



شركة سبل الحرة
لأنظمة مكافحة الحرائق
أنذار وإطفاء



UL

FM





Manual fire (A to Z) For SUBUL ALHURRA.CO

FF-01 FIRE SUPPRESSION SYSTEM

PART 1 GENERAL

DESCRIPTION 1.1

QUALITY ASSURANCE 1.2

PART 2 PRODUCTS

PART 3 EXECUTION

DESCRIPTION

Extent of Work: The extent of the firefighting systems work is indicated on the drawings and defined in these specifications, and includes (but not necessarily limited to) the following

Fire Fighting Pumps Hose reel cabinets Fire hydrant Fire hydrant cabinet Portable fire extinguishers Fire department connection sprinklers (upright and pendant) types despite the fact that the main building is equipped with 5 fire exits and 8 fire stairs and elevators in addition to the sufficient number of hose reel cabinets



مدى ونطاق عمل شركة سبل الحرة

• منظومة اطلاق غاز ثاني اوكسيد الكربون
• مخارج الطوارئ وسلالم الطوارئ
• ملابس ومعدات السلامة
• معدات الانقاذ
• نظام الاطفاء ب الرغوة
• نظام الاطفاء الكيميائي
• انظمة اطفاء المختبرات
• انظمة اطفاء المطابخ
• مفرغات الدخان
• الانشاءات الهندسية
• الصيانة الدورية
• الفحص واصدار الشهادات
• التدريب واعداد الموهلين
• نظام الاطفاء اليدوي الجاف

• منظومات الانذار المبكر
• مضخات الحريق الكهربائية
• مضخات الحريق الديزل
• مضخات صيانة الضغط
• وحدات تحكم المضخات
• انظمة قياس التدفق
• الهايدرنت
• كابينات الحريق وعربات
• خراطيم المياه
• خزانات المياه
• شبكات الانابيب ونظام
• الاطفاء بالمرشات
• مدفع الحريق
• منظومة FM200
• المطافى الجدارية
• المطافى الاوتوماتيكية





Quality assurance

Manufacturers: Firms regularly engaged in the manufacture of fire protection materials and equipment of the types and sizes required, whose products have been in .satisfactory use in similar service for not less than 5 years

Specialist Sub-Contractor: A firm with at least 5 years of successful installation .experience on projects with fire protection systems similar to that for this project

Design and Approvals: The design, layout and installation details shall conform to the drawings and as stated herein. The Contractor shall make detail shop drawings and .obtain approval from the Engineer

Local Fire Service Headquarters: Comply with governing regulations pertaining to fire .protection systems

Certificate of Installation: Submit certificate upon completion of fire protection systems work stating that the work has been completed and tested in accordance with Fire Service Headquarters requirements and that there are no defects in the system and it is .operational

Fire Protection Devices: Fire protection devices shall meet the requirements of the .NFPA and should conform to British Standard 5423

تأكيد الجودة Quality assurance

تتوافق تفاصيل التصميم واعداد المخططات التي يتم اعدادها من قبل مهندسي الشركة مع رسومات ومخططات المبنى (يتم تزويدنا بها بملف اوتوكاد) ويتم اعداد الرسومات والمخططات التنفيذية التفصيلية والحصول على موافقة المهندس المسؤول

(قبل البدء بتنفيذ العمل) على ان يتطابق العمل مع توجيهات مديرية الدفاع المدني وتستوفي اجهزة وتراكيب ومكونات الحماية من الحرائق (انذار واخماد) متطلبات وشروط المواصفة الاميركية NFPA مجموعة الكودات العالمية التي يتم بها تاهيل نظام الاطفاء من الحرائق وان تكون المعايير موافقة لمعايير السلامة العالمية المعروفة ب BS 5423 .

وان فريق العمل الهندسي المكلف ب اعداد المخططات (حاصل على خبرة لاتقل عن 5 سنوات من تاريخ عقد اول مشروع للشركة في عالم الاطفاء " ان هدف الشركة (شركة سبل الحرة) هو تجهيز المباني والمنشآت بانظمة الانذار والمكافحة والوقاية بغرض حماية المباني وشاغليها من اخطار الحريق وذلك بتوفير منظومة انذار مبكر حتى يمكن اخلاء المبنى ومكافحة الحريق بصورة اولية من قبل افراد مدربين او بواسطة المعدات التلقائية ثم استدعاء فرق الدفاع المدني للمكافحة الفعلية والانقاذ اذا لزم الامر "شهادة التثبيت تقديم شهادة عند الانتهاء من أعمال أنظمة الحماية من الحريق تفيد بأنه تم الانتهاء من العمل واختباره وفقاً لمتطلبات مقر خدمة الإطفاء وأنه لا يوجد أي عيوب في النظام وأنه جاهز للتشغيل أجهزة الحماية من الحرائق وأن تستوفي أجهزة الحماية من الحرائق متطلبات NFPA ويجب أن تتوافق مع المعيار البريطاني 5423.





ملاحظات: -

ان الاختصارات التي ترد في المانويل هي كما يلي ويتم توضيح المتبقي عند وروده في التقرير

يو ال أو بالانجليزية UL وهي اختصار لجملة معامل اندر رايتز Underwriters Laboratories هي مؤسسة أمريكية معنية باستشارات السلامة Safety ومنح شهاداتها، مقرها الرئيسي في ولاية إلينوي ولديها مكاتب في 46 دولة، تم تأسيسها في عام 1894 م وشاركت في تحليل السلامة للعديد من التقنيات الحديثة في القرن الحديث.

الاختصار الثاني وهو FM: ال FM اختصار كلمة Factory Mutual وهو معمل أمريكي مماثل ولكنه تابع لأكبر شركة تأمين في العالم (FM Global) ويعتمد على الأخص كل المواد والمعدات والأنظمة المرتبطة بالحريق.

الاختصار الثالث وهو NFPA: ال NFPA فهي اختصار National Fire Protection Association وهو الكود الأمريكي وهو أكبر كود عالمي شامل لمكافحة الحرائق والسلامة وهو المخصص في موضوعنا هذا لتوضيح كيفية تركيب وتشغيل وتجربة مضخات الحريق المعتمدة وما يلزم في كل حالة وفي كل نوع من أنواع المضخات.

واخيراً اختصار LPCB: ال LPCB هو اختصار لـ The Loss Prevention Certification Board ومعناه باللغة العربية هو "مجلس اعتماد منع الخسارة" وهو اعتماد عالمي متخصص في امن وسلامة المنشآت من خطر الحرائق.

ملاحظة يرد تفسير لكل المصطلحات العلمية في المانويل في الحواشي بالامكان التاكيد منه





نظام الاطفاء الجاف اليدوي NFPA 10

خط الدفاع الاول (المواصفة القياسية لأجهزة إطفاء الحريق المحمولة)

تتحقق الفائدة من أجهزة ا-طفاء اليدوية إذا وجدت بعدد كاف وبقدرات إطفائية مناسبة للموقع ، كذلك بوجود أفراد مدربين على إستخدامها:

Fire type	Material	Extinguisher type	Available sizes	Origins
Type A	solid materials such as wood, paper, cloth, etc	Fire extinguisher type (DRY powder)	2 kg 4 kg 6 kg 8 kg 12 kg 25 kg 50 kg 100 kg	Chinese Turkish Emirati
Type B	liquids such as petroleum and chemical liquids	-Dry powder fire extinguisher. - Foam extinguisher.	9litres 12litres 25litres 50litres	Chinese Turkish Emirati
Type C	Electrical and electronic equipment	Co2 fire extinguisher	6 kg 12 kg 25 kg 50 kg	Chinese Turkish Emirati
Type D	metals and petroleum materials	DRY powder fire extinguisher A.B.C.D	6 kg 12 kg	Chinese Turkish Emirati





تصنيف المخاطر :

Light (Low) Hazard

These are places where the total amount of flammable solid materials, including furniture and decorative materials, is very small. For example, these places include: offices, classrooms, places of worship, etc.... It is also assumed that small amounts of flammable materials are present, such as photocopier inks. Or materials used in drawing and arts departments, provided that they are well stored and in their containers

الخفيفة المخاطر :

هى اماكن التى يكون مجموع كميات المواد الصلبة القابلة للاشتعال بها بما فيها اثاث ومواد الديكور قليل جدا وعلى سبيل المثال تشمل هذه اماكن : المكاتب والفصول الدراسية ودور العبادة إلخ..... ، كذلك يفترض وجود كميات قليلة من المواد الملتهبة مثل أحبار ماكينات التصوير أو المواد المستخدمة فى أقسام الرسم والفنون شريطة أن تكون مخزنة جيدا وفى حاوياتها .

Hazard) Moderate (Ordinary :

These are places where the total quantities of flammable solids are greater than the quantities expected to be found in places with light risks, for example: supermarkets, food courts, car showrooms, garages, small industry areas, etc.....

المخاطر المتوسطة (العادية)

هى اماكن التى يكون بها مجموع كميات المواد الصلبة القابلة للاشتعال كميات المواد الملتهبة أكبر من الكميات المتوقع وجودها فى اماكن ذات المخاطر الخفيفة وعلى سبيل المثال: السوبرماركت ، صالات الطعام ، معارض السيارات ، الجراجات ، مناطق الصناعات الصغيرة إلخ.....

Extra (High) Hazard

These are places where the total quantities of flammable solids and flammable materials are present in storage quantities, as with this size it is expected that the fire will spread quickly in the event of a fire. Examples of this are: carpentry workshops, car repair shops, aircraft and ship repair places, cooking places, painting and dyeing places, and their affiliated stores

الجسيمة المخاطر

هى اماكن التى يكون بها مجموع كميات المواد الصلبة القابلة للاشتعال وكميات المواد الملتهبة ، موجودة بكميات تخزينية ، حيث يتوقع مع هذا الحجم أن تنتشر النيران بسرعة فى حالة حدوث حريق. ومثال ذلك: ورش النجارة ، ورش إصلاح السيارات ، أماكن إصلاح الطائرات والسفن ، أماكن الطبخ ، أماكن الدهان والصبغة والمخازن التابعة لها





Subul Al Hurra Company accreditations and standards

The company adopts the NFPA code standards (accurately planned distribution). The number of fire extinguishers is calculated and estimated by type, quantity and number by a specialized engineer according to the site inspection. A professional schedule is attached with the periodic maintenance dates. The building administration is provided with a work progress schedule upon the date of rehabilitation and maintenance. The company is obligated to provide the building with instructions. The use and operation of fire extinguishers in emergency situations is explained with prominent and fixed stickers explaining how to use and operate them for unqualified or untrained individuals

اعتمادات ومعايير شركة سبل الحرة

تعتمد الشركة معايير الكود NFPA (التوزيع المخطط بدقة) ويتم حساب وتقدير اعداد الاطفائيات بالنوع والكمية والعدد من قبل مهندس مختص وحسب الكشف الموقعي ويرفق جدول احترافي بمواعيد الصيانة الدورية وتزود ادارة المبنى ب جدول تقدم العمل عند حلول موعد التاهيل والصيانة وتكون الشركة ملزمة ب تزويد المبنى بتعليمات استعمال وتشغيل الاطفائيات عند الطوارئ موضحة بملصقات تعريف بارزة وثابتة بكيفية استعمالها وتشغيلها للافراد غير الموهلين او غير المدربين

Pumps

.GENERAL REQUIREMENTS.

- .Summary of Centrifugal Fire Pump Data (Metric).
- .Installation of Stationary Pumps for Fire Protection.
- .Centrifugal Fire Pump Capacities.

المضخات

المتطلبات العامة

- ملخص بيانات مضخة الحريق الطاردة المركزية (المركزية)
- تركيب المضخات الثابتة للحماية من الحرائق
- قدرات مضخات الحريق بالطرد المركزي





اعتمادات شركة سبل الحرة

تعتمد شركة سبل الحرة في تجميع المضخات الكود الاميركي NFPA20 و NFPA70

FIRE PUMPS FIRE FIGHTING PUMPS

ELECTRIC-DRIVE CENTRIFUGAL

RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and

.Supplementary Conditions and Specification Sections, apply to this Section

Provide as indicated on the plans and specifications, fire pump system complying with the codes of NFPA 20 and EN12845 norms. All required components shall be CE-EN certified and recognized by testing laboratory and shall include the items below

مضخات مكافحة الحريق

مضخات اطفاء كهربائية تعمل بالطرد المركزي المتطلبات العامة

تنطبق الرسومات والأحكام العامة للعقد بين الشركة والمبنى ، بما في ذلك الشروط العامة والتكميلية وأقسام المواصفات، على هذا القسم.
يتم توفير نظام مضخات الحريق المتوافق مع معايير NFPA 20 و EN12845، كما هو موضح في المخططات والمواصفات. يجب أن تكون جميع المكونات المطلوبة معتمدة من CE-EN ومعتترف بها من قبل مختبر الاختبار ويجب أن تتضمن العناصر أدناه

SUMMARY الملخص

وحدة التجميع
تكون من منظومتين الاولى منظومة الاطفاء بقسميها الكهربائي والديزل
الثانية منظومة صيانة الضغط
بالاضافة الى وحدة التحكم ومجموعة الضغط وخزان الضغط والملحقات الاخرى

DEFINITIONS

Fire Pump; Horizontal-type fire pump used to supply water at rated capacity and total head required for fire-suppression service

مضخة حريق!

مضخة حريق من النوع الأفقي تستخدم لتوفير المياه بالسعة المقدرة والارتفاع الإجمالي المطلوب لخدمة إخماد الحرائق





Fire-Pump Unit;

Assembly with fire pump, driver, controller, and related accessories

Pressure-Maintenance Pump; Electric-drive pump used to maintain water pressure in fire- suppression piping system

وحدة مضخات الحريق! التجميع مع مضخة الحريق الكهربائية والديزل وجهاز التحكم والملحقات ذات الصلة
مضخة صيانة الضغط: وهي مضخة تعمل بالكهرباء تستخدم للحفاظ على ضغط الماء في نظام أنابيب إخماد الحرائق.

;Pressure-Maintenance-Pump Unit

Assembly with pressure-maintenance pump, driver, controller, and related accessories

وحدة مضخة صيانة الضغط.
التجميع مزود بمضخة صيانة الضغط، والمحرك، وجهاز التحكم، والملحقات ذات الصلة

SYSTEM PERFORMANCE REQUIREMENTS

Fire-Pump Systems; Fire-pump and pressure-maintenance-pump units that comply with performance requirements specified and are compatible with building fire-suppression systems Pump, Equipment, Accessory, and Piping Pressure Rating; 175-psig (1200-kPa) minimum working-pressure rating, and maximum to suit system operating pressure

متطلبات أداء النظام

أنظمة مضخات الحريق! وحدات مضخات الحريق ومضخات صيانة الضغط التي تتوافق مع متطلبات الأداء المحددة والمتوافقة مع أنظمة إخماد الحرائق في المباني، وتصنيف ضغط المضخة والمعدات والملحقات والأنابيب!
الحد الأدنى لضغط العمل هو 175 رطل لكل بوصة مربعة (1200 كيلو باسكال)، والحد الأقصى ليناسب ضغط تشغيل النظام





انواع المضخات

المضخة الافقية

END SUCTION FIRE PUMPS

Horizontally Mounted, End Suction Fire Pumps: UL 448, factory-assembled and -tested, electric- drive, single stage, single-suction, horizontal type. Include pump and driver mounted on same base and .connected with coupling

Characteristics: Capable of furnishing not less than 150 percent of rated capacity at not less than 65 .percent of total rated head. Shutoff head is limited to 140 percent of total rated head

Casing: Axially split cast iron with suction and discharge flanges machined to ASME B16.1, Class 250 flanges

Impeller: Cast bronze of construction to match fire pump, statically and dynamically balanced, and keyed to shaft

Wear Rings: Replaceable, bronze

Shaft and Sleeve: Steel shaft with bronze sleeve

Shaft Bearings: Grease-lubricated ball bearings in cast-iron housing

Seals: Stuffing box with minimum of four rings of graphite-impregnated braided yarn and bronze packing .gland

Coupling: Flexible and capable of absorbing torsional vibration and shaft misalignment. Include metal .coupling guard

.Driver: Electric motor

.Finish: Manufacturer's standard red paint applied to factory-assembled and -tested unit before shipping

.Nameplate: Complete with capacities, characteristics, and other pertinent data

مضخات إطفاء الحريق ذات الشفط النهائي

مضخات حريق ذات شفط نهائي مثبتة أفقيًا: UL 448، مجمعة ومختبرة في المصنع، محرك كهربائي، مرحلة واحدة، شفط فردي، من النوع الأفقي. تشمل المضخة والمحرك المثبتين على نفس القاعدة ومتصلين بأداة التوصيل.

الخصائص: قادر على توفير ما لا يقل عن 150 بالمائة من السعة المقدره بما لا يقل عن 65 بالمائة من إجمالي الرأس المقدر. يقتصر رأس الإغلاق على 140 بالمائة من إجمالي الرأس المقدر.

الجسم: حديد الزهر المقسم محوريًا مع فانجات السحب والدفع المُشكَّلة وفقًا لمعايير ASME B16.1 والفئة 250

البشارة: مصنوع من النحاس المصبوب ليتوافق مع مضخة الحريق، ومتوازن بشكل ثابت وديناميكي، ومثبت على العمود

حلقات الارتداء: قابلة للاستبدال، نحاسية

الشفط: عمود فولاذي بنهايات نحاسية

البراكيتات : محامل كروية مشحمة بالشحم في غلاف من الحديد الزهر





الأختام: صندوق حشو يحتوي على أربع حلقات على الأقل من الخيوط المضفرة المشربة بالجرافيت وحشوة من البرونز. الكوبلنات : مرنة وقادرة على امتصاص الاهتزازات الالتوائية واختلال العمود. تشمل واقي اقتران معدني. المحرك : محرك كهربائي. يتم تطبيق الطلاء الأحمر القياسي للشركة المصنعة على الوحدة المجمع والمختبرة في المصنع قبل الشحن. لوحة الاسم: كاملة بالقدرات والخصائص والبيانات الأخرى ذات الصلة.

PRESSURE-MAINTENANCE PUMPS

Description: Factory-assembled and -tested, electric-drive pumps with cast-iron casing and bronze impellers and mechanical seals. Pumps complying with applicable EN60947-1, EN12845, UNI 9490, NFPA 20, CEA 4001, EN 12100, EN809. Include flanged suction and discharge flanges machined to ASME B16.1, Class 125 dimensions, unless Class 250 flanges are indicated and except that connections may be threaded in sizes where flanges are not available. jockey pump suction can be connected the tank filling supply line. This situation would allow high pressure to be maintained on .the fire protection system even when the supply tank is empty for repairs

Finish: Manufacturer's standard color paint applied to factory-assembled and -tested unit before .shipping

Nameplate: Complete with capacity, characteristics, and other pertinent data

مضخات صيانة الضغط

الوصف: مضخات تعمل بالكهرباء تم تجميعها واختبارها في المصنع، الجسم من حديد الالين والبشارات نحاسية وميكانيكل سيل . المضخات متوافقة مع ، EN60947-1، EN12845، UNI 9490، NFPA 20، CEA 4001، EN 12100، EN809.

تشتمل على فلنجات الشفط والتفريغ ذات الحواف المصنعة وفقاً لأبعاد ASME B16.1، الفئة 125، ما لم تتم الإشارة إلى حواف الفئة 250 وباستثناء أنه قد يتم ربط الوصلات وتكون مسننة . يمكن توصيل مضخة شفط الجوكي بخط إمداد ملء الخزان. سيسمح هذا الوضع بالحفاظ على الضغط العالي على نظام الحماية من الحرائق حتى عندما يكون خزان الإمداد فارغاً للإصلاحات.

PUMP DRIVERS

Description: NEMA MG 1, TEFC squirrel-cage, induction motor. Include construction .complying with NFPA 20 and NFPA 70, and include wiring compatible with controller used

Finish: Manufacturer's standard red paint applied to factory-assembled and -tested unit .before shipping

Nameplate: Complete with motor horsepower, characteristics, and other pertinent data





المحرك

الوصف: NEMA MG 1، TEFC، الملف النحاسي،
المحرك التعريفي.العدد بليت المتوافق مع NFPA 20 و NFPA 70
ويتضمن الأسلاك المتوافقة مع وحدة التحكم المستخدمة.

يتم تطبيق الطلاء الأحمر القياسي للشركة المصنعة على الوحدة المجهزة والمختبرة في المصنع قبل الشحن.
لوحة الاسم: كاملة مع القدرة الحصانية للمحرك والخصائص والبيانات الأخرى ذات الصلة

PUMP CONTROLLERS, GENERAL

Description: Combined automatic and non-automatic operation; factory assembled and wired; factory tested for capacities and electrical characteristics; and with the following features: Enclosure: UL 50, Type 2, TEFC, indoor, unless special-purpose enclosure is indicated

Controls, devices, alarms, functions, and operations listed in NFPA 20 as required for drivers and controller types used, and specific items listed for each controller type

Nameplate: Complete with capacity, characteristics, approvals and listings, and other pertinent data

Controller Sensing Pipes: Fabricate pipe and fittings according to NFPA 20 with nonferrous-metal sensing piping, NPS 1/2 (DN15), with globe valves for testing controller mechanism from system to pump controller as indicated. Include bronze check valve with 3/32- inch (2.4-mm) orifice in clapper or ground-face union with noncorrosive diaphragm having 3/32- inch (2.4-mm) orifice

لوحة التحكم

الوصف: الجمع بين التشغيل التلقائي وغير التلقائي؛ تجميعها وتسليحها في المصنع؛ تم اختبارها في المصنع من حيث القدرات والخصائص الكهربائية؛ ومع الميزات التالية: العلب: UL 50، النوع 2، TEFC، داخلي، ما لم تتم الإشارة إلى حاوية ذات غرض خاص.

عناصر التحكم والأجهزة والإنذارات والوظائف والعمليات المدرجة في NFPA 20 كما هو مطلوب لبرامج التشغيل وأنواع وحدات التحكم المستخدمة، والعناصر المحددة المدرجة لكل نوع من أنواع وحدات التحكم.

لوحة الاسم: كاملة بالسعة والخصائص والموافقات والقوائم والبيانات الأخرى ذات الصلة.
أنابيب استشعار وحدة التحكم: تصنيع الأنابيب والتجهيزات وفقاً لمعايير NFPA 20 باستخدام أنابيب استشعار من معادن غير حديدية، NPS 1/2 (DN15)، مع صمامات كروية لاختبار آلية التحكم من النظام إلى وحدة التحكم في المضخة كما هو محدد. يشتمل على صمام فحص من النحاس مزود بفتحة مقاس 3/32 بوصة (2.4 مم) في المصفق أو وحدة مواجهة للأرض مع غشاء غير قابل للتآكل به فتحة مقاس 3/32 بوصة (2.4 مم).





FULL-SERVICE, FIRE-PUMP CONTROLLERS

Description: UL 218 and NFPA 20; listed for electric-drive, fire-pump service and service entrance.

Type Starting: Autotransformer, closed transition

Rate controllers for scheduled horsepower: Include short-circuit withstand rating at least equal to short-circuit current available at controller location. Take into account cable size and distance from .substation or supply transformers

Automatic Transfer Switches: UL 218 and UL 1008 and requirements for and attached to fire- pump controllers. Include enclosure complying with UL 50, Type 2, with automatic transfer switch with rating at least equal to fire-pump driver-motor horsepower. Include ampere rating not less than 115 percent of motor full-load current and suitable for switching motor-locked rotor current.

:Controllers: As follows

Isolating means and circuit breaker "Power on" pilot lamp

Fire alarm system connections for indicating motor running condition, loss-of-line power, and line-power phase reversal

Automatic and manual operation and minimum run-time relay to prevent short cycling

Water-pressure-actuated switch with independent high and low calibrated adjustments responsive to water pressure in fire-suppression system. Automatic and manual shut down. System pressure .recorder, electric ac driven with spring back up mounting: Wall type for field electrical connections

Enclosure Finish: Manufacturer's standard red paint applied to factory-assembled and -tested unit .before shipping

المواصفات الخدمية للبورء الكهربائي

الوصف: UL 218 و NFPA 20؛ مدرء للمحرك الكهربائي وخدمة مضخات الحريق ومدخل الخدمة. نوع البداية: محول ذاتي، انتقال معلق

وحدات التحكم في معدل القدرة الحصانية المجدولة

تصنيف تحمل الدائرة القصيرة الذي يساوي على الأقل تيار الدائرة القصيرة المتوفر في موقع وحدة التحكم. موضوع في الاعتبار حجم الكابل والمسافة من المحطات الفرعية أو محولات الإمداد.

مفاتيح النقل الأوتوماتيكية: UL 218 و UL 1008 ومتطلبات أجهزة التحكم في مضخات الحريق والمرفقة بها. تشتمل على بورء تتوافق مع UL 50، النوع 2، مع مفتاح نقل تلقائي بتصنيف يساوي على الأقل القدرة الحصانية لمحرك مضخة الحريق. يتضمن معدل أمبير لا يقل عن 115 بالمائة من تيار الحمل الكامل للمحرك ومناسب لتبديل تيار الدوار المقفل بالمحرك. وحدات التحكم: كما يلي:

وسائل العزل

قاطع الدائرة الكهربائية

مصباح الإشارة "Power on".





توصيلات نظام إنذار الحريق للإشارة إلى حالة تشغيل المحرك وفقدان طاقة الخط وعكس مرحلة طاقة الخط التشغيل التلقائي واليدوي والحد الأدنى من وقت التشغيل عند حدوث الدوائر القصيرة مفتاح يعمل بضغط الماء مع تعديلات معايرة عالية ومنخفضة مستقلة تستجيب لضغط الماء في نظام إخماد الحرائق. الإغلاق التلقائي واليدوي. مسجل ضغط النظام تيار متردد كهربائي نوع الحائط للتوصيلات الكهربائية الميدانية. تشطيب البورد: يتم تطبيق الطلاء الأحمر القياسي للشركة المصنعة على الوحدة التي تم تجميعها واختبارها في المصنع قبل الشحن.

PRESSURE-MAINTENANCE-PUMP CONTROLLERS

Description: UL 508; factory-assembled, -wired, and -tested across-the-line type for .combined automatic and non-automatic operation

Enclosure: UL 508 and NEMA 250, Type 2, wall-mounting type for field electrical :wiring. Rate controller for scheduled horsepower and include the following

.Fusible disconnect switch

Pressure switch

Hand-off-auto selector switch Pilot light

Running period timer

Enclosure Finish: Manufacturer's standard color paint applied to factory-assembled and -tested unit before shipping

الوصف UL508! تم تجميعه في المصنع وتسليكه واختباره من أجل التشغيل التلقائي وغير التلقائي المدمج. البورد: UL 508 و NEMA 250، النوع 2، نوع التثبيت يكون على الجدار للأسلاك الكهربائية المكشوفة. وحدة تحكم في المعدل للقدرة الحصانية المجدولة وتشمل ما يلي: مفتاح فصل منصهر. فيزبول دسكاونت سويج مفتاح الضغط برشجر سويج مفتاح التحويل اليدوي مفتاح إيقاف التشغيل مع الإشارة الضوئية توقيت فترة التشغيل تايمر تشطيب البورد: طلاء الألوان القياسي للشركة المصنعة يتم تطبيقه على الوحدة المجمع والمختبرة في المصنع قبل الشحن.





FIRE-PUMP SPECIALTIES AND ACCESSORIES

Match fire-pump suction and discharge ratings as required for fire-pump capacity rating. Include the following

Automatic air-release valve Circulation relief valve

.Suction and discharge pressure gages

Eccentric-tapered reducer at suction inlet

Concentric-tapered reducer at discharge outlet

.Test-Header Manifold: Ferrous for hose valves

Manufacturer's standard finish, include bronze or cast-iron, exposed-type valve header with nozzle outlets; and round, brass escutcheon plate with lettering equivalent to

".PUMP TEST CONNECTION

.Ball Drip Valve: UL 1726

.Main Relief Valve: UL 1478, spring loaded. Discharge Cone: Closed

Finish: Manufacturer's standard factory-applied red paint, unless brass or other finish is specified. Backflow prevention device shall be installed, and the final arrangement shall provide effective pump performance with a minimum suction pressure of 0 psi (0 bar) at .15 percent of rated capacity

مطابقة تقييمات السحب والدفع لمضخة الحريق كما هو مطلوب لتقييم قدرة مضخة الحريق. تضمن ما يلي:

صمام تنفيس الهواء الأوتوماتيكي

صمام تخفيف الدوران

أجهزة قياس ضغط الشفط والتفريغ.

مخفض رديوسير متعدد الأطوار عند مدخل السحب

مخفض رديوسير مركزي عند مخرج الدفع

مجمع الضغط : مجمع حديدي لصمامات الخرطوم.

التشطيب القياسي للشركة المصنعة، يشمل رأس الصمام المكشوف من النحاس أو الالاهين

مع منافذ الفوهة؛ ولوحة شعار نحاسية مستديرة تحمل حروفًا تعادل

"PUMP TEST CONNECTION"

صمام التنقيط الكروي: UL 1726.

صمام التنفيس الرئيسي: UL 1478، محمل بناض.

نوزل التفريغ: مغلق النهاية

الطلاء الأحمر القياسي المطبق في المصنع من قبل الشركة المصنعة، ما لم يتم تحديد تشطيب نحاسي أو أي

تشطيب آخر. يجب تركيب جهاز منع التدفق العكسي، ويجب أن يوفر الترتيب النهائي أداءً فعالاً للمضخة مع حد

أدنى من ضغط السحب يبلغ 0 psi لكل انج مربع (0 بار)

عند 15 بالمائة من السعة المقدرة.





PRESSURE-MAINTENANCE-PUMP SPECIALTIES AND ACCESSORIES

Match pressure-maintenance-pump suction and discharge ratings as required for pump
:capacity rating. Include the following
Circulation relief valve
.Suction and discharge pressure gages

تخصصات وصيانة مضخات الضغط وملحقاتها

مطابقة معدلات السحب والدفع لمضخة صيانة الضغط كما هو مطلوب لتقييم قدرة المضخة. تضمين ما يلي:
صمام تخفيف الدورة سرقوليشن ريليف فالف
أجهزة قياس ضغط السحب والدفع .

FLOW-MEASURING SYSTEMS

Description: FM-approved, fire-pump, flow-measuring systems that indicate flow to not less than 175 percent of fire-pump rated capacity. Include sensor of size to .match pipe, tubing, flow meter, and fittings

.Pressure Rating: to match pump head and system requirements

.Sensor: Venturi, annular probe, or orifice plate, unless otherwise indicated

Flow Meter: Compatible with flow sensor with dial not less than 4-1/2 inches (115 .mm) in diameter or manufacturer's equivalent size

Permanently Mounted: Flow meter suitable for wall mounting with copper tubing to connect to flow sensor

Portable: Flow meter, with two 12-foot (4-m) hoses, in carrying case with handle.

Include complete operating instructions

الوصف: أنظمة قياس التدفق لمضخات الحريق المعتمدة من FM والتي تشير إلى تدفق لا يقل عن 175 بالمائة من السعة المقدرة لمضخة الحريق.

يتضمن مستشعر قياس التدفق ليتناسب مع الأنابيب ومقياس التدفق والتجهيزات. تصنيف الضغط: ليتوافق مع متطلبات ارتفاع المضخة والنظام.

نوع المستشعر: فنتوري، أو مسبار حلقي،

أودائري مفتوح من الوسط

ما لم يُذكر خلاف ذلك.

الفلوميتر : متوافق مع متحسس التدفق بقرص لا يقل قطره عن 4-1/2 انج (115 مم)

أو بحجم مكافئ من الشركة المصنعة. مثبت بشكل دائم

مقياس التدفق مناسب للتركيب على الجدار باستخدام أنابيب نحاسية لتوصيله بمتحسس التدفق محمول: مقياس التدفق، مع خرطومين بطول 12 قدمًا (4 م)، في مجموعة حمل بمقبض.

مع تضمين تعليمات التشغيل الكاملة





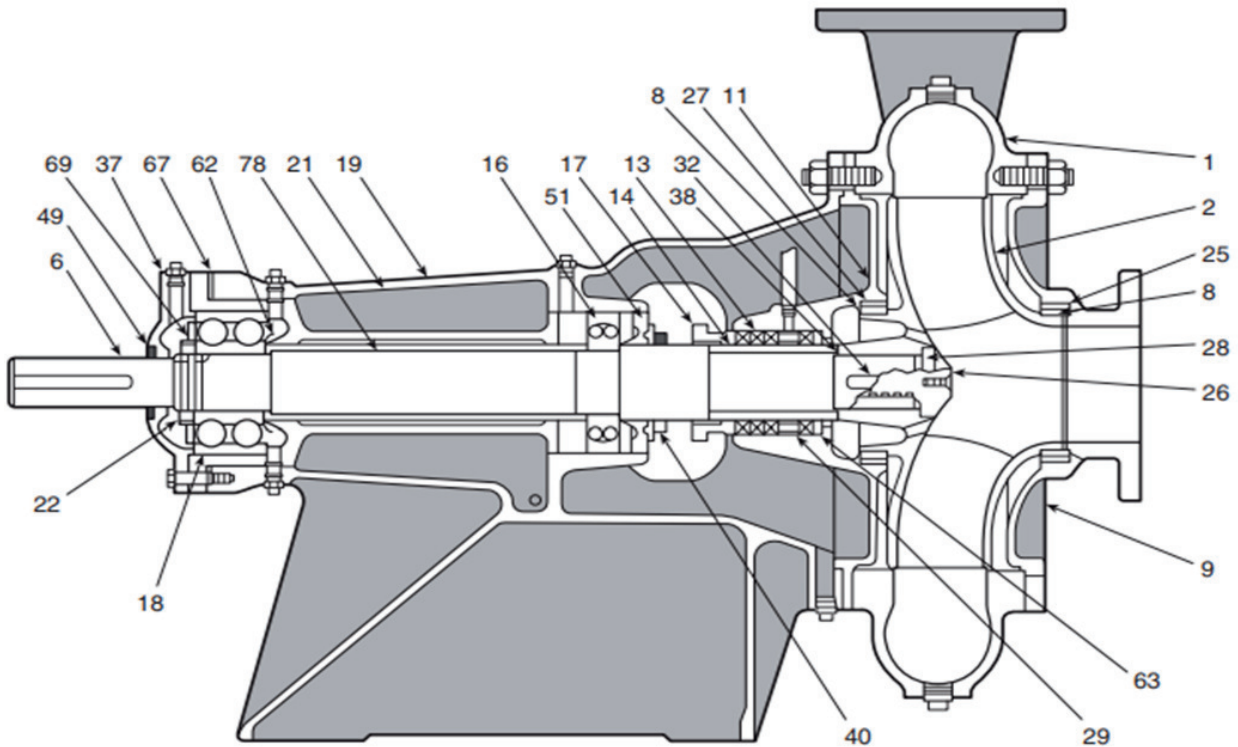
SOURCE QUALITY CONTROL

Factory Tests: Hydrostatically test and test run fire pumps before shipping. Test at 150 percent of shutoff head plus suction head, but not less than 250 psig (1725 kPa). Produce certified test curves showing head capacity and brake horsepower of each pump

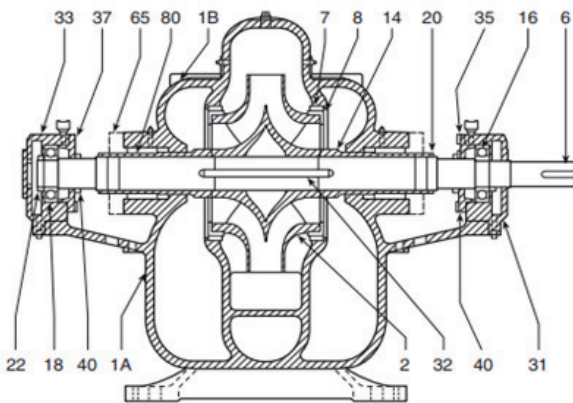
اختبارات المصنع:

اختبار هيدروستاتيكي واختبار تشغيل مضخات الحريق قبل الشحن. الاختبار عند 150 بالمائة عند الإغلاق بالإضافة إلى السحب ، ولكن ليس أقل من 250 PSI لكل انج مربع (1725 كيلو باسكال) يتم تزويد ادارة المبنى بمنحنيات وجدوال اختبار معتمدة توضح الارتفاع وكمية المياه المتدفقة لكل مضخة

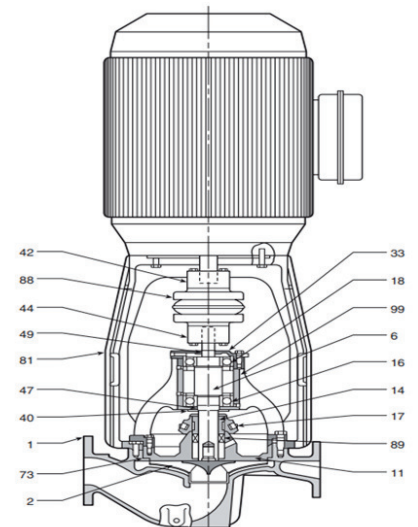




- | | | | |
|------------------------|------------------------|-----------------------------|----------------------------------|
| 1 Casing | 16 Bearing, inboard | 27 Ring, stuffing-box cover | 49 Seal, bearing cover, outboard |
| 2 Impeller | 17 Gland | 28 Gasket | 51 Retainer, grease |
| 6 Shaft, pump | 18 Bearing, outboard | 29 Ring, lantern | 62 Thrower (oil or grease) |
| 8 Ring, impeller | 19 Frame | 32 Key, impeller | 63 Busing, stuffing-box |
| 9 Cover, suction | 21 Liner, frame | 37 Cover, bearing, outboard | 67 Shim, frame liner |
| 11 Cover, stuffing-box | 22 Locknut, bearing | 38 Gasket, shaft sleeve | 69 Lockwasher |
| 13 Packing | 25 Ring, suction cover | 40 Deflector | 78 Spacer, bearing |
| 14 Sleeve, shaft | 26 Screw, impeller | | |

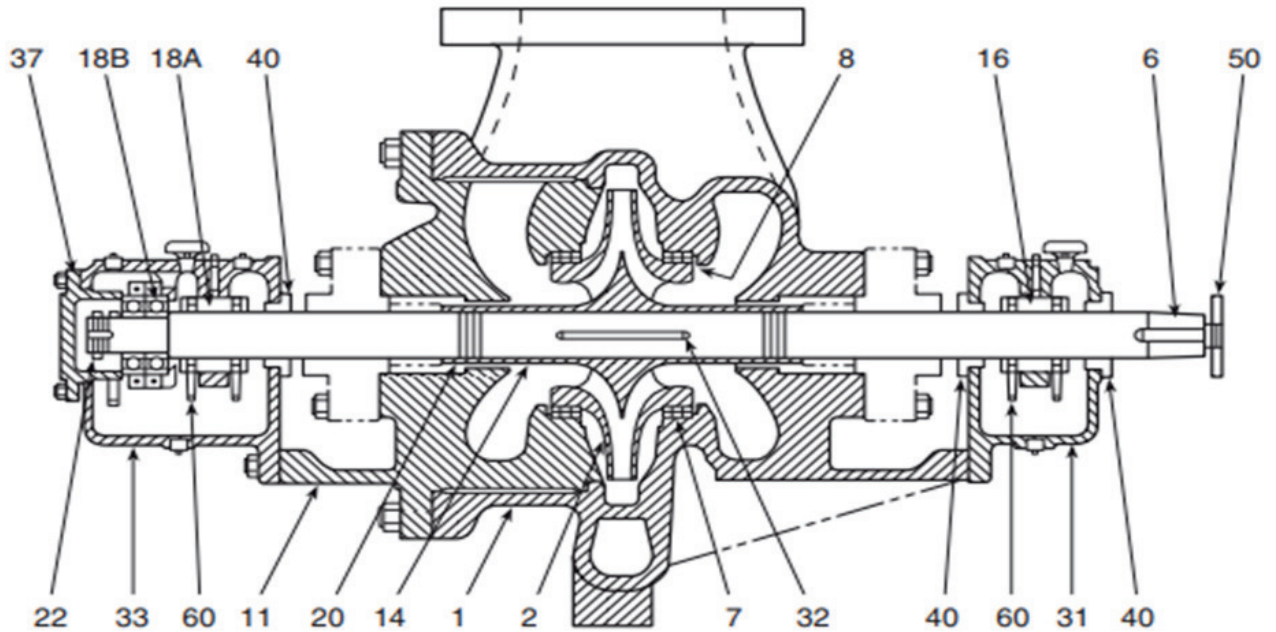


- | | |
|-----------------------|----------------------------------------|
| 1A Casing, lower half | 22 Locknut |
| 1B Casing, upper half | 31 Housing, bearing inboard |
| 2 Impeller | 32 Key, impeller |
| 6 Shaft | 33 Housing, bearing outboard |
| 7 Ring, casing | 35 Cover, bearing inboard |
| 8 Ring, impeller | 37 Cover, bearing outboard |
| 14 Sleeve, shaft | 40 Deflector |
| 16 Bearing, inboard | 65 Seal, mechanical stationary element |
| 18 Bearing, outboard | 80 Seal, mechanical rotating element |
| 20 Nut, shaft sleeve | |

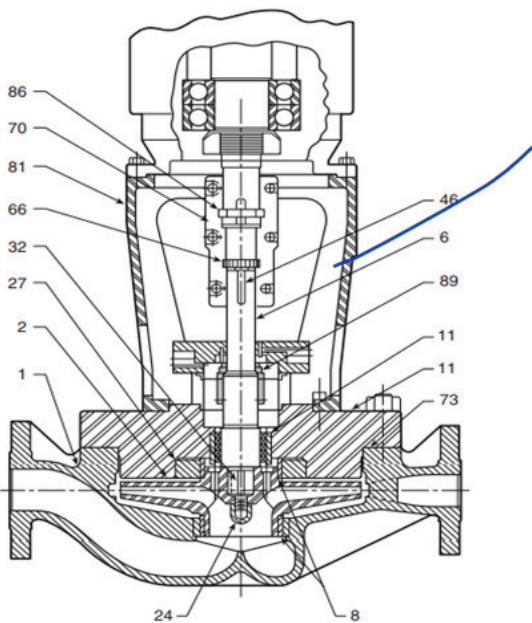


- | | |
|---------------------------|----------------------------------|
| 1 Casing | 42 Coupling half, driver |
| 2 Impeller | 44 Coupling half, pump |
| 6 Shaft, pump | 47 Seal, bearing cover, inboard |
| 11 Cover, seal chamber | 49 Seal, bearing cover, outboard |
| 14 Sleeve, shaft | 73 Gasket |
| 16 Bearing, inboard | 81 Pedestal, driver |
| 17 Gland | 88 Spacer, coupling |
| 18 Bearing, outboard | 89 Seal |
| 33 Cap, bearing, outboard | 99 Housing, bearing |

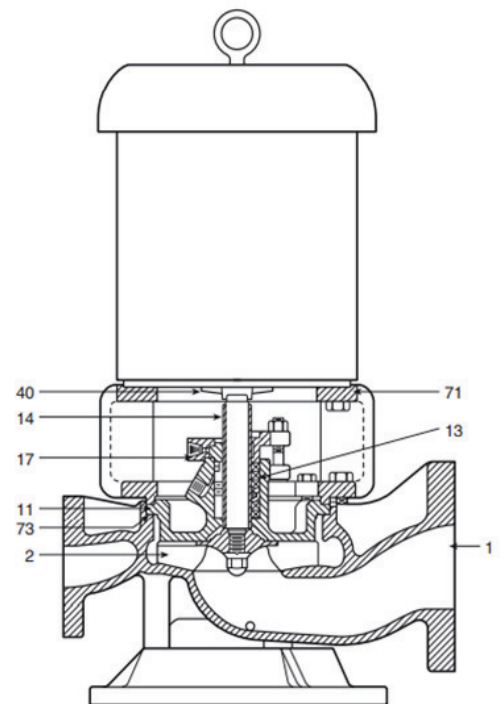




- | | | |
|------------------------|-------------------------------|-------------------------------|
| 1 Casing | 16 Bearing, inboard, sleeve | 33 Housing, bearing, outboard |
| 2 Impeller | 18A Bearing, outboard, sleeve | 37 Cover, bearing, outboard |
| 6 Shaft | 18B Bearing, outboard, ball | 40 Deflector |
| 7 Ring, casing | 20 Nut, shaft sleeve | 50 Locknut, coupling |
| 8 Ring, impeller | 22 Locknut, bearing | 60 Ring, oil |
| 11 Cover, stuffing-box | 31 Housing, bearing, inboard | |
| 14 Sleeve, shaft | 32 Key, impeller | |



- | | |
|-----------------------------|-------------------------|
| 1 Casing | 46 Key, coupling |
| 2 Impeller | 66 Nut, shaft adjusting |
| 6 Shaft, pump | 70 Coupling, shaft |
| 8 Ring, impeller | 73 Gasket |
| 11 Cover, seal chamber | 81 Pedestal, driver |
| 24 Nut, impeller | 86 Ring, thrust, split |
| 27 Ring, stuffing-box cover | 89 Seal |
| 32 Key, impeller | |



- | | | |
|------------------------|-------------------|-------------------|
| 1 Casing | 13 Packing | 40 Deflector |
| 2 Impeller | 14 Sleeve, shaft | 71 Adapter |
| 11 Cover, seal chamber | 17 Gland, packing | 73 Gasket, casing |





المصادر المعتمدة لكتابة اعتمادات شركة سبل الحرة

NFPA 1: Fire Prevention Code 2000 Edition

NFPA 10 : Standard for Portable Fire Extinguishers 2002 Edition

NFPA 13: Installation of Sprinkler Systems - 2010 Edition•

NFPA 20: Standard for the Installation of Stationary Pumps for Fire•
Protection 1999 Edition

National Fire Protection Association: www.nfpa.org•

.The U.S. Fire Administration•

2.1.FIRE HYDRANT

FIRE HYDRANT GENERAL SPECIFICATIONS

Hydrant Material : GG25 Cast Hydrant Dimension : DN 100 Pressure Level : PN 16

Hydrant Length : 1680 mm Hydrant Elbow Length : 305 mm

Hydrant Couplings : 2 x 2½" coupling type, forged aluminum couplings, DIN 14307.

Hydrant Blind caps : 2 x 2½" coupling type, forged aluminum couplings with chain,
DIN

Hydrant Color : Above ground part is Red, Underground part is Black colored. Hydrant
.is out of three parts. (Upper body, Below body and the elbow)

Hydrant should have automatic drainage system. Drainage system should be in "off"
position when the hydrant valve is open. System should be designed to automatically
discharge the water left in the body of hydrant when the hydrant valve is closed.

.System should have a protection cap

System should function without a key and be able to open and close by turning from
.the head of the hydrant

Hydrant should be "breakable" type. (When something crashes, only the above ground
part of the hydrant gets damaged. Since the below ground part will not be damaged,
only the above ground part of the hydrant will be renewed easily and damage will be
recovered fast.)

Hydrant should be complete with the couplings and the position of the blind caps
.should be parallel to the ground





2.1.1.FIRE HYDRANT CABINET (WITH PLATFORM)

FIRE HYDRANT CABINET, GENERAL SPECIFICATIONS

Manufacturer should be at least 10 years experienced. Manufacturer should have ISO 9001:2000 KYS .certificate

.Fire hose cabinet should have " 3 YEARS WARRANTY " for the manufacture faults

Fire hose cabinet should have CE approval with regard to the construction regulations directory. Fire .hose cabinets shall be TS EN 671-1 or TS EN 671-2 certificated

Manufacturer should have his own TEST LABORATORY with all necessary calibrated measurement .and quality control tools and test devices, and should be able to TEST 100% of the fire hose cabinets

Fire hydrant cabinet dimensions (complete of roof* , case** , inside equipment*** , platform****).

Fire hydrant cabinet, Case: 770 x 1120 x 200 mm

Platform: 770 x 400 x 200 mm

Installation, Maintenance and Usage guides should be within a booklet and delivered with the .product

.Fire hydrant cabinet should be capable to store one unit of 6kg fire extinguisher when necessary

FIRE HYDRANT CABINET, CASE.2.1.1.1

Manufactured from Quality mild steel in one piece and should be folded as rain waters cannot

.excess

Steel doors, strengthen by double folded edges. Door should be connected to its frame by Chrome .Nickel (CrNi) hinges

Door should have recessed, Chrome Nickel (CrNi) locking mechanism with manufacturer name.

Warnings of "FIRE" and "FIRE HOSE" should be written by press embossed method in four sides of the .cabinet

.The cabinet shall be with one door

.Complete with two units of hose reels, with that are press embossed and with towards inside

.Hose reels should have a canal at the center that enables rolling the hose to the reel

Hose reel arm, should be able to turn and lift out the hose reel 270°. Provided with silk printed;

.warnings, use age guide and company information

Cabinet Color RAL 3002 red should be colored by electrostatic powder paint method and painted by .polyester powder paint that is suitable for outdoor use age





Quality control tested cabinet, should be delivered in a cartoon pack that is supported by eyes rounded Styrofoam.

FIRE HYDRANT CABINET, INSIDE EQUIPMENT .2.1.1.1

Inside equipments should be of : 2 units of 2" 20 m hose, 2 units of 2" branch pipe and 2 units of .2½"x2" reduction, 1 unit of fire extinguisher

Hose, 2 pcs of 2" 20 m flat fire hose of working pressure: 13 bar, test pressure: 20 bar, bursting pressure: 40 bar. Synthetic woven, rubber lined. Hose couplings of forged aluminium, absolutely not injection method. Couplings to be connected to the hose with special yellow cover, absolutely not .cuff connected

Branch pipe, 2 pcs of 2" branch pipe with three levels jet/spray/off, DIN 14365 with coupling.

Coupling of forged aluminium, absolutely not injection method. Branch pipe to be connected to the .hose with special yellow cover, absolutely not cuff connected

Reduction, 2 pcs of 2" x 2½" reduction made of forged aluminium, absolutely not injection method

Fire Extinguisher, 1 unit of 6kg ABC dry powder fire extinguisher

FIRE HYDRANT CABINET, PLATFORM.2.1.1.2

Platform to carry the cabinet and the roof manufactured from 3mm steel in a folded form.

.Manufacturer name written on the platform by Chronicle (CrNi)

.Complete with four ground connection screw holes

Platform in Black Color Should be colored by electrostatic powder paint method and painted by

.polyester powder paint that is suitable for outdoor use age

FIRE HYDRANT CABINET, (RECESSED TYPE WITH GLASS DOOR).2.1.1.3

:Fire Hose Cabinet, Glass Door

Should be in dimensions of 1020 x 770 x 20 mm (complete with the frame) Manufactured from

.Quality mild steel Glass door should be connected to its Frame by Chrome Nickel (CrNi) hinges

Door frame should be manufactured in a RADIAL FORM in order to establish an esthetical View

.when the installation is completed

Door frame should be comp

.lete with fixed bolt and nuts that enable mounting the frame to the case





It shall be provided with double doors.

Glass door should have recessed, Chrome Nickel (CrNi) locking mechanism with manufacturer name on it

Type of glass should be 4 mm, color of smoked and tampered. "FIRE HOSE" warning Should be written on the glass by silk print method and this way long lasting and can't be ripped off

.Door should open minimum 180°

Color RAL 7047 light grey. Should be colored by electrostatic powder paint method and painted by polyester powder paint

Quality control tested Glass Door, should be delivered in a separated cartoon pack that is supported by Styrofoam

FIRE HYDRANT CABINET, REEL SYSTEM.2.1.1.1

:Manufactured from Quality mild steel

,Should be of 585 mm diameter

,Reel wheel should be press embossed and with edges rounded towards inside

Center of the reel should have ABS black covers that are provided with silk printed;

,warning, use age guide and company information

Reel should be of centrifugal water supply type. All water ways made of brass and stainless material

Color RAL 3002 red. Should be colored by electrostatic powder paint method and painted by polyester powder paint

Quality control tested Reel System, should be delivered in a separate cartoon pack that is supported by Styrofoam. Hose of semi-rigid type, made of RUBBER, 1" dia. and 20m length. Information of manufacturer, hose diameter and length should be written on the hose.

.Working pressure: 12 bar, test pressure: 18 bar and bursting pressure: 30 bar

Nozzle should be connected to the hose by wires (without using any cuffs). Press "1 embossed manufacturer name should be provided on the nozzle. Should function in three levels Open/Close/Spray

Hose reel arm, should be suitable to use with right or left side. Should be able to turn and lift out the hose reel 270°. Provided with silk printed; warnings, use age guide and company information. 1" water connection hose should be connected to the center of the reel by a

.cuff on one side and should be connected to the 2" x 1" Reduction by wires on other side x 1" Reduction should be of Storz type and forged aluminum "2





Manufacturer name should be provided on the reduction.

fire valve of brass, complete with flywheel and according to DIN 14461. Couplings used "2 with the fire valve should be of Storz type and forged aluminum Quality control tested Reel System, should be delivered in a separate cartoon pack that is " supported by Styrofoam. Hose cabinets can feed from sprinkler feeding pipe size 4 "or 3

PORTABLE FIRE EXTINGUISHER.2.1

kg Carbon dioxide type, the unit shall have a steel painted in black body, pull in 4.5 .2.1.1 .squeeze handle and a double braided hose and a non-conducting discharge horn kg capacity ABC multi-purpose dry chemical, enameled steel container with 6 2.3.2 pressure-indicating gage, for Classes A, B, and C fires. Provide manufacturer's standard .mounting brackets for above extinguishers

.2.3.3Ditto as 9kg capacity

Each fire hose reel cabinet shall be providedwith a portable fire extinguisher of the CO2 type or dry chemical type depending on the type of fire it may be required to extinguish in .the approximate area. Portable fire extinguishers shall be as specified hereinafter

SIAMESE CONNECTIONASSEMBLY.2.2

Shall be installedfor the use of Fire Brigade, as shown on the drawings,the Siamese connection assembly shall be gunmetal with two inlets. Each inlet shall consist of a 65mm instantaneous female couplingand a non-return valve and protected with a cap secured by a suitablelength of chain. The Coupling shall conform to BS 336. The Siamese connection assembly shall have 100mm diameter flanged outlet for attachment to the wet main. The Siamese connectionshall be finished with red color paint. The Siamese connection assembly .shallbe located 760mm above ground level

.BUTTERFLY VALVE (WITH SWICHT), WATER FLOW SWITCH, TEST AND DRAIN VAL.ASSEM .2.3

Test and drain valve assembly shall be, bronze body, threaded ends, UL listed and FM or LPC approved, PN 16, installed connected and tested complete with steel indicator plate and handle, fused tempered sight glass, calibrated flow orifice, union, tagging and accessories, all as specified and shown on drawings. 25mm diameter test and drain valve ,Water flow switch, vane type





cast aluminum housing, adjustable pneumatic retard, red enamel finish, installed, connected and tested complete with 2 single pole double throw snap-action switch, electric connection, tagging, and accessories all as specified and shown on drawings.
 .Diameter 80 mm

HANGERS AND SUPPORTS FOR FIRE SUPPERSSION PIPING AND EQUIPMENT.2.1

FOUNDATIONS AND BASES.2.1.1

- a. All mechanical equipments shall be mounted on 4-inch high (minimum) concrete foundations, curbs, or housekeeping pads. In lieu of these concrete bases, steel or cast-iron cradles, saddles or stands may be considered for some equipment but will be allowed only with written permission from MOH
- b. Concrete bases shall be a minimum of 4" larger all around than the equipment, and have chamfered edges. Ensure bases are level prior to placement of equipment

PIPE HANGERS AND SUPPORTS.2.1.2

- a. Provide all hangers required for the proper support of piping. Hangers shall be steel adjustable clevis type
 - b. Provide cadmium plated threaded steel rods with nuts and washers. All hanger rod installations to be double nutted (top and bottom)
 - c. Hangers to be within 12" of at least one end of each elbow. Roller hangers to be provided where expansion dictates
 - d. In concrete construction, use self-drilling inserts at proper centers securely anchored in concrete
 - e. Beam clamps shall be used when hanging from any structural steel members. No drilling or welding of these members shall be permitted
 - f. Supporting bolts shall be maximum sizes usable with the specified hanger, with adjustable and locking stop units
 - g. All piping to be hung so that any part wanted to be disconnected or removed, pipe would remain in place without sagging or requiring additional hanging
 - h. Vertical pipes shall be supported at each floor by means of iron hooks or clamp hangers placed directly below hub or fittings
- Install piping on spring hangers where vertical movement of the pipe is ½" or more, or the transfer of load to adjacent hangers or connected





a. equipment is not permitted.

b. Spacing shall be as per the most stringent of the following requirements, code requirements and authorities having jurisdiction

Where lateral support of pipe risers is required, it shall be accomplished by use of resilient lateral supports

Pipes that penetrate the building construction shall be isolated from the building structure by use of unit resilient penetrating sleeve/seals

Parallel running pipes may be hung together on a trapeze which is isolated from the building. Do not mix isolated and non-isolated pipes on the same trapeze

IDENTIFICATION FOR FIRE SUPPRESSION PIPING AND EQUIPMENT.2.1

MANUFACTURERS NAMEPLATES.2.1.1

Each piece of equipment shall have a metal nameplate mechanically fastened to equipment, with raised or recessed letters. Nameplates to be located so that they are easily read. Do not insulate or paint over plates

Include registration plates (e.g. pressure vessel, Underwriters' Laboratories and CSA approval) as required by respective agency and as specified. The supplier shall indicate size, equipment model, manufacturer's name, serial number, voltage, cycle, phase and power of motors

SYSTEM NAMEPLATES.2.1.2

Major equipment to be identified with laminated plastic plates with black face and white center (lettering) of minimum size 3½" x 1½" x 3/32" nominal thickness, engraved with ½" high lettering

Nameplates to be fastened securely with pop rivets or screws in conspicuous place. Where nameplates cannot be mounted, such as on cool surfaces, provide standoffs

Unique mechanical identification tag shall follow naming system laid out on drawings and in specifications. Equipment type, number and service or areas or zone of building it serves to be identified





2.1.1. PIPE IDENTIFICATION

Medium in piping to be identified as indicated below showing name and service, including directional flow arrows where relevant. 2.1.1.1

Material shall be vinyl/plastic coated cloth with protective over coating and waterproof contact adhesive undercoating, suitable for continuous operating temperature of 300°F and intermittent temperature of 400° F. 2.1.1.2

Tape shall be 2" wide single wrap around pipe or pipe covering with ends overlapping not less than 1". Tape is to be cut, not torn. 2.1.1.3

Block capital letters 2" high for pipes of 3" nominal and larger o.d. including insulation and not less than ¾" high for smaller diameters shall be used. 2.1.1.4

Direction arrows 6" long by 2" wide for piping of 3" nominal or large o.d. including insulation and 4" long by ¾" wide for smaller diameters to be used. Double headed arrows to be used where direction of flow is reversible. 2.1.1.5

Use black pipe marker letters and direction arrows. Use white on red background for fire protection pipe markers. 2.1.1.6

LOCATION OF IDENTIFICATION. 2.1.2

Markers and classifying colours on piping systems to be located so they can be seen from floor or platform. 2.1.2.1

Piping runs to be identified at least once in each room, regardless of whether concealed or in open areas. 2.1.2.2

Do not exceed 50'-0" between identification, regardless of whether concealed or in open areas. 2.1.2.3

In addition, where piping is concealed in pipe chase or other confined space, point of entry and leaving, and each access opening to be identified. 2.1.2.4

Both sides where piping passes through walls, partitions and floors to be identified. 2.1.2.5

Piping to be identified at starting and ending points of runs and at each piece of equipment. 2.1.2.6

Provide primary and secondary color banding. 2.1.2.7





2.1. VENTILATION HOODS

Kitchen Hood Extinguishing System; The kitchen cooking exhaust hood shall be protected by a wet chemical extinguishing system in accordance with the NFPA

PART 3 EXECUTIONS

3.1 EXAMINATION

Examine areas, equipment foundations, and conditions, with Installer present, for compliance with requirements for installation and other conditions affecting fire-pump performance

Proceed with installation only after unsatisfactory conditions have been corrected

Examine roughing-in of fire-suppression piping systems. Verify actual locations of piping connections before pump installation

3.2 CONCRETE BASES

Install concrete bases of dimensions indicated for fire pumps, pressure-maintenance pumps, and controllers. Refer to Section "Cast-in-Place Concrete" and Section "Basic Mechanical Materials and Methods"

3.3 INSTALLATION

Comply with fire-pump, pressure-maintenance-pump, and controller manufacturers' written installation and alignment instructions, and with NFPA 20

Install pumps and controllers to provide access for periodic maintenance, including removal of motors, impellers, couplings, and accessories

Set base-mounting-type pumps on concrete bases. Disconnect coupling halves before setting. Do not reconnect couplings until alignment operations have been completed

Support pump baseplate on rectangular metal blocks and shims or on metal wedges having small taper, at points near foundation bolts to provide 3/4- to 1-1/2-inch (19- to 38-mm) gap between pump base and foundation for grouting

Adjust metal supports or wedges until pump and driver shafts are





level. Check coupling faces and pump suction and discharge flanges to verify that they are level and plumb.

Install suction and discharge piping equal to or greater than diameter of fire-pump nozzles. Install pressure gages on fire-pump suction and discharge at .pressure-gage tapings

.Support pumps and piping separately so weight of piping does not rest on pumps
Install piping accessories, hangers and supports, anchors, valves, meters and .gages, and equipment supports

Install flow meters and sensors where indicated. Install flow-measuring-system components and make connections according to manufacturer's written .instructions

Electrical Wiring: Install electrical devices furnished by equipment manufacturers but not specified to be factory mounted. Furnish copies of manufacturers' wiring .diagram Submittals to electrical Installer

Verify that electrical wiring is installed according to manufacturers' submittal and installation requirements in Sections. Proceed with equipment startup only .after wiring installation is satisfactory

3.1 ALIGNMENT

Align fire-pump and driver shafts after complete unit has been leveled on .foundation, grout has set, and foundation bolts have been tightened

After alignment is correct, tighten foundation bolts evenly but not too firmly. Fill baseplate completely with grout, with metal blocks and shims or wedges in place. Tighten foundation bolts after grout has hardened. Check alignment and make .required corrections

.Make piping connections, check alignment, and make required corrections
Adjust alignment of pump and driver shafts for angular and parallel alignment by ".one method in "Installation, Operation and Maintenance

.Alignment Tolerances: Comply with manufacturer's written instructions
Align vertically mounted, split-case pump and driver shafts after complete unit has been made plumb on foundation, grout has set, and foundation bolts have been tightened. Follow pump





manufacturer's written instructions.

3.1 CONNECTIONS

Piping installation requirements are specified in other Sections. Drawings indicate general arrangement of piping and specialties. The following are specific connection requirements: Install piping adjacent to fire and pressure-maintenance pumps to allow service and maintenance

.Connect water supply to fire and pressure-maintenance pumps

Connect fire-pump and pressure-maintenance-pump discharge piping to building

.Connect relief-valve discharge to point of disposal

Connect flow-measuring-system meters and sensors according to manufacturer's written instructions

Connect fire-pump controllers to building fire alarm system. Refer to Section "Fire Alarm".Systems

.Connect controllers to pumps

.Electrical wiring and connections are specified in Sections

3.2 FIELD QUALITY CONTROL

MANUFACTURER'S FIELD SERVICE

Engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including fire-pump and pressure-maintenance-pump units, piping, and electrical connections. Report results in writing

LEAK TEST .3.2.1

After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist. Check suction line connections for tightness so no air gets into pumps

OPERATIONAL TEST .3.2.2

After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation. Remove malfunctioning units, replace with new units, and retest Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment. Furnish fire hoses in number, size, and length required to reach storm drain or other acceptable location to dispose of fire-pump test water. Fire hoses are for field-acceptance tests only and are not property of Owner





Test Header. 4" Exposed Way Fire Pump Test Header Connection shall be installed nearby FDC for this purpose

FINAL CHECKS BEFORE STARTUPS .3.1.1

Perform the following preventive-maintenance operations and checks: Lubricate oil-lubrication-type bearings
Remove grease-lubrication-type bearing covers, flush bearings with kerosene, and clean thoroughly
Fill with new lubricant according to manufacturer's written instructions
Disconnect coupling and check electric motor for proper rotation. Rotation shall match direction of rotation marked on pump casing
Verify that pump is free to rotate by hand. If pump is bound or if it drags even slightly, do not operate until cause of trouble is determined and corrected

STARTING PROCEDURE FOR PUMPS IS AS FOLLOWS .3.1.2

Prime pump by opening suction valve and closing drains, and prepare pump for operation. Open sealing liquid supply valves if pump is so fitted
Start motor
Open discharge valve slowly

3.2 Observe leakage from stuffing boxes and adjust sealing liquid valve for proper flow to ensure lubrication

Engage a factory-authorized service representative to train on site Owner's maintenance personnel to adjust, operate, and maintain units as specified below
Train Owner's maintenance personnel on procedures and schedules for starting and stopping, troubleshooting, servicing, and maintaining units
Review data in maintenance manuals. Refer to Section "Contract Closeout Data." Schedule training with Owner with at least seven days' advance notice
Review data in maintenance manuals. Refer to Section "Operation and Maintenance Data." Schedule training with Owner with at least seven days' advance notice
Do not tighten gland immediately but let packing run in before reducing leakage through stuffing boxes
Check general mechanical operation of pump and motor
Perform field tests for each fire-pump unit and system piping when installation is complete. Comply with operating instructions and





procedures in NFPA 20 to demonstrate compliance with requirements. Where possible, field correct malfunctioning equipment, then retest to demonstrate compliance. Replace equipment that cannot be satisfactorily corrected or that does not perform as indicated, than retest to demonstrate compliance. Verify that each fire-pump unit performs as indicated. Report test results in writing

3.1 PIPEWORK

Pipes serving firefighting network shall be made of black steel, medium duty grade-1 to BS 1387 with malleable cast iron welding in accordance with TSE EN 12845 and EN 10242 for pipe sizes larger than 50 mm diameter and with malleable iron threaded fittings for pipe sizes of 50 mm and smaller. Galvanized steel piping and fittings shall be used for test and drain pipe work. Total pump rated discharge is 750 GPM therefore 6" discharge pipe will be sufficient to cater for the flow
Main pipe 6 "can be used as main feeding with due consideration to classification and distribution of zones according to each riser. The pressure and flow shall be kept in accepted values in this arrangement especially the building is a non-high-rise structure
use as less number of branches as possible to avoid congestion of MEP -2 services especially at main routes
Mains should be electrically earthed to an earth rod independent of the main -3 electricity earthing system

3.2 OTHERS ACCESSORIES

The firefighting system shall be fed from the main storage tank located inside the building, which shall be constructed in reinforced concrete
The system shall be complete with automatic packaged fire pumping station and valves, water motor alarm and gong, pressurized water mains, main distribution pipes, distribution pipes, branch pipes, hangers and supports, heads and main drain system
The water motor alarm and gong shall consist of a simple water turbine having the shaft connected to a rotary ball clapper mounted within a domed gong. The test valve shall be





incorporated on a branch pipe from the alarm valve to allow operational conditions to be simulated for test purposes. Auxiliary pressure sensing devices shall be incorporated in the feed to the alarm gong to actuate the main fire alarm panel. Water from the test valve shall be properly drained. The alarm system shall be self-winding, adjustable recycling non-thermal type equipped with signal retarding device to prevent false alarm due to surge in the water system

Installation Control Valve: The system shall be provided with a set of installation control valves, main stop valve, alarm valve and test valve

The main stop valve shall be supervised in the open position

The alarm valve should be closed in the static position with the pressure below and above the valve, at normal level and no water flow. In the event of a pressure drop above the valves due to activation of fire hose cabinet (FHC) head, water is admitted to the branch pipe connected to the water motor alarm and the gong

sprinklers to be fed from stand pipes/risers as typical design system for hydraulic automatic fire protection system, so the branches from risers shall be a part of the fire alarm discharge status in case of pump sensors failure

water flow switches shall be installed at each feeding point. All sensors and devices shall be addressable. Flow switches shall be vane type, pressure tested at certain water pressure and constructed of corrosion resistant metals. An adjustable time delay feature shall be provided

to avoid false alarms from water hammer, surges or variations in water pressure

Test and Drain Valve Assembly: Test and drain valve assembly shall have steel handle, bronze body, steel indicator plate, fused tempered sight glass and calibrated flow orifice. **Flow Switches:** Flow switches shall be provided where indicated throughout the main distribution collector installation linked to the fire alarm control panel. The flow switches shall be capable of detecting a flow rate less than that of one single head and each shall be equipped with a local test valve. Flow switches shall be vane type, pressure tested at 20.7 bars water pressure and constructed of corrosion resistant metals. An adjustable time delay feature shall be provided to avoid false alarms from water hammer, surges or variations in water pressure





نظام اطفاء المطابخ

Product Group | Kitchen Fire Suppression**Kitchen Fire Suppression**

The Buckeye Kitchen Mister system is a UL-300 approved and CE marked pre-engineered wet chemical system. Because of the simple design, the system is quickly and easily installed as well maintained. True innovation in the design of this kitchen fire suppression system is the possibility to eliminate all conduit inside the hood, not having to install multiple detection brackets and conduit inside the hood at all. Being the only one on the market, Buckeye Fire Suppression offers the possibility to use shielded cable for the detection line, which saves a lot on .installation time and additional component cost

This system is appliance specific and has the best coverage in the industry with e.g. a coverage of 3.700 mm linear length of plenum for a one flow point nozzle, a coverage of 610 x 510 mm for a deep fat fryer with just one two flow point nozzle. The color-coded nozzles are easy to identify during installation. The use of MA press type compressed fittings is approved by the manufacturer, .which offers you another saving on install

