

END SUCTION FIRE PUMP SUBMITTAL



Fire Pump System

FLOW RATE(GPM)

1000

PRESSURE(BAR)

9

ELECTRIC DRIVEN + DIESEL DRIVEN + JOCKEY PUMP

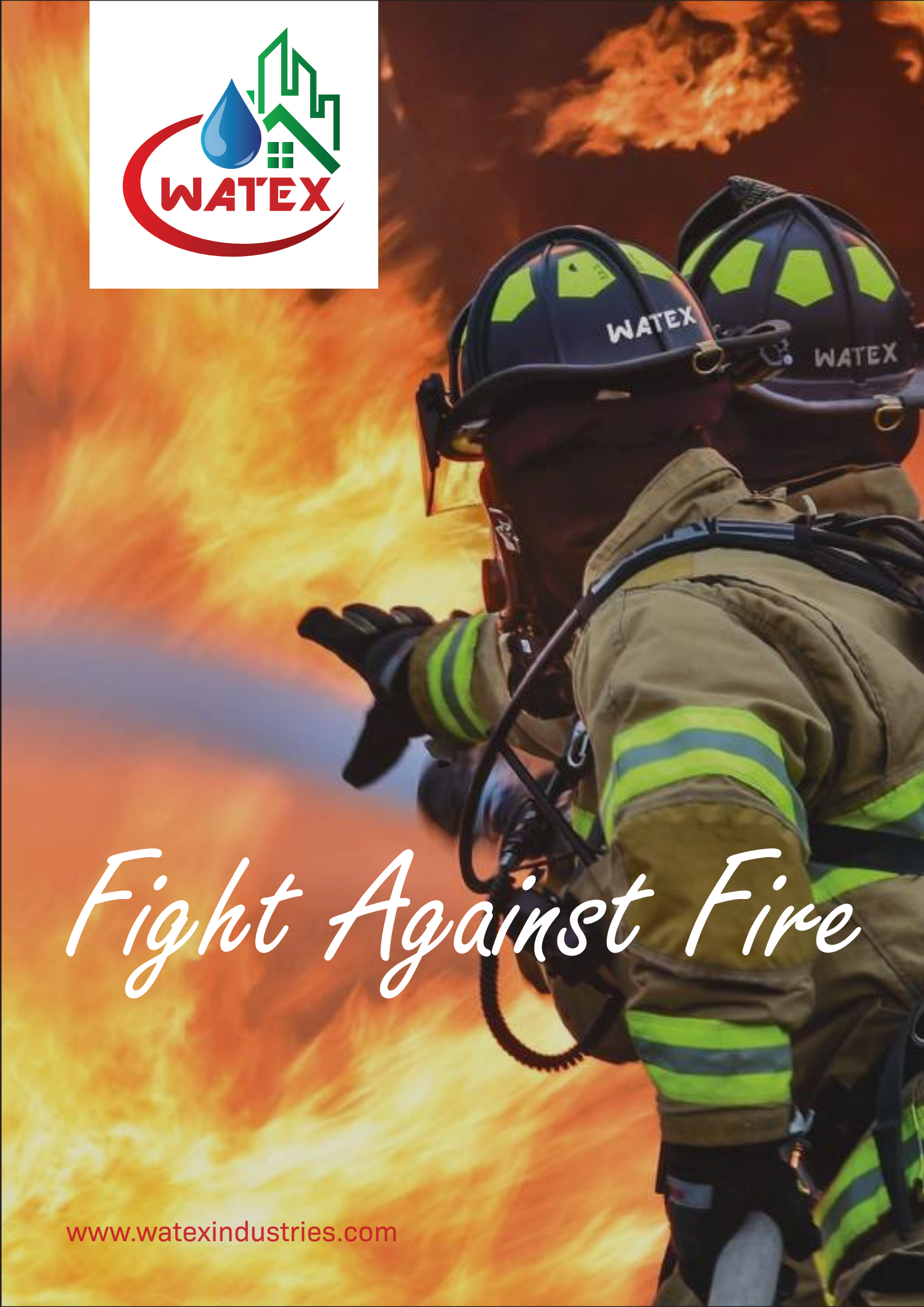
Fight Against Fire

www.watexindustries.com

	Vendor Ref. No.	
	Vendor Doc. No.	
Contractor Name:	Contractor Ref. No.	
Project Name:	Contractor Job No.	

**FIRE PUMP SET
TECHNICAL SUBMITTAL**

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

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.

**ELECTRIC FIRE PUMP**

Electric Pump:	
Approval	
Make	WATEX- Made in UAE
Rated Flow	1000 US GPM
Rated Pressure	9 BAR
Pump Type	END SUCTION
Pump Model	WE 100-260
RPM	2950
Casing	CAST IRON
Impeller	BRONZE
Shaft	STAINLESS STEEL
Shaft Sleeves	BRONZE

Motor:	
Motor Approval	
Model	WDC404TS125U2B/404TSTD4009
Make	WATEX/MARATHON
Voltage	415V, 50HZ, 3PH
Rating	125HP
Service Factor	1.15
RPM	2940/2970
Protection	CLASS F
Insulation	IP 23

**DIESEL FIRE PUMP**

Diesel Pump:	
Approval	
Make	WATEX- Made in UAE
Rated Flow	1000 US GPM
Rated Pressure	9 BAR
Pump Type	END SUCTION
Pump Model	WE 100-260
RPM	3000
Casing	CAST IRON
Impeller	BRONZE
Shaft	STAINLESS STEEL
Shaft Sleeves	Bronze

Engine:-	
Pump Approval	 
Make	KIRLOSKAR
Model	KFP4R-UF16R1
Cooling Method	Heat Exchange
Rated HP	152 HP
Rated Speed	3000 RPM

Accessories:	
Approval	
Fuel Tank	120 US Gallons
Exhaust Silencer	4" Flanged
Battery	12VDC
Diesel Level Guage	Krueger
Pressure Relief Valve	4" 106-RPS-8700A
Flow Meter	6" GERAND

**JOCKEY PUMP**

<u>JOCKEY PUMP:</u>	
Make	Watex
Duty Flow	50 GPM / 100M
Pump Type	Vertical Multistage
Pump Model	RV10-14
RPM	2900
Casing	Stainless Steel
Impeller	Stainless Steel
Suction Connection	1 $\frac{1}{2}$ " Flanged to PN 25
Pump Approval	

<u>Motor:</u>	
Type	TEFC (IP 55)
Power Supply	3 Phase, 415 Volt, 50 Hz, 5.5KW
Rated Speed	2900 RPM

FIRE PUMP CONTROLLERS

<u>Diesel Pump Controller:</u>	
Approval	 
Make	Tornatech
Model	GPD-12-220
Line Voltage	208V-240V
Enclosure	NEMA 4
Mounting	Wall mounted

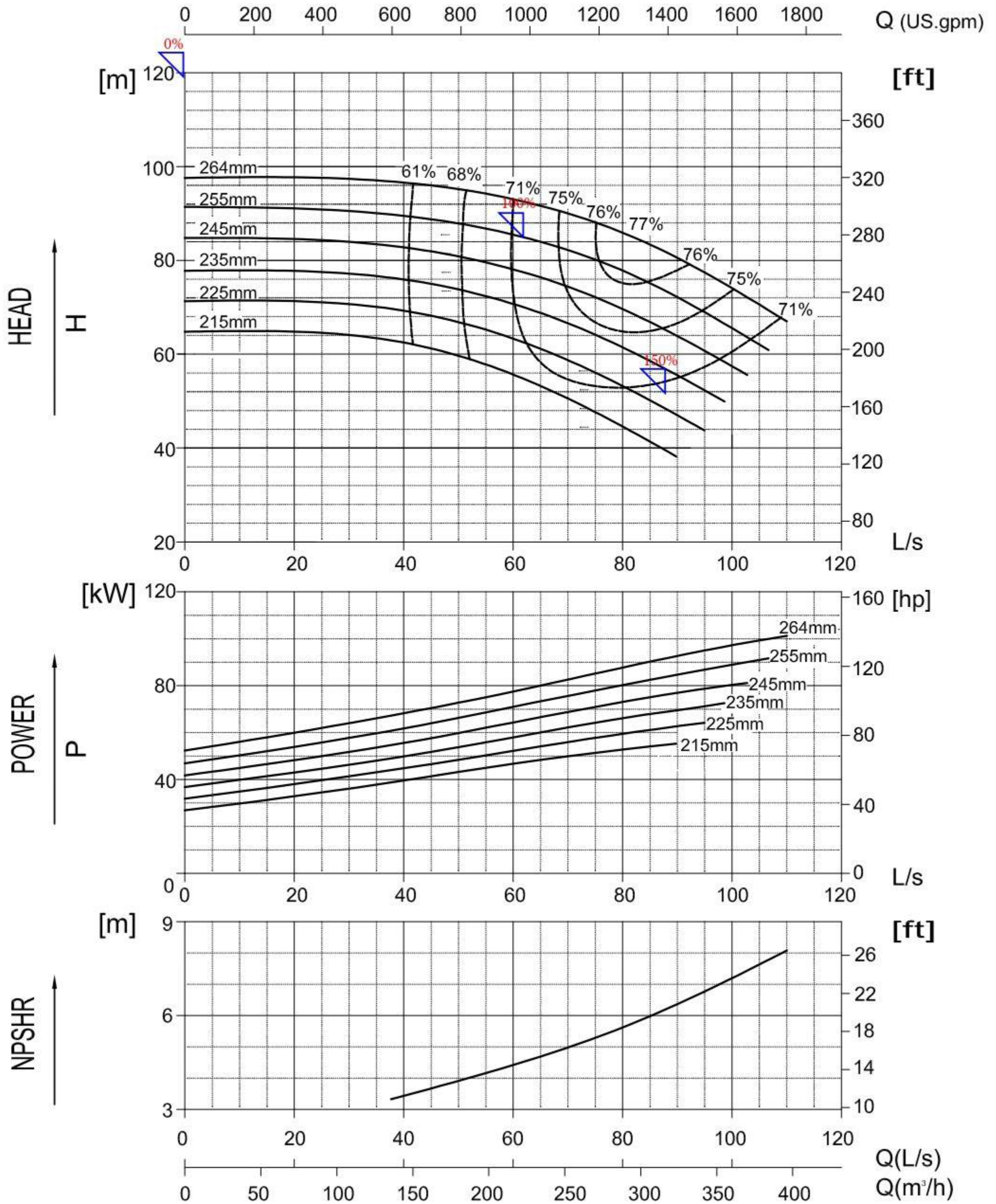
<u>Electric Pump Controller:</u>	
Approval	 
Make	Tornatech
Model	GPY-415\125\3\50
Rating	125 HP
Supply Voltage	3Ph, 415V, 50Hz
Enclosure	NEMA 4
Mounting	Floor

<u>Jockey Pump Controller:</u>	
Approval	
Make	Tornatech
Model	JP3-415\7.5\3\50
Rating	7.5 HP
Supply Voltage	3Ph, 415V, 50Hz
Enclosure	NEMA 4
Mounting	Wall Mounted

WE 100-260

Performance Curve

2900 rpm



ISO9906- II , Date refers to clean cold water

	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		
<i>Rev.</i>	<i>Description</i>	<i>Prepared</i>	<i>Checked</i>	<i>Approved</i>	<i>Date</i>



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

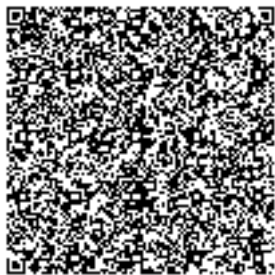
Second Surveillance Audit: 16/12/2022

Universal Certification & Services FZE
Authorized Signatory



MSCB157

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.



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	Renew License / تجديد رخصة	تفاصيل الرخصة
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	الانشطة
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	1



رقم الشهادة : 2418409
تاريخها : 06-01-2021



دولة الإمارات العربية المتحدة

الجهة المصدرة: وزارة الاقتصاد

اسم الفرع : عجمان



شهادة منشأ

بموجب أحكام اتفاقية تيسير وتنمية التبادل التجاري بين الدول العربية

1- المصدر وعنوانه كاملاً: المستقبل لتجارة المضخات 33404 97167316867 971552148105 أم القيوين		2 - المنتج وعنوانه كاملاً: واتكس لصناعة المضخات 33404 97167316867 971552148105 أم القيوين	
3- المستورد وعنوانه كاملاً: TIFFEK شركة مركز العراق التقني 009647906916050 بغداد - شارع الجمهوريه - سيد سلطان علي العراق		4 - بلد المنشأ : الإمارات العربية المتحدة	
5 - تم تطبيق التراكم مع دول أخرى؟ نعم ☐ لا ☒ اسم الدولة		6 - ملاحظات :	
7 - تفاصيل الشحن: شحن برى		8 - وصف السلع، العلامة التجارية (ان وجدت) ، عدد ونوع وأرقام الطرود: 84131910 مضخات للسوائل ، وإن كانت مزودة بأجهزة قياس ؛ رافعات سائل. - - - مضخات الحريق -1 HORIZONTAL FIRE PUMP CAPACITY OF 50GPM-5BAR (E+D) WATEX PUMPS	
9 - الوزن القائم (كجم) أو مقاييس أخرى (لتر، متر مكعب إلخ): كجم 50.000		10 - رقم وتاريخ الفاتورة (الفواتير): 0001 - 06/01/2021	
11- إقرار وتعهد المصدر: أقر بأن جميع البيانات المذكورة أعلاه صحيحة وأن السلع الوارد وصفها اعلاه مستوفاه للشروط والمعايير اللازمة لإكساب صفة المنشأ: عجمان 06-01-2021		12 - توقيع وخاتم الجهة المصدرة للشهادة : التوقيع الخاتم التاريخ 06-01-2021	
13 - تصديق الجهة الحكومية المختصة : التوقيع الخاتم التاريخ 06-01-2021		14 - شهادة منشأ التوقيع الخاتم التاريخ 06-01-2021	

CERTIFICATE OF COMPLIANCE

Certificate Number 20181124-EX27019
Report Reference EX27019-20181105
Issue Date 2018-NOVEMBER-24

Issued to: Watex Pumps Industries
New Industrial Area Amman St, Shed 16
Ajman UNITED ARAB EMIRATES

This certificate confirms that
representative samples of

CENTRIFUGAL FIRE PUMPS, END SUCTION

Centrifugal Fire Pumps, End Suction:- WE 50-260 ,WE 50-315 ,WE 65-260 ,WE-65-315 ,WE 80-260 ,WE 80-315 WE 100-260 WE 100-315

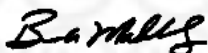
Have been investigated by UL in accordance with the
Standard(s) indicated on this Certificate.

Standard(s) for Safety: 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 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.



Bruce Mahrenholz, Director North American Certification Program

UL LLC

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact a local UL Customer Service Representative at <http://ul.com/aboutul/locations/>



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

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Certification and Follow-Up Service.

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CERTIFICATE OF COMPLIANCE

Certificate Number 20160701-EX27154
Report Reference EX27154-20160504
Issue Date 2016-JULY-01

Issued to: WATEX PUMPS INDUSTRIES

New Industrial Area
Ajman
United Arab Emirates

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

FIRE PUMP MOTORS
See Addendum for Models.

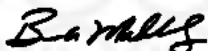
Have been investigated by UL in accordance with the
Standard(s) indicated on this Certificate.

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

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

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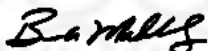
CERTIFICATE OF COMPLIANCE

Certificate Number 20160701-EX27154
Report Reference EX27154-20160504
Issue Date 2016-JULY-01

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

Models:

W132M2-2, W132M3-2, W160L1-2, W160L2-2, W160M1-2, W160M2-2, W180L-2, W180M-2, W200L1-2, W200L2-2, W200L3-2, W225M-2, W225M-4, W225M2-2, W225M2-4, W250M1-2, W250M1-4, W250M2-2, W250M2-4, W280M-2, W280M-4, W280M2-2, W280M2-4, W280S-2, W280S-4, W315L1-2, W315L1-4, W315L2-2, W315L2-4, W315M-2, W315M-4, W315S-2, W315S-4, W355L1-2, W355L1-4, W355L2-2, W355L2-4, W355L3-4, W355M-2, W355M1-2, W355M1-4, W355M2-2, W355M2-4, WTDC256T20U2B, WDC284TS25U2B, WDC286TS30U2B, WDC286TS40U2B, WDC324TS40U2B, WDC324TS50U2B, WDC326TS50U2B, WDC326TS60U2B, WDC364T60U4B, WDC364TS60U2B, WDC364TS75U2B, WDC365T75U4B, WDC365TS100U2B, WDC365TS75U2B, WDC404TS125U2B, WDC405T100U4B, WDC405T125U4B, WDC405TS100U2B, WDC405TS150U2B, WDC444T125U4B, WDC444T150U4B, WDC444TS125U2B, WDC444TS200U2B, WDC445T150U4B, WDC445T200U4B, WDC445TS150U2B, WDC447T200U4B, WDC447T250U4B, WDC447TS200U2B, WDC447TS300U2B, WDC447TS350U2B, WDC449T250U4B, WDC449T300U4B, WDC449T350U4B, WDC449TS250U2B, WDC449TS300U2B, WDC449TS350U2B, WDC449TS400U2B.



Bruce Mahrenholz, Director North American Certification Program

UL LLC

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CERTIFICATE OF COMPLIANCE

Certificate Number 20180912-EX15277
Report Reference EX15277-20170627
Issue Date 2018-SEPTEMBER-12

Issued to: KIRLOSKAR OIL ENGINES LTD
Plot D/1, Five Star MIDC, Kagal
Hatkangale Industrial Area
Vill : Talandage
Kholapur MH 416202 INDIA

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

INTERNAL-COMBUSTION ENGINES FOR DRIVING
STATIONARY FIRE PUMPS

Models: KFP4R-UF07, KFP4R-UF15, KFP6R-UF25,
KFP6S-UF35, KFP4R-UF05, KFP4R-UF08, KFP4R-
UF16R1, KFP4R-UF16R2, KFP6R-UF26R1, KFP6R-
UF26R2

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

Standard(s) for Safety: UL 1247, Diesel Engines for Driving Stationary Fire Pumps.
Additional Information: See the UL Online Certifications Directory at
www.ul.com/database for additional information

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Certification and Follow-Up Service.

Look for the UL Certification Mark on the product.



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/>





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.

A handwritten signature in dark ink, appearing to read 'D.B. Fuller', written over a horizontal line.

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

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:

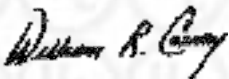
See the UL Online Certifications Directory at
www.ul.com/database for additional information

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 EX3971-20061111
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

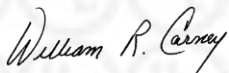
Additional Information:

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-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 jockey 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

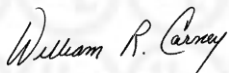
Additional Information:

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

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

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

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

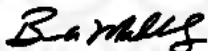
Additional Information: See the UL Online Certifications Directory at <https://iq.ulprospector.com> for additional information.

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

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact a local UL Customer Service Representative at <http://ul.com/aboutul/locations/>



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. -	

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

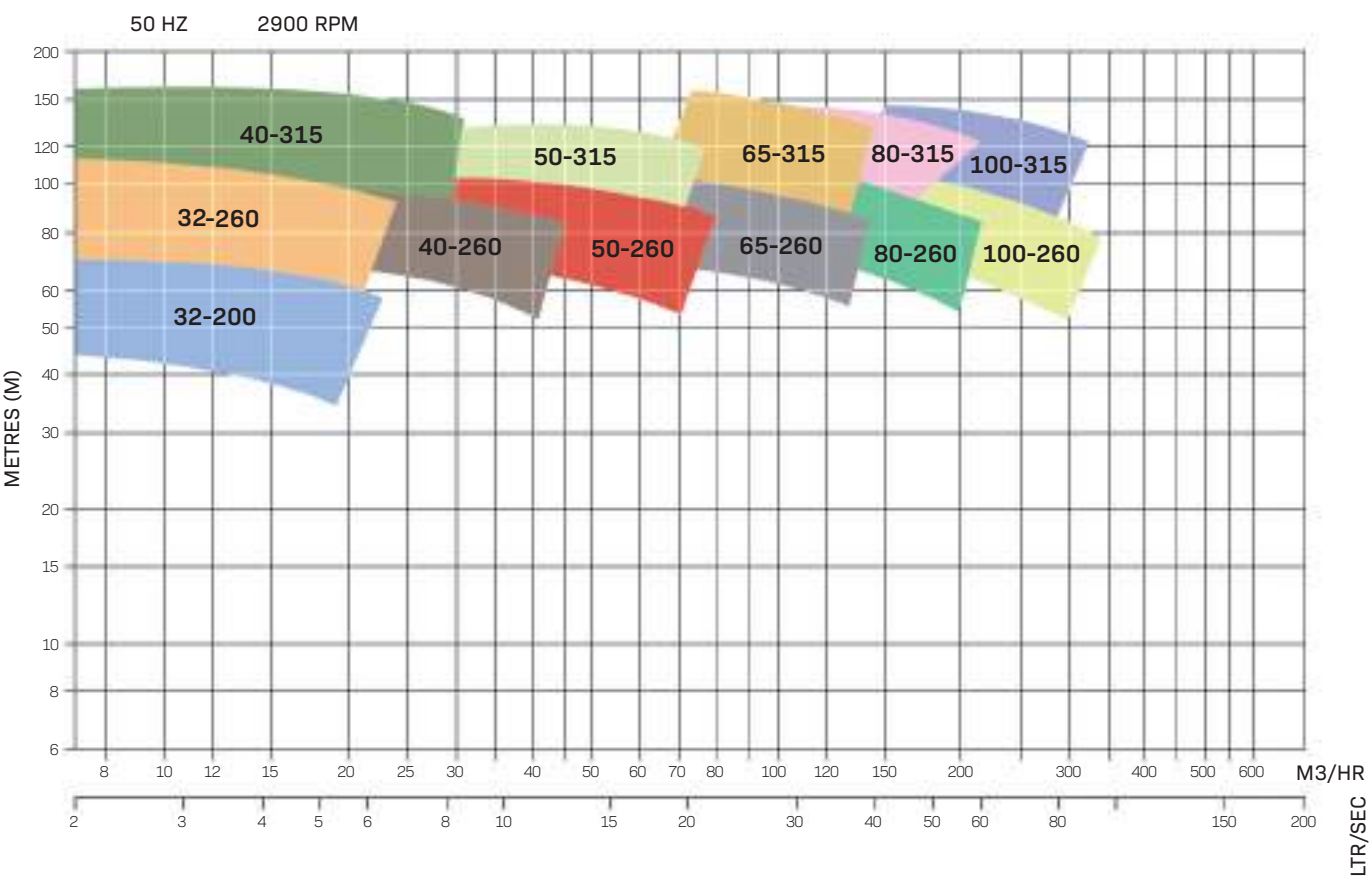
Shaft Sealing Soft Packing



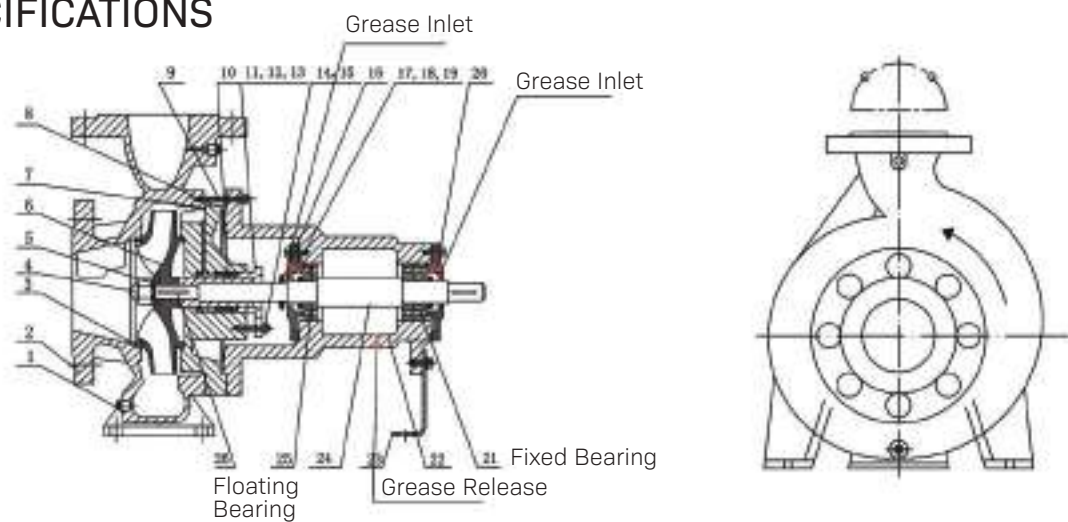
Features

- 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		

	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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33300 Egypt Lane, Suite C300
Magnolia, TX 77354
Tel.: +1 346 248 5777
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Fax: +1 830 423 8060
Email: Vinay.Kulkarni@koelamerica.com

THE REPRESENTATIVE OFFICE OF KIRLOSKAR DMCC

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Ben Nghe Ward, District 1,
Ho Chi Minh City, Vietnam
Cell Ph: +84 12 2965 9756
Tel.: +84 28 6288 6401 (Ext 1511)
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		

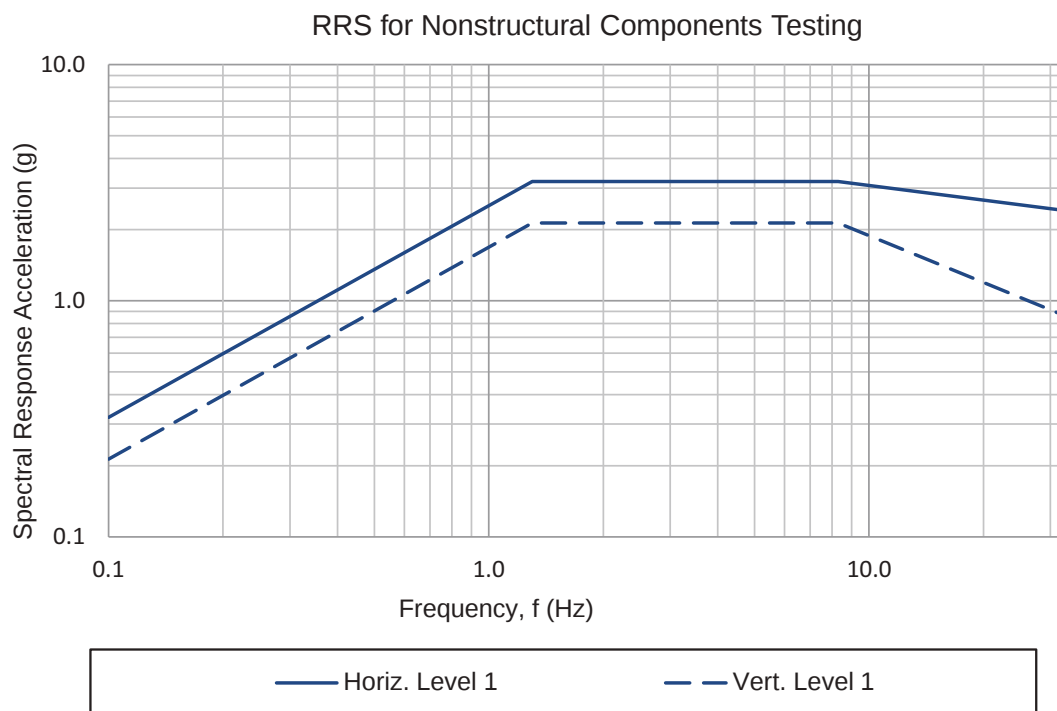
Alarm and shutdown schedule		Automatic Start	Manual or Remote Start	Run Test or Periodic Test
	High Coolant	Alarm only	Alarm only	Shutdown
	Low Oil Pressure	Alarm only	Alarm only	Shutdown
	Overspeed	Shutdown	Shutdown	Shutdown

	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

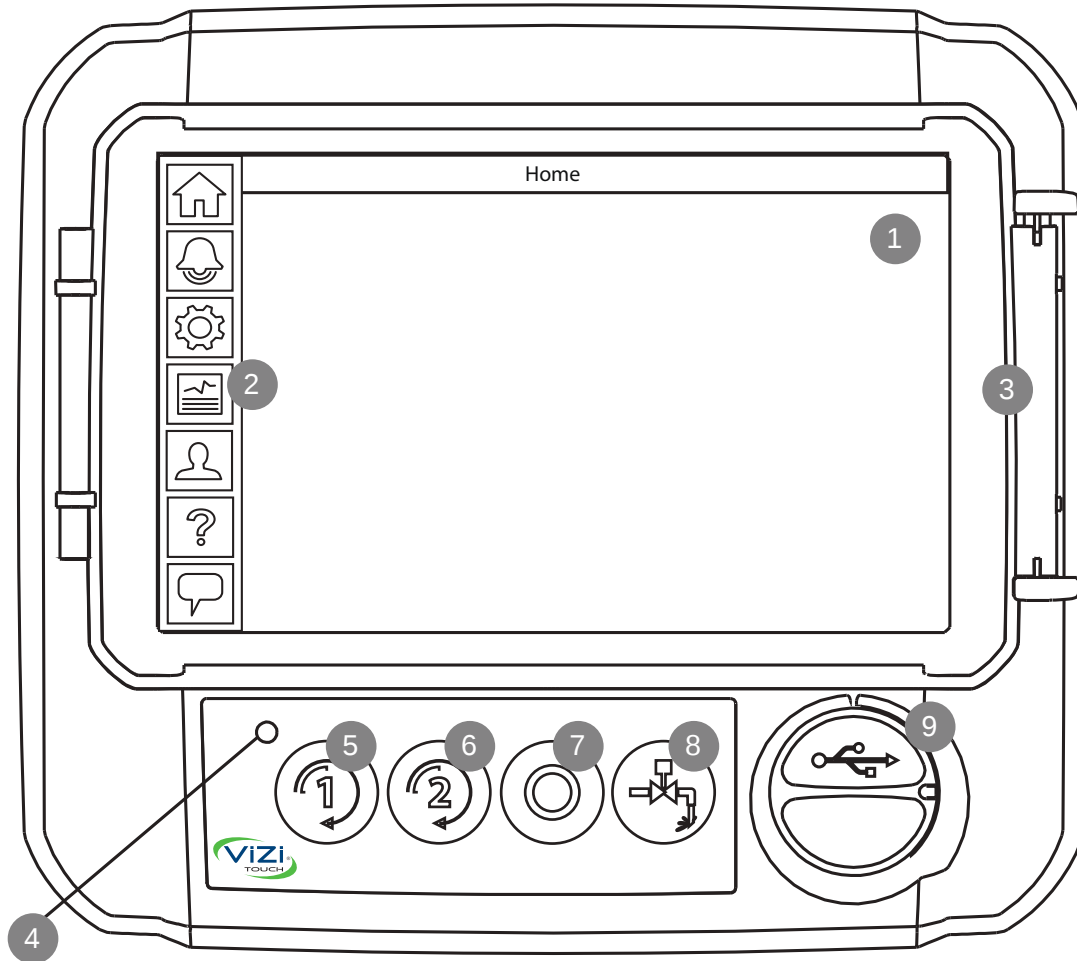
Additional Options:

☐	_____
☐	_____
☐	_____
☐	_____
☐	_____

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 MOTOR

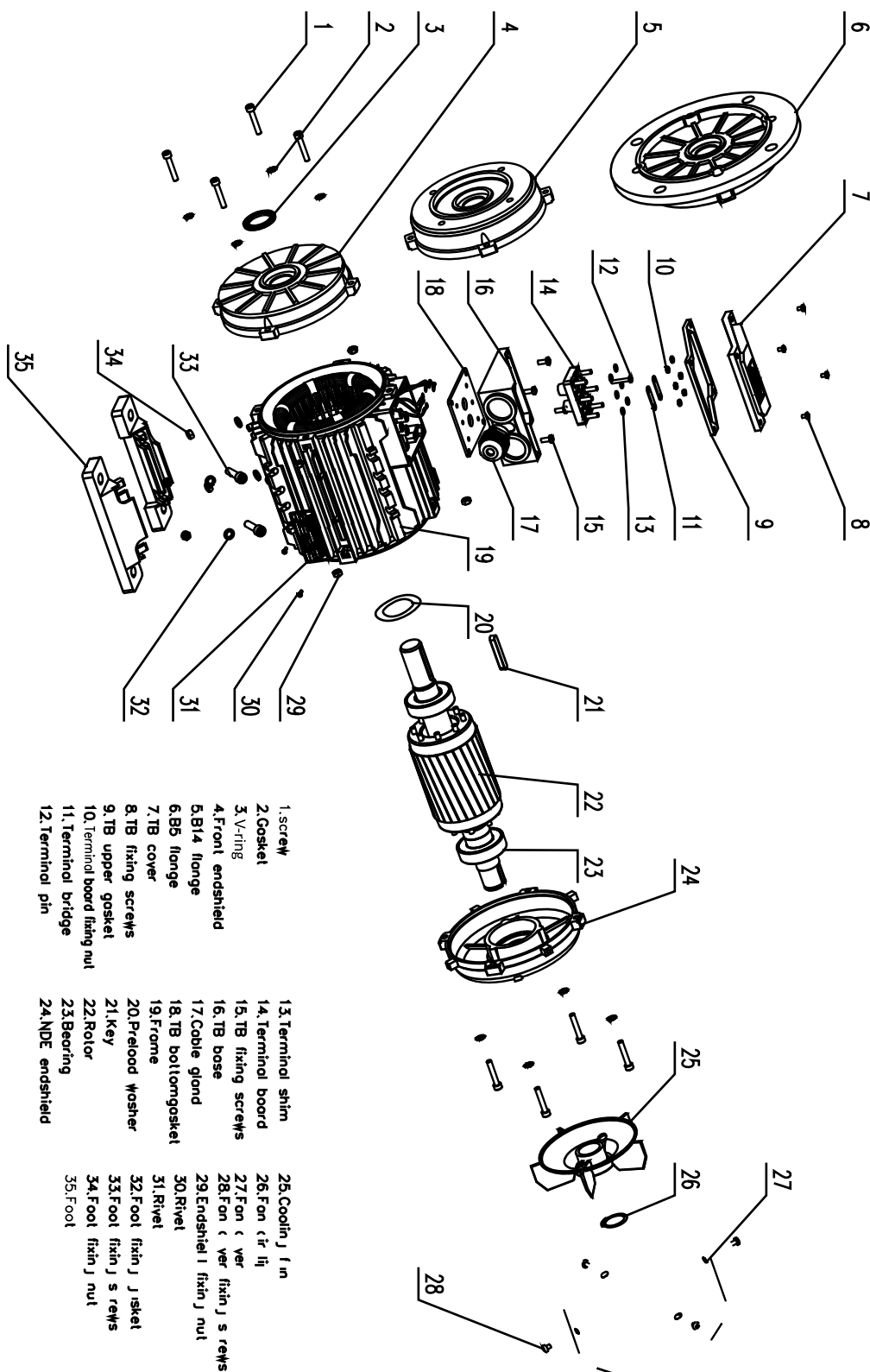
PRODUCT CATALOG

NEEMA STD

IEC STD



Fire Pump Motor Exploded Drawing



Fire Pump Motors

W series - Fire Pump Motor - UL Listed - IEC Std

Watex fire pump motors meet NFPA 20 Standards and are fully compliant with UL 1004 - 5.

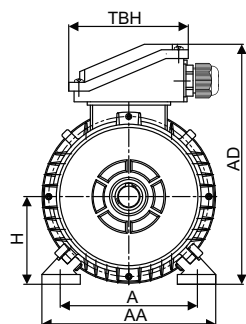
Features:

- 11 kW thru 355 kW
- 2, 4 pole
- Energy Saving, High Efficiency
- Ball Bearings
- Operation Conditions : Temperature -20 °C ~ 40°C altitude ≤ 1000m
- Red paint Standard
- B Temperature Rise, S 1 Duty
- IP 55 Protection, Class F Insulation
- Designs are available with C-face, D-flange or P-base mounting
- Various custom "Voltage-Hertz" combinations are available

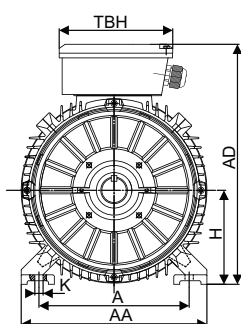
APPLICATIONS

- Pump
- Waste water treatment plants.
- Air compressors, Fans.
- Gear reduced and power transmission.
- Pulp and Paper mills.
- Steel mill.
- Conveyors, elevators
- Should be "Material handling equipment".
- Agricultural application.
- Mining equipment.
- Hydraulic equipment.

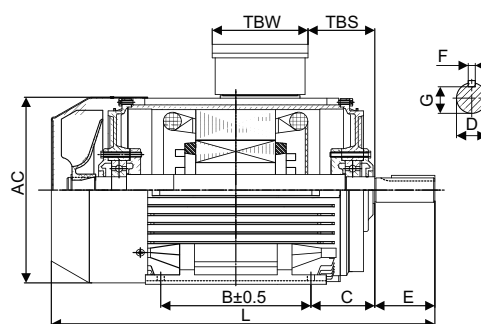
W series



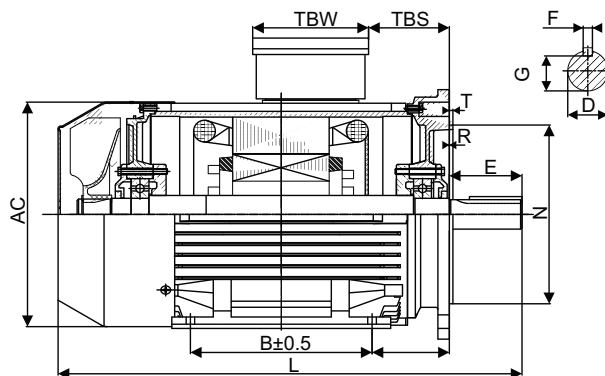
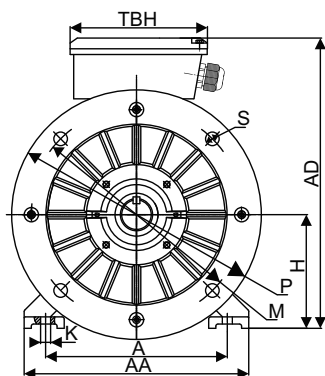
Alu.housing



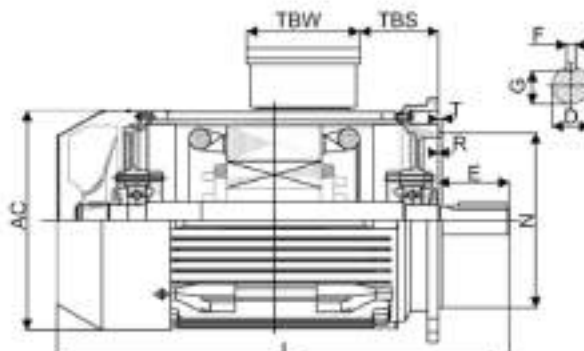
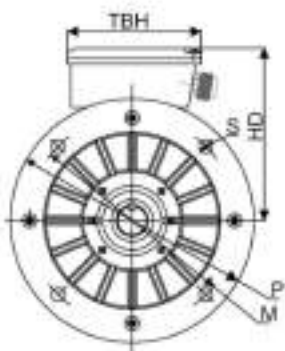
C.I.housing



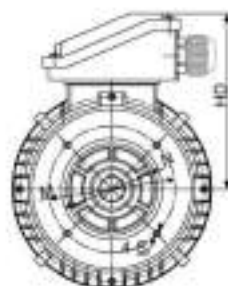
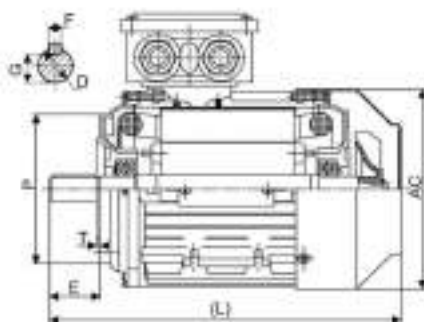
IM B3



IM B35



IM B5



IM B14

Overall & Installation Dimensions

Frame	Foot Mounting				Shaft					General							
	H	A	B	C	D	E	F	G	K	AA	AD	HD	AC	L	TBS	TBW	TBH
80	80	125	100	50	Φ19	40	6	15.5	Φ9	160	220	140	Φ158	280	16	97	97
90S/L	90	140	100/125	56	Φ24	50	8	20	Φ10	175	240	150	Φ176	325/350	16	97	97
100	100	160	140	63	Φ28	60	8	24	Φ12	200	265	165	Φ199	388	20	118	118
112	112	190	140	70	Φ28	60	8	24	Φ12	230	291	179	Φ220	405	29	118	118
132S/M	132	216	140/178	89	Φ38	80	10	33	Φ12	255	332	200	Φ259	467/505	29	118	118
160M/L	160	254	210/254	108	Φ42	110	12	37	Φ15	314	402	242	Φ313	605/650	91	162	187
180M/L	180	279	241/279	121	Φ48	110	14	42.5	Φ15	348	439	259	Φ360	687/725	160/180	162	187
200L	200	318	305	133	Φ55	110	16	49	Φ19	388	497	297	Φ399	768	192	186	233
225S	4,8	225	356	286	Φ60	140	18	53	Φ19	436	553	328	Φ465	814	190	186	233
225M	2	225	356	311	Φ55	110	16	49	Φ19	436	553	328	Φ465	809	202	186	233
	4,6,8	225	356	311	Φ60	140	18	53	Φ19	436	553	328	Φ465	839	202	186	233
250M	2	250	406	349	Φ60	140	18	53	Φ24	484	616	366	Φ506	918	233	218	260
	4,6,8	250	406	349	Φ65	140	18	58	Φ24	484	616	366	Φ506	918	233	218	260
280S/M	2	280	457	368/419	Φ65	140	18	58	Φ24	557	668	388	Φ559	984/1035	265	218	260
	4,6,8	280	457	368/419	Φ75	140	20	67.5	Φ24	557	668	388	Φ559	984/1035	265	218	260
315S	2	315	508	406	Φ65	140	18	58	Φ28	630	845	530	Φ680	1205	130	280	320
	4,6,8	315	508	406	Φ80	170	22	71	Φ28	630	845	530	Φ680	1235	130	280	320
315M/L	2	315	508	457/508	Φ65	140	18	58	Φ28	630	845	530	Φ680	1355	130	280	320
	4,6,8	315	508	457/508	Φ80	170	22	71	Φ28	630	845	530	Φ680	1385	130	280	320
355M/L	2	355	610	560/630	Φ75	140	20	67.5	Φ28	740	1010	655	Φ820	1500	140	330	380
	4,6,8	355	610	560/630	Φ100	210	28	90	Φ28	740	1010	655	Φ820	1570	140	330	380

Frame	Bearings		Cable Gland	B5						B14					
	Drive End	Non-Drive End		N	M	P	S	T	R	N	M	P	S	T	R
80	6204ZZ		1-M20×1.5	Φ130	Φ165	Φ198	4-Φ12	3.5	0	Φ80	Φ100	Φ118	M6	3	0
90S/L	6205ZZ		1-M20×1.5	Φ130	Φ165	Φ198	4-Φ12	3.5	0	Φ95	Φ115	Φ138	M8	3	0
100	6206ZZ		1-M20×1.5	Φ180	Φ215	Φ250	4-Φ15	4	0	Φ110	Φ130	Φ158	M8	3.5	0
112	6306ZZ		2-M25×1.5	Φ180	Φ215	Φ250	4-Φ15	4	0	Φ110	Φ130	Φ158	M8	3.5	0
132S/M	6308ZZ		2-M25×1.5	Φ230	Φ265	Φ300	4-Φ15	4	0	Φ130	Φ165	Φ198	M10	3.5	0
160M/L	6309C3		2-M32×1.5	Φ250	Φ300	Φ350	4-Φ19	5	0						0
180M/L	6311C3		2-M32×1.5	Φ250	Φ300	Φ350	4-Φ19	5	0						0
200L	6312C3		2-M40×1.5	Φ300	Φ350	Φ400	4-Φ19	5	0						0
225S	4,8	6313C3	2-M50×1.5	Φ350	Φ400	Φ450	8-Φ19	5	0						0
225M	2			Φ350	Φ400	Φ450	8-Φ19	5	0						0
	4,6,8			Φ350	Φ400	Φ450	8-Φ19	5	0						0
250M	2	6314C3	2-M50×1.5	Φ400	Φ500	Φ550	8-Φ19	5	0						0
	4,6,8			Φ400	Φ500	Φ550	8-Φ19	5	0						0
280S/M	2	6316C3	2-M50×1.5	Φ400	Φ500	Φ550	8-Φ19	5	0						0
	4,6,8			Φ400	Φ500	Φ550	8-Φ19	5	0						0
315S/M/L	2	6317C3	2-M63×1.5	Φ550	Φ600	Φ660	8-Φ24	6	0						0
	4,6,8	NU319	6319C3	Φ550	Φ600	Φ660	8-Φ24	6	0						0
355M/L	2	6319C3	2-M63×1.5	Φ680	Φ740	Φ800	8-Φ24	6	0						0
	4,6,8	NU322	6322C3	Φ680	Φ740	Φ800	8-Φ24	6	0						0

T

echnical Data

Model No.	Output	Hz/DC	Volts	FL Amps	Service Factor	Poles	Number of Speeds	RPM	Phases	Ins. Class	Prot. Type	Rated Ambient (°C)
2 Pole - 3000RPM, Synchronous Speed 50 Hz												
W132M2-2	1.5kW	50	380-415	20.36-18.64	-	2	1	2820	3	F	-	50
	1.5kW	50	660-720	11.72-10.76	-	2	1	2820	3	F	-	50
W132M3-2	1.5kW	50	380-415	27.25-24.95	-	2	1	2918	3	F	-	50
	1.5kW	50	660-720	15.69-14.38	-	2	1	2918	3	F	-	50
W160L1-2	18.5kW	50	380-415	33.06-30.26	-	2	1	2922	3	F	-	50
	18.5kW	50	660-720	19.04-17.45	-	2	1	2922	3	F	-	50
W160L2-2	22kW	50	380-415	40.51-37.10	-	2	1	2930	3	F	-	50
	22kW	50	660-720	23.33-21.38	-	2	1	2930	3	F	-	50
W160M1-2	11kW	50	380-415	20.36-18.64	-	2	1	2820	3	F	-	50
	11kW	50	660-720	11.72-10.76	-	2	1	2820	3	F	-	50
W160M2-2	15kW	50	380-415	27.25-24.95	-	2	1	2918	3	F	-	50
	15kW	50	660-720	15.69-14.38	-	2	1	2918	3	F	-	50
W180L-2	30kW	50	380-415	54.69-50.26	-	2	1	2925	3	F	-	50
	30kW	50	660-720	31.6-29.97	-	2	1	2925	3	F	-	50
W180M-2	21kW	50	380-415	40.51-37.10	-	2	1	2930	3	F	-	50
	21kW	50	660-720	23.33-21.38	-	2	1	2930	3	F	-	50
W200L1-2	30kW	50	380-415	54.69-50.26	-	2	1	2925	3	F	-	50
	30kW	50	660-720	31.6-29.97	-	2	1	2925	3	F	-	50
W200L2-2	27kW	50	380-415	46.66-43.04	-	2	1	2930	3	F	-	50
	27kW	50	660-720	28.38-26.18	-	2	1	2930	3	F	-	50
W200L3-2	45kW	50	380-415	82.65-75.60	-	2	1	2930	3	F	-	50
	45kW	50	660-720	47.59-43.62	-	2	1	2930	3	F	-	50
W225M-2	45kW	50	380-415	82.65-75.60	-	2	1	2930	3	F	-	50
	45kW	50	660-720	47.59-43.62	-	2	1	2930	3	F	-	50
W225M2-2	55kW	50	380-415	100.70-92.21	-	2	1	2940	3	F	-	50
	55kW	50	660-720	57.68-53.15	-	2	1	2940	3	F	-	50
W250M1-2	88kW	50	380-415	100.70-92.21	-	2	1	2940	3	F	-	50
	88kW	50	660-720	57.68-53.15	-	2	1	2940	3	F	-	50
W250M2-2	75kW	50	380-415	130.79-119.76	-	2	1	2940	3	F	-	50
	75kW	50	660-720	75.3-69.03	-	2	1	2940	3	F	-	50
W280M-2	90kW	50	380-415	156.45-143.26	-	2	1	2940	3	F	-	50
	90kW	50	660-720	90.09-82.57	-	2	1	2940	3	F	-	50
W280M2-2	110kW	50	380-415	195.06-178.61	-	2	1	2940	3	F	-	50
	110kW	50	660-720	112.31-102.95	-	2	1	2940	3	F	-	50
W280S-2	75kW	50	380-415	130.79-119.76	-	2	1	2940	3	F	-	50
	75kW	50	660-720	75.3-69.03	-	2	1	2940	3	F	-	50
W315L1-2	160kW	50	380-415	281.85-258.17	-	2	1	2945	3	F	-	50
	160kW	50	660-720	162.33-148.81	-	2	1	2945	3	F	-	50
W315L2-2	200kW	50	380-415	366.39-336.34	-	2	1	2945	3	F	-	50
	200kW	50	660-720	205.2-189.1	-	2	1	2945	3	F	-	50
W315M-2	132kW	50	380-415	231.01-211.53	-	2	1	2940	3	F	-	50
	132kW	50	660-720	132.01-121.92	-	2	1	2940	3	F	-	50
W315S-2	110kW	50	380-415	195.06-178.61	-	2	1	2940	3	F	-	50
	110kW	50	660-720	112.31-102.95	-	2	1	2940	3	F	-	50
W355L1-2	280kW	50	380-415	493.4-451.7	-	2	1	2945	3	F	-	50
	280kW	50	660-720	284.1-260.6	-	2	1	2945	3	F	-	50
W355L2-2	315kW	50	380-415	561.32-513.98	-	2	1	2945	3	F	-	50
	315kW	50	660-720	323.18-296.28	-	2	1	2945	3	F	-	50
W355M-2	300kW	50	380-415	566.39-526.34	-	2	1	2945	3	F	-	50
	300kW	50	660-720	305.2-189.1	-	2	1	2945	3	F	-	50
W355M1-2	220kW	50	380-415	397.68-354.98	-	2	1	2945	3	F	-	50
	220kW	50	660-720	223.21-204.61	-	2	1	2945	3	F	-	50
W355M2-2	250kW	50	380-415	440.54-403.59	-	2	1	2945	3	F	-	50
	250kW	50	660-720	253.65-232.51	-	2	1	2945	3	F	-	50
4 Pole - 1500 RPM, Synchronous Speed 50 Hz												
W225M-4	45kW	50	380-415	82.49-76.62	-	4	1	1480	3	F	-	50
	45kW	50	660-720	47.49-43.52	-	4	1	1480	3	F	-	50
W225M2-4	55kW	50	380-415	100.38-91.91	-	4	1	1480	3	F	-	50
	55kW	50	660-720	57.79-52.96	-	4	1	1480	3	F	-	50
W250M1-4	55kW	50	380-415	100.38-91.91	-	4	1	1480	3	F	-	50
	55kW	50	660-720	57.79-52.96	-	4	1	1480	3	F	-	50
W250M2-4	75kW	50	380-415	131.81-120.69	-	4	1	1480	3	F	-	50
	75kW	50	660-720	75.89-69.87	-	4	1	1480	3	F	-	50
W280M-4	90kW	50	380-415	186.13-172.98	-	4	1	1480	3	F	-	50
	90kW	50	660-720	89.89-82.4	-	4	1	1480	3	F	-	50
W280M2-4	110kW	50	380-415	194.65-178.24	-	4	1	1480	3	F	-	50
	110kW	50	660-720	112.07-102.73	-	4	1	1480	3	F	-	50
W280S-4	75kW	50	380-415	131.81-120.69	-	4	1	1480	3	F	-	50
	75kW	50	660-720	75.89-69.87	-	4	1	1480	3	F	-	50
W315L1-4	160kW	50	380-415	270.85-255.33	-	4	1	1480	3	F	-	50
	160kW	50	660-720	160.53-147.17	-	4	1	1480	3	F	-	50
W315L2-4	200kW	50	380-415	351.70-322.04	-	4	1	1480	3	F	-	50
	200kW	50	660-720	202.49-185.62	-	4	1	1480	3	F	-	50
W315M-4	132kW	50	380-415	230.82-211.08	-	4	1	1480	3	F	-	50
	132kW	50	660-720	132.73-121.67	-	4	1	1480	3	F	-	50
W315S-4	110kW	50	380-415	194.65-178.24	-	4	1	1480	3	F	-	50
	110kW	50	660-720	112.07-102.73	-	4	1	1480	3	F	-	50
W355L1-4	200kW	50	380-415	497.91-455.93	-	4	1	1480	3	F	-	50
	200kW	50	660-720	286.68-262.79	-	4	1	1480	3	F	-	50
W355L2-4	315kW	50	380-415	553.93-507.23	-	4	1	1480	3	F	-	50
	315kW	50	660-720	318.93-292.58	-	4	1	1480	3	F	-	50
W355M1-4	220kW	50	380-415	397.68-354.98	-	4	1	1480	3	F	-	50
	220kW	50	660-720	223.21-204.61	-	4	1	1480	3	F	-	50
W355M2-4	250kW	50	380-415	440.54-403.59	-	4	1	1480	3	F	-	50
	250kW	50	660-720	253.65-232.51	-	4	1	1480	3	F	-	50

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echnical Data

Model No.	Output	Hz/DC	Volts	FL Amps	Service Factor	Poles	Number of Speeds	RPM	Phases	Ins. Class	Prot. Type	Rated Ambient (°C)
WTD256T20U2B	20hp	60	208-230	51.4-46.5	1.15	2	1	3530	3	F	-	50
	20hp	60	460	23.2	1.15	2	1	3530	3	F	-	50
	20hp	50	415	25.9	1.15	2	1	2920	3	F	-	50
	20hp	60	575	18.6	1.15	2	1	3530	3	F	-	50
WDC284T525U2B	25hp	60	208-230	63.8-57.7	1.15	2	1	3550	3	F	-	50
	25hp	60	460	28.8	1.15	2	1	3550	3	F	-	50
	25hp	50	415	31.9	1.15	2	1	2930	3	F	-	50
	25hp	60	575	23.1	1.15	2	1	3550	3	F	-	50
WDC286T530U2B	30hp	60	208-230	75.7-68.4	1.15	2	1	3550	3	F	-	50
	30hp	60	460	34.2	1.15	2	1	3550	3	F	-	50
	30hp	50	415	39.9	1.15	2	1	2930	3	F	-	50
	30hp	60	575	27.4	1.15	2	1	3550	3	F	-	50
WDC286T540U2B	40hp	60	208-230	101.3-91.6	1.15	2	1	3560	3	F	-	50
	40hp	60	460	45.8	1.15	2	1	3560	3	F	-	50
	40hp	50	415	50.5	1.15	2	1	2925	3	F	-	50
WDC324T540U2B	40hp	60	208-230	101.3-91.6	1.15	2	1	3560	3	F	-	50
	40hp	60	460	45.8	1.15	2	1	3560	3	F	-	50
	40hp	50	415	50.6	1.15	2	1	2930	3	F	-	50
	40hp	60	575	36.6	1.15	2	1	3560	3	F	-	50
WDC324T550U2B	50hp	60	208-230	124.4-112.5	1.15	2	1	3560	3	F	-	50
	50hp	60	460	56.2	1.15	2	1	3560	3	F	-	50
	50hp	50	415	61.3	1.15	2	1	2930	3	F	-	50
WDC326T550U2B	50hp	60	208-230	124.4-112.5	1.15	2	1	3560	3	F	-	50
	50hp	60	460	56.2	1.15	2	1	3560	3	F	-	50
	50hp	50	415	63	1.15	2	1	2930	3	F	-	50
	50hp	60	575	45	1.15	2	1	3560	3	F	-	50
WDC326T560U2B	60hp	60	208-230	149.9-135.6	1.15	2	1	3560	3	F	-	50
	60hp	60	460	67.8	1.15	2	1	3560	3	F	-	50
	60hp	50	415	75.8	1.15	2	1	2935	3	F	-	50
WDC364T560U2B	60hp	60	208-230	149.9-135.6	1.15	2	1	3560	3	F	-	50
	60hp	60	460	67.8	1.15	2	1	3560	3	F	-	50
	60hp	50	415	75.4	1.15	2	1	2930	3	F	-	50
	60hp	60	575	54.2	1.15	2	1	3560	3	F	-	50
WDC364T575U2B	75hp	60	208-230	185.4-167.6	1.15	2	1	3560	3	F	-	50
	75hp	60	460	83.8	1.15	2	1	3560	3	F	-	50
	75hp	50	415	92.2	1.15	2	1	2940	3	F	-	50
WDC365T5100U2B	100hp	60	208-230	248.8-223	1.15	2	1	3570	3	F	-	50
	100hp	60	460	112.5	1.15	2	1	3570	3	F	-	50
	100hp	50	415	119.8	1.15	2	1	2940	3	F	-	50
WDC365T575U2B	75hp	60	208-230	185.4-167.6	1.15	2	1	3560	3	F	-	50
	75hp	60	460	83.9	1.15	2	1	3560	3	F	-	50
	75hp	50	415	93.6	1.15	2	1	2940	3	F	-	50
	75hp	60	575	67	1.15	2	1	3560	3	F	-	50
WDC404T5125U2B	125hp	50	415	143.5	1.15	2	1	2940	3	F	-	50
	125hp	60	460	139	1.15	2	1	3575	3	F	-	50
WDC405T5100U2B	100hp	60	208-230	247.3-223.5	1.15	2	1	3570	3	F	-	50
	100hp	60	460	111.7	1.15	2	1	3570	3	F	-	50
	100hp	50	415	124.5	1.15	2	1	2940	3	F	-	50
	100hp	60	575	89.4	1.15	2	1	3570	3	F	-	50
WDC405T5150U2B	150hp	50	415	178.6	1.15	2	1	2940	3	F	-	50
	150hp	60	460	166	1.15	2	1	3575	3	F	-	50
WDC444T5125U2B	125hp	50	415	155.3	1.15	2	1	2940	3	F	-	50
	125hp	60	460	139	1.15	2	1	3575	3	F	-	50
	125hp	60	575	111.2	1.15	2	1	3575	3	F	-	50
WDC444T5200U2B	200hp	50	415	258.2	1.15	2	1	2945	3	F	-	50
	200hp	60	460	219.9	1.15	2	1	3575	3	F	-	50
WDC445T5150U2B	150hp	50	415	182.9	1.15	2	1	2940	3	F	-	50
	150hp	60	460	165	1.15	2	1	3575	3	F	-	50
	150hp	60	575	132	1.15	2	1	3575	3	F	-	50
WDC447T5200U2B	200hp	50	415	243	1.15	2	1	2940	3	F	-	50
	200hp	60	460	219.9	1.15	2	1	3575	3	F	-	50
WDC447T5300U2B	300hp	50	415	355	1.15	2	1	2945	3	F	-	50
	300hp	60	460	326	1.15	2	1	3580	3	F	-	50
WDC447T5350U2B	350hp	50	415	461.5	1.15	2	1	2945	3	F	-	50
	350hp	60	460	388.5	1.15	2	1	3580	3	F	-	50
WDC449T5250U2B	250hp	50	415	302	1.15	2	1	2940	3	F	-	50
	250hp	60	460	299.7	1.15	2	1	3580	3	F	-	50
WDC449T5300U2B	300hp	50	415	355	1.15	2	1	2945	3	F	-	50
	300hp	60	460	326	1.15	2	1	3580	3	F	-	50
WDC449T5350U2B	350hp	50	415	461.5	1.15	2	1	2945	3	F	-	50
	350hp	60	460	388.5	1.15	2	1	3580	3	F	-	50
WDC449T5400U2B	400hp	60	460	449.5	1.15	2	1	3580	3	F	-	50



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

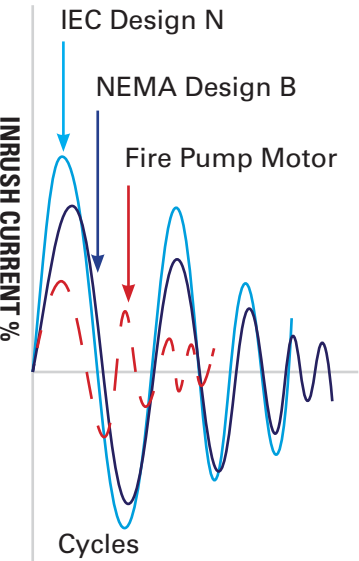
UL LISTED MOTORS

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

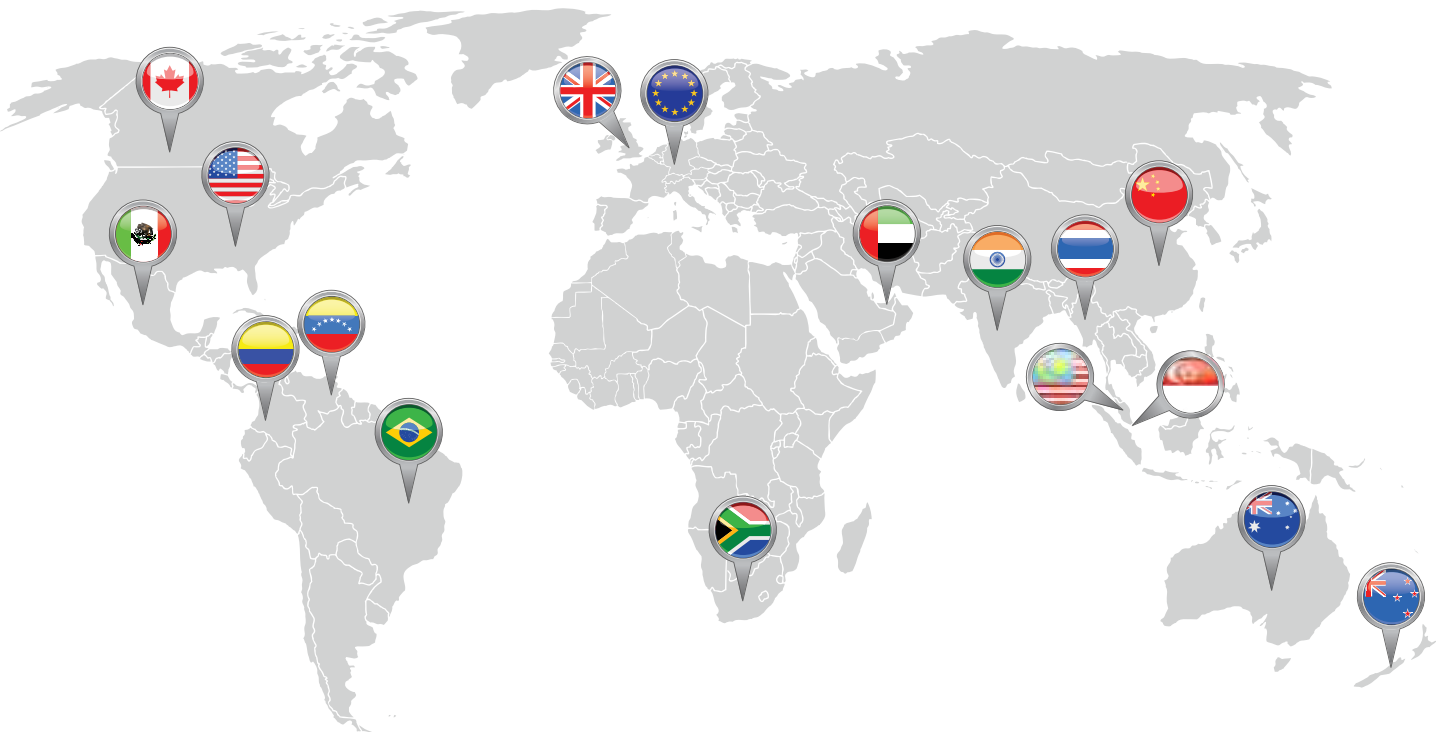


Classification	Locked-Rotor Torque (% Rated-Load Torque)	Breakdown Torque (% Rated-Load Torque)	Locked-Rotor Current (% Rated-Load Current)
UL Fire Pump Motor	70-275*	175-300*	300-600
Design B – Normal locked-rotor torque and normal locked-rotor current	70-275*	175-300*	600-700
IEC 34-12 Design N locked-rotor 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 50 HZ

MODEL	FRAME	POLES	HP	EFF(%)	P F	V	Hz	FLA (A)	LRA (A)	Rpm	Tst/Tn	Tm/Tn
256TTDBD4024	256T	2	20	89.5	0.88	190/380	50	58/29	431/215	2945	1.3	2
256TTDBD4024	256T	2	25	89.5	0.88	208/415	50	66/33	492/246	2940	1.3	2
256TTDBD4024	256T	2	20	90.2	0.87	200/400	50	54/27	409/204	2950	1.3	2
284TSTDBD4002	284TS	2	25	90.2	0.86	190/380	50	72/36	539/269	2955	1.3	2
284TSTDBD4002	284TS	2	30	90.2	0.85	208/415	50	81/40.6	591/296	2955	1.3	2
284TSTDBD4002	284TS	2	25	90.2	0.85	200/400	50	70/35	512/256	2960	1.3	2
286TSTDBD4022	286TS	2	30	91	0.87	190/380	50	87/43.5	647/323	2958	1.3	2
286TSTDBD4022	286TS	2	40	90.2	0.86	208/415	50	106/53	788/395	2950	1.25	2
286TSTDBD4022	286TS	2	30	91	0.85	200/400	50	84/42	614/307	2962	1.3	2
324TSTDCD4010	324TS	2	40	91.7	0.88	190/380	50	110/55	863/431	2965	1.25	2
324TSTDCD4010	324TS	2	50	91.7	0.88	208/415	50	128/64	985/493	2965	1.2	2
324TSTDCD4010	324TS	2	40	91.7	0.87	200/400	50	108/54	819/409	2970	1.25	2
326TSTDCD4024	326TS	2	50	92.4	0.88	190/380	50	139/70	1078/539	2962	1.2	2
326TSTDCD4024	326TS	2	60	91.7	0.88	208/415	50	152/76	1182/592	2962	1.2	2
326TSTDCD4024	326TS	2	50	92.4	0.87	200/400	50	132/66	1024/512	2965	1.2	2
364TSTDCD4025	364TS	2	60	92.4	0.88	190/380	50	166/83	1294/647	2970	1.2	2
364TSTDCD4025	364TS	2	75	92.4	0.88	208/415	50	190/95	1478/740	2965	1.05	2
364TSTDCD4025	364TS	2	60	92.4	0.87	200/400	50	160/80	1229/614	2972	1.2	2
365TSTDCD4025	365TS	2	75	92.4	0.88	190/380	50	210/105	1618/809	2970	1.05	2
365TSTDCD4025	365TS	2	100	92.4	0.88	208/415	50	256/128	1970/987	2965	1.05	2
365TSTDCD4025	365TS	2	75	93	0.87	200/400	50	200/100	1537/768	2972	1.05	2
404TSTDCD4017	404TS	2	100	93	0.88	380	50	135	1078	2975	1.05	2
404TSTDCD4017	404TS	2	125	93	0.89	415	50	155	1234	2970	1	2
404TSTDCD4017	404TS	2	100	93	0.87	400	50	130	1024	2978	1.05	2
405TSTDCD4006	405TS	2	125	93	0.89	380	50	168	1348	2970	1	2
405TSTDCD4006	405TS	2	150	93	0.89	415	50	185	1481	2970	1	2
405TSTDCD4006	405TS	2	125	93	0.88	400	50	160	1281	2975	1	2
444TSTDCD4010	444TS	2	150	94.1	0.88	380	50	200	1618	2978	1	2
444TSTDCD4010	444TS	2	200	94.1	0.89	415	50	245	1975	2975	1	2
444TSTDCD4010	444TS	2	150	94.5	0.87	400	50	190	1537	2980	1	2
445TSTDCD4007	445TS	2	200	94.1	0.88	380	50	265	2157	2975	1	2
445TSTDCD4007	445TS	2	250	94.1	0.89	415	50	305	2469	2975	0.7	1.75
445TSTDCD4007	445TS	2	200	94.2	0.87	400	50	252	2049	2978	1	2
	447TS	2	300	95	0.91	380	50	393	3236	2975	0.7	1.75
	447TS	2	300	95	0.91	415	50	360	2963	2975	0.7	1.75
	447TS	2	300	95	0.91	400	50	374	3074	2975	0.7	1.75
	449TS	2	350	95	0.91	380	50	459	3775	2975	0.7	1.75
	449TS	2	350	95	0.91	415	50	420	3457	2975	0.7	1.75
	449TS	2	350	95	0.91	400	50	436	3586	2975	0.7	1.75
	449TS	2	400	95.4	0.91	380	50	522	4315	2975	0.7	1.75

	449TS	2	400	95.4	0.91	415	50	478	3951	2975	0.7	1.75
	449TS	2	400	95.4	0.91	400	50	496	4099	2975	0.7	1.75
284TTDBD4027	284T	4	20	90.2	0.83	190/380	50	60/30	431/215	1472	1.5	2
284TTDBD4027	284T	4	25	90.2	0.83	208/415	50	70/35	492/246	1470	1.5	2
284TTDBD4027	284T	4	20	91	0.82	200/400	50	58/29	409/204	1475	1.5	2
286TTDBD4041	286T	4	25	91	0.85	190/380	50	73/37	539/269	1468	1.5	2
286TTDBD4041	286T	4	30	91	0.84	208/415	50	82/41	591/296	1468	1.4	2
286TTDBD4041	286T	4	25	91.7	0.84	200/400	50	70/35	512/256	1472	1.5	2
324TTDCD4038	324T	4	30	92.4	0.85	190/380	50	86/43	647/323	1478	1.5	2
324TTDCD4038	324T	4	40	91.7	0.84	208/415	50	108/54	788/395	1475	1.4	2
324TTDCD4038	324T	4	30	92.4	0.83	200/400	50	84/42	614/307	1480	1.5	2
326TTDCD4345	326T	4	40	92.4	0.85	190/380	50	115/57.5	863/431	1475	1.4	2
326TTDCD4345	326T	4	50	91.7	0.84	208/415	50	136/68	985/493	1472	1.4	2
326TTDCD4345	326T	4	40	92.4	0.84	200/400	50	111/55.5	819/409	1478	1.4	2
364TSTDCD4332	364TS	4	50	93	0.87	190/380	50	140/70	1078/539	1478	1.4	2
364TSTDCD4332	364TS	4	60	92.4	0.86	208/415	50	155/77.5	1182/592	1478	1.4	2
364TSTDCD4332	364TS	4	50	93	0.86	200/400	50	134/67	1024/512	1480	1.4	2
365TSTDCD4332	365TS	4	60	93.6	0.87	190/380	50	165/82.5	1294/647	1480	1.4	2
365TSTDCD4332	365TS	4	75	93.6	0.87	208/415	50	190/95	1478/740	1478	1.4	2
365TSTDCD4332	365TS	4	60	93.6	0.86	200/400	50	157/78.5	1229/614	1482	1.4	2
404TSTDCD4332	404TS	4	75	93.6	0.87	190/380	50	210/105	1618/809	1485	1.4	2
404TSTDCD4332	404TS	4	100	93.6	0.87	208/415	50	256/128	1970/987	1485	1.25	2
404TSTDCD4332	404TS	4	75	93.6	0.86	200/400	50	200/100	1537/768	1488	1.4	2
405TSTDCD4332	405TS	4	100	94.1	0.87	380	50	138	1078	1485	1.25	2
405TSTDCD4332	405TS	4	125	93.6	0.87	415	50	158	1234	1482	1.1	2
405TSTDCD4332	405TS	4	100	94.1	0.86	400	50	132	1024	1485	1.25	2
444TSTDCD4332	444TS	4	125	94.5	0.87	380	50	172	1348	1485	1.1	2
444TSTDCD4332	444TS	4	150	94.5	0.87	415	50	190	1481	1486	1.1	2
444TSTDCD4332	444TS	4	125	94.5	0.86	400	50	164	1281	1488	1.1	2
445TSTDCD4332	445TS	4	150	95	0.87	380	50	205	1618	1488	1.1	2
445TSTDCD4332	445TS	4	200	95	0.87	415	50	250	1975	1486	1	2
445TSTDCD4332	445TS	4	150	95.4	0.86	400	50	195	1537	1490	1.1	2
445TSTDCD14051	445TS	4	200	95.5	0.86	380	50	278	2157	1488	1	2
	445TS	4	250	95.4	0.86	415	50	316	2469	1486	0.8	1.75
	445TS	4	200	95.4	0.86	400	50	262	2049	1488	1	2
	447TS	4	300	95.4	0.86	380	50	414	3236	1480	0.8	1.75
	447TS	4	300	95.4	0.86	415	50	379	2963	1480	0.8	1.75
	447TS	4	300	95.4	0.86	400	50	394	3074	1480	0.8	1.75
	449TS	4	350	95.4	0.86	380	50	484	3775	1480	0.8	1.75
	449TS	4	350	95.4	0.86	415	50	443	3457	1480	0.8	1.75
	449TS	4	350	95.4	0.86	400	50	459	3586	1480	0.8	1.75
	449TS	4	400	95.4	0.86	380	50	553	4315	1480	0.8	1.75
	449TS	4	400	95.4	0.86	415	50	506	3951	1480	0.8	1.75
	449TS	4	400	95.4	0.86	400	50	525	4099	1480	0.8	1.75



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.



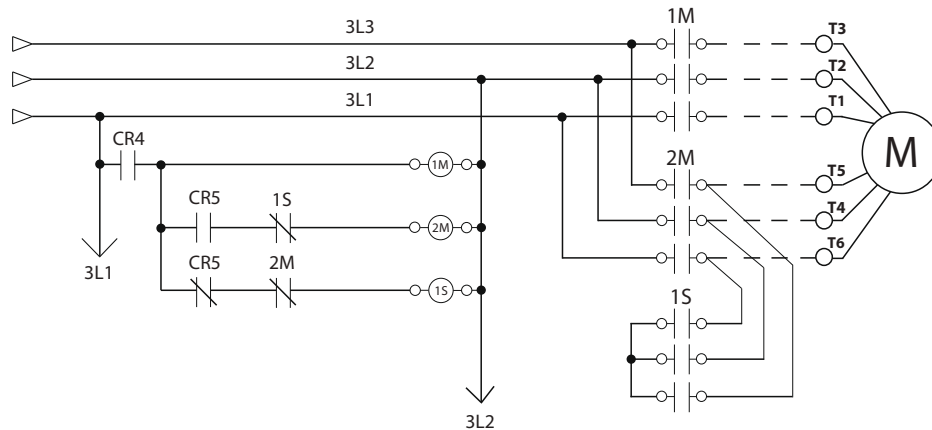
N.Y.C.
APPROVED



February 2019



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



Standard, Listings, Approvals and Certifications	Built to NFPA 20 (latest edition)	
	Underwriters Laboratory (UL)	• UL218 - Fire Pump Controllers • 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 7 for details
	Optional	
	☐ CE Mark	Various EN, IEC & CEE directives and standards
Enclosure	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	

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	

*Please see Disconnecting Means details on page 3



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 • Overcurrent • Overvoltage • Phase loss L1 • Phase loss L2 • Phase loss L3 • Phase unbalanced • Pressure transducer fault detected Pump on demand • 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.

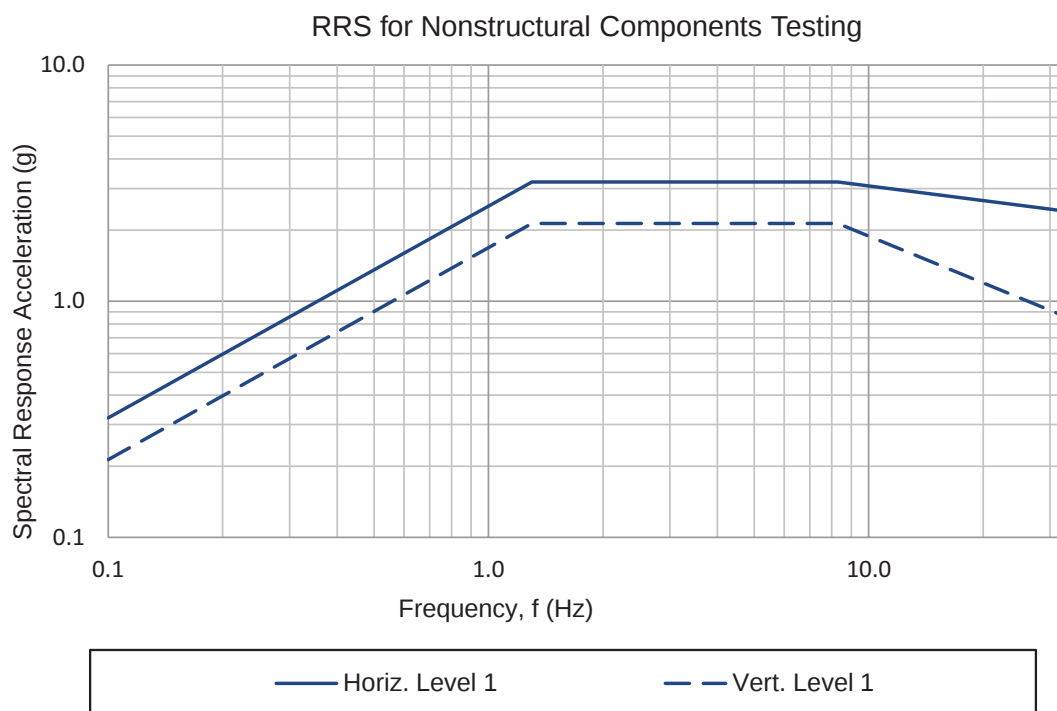


ViZiTouch V2 Operator Interface	• Embedded microcomputer with software PLC logic • 7.0" color touch screen (HMI technology) • Upgradable software • Multi-language		
Communication Protocol Capability	• Protocol: Modbus • Connection type: Shielded female connector RJ45 • Frame Format: TCP/IP • Addresses: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

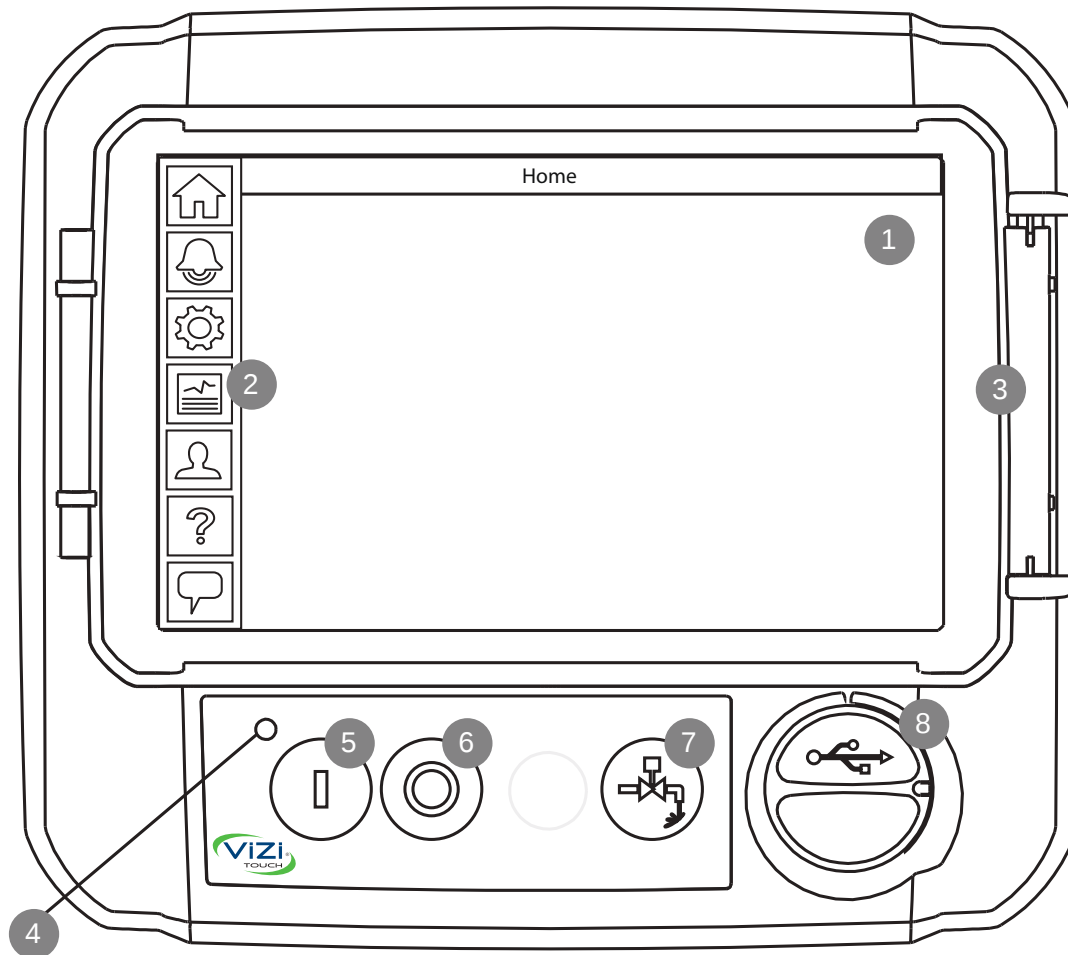
☐ L01	Other language and English (bilingual)
☐ L02	French
☐ L03	Spanish
☐ L04	German
☐ L05	Italian
☐ L06	Polish
☐ L07	Romanian
☐ L08	Hungarian
☐ L09	Slovak
☐ L10	Croatian
☐ L11	Czech
☐ L12	Portuguese
☐ L13	Dutch
☐ L14	Russian
☐ L15	Turkish
☐ L16	Swedish
☐ L17	Bulgarian
☐ L18	Thai
☐ L19	Indonesian
☐ L20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

	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>

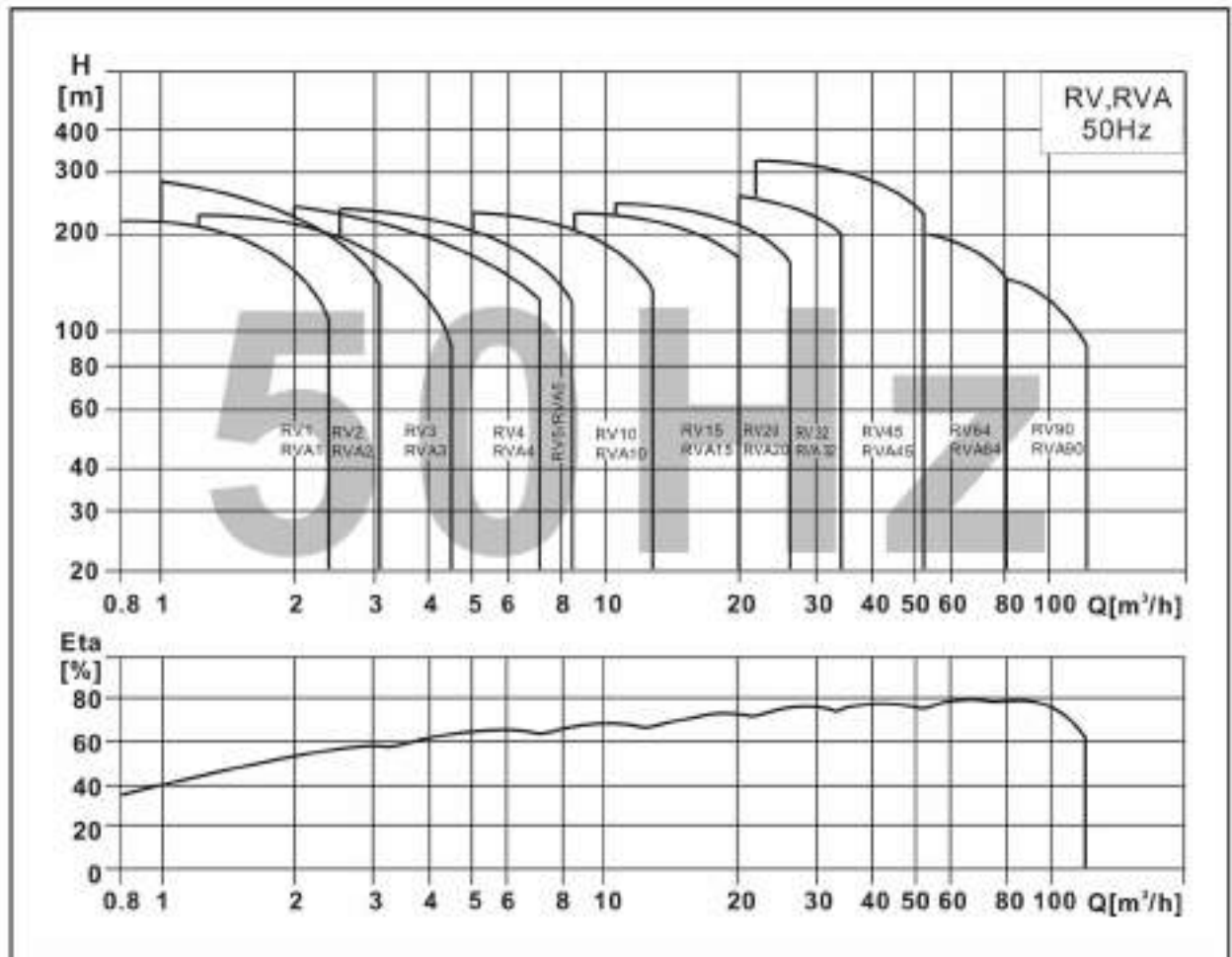


Vertical Multistage Centrifugal Pump

Product introduction

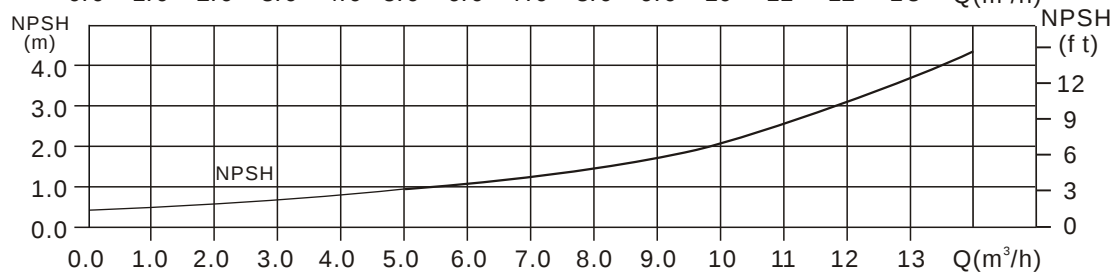
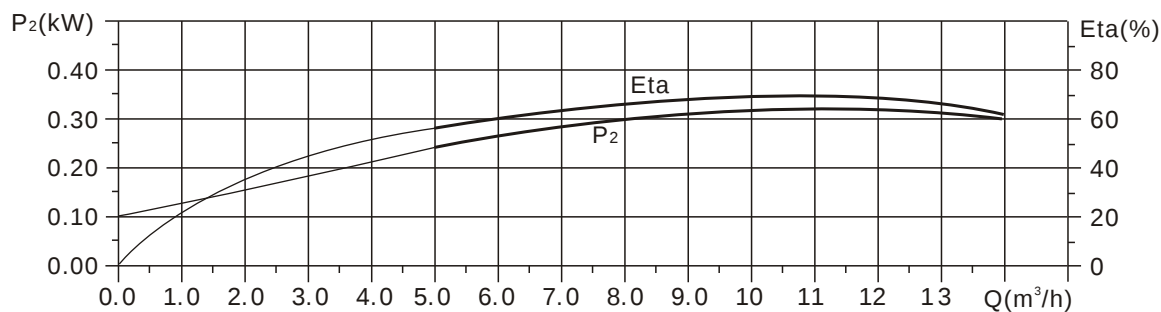
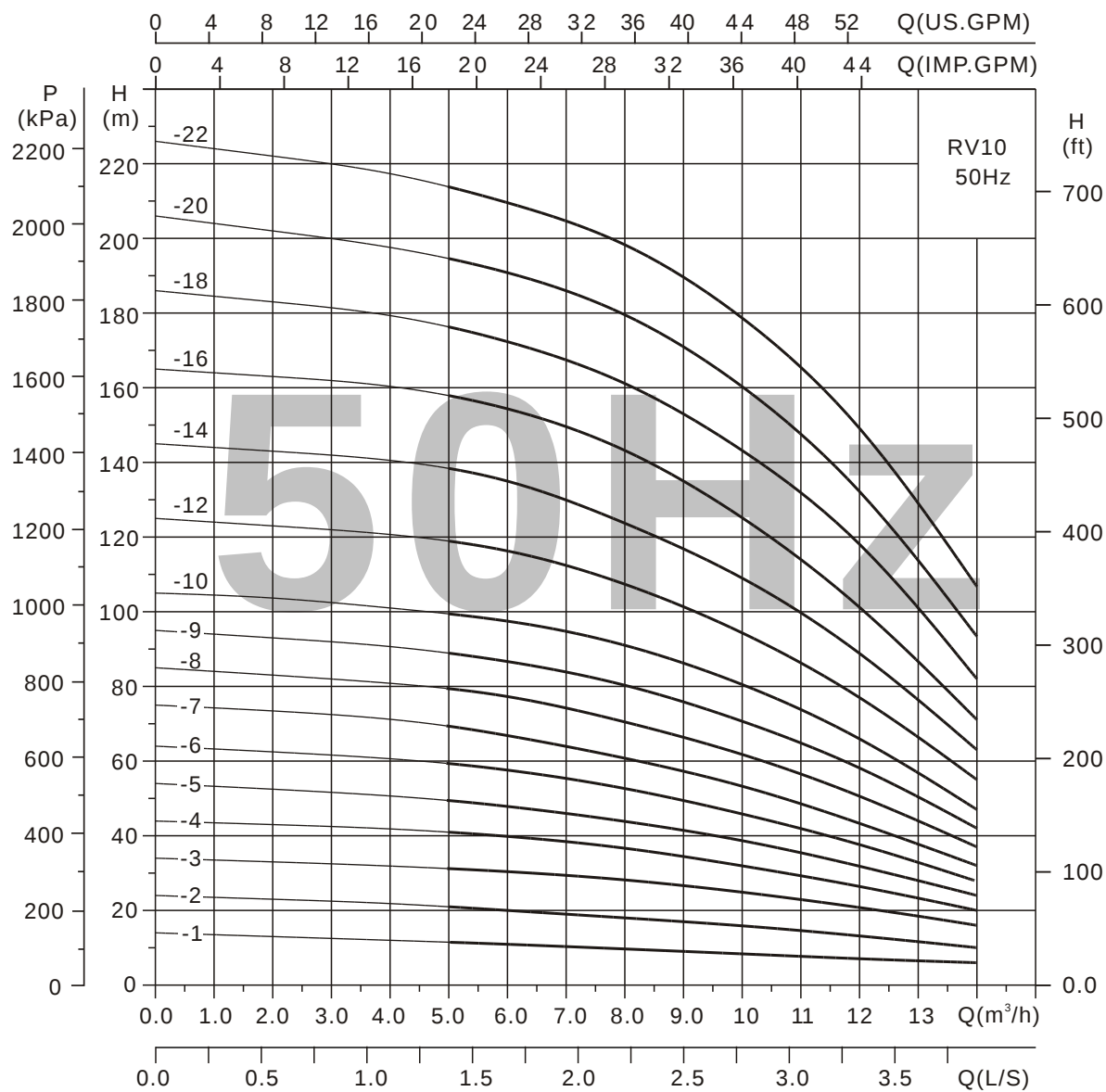
Vertical Multistage Centrifugal Pump

Performance range



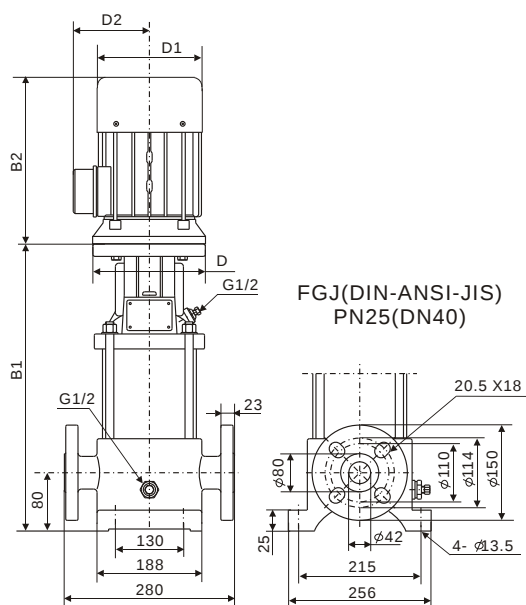
Performance Curve

RV10-50Hz



Model	Power P _z (kW)	Q (m ³ /h)	2.0	4.0	6.0	8.0	10	12	14
RV10-1	0.37	H (m)	13	12	11	9.5	8.5	7	6
RV10-2	0.75		23	22	20	18	16	13	10
RV10-3	1.1		33	32	31	28	25	21	16
RV10-4	1.5		43	42	40	37	32	27	20
RV10-5	2.2		53	51	48	44	39	32	24
RV10-6	2.2		62	61	58	53	46	38	28
RV10-7	3.0		73	72	67	61	54	43	32
RV10-8	3.0		83	81	78	71	62	51	37
RV10-9	3.0		93	91	87	81	71	59	42
RV10-10	4.0		104	101	98	91	81	67	47
RV10-12	4.0		123	121	117	108	95	78	55
RV10-14	5.5			143	141	136	124	110	90
RV10-16	5.5		163	161	154	143	125	102	71
RV10-18	7.5		183	179	173	161	144	118	82
RV10-20	7.5		202	198	191	180	160	133	93
RV10-22	7.5		222	217	209	198	178	149	106

Dimensions and weights



Model	Dimensions(mm)						Weight (kg)
	B1	B2	B1+B2	D	D1	D2	
RV10-1	322	205	527	—	133	102	38
RV10-2	352	205	557	—	133	102	40
RV10-3	388	241	629	—	154	111	43
RV10-4	418	241/293	659/711	—	154	111	50
RV10-5	456	275/293	731/749	—	177	116	53
RV10-6	486	275/293	761/779	—	177	116	55
RV10-7	516	293	791	—	177	116	60
RV10-8	546	293	818	—	177	116	61
RV10-9	576	293	848	—	177	116	63
RV10-10	626	305	931	—	197	148	65
RV10-12	686	305	991	—	197	148	68
RV10-14	761	390	1151	300	275	210	98
RV10-16	821	390	1211	300	275	210	100
RV10-18	881	390	1271	300	275	210	125
RV10-20	941	390	1331	300	275	210	128
RV10-22	1001	390	1361	300	275	210	130



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.
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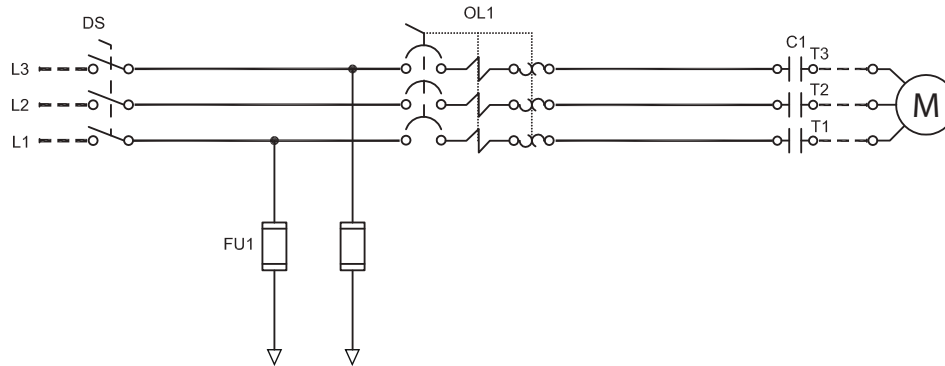
August 2018



TORNATECH

Technical Data

Model JP3 Jockey Pump Controller



N.Y.C.
APPROVED



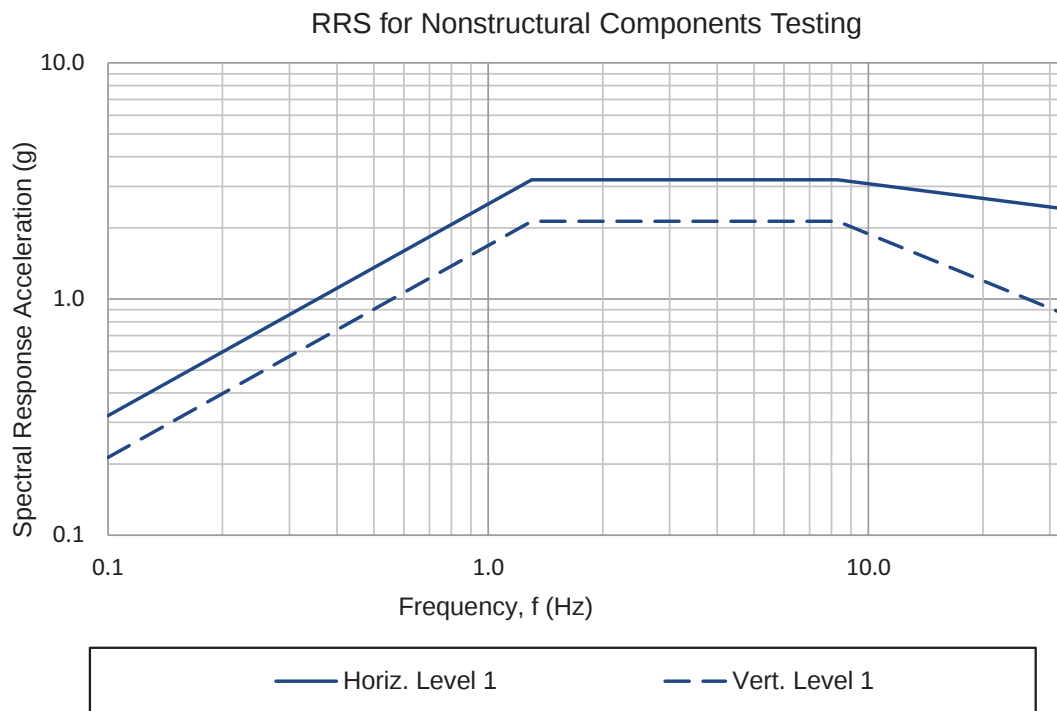
Listing	Underwriters Laboratory (UL)	UL508A - Industrial Pump Controllers
	CSA	CSA C22.2 No. 14 Industrial Control Equipment
	New York City	Accepted for use in the City of New York by the Department of Buildings
	Seismic Certification	See page 4 for details
	Optional	
	☐ CE Mark	Various EN, IEC & CEE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

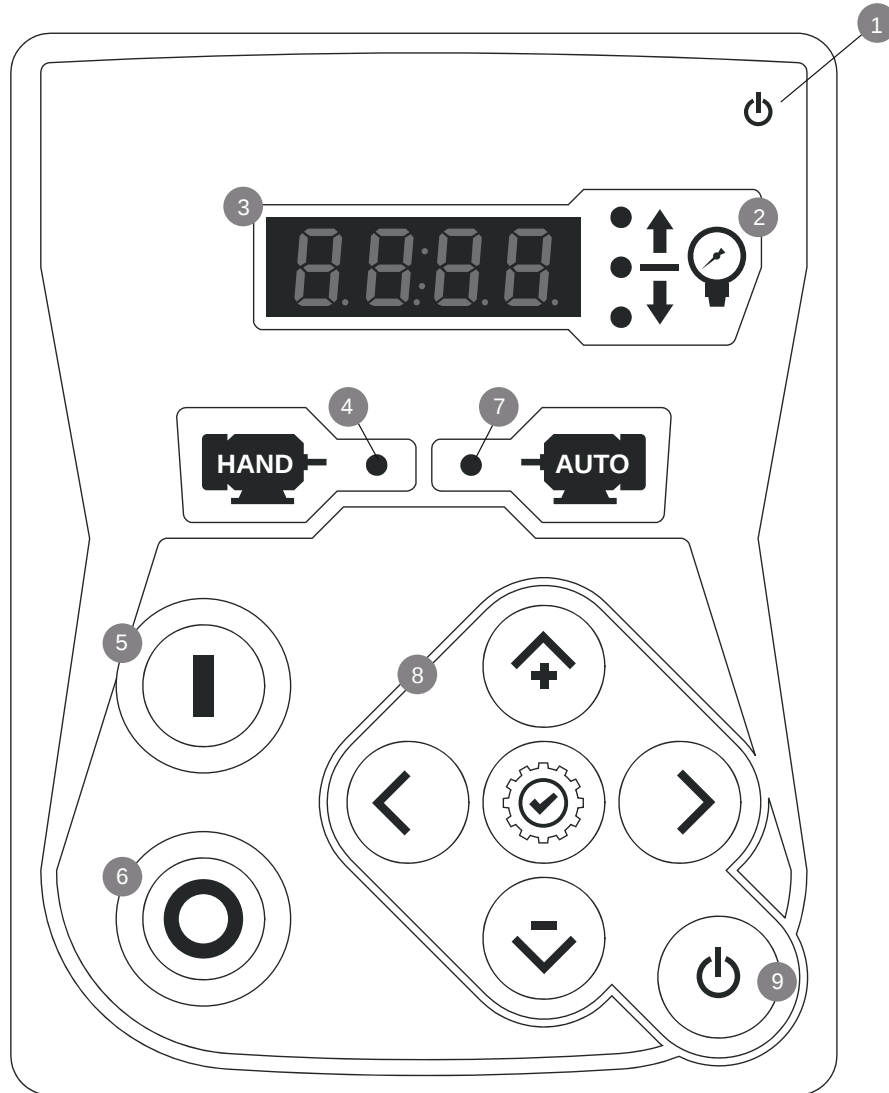


☐ A4	Elapsed time meter (time totalizer)
☐ A5	Motor run alarm contact
☐ A6	Loss of power alarm contact
☐ A7	Overload or short circuit alarm contact
☐ D12	CE Mark c/w externally mounted wetted parts
☐ D13A	Externally mounted wetted parts
☐ D14	Export packing for 1 controller
☐ D18	Audible alarm
☐ D19	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			

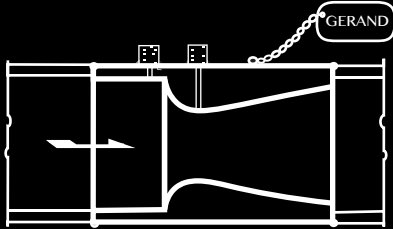
WWW.GERAND.COM FOR MORE INFORMATION

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

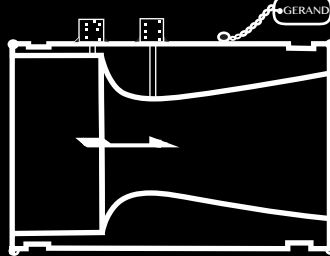
**Dual LPM/GPM Scales Available

VENTURI STYLES

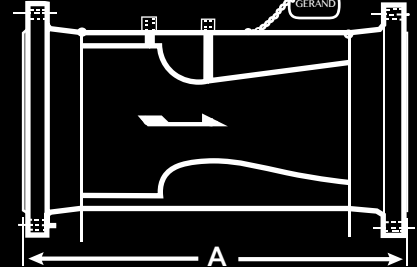
BUTTWELD



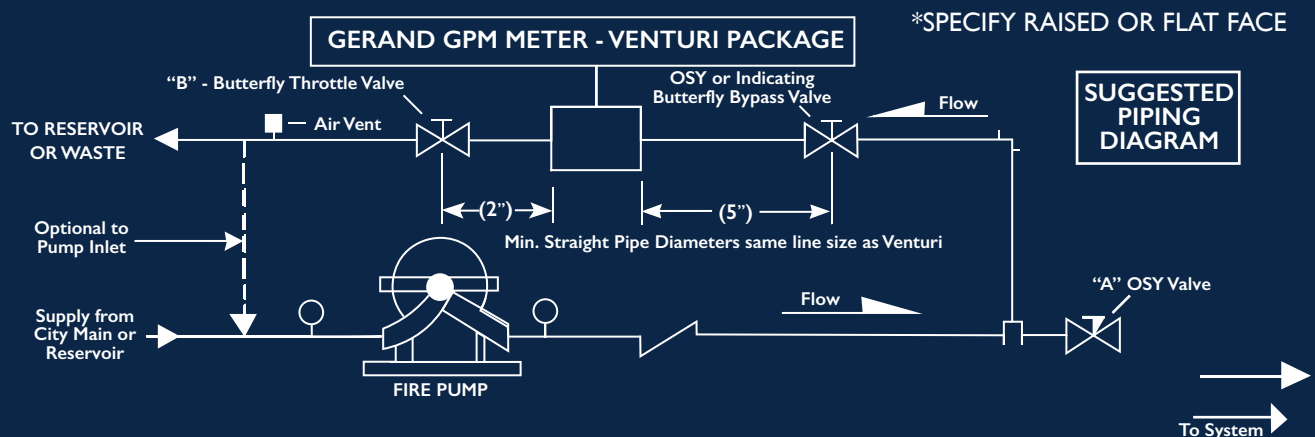
GROOVED



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. -	

PRESSURE RELIEF VALVE

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

Model 106-RPS-8700A

UL / FM Pressure Relief Valve



KEY FEATURES

- UL listed to ANSI/UL 1478A FM approved to FM 1361
- Reliable diaphragm actuated
- Hydraulically operated design
- Class 150 and 300 flanges
- Stainless steel fasteners
- Heat fused red epoxy coating
- Available in globe and angle style

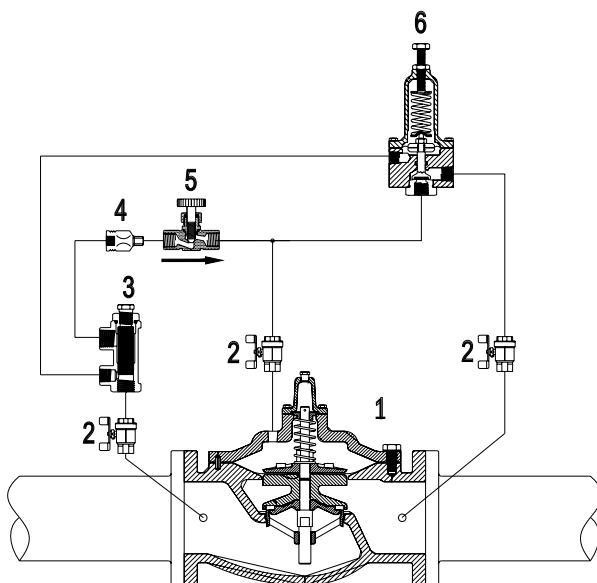


PRODUCT OVERVIEW

The 106-RPS-8700A pressure relief valve, which is UL / FM labelled and listed, automatically relieves excess pressure in the fire protection system to discharge. The RPS series valves will also automatically modulate to relieve excess pump capacity during pump start up and shut down, allowing the pump to operate without causing surges.

These relief valves are based on the 106-PG or A106-PG main valves and come in complete range of sizes from 2 1/2 in / 65 mm to 8 in / 200 mm. In typical pressure relief application, the angle style A106-RPS-8700A is often the preferred selection.

SCHEMATIC DRAWING



Schematic A-8700A

1. Main Valve - 106-PG, or A106-PG, Flanged 2 1/2 in / 65 mm to 8 in / 200 mm
2. Isolation Valve - lockable (Optional)
3. Strainer - standard 4 in / 100 mm and larger
4. Fixed Restriction- 1/8 in / 3.2 mm
5. Model 852-B Closing Speed Control
6. Model 81-RP pilot - 30 to 200 psi / 2.07 to 13.8 bar - optional 100 to 300 psi / 6.9 to 20.7 bar

STANDARD MATERIALS

Standard materials for pilot system components are:

- ASTM B62 bronze or ASTM B16 brass
- AISI 303 / 316 stainless steel trim
- Buna-N / EPDM diaphragm and seals

For dimensions see pages 26-27.

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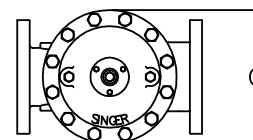
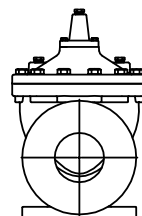
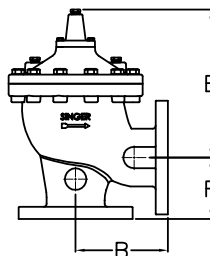
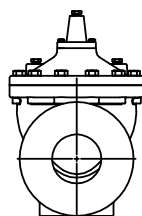
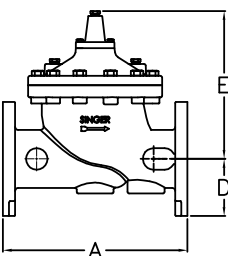
Model 106-PG – UL/FM Relief & ULC Reducing Only

Full Port, Single Chamber, Hydraulically Operated Valve

ANSI Valve Data (US Units)

Size	DWG	Standard	Flat Diaphragm System					
Inches	REF	ANSI	2 in	2-1/2 in	3 in	4 in	6 in	8 in
Globe Dimensions			All figures show in inches unless otherwise stated					
Lay Length	A	FNPT	9.38	11.00	13.50	-	-	-
Centerline to Bottom	D	FNPT	2.75	3.38	3.68	-	-	-
Lay Length	A	150F	9.38	11.00	12.00	15.00	20.00	25.38
Centerline to Bottom	D	150F	3.00	3.50	3.75	4.60	5.60	7.63
Lay Length	A	300F	10.00	11.63	13.25	15.63	21.00	26.38
Centerline to Bottom	D	300F	3.25	3.75	4.13	5.09	6.34	7.88
Angle Dimensions								
Center Inlet to Discharge	B	FNPT	4.69	5.50	6.63	-	-	-
Center Discharge to Inlet	F	FNPT	3.25	4.00	4.63	-	-	-
Center Inlet to Discharge	B	150F	4.75	5.50	6.06	7.50	10.00	12.75
Center Discharge to Inlet	F	150F	3.25	4.00	4.06	5.00	6.00	8.00
Center Inlet to Discharge	B	300F	5.00	5.88	6.43	7.88	10.50	13.25
Center Discharge to Inlet	F	300F	3.50	4.31	4.43	5.31	6.50	8.50
Common Dimensions (Globe & Angle)								
Width	C		6.50	8.19	9.25	10.88	16.75	21.63
Height (To Stem Cap) Globe	E		4.75	7.50	8.00	9.15	11.75	14.91
Height (To Stem Cap) Angle	E		4.75	7.50	8.00	9.15	11.75	14.91
Body Port Tapping		FNPT	3/8	3/8	3/8	3/8	3/8	1/2
Stem Cap Plug		MNPT	3/8	3/8	3/8	3/8	3/8	3/8
Cover Port Tapping		FNPT	3/8	3/8	3/8	3/8	1/2	1/2
Valve Stroke			9/16	15/16	1-1/8	1-7/16	1-11/16	2-7/8
Displaced Bonnet Volume (Gallons)			0.02	0.1	0.1	0.2	0.6	1.7
Approximate Shipping Weight (Lbs)			40	65	100	175	400	650
Flow Capacities (USGPM) Globe & Angle								
C _v - Globe			55	80	110	200	460	800
C _v - Angle			63	90	135	230	535	950
Continuous (Globe)			210	300	460	800	1800	3100
Intermittent (Globe)			260	375	575	1000	2250	3875
Momentary (Globe)			470	670	1030	1800	4000	7000
Maximum Pressure Ratings (Ductile Only)								
PSI ¹		FNPT	400	400	400	-	-	-
PSI		150F	250	250	250	250	250	250
PSI ¹		300F	400	400	400	400	400	400
Maximum Temperature								
Fahrenheit			180°	180°	180°	180°	180°	180°

*UL/FM Relief Rated to 300 psi



¹Valves rated and stamped 400 psi as standard. Valves rated and stamped 600 psi on request.

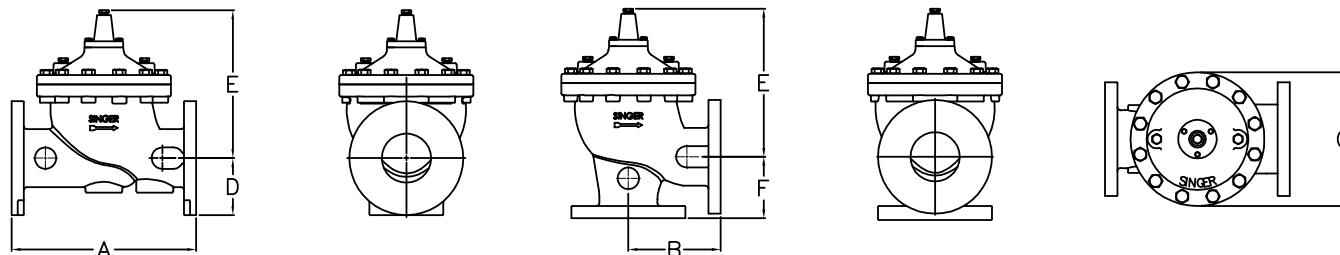
Model 106-PG – UL/FM Relief & ULC Reducing Only Full Port, Single Chamber, Hydraulically Operated Valve

ANSI Valve Data (Metric Units)

Size	DWG	Std	Flat Diaphragm System					
mm	REF	ANSI	50 mm	65 mm	80 mm	100 mm	150 mm	200 mm
Globe Dimensions								
All figures show in mm unless otherwise stated								
Lay Length	A	FNPT	238	279	343	-	-	-
Centerline to Bottom	D	FNPT	70	86	93	-	-	-
Lay Length	A	150F	238	279	305	381	508	645
Centerline to Bottom	D	150F	76	89	95	117	142	200
Lay Length	A	300F	254	295	337	397	533	670
Centerline to Bottom	D	300F	83	95	105	129	161	200
Angle Dimensions								
Center Inlet to Discharge	B	FNPT	119	140	168	-	-	-
Center Discharge to Inlet	F	FNPT	83	102	118	-	-	-
Center Inlet to Discharge	B	150F	121	140	154	191	254	324
Center Discharge to Inlet	F	150F	83	102	103	127	152	203
Center Inlet to Discharge	B	300F	127	149	163	200	267	337
Center Discharge to Inlet	F	300F	89	109	113	135	165	216
Common Dimensions (Globe & Angle)								
Width	C		165	208	235	276	425	549
Height (to stem cap) Globe	E		121	191	203	232	298	379
Height (to stem cap) Angle	E		121	191	203	232	298	379
Body Port Tapping	FNPT	in	3/8	3/8	3/8	3/8	3/8	1/2
Stem Cap Plug	MNPT	in	3/8	3/8	3/8	3/8	3/8	3/8
Cover Port Tapping	FNPT	in	3/8	3/8	3/8	3/8	1/2	1/2
Valve Stroke		mm	14	25	29	37	43	73
Displaced Bonnet Volume (Litres)			0.1	0.3	0.3	0.8	2.1	6.3
Approximate Shipping Weight (Kilograms)			18	29	45	79	181	295
Flow Capacities (L/s) Globe & Angle								
Kv - Globe			13	19	26	47	110	190
Kv - Angle			15	21	32	55	127	225
Continuous (Globe)			13	19	29	50	114	196
Intermittent (Globe)			16	24	36	63	142	244
Momentary (Globe)			30	42	65	114	252	442
Maximum Pressure Ratings (Ductile Only)								
Bar ¹	FNPT		27.6	27.6	27.6	-	-	-
Bar	150F		17	17	17	17	17	17
Bar ¹	300F		27.6	27.6	27.6	27.6	27.6	27.6
Maximum Temperature								
Celcius			82°	82°	82°	82°	82°	82°

*UL/FM Relief Rated to 20.7 bar

¹Valves rated and stamped 27.6 bar as standard. Valves rated and stamped 41 bar on request.



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

DIESEL TANK

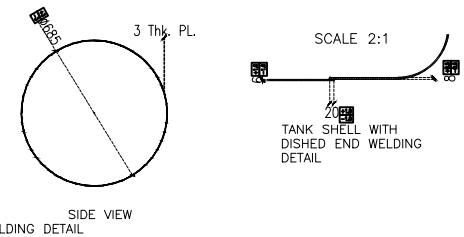
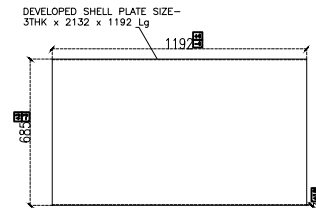
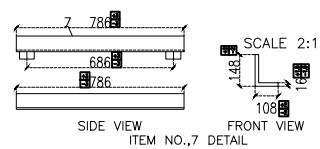
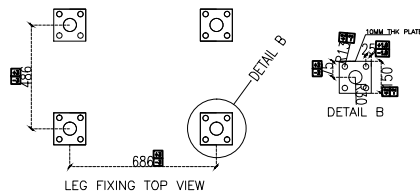
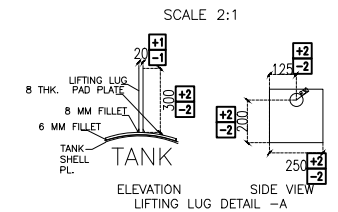
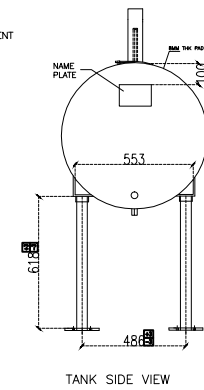
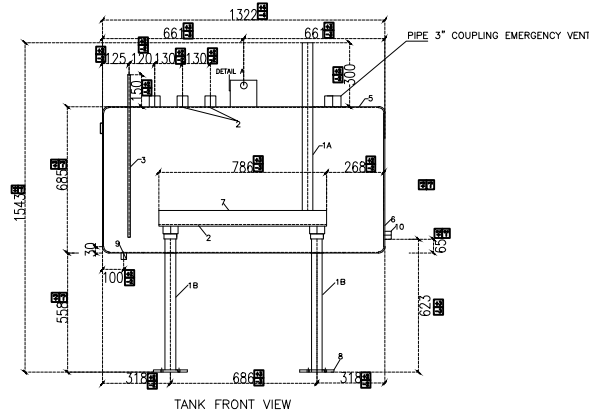
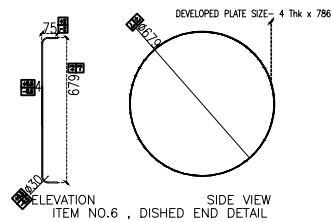
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Rev.	Description	Prepared	Checked	Approved	Date

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	1½"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 NIOS
9	COUPLING 2"	—	1 NO
10	COUPLING 1½"	—	1 NO
11	COUPLING 3"		1 NO
PAINTING SPECIFICATION			
RAL-3002 RED COLOUR			

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

