODUCT RANGE



PRODUCT SPECIFICATIONS



No	Name	Material	GB	Size
1	Casing	Ductile Cast Iron	GGG40	
2	Casing Wear Ring	Brass	C86500	175x160x15
3	Impeller Nut	Stainless Steel	SS304	M24X2
4	Washer	Stainless Steel	SS304	
5	Impeller	Bronze/ SS	C86300/ AISI304	
6	Casing Cover	Ductile Cast Iron	GGG40	
7	Bolts	Stainless Steel	SS304	M12x35
8	Bearing	Steel		SKF 47309BEP
9	Shaft	Steel		



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QWZU.EX27019 Centrifugal Fire Pumps, End Suction

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Centrifugal Fire Pumps, End Suction

[See General Information for Centrifugal Fire Pumps, End Suction](#)

WATEX PUMPS INDUSTRIES

EX27019

New Industrial Area Amman St, Shed #16
Ajman, UNITED ARAB EMIRATES

Rated Capacity GPM	Size In.	Model Dsg	Rated Net Pressure Range psi	Approx Speed RPM	Max Working Pressure psi
25	2.5x2	WE 50-260	75 - 105	2620	290
25	2.5x2	WE 50-260	86 - 120	2800	290
25	2.5x2	WE 50-260	92 - 128	2900	290
25	2.5x2	WE 50-260	96 - 133	2950	290
25	2.5x2	WE 50-260	99 - 137	3000	290
50	2.5x2	WE 50-315	118 - 167	2620	310
50	2.5x2	WE 50-315	135 - 191	2800	310
50	2.5x2	WE 50-315	144 - 205	2900	310
50	2.5x2	WE 50-315	149 - 213	2950	310
50	2.5x2	WE 50-315	154 - 220	3000	310
50	2.5x2	WE 50-260	76 - 106	2620	290
50	2.5x2	WE 50-260	86 - 121	2800	290
50	2.5x2	WE 50-260	93 - 130	2900	290
50	2.5x2	WE 50-260	96 - 134	2950	290
50	2.5x2	WE 50-260	99 - 139	3000	290
100	2.5x2	WE 50-315	116 - 166	2620	310
100	2.5x2	WE 50-315	133 - 190	2800	310
100	2.5x2	WE 50-315	143 - 204	2900	310
100	2.5x2	WE 50-315	148 - 211	2950	310
100	2.5x2	WE 50-315	153 - 218	3000	310
100	2.5x2	WE 50-260	75 - 106	2620	290
100	2.5x2	WE 50-260	86 - 121	2800	290
100	2.5x2	WE 50-260	93 - 130	2900	290
100	2.5x2	WE 50-260	96 - 135	2950	290

450	5x4	WE 100-260	80 - 105	2620	290
450	5x4	WE 100-260	93 - 122	2800	290
450	5x4	WE 100-260	99 - 131	2900	290
450	5x4	WE 100-260	102 - 136	2950	290
450	5x4	WE 100-260	105 - 140	3000	290
500	4x3	WE 80-250	128	2900	177
500	4x3	WE 80-250	128	2900	177
500	4x3	WE 80-315	103 - 162	2620	310
500	4x3	WE 80-315	120 - 186	2800	310
500	4x3	WE 80-315	129 - 201	2900	310
500	4x3	WE 80-315	134 - 209	2950	310
500	4x3	WE 80-315	139 - 216	3000	310
500	4x3	WE 80-260	66 - 98	2620	290
500	4x3	WE 80-260	77 - 113	2800	290
500	4x3	WE 80-260	83 - 122	2900	290
500	4x3	WE 80-260	86 - 126	2950	290
500	4x3	WE 80-260	90 - 131	3000	290
500	5x4	WE 100-315	116 - 174	2620	310
500	5x4	WE 100-315	134 - 199	2800	310
500	5x4	WE 100-315	144 - 213	2900	310
500	5x4	WE 100-315	149 - 221	2950	310
500	5x4	WE 100-315	155 - 229	3000	310
500	5x4	WE 100-260	80 - 105	2620	290
500	5x4	WE 100-260	93 - 122	2800	290
500	5x4	WE 100-260	100 - 131	2900	290
500	5x4	WE 100-260	103 - 136	2950	290
500	5x4	WE 100-260	107 - 140	3000	290
750	5x4	WE 100-315	166	2620	310
750	5x4	WE 100-315	123 - 192	2800	310
750	5x4	WE 100-315	134 - 207	2900	310
750	5x4	WE 100-315	139 - 215	2950	310
750	5x4	WE 100-315	144 - 223	3000	310
750	5x4	WE 100-260	76 - 106	2620	290
750	5x4	WE 100-260	89 - 122	2800	290
750	5x4	WE 100-260	97 - 131	2900	290
750	5x4	WE 100-260	101 - 136	2950	290
750	5x4	WE 100-260	104 - 140	3000	290
1000	5x4	WE 100-260	83 - 123	2800	290
1000	5x4	WE 100-260	90 - 132	2900	290
1000	5x4	WE 100-260	94 - 136	2950	290
1000	5x4	WE 100-260	97 - 141	3000	290

**WATEX PUMPS**

Trademark and/or Tradename:

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	Vendor Ref. No. NIL	
	Vendor Doc. No. A	
Contractor Name:	Contractor Ref. No. -	
Project Name: NA	Contractor Job No. -	

DIESEL ENGINE & CONTROLLER

0	Issued for approval	LL	PG		
<i>Rev.</i>	<i>Description</i>	<i>Prepared</i>	<i>Checked</i>	<i>Approved</i>	<i>Date</i>



Enriching Lives

Never compromise on safety...

Kirloskar
Diesel
Engines for
Fire Pumps



Unmatched
Quality and
Reliability



KIRLOSKAR OIL ENGINES LIMITED

A Rich Tradition of Engineering Excellence

The Kirloskar Legacy stands for a tradition of excellence for more than a century now. A personification of patronizing values and visionary goals, the name 'Kirloskar' is engraved on numerous nation-building milestones. Today, the Kirloskar Group, with a turnover exceeding USD 1.6 billion, stands as an enormous industrial conglomerate.

Incorporated in 1946, Kirloskar Oil Engines Limited (KOEL) is the flagship company of the Kirloskar group. We have four state-of-the-art manufacturing units in India that offer world-class service.

The company has a sizable presence in international markets, with offices in the USA, UAE., South Africa, Kenya and representatives in Indonesia, Vietnam and Nigeria. KOEL also has a strong distribution network throughout the Middle East and Africa.

Today KOEL is an acknowledged leader in the manufacturing of diesel engines, agricultural pumpsets, power tillers and generating sets. The company currently ranks among the leading manufacturers of diesel engines, which are manufactured and sold under Kirloskar Brand. Kirloskar engines cover a power envelop span ranging from 4 hp to 1250 hp in air-cooled and liquid cooled versions.

KOEL manufactures over 225,000 engines annually, which are used in over 100 different applications. These applications are found in sectors such as agriculture, power generation, construction, material handling, earth-moving, mining, offshore, fluid handling and agro-industrial market segments that include defence and marine applications. KOEL exports to over 60 countries worldwide.

Kirloskar Engines for Fire Pumps

Reliability of the fire protection systems is a major concern for insurance companies and end users. A prime contributor to the reliability of fire pumps is a dependable driver.

With over sixty years of experience in engine designing and manufacturing, Kirloskar Oil Engines Ltd. has the capability to offer dependable diesel engines for critical applications. The company's work with OEMs, contractors, consultants and end users over the years, has given it a comprehensive understanding of the need for cost effective and reliable diesel engines for fire pump packages.

Kirloskar KFP series engines have been designed to meet the stringent requirements of Factory Mutual (FM), Underwriters Laboratories (UL) as well as NFPA 20 standards. KFP series engines are currently available in 37 different ratings approved by FM and listed by UL. These stringent approval criteria cover performance and functional requirements, examination of manufacturing facility, quarterly audits of quality assurance procedures and a follow up programme to verify approved products' conformance.



Salient Features of KFP Series

- Heat exchanger for engine coolant
- Liquid cooled charge air cooler for after-cooled engine models
- FM approved cooling loop with raw water solenoid, flow switch and manual valves in main & emergency lines as per NFPA20 requirements
- Engine mounted instrument panel duly isolated from vibration
- Junction box integral with instrument panel for AC wiring
- Interconnection to main controller
- Engine coolant heater
- Starter Contactors (DC)
- Splitter for splitting the charging current coming from alternator to dual battery
- Heat shield on exhaust manifold, turbo charger & CAC pipes
- Fire resistant flexible supply & return lines in fuel connections
- UL listed drive shafts

Optional Accessories offered with Kirloskar KFP range for Fire Pump OEMs

- Drive Shaft Assembly: Listed or Non-Listed along with Drive Shaft Guard
- Fabricated Base Frames customized to suite various Engine-Pump combinations for Drop-in assembly of pumps
- Engine Base frames for VT pump installations
- Torsional Couplings with free service of TV analysis report
- Battery kits
- Weather Proof / Sound Attenuated Enclosures
- Standard Tool Kit
- Engine Maintenance Kits



FM Approved & UL Listed Engine Ratings

Engine Model	FM APPROVED & UL LISTED RATINGS							
	1760 RPM	2100 RPM	2200 RPM	2350 RPM	2600 RPM	2800 RPM	2900 RPM	3000 RPM
	HP	HP	HP	HP	HP	HP	HP	HP
KFP4R-FM05D1 Naturally Aspirated							43*	
KFP4R-UF05 Naturally Aspirated						57	56	55
KFP4R-UF07 Naturally Aspirated	62	70	74	74	77			
KFP4R-UF08 Naturally Aspirated						77	77	76
KFP4R-UF15 Turbocharged After cooled	108	111	117	143	151			
KFP4R-UF16R1 Turbocharged After cooled						105	128	152
KFP4R-UF16R2 Turbocharged After cooled						146	131	116
KFP6R-UF25 Turbocharged After cooled	169	191	196	203	225			
KFP6R-UF26R1 Turbocharged After cooled						251	249	247
KFP6R-UF26R2 Turbo-charged						164	191	217
KFP6S-UF35 Turbocharged After cooled	288	336	332	330				

*FM only rating

Values are rounded off from the decimals to the nearest whole value

Above mentioned Engine Ratings are as per NFPA 20, UL & FM approved guidelines and are applicable for stationary emergency standby fire pump service alone. Engines are rated at Standard site conditions with Temperature of 25°C, Altitude of 91 m (300 ft) above sea level and humidity of 60%. Engines are subjected to deration when operating at other site conditions. Please contact Kirloskar Oil Engines Ltd. for deration guidelines or visit <https://kfp.kirloskar.com>

Brief Specifications

Models	KFP4R-FM05D1 / KFP4R-UF05	KFP4R-UF07 / KFP4R-UF08	KFP4R-UF15 / KFP4R-UF16R1 / KFP4R-UF16R2	KFP6R-UF25 / KFP6R-UF26R1 / KFP6R-UF26R2	KFP6S-UF35
Engine Description	Vertical, Liquid Cooled, Compression Ignition, Four Stroke, Naturally Aspirated		Vertical, Liquid Cooled, Compression Ignition, Four Stroke, Turbocharged After cooled Diesel Engines		
Bore x Stroke (mm)	96 x 112	105 x 120		105 x 125	118 x 135
Displacement (Ltr)	3.20	4.16		6.48	8.86
Compression Ratio	17.5:1	17.5:1	17.0:1	17.0:1	17.5:1
Direction of Rotation	Counter- Clockwise (Looking from Flywheel End)				
Speed-Max Operating (rpm)	3000				2350
Min. Operating (rpm)	1760				
Dimensions (mm) L x W x H	1248x878x1120	1840x1140x1580	1840x1140x1580	2130x1330x1630	2270x1580x1890
Weight (kg)	500	580	630	880	1160
DC Voltage (V)	12	12	12	12	24

For inquiries & more Information visit <https://kfp.kirloskar.com>

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Email : Sanjay.Kunchetti@kirloskar.com

Technical details mentioned above are approximate & may change as per site condition / situation.
As continuous improvements are contemplated the description and illustrations are not binding.



Enriching Lives

KIRLOSKAR OIL ENGINES LIMITED

A Kirloskar Group Company

Regd. office: 13, Laxmanrao Kirloskar Road, Khadki,
Pune, Maharashtra 411003 INDIA.
Tel.: +91(20) 2581 0341 Fax: +91(20) 2581 3208, 2581 0209
Helpline: +91 8806 33 44 33
Email: koel.helpdesk@kirloskar.com
Website: www.koel.co.in

Authorised Distributor / Dealer



TORNATECH

Project: _____

Customer: _____

Engineer: _____

Pump Manufacturer: _____

Technical Data Submittal Document

Model GPD

Diesel Engine Driven 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.



N.Y.C.
APPROVED



November 2018



Standard, Listings, Approvals and Certifications	Built to NFPA 20 (latest edition)	
	Underwriters Laboratory (UL)	• UL218 - Fire Pump Controllers • CSA C22.2 No. 14 Industrial Control Equipment
	FM Global	Class 1321/1323
	New York City	Accepted for use in the City of New York by the Department of Buildings
	Seismic Certification	See page 5 for details
	Optional	
Enclosure	☐ CE Mark	Various EN, IEC & CEE directives and standards
	Protection Rating ☐ Standard: NEMA 2 (IP31) 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
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	
General	AC	☐ 120V / 1ph / 60hz ☐ 208V to 240V / 1ph / 50-60hz
	DC	☐ 12VDC ☐ 24VDC
	Grounding system	• Negative
	Battery chargers	• Two independent fully automatic • 10A continuous charge • 500mA trickle charge
Electrical Reading	• Battery 1 & Battery 2 voltage • Battery 1 & Battery 2 charging amperage • Charging mode	
Pressure Reading	• Continuous system pressure display • Cut-in and cut-out pressure setting	
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 connection 1/2" Female NPT • Drain connection 3/8" • Rated and calibrated for 0-500psi working pressure • Externally mounted with protective cover		
Audible Alarm	4" alarm bell - 85 dB at 10ft. (3m)		
Visual Indications	• Engine run • Main switch AUTO • Main switch in OFF • Main switch in HAND • Periodic test • Cranking Cycle • AC Power available • Pump room temperature (°F or °C)		
Visual & Audible Alarms	Visual only • Pump room trouble • Pump on demand • AC Failure • Charger 1 Failure • Charger 2 Failure • Weak battery 1 • Weak battery 2 • Battery 1 overvoltage • Battery 2 overvoltage • Loss of continuity 1 • Loss of continuity 2 • High fuel level • Fuel tank leak • PLD low suction pressure • High raw water temperature • Low pump room temperature • High pump room temperature • ECM warning • Weekly test cut-in not reached • Check weekly test solenoid • Pressure transducer fault • Invalid Cut-In • Service required Visual and Audible • Engine trouble • Controller trouble • Engine low oil pressure • Engine high temperature • Engine low temperature • Engine overspeed • DC Failure • Battery 1 Failure • Battery 2 Failure • Engine fail to start • Low fuel level • ECM fault • ECM SS in Alternate Position • Fuel injection malfunction		
Remote Alarm Contacts	DPDT-8A-250V.AC • Engine run • Common controller trouble • Charger #1 & Charger #2 failure • Common engine trouble • High engine temperature • Fail to start • Fuel injection malfunction** • ECM selector switch in alternate position*** • Common pump room trouble (field re-assignable)* • Low fuel level • High fuel level • Fuel tank leak • H-O-A selector switch in OFF or HAND • Free (field programmable)* • Pressure transducer fault • Battery #1 & battery #2 failure • DC failure • Loss of continuity (starter) #1 and/or #2 • PLD low suction pressure • Overspeed • Fail when running • Low oil pressure • Low pump room temperature • High pump room temperature • AC Failure		

*Except if option C13 is ordered. Tornatech reserves the right to use any of these four alarm points for special specific application requirements

**Applicable to electronic engines only.

*** Applicable to electronic engines only. Alarms when ECM selector switch on the engine is in alternate mode.



Terminals for Field Connections for External Devices	• Low fuel level • Remote AUTOMATIC start • Deluge valve start (re-assignable) • Fuel tank leak (re-assignable) • High fuel level (re-assignable)		
ViZiTouch V2 Operator Interface	• Embedded microcomputer with software PLC logic • 7.0” color touch screen (HMI technology) • Upgradable software • Multi-language		
Operation	Selector Switch	• Hand-Off-Auto • Behind lockable and breakable cover	
	Automatic Start	• Start on pressure drop • Remote start signal from automatic device	
	Manual Start	• Crank 1 and Crank 2 start pushbuttons • Run test pushbutton • Deluge valve start • Remote start from manual device	
	Crank Cycle	• 6 consecutive cycle attempts • 3 X 15s crank from battery 1 or 2 alternatively • 15s rest in between each crank attempt	
	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
Communication Protocol Capability	• Protocol: Modbus • Connection type: Shielded female connector RJ45 • Frame Format: TCP/IP • Addresses: See bulletin MOD-GPD		

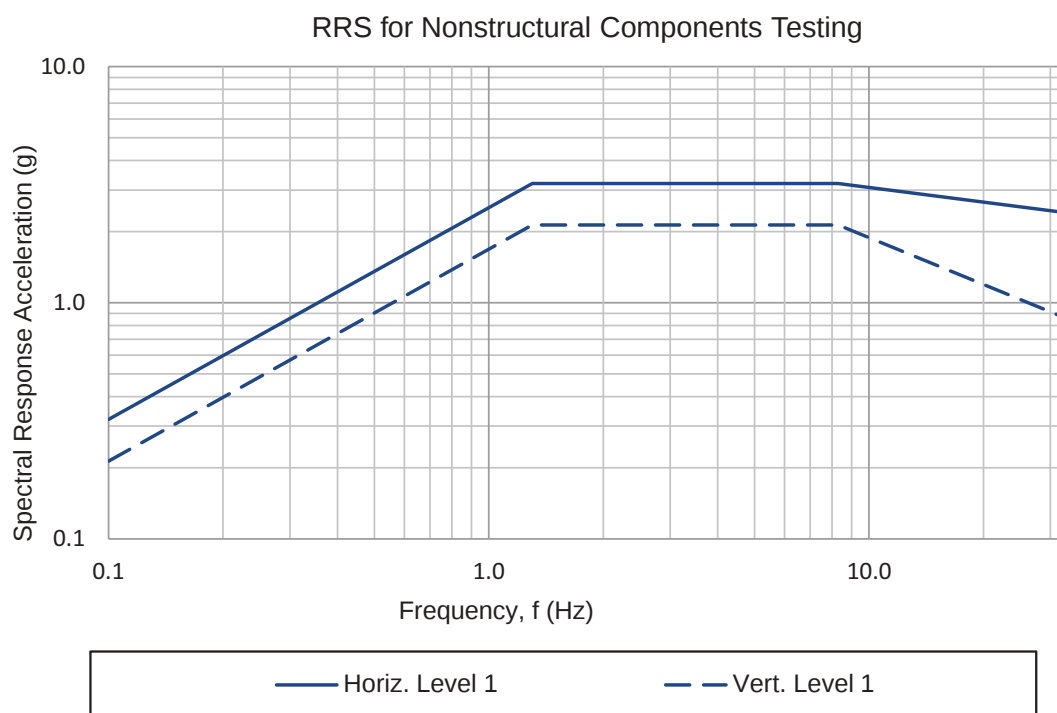
Alarm and shutdown schedule		Automatic Start	Manual or Remote Start	Run Test or Periodic Test
	High Coolant	Alarm only	Alarm only	Shutdown
	Low Oil Pressure	Alarm only	Alarm only	Shutdown
	Overspeed	Shutdown	Shutdown	Shutdown

	Wall Mount		Floor Mount	
Starting Voltage	Approx. shipping dimensions in inches (mm)	Approx. Shipping Weight in Lbs (kg)	Approx. shipping dimensions in inches (mm)	Approx. Shipping Weight in Lbs (kg)
12V.DC	32" l x 29" w x 16" h (813 x 737 x 407)	85 (39)	32" l x 29" w x 26" h (813 x 737 x 661)	115 (52)
24V.DC				

**** Automatic shutdown shall be approved by the AHJ.



Seismic Certification	Seismic Certification Company	TRU Compliance, LLC A Tobalski Watkins Affiliate					TWEI Project No.: 15014				
	Mounting details	Rigid wall mounting									
	Seismic Information	Building Code	Test Criteria	Seismic Parameters	S _{DS}	z/h	I _p	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-V}
		IBC 2015, CBC 2016	ICC-ES AC156	ASCE 7-10 Chapter 13	2.0	1.0	1.5	3.20	2.40	1.33	0.53
				3.2	0.0	1.5	3.20	1.28	2.13	0.85	



Notes:

- Components are tested in accordance with ICC-ES AC156, IBC 2015 & CBC 2016.
- OSHPD Special Seismic Certification Preapproval (OSP)



☐	A1	Periodic test alarm contact (DPDT)
☐	A2	Overspeed alarm contact (DPDT)
☐	A3	Low oil pressure alarm contact (DPDT)
☐	A4	High coolant temperature alarm contact (DPDT)
☐	A5	Failure to start alarm contacts alarm contact (DPDT)
☐	A6	Battery 1 & 2 failure alarm contact (2 x DPDT)
☐	A7	Charger 1 & 2 failure alarm contact (2 x DPDT)
☐	A8	AC failure alarm contact (DPDT)
☐	A9	System overpressure alarm contact (For engines with PLD) (DPDT)
☐	A11	Extra controller trouble alarm contact (DPDT)
☐	A12	Extra engine trouble alarm contact (DPDT)
☐	Ax	Additional engine alarm contact (DPDT) (specify function)
☐	B1	Low fuel level alarm contact (DPDT)
☐	B2	Water reservoir level low alarm contact (DPDT)
☐	B3	Water reservoir empty alarm contact (DPDT)
☐	B4	Low pump room temperature alarm contact (DPDT)
☐	B5	High fuel level alarm contact (DPDT)
☐	B6	Low system (discharge) pressure alarm contact (DPDT)
☐	B7	Low suction pressure alarm contact (DPDT)
☐	B8	Pump on demand alarm contact (DPDT)
☐	B9	Fuel tank leak alarm contact (DPDT)
☐	B10	Main relief valve open alarm contact (DPDT)
☐	B11	Flow meter loop valve open alarm contact (DPDT)
☐	B12	Water reservoir level high alarm contact (DPDT)
☐	B13	High pump room temperature alarm contact (DPDT)
☐	Bx	Additional pump room alarm contact (DPDT) (specify function)
☐	C5	CE Mark with factory certificate
☐	C6	Nickel – cadmium battery chargers (Battery data sheet required)
☐	C7	Engine block heater circuit - 3KW max (same voltage as battery charger primary)

☐	C7A	Engine block heater circuit - 6KW max (same voltage as battery charger primary) Confirm power rating of block heater
☐	C9	Non pressure actuated controller w/o pressure transducer and run test solenoid valve
☐	C13	Louver activation circuit (battery power specific)
☐	C14	Delayed automatic start on AC power failure (factory set at 15 minutes)
☐	C15	Low zone pump control function
☐	C16	Middle zone pump control function
☐	C17	High zone pump control function
☐	C19	Lockout/interlock circuit from equipment installed inside the pump room
☐	D4	Pressure transducer and run test solenoid valve for fresh water rated for 0-500psi (for factory calibration purposes only)
☐	D6	Pressure transducer and run test solenoid valve for sea water rated for 0-500PSI
☐	D7A	Low fuel level float switch supplied as separate item (1-1/4")
☐	D7B	Low fuel level float switch supplied as separate item (1-1/2")
☐	D8A	High fuel level float switch supplied as separate item (1-1/4")
☐	D8B	High fuel level float switch supplied as separate item (1-1/2")
☐	D9A	Anti-condensation heater & thermostat
☐	D9B	Anti-condensation heater & humidistat
☐	D9C	Anti-condensation heater & thermostat & humidistat
☐	D11	Low suction pressure transducer for fresh water rated at 0-300PSI with visual indication and alarm contact
☐	D11A	Low suction pressure transducer for sea water rated at 0-300PSI with visual indication and alarm contact
☐	D12	Tropicalization
☐	D25	Mounting stand
☐	D25A	Mounting stand SST- 304 painted
☐	D25B	Mounting stand SST- 304 brushed finish
☐	D25C	Mounting stand SST- 316 painted
☐	D25D	Mounting stand SST- 316 brushed finish
☐	D26	Combined low and high fuel level float switch (1-1/4")

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



☐	D26A	Combined low and high fuel level float switch (1-1/2")
☐	D27	Fuel level probe (2") Level indication
☐	D28A	Field programmable I/O board - 5 Input / 5 output
☐	D30	Redundant pressure transducer for fresh water rated for 0-500PSI
☐	D31	Redundant pressure transducer for sea water rated for 0-500PSI
☐	D32	Modbus with RTU frame format and RS485 connection

☐	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

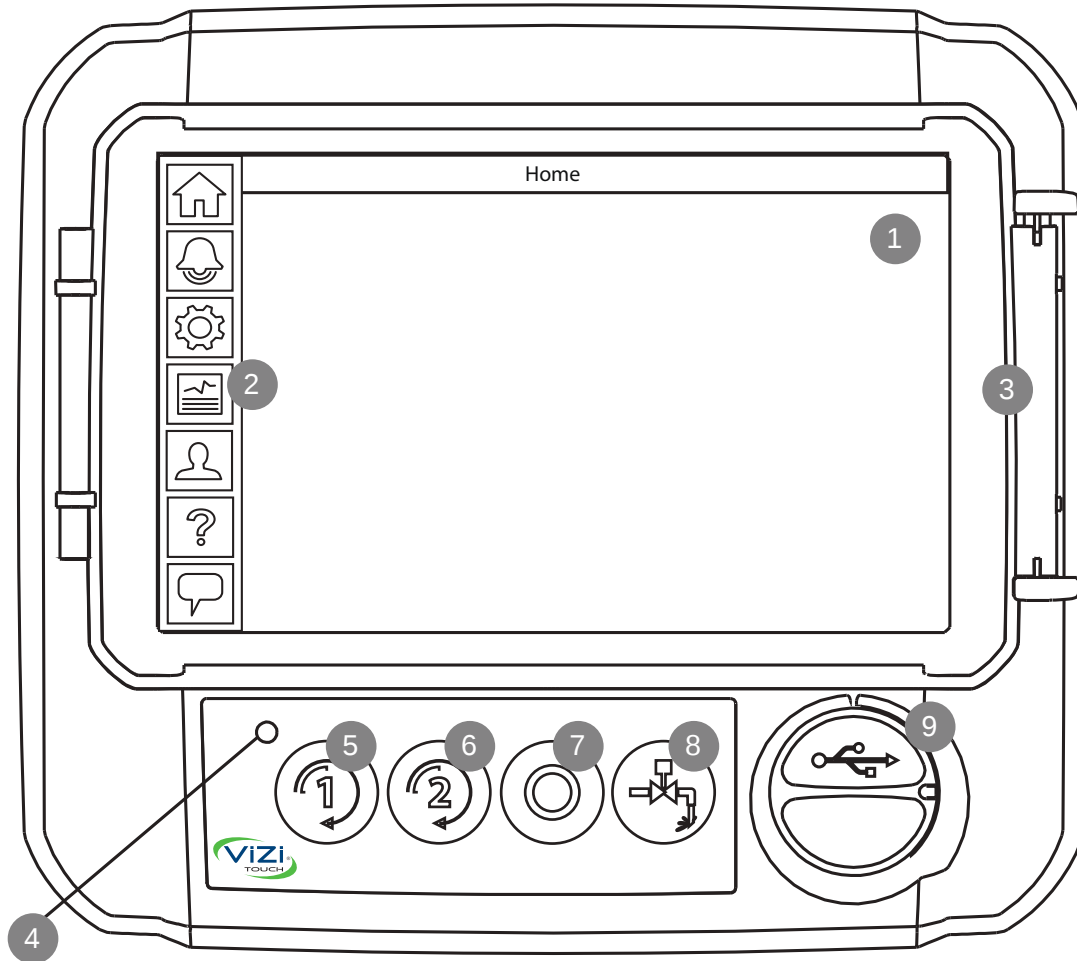
Additional Options:

☐	_____
☐	_____
☐	_____
☐	_____
☐	_____

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



ViZiTouch V2 Operator Interface



1 - Color touch screen

2 - Onscreen menu

- HOME page
- ALARM page
- CONFIGURATION page
- HISTORY page
- SERVICE page
- MANUAL page
- LANGUAGES page

3 - Screen protector

4 - Power LED (3 colors)

5 - CRANK 1 button

6 - CRANK 2 button

7 - STOP button

8 - RUN TEST button

9 - USB port

	Vendor Ref. No. NIL	
	Vendor Doc. No. A	
Contractor Name:	Contractor Ref. No. -	
Project Name: NA	Contractor Job No. -	

ELECTRIC MOTOR & CONTROLLER

0	Issued for approval	LL	PG		
Rev.	Description	Prepared	Checked	Approved	Date



FIRE PUMP MOTORS

BROCHURE



MARATHON®

In 1913, the founders of a new motor company that they named Marathon Electric had a simple vision:

- Serve our customers according to their needs
- Produce the most efficient and long-lasting motors
- Commit to new technology and research
- Expand and diversify into new markets

The company was located in the heartland of America, Wausau, Wisconsin, where it remains today, over one hundred years later. The company continues to be one of the innovators in the motor industry, built on a history of industry first! Marathon engineered, designed, and built the first fire pump motor and we continue to lead the life safety industry with Marine Duty UL fire pump motors, medium voltage, vertical hollow shaft UL fire pump motors, and specialty UL Fire Pump motors.

When a fireman needs a trusted friend in an emergency, he knows Marathon will do the job, offering protection, high performance, and reliability as we have for over one hundred years ... that's a legacy!

PRODUCT LINE

ODP

- Available in NEMA or IEC construction these motors are ideal for in-door applications. Lower cost and longer product life due to lower temperature windings make these a best value option.
- These motors are available from 25-500HP, 2 and 4 poles, Epact Efficiency. All motors are 12 leads for wye-delta or across-the-line start, part winding start is available in single voltage or at lower voltage for dual voltage motors. All motors have 1.15 service factor for all voltages.

TEFC

- Available in NEMA or IEC construction, TEFC motors are ideal for applications in tough environments.
- These motors are available from 25-500HP, 2 and 4 poles, Epact Efficiency. All motors are 12 leads for wye-delta or across the line start, part winding start is available in single voltage or at lower voltage for duo voltage motors. All motors have 1.15 service factor for all voltages.

CLOSE COUPLED PUMP

- Available as JP or JM constructions, these motors are ideal when space is an issue. This integrated design enables a lower system cost.
- 2 and 4 poles, Epact Efficiency. Horizontal or vertical ODP construction.
- All motors have 1.15 service factor for all voltages.

VSS AND VHS

- Vertical solid shaft and hollow shaft constructions are ideal for deep well applications with turbine pumps. These motors are designed to handle the highest thrust loads of this system.
- VSS motors are available from 3-400 HP, 2 to 8 poles and are designed for normal and medium thrust, Epact Efficiency.
- All motors are 12 leads for wye-delta or across the line start, part winding start is available in single voltage or at lower voltage for duo voltage motors. All motors have 1.15 service factor for all voltages.
- VHS motors are available from 7.5HP to 300HP, 2 and 4 poles, WP1, Epact Efficiency.
- All motors are 12 leads for wye-delta or across-the-line start, part winding start is available in single voltage or at lower voltage for dual voltage motors. All motors have 1.15 service factor for all voltages.

MEDIUM VOLTAGE

- Regal also offers Medium Voltage products in NEMA and IEC constructions designed specifically for Fire Pump Applications.
- NEMA Construction, from 200 to 700HP, 2300V & 4000V 50/60HZ, 2 and 4 poles, IP22, 1.15 service factor. IEC Construction, from 185kW to 2800kW, 3kV through 10kV 50HZ & 4kV through 13.8kV 60HZ, 4 poles, IP23.



Scan the QR code
for more information on
Marathon® Fire Pump Motors

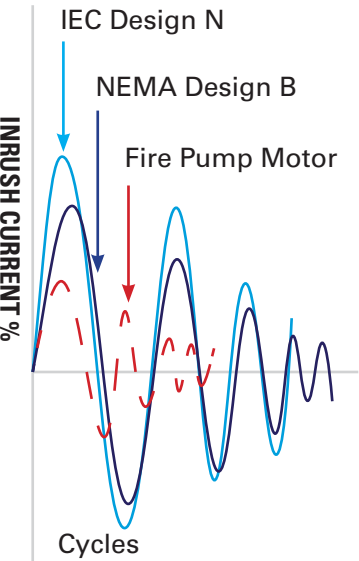
UL LISTED MOTORS

NAMEPLATES

- Fire pump motors have two nameplates, the normal nameplate with UL label and special fire pump nameplate with the UL listing for fire pumps.



FIRE PUMP MOTOR INRUSH CURRENTS

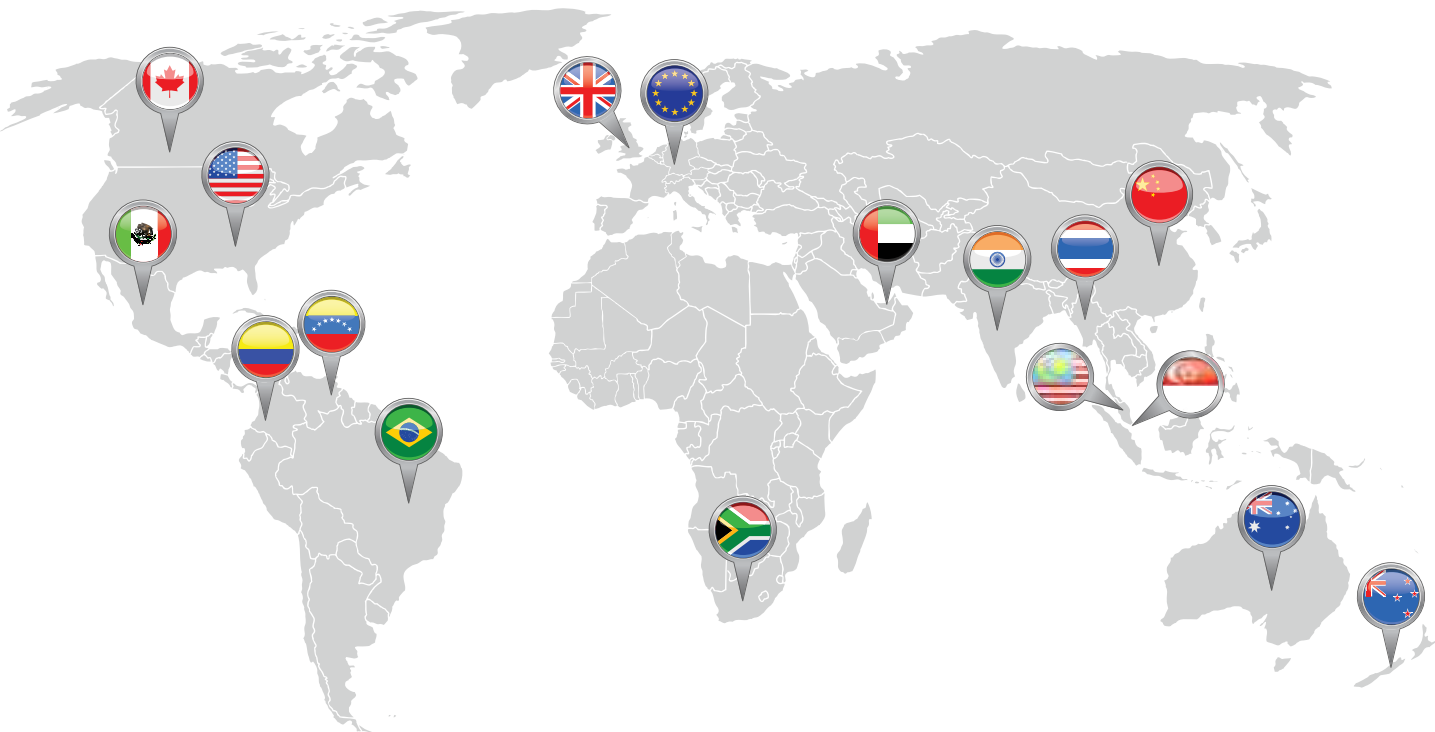


Classification	Locked-Rotor Torque (% Rated-Load Torque)	Breakdown Torque (% Rated-Load Torque)	Locked-Rotor Current (% Rated-Load Current)
UL Fire Pump Motor	70-275*	175-300*	300-600
Design B – Normal locked-rotor torque and normal locked-rotor current	70-275*	175-300*	600-700
IEC 34-12 Design N locked-rotor torques and currents	75-190*	160-200*	800-1000

*Higher values are for motors having lower horsepower ratings.

REGAL WORLD FOOTPRINT

The motor you want, where you are, when you need.



CODES & CERTIFICATIONS

FIRE PUMP SYSTEM – A fire pump system is part of a fire sprinkler system's water supply either connected to the public underground water supply piping, or a static water source.

A fire pump system is tested and listed for its use specifically for fire service by a third-party accredited testing and listing laboratory, such as FM, LPCB, UL, VdS. Additionally, installation of fire pump systems is coordinated by Comité Européen Des Assurances in Europe and the National Fire Protection Code in the U.S.

FIRE PUMP MOTORS – A fire pump motor is a definite purpose motor designed to meet *UL Standard of Safety 1004-1 Rotating Electrical Machines - General Requirements - and UL 1004-5 Fire Pump Motors*. These motors are designed and built with a low KVA code to reduce inrush currents, offer extended life, and are tested to meet the highest standards in the industry.

Fire pump motors consist of low voltage NEMA Open Dripproof motors, NEMA JM/JMV/JP/JPV Close-Coupled pump motors, NEMA vertical solid shaft P-base motors, NEMA vertical hollow shaft motors, NEMA Totally Enclosed motors. We manufacture a line of low voltage IEC Totally Enclosed motors and Marine Duty IEC Totally Enclosed motors. These motors carry the UL mark and file number for fire pump motors. Additionally, we manufacture a line of low voltage IEC non-UL motors in IE1, IE2, and IE3 efficiencies for Europe, certain areas of the Middle East, Asia, Africa, and portions of Latin America.

UL also defines requirements for fire pump motors above 500 HP and greater than 600 volts, Marathon markets a line of high efficiency 2300V, 4160V and 7.2kV NEMA and IEC open motors for fire pump applications. These motors meet the same high standards as Marathon's low voltage UL listed motors.

COMITÉ EUROPÉEN DES ASSURANCES (CEA) – Insurance Europe (known as *Comité Européen des Assurances* until March 2012) is the European insurance and reinsurance federation. Through its 34 member bodies — the national insurance associations — it represents all types of insurance and reinsurance undertakings. *Standard CEA 4046 – CEA Rules for the approval of Installers of Fire Fighting Systems in accordance with CEA 4046* covers the installation of fire pump systems.

FACTORY MUTUAL (FM) – Factory Mutual specializes in loss prevention services throughout the world in the Highly Protected Risk (HPR) property insurance market sector. The company employs a business model whereby risk and premiums are determined by engineering analysis as opposed to historically based actuarial calculations. FM engineering personnel regularly visit insured locations to evaluate hazards and recommend improvements.

FM Approved fire pump packages are produced using components that have been subjected to rigorous tests to ensure that they will perform when called upon throughout the duration of a fire event. A FM Approved fire pump system will test the driver (motor, diesel or steam), pump and controller as a system to assure the performance

characteristics of the system meet the protection requirements for the property.

LOSS PREVENTION CERTIFICATION BOARD (LPCB) – The LPCB has been working with industry and government for more than 100 years to set the standards necessary to ensure that fire and security products and services work effectively.

In that time the LPCB Mark has become an internationally recognized mark of trust. Under the LPCB label, third-party certification and listing of fire and security products and services are available, so that: architects and specifiers can be sure that those they select will perform as required, and manufacturers and suppliers can demonstrate the quality of their products and services.

NATIONAL FIRE PROTECTION CODE 20 (NFPA 20) – *NFPA 20 – The Standard for Installation of Stationary Pumps for Fire Protection* codifies the requirements for safe electrical installations of a fire pump system into a single, standardized source. The NFPA 20 code covers water supply requirements, pump requirements, pump sizing, pump types, pump drivers, and accessory equipment such as valves and flow meters used in a fire pump system. It is part of the National Fire Codes series published by the National Fire Protection Association (NFPA), and while not itself a U.S. law, NEC use is commonly mandated by state or local law.

UNDERWRITERS LABORATORY – Underwriters Laboratories (UL) is a global independent safety science company with more than a century of expertise innovating safety solutions. UL helps safeguard people, products and places by certify, validating, testing, inspecting, auditing, advising, and educating. *The UL Mark is the single most accepted certification for fire pump systems and motors in the world.*

VDS 2095 – VdS is an independent institution which has been ensuring safety and trust in the fields of fire protection and security for many decades. The activities of VdS in the field of fire protection are targeted at the effectiveness and reliability of installed fire protection systems. The basis of the VdS approval process are the coordinated European specifications for installers of fire protection and security systems (CEA 4048 and CEA 4049) of the Comité Européen des Assurances (CEA). Furthermore, the approval process takes full account of the requirements of DIN 14675 with regard to the proof of competence of the installers (described in DIN 14675 as specialist companies). VdS is accredited for the certification of BMA installers by Deutsche Akkreditierungs GmbH (DAkkS) according to DIN EN 45011.



ODP 60 HZ

MODEL	FRAME	POLES	HP	EFF(%)	P F	V	Hz	FLA (A)	LRA (A)	Rpm	Tst/Tn	Tm/Tn
256TTDBD4024	256T	2	25	91	0.88	230/460	60	58/29	395/197	3545	1.3	2
256TTDBD4020	256T	2	25	91	0.88	190/380	60	70/35	478/239	3545	1.3	2
256TTDBD4020	256T	2	25	91	0.88	200/400	60	67/33.5	454/227	3550	1.3	2
284TSTDBD4002	284TS	2	30	91	0.86	230/460	60	72/36	474/237	3560	1.3	2
284TSTDBD4007	284TS	2	30	91	0.86	190/380	60	86/43	574/287	3560	1.3	2
284TSTDBD4007	284TS	2	30	91	0.85	200/400	60	84/41	545/272	3565	1.3	2
286TSTDBD4022	286TS	2	40	91.7	0.87	230/460	60	94/47	632/316	3555	1.25	2
286TSTDBD4023	286TS	2	40	91.7	0.87	190/380	60	113/56.5	765/382	3555	1.25	2
286TSTDBD4023	286TS	2	40	91.7	0.86	200/400	60	108/54	727/363	3560	1.25	2
324TSTDCD4010	324TS	2	50	92.4	0.88	230/460	60	114/57	790/395	3565	1.2	2
324TSTDCD4007	324TS	2	50	92.4	0.88	190/380	60	138/69	957/478	3565	1.2	2
324TSTDCD4007	324TS	2	50	92.4	0.87	200/400	60	134/67	909/454	3570	1.2	2
326TSTDCD4024	326TS	2	60	93	0.88	230/460	60	136/68	948/474	3565	1.2	2
326TSTDCD4022	326TS	2	60	93	0.88	190/380	60	163/81.5	1148/574	3565	1.2	2
326TSTDCD4022	326TS	2	60	93	0.87	200/400	60	155/77.5	1091/545	3565	1.2	2
364TSTDCD4025	364TS	2	75	93	0.88	230/460	60	170/85	1186/593	3568	1.05	2
364TSTDCD4024	364TS	2	75	93	0.88	190/380	60	206/103	1435/717	3568	1.05	2
364TSTDCD4024	364TS	2	75	93	0.87	200/400	60	198/99	1364/682	3570	1.05	2
365TSTDCD4025	365TS	2	100	93	0.88	230/460	60	228/114	1581/790	3568	1.05	2
365TSTDCD4303	365TS	2	100	93	0.88	190/380	60	276/138	1914/957	3568	1.05	2
365TSTDCD4303	365TS	2	100	93.6	0.87	200/400	60	264/132	1818/909	3572	1.05	2
404TSTDCD4017	404TS	2	125	93.6	0.89	460	60	139	988	3575	1	2
404TSTDCD14008	404TS	2	125	93.6	0.89	380	60	167	1196	3575	1	2
404TSTDCD14008	404TS	2	125	93.6	0.88	400	60	159	1136	3575	1	2
405TSTDCD4006	405TS	2	150	93.6	0.88	460	60	168	1186	3570	1	2
405TSTDCD14018	405TS	2	150	93.6	0.88	380	60	202	1435	3570	1	2
405TSTDCD14018	405TS	2	150	93.6	0.88	400	60	192	1364	3570	1	2
444TSTDCD4010	444TS	2	200	94.5	0.89	460	60	220	1581	3575	1	2
444TSTDCDS14013	444TS	2	200	94.5	0.89	380	60	264	1914	3575	1	2
444TSTDCDS14013	444TS	2	200	94.5	0.88	400	60	251	1818	3575	1	2
445TSTDCD4007	445TS	2	250	94.5	0.89	460	60	272	1976	3575	0.7	1.75
445TSTDCD14023	445TS	2	250	94.5	0.89	380	60	326	2393	3575	0.7	1.75
445TSTDCD14023	445TS	2	250	94.5	0.89	400	60	310	2273	3575	0.7	1.75
	447TS	2	300	95	0.91	460	60	325	2372	3572	0.7	1.75
	447TS	2	300	95	0.91	380	60	393	2871	3572	0.7	1.75
	447TS	2	300	95	0.91	400	60	374	2728	3572	0.7	1.75
	449TS	2	350	95	0.91	460	60	379	2767	3572	0.7	1.75
	449TS	2	350	95	0.91	380	60	459	3350	3572	0.7	1.75
	449TS	2	350	95	0.91	400	60	436	3182	3572	0.7	1.75
	449TS	2	400	95.4	0.91	460	60	431	3162	3572	0.7	1.75

	449TS	2	400	95.4	0.91	380	60	522	3828	3572	0.7	1.75
	449TS	2	400	95.4	0.91	400	60	496	3637	3572	0.7	1.75
284TTDBD4027	284T	4	25	91.7	0.83	230/460	60	61/30.5	395/197	1772	1.5	2
284TTDBD4047	284T	4	25	91.7	0.83	190/380	60	73/36.5	478/239	1772	1.5	2
284TTDBD4047	284T	4	25	91.7	0.82	200/400	60	69/34.5	454/227	1772	1.5	2
286TTDBD4041	286T	4	30	92.4	0.84	230/460	60	72/36	474/237	1770	1.5	2
286TTDBD14042	286T	4	30	92.4	0.84	190/380	60	86.4/43.2	574/287	1770	1.5	2
286TTDBD14042	286T	4	30	92.4	0.84	200/400	60	82/41	545/272	1770	1.5	2
324TTDCD4038	324T	4	40	93	0.85	230/460	60	95/47	632/316	1775	1.4	2
324TTDCD14049	324T	4	40	93	0.85	190/380	60	113/56.5	765/382	1775	1.4	2
324TTDCD14049	324T	4	40	93	0.84	200/400	60	107/53.5	727/363	1775	1.4	2
326TTDCD4345	326T	4	50	93.6	0.83	230/460	60	120/60	790/395	1775	1.4	2
326TTDCD4344	326T	4	50	93.6	0.83	190/380	60	144/72	957/478	1775	1.4	2
326TTDCD4344	326T	4	50	93.6	0.82	200/400	60	137/68.5	909/454	1775	1.4	2
364TSTDCD4332	364TS	4	60	93.6	0.86	230/460	60	138/69	948/474	1780	1.4	2
364TSTDCD4337	364TS	4	60	93.6	0.86	190/380	60	167/83.5	1148/574	1780	1.4	2
364TSTDCD4337	364TS	4	60	93.6	0.85	200/400	60	160/80	1091/545	1782	1.4	2
365TSTDCD4332	365TS	4	75	94.1	0.87	230/460	60	170/85	1186/593	1780	1.4	2
365TSTDCD4347	365TS	4	75	94.1	0.87	190/380	60	204/102	1435/717	1780	1.4	2
365TSTDCD4347	365TS	4	75	94.1	0.86	200/400	60	194/97	1364/682	1782	1.4	2
404TSTDCD4332	404TS	4	100	94.1	0.87	230/460	60	228/114	1581/790	1785	1.25	2
404TSTDCD4333	404TS	4	100	94.1	0.87	190/380	60	274/137	1914/957	1785	1.25	2
404TSTDCD4333	404TS	4	100	94.1	0.86	200/400	60	260/130	1818/909	1785	1.25	2
405TSTDCD4332	405TS	4	125	94.5	0.87	460	60	142	988	1785	1.1	2
405TSTDCD4333	405TS	4	125	94.5	0.87	380	60	170	1196	1785	1.1	2
405TSTDCD4333	405TS	4	125	94.5	0.86	400	60	162	1136	1785	1.1	2
444TSTDCD4332	444TS	4	150	95	0.87	460	60	170	1186	1788	1.1	2
444TSTDCD14037	444TS	4	150	95	0.87	380	60	204	1435	1788	1.1	2
444TSTDCD14037	444TS	4	150	95	0.86	400	60	194	1364	1788	1.1	2
445TSTDCD4332	445TS	4	200	95.4	0.87	460	60	225	1581	1788	1	2
445TSTDCD14047	445TS	4	200	95.4	0.87	380	60	270	1914	1788	1	2
445TSTDCD14047	445TS	4	200	95.4	0.86	400	60	257	1818	1788	1	2
445TSTDCD14051	445TS	4	250	95.5	0.87	460	60	278	1976	1788	0.8	1.75
445TSTDCD14064	445TS	4	250	95.5	0.87	380	60	334	2393	1788	0.8	1.75
445TSTDCD14064	445TS	4	250	95.5	0.86	400	60	317	2273	1788	0.8	1.75
	447TS	4	300	95.4	0.86	460	60	342	2372	1785	0.8	1.75
	447TS	4	300	95.4	0.86	380	60	414	2871	1785	0.8	1.75
	447TS	4	300	95.4	0.86	400	60	394	2728	1785	0.8	1.75
	449TS	4	350	95.4	0.86	460	60	399	2767	1785	0.8	1.75
	449TS	4	350	95.4	0.86	380	60	484	3350	1785	0.8	1.75
	449TS	4	350	95.4	0.86	400	60	459	3182	1785	0.8	1.75
	449TS	4	400	95.4	0.86	460	60	456	3162	1785	0.8	1.75
	449TS	4	400	95.4	0.86	380	60	553	3828	1785	0.8	1.75
	449TS	4	400	95.4	0.86	400	60	525	3637	1785	0.8	1.75



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APPLICATION CONSIDERATIONS

The proper selection and application of power transmission products and components, including the related area of product safety, is the responsibility of the customer. Operating and performance requirements and potential associated issues will vary appreciably depending upon the use and application of such products and components. The scope of the technical and application information included in this publication is necessarily limited. Unusual operating environments and conditions, lubrication requirements, loading supports, and other factors can materially affect the application and operating results of the products and components and the customer should carefully review its requirements. Any technical advice or review furnished by Regal Beloit America, Inc. and/or its affiliates ("Regal") with respect to the use of products and components is given in good faith and without charge, and Regal assumes no obligation or liability for the advice given, or results obtained, all such advice and review being given and accepted at customer's risk.

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TORNATECH

Project: _____

Customer: _____

Engineer: _____

Pump Manufacturer: _____

Technical Data Submittal Document

Model GPY

Full Service Reduced Voltage
Wye-delta Open
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.



N.Y.C.
APPROVED



February 2019









Shortcircuit Withstand Rating	200V to 208V 60Hz	220V to 240V 60Hz	380V to 416V 50 Hz / 60Hz	440V to 480V 60Hz	575V to 600V 60Hz
	HP (kw)				
☐ Standard 100kA	5-150 (3.7 - 110)	5-200 (3.7 - 147)	5-300 (3.7 - 220)	5-400 (3.7 - 335)	n/a
☐ Optional 150kA					
☐ Standard 50kA	200 (147)	250 (184)	350 - 450 (257-335)	450-500 (373)	5-500 (3.7- 373)
☐ Optional 100kA	n/a	n/a	n/a	450-500	

2



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 - Integrated limit switch - Pull and latch activation - 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	4" alarm bell - 85 dB at 10ft. (3m)		
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 (°F or °C) • 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) Audible and visual • Fail to start 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		
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.

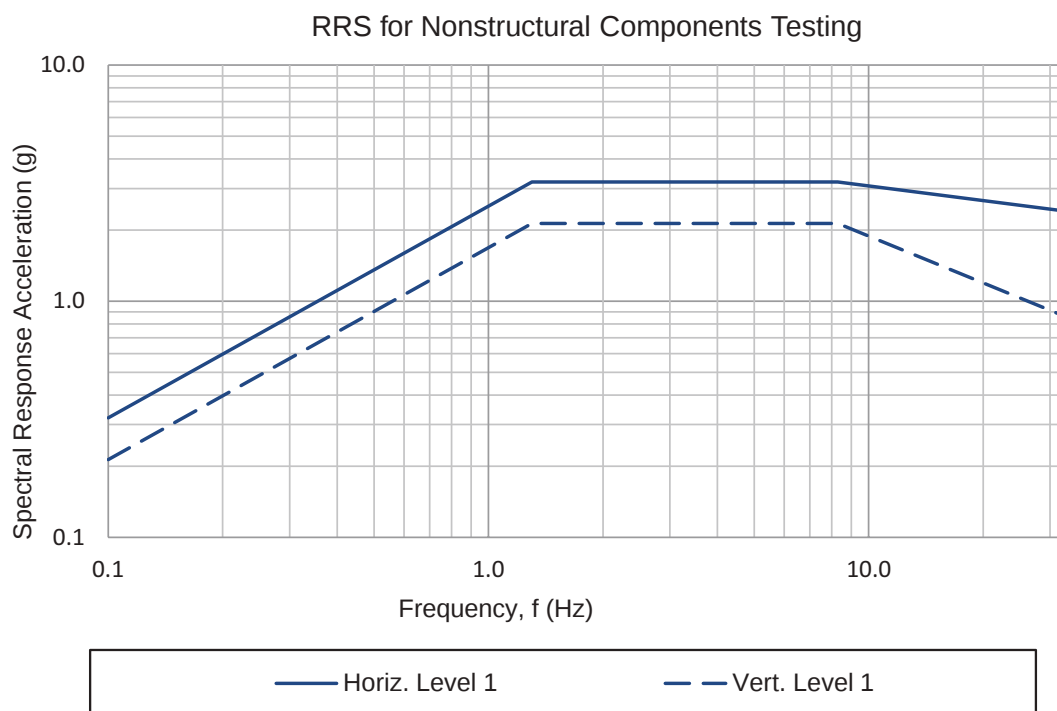


ViZiTouch V2 Operator Interface	• Embedded microcomputer with software PLC logic • 7.0" color touch screen (HMI technology) • Upgradable software • Multi-language		
Communication Protocol Capability	• Protocol: Modbus • Connection type: Shielded female connector RJ45 • Frame Format: TCP/IP • Addresses: 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



Seismic Certification	Seismic Certification Company	TRU Compliance, LLC A Tobalski Watkins Affiliate					TWEI Project No.: 15014				
	Mounting details	Rigid base and wall mounting									
	Seismic Information	Building Code	Test Criteria	Seismic Parameters	S _{DS}	z/h	I _p	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-V}
		IBC 2015, CBC 2016	ICC-ES AC156	ASCE 7-10 Chapter 13	2.0	1.0	1.5	3.20	2.40	1.33	0.53
					3.2	0.0	1.5	3.20	1.28	2.13	0.85



Notes:

- Components are tested in accordance with ICC-ES AC156, IBC 2015 & CBC 2016.
- OSHPD Special Seismic Certification Preapproval (OSP)



☐ A4	Flow switch provision	☐ C18	High water reservoir level c/w visual indication and alarm contact (DPDT)
☐ A8	Foam pump application w/o pressure transducer and run test solenoid valve.	☐ C19	Emergency start alarm contact (DPDT)
☐ A9	Low zone pump control function	☐ C20	Manual start alarm contact (DPDT)
☐ A10	Middle zone pump control function	☐ C21	Deluge valve start alarm contact (DPDT)
☐ A11	High zone pump control function	☐ C22	Remote automatic start alarm contact (DPDT)
☐ A13	Non-pressure actuated controller w/o pressure transducer and run test solenoid valve	☐ C23	Remote manual start alarm contact (DPDT)
☐ A16	Lockout/interlock circuit from equipment installed inside the pump room	☐ C24	High pump room temperature alarm contact (DPDT)
☐ 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	☐ C25	Second set of standard alarm contacts (DPDT) (Typical for city of Los Angeles and Denver)
☐ B11B	Built in alarm panel same as B11 but 220-240VAC supervisory power	☐ Cx	Additional visual and alarm contact (Specify function) (DPDT)
☐ B19A	High motor temperature c/w thermostat relay and alarm contacts (DPDT)	☐ D1	Low suction pressure transducer for fresh water rated at 0-300PSI with visual indication and alarm contact
☐ B19B	High motor temperature c/w PT100 relay and alarm contacts (DPDT)	☐ D1A	Low suction pressure transducer for sea water rated at 0-300PSI with visual indication and alarm contact
☐ B21	Ground fault alarm detection c/w visual indication and alarm contact (DPDT)	☐ D5	Pressure transducer and run test solenoid valve for fresh water rated for 0-500PSI (for factory calibration purposes only)
☐ C1	Extra motor run alarm contact (DPDT)	☐ D5D	Pressure transducer and run test solenoid valve for sea water rated for 0-500PSI
☐ C4	Periodic test alarm contact (DPDT)	☐ D10	Omit mounting feet (when applicable)
☐ C6	Low discharge pressure alarm contact (DPDT)	☐ D13	High withstand rating for (normal power section) • 208V to 480V = 150kA • 600V = 100kA
☐ C7	Low pump room temperature alarm contact (DPDT)	☐ D14	Anti-condensation heater & thermostat
☐ C10	Low water reservoir level alarm contact (DPDT)	☐ D14A	Anti-condensation heater & humidistat
☐ C11	High electric motor temperature alarm contact (DPDT)	☐ D14B	Anti-condensation heater & thermostat & humidistat
☐ C12	High electric motor vibration c/w visual indication and alarm contact (DPDT)	☐ D15	Tropicalization
☐ C14	Pump on demand / automatic start alarm contact (DPDT)	☐ D18	CE Mark with factory certificate
☐ C15	Pump fail to start alarm contact (DPDT)	☐ D26	Modbus with RTU frame format and RS485 connection
☐ C16	Control voltage healthy alarm contact (DPDT)	☐ D27	Motor heater connection (external single phase power source and heater on/off contact)
☐ C17	Flow meter valve loop open c/w visual indication and alarm contact (DPDT)	☐ D27A	Motor heater connection (internal single phase power source and heater on/off contact)

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



☐ D28	Customized drawing set
☐ D34A	Field programmable I/O board - 5 Input / 5 output

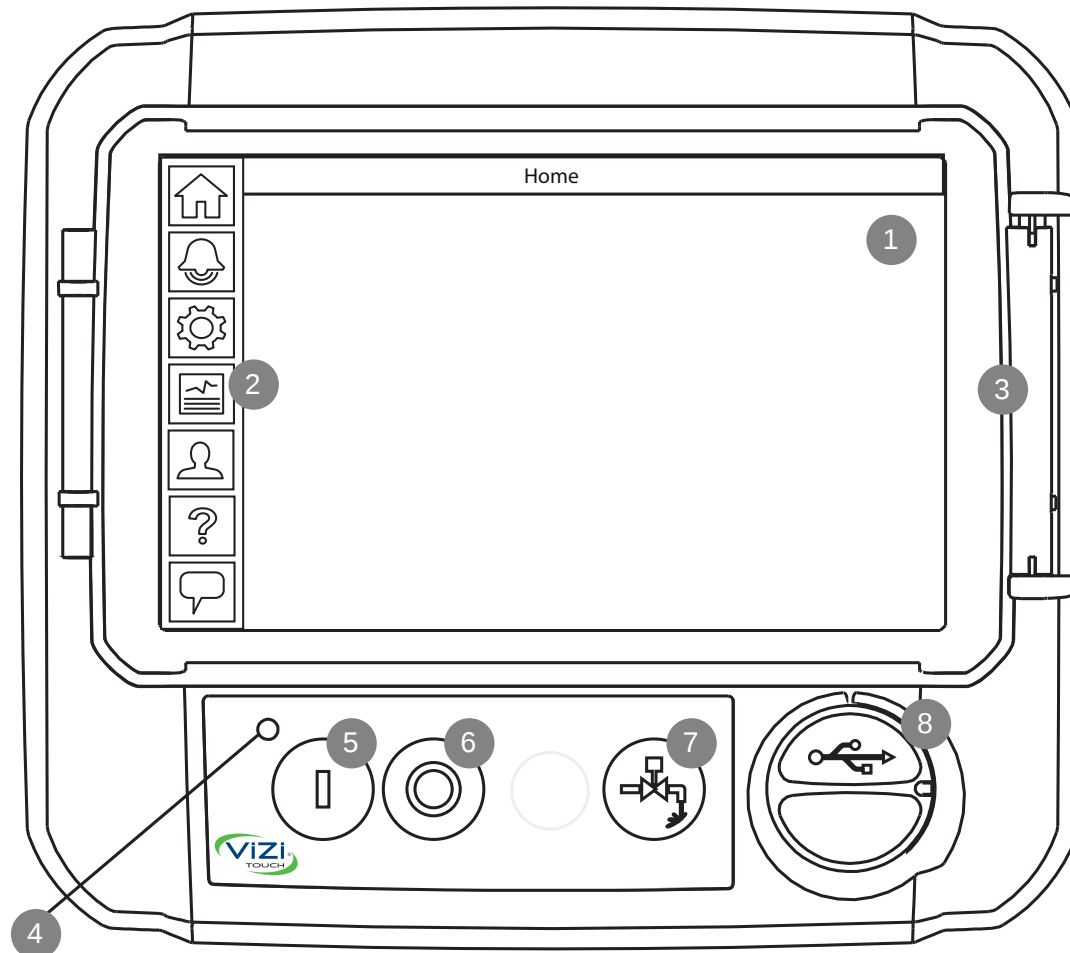
☐ L01	Other language and English (bilingual)
☐ L02	French
☐ L03	Spanish
☐ L04	German
☐ L05	Italian
☐ L06	Polish
☐ L07	Romanian
☐ L08	Hungarian
☐ L09	Slovak
☐ L10	Croatian
☐ L11	Czech
☐ L12	Portuguese
☐ L13	Dutch
☐ L14	Russian
☐ L15	Turkish
☐ L16	Swedish
☐ L17	Bulgarian
☐ L18	Thai
☐ L19	Indonesian
☐ L20	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 Operator Interface



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

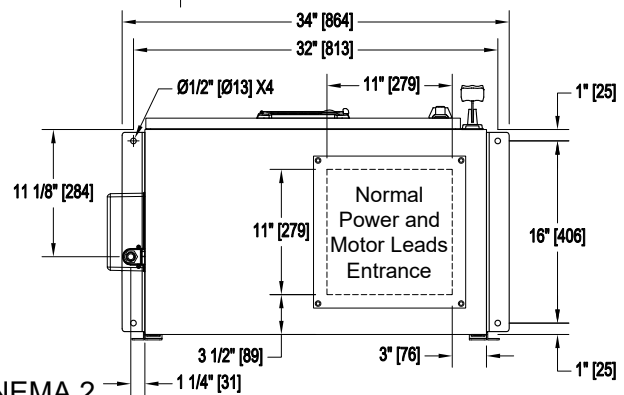
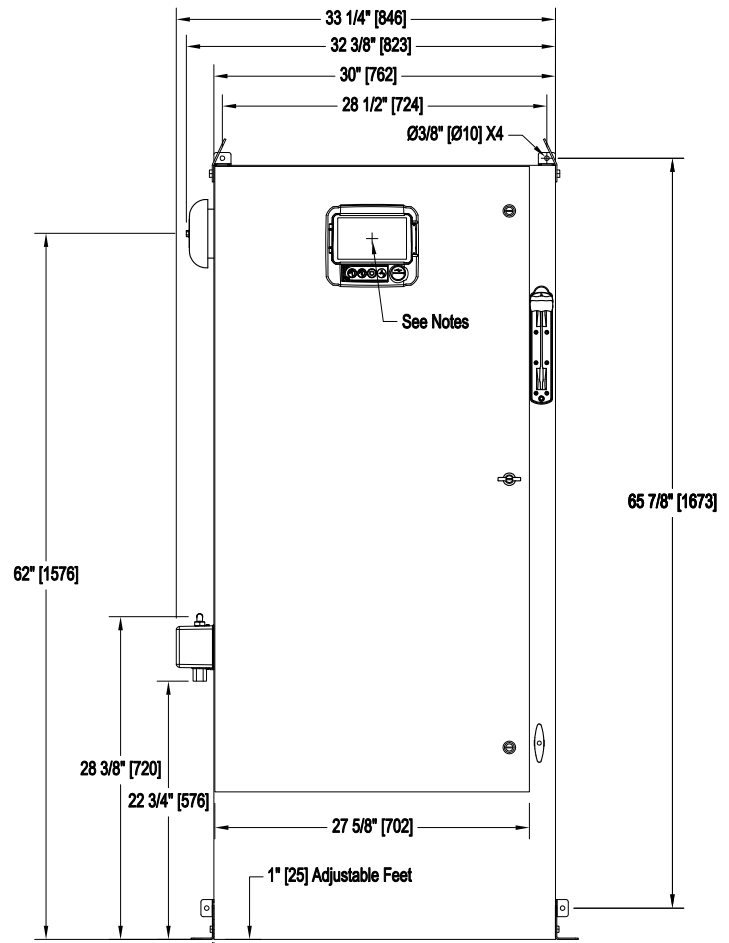
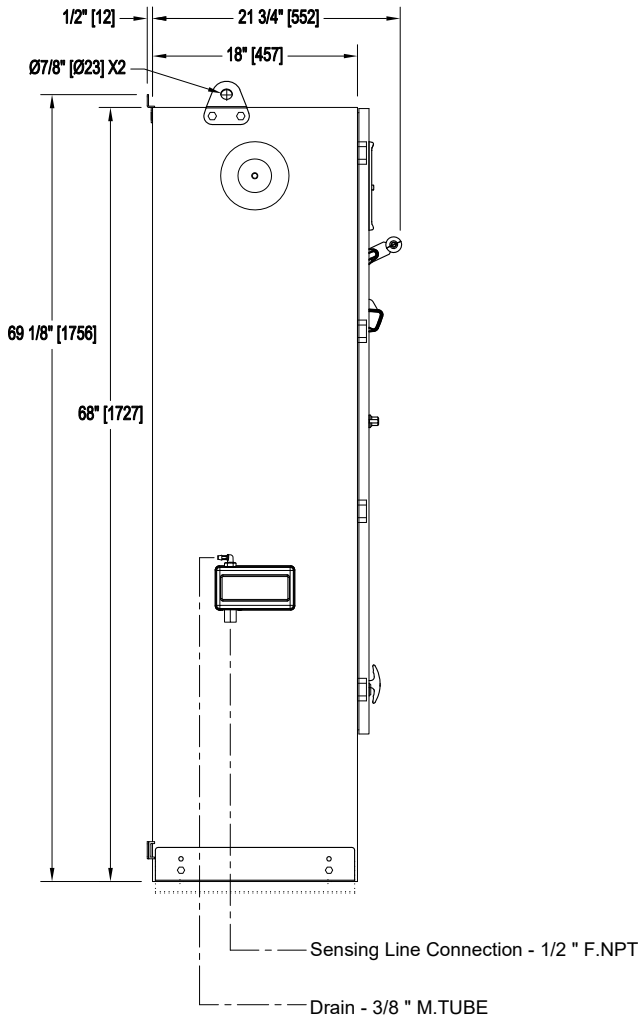
- 3 - Screen protector
- 4 - Power LED (3 colors)
- 5 - START button
- 6 - STOP button
- 7 - RUN TEST button
- 8 - USB port

Electric Fire Pump Controller

Model: GPA/GPY

Dimensions

Built to the latest edition of the NFPA 20 standard

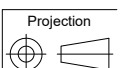


Notes:

- Standard NEMA: NEMA 2
- Standard paint : textured red RAL 3002.
- All dimensions are in inches [millimeters].
- Center of ViZiTouch screen: 61-5/8" [1564] from Bottom.
- 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.
- Seismic mounting to be rigid wall and base only.

Voltage / Power Table		
Voltage	Min HP	Max HP
208	75	150
220 - 240	75	200
380 - 400 - 415	150	300
440 - 480	200	400
600	200	500

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



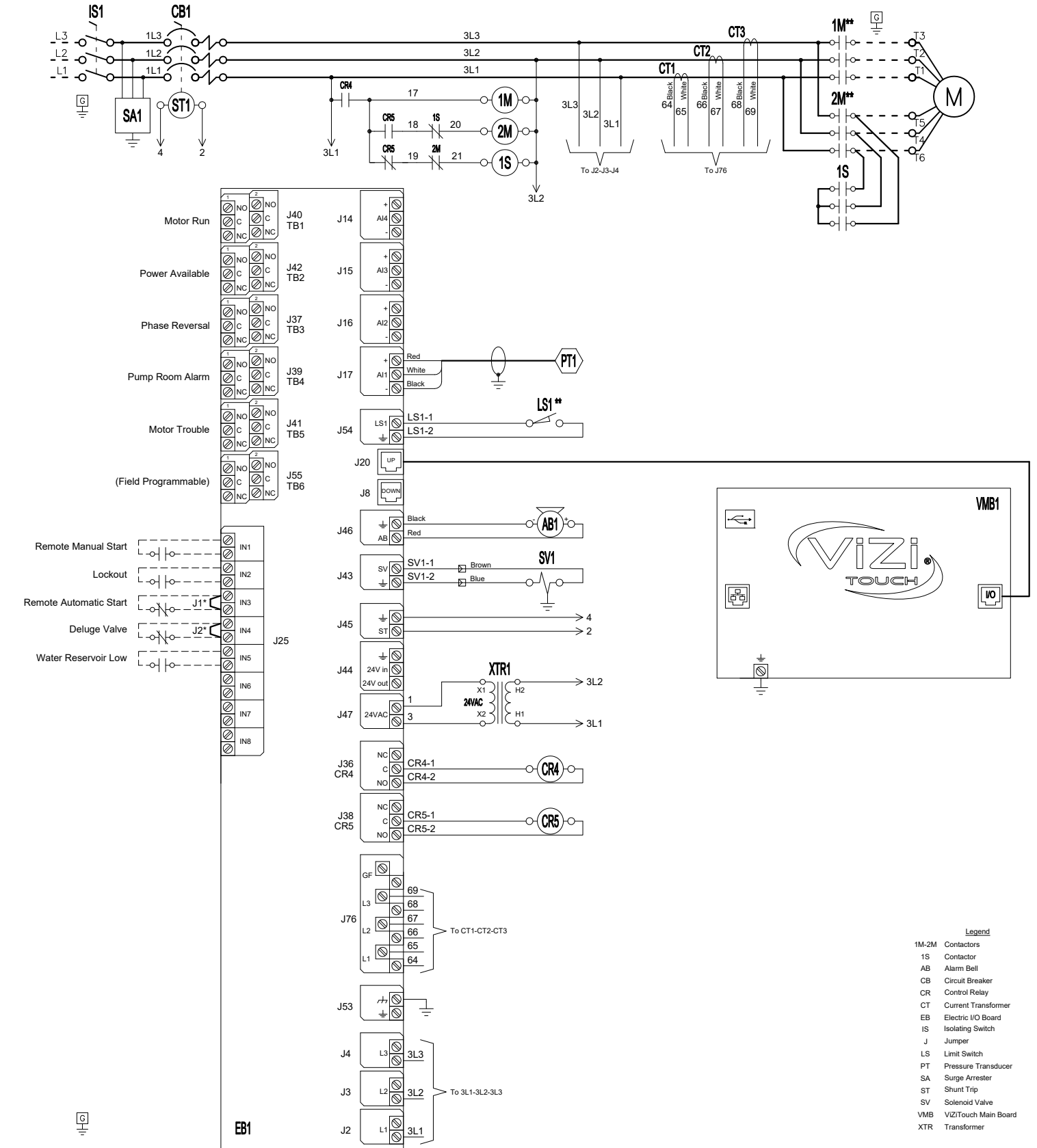
REV.	DESCRIPTION	DD/MM/YY	Drawing number
2.	New Logo	10/05/18	GPX-DI361 / E
1.	Box Size Revision and Valve Change	21/11/17	
0.	First issue	16/11/16	

Electric Fire Pump Controller
Reduced Voltage / Wye-Delta (Open Transition)

Model: GPY

Wiring schematic

Built to the latest edition of the NFPA 20 standard



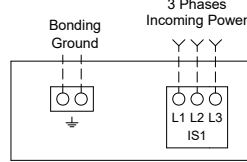
* Remove jumper to use this feature
** Contact closes when emergency start is in "ON" position

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

REV.	DESCRIPTION	DD/MM/YY	Drawing number
2	Update Logo	23/04/18	GPY-WS600 /E
1	Removed (fail safe) text from Power Available relay	20/02/17	
0	First issue	10/11/16	



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.

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 250)	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 250)	1x (2/0 to 250)	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	1x (300 to 500)	1x (500)	2x (4/0 to 500)	2x (250 to 500)	2x (400 to 600)	-----	-----	-----	-----	-----	-----
220 to 240	1x (250 to 500)	1x (350 to 500)	2x (3/0 to 500)	2x (4/0 to 500)	2x (350 to 500)	2x (500 to 600)	-----	-----	-----	-----	-----
380 to 416	1x (1/0 to 250)	1x (3/0 to 250)	1x (250)	1x (300 to 500)	2x (3/0 to 250)	2x (4/0 to 500)	2x (300 to 500)	2x (400 to 600) 2x (400 to 500)	2x (500 to 600)	2x (600)	-----
440 to 480	1x (1 to 250)	1x (2/0 to 250)	1x (3/0 to 250)	1x (4/0 to 250)	1x (350 to 500)	2x (3/0 to 250)	2x (4/0 to 500)	2x (300 to 500)	2x (350 to 500)	2x (400 to 600)	2x (500 to 600)
600	1x (3 to 1/0)	1x (1 to 250)	1x (2/0 to 250)	1x (3/0 to 250)	1x (250 to 500)	1x (350 to 500)	2x (3/0 to 250)	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)						
Bending Space	5" (127 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 to 250)	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 250)	1x (4/0 to 250)	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	1x (400 to 500)	1x (500) 90°C or 2x (4/0 to 250) **	2x (300 to 500)	2x (350 to 500)	2x (600)	-----	-----	-----	-----	-----	-----
220 to 240	1x (350 to 500)	1x (500)	2x (250 to 500)	2x (300 to 500)	2x (500)	2x (600) 90°C *	-----	-----	-----	-----	-----
380 to 416	1x (3/0 to 250)	1x (250)	1x (350) ** N/A **	1x (400 to 500)	2x (4/0 to 250)	2x (300 to 500)	2x (400 to 500)	2x (500 to 600) 2x (500)	2x (600) 90°C *	2x (600) 90°C *	-----
440 to 480	1x (1/0 to 250)	1x (3/0 to 250)	1x (250)	1x (300) ** or 1x (250) 90°C *	1x (500)	2x (250)	2x (300 to 500)	2x (400 to 500)	2x (500)	2x (600)	2x (600) 90°C *
600	1x (1 to 1/0)	1x (2/0 to 250)	1x (3/0 to 250)	1x (4/0 to 250)	1x (350 to 500)	1x (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)						
Bending Space	5" (127 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

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



REV.	DESCRIPTION	DD/MM/YY	Drawing number
2	Revised logo	18/06/18	GPX-TD602 1/2 /E
1	General Revision (added AL coverage)	10/07/17	
0	First issue	16/03/17	

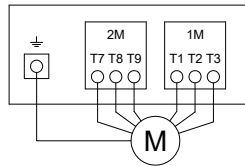
Electric Fire Pump Controller

Model: GPX

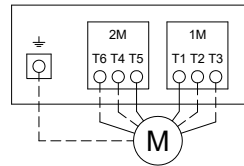
Terminal Diagram and Sizing For GPP, GPY & GPW

Built to the latest edition of the NFPA 20 standard

Motor Terminals



Model : GPP



Models : GPW & GPY

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.

COPPER CONDUCTORS for Motor Connection (1M-2M).

Field Wiring According to Bending Space (AWG or MCM). Terminals T1-T2-T3-T4-T5-T6-T7-T8-T9

HP Voltage	5	7.5	10	15	20	25	30	40	50	60
208	1x (14 to 10)	1x (12 to 10)	1x (10)	1x (8 to 2)	1x (8 to 2)	1x (6 to 2)	1x (6 to 1/0)	1x (4 to 2/0)	1x (2 to 3/0)	1x (1 to 2/0)
220 to 240	1x (14 to 10)	1x (12 to 10)	1x (10)	1x (8 to 2)	1x (8 to 2)	1x (6 to 2)	1x (6 to 1/0)	1x (4 to 2/0)	1x (3 to 2/0)	1x (2 to 2/0)
380 to 416	1x (14 to 10)	1x (14 to 10)	1x (14 to 10)	1x (12 to 10)	1x (10)	1x (10)	1x (8 to 2)	1x (6 to 2)	1x (6 to 2)	1x (4 to 1/0)
440 to 480	1x (14 to 10)	1x (14 to 10)	1x (14 to 10)	1x (12 to 10)	1x (12 to 10)	1x (10)	1x (10 to 2)	1x (8 to 2)	1x (6 to 2)	1x (6 to 2)
600	1x (14 to 10)	1x (14 to 10)	1x (14 to 10)	1x (14 to 10)	1x (12 to 10)	1x (12 to 10)	1x (10)	1x (10 to 2)	1x (8 to 2)	1x (8 to 2)

HP Voltage	75	100	125	150	200	250	300	350	400	450	500
208	1x (2/0 to 3/0)	1x (3/0 to 300)	1x (250 to 300)	2x (1/0 to 300)	2x (3/0 to 350)	-----	-----	-----	-----	-----	-----
220 to 240	1x (1/0 to 2/0)	1x (3/0)	1x (4/0 to 300)	1x (300)	2x (2/0 to 300)	2x (4/0 to 350)	-----	-----	-----	-----	-----
380 to 416	1x (4 to 2/0)	1x (2 to 2/0)	1x (1/0 to 2/0)	1x (2/0 to 3/0)	1x (4/0 to 300)	1x (300)	2x (2/0 to 300)	2x (3/0 to 300)	2x (4/0 to 350)	2x (4/0 to 350)	-----
440 to 480	1x (4 to 2/0)	1x (3 to 2/0)	1x (2 to 2/0)	1x (1/0 to 3/0)	1x (2/0 to 3/0)	1x (4/0 to 300)	1x (300)	2x (1/0 to 300)	2x (2/0 to 300)	2x (3/0 to 350)	2x (4/0 to 350)
600	1x (6 to 2)	1x (4 to 2/0)	1x (3 to 2/0)	1x (2 to 3/0)	1x (1/0 to 3/0)	1x (2/0 to 3/0)	1x (4/0 to 300)	1x (250 to 300)	1x (300)	2x (1/0 to 300)	2x (2/0 to 300)

ALUMINUM CONDUCTORS for Contactor (1M-2M).

Field Wiring According to Bending Space (AWG or MCM). Terminals T1-T2-T3-T4-T5-T6-T7-T8-T9

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

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

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

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



REV.	DESCRIPTION	DD/MM/YY	Drawing number
2	Revised logo	18/06/18	GPX-TD602 2/2 /E
1	General Revision (added AL coverage)	10/07/17	
0	First issue	16/03/17	

	Vendor Ref. No. NIL	
	Vendor Doc. No. A	
Contractor Name:		Contractor Ref. No. -
Project Name: NA		Contractor Job No. -

JOCKEY PUMP

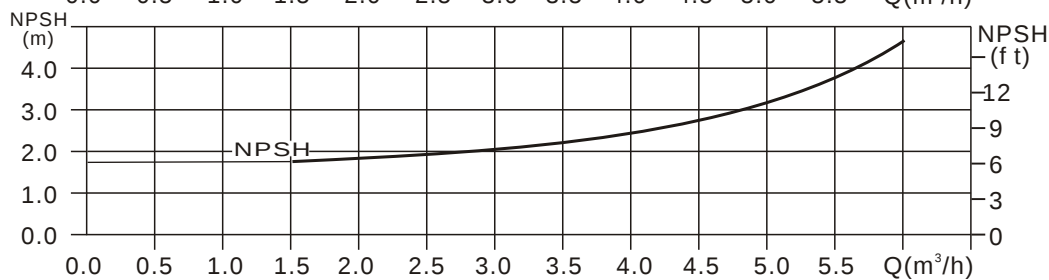
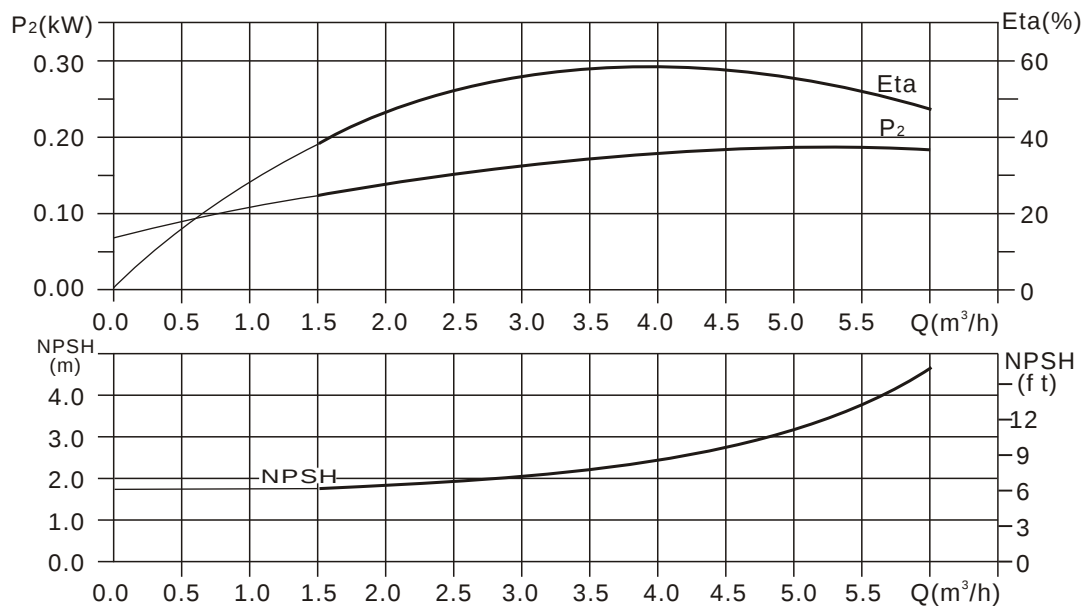
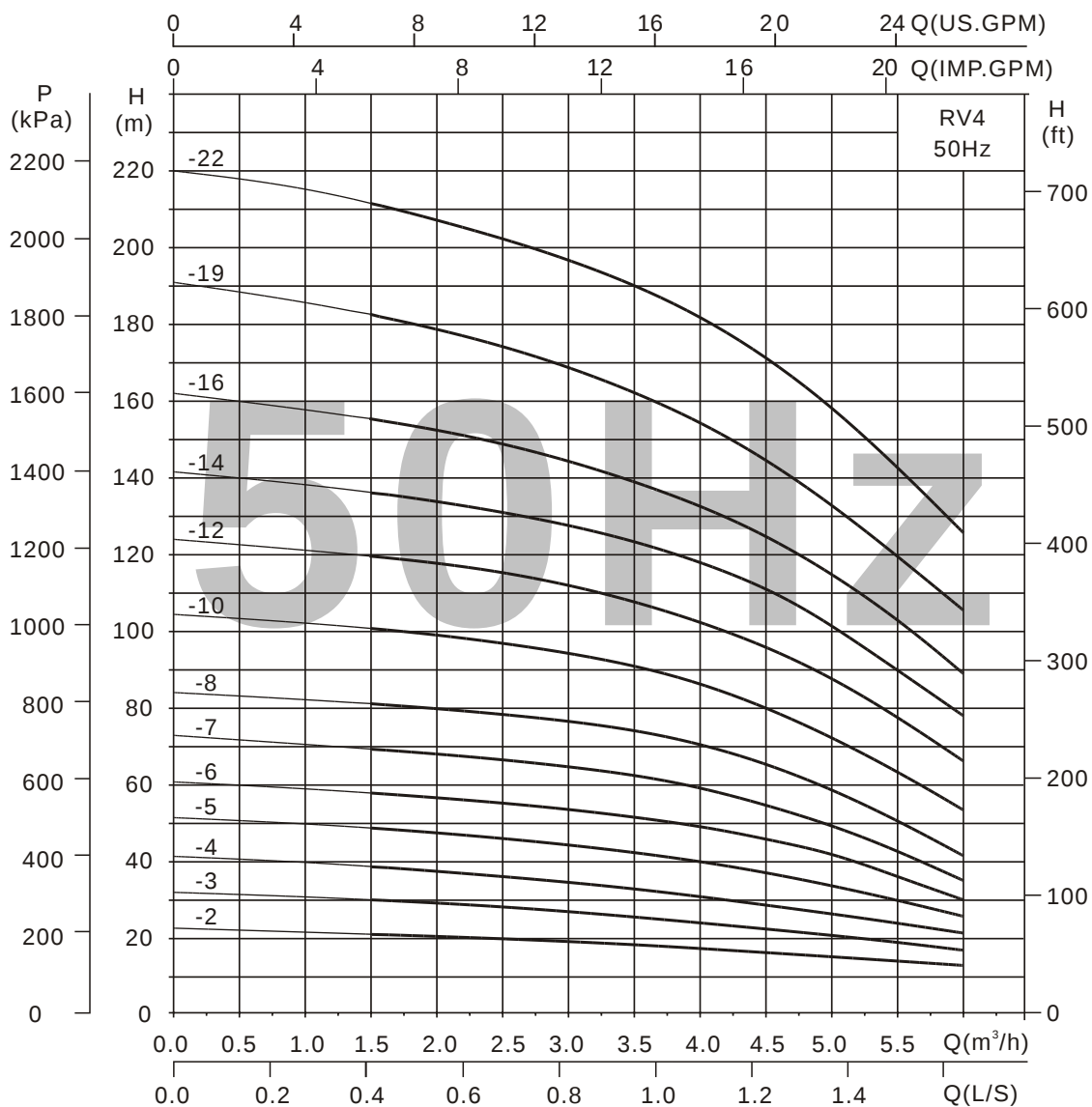
0	Issued for approval	LL	PG		
<i>Rev.</i>	<i>Description</i>	<i>Prepared</i>	<i>Checked</i>	<i>Approved</i>	<i>Date</i>



Vertical Multistage Centrifugal Pump

Performance Curve

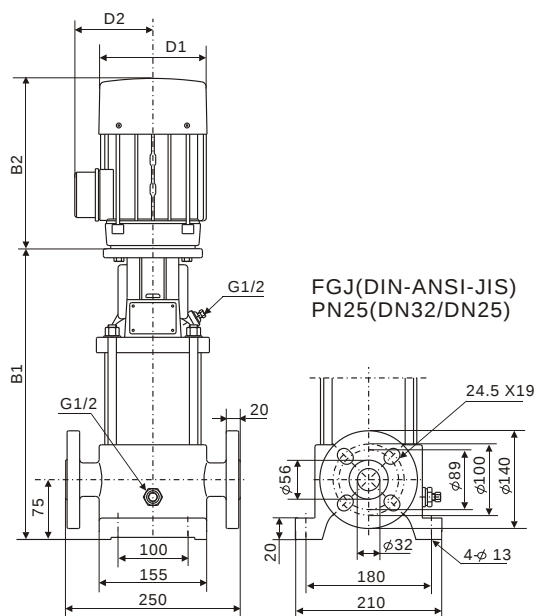
RV4-50Hz



Performance table

Model	Power P ₂ (kW)	Q (m ³ /h)	1.0	2.0	3.0	4.0	4.5	5.0	5.5	6.0
RV4-2	0.37	H (m)	22	21	19.5	18	17	16	14	13
RV4-3	0.55		31	29.5	28	24	22	21	19	18
RV4-4	0.75		40	38	35	31	29	27	24	22
RV4-5	1.1		50	48	44	40	38	34	30	26
RV4-6	1.1		59	57	53	49	45	41	36	30
RV4-7	1.5		71	69	65	59	55	50	43	36
RV4-8	1.5		83	80	78	71	65	59	51	42
RV4-10	2.2		103	100	95	87	80	79	73	54
RV4-12	2.2		122	119	113	103	96	88	78	68
RV4-14	3.0		139	134	128	118	111	102	90	79
RV4-16	3.0		158	153	145	134	126	116	103	89
RV4-19	4.0		186	180	170	155	145	133	117	98
RV4-22	4.0		216	208	197	182	172	159	143	126

Installation sketch



Dimensions and weights

Model	Dimensions(mm)					Weight (kg)
	B1	B2	B1+B2	D1	D2	
RV4-2	262	205	467	133	102	25
RV4-3	280	205	485	133	102	25
RV4-4	299	205	504	133	102	26
RV4-5	322	241	563	154	111	26
RV4-6	340	241	581	154	111	28
RV4-7	358	241/293	599/651	154	111	33
RV4-8	376	241/293	617/669	154	111	33
RV4-10	420	275/293	695/713	177	116	35
RV4-12	456	275/293	731/749	177	116	35
RV4-14	492	275/293	767/785	177	116	38
RV4-16	528	275/293	803/821	197	116	38
RV4-19	602	305	907	197	148	48
RV4-22	656	305	961	197	148	53



TORNATECH

Project: _____

Customer: _____

Engineer: _____

Pump Manufacturer: _____

Technical Data Submittal Document

Model JP3

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.



N.Y.C.
APPROVED



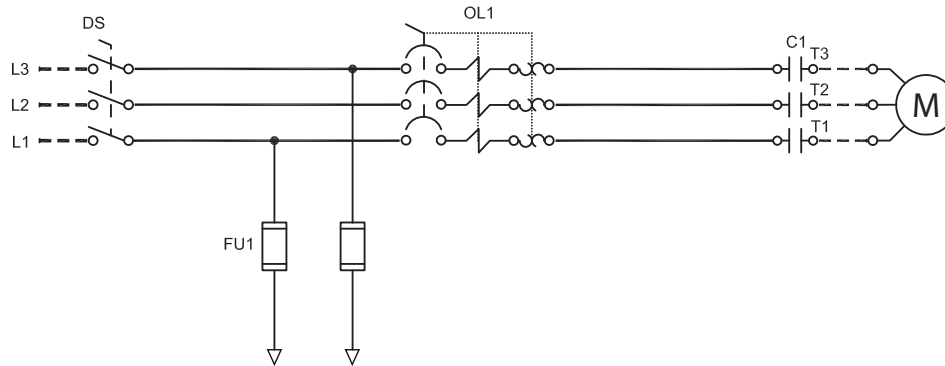
August 2018



TORNATECH

Technical Data

Model JP3 Jockey Pump Controller



N.Y.C.
APPROVED



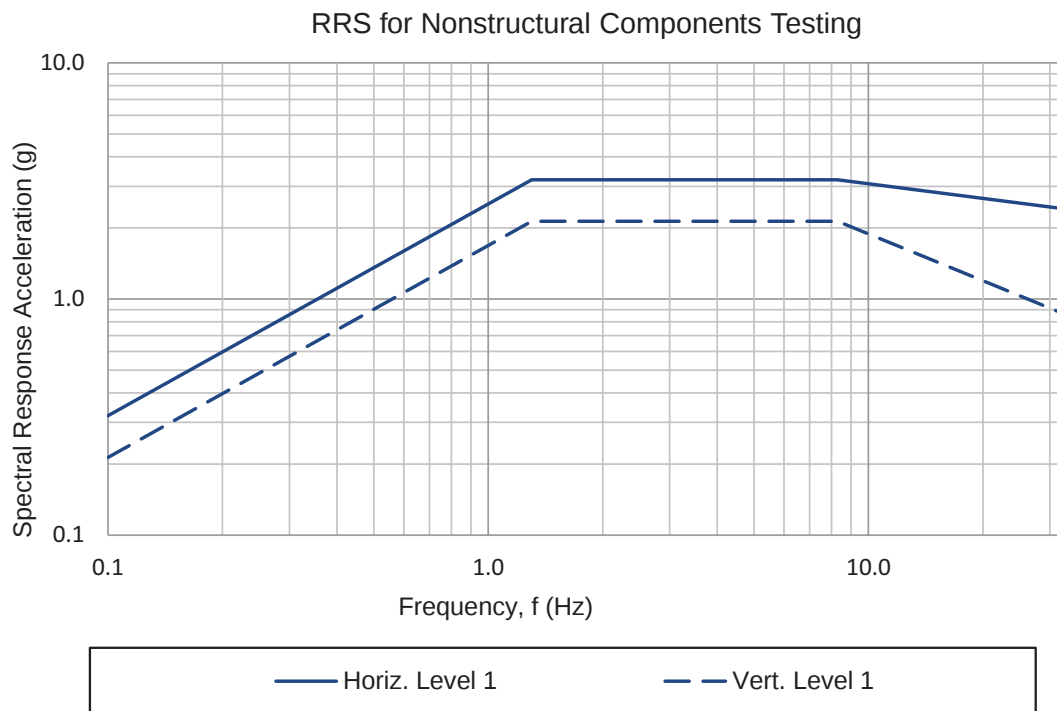
Listing	Underwriters Laboratory (UL)	UL508A - Industrial Pump Controllers
	CSA	CSA C22.2 No. 14 Industrial Control Equipment
	New York City	Accepted for use in the City of New York by the Department of Buildings
	Seismic Certification	See page 4 for details
	Optional	
	☐ CE Mark	Various EN, IEC & CEE directives and standards
Enclosure	Protection Rating	
	☐ Standard: NEMA 2 (IP31)	
	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



Fuseless Motor Starter	• Main disconnect – padlockable – rotary type handle – door interlocked • Thermo-magnetic motor protector • Contactor		
Control Circuit	• 24V.AC		
iPD+ Operator Interface	• Solid state controls • All adjustments on door front • Navigation pushbuttons		
Pressure Sensing	• Pressure transducer for fresh water application 316 stainless steel construction • Rated for 0-600psi working pressure • Pressure sensing line connection ¼" Male NPT		
Visual Indications	• Manual motor start/run LED • Automatic motor start/run LED • Motor overload • Pressure reading • Start pressure • Stop pressure • System pressure • System pressure diagnostic LED's • Green: system pressure at or above stop pressure • Yellow: system pressure between start and stop pressure • Red: system pressure at or below start pressure • AUTO mode • OFF mode		
Timers	• Minimum run timer (off delay) • Delay start timer (on delay) • Visual countdown		
Counters	• Pump start counter • Elapsed timer meter (hours / non-resettable)		
Operators	• OFF-AUTO pushbutton • Start and Stop pushbutton		
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)



Seismic Certification	Seismic Certification Company	TRU Compliance, LLC A Tobalski Watkins Affiliate					TWEI Project No.: 15014				
	Mounting details	Rigid wall mounting									
	Seismic Information	Building Code	Test Criteria	Seismic Parameters	S _{DS}	z/h	I _P	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-V}
		IBC 2015, CBC 2016	ICC- ES AC156	ASCE 7-10 Chapter 13	2.0	1.0	1.5	3.20	2.40	1.33	0.53
					3.2	0.0	1.5	3.20	1.28	2.13	0.85



Notes:

- Components are tested in accordance with ICC-ES AC156, IBC 2015 & CBC 2016.
- OSHPD Special Seismic Certification Preapproval (OSP)

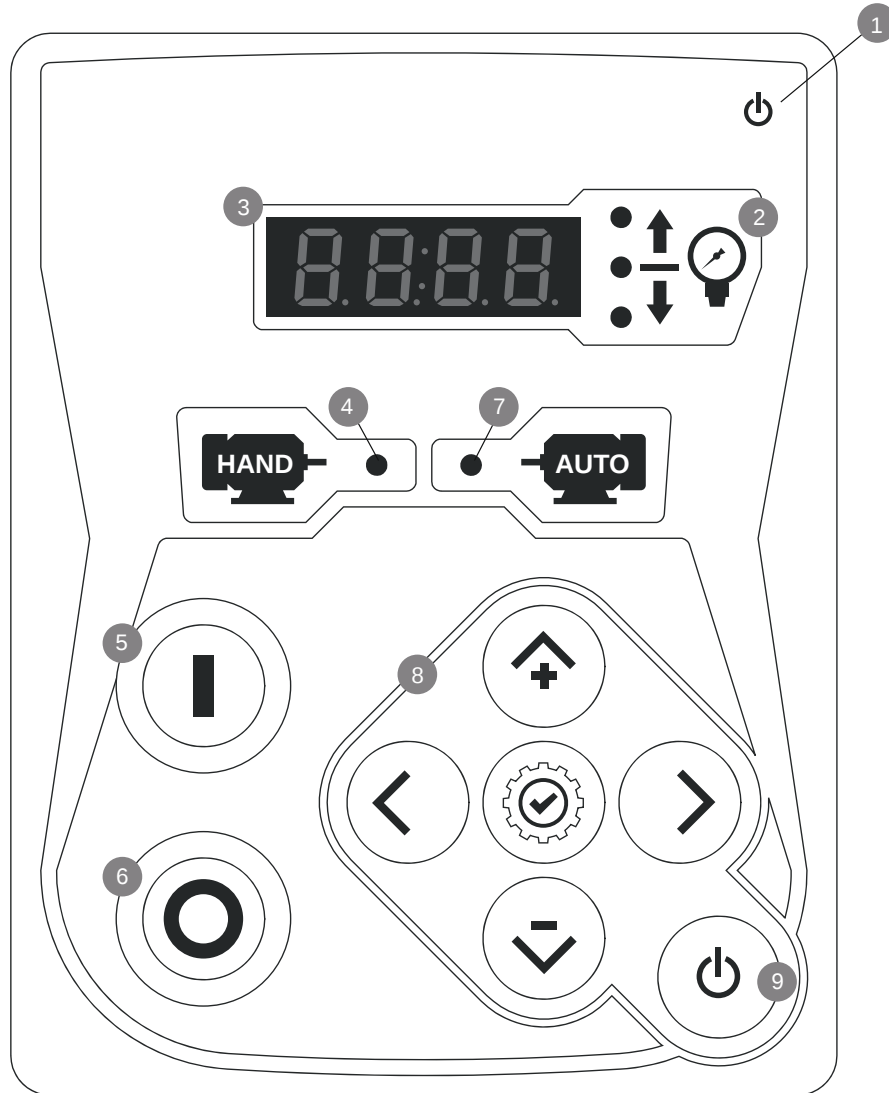


☐ A4	Elapsed time meter (time totalizer)
☐ A5	Motor run alarm contact
☐ A6	Loss of power alarm contact
☐ A7	Overload or short circuit alarm contact
☐ D12	CE Mark c/w externally mounted wetted parts
☐ D13A	Externally mounted wetted parts
☐ D14	Export packing for 1 controller
☐ D18	Audible alarm
☐ D19	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
☐ D32	Service entrance rated - 100kA short circuit withstand rating: • 120V/1ph (0.5hp max.) • 240V/1ph (1hp max.) • 200V-208V - 60hz (2hp max.) • 220V-240V - 60hz (3hp max.) • 380V-416V - 50hz - 60hz (5hp max.) • 440V-480V - 60hz (5hp max.)
☐ D33	Service entrance rated - 65kA short circuit withstand rating: • 120V/1ph (0.5hp max.) • 240V/1ph (1hp max.) • 200V-208V - 60hz (3hp-15hp max.) • 220V-240V - 60hz (515hp max.) • 380V-416V - 50hz - 60hz (7.5hp - 40hp max.) • 440V-480V - 60hz (7.5hp-40hp max.)
☐ D34	Service entrance rated - 42kA short circuit withstand rating: • 600V - 60hz (7.5hp max.)

☐ 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.

iPD+ Operator Interface



- | | |
|-----------------------|-------------------------|
| 1 - Power on LED | 6 - STOP pushbutton |
| 2 - System status LED | 7 - Auto start LED |
| 3 - Digital display | 8 - Navigation keypad |
| 4 - Hand start LED | 9 - ON - OFF pushbutton |
| 5 - START pushbutton | |

	Vendor Ref. No. NIL	
	Vendor Doc. No. A	
Contractor Name:	Contractor Ref. No. -	
Project Name: NA	Contractor Job No. -	

FLOW METER

0	Issued for approval	LL	PG		
<i>Rev.</i>	<i>Description</i>	<i>Prepared</i>	<i>Checked</i>	<i>Approved</i>	<i>Date</i>



GERAND ENGINEERING

"MODEL G" FIRE PUMP TEST METERS

Accurate Pump Performance and Quality Service for 50 Years

NEW

**BEST VALUE
IN THE
INDUSTRY**

**5 YEAR
WARRANTY**

**MANUFACTURED
IN THE USA**

**HIGH GRADE
MATERIALS:**

*CARBON STEEL,
STAINLESS STEEL,
EPOXY AND
MONEL*



MODEL-G METERS

-- RATING 500 PSI --
(Buttweld, Grooved,
300# Flanged)

-- RATING 275 PSI --
(150# Flanged)

CALIBRATED VENTURI &
ATTACHED GPM METER

4½" DIAL METER
MOUNTS ON
VENTURI BRACKET



**ADDITIONAL SIZES LISTED
AT WWW.GERAND.COM**

PUMP GPM	PIPE SIZE	VENTURI STYLE	METER RANGE (GPM)	VENTURI LENGTH (BUTTWELD OR GROOVED)	VENTURI LENGTH (150# FLANGED)	VENTURI LENGTH (300# FLANGED)
50	2"	685	25-100	4½" THREADED	-	-
100	2 1/2"	746	50-200	3" BUTTWELD 4" GROOVED	9½"	10"
250	4"	744	125-500	3½" BUTTWELD 3¾" GROOVED	9½"	10¾"
300	4"	744	150-600			
450	4"	744	225-900	5"	12"	13¾"
500	5"	715	250-1000			
500	6"	743	250-1000			
750	6"	743	375-1500			
1000	6"	743	500-2000	6"	13"	14¾"
1250	6"	743	625-2500			
1500	6"	743	625-2500			
1500	8"	750	750-3000			
2000	8"	750	1000-4000	7"	15'	16¾"
2500	8"	750	1250-5000			

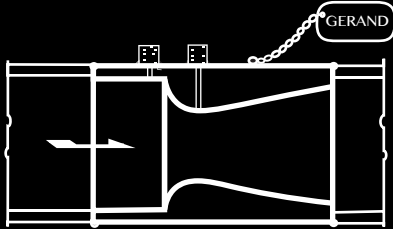
WWW.GERAND.COM FOR MORE INFORMATION

*Venturi available in Raised or Flat Face; Steel, Stainless Steel or Monel

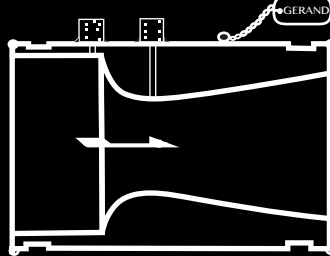
**Dual LPM/GPM Scales Available

VENTURI STYLES

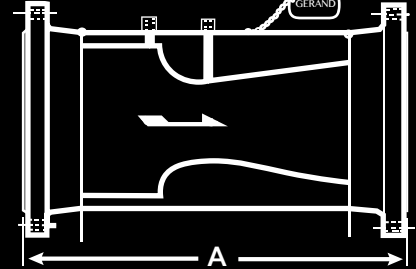
BUTTWELD



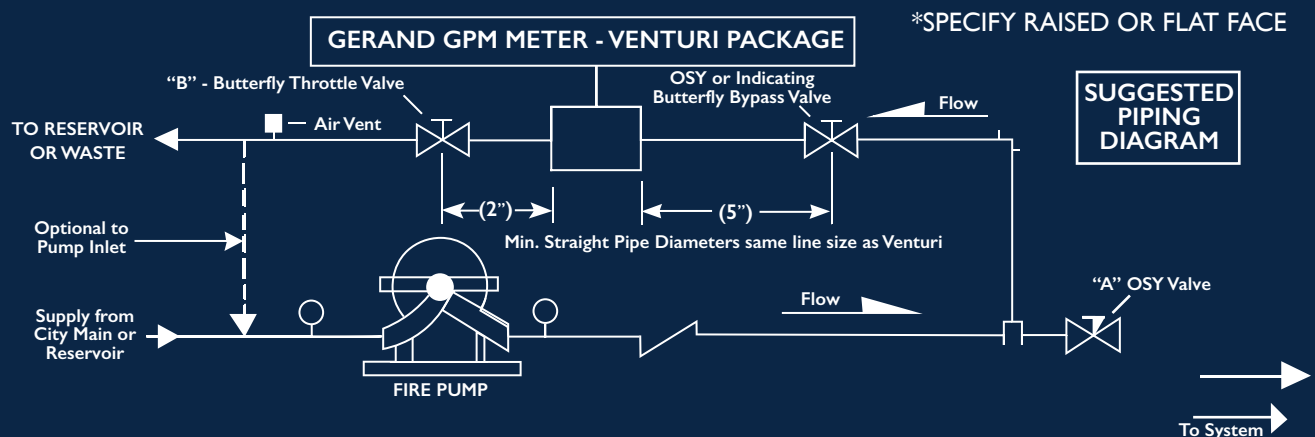
GROOVED



FLANGED



OPERATING INSTRUCTIONS



1. Close system OSY valve "A"
2. Open by-pass valve and "B" butterfly throttle valve
3. Purge meter, located on venturi, as follows:
 - a) Open station shut-off valves on venturi & vent valves attached to meter. When a steady stream of water passes through hose, meter is purged of air.
 - b) Close the vent valves after purging.

4. Start the fire pump, and read meter in GPM.
5. Refer to pump GPM requirement and adjust throttle valve to meet the requirement.
6. After the test, open valve "A" and close the by-pass and "B" valves.

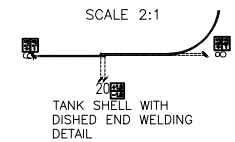
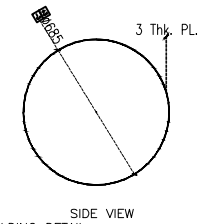
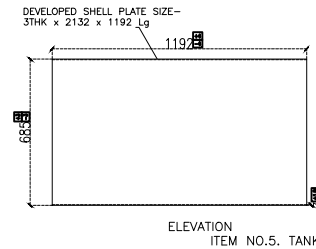
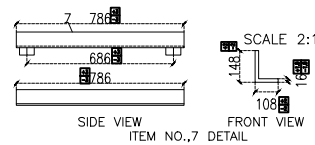
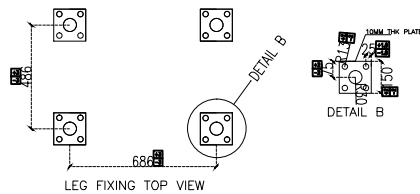
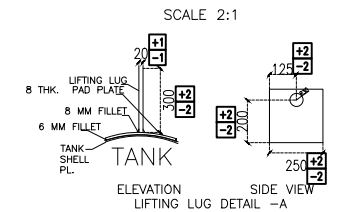
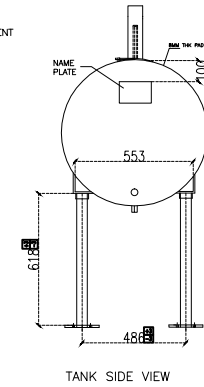
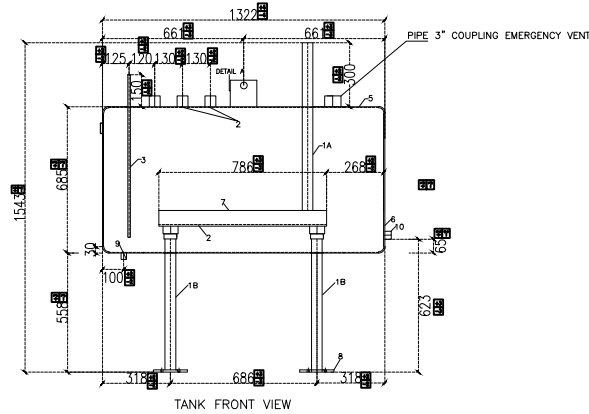
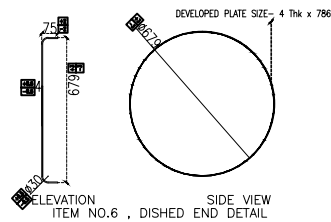


	Vendor Ref. No. NIL	
	Vendor Doc. No. A	
Contractor Name:		Contractor Ref. No. -
Project Name: NA		Contractor Job No. -

DIESEL TANK

0	Issued for approval	LL	PG		
<i>Rev.</i>	<i>Description</i>	<i>Prepared</i>	<i>Checked</i>	<i>Approved</i>	<i>Date</i>

- NOTES:
1. ALL DIMENSION ARE IN MM OTHERWISE MENTIONED.
 2. WELDING DETAIL:
DIMENSION "S" OF NON-DIMENSIONED FILLET WELDS SHALL AT LEAST BE EQUAL TO 0.7 TIMES THE MINIMUM THICKNESS "T" OF THE SMALLEST ELEMENTS TO BE CONNECTED BUT MIN WELD 6MM UNLESS OTHERWISE INDICATE
 3. TOLERANCE IS GENERATED IN ACCORDING TO ISO 13920:1996.



SLNO	DESCRIPTION	LENGTH	QTY
1:A	2" PIPE	882MM	1 NO
1B	2" PIPE	600MM	4 NOS
2	2" COUPLING	-	4 NOS
3	1/2" PIPE	762MM	1 NO
4	NAME PLATE	150x100x3MM	1 NO
5	MS SHEET 3MM	2165x1191x3MM	1 NO
6	END PLATE 3MM	DIA 678MM	2 NOS
7	ANGLE 90x90x9MM	790MM	2 NOS
8	BASE PLATE	150x150x10MM	4 NOS
9	COUPLING 2"	-	1 NO
10	COUPLING 1/2"	-	1 NO
11	COUPLING 3"	-	1 NO
PAINTING SPECIFICATION			
RAL-3002 RED COLOUR			

			DIESEL TANK DRAWING		120 GAL.
Warker	Revise	Partition	Signature	Date	WATEX PUMPS INDUSTRIES UAE - AJMAN - NEW INDUSTRIAL AREA - AJMAN STREET
Design			Standardized		
Drawing			HASSAN MAIEN		
Review			HAMZA NIDAL		
Process			Audit		
			Drawing N.	Weight	Scale
			W D T 003		
			DATE	1/8/2018	