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# LPCB Red Book



# 1

## Part: 4 Fixed fire fighting systems

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## Introduction

BRE Global Ltd, based in the UK near London, is an independent third party organisation offering certification of fire, security and sustainability products and services to an international market. LPCB is the certification brand used for fire and security products and services. The LPCB mark is accepted worldwide. We have representative offices in China, India and Dubai. We are owned by the BRE Trust, a not-for-profit organisation.

LPCB listings can be accessed, free of charge, at [www.redbooklive.com](http://www.redbooklive.com) or via apps from Apple, Google and Windows.

BRE Global Ltd is also a Notified Certification Body and Notified Test Laboratory for:-

- Construction Products Regulation
- Pressure Equipment Directive
- Marine Equipment Directive
- Transport Pressure Equipment Directive

BRE Global additionally carries out:

- Fire Investigation
- Fire Risk Assessment
- Fire Safety Engineering
- Research
- Training

## LPCB Listings

Listings are given in sections which list related groups of products and services such as suppression, security and so on. Each section also summarises the technical basis for the certification of each product or service. The Red Book listings should always be used in conjunction with rules, regulations and design specifications required by the relevant Authority having jurisdiction.

Listings comprise:

### Volume 1: (This Volume)

- **Fire detection and alarm products, systems, and cables**
- **Manual fire extinguishing equipment**
- **Automatic sprinkler, water spray and deluge systems**
- **Fixed fire fighting products and systems**
- **Watermist systems**
- **Related installers**

### Volume 2:

- Passive fire protection products
- Security protection products
- Fire doors and shutters
- Smoke and fire ventilation systems
- Security Assessments - SABRE
- Related installers
- Management Systems
- Construction products

Listings are given in the name of the manufacturer or service provider, in alphabetical order. They can be downloaded free of charge from our website at [www.redbooklive.com](http://www.redbooklive.com) and also via an App that is available free from Apple iStore (for iPhone and iPad), from Google Play, (for Android phones and tablets) and Windows Store (for Windows 8 phones).

## Updates

Certification of products and services are updated regularly. To ensure that you are using the most up to date information please refer to [www.redbooklive.com](http://www.redbooklive.com) or download from the App from the website home page.



## What is Third Party Certification?

A frequent concern of stakeholders is in knowing whether a product will perform in accordance with the stated specifications. These concerns can involve such product attributes as safety, health or environmental impacts, durability, compatibility, suitability for intended purposes or for stated conditions, and other similar considerations. These issues can all be addressed through product certification.

Third party certification is a conformity assessment process, carried out by a body that is independent of both supplier and customer organisations. It provides confirmation that products and services have met and will continue to meet the requirements of specified standards and other normative documents.

LPCB third party product certification schemes are quality assurance schemes and comprise initial type testing and technical evaluation, assessment and surveillance of the manufacturer's quality system and factory production procedures, regular audit testing, labelling and listing.

Similarly, LPCB schemes for suppliers of services (installers) are also quality assurance schemes comprising a technical assessment of an installer's capability, assessment and surveillance of the installer's quality system and production procedures, regular inspection of completed installations and listing.

## Benefits of Third Party Certification

For specifiers, regulators, insurers, manufacturers and installers, the benefits of an LPCB approval are:

### For specifiers and regulators:

- Risk reduction - specifying LPCB approved products and services demonstrates due-diligence and best endeavour and mitigates against possible accusations of negligence.
- Avoidance of costly mistakes - you can trust LPCB approved products and services to conform each and every time.
- Time - using Red Book Live to search for and assess products and services can save you time.

### For manufacturers and installers:

- Increased global sales - LPCB approval is recognised and specified widely throughout the world. In some territories LPCB approval is a mandatory requirement.
- Added value of the product or service - LPCB approved products and services are recognised as providing added value given their ability to conform each and every time.
- Reduced liability - LPCB approved products and services demonstrate due-diligence which can reduce liability for both you and your customers.

## What does LPCB Certification offer?

LPCB certification is carried out against Loss Prevention Standards (LPS's). These LPS's include reference to BS, EN or ISO standards as appropriate. LPCB certification are level 5 schemes as detailed in ISO/ IEC 17067 with the added requirement to have a quality system certificated to ISO 9001.

## VOLUME 1 LIST OF APPROVED PRODUCTS AND SERVICES

The technical requirements of LPCB schemes are given in the Loss Prevention Standards (LPSs). These documents are drafted by LPCB technical experts in conjunction with appropriate external experts. They are then peer reviewed by representatives from trade bodies, regulators, insurers, specifiers, manufacturers and other suppliers. Finally these documents are approved for use by the BRE Global Governing Body; the Body that oversees all of the certification activities of BRE Global.

### **Product schemes comprise:**

- Initial type testing and evaluation of product.
- Approval and surveillance of the manufacturer's (or supplier's) quality management system to ISO 9001
- Assessment and surveillance of the manufacturer's (or supplier) factory production control system (FPC).
- Periodic audit testing of the product from either the factory or marketplace.
- Labelling or marking as appropriate.
- Listing on Red Book Live

### **Installer schemes comprise:**

- Technical assessment of the installation contractor's capability.
- Approval and surveillance of the contractor's quality management system to ISO 9001 or assessment against the requirements of the relevant Loss Prevention Standard where ISO 9001 is not appropriate.
- Regular surveillance inspections of on-going installations.
- The issue of Certificates of Conformity by the installer to demonstrate compliance for each installation.
- Listing in the Red Book.

### **The LPCB Mark - the Mark you can trust**

After certification of a product or service the manufacturer or service provider may place the LPCB certification mark, as shown below, on the product, packaging and literature etc.



Where LPCB holds accreditation through the United Kingdom Accreditation Service (UKAS), the certified company may include the UKAS symbol (the Crown and Tick) alongside the LPCB mark for certain applications e.g. promotional literature or material and stationery, as shown below.



(Full details of LPCB accreditation can be found on the UKAS website at [www.ukas.com](http://www.ukas.com))

Where for reasons of space or cost the use of the above full mark is not practical, then the following simplified mark may be applied directly to the product (for some schemes only). The LPCB scheme rules define how and where the marks can be used.

**LPCB**

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*Part*

*4*

***FIXED FIRE FIGHTING  
SYSTEMS***

# **PART 4: FIXED FIRE FIGHTING SYSTEMS**

## **INTRODUCTION**

The fixed fire extinguishing systems included in this section are for the protection of specific risks, e.g. computer rooms, switch gear, high risk production lines, commercial kitchen protection systems etc.

Great care must be taken in the choice of fire extinguishing agent with respect to life safety, damage to equipment from bi-products, venting and the time it takes to have the system operational again after a discharge incident.

In addition to careful product/system selection it is recommended that all systems are designed, installed and commissioned by third party approved contractors who have demonstrated their competence.

Listings in this section include:

### **Products**

- Condensed aerosol extinguishing generators
- Direct low pressure (DLP) application systems
- Fine water spray components
- Fixed fire extinguishing systems for catering equipment
- Gaseous system components
- Gaseous systems

Products are approved in accordance with a range of standards, the details of which are given at the front of each section relevant to the product.

### **Design, installation and commissioning contractors**

LPS 1204: Requirements for contractors engaged in the design, installation and commissioning of fixed fire systems.

The purpose of LPS 1204 scheme, *Requirements for firms engaged in the design, installation, commissioning and servicing of gas extinguishing systems*, is to provide an assurance that gas extinguishing systems perform correctly. It is recommended that the LPS 1204 Certificated Firm is given responsibility for the complete system, including the following aspects:

- Selection of appropriate gas type
- Extinguishing design concentration
- Check on enclosure leakage integrity
- Discharge and post discharge venting
- Electrical system integration

#### **Certification of Fixed Systems and LPCB Certificates of Conformity**

It is a requirement of the LPS 1204 scheme that Certificated Firms shall issue an LPCB Certificate of Conformity in respect of each completed system, extension and alteration. The issue of an LPCB Certificate of Conformity:

- (a) certifies that the gas extinguishing system, extension or alteration has been designed, installed and commissioned in accordance with the recognised standards identified in LPS 1204 and  
(b) ensures that the certificated system, extension and alteration is recorded by the LPCB.

#### **LPCB Inspections**

LPS 1204 Certificated Firms are regularly audited for their competence to design, install, commission and service gas extinguishing systems in accordance with recognised installation standards.

#### **Additional Offices**

Where a firm has additional offices, each office must meet the requirements of LPS 1204 to be eligible for certification, and is separately listed.

#### **Provisional Approval**

Firms with limited experience and track record can gain Provisional Approval in the LPS 1204 scheme. Their work is closely monitored by LPCB and when they have completed the requisite number of gas extinguishing systems contracts over a period of not less than two years, and subject to satisfactory performance, they will be given full approval and listed in this section of the Red Book.

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### **Alberta Fire & Security Equipment Limited**

San Gwakkinn Road, Mriehel, BKR 3000, Malta

Tel: +356 21 443538 • Fax: +356 21 484077

E-mail: [enquiries@alberta.com.mt](mailto:enquiries@alberta.com.mt) • Website: [www.alberta.com.mt](http://www.alberta.com.mt)

#### **Certificate No. CFSI-017 to LPS 1204**

Certificated to design, install, commission and service Non-liquefied inert gases and Liquefied halocarbon gases and issue LPCB Certificates of Conformity for these systems.

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### **Chubb Fire & Security Ltd t/a Chubb Mechanical**

Littleton Road, Ashford, Middlesex TW15 1TZ, United Kingdom

Tel: +44 (0)1784 425950

E-mail: [mechanical@chubb.co.uk](mailto:mechanical@chubb.co.uk) • Website: [www.chubb.co.uk](http://www.chubb.co.uk)

#### **Certificate No. CFSI-026 to LPS 1204**

Certificated to design, install, commission and service Non-liquefied inert gases and Liquefied halocarbon gases and issue LPCB Certificates of Conformity for these systems.

## **PART 4: SECTION 1**

### **LPS 1204 CERTIFICATED GAS EXTINGUISHING SYSTEM FIRMS**

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#### **Clymac Limited**

Cloudway Court, Belton Road, Loughborough LE11 1LW, United Kingdom

Tel: +44 (0)1509 232651 • Fax: +44 (0)1509 232665

E-mail: [sales@clymac.co.uk](mailto:sales@clymac.co.uk) • Website: [www.clymac.co.uk](http://www.clymac.co.uk)

**Certificate No. CFSI-018 to LPS 1204**

Certificated to design, install, commission and service Non-liquefied inert gases and Liquefied halocarbon gases and issue LPCB Certificates of Conformity for these systems.

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#### **EA-RS Fire Engineering Limited**

4 Swanbridge Industrial Park, Black Croft Road, Witham, Essex CM8 3YN, United Kingdom

Tel: +44 (0)1376 503680

E-mail: [onesolution@ea-rsfire.com](mailto:onesolution@ea-rsfire.com) • Website: [www.ea-rsfire.com](http://www.ea-rsfire.com)

**Certificate No. CFS1-021 to LPS 1204**

Certificated to design, install, commission and service Non-liquefied inert gases and Liquefied halocarbon gases and issue LPCB Certificates of Conformity for these systems.

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#### **Firecheck Contracts Limited**

53 Huntercombe Lane North, Burnham SL1 6DX, United Kingdom

Tel: +44 (0)1628 660999 • Fax: +44 (0)1628 662998

E-mail: [info@firecheckltd.co.uk](mailto:info@firecheckltd.co.uk) • Website: [www.firecheckltd.co.uk](http://www.firecheckltd.co.uk)

**Certificate No. CFSI-019 to LPS 1204**

Certificated to design, install, commission and service Non-liquefied inert gases, Liquefied halocarbon gases and Carbon dioxide and issue LPCB Certificates of Conformity for these systems.

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#### **G.B. Electronics Limited trading as GBE Converge**

GBEC House, 31 Barnett Way, Barnwood, Gloucester GL4 3RT, United Kingdom

Tel: +44 (0)8451 220884 • Fax: +44 (0)845 1220885

E-mail: [info@gbeconverge.com](mailto:info@gbeconverge.com) • Website: [www.gbeconverge.com](http://www.gbeconverge.com)

**Certificate No. CFSI-029 to LPS 1204**

Certificated to design, install, commission and service Non-liquefied inert gases and Liquefied halocarbon gases and issue LPCB Certificates of Conformity for these systems.

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#### **Gemini AMPM Ltd**

18 Albert Drive, Jubilee Road, Burgess Hill, West Sussex RH15 9TN, United Kingdom

Tel: +44 (0)845 872 5999

E-mail: [Sales@geminiampm.co.uk](mailto:Sales@geminiampm.co.uk) • Website: [www.Geminifire.com](http://www.Geminifire.com)

**Certificate No. CFSI-025 to LPS 1204**

Certificated to design, install, commission and service Non-liquefied inert gases and Liquefied halocarbon gases and issue LPCB Certificates of Conformity for these systems.

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**Hall & Kay Fire Services Limited trading as Hall & Kay Fire Engineering (Ascot)**

Unit E - Science Park, Silwood Business Park, Ascot, Berkshire SL5 7PW, United Kingdom

Tel: +44 (0)1344 203800 • Fax: +44 (0)1344 203801

E-mail: [MatthewC.Jones@hkfire.co.uk](mailto:MatthewC.Jones@hkfire.co.uk) • Website: [www.hkfire.co.uk](http://www.hkfire.co.uk)

**Certificate No. CFSI-009 to LPS 1204**

Certificated to design, install, commission and service Non-liquefied inert gases and Liquefied halocarbon gases and issue LPCB Certificates of Conformity for these systems.

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**Interserve FS (UK) Limited**

Ingenuity House, Elmdon Trading Estate, Bickenhill Lane, Birmingham B37 7HQ, United Kingdom

Tel: +44 (0)1646 623900 • Fax: +44 (0)1646 687869

E-mail: [Neil.Lewis@interserve.com](mailto:Neil.Lewis@interserve.com) • Website: [www.initial.co.uk/fire-services/](http://www.initial.co.uk/fire-services/)

**Certificate No. CFSI-023 to LPS 1204**

Certificated to design, install, commission and service Non-liquefied inert gases and issue LPCB Certificates of Conformity for these systems.

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**Mercury Engineering**

Mercury House, Sandyford Industrial Estate, Foxrock, Dublin 18 D18 XH79, Ireland

Tel: +353 1 216 3000 • Fax: +353 1 216 3006

E-mail: [fireprotection@mercuryeng.com](mailto:fireprotection@mercuryeng.com) • Website: [www.mercuryeng.com](http://www.mercuryeng.com)

**Certificate No. CFSI-016 to LPS 1204**

Certificated to design, install, commission and service Non-liquefied inert gases, Liquefied halocarbon gases and Carbon dioxide and issue LPCB Certificates of Conformity for these systems.

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**Protec Camerfield Limited (Firepro Division)**

5 Churchill Way, Nelson, Lancashire BB9 6RT, United Kingdom

Tel: +44 (0)870 442 2644 • Fax: +44 (0)870 442 2645

E-mail: [camerfield.firepro@protec.co.uk](mailto:camerfield.firepro@protec.co.uk) • Website: [www.protec.co.uk](http://www.protec.co.uk)

**Certificate No. CFSI-015 to LPS 1204**

Certificated to design, install, commission and service Non-liquefied inert gases, Liquefied halocarbon gases and Carbon dioxide and issue LPCB Certificates of Conformity for these systems.

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**Siemens Plc, Smart Infrastructure (Regional Solutions & Service)**

Brunel House, Sir William Siemens Square, Frimley, Camberley, Surrey GU16 8QD, United Kingdom

Tel: +44 (0)1276 696000 • Fax: +44 (0)1276 696133

E-mail: [sales.uk.sbt@siemens.com](mailto:sales.uk.sbt@siemens.com) • Website: [www.siemens.co.uk/buildingtechnologies](http://www.siemens.co.uk/buildingtechnologies)

**Certificate No. CFSI-004 to LPS 1204**

Certificated to design, install, commission and service Non-liquefied inert gases, Liquefied halocarbon gases and Carbon dioxide and issue LPCB Certificates of Conformity for these systems.

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## **PART 4: SECTION 1**

### **LPS 1204 CERTIFICATED GAS EXTINGUISHING SYSTEM FIRMS**

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#### **Spectrum Fire Protection (UK) Limited**

Middlemore Lane, Aldridge, Walsall, West Midlands WS9 8SP, United Kingdom

Tel: +44 (0)1922 744 466 • Fax: +44 (0)1922 744 477

E-mail: [TechSupport@spectrumfire.co.uk](mailto:TechSupport@spectrumfire.co.uk) • Website: [www.spectrumfire.co.uk](http://www.spectrumfire.co.uk)

**Certificate No. CFSI-028 to LPS 1204**

Certificated to design, install, commission and service Non-liquefied inert gases and Liquefied halocarbon gases and issue LPCB Certificates of Conformity for these systems.

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#### **Trinity Fire & Security Systems Limited**

Little Bridge Business Park, Oil Mill Lane, Clyst St Mary, Exeter, Devon EX5 1AU, United Kingdom

Tel: +44 (0)1392 874455 • Fax: +44 (0)1392 875546

E-mail: [info@trinityprotection.co.uk](mailto:info@trinityprotection.co.uk) • Website: [www.trinityprotection.co.uk](http://www.trinityprotection.co.uk)

**Certificate No. CFSI-024 to LPS 1204**

Certificated to design, install, commission and service Non-liquefied inert gases and Liquefied halocarbon gases and issue LPCB Certificates of Conformity for these systems.

All offices listed on Trinity Fire and Security Systems Ltd's website as shown above are covered by this certificate.

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#### **Tyco Fire and Integrated Solutions (the trading company for Tyco Fire and Integrated Solutions (UK) Limited and Tyco Fire and Integrated Solutions (Ireland) Limited)**

Security House, The Summit, Hanworth Road, Sunbury on Thames, Middlesex TW16 5DB, United Kingdom

Tel: +44 (0)1753 574111 • Fax: +44 (0)1753 824226

Website: [www.tycofis.com](http://www.tycofis.com)

**Certificate No. CFSI-011 to LPS 1204**

Certificated to design, install, commission and service Non-liquefied inert gases and Liquefied halocarbon gases and issue LPCB Certificates of Conformity for these systems.

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#### **Tyco Fire and Integrated Solutions (the trading company for Tyco Fire and Integrated Solutions (UK) Limited and Tyco Fire and Integrated Solutions (Ireland) Limited)**

180 Aztec West, Almondsbury, Bristol BS32 4TU, United Kingdom

Tel: +44 (0)1454 240071 • Fax: +44 (0)1454 626443

Website: [www.tycofis.com](http://www.tycofis.com)

**Certificate No. CFSI-013 to LPS 1204**

Certificated to design, install, commission and service Non-liquefied inert gases and Liquefied halocarbon gases and issue LPCB Certificates of Conformity for these systems.

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#### **Tyco Fire and Integrated Solutions (the trading company for Tyco Fire and Integrated Solutions (UK) Limited and Tyco Fire and Integrated Solutions (Ireland) Limited)**

Mucklow Office Park, Mucklow Hill, Halesowen, West Midlands B62 8DA, United Kingdom

Tel: +44 (0)121 255 6000 • Fax: +44 (0)121 255 6100

Website: [www.tycofis.com](http://www.tycofis.com)

**Certificate No. CFSI-005 to LPS 1204**

Certificated to design, install, commission and service Non-liquefied inert gases and Carbon dioxide and issue LPCB Certificates of Conformity for these systems.

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**Tyco Fire and Integrated Solutions (the trading company for Tyco Fire and Integrated Solutions (UK) Limited and Tyco Fire and Integrated Solutions (Ireland) Limited)**

Tyco Park, Grimshaw Lane, Newton Heath, Manchester M40 2WL, United Kingdom

Tel: +44 (0)161 205 2321 • Fax: +44 (0)161 455 4459

Website: [www.tycofis.com](http://www.tycofis.com)

**Certificate No. CFSI-002 to LPS 1204**

Certificated to design, install, commission and service Non-liquefied inert gases and Liquefied halocarbon gases and issue LPCB Certificates of Conformity for these systems.

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**Vipond Fire Protection Limited**

10-12 Glenfield Road, Kelvin Industrial Estate, East Kilbride, Lanarkshire G75 0RA, United Kingdom

Tel: +44 (0)1355 2375 25/80/88 • Fax: +44 (0)1355 263399

E-mail: [admin.uk@vipondltd.co.uk](mailto:admin.uk@vipondltd.co.uk) • Website: [www.vipondfire.co.uk](http://www.vipondfire.co.uk)

**Burntwood:**

Unit 7C, Zone 2 Burntwood Business Park, Burntwood, Staffordshire WS7 3JQ, United Kingdom

Tel: +44 (0)1543 471417

**Certificate No. CFSI-027 to LPS 1204**

Certificated to design, install, commission and service Non-liquefied inert gases, Liquefied halocarbon gases and Carbon dioxide and issue LPCB Certificates of Conformity for these systems.

## **PART 4: SECTION 2.1**

### **GASEOUS SYSTEM COMPONENTS**

The equipment listed in this section has been assessed and tested to a test schedule, suitable for the product, containing tests from both LPS and EN standards for gaseous system components. The production facilities have also been assessed to ensure that the components meet and continue to meet these standards

BRE Global is a Notified Body for the products in this section that are covered by the published parts of EN 12094.

Where a component is not covered by a published part of EN 12094 it will be evaluated against an LPCB Schedule of Requirements.

In order to function correctly the approved components must be used in accordance with the manufacturer's technical instructions.

**Component approval does not mean LPCB system approval. LPCB system approval requirements are set out in Section 2.2.**

#### **AIR Fire S.p.A.**

Via Tenuta della Mistica - 33/37, Rome 00155, Italy

Tel: +34 680395217

E-mail: [info@airfire.eu](mailto:info@airfire.eu) • Website: [www.airfire.eu](http://www.airfire.eu)

Certificate No: 1239Ca to EN12094-4

#### **Container Valves**

| <b>Product Name</b> | <b>Description</b>                                | <b>LPCB Ref. No.</b> |
|---------------------|---|----------------------|
| 071251              | DN12 Container Valve 50 bar, HFC227ea & FK-5-1-12 | 1239Ca/01            |
| 071221              | DN12 Container Valve 50 bar, HFC227ea & FK-5-1-12 |                      |
| 071231              | DN12 Container Valve 50 bar, HFC227ea & FK-5-1-12 |                      |
| 072201              | DN12 Container Valve 250 bar, CO <sub>2</sub>     |                      |
| 072231              | DN12 Container Valve 190 bar, CO <sub>2</sub>     |                      |
| 072211              | DN12 Container Valve 190 bar, CO <sub>2</sub>     |                      |
| 072221              | DN12 Container Valve 190 bar, CO <sub>2</sub>     |                      |
| 073221              | DN12 Container Valve 270 bar, Inert               |                      |
| 073201              | DN12 Container Valve 270 bar, Inert               |                      |
| 073211              | DN12 Container Valve 270 bar, Inert               |                      |
| 073222              | DN12 Container Valve 405 bar, Inert               |                      |
| 073202              | DN12 Container Valve 405 bar, Inert               |                      |
| 073212              | DN12 Container Valve 405 bar, Inert               |                      |

Certificate No: 1239Ca to EN12094-4

#### **Container Valve Actuators**

| <b>Product Name</b> | <b>Description</b>         | <b>LPCB Ref. No.</b> |
|---------------------|----------------------------|----------------------|
| 072202              | Pneumatic actuator         | 1239Ca/02            |
| 072203              | Manual actuator            |                      |
| 022001              | Electrical actuator        |                      |
| 072213              | Pneumatic /manual actuator |                      |



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Certificate No: 273Cd to EN 12094 series and Schedule of Requirements

### ARGONITE FIXED FIRE FIGHTING COMPONENTS

#### ARGONITE FIXED FIRE FIGHTING COMPONENTS

<sup>1</sup> This range of equipment is suitable for storage temperatures from -20°C to +50°C and is approved for use with Argonite.

<sup>2</sup> This range of equipment is approved for use in conjunction with the Kidde Products Design manual reference MA-01-9006-0100 (Revision 10 dated January 2008)

<sup>3</sup> System pressure is specified at 150 bar, 200 bar and 300 bar @ 15°C.

Certificate No: 273Cd to a Schedule of Requirements

#### ARGONITE Container and Container Bracket Assemblies

| Product Name | Description         | Capacity (ltr) | System pressure (bar) | LPCB Ref. No. |
|--------------|---------------------|----------------|-----------------------|---------------|
| 01-1331-5900 | 15.9 Litre Cylinder | 15.9           | 150 (4), (5)          | 273Cd/01      |
| 01-1311-5900 | 67.5 Litre Cylinder | 67.5           | 150 (4), (5)          |               |
| 01-1321-5900 | 80.0 Litre Cylinder | 80.0           | 150 (4), (5)          |               |
| 01-1332-5900 | 15.9 Litre Cylinder | 15.9           | 200 (4), (5)          |               |
| 01-1312-5900 | 67.5 Litre Cylinder | 67.5           | 200 (4), (5)          |               |
| 01-1322-5900 | 80.0 Litre Cylinder | 80.0           | 200 (4), (5)          |               |
| 01-1334-5900 | 15.9 Litre Cylinder | 15.9           | 300 (4), (5)          |               |
| 01-1314-5900 | 67.5 Litre Cylinder | 67.5           | 300 (4), (5)          |               |
| 01-1324-5900 | 80.0 Litre Cylinder | 80.0           | 300 (4), (5)          |               |
| 01-1322-7100 | 80.0 Litre Cylinder | 80.0           | 200 (5), (6)          | 273Cd/19      |

4. Cylinder is designed and manufactured in accordance with European Directive 2010/35/EU (TPED) through compliance with ISO 9809-2

5. A range of wall brackets, clamping bas, spacers and clamping bolts for secure container installation are also available

6. Cylinder is designed and manufactured in accordance with BS 5045-1 and is for Indian service only. Cylinder is not compliant with European Directive 84/225/EEC and the TPED.

Certificate No: 273Cd to EN12094 Part 8

#### ARGONITE C Series and ARGONITE Hoses

| Product Name      | Description        | Nominal bore (mm) | System pressure (bar) | LPCB Ref. No. |
|-------------------|--------------------|-------------------|-----------------------|---------------|
| 01-3260-0100/1000 | Actuation Hose (7) | DN5               | 150, 200 & 300        | 273Cd/03      |
| 01-3261-0100/1000 | Actuation Hose (7) | DN5               | 150, 200 & 300        |               |
| 01-3271-1100/1200 | Actuation Hose (7) | DN5               | 150, 200 & 300        |               |
| 01-3272-1100/1200 | Actuation Hose (7) | DN5               | 150, 200 & 300        |               |
| 01-3273-1100/1200 | Actuation Hose (7) | DN5               | 150, 200 & 300        |               |

7. Hoses are available in a variety of lengths

Certificate No: 273Cd to EN12094 Part 8

#### ARGONITE Hoses

| Product Name      | Description        | Nominal bore (mm) | System pressure (bar) | LPCB Ref. No. |
|-------------------|--------------------|-------------------|-----------------------|---------------|
| 01-3284-0100/0200 | Discharge Hose (7) | DN9               | 150, 200 & 300        | 273Cd/03      |

7. Hoses are available in a variety of lengths

## **PART 4: SECTION 2.1**

### **GASEOUS SYSTEM COMPONENTS**

Certificate No: 273Cd to a Schedule of Requirements

#### **ARGONITE Pressure Restrictor Assemblies**

| Product Name                     | Description             | Orifice size (mm) | System pressure (bar) | LPCB Ref. No. |
|----------------------------------|-------------------------|-------------------|-----------------------|---------------|
| 01-370X-1030/1070 (8), (9), (10) | ½" Restrictor Assembly  | 3-7               | 150, 200 & 300        | 273Cd/04      |
| 01-370X-3050/3180 (9)            | 1.0 Restrictor Assembly | 5-18              | 150, 200 & 300        |               |
| 01-370X-4120/4270 (9)            | 1½" Restrictor Assembly | 12-27             | 150, 200 & 300        |               |
| 01-370X-5200/5360 (9)            | 2.0 Restrictor Assembly | 20-36             | 150, 200 & 300        |               |

8. Not available with NPT Female/NPT Female or NPT Female/BSP Female connections

9. Where X can be 1 for NPT Male/ NPT Female, 2 for NPT Female/NPT Female, 3 for NPT Male/BSP Female or 4 for NPT Female/BSP Female

10. Also available with BSP Male/BSP Female (part no. 01-3706-1030/1070) or BSP Male/NPT Female connections (part no. 01-3705-1030/1070)

Certificate No: 273Cd to a Schedule of Requirements

#### **ARGONITE C SERIES and ARGONITE Pressure Regulator Assemblies**

| Product Name | Description        | Orifice size (mm) | System pressure (bar) | LPCB Ref. No. |
|--------------|--------------------|-------------------|-----------------------|---------------|
| 01-6017-0000 | Pressure Regulator | N/A               | 150, 200 & 300        | 273Cd/04      |

Certificate No: 273Cd to prEN12094 Part 7

#### **ARGONITE C SERIES and ARGONITE Discharge Nozzles**

| Product Name             | Description         | Orifice size (mm) | System pressure (bar) | LPCB Ref. No. |
|--------------------------|---------------------|-------------------|-----------------------|---------------|
| 01-3465-X2030/X2100 (11) | ½" Nozzle Assembly  | 3-10              | 60                    | 273Cd/05      |
| 01-3465-X3070/X3140 (11) | ¾" Nozzle Assembly  | 7-14              | 60                    |               |
| 01-3465-X4100/X4180 (11) | 1 Nozzle Assembly   | 10-18             | 60                    |               |
| 01-3465-X5150/X5260 (11) | 1½" Nozzle Assembly | 15-26             | 60                    |               |

11. Where X can be 1 for BSP or 2 for NPT connections

Certificate No: 273Cd to a Schedule of Requirements

#### **ARGONITE Single Area Manifolds**

| Product Name                 | Description                   | No. cylinders | System pressure (bar) | LPCB Ref. No. |
|------------------------------|-------------------------------|---------------|-----------------------|---------------|
| 01-3506-2011 to 01-3506-2019 | Single Row Discharge Manifold | 1 to 10       | 150, 200              | 273Cd/06      |
| 01-3506-2021 to 01-3506-2029 | Double Row Discharge Manifold | 4 to 20       | 150, 200              |               |
| 01-3506-3011 to 01-3506-3019 | Single Row Discharge Manifold | 1 to 10       | 300                   |               |
| 01-3506-3021 to 01-3506-3029 | Double Row Discharge Manifold | 4 to 20       | 300                   |               |

Certificate No: 273Cd to a Schedule of Requirements

#### **ARGONITE C SERIES and ARGONITE Multi-Area Manifold Accessories**

| Product Name | Description                        | System pressure (bar) | LPCB Ref. No. |
|--------------|------------------------------------|-----------------------|---------------|
| 01-3508-0002 | Pilot Manifold (2 Diverter Valves) | 150, 200, 300 (12)    | 273Cd/06      |
| 01-3508-0003 | Pilot Manifold (3 Diverter Valves) | 150, 200, 300 (12)    |               |
| 01-3508-0004 | Pilot Manifold (4 Diverter Valves) | 150, 200, 300 (12)    |               |
| 01-3508-0005 | Pilot Manifold (5 Diverter Valves) | 150, 200, 300 (12)    |               |

12. Working Pressure Outlet 8 bar

Certificate No: 273Cd to EN12094 Part 5

**PART 4: SECTION 2.1**  
GASEOUS SYSTEM COMPONENTS

**ARGONITE C SERIES and ARGONITE Diverter Valves**

| Product Name | Description    | Size | System pressure (bar) | LPCB Ref. No. |
|--------------|----------------|------|-----------------------|---------------|
| 01-6240-1000 | Diverter Valve | ½"   | 150, 200 & 300        | 273Cd/08      |
| 01-6242-1000 | Diverter Valve | 1    | 150, 200 & 300        |               |
| 01-6244-1000 | Diverter Valve | 1½"  | 150, 200 & 300        |               |
| 01-6246-1000 | Diverter Valve | 2    | 150, 200 & 300        |               |

Certificate No: 273Cd to EN12094 Part 13

**ARGONITE Manifold Check Valves**

| Product Name | Description          | Nominal bore (mm) | System pressure (bar) | LPCB Ref. No. |
|--------------|----------------------|-------------------|-----------------------|---------------|
| 01-6454-0000 | Manifold Check Valve | ½" BSP & ¾" NPT   | 150, 200 & 300        | 273Cd/09      |

Certificate No: 273Cd to EN12094 Part 4

**ARGONITE Container Valves**

| Product Name | Description              | System pressure (bar) | LPCB Ref. No. |
|--------------|--------------------------|-----------------------|---------------|
| 01-6471-0150 | Pneumatic Argonite Valve | 150                   | 273Cd/10      |
| 01-6471-0200 | Pneumatic Argonite Valve | 200                   |               |
| 01-6471-0300 | Pneumatic Argonite Valve | 300                   |               |

Certificate No: 273Cd to EN12094 Part 4

**ARGONITE Release Valves**

| Product Name | Description  | System pressure (bar) | LPCB Ref. No. |
|--------------|--------------|-----------------------|---------------|
| 01-7172-1150 | Release Unit | 150                   | 273Cd/11      |
| 01-7172-1200 | Release Unit | 200                   |               |
| 01-7172-1300 | Release Unit | 300                   |               |
| 01-7173-1150 | Release Unit | 150                   |               |
| 01-7173-1200 | Release Unit | 200                   |               |
| 01-7173-1300 | Release Unit | 300                   |               |

Certificate No: 273Cd to EN12094 Part 10

**ARGONITE C SERIES and ARGONITE Pressure Monitoring Devices**

| Product Name | Description               | System pressure (bar)         | LPCB Ref. No. |
|--------------|---------------------------|-------------------------------|---------------|
| 01-7221-0300 | Manifold Pressure Gauge ½ | 150, 200 & 300                | 273Cd/15      |
| 03-5713-0000 | Discharge Pressure Switch | Max operating pressure 90 bar |               |

Certificate No: 273Cd to EN12094 Part 10

**ARGONITE Pressure Monitoring Devices**

| Product Name | Description         | System pressure (bar) | LPCB Ref. No. |
|--------------|---------------------|-----------------------|---------------|
| 01-7171-1500 | Pressure Gauge Unit | 150                   | 273Cd/15      |
| 01-7171-1200 | Pressure Gauge Unit | 200                   |               |
| 01-7171-1300 | Pressure Gauge Unit | 300                   |               |

Certificate No: 273Cd to a Schedule of Requirements

**ARGONITE C SERIES and ARGONITE Pressure Relief Devices**

| Product Name      | Description            | System pressure (bar) | LPCB Ref. No. |
|-------------------|------------------------|-----------------------|---------------|
| 01-6653-0001/0101 | Pressure Relief Device | 150                   | 273Cd/17      |
| 01-6653-0002/0102 | Pressure Relief Device | 200                   |               |
| 01-6653-0003/0103 | Pressure Relief Device | 300                   |               |

## **PART 4: SECTION 2.1**

### **GASEOUS SYSTEM COMPONENTS**

Certificate No: 273Cd to EN12094 part 13 and a Schedule of Requirements

#### **ARGONITE C SERIES and ARGONITE Pilot Line Equipment**

| Product Name | Description                      | Nominal bore (mm) | System pressure (bar) | LPCB Ref. No. |
|--------------|----------------------------------|-------------------|-----------------------|---------------|
| 01-6363-0000 | Pilot Line Check Valve           | 1/4" BSP          | 150, 200 & 300        | 273Cd/18      |
| 01-3388-0000 | Actuation Line Leak Bleeder Unit | -                 | 150, 200 & 300        |               |
| 15-8685-0651 | Actuation Line T-Piece           | DN5               | 150, 200 & 300        |               |
| 01-4130-000  | Actuation Line Cross             | DN5               | 150, 200 & 300        |               |

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Certificate No: 980Aa to EN 12094-10:2003

#### **Ceasefire Pressure gauges with switch**

| Product Name | Description                             | LPCB Ref. No. |
|--------------|---|---------------|
| TI-000826    | 0-60 bar range, 22.5 bar switch contact | 980Aa/01      |
| TI-000827    | 0-60 bar range, 22.5 bar switch contact |               |
| TI-000828    | 0-100 bar range, 38 bar switch contact  |               |
| TI-000829    | 0-100 bar range, 38 bar switch contact  |               |

Certificate No: 1239Ba to EN12094-4

#### **Ceasefire Container Valves DN33 and DN50 for use with HFC227ea.**

| Product Name | Description                                      | LPCB Ref. No. |
|--------------|--|---------------|
| SM-RM1994    | DN33 container valve 25 bar, (60 bar burst disc) | 1239Ba/01     |
| SM-RM2132    | DN33 container valve 42 bar, (95 bar burst disc) |               |
| SM-RM2121    | DN50 container valve 25 bar, (60 bar burst disc) |               |
| SM-RM2122    | DN50 container valve 42 bar, (95 bar burst disc) |               |

Certificate No: 1239Ba to EN12094-4

#### **Ceasefire Container Valve Actuators**

| Product Name | Description                           | LPCB Ref. No. |
|--------------|---------------------------------------|---------------|
| SM-RM1996    | Manual actuator                       | 1239Ba/02     |
| SM-RM2109    | Pneumatic/manual actuator             |               |
| SM-RM2166    | Pneumatic actuator                    |               |
| SM-RM2169    | Pneumatic/manual actuator (with plug) |               |
| SM-RM2167    | Pneumatic actuator (with plug)        |               |
| SM-RM2168    | Pneumatic actuator                    |               |
| SM-RM1995    | Solenoid actuator                     |               |

Certificate No: 1239Ba to EN12094-13

#### **Ceasefire Check Valves**

| Product Name | Description        | LPCB Ref. No. |
|--------------|--------------------|---------------|
| SM-RM2130    | DN50 HFCs (70 bar) | 1239Ba/03     |
| SM-RM2080    | DN33 HFCs (70 bar) |               |

Certificate No: 1239Ba to EN12094-8

**Ceasefire Pilot and Discharge Connectors**

| Product Name | Description   | LPCB Ref. No. |
|--------------|---|---------------|
| SM-RM2170x   | Pilot hose DN5 F/F end couplings, 150mm long                                    | 1239Ba/04     |
| SM-RM2192x   | Pilot hose DN5 M/F end couplings, 150mm long                                    |               |
| SM-RM2214x   | Straight discharge hose DN38 17/8 12UN F turnable/G 11/2 M, 300mm long          |               |
| SM-RM2226x   | Discharge hose with 90° bend DN38 – 17/8" 12UN F turnable/G 11/2" M, 350mm long |               |
| SM-RM2237x   | Straight discharge hose DN51 – M24 x1.5mm/G ¾" 340mm long                       |               |
| SM-RM2126x   | Discharge hose with 90° bend, DN51 – M24 x1.5mm/G ¾" 400mm long                 |               |

Certificate No: 1329f to FprEN12094-7 and LPCB schedule of requirements

**Ceasefire Nozzles for HFC227ea.**

| Product Name | Description            | LPCB Ref. No. |
|--------------|------------------------|---------------|
| XE115008     | 15 NB Discharge nozzle | 1329f/01      |
| XE115009     | 20 NB Discharge nozzle |               |
| XE115010     | 25 NB Discharge nozzle |               |
| XE115011     | 32 NB Discharge nozzle |               |
| XE115012     | 40 NB Discharge nozzle |               |
| XE115013     | 50 NB Discharge nozzle |               |

Note:  
180° and 360° nozzles

Certificate No: 1329f to an LPCB schedule of requirements

**Ceasefire Manifolds**

| Product Name      | Description          | LPCB Ref. No. |
|-------------------|----------------------|---------------|
| CF/Manifold/L-002 | 80 NB 2-Way Manifold | 1329f/02      |
| CF/Manifold/L-003 | 80 NB 3-Way Manifold |               |
| CF/Manifold/L-004 | 80 NB 4-Way Manifold |               |

Note:  
All manifolds are supplied with sockets to accept either DN33 or DN50 check valves

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Certificate No: 724a to EN 12094-4

**Ceodeux CO2 Container valves**

| Product Name | Description                     | LPCB Ref. No. |
|--------------|---------------------------------|---------------|
| B0480 0005   | CO <sub>2</sub> Container Valve | 724a/01       |
| B0480 0007   | CO <sub>2</sub> Container Valve |               |
| B0480 0106   | CO <sub>2</sub> Container Valve |               |
| B0480 0107   | CO <sub>2</sub> Container Valve |               |
| B0480 0108   | CO <sub>2</sub> Container Valve |               |
| B0480 0110   | CO <sub>2</sub> Container Valve |               |
| B0480 0111   | CO <sub>2</sub> Container Valve |               |
| B0480 0112   | CO <sub>2</sub> Container Valve |               |
| B0480 0113   | CO <sub>2</sub> Container Valve |               |

## **PART 4: SECTION 2.1**

### **GASEOUS SYSTEM COMPONENTS**

Certificate No: 724a to EN 12094-4

#### ***Ceodeux 200 bar Inert Container valves***

| <b>Product Name</b> | <b>Description</b>            | <b>LPCB Ref. No.</b> |
|---------------------|-------------------------------|----------------------|
| B0480 1208          | 200 bar Inert Container Valve | 724a/02              |
| B0480 1209          | 200 bar Inert Container Valve |                      |
| B0480 1210          | 200 bar Inert Container Valve |                      |
| B0480 1211          | 200 bar Inert Container Valve |                      |
| B0480 1212          | 200 bar Inert Container Valve |                      |
| B0480 1213          | 200 bar Inert Container Valve |                      |
| B0480 1219          | 200 bar Inert Container Valve |                      |

Certificate No: 724a to EN 12094-4

#### ***Ceodeux 300 bar Inert Container valves***

| <b>Product Name</b> | <b>Description</b>            | <b>LPCB Ref. No.</b> |
|---------------------|-------------------------------|----------------------|
| B0480 2007          | 300 bar Inert Container Valve | 724a/03              |
| B0480 2010          | 300 bar Inert Container Valve |                      |
| B0480 2012          | 300 bar Inert Container Valve |                      |
| B0480 2014          | 300 bar Inert Container Valve |                      |
| B0480 2021          | 300 bar Inert Container Valve |                      |

Certificate No: 724a to EN 12094-4

#### ***Ceodeux Inert Container Valves Discharge Regulator***

| <b>Product Name</b> | <b>Description</b>                             | <b>LPCB Ref. No.</b> |
|---------------------|--|----------------------|
| B08400002           | Inertech Discharge Constant Pressure Regulator | 724a/05              |
| B08400003           | Inertech Discharge Constant Pressure Regulator |                      |
| B08400004           | Inertech Discharge Constant Pressure Regulator |                      |
| B08400005           | Inertech Discharge Constant Pressure Regulator |                      |
| B08400006           | Inertech Discharge Constant Pressure Regulator |                      |
| B08400007           | Inertech Discharge Constant Pressure Regulator |                      |
| B08400009           | Inertech Discharge Constant Pressure Regulator |                      |
| NF311250            | Discharge Constant Pressure Regulator          |                      |

Certificate No: 724a to EN 12094-4

#### ***Ceodeux Actuators***

| <b>Product Name</b> | <b>Description</b>          | <b>LPCB Ref. No.</b> |
|---------------------|-----------------------------|----------------------|
| B04420092           | Pneumatic / Manual Actuator | 724a/04              |
| B04420093           | Pneumatic Actuator          |                      |
| B04420096           | Pneumatic Actuator          |                      |
| B04420097           | Pneumatic Actuator          |                      |
| B04425131           | Electrical Actuator         |                      |
| B04425132           | Electrical Actuator         |                      |
| B04425146           | Electrical Actuator         |                      |
| B04425147           | Electrical Actuator         |                      |
| B04425148           | Electrical Actuator         |                      |
| B04425149           | Electrical Actuator         |                      |
| B04420065           | Pneumatic / Manual Actuator |                      |
| B04420066           | Pneumatic Actuator          |                      |
| B04420076           | Pneumatic Actuator          |                      |
| B04420081           | Pneumatic Actuator          |                      |
| B04420082           | Pneumatic Actuator          |                      |
| B04420083           | Pneumatic / Manual Actuator |                      |
| B04425137           | Electrical Actuator         |                      |

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**Certificate No: 1222f to an LPCB Schedule of requirements**

***Inertech Manifolds***

| Product Name  | Description       | System pressure (bar) | LPCB Ref. No. |
|---|-------------------|-----------------------|---------------|
| NF33x <sup>1</sup> x <sup>2</sup> x <sup>3</sup> x <sup>4</sup> | Inertech Manifold | 60                    | 1222f/01      |

According to the following:

x<sup>1</sup> = 5 for 267 +/- 5mm or 6 for 356 +/- 5mm diameter cylinders

xx<sup>2</sup> = 50 for DN50 or 80 for DN80

x<sup>3</sup> = 1 for single row or 2 for double row

x<sup>4</sup> = blank for BSPT or N for NPT

**Notes:**

Inertech manifolds are only for use with Inertech container valves when fitted with the 60 bar constant discharge regulator (Model Ref NF311250).

**Eurotech227, Eurosafe227, Eurotech1230 & Eurosafe1230 Fire Fighting Components**

- This range of equipment is suitable for storage temperatures of -20°C to 50°C and is approved for use with HFC227ea and FK 5-1-12 (Novec™ 1230)
- HFC227ea equipment is approved for use in conjunction with Eurotech Fire Protection Ltd Design Manual Reference 'Eurotech Fire HFC227 Manual' - Issue 13-03
- FK 5-1-12 equipment is approved for use in conjunction with Eurotech Fire Protection Ltd Design Manual Reference 'Eurotech Fire Novec1230 Manual' - Issue 13-04
- Nominal system pressure for HFC227ea components at 20°C is stated at 25 bar or 42 bar.
- Nominal system pressure for FK 5-1-12 components at 20°C is stated at 25 bar or 42 bar.

**Certificate No: 1222b to EN 12094-4**

***Eurotech227, Eurosafe227, Eurotech1230 & Eurosafe1230 Container Valves***

| Product Name | Description  | LPCB Ref. No. |
|--------------|--|---------------|
| NF21330x (1) | 33mm Container Valve                                 | 1222b/01      |
| NF21331x (1) | 33mm Container Valve with Integral Solenoid Actuator | 1222b/02      |
| NF21490x (1) | 49mm Container Valve                                 | 1222b/03      |
| NF21491x (1) | 49mm Container Valve with Integral Solenoid Actuator | 1222b/04      |

- Where 'x' in container valve part number is replaced with '2' for 25 bar nominal charge pressure or '4' for 42 bar nominal charge pressure.

**Certificate No: 1222b to EN 12094-8**

***Eurotech227, Eurosafe227, Eurotech1230 & Eurosafe1230 Flexible Connectors***

| Product Name  | Description                            | LPCB Ref. No. |
|---------------|--|---------------|
| NF271xxx (1)  | Pilot hose (Type 3 Connector)          | 1222b/09      |
| NF2333xxx (1) | 33mm Discharge hose (Type 1 Connector) | 1222b/10      |
| NF2349xxx (1) | 49mm Discharge hose (Type 1 Connector) | 1222b/11      |

**Notes:**

- Where 'xxx' in connector part number is replaced with the connector length in mm, up to a maximum of 999mm.

## **PART 4: SECTION 2.1**

### **GASEOUS SYSTEM COMPONENTS**

Certificate No: 1222b to EN 12094-13

#### ***Eurotech227, Eurosafe227, Eurotech1230 & Eurosafe1230 Check and Non Return Valves***

| <b>Product Name</b> | <b>Description</b>         | <b>LPCB Ref. No.</b> |
|---------------------|----------------------------|----------------------|
| NF2433x (2)         | 33mm Discharge Check Valve | 1222b/12             |
| NF2449x (2)         | 49mm Discharge Check Valve | 1222b/13             |

**Notes:**

- Where 'x' in connector part number is replaced with '1' for BSPT thread or '2' for NPT thread.

Certificate No: 1222c to prEN 12094-7

#### ***Eurotech227, Eurosafe227, Eurotech1230 & Eurosafe1230 Nozzles***

| <b>Product Name</b> | <b>Description</b> | <b>LPCB Ref. No.</b> |
|---------------------|--------------------|----------------------|
| NF25152x            | 15mm Nozzle BSPP   | 1222c/01             |
| NF25202x            | 20mm Nozzle BSPP   | 1222c/02             |
| NF25252x            | 25mm Nozzle BSPP   | 1222c/03             |
| NF25322x            | 32mm Nozzle BSPP   | 1222c/04             |
| NF25402x            | 40mm Nozzle BSPP   | 1222c/05             |
| NF25502x            | 50mm Nozzle BSPP   | 1222c/06             |
| NF25152xN           | 15mm Nozzle NPT    | 1222c/01             |
| NF25202xN           | 20mm Nozzle NPT    | 1222c/02             |
| NF25252xN           | 25mm Nozzle NPT    | 1222c/03             |
| NF25322xN           | 32mm Nozzle NPT    | 1222c/04             |
| NF25402xN           | 40mm Nozzle NPT    | 1222c/05             |
| NF25502xN           | 50mm Nozzle NPT    | 1222c/06             |

#### ***Inertech Firefighting Components***

- This Range of equipment is suitable for storage temperatures of -20°C to 50°C and is approved for use with IG-01, IG-55, IG-100 and IG-541.
- Inertech equipment is approved for use in conjunction with Eurotech Fire Protection Ltd Design Manual Reference 'Eurotech Inertech Manual' Issue June 13
- Nominal system pressure for Inertech components at 15°C is stated at 200 bar or 300 bar

Certificate No: 1222d to EN 12094-4

#### ***Inertech Container Valves and Regulator***

| <b>Product Name</b> | <b>Description</b>                             | <b>LPCB Ref. No.</b> |
|---------------------|--|----------------------|
| NF311202            | Inertech 200 bar Container Valve               | 1222d/02             |
| NF311203            | Inertech 300 bar Container Valve               | 1222d/03             |
| NF311250            | Inertech Discharge Constant Pressure Regulator | 1222d/05             |

Certificate No: 1222d to EN 12094-4

#### ***Eurotech227, Eurosafe227, Eurotech1230, Eurosafe1230 & Inertech Container Valve Actuators***

| <b>Product Name</b> | <b>Description</b>                       | <b>LPCB Ref. No.</b> |
|---------------------|--|----------------------|
| NF26010             | Solenoid Actuator                        | 1222d/04             |
| NF26011             | Solenoid Actuator with reverse EMF diode |                      |
| NF26020             | Pneumatic Actuator                       |                      |
| NF26030             | Pneumatic/Manual Actuator                |                      |

Certificate No: 1222b to EN 12094-8



***Inertech Flexible Connectors***

| Product Name  | Description             | LPCB Ref. No. |
|---------------|-------------------------|---------------|
| NF3312xxx (1) | Inertech Discharge Hose | 1222b/14      |
| NF370xxx (1)  | Inertech Actuation Hose | 1222b/15      |

**Note:**

1. Where 'xxx' in connector part number is replaced with the connector length in mm; i.e. 300, 400 and 500mm for discharge connectors and 350, 450 and 600mm for actuation connectors.

**Certificate No: 1222b to EN 12094-13**

***Inertech Check Valve***

| Product Name | Description          | LPCB Ref. No. |
|--------------|----------------------|---------------|
| NF34131      | Inertech Check Valve | 1222b/16      |

**Certificate No: 1222c to prEN 12094-7**

***Inertech Nozzles***

| Product Name | Description                      | LPCB Ref. No. |
|--------------|----------------------------------|---------------|
| NF35151 (1)  | Inertech Nozzle DN15 180° & 360° | 1222c/07      |
| NF35152 (1)  | Inertech Nozzle DN15 180° & 360° |               |
| NF35201      | Inertech Nozzle DN20 180° & 360° | 1222c/08      |
| NF35251      | Inertech Nozzle DN25 180° & 360° | 1222c/09      |
| NF35321      | Inertech Nozzle DN32 180° & 360° | 1222c/10      |
| NF35401      | Inertech Nozzle DN40 180° & 360° | 1222c/11      |
| NF35501      | Inertech Nozzle DN50 180° & 360° | 1222c/12      |

**Certificate No: 1222b to EN 12094-5**

***Selector Valves***

| Product Name | Description                  | Working Pressure | LPCB Ref. No. |
|--------------|------------------------------|------------------|---------------|
| NF34015 (1)  | Inertech Selector Valve DN15 | 60 bar           | 1222b/17      |
| NF34020 (1)  | Inertech Selector Valve DN20 | 60 bar           |               |
| NF34025 (1)  | Inertech Selector Valve DN25 | 60 bar           |               |
| NF34032 (1)  | Inertech Selector Valve DN32 | 60 bar           |               |
| NF34040 (1)  | Inertech Selector Valve DN40 | 60 bar           |               |
| NF34050 (1)  | Inertech Selector Valve DN50 | 60 bar           |               |

**Firefighting Components - Selector Valves:**

a. This range of equipment is suitable for storage temperatures of -20°C to 50°C and is approved for use with IG-01, IG-55, IG-100 and IG-541.

b. Inertech equipment is approved for use in conjunction with Eurotech Fire Protection Ltd Design Manual Reference 'Eurotech Inertech Manual' Issue June 2013.

c. Nominal system pressure for Inertech components at 15°C is stated at 200 bar or 300 bar.

d. This range of equipment is suitable for storage temperatures of -20°C to 50°C and is approved for use with HFC227ea and FK 5-1-12 (Novec™ 1230).

e. HFC227ea equipment is approved for use in conjunction with 'Eurotech Fire Protection Ltd Design Manual Reference 'Eurotech Fire HFC227 Manual' - Issue 13-03.

f. FK 5-1-12 equipment is approved for use in conjunction with 'Eurotech Fire Protection Ltd Design Manual Reference 'Eurotech Fire Novec1230 Manual' - Issue 13-04.

g. Nominal system pressure for HFC227ea components at 20°C is stated at 25 bar or 42 bar. Nominal system pressure for FK 5-1-12 components at 20°C is stated at 25 bar or 42 bar.

**Notes:**

## **PART 4: SECTION 2.1**

### **GASEOUS SYSTEM COMPONENTS**

Selector valves are only for use with Inertech agents when the container valves are fitted with the 60 bar constant discharge regulator (Model Ref NF311250). The Working Pressure is specified as ≤ 60 bar for all agents and temperatures in accordance with the Note in Table 1 of EN 12094-5.

**Certificate No: 1222e to IS 7285-2:2004**

#### ***Inertech Cylinders - PESO (Seamless)***

| <b>Product Name</b>    | <b>Description</b>  | <b>LPCB Ref. No.</b> |
|------------------------|---|----------------------|
| 51152677-1-xxx (1,4,6) | Inertech 300 bar WP nominal 267mm diameter Seamless Cylinder (PESO) | 1222e/01             |
| 51173568-1-yyy (2,4,7) | Inertech 300 bar WP nominal 356mm diameter Seamless Cylinder (PESO) | 1222e/02             |
| 51126726-2-zzz (3,5,8) | Inertech 200 bar WP nominal 267mm diameter Seamless Cylinder (PESO) | 1222e/03             |

**Notes:**

1. Cylinders are approved for use in the Indian service market only in accordance with IS 7285-2:2004 by Chief Controller of Explosives (Reference G3(42)530/II) fitted with Valve Reference G3(4)201 [P/N NF311203]. The cylinders do not comply with European Directive 84/225/EEC or TPED.
2. Cylinders are approved for use in the Indian service market only in accordance with IS 7285-2:2004 by Chief Controller of Explosives (Reference G3(42)530/III) fitted with Valve Reference G3(4)201. [P/N NF311203] The cylinders do not comply with European Directive 84/225/EEC or TPED.
3. Cylinders are approved for use in the Indian service market only in accordance with IS 7285-2:2004 by Chief Controller of Explosives (Reference G3(42)530/I) fitted with Valve Reference G3(4)201. [P/N NF311203] The cylinders do not comply with European Directive 84/225/EEC or TPED.
4. Maximum Working Pressure 300 Bar @ 15°C.
5. Maximum Working Pressure 200 Bar @ 15°C.
6. Where, 'xxx' in the seamless cylinder part number is replaced with the cylinder capacity in litres; applicable sizes are 90, 95 or 100 litres only.
7. Where, 'yyy' in the seamless cylinder part number is replaced with the cylinder capacity in litres; applicable sizes are 120, 125, 130, 135, 140, 145, 150, 155, 160, 165, 170, 175, 180 litres only.
8. Where, 'zzz' in the seamless cylinder part number is replaced with the cylinder capacity in litres; applicable sizes are 35, 40, 45, 50, 56, 60, 68, 80 litres only.

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**Certificate No: 980Ba to EN12094-10**

#### ***Pressure gauges with switch***

| <b>Product Name</b> | <b>Description</b> | <b>LPCB Ref. No.</b> |
|---------------------|--------------------|----------------------|
| 02-12391            | 0-40 bar range     | 980Ba/01             |
| 02-14229            | 0-250 bar range    |                      |
| 02-14694            | 0-250 bar range    |                      |
| 02-12562            | 0-250 bar range    |                      |
| 02-12561            | 0-315 bar range    |                      |
| 02-12560            | 0-400 bar range    |                      |

**Certificate No: 331v**

#### ***Prolnert Fixed Gas System Components***

- This range of equipment is suitable for storage from -20° to 50°C
- This range of equipment is approved for use in conjunction with Fike Design, Installation, Maintenance and User Manual P/N 06-677 rev 2, 06-678 rev 2, 06-679 rev 2 & 06-680 rev 2

## **PART 4: SECTION 2.1**

### **GASEOUS SYSTEM COMPONENTS**

- Prolnert is supplied in Containers at either 200 or 300 bar @ 15°C
- These components are suitable for use with IG-01, IG-55, IG-100 and IG-541
- System pressure downstream of container valves is specified as 42 bar nominal

**Certificate No: 331v**

#### ***PROINERT Container Valves***

| <b>Product Name</b> | <b>Description</b> | <b>LPCB Ref. No.</b> |
|---------------------|--------------------|----------------------|
| IG71-001-1          | 300 bar            | 331v/01              |
| IG71-001-2          | 200 bar            |                      |

- This range of equipment is suitable for storage from -20° to 50°C
- This range of equipment is approved for use in conjunction with Fike Design, Installation, Maintenance and User Manual P/N 06-677 rev 2, 06-678 rev 2, 06-679 rev 2 & 06-680 rev 2
- Prolnert is supplied in Containers at either 200 or 300 bar @ 15°C
- These components are suitable for use with IG-01, IG-55, IG-100 and IG-541
- System pressure downstream of container valves is specified as 42 bar nominal

**Certificate No: 331v**

#### ***PROINERT Container Valve Assemblies***

| <b>Product Name</b> | <b>Description</b> | <b>LPCB Ref. No.</b> |
|---------------------|--------------------|----------------------|
| IG71-006-300        | 10L-300 bar        | 331v/09              |
| IG71-067-200        | 67L-200 bar        |                      |
| IG71-080-200-01     | 80L-200 bar        |                      |
| IG71-080-300-01     | 80L-300 bar        |                      |
| IG71-080-200-55     | 80L-200 bar        |                      |
| IG71-080-300-55     | 80L-300 bar        |                      |
| IG71-080-200-100    | 80L-200 bar        |                      |
| IG71-080-300-100    | 80L-300 bar        |                      |
| IG71-080-200-541    | 80L-200 bar        |                      |
| IG71-080-300-541    | 80L-300 bar        |                      |
| IG71-103-200-55     | 80L-300 bar        |                      |
| IG71-103-300-55     | 80L-300 bar        |                      |
| IG71-103-200-100    | 80L-200 bar        |                      |
| IG71-103-300-100    | 80L-300 bar        |                      |
| IG71-103-200-541    | 80L-200 bar        |                      |
| IG71-103-300-541    | 80L-300 bar        |                      |
| IG71-140-200-01     | 140L-200 bar       |                      |
| IG71-140-300-01     | 140L-300 bar       |                      |
| IG71-140-200-55     | 140L-200 bar       |                      |
| IG71-140-300-55     | 140L-300 bar       |                      |
| IG71-140-200-100    | 140L-200 bar       |                      |
| IG71-140-300-100    | 140L-300 bar       |                      |
| IG71-140-200-541    | 140L-200 bar       |                      |
| IG71-140-300-541    | 140L-300 bar       |                      |

- This range of equipment is suitable for storage from -20° to 50°C
- This range of equipment is approved for use in conjunction with Fike Design, Installation, Maintenance and User Manual P/N 06-677 rev 2, 06-678 rev 2, 06-679 rev 2 & 06-680 rev 2
- Prolnert is supplied in Containers at either 200 or 300 bar @ 15°C
- These components are suitable for use with IG-01, IG-55, IG-100 and IG-541
- System pressure downstream of container valves is specified as 42 bar

**Certificate No: 331v**

#### ***PROINERT Actuators***

| <b>Product Name</b> | <b>Description</b>         | <b>LPCB Ref. No.</b> |
|---------------------|----------------------------|----------------------|
| IG71-002            | Pneumatic actuator         | 331v/02              |
| 02-13571            | Electrical/manual actuator |                      |

## **PART 4: SECTION 2.1**

### **GASEOUS SYSTEM COMPONENTS**

- This range of equipment is suitable for storage from -20° to 50°C
- This range of equipment is approved for use in conjunction with Fike Design, Installation, Maintenance and User Manual P/N 06-677 rev 2, 06-678 rev 2, 06-679 rev 2 & 06-680 rev 2
- Prolnert is supplied in Containers at either 200 or 300 bar @ 15°C
- These components are suitable for use with IG-01, IG-55, IG-100 and IG-541
- System pressure downstream of container valves is specified as 42 bar

**Certificate No: 331v**

#### ***PROINERT Pressure Gauges***

| <b>Product Name</b> | <b>Description</b> | <b>LPCB Ref. No.</b> |
|---------------------|--------------------|----------------------|
| 02-14229/14964      | 200 bar gauge      | 331v/03              |
| 02-12562            | 160 bar gauge      |                      |
| 02-12560            | 300 bar gauge      |                      |
| 02-12561            | 200 bar gauge      |                      |

- This range of equipment is suitable for storage from -20° to 50°C
- This range of equipment is approved for use in conjunction with Fike Design, Installation, Maintenance and User Manual P/N 06-677 rev 2, 06-678 rev 2, 06-679 rev 2 & 06-680 rev 2
- Prolnert is supplied in Containers at either 200 or 300 bar @ 15°C
- These components are suitable for use with IG-01, IG-55, IG-100 and IG-541
- System pressure downstream of container valves is specified as 42 bar nominal

**Certificate No: 331v**

#### ***PROINERT Pilot Actuation Packages***

| <b>Product Name</b> | <b>Description</b>  | <b>LPCB Ref. No.</b> |
|---------------------|---|----------------------|
| 70-325-2 (1)        | Nitrogen Actuator Assembly (Normally Open Pressure Switch Contacts)   | 331v/04              |
| 70-325-4 (1)        | Nitrogen Actuator Assembly (Normally Closed Pressure Switch Contacts) |                      |
| IG71-120 (1)        | Relay Actuator  |                      |
| IG71-118            | Primary ProInert Actuator Kit   |                      |
| IG71-119            | Secondary ProInert Actuator Kit                                       |                      |

- This range of equipment is suitable for storage from -20° to 50°C
- This range of equipment is approved for use in conjunction with Fike Design, Installation, Maintenance and User Manual P/N 06-677 rev 2, 06-678 rev 2, 06-679 rev 2 & 06-680 rev 2
- Prolnert is supplied in Containers at either 200 or 300 bar @ 15°C
- These components are suitable for use with IG-01, IG-55, IG-100 and IG-541
- System pressure downstream of container valves is specified as 42 bar nominal

**Note:**

(1) These items are also approved for use with Fike clean agent container valves 331x/03, 331x/04 and 331x/05

**Certificate No: 331v**

#### ***PROINERT Flexible Connectors***

| <b>Product Name</b> | <b>Description</b>               | <b>LPCB Ref. No.</b> |
|---------------------|----------------------------------|----------------------|
| 02-10721            | Discharge hose - Inert gas       | 331v/05              |
| 02-10798            | Pneumatic hose - Valve actuator  |                      |
| 02-10801            | Pneumatic hose - Pilot actuator  |                      |
| 02-13713            | Pneumatic hose - Pilot connector |                      |

- This range of equipment is suitable for storage from -20° to 50°C
- This range of equipment is approved for use in conjunction with Fike Design, Installation, Maintenance and User Manual P/N 06-677 rev 2, 06-678 rev 2, 06-679 rev 2 & 06-680 rev 2
- Prolnert is supplied in Containers at either 200 or 300 bar @ 15°C

## **PART 4: SECTION 2.1**

### GASEOUS SYSTEM COMPONENTS

- These components are suitable for use with IG-01, IG-55, IG-100 and IG-541
- System pressure downstream of container valves is specified as 42 bar nominal

**Certificate No: 331v to EN 12094-13**

#### **PROINERT Check Valve**

| Product Name | Description      | LPCB Ref. No. |
|--------------|------------------|---------------|
| IG71-008     | Check valve      | 331v/06       |
| 02-10927     | Non-Return Valve |               |

- This range of equipment is suitable for storage from -20° to 50°C
- This range of equipment is approved for use in conjunction with Fike Design, Installation, Maintenance and User Manual P/N 06-677 rev 2, 06-678 rev 2, 06-679 rev 2 & 06-680 rev 2
- ProInert is supplied in Containers at either 200 or 300 bar @ 15°C
- These components are suitable for use with IG-01, IG-55, IG-100 and IG-541
- System pressure downstream of container valves is specified as 42 bar nominal

**Certificate No: 331v**

#### **PROINERT Manifold**

| Product Name | Description    | LPCB Ref. No. |
|--------------|----------------|---------------|
| IG71-004-2   | 2-way manifold | 331v/07       |
| IG71-004-3   | 3-way manifold |               |
| IG71-004-4   | 4-way manifold |               |
| IG71-004-5   | 5-way manifold |               |

- This range of equipment is suitable for storage from -20° to 50°C
- This range of equipment is approved for use in conjunction with Fike Design, Installation, Maintenance and User Manual P/N 06-677 rev 2, 06-678 rev 2, 06-679 rev 2 & 06-680 rev 2
- ProInert is supplied in Containers at either 200 or 300 bar @ 15°C
- These components are suitable for use with IG-01, IG-55, IG-100 and IG-541
- System pressure downstream of container valves is specified as 42 bar nominal

**Certificate No: 331v**

#### **PROINERT Nozzles**

| Product Name | Description | LPCB Ref. No. |
|--------------|-------------|---------------|
| IG71-010-XXX | 15mm        | 331v/08       |
| IG71-011-XXX | 20mm        |               |
| IG71-012-XXX | 25mm        |               |
| IG71-013-XXX | 40mm        |               |

- This range of equipment is suitable for storage from -20° to 50°C
- This range of equipment is approved for use in conjunction with Fike Design, Installation, Maintenance and User Manual P/N 06-677 rev 2, 06-678 rev 2, 06-679 rev 2 & 06-680 rev 2
- ProInert is supplied in Containers at either 200 or 300 bar @ 15°C
- These components are suitable for use with IG-01, IG-55, IG-100 and IG-541
- System pressure downstream of container valves is specified as 42 bar nominal

**Certificate No: 331v**

#### **PROINERT Selector Valves**

| Product Name | Description         | Working Pressure(bar) | LPCB Ref. No. |
|--------------|---------------------|-----------------------|---------------|
| IG71-025-SV3 | 25mm selector valve | 64                    | 331v/10       |
| IG71-040-SV3 | 40mm selector valve | 64                    |               |
| IG71-050-SV3 | 50mm selector valve | 64                    |               |
| IG71-080-SV3 | 80mm selector valve | 64                    |               |

## **PART 4: SECTION 2.1**

### **GASEOUS SYSTEM COMPONENTS**

- This range of equipment is suitable for storage from -20° to 50°C
- This range of equipment is approved for use in conjunction with Fike Design, Installation, Maintenance and User Manual P/N 06-677 rev 2, 06-678 rev 2, 06-679 rev 2 & 06-680 rev 2
- Prolnert is supplied in Containers at either 200 or 300 bar @ 15°C
- These components are suitable for use with IG-01, IG-55, IG-100 and IG-541
- System pressure downstream of container valves is specified as 42 bar nominal
- A manifold relief valve, rated at 55 bar, must be incorporated in any Fike Prolnert system that includes any of these selector valves.
- Minimum pneumatic operating pressure required is 8 bar.

Certificate No: 331x

#### ***CLEAN AGENT Pilot Actuation Packages***

| <b>Product Name</b> | <b>Description</b>                           | <b>LPCB Ref. No.</b> |
|---------------------|--|----------------------|
| 70-339              | Primary Clean Agent Actuator Completer Kit   | 331x/01              |
| 70-340              | Secondary Clean Agent Actuator Completer Kit |                      |

Certificate No: 331x

#### ***CLEAN AGENT Flexible connectors***

| <b>Product Name</b> | <b>Description</b>             | <b>LPCB Ref. No.</b> |
|---------------------|--------------------------------|----------------------|
| 02-4977             | Actuator hose - Pilot Actuator | 331x/02              |

Certificate No: 331x

#### ***CLEAN AGENT 12mm Container Valve***

| <b>Product Name</b> | <b>Description</b>          | <b>LPCB Ref. No.</b> |
|---------------------|-----------------------------|----------------------|
| 70-187-X            | 12mm Container Master Valve | 331x/03              |
| 70-188              | 12mm Container Slave Valve  |                      |

Certificate No: 331x

#### ***CLEAN AGENT SAV Container Valve***

| <b>Product Name</b> | <b>Description</b>  | <b>LPCB Ref. No.</b> |
|---------------------|---------------------|----------------------|
| 70-144-X            | SAV Container Valve | 331x/04              |

Certificate No: 331x

#### ***CLEAN AGENT Impulse Container Valves***

| <b>Product Name</b> | <b>Description</b>         | <b>LPCB Ref. No.</b> |
|---------------------|----------------------------|----------------------|
| 70-242 (1)          | 1" Impulse Container Valve | 331x/05              |
| 70-243 (1)          | 3" Impulse Container Valve |                      |
| 70-354 (2)          | 1" Impulse Container Valve |                      |
| 70-355 (2)          | 3" Impulse Container Valve |                      |

Certificate No: 331x

#### ***CLEAN AGENT Container Valve Actuators***

| <b>Product Name</b> | <b>Description</b>            | <b>LPCB Ref. No.</b> |
|---------------------|-------------------------------|----------------------|
| 02-12728-E          | Electronic/manual actuator    | 331x/06              |
| 02-12729            | Pneumatic actuator            |                      |
| 70-290              | Impulse Releasing Interface   |                      |
| 02-14231            | Direct Impulse Valve actuator |                      |

Certificate No: 331x

**CLEAN AGENT Impulse Valve and Container Assemblies**

| Product Name   | Description   | LPCB Ref. No. |
|----------------|---|---------------|
| 70-348         | 1 Valve 5L HFC227ea   | 331x/07       |
| 70-349         | 1 Valve 9L HFC227ea   |               |
| 70-350         | 1 Valve 16L HFC227ea  |               |
| 70-278         | 1" Valve 26L HFC227ea   |               |
| 70-255         | 1" Valve 45L HFC227ea   |               |
| 70-256         | 3" Valve 83L HFC227ea   |               |
| 70-257         | 3" Valve 150L HFC227ea  |               |
| 70-377-R-NA-NV | 1" Valve 5L – 3M™ Novec™ 1230 Fire Protection Fluid (FK-5-1-12)   |               |
| 70-378-R-NA-NV | 1" Valve 9L – 3M™ Novec™ 1230 Fire Protection Fluid (FK-5-1-12)   |               |
| 70-379-R-NA-NV | 1" Valve 16L – 3M™ Novec™ 1230 Fire Protection Fluid (FK-5-1-12)  |               |
| 70-380-R-NA-NV | 1" Valve 26L – 3M™ Novec™ 1230 Fire Protection Fluid (FK-5-1-12)  |               |
| 70-381-R-NA-NV | 1" Valve 45L – 3M™ Novec™ 1230 Fire Protection Fluid (FK-5-1-12)  |               |
| 70-382-R-NA-NV | 3" Valve 83L – 3M™ Novec™ 1230 Fire Protection Fluid (FK-5-1-12)  |               |
| 70-383-R-NA-NV | 3" Valve 150L – 3M™ Novec™ 1230 Fire Protection Fluid (FK-5-1-12) |               |

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Certificate No: 1287a

**Fire Eater Containers and Hand Wheel Valve Assemblies for INERGEN (200 bar) and (300 bar)**

| Product Name | Description                  | Hand Wheel Valve Outlet Thread | LPCB Ref. No. |
|--------------|------------------------------|--------------------------------|---------------|
| 200604       | 20 litre cylinder (200 bar)  | W24.32 x 1¼                    | 1287a/01      |
| 200606       | 30 litre cylinder (200 bar)  | W24.32 x 1¼                    |               |
| 200610       | 50 litre cylinder (200 bar)  | W24.32 x 1¼                    |               |
| 200616       | 80 litre cylinder (200 bar)  | W24.32 x 1¼                    |               |
| 200609       | 30 litre cylinder (300 bar)  | M25 x 1.5                      |               |
| 200615       | 50 litre cylinder (300 bar)  | M25 x 1.5                      |               |
| 200624       | 80 litre cylinder (300 bar)  | M25 x 1.5                      |               |
| 200642       | 140 litre cylinder (300 bar) | M25 x 1.5                      |               |

1. This range of equipment is suitable for storage and environmental conditions from -20°C to +65°C and is approved for use with INERGEN (IG541).
2. Nominal system pressure is specified as 200 bar and 300 bar at 15°C.

Certificate No: 1287a to EN12094-4

**Fire Eater Discharge Valves**

| Product Name | Description                                   | LPCB Ref. No. |
|--------------|---|---------------|
| 305421       | Ci IV8 container valve (200 bar)              | 1287a/02      |
| 305411       | Ci IV8 container valve (300 bar)              |               |
| 305420       | Ci IV8 container valve (200 bar) + Manoswitch | 1287a/03      |
| 305410       | Ci IV8 container valve (300 bar) + Manoswitch |               |

1. This range of equipment is suitable for storage and environmental conditions from -20°C to +65°C and is approved for use with INERGEN (IG541).
2. Nominal system pressure is specified as 200 bar and 300 bar at 15°C.
3. The above discharge valves may be actuated by any of the actuators listed below or by built-in pneumatic actuator via pilot or manifold back-pressure.

## **PART 4: SECTION 2.1**

### **GASEOUS SYSTEM COMPONENTS**

Certificate No: 1287a to EN12094-4

#### **Fire Eater Discharge Valve Actuators**

| <b>Product Name</b> | <b>Description</b>                   | <b>LPCB Ref. No.</b> |
|---------------------|--------------------------------------|----------------------|
| 305450              | Ci IS8B solenoid actuator            | 1287a/04             |
| 305451              | Ci IS8B solenoid and manual actuator |                      |
| 305442              | Ci IM8 manual actuator               |                      |
| 305448              | Ci PA8 pneumatic actuator            |                      |

1. This range of equipment is suitable for storage and environmental conditions from -20°C to +65°C and is approved for use with INERGEN (IG541).
2. Nominal system pressure is specified as 200 bar and 300 bar at 15°C.

Certificate No: 1287a to EN12094-10

#### **Fire Eater Pressure Gauge and Switch**

| <b>Product Name</b> | <b>Description</b>   | <b>LPCB Ref. No.</b> |
|---------------------|----------------------|----------------------|
| 305373              | Manoswitch 0-284 bar | 1287a/05             |
| 305374              | Manoswitch 0-431 bar |                      |

1. This range of equipment is suitable for storage and environmental conditions from -20°C to +65°C and is approved for use with INERGEN (IG541).
2. Nominal system pressure is specified as 200 bar and 300 bar at 15°C.

Certificate No: 1287a to EN12094-8

#### **Fire Eater Connectors**

| <b>Product Name</b> | <b>Description</b>                                    | <b>LPCB Ref. No.</b> |
|---------------------|---|----------------------|
| 303302              | Ci DN10 discharge hose with straight ends, 0.5 m      | 1287a/06             |
| 303304              | Ci DN10 discharge hose with straight ends, 1 m        |                      |
| 303306              | Ci DN10 discharge hose with straight ends, 1.5 m      |                      |
| 303308              | Ci DN10 discharge hose with straight ends, 2 m        |                      |
| 303309              | Ci DN10 discharge hose with straight ends, 2.5 m      |                      |
| 303311              | Ci DN10 discharge hose with straight ends, 3 m        |                      |
| 303313              | Ci DN10 discharge hose with straight ends, 4 m        |                      |
| 303102              | Ci DN10 discharge hose with 90° elbow one end, 0.5 m  |                      |
| 303104              | Ci DN10 discharge hose with 90° elbow one end, 1 m    |                      |
| 303106              | Ci DN10 discharge hose with 90° elbow one end, 1.5 m  |                      |
| 303108              | Ci DN10 discharge hose with 90° elbow one end, 2 m    |                      |
| 303109              | Ci DN10 discharge hose with 90° elbow one end, 2.5 m  |                      |
| 303111              | Ci DN10 discharge hose with 90° elbow one end, 3 m    |                      |
| 303113              | Ci DN10 discharge hose with 90° elbow one end, 4 m    |                      |
| 303162              | Ci DN6 pilot hose PA1 with straight ends, 0.18 m      | 1287a/07             |
| 303166              | Ci DN6 pilot hose PA1 with straight ends, 0.22 m      |                      |
| 303169              | Ci DN6 pilot hose PA1 with straight ends, 0.25 m      |                      |
| 303172              | Ci DN6 pilot hose PA1 with straight ends, 0.28 m      |                      |
| 303174              | Ci DN6 pilot hose PA1 with straight ends, 0.33 m      |                      |
| 303180              | Ci DN6 pilot hose PA1 with straight ends, 0.5 m       |                      |
| 205064              | Ci DN6 pilot hose PA1 with straight ends, 0.4 m       |                      |
| 205063              | Ci DN6 pilot hose PA1 with straight ends, 1.0 m       |                      |
| 303182              | Ci DN6 pilot hose PA2 with 90° elbow one end, 1 m     |                      |
| 303183              | Ci DN6 pilot hose PA2 with 90° elbow one end, 3 m     |                      |
| 303184              | Ci DN6 pilot hose PA2 with 90° elbow one end, 0.4 m   |                      |
| 303155              | Ci DN6 pilot hose PA3 with 90° elbow each end, 0.35 m |                      |
| 303156              | Ci DN6 pilot hose PA3 with 90° elbow each end, 0.45 m |                      |

1. This range of equipment is suitable for storage and environmental conditions from -20°C to +65°C and is approved for use with INERGEN (IG541).
2. Nominal system pressure is specified as 200 bar and 300 bar at 15°C.



Certificate No: 1287a to EN12094-13

**Fire Eater Manifold and Check Valve / Non Return Valve Assemblies**

| Product Name | Description                     | LPCB Ref. No. |
|--------------|---------------------------------|---------------|
| 3057xx       | Ci MT manifold assembly         | 1287a/08      |
| 30517n       | SV22 manifold kit               |               |
| 305302       | DN6 pilot line non-return valve |               |

xx = number of discharge connectors up to a maximum of 10. Each connection is fitted with an integral check valve device  
n = number of discharge connectors up to a maximum of 8. Each connection is fitted with an integral non-return valve device

1. This range of equipment is suitable for storage and environmental conditions from -20°C to +65°C and is approved for use with INERGEN (IG541).
2. Nominal system pressure is specified as 200 bar and 300 bar at 15°C.

Certificate No: 1287a to prEN12094-7 and LPCB schedule

**Fire Eater Nozzles**

| Product Name | Description                              | LPCB Ref. No. |
|--------------|--|---------------|
| 210203       | DN15 360° nozzle (1-3mm DN orifices) (1) | 1287a/09      |
| 210204       | DN15 360° nozzle (1)                     |               |
| 210206       | DN20 360° nozzle (1)                     |               |
| 210208       | DN25 360° nozzle (1)                     |               |
| 210210       | DN32 360° nozzle (1)                     |               |
| 210223       | DN15 360° nozzle (1-3mm DN orifices) (2) |               |
| 210224       | DN15 360° nozzle (2)                     |               |
| 210226       | DN20 360° nozzle (2)                     |               |
| 210228       | DN25 360° nozzle (2)                     |               |
| 210230       | DN32 360° nozzle (2)                     |               |
| 210123       | ½" IN nozzle silencer 112                |               |
| 210125       | ½" IN nozzle silencer                    |               |
| 210126       | ¾" IN nozzle silencer                    |               |
| 210128       | 1 IN nozzle silencer                     |               |

(1) = ISO7/1 thread  
(2) = NPT thread

1. This range of equipment is suitable for storage and environmental conditions from -20°C to +65°C and is approved for use with INERGEN (IG541).
2. Nominal system pressure is specified as 200 bar and 300 bar at 15°C.

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Certificate No: 1239a to EN12094-4

**Container Valves DN12**

| Product Name | Description                                       | LPCB Ref. No. |
|--------------|---|---------------|
| F2020001     | DN12 Container Valve 50 bar, HFC227ea & FK-5-1-12 | 1239a/01      |
| F2020003     | DN12 Container Valve 50 bar, HFC227ea & FK-5-1-12 |               |
| F2020005     | DN12 Container Valve 50 bar, HFC227ea & FK-5-1-12 |               |
| F2021000     | DN12 Container Valve 250 bar, CO <sub>2</sub>     |               |
| F2021001     | DN12 Container Valve 190 bar, CO <sub>2</sub>     |               |
| F2021002     | DN12 Container Valve 190 bar, CO <sub>2</sub>     |               |
| F2021003     | DN12 Container Valve 190 bar, CO <sub>2</sub>     |               |
| F2021004     | DN12 Container Valve 190 bar, CO <sub>2</sub>     |               |
| F2022000     | DN12 Container Valve 270 bar, Inert               |               |
| F2022001     | DN12 Container Valve 270 bar, Inert               |               |
| F2022002     | DN12 Container Valve 270 bar, Inert               |               |
| F2023000     | DN12 Container Valve 405 bar, Inert               |               |
| F2023001     | DN12 Container Valve 405 bar, Inert               |               |

## **PART 4: SECTION 2.1**

### **GASEOUS SYSTEM COMPONENTS**

| <b>Product Name</b> | <b>Description</b>                  | <b>LPCB Ref. No.</b> |
|---------------------|-------------------------------------|----------------------|
| F2023002            | DN12 Container Valve 405 bar, Inert |                      |
| F2023003            | DN12 Container Valve 405 bar, Inert |                      |

All above items to be used in accordance with the relevant Instruction Manual

**Certificate No: 1239a to EN12094-4**

#### **Container Valves DN33 and DN50 for use HFC125, HFC227ea & FK-5-1-12**

| <b>Product Name</b> | <b>Description</b>                               | <b>LPCB Ref. No.</b> |
|---------------------|--|----------------------|
| F2050003            | DN33 Container Valve 50 bar, (60 bar burst disc) | 1239a/03             |
| F2050004            | DN33 Container Valve 50 bar, (95 bar burst disc) |                      |
| F2050005            | DN33 Container Valve 50 bar, (95 bar burst disc) |                      |
| F2050006            | DN33 Container Valve 50 bar, (95 bar burst disc) |                      |
| F2050007            | DN33 Container Valve 50 bar, (60 bar burst disc) |                      |
| F2050008            | DN33 Container Valve 50 bar, (60 bar burst disc) |                      |
| F2050009            | DN33 Container Valve 50 bar, (95 bar burst disc) |                      |
| F2060004            | DN50 Container Valve 50 bar, (60 bar burst disc) | 1239a/04             |
| F2060005            | DN50 Container Valve 50 bar, (95 bar burst disc) |                      |
| F2060007            | DN50 Container Valve 50 bar, (95 bar burst disc) |                      |
| F2060008            | DN50 Container Valve 50 bar, (95 bar burst disc) |                      |
| F2060009            | DN50 Container Valve 50 bar, (60 bar burst disc) |                      |
| F2060010            | DN50 Container Valve 50 bar, (60 bar burst disc) |                      |
| F2060011            | DN50 Container Valve 50 bar, (95 bar burst disc) |                      |

All above items to be used in accordance with the relevant Instruction Manual

**Certificate No: 1239a to EN12094-4**

#### **Container Valve Actuators**

| <b>Product Name</b> | <b>Description</b>                     | <b>LPCB Ref. No.</b> |
|---------------------|--|----------------------|
| F1120004            | Electrical actuator                    | 1239a/02             |
| F1120005            | Manual actuator                        |                      |
| F1120006            | Pneumatic /manual actuator             |                      |
| F1120007            | Pneumatic actuator                     |                      |
| F1120008            | Pneumatic actuator                     |                      |
| F1120009            | Pneumatic /manual actuator (with plug) |                      |
| F1120010            | Pneumatic actuator (with plug)         |                      |
| F1120011            | Pneumatic actuator                     |                      |
| F1120015            | Pneumatic actuator                     |                      |
| F1120016            | Pneumatic actuator                     |                      |
| F1120019            | Pneumatic actuator                     |                      |
| F1120020            | Manual actuator                        |                      |
| F1120021            | Electrical actuator                    |                      |
| F1120023            | Pneumatic /manual actuator             |                      |
| F1120030            | Electrical actuator                    |                      |

All above items to be used in accordance with the relevant Instruction Manual

**Certificate No: 1239a to EN12094-8**

#### **Connectors**

| <b>Product Name</b> | <b>Description</b>   | <b>LPCB Ref. No.</b> |
|---------------------|--|----------------------|
| F104xxxx            | Pilot connector (type 3) inert gas (360 bar) DN5 150-1500mm      | 1239a/05             |
| F105xxxx            | Discharge connector (type 1) inert gas (360 bar) DN12 250-1200mm |                      |
| F106xxxx            | Discharge connector (type 1) inert gas (360 bar) DN16 250-1200mm |                      |
| F107xxxx            | Discharge connector (type 1) HFCs (70 bar) DN38 300-1500mm       |                      |
| F108xxxx            | Discharge connector (type 1) HFCs (70 bar) DN50 300-1500mm       |                      |

Note:

Various combinations of 0° and 90° end fittings are available for the above items

Certificate No: 1239a to EN12094-13

**Check Valves**

| Product Name | Description              | LPCB Ref. No. |
|--------------|--------------------------|---------------|
| F017         | DN12 inert gas (360 bar) | 1239a/06      |
| F018         | DN50 HFCs (70 bar)       |               |
| F019         | DN33 HFCs (70 bar)       |               |

Certificate No: 1239a to EN12094-13

**Non-Return Valve**

| Product Name | Description   | LPCB Ref. No. |
|--------------|---------------|---------------|
| F016         | DN4 (360 bar) | 1239a/07      |

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Certificate No: 331Ax to EN 12094-4

**CLEAN AGENT Impulse Container Valves**

| Product Name | Description                | LPCB Ref. No. |
|--------------|----------------------------|---------------|
| AZ-70-242    | 1" Impulse Container Valve | 331Ax/05      |
| AZ-70-243    | 3" Impulse Container Valve |               |

Notes:

- The range of equipment is approved for use in conjunction with Ayvaz Equipment, Design & Service Manual P/N AZ-06-439 (Rev. 0 / October, 2018)
- The following equipment is suitable for use at storage temperatures from -20°C to 50°C
- Containers are superpressurised to 25bar at 21°C
- Maximum system working pressure at 50°C for HFC227ea is 34.6 bar; fill ratios 0.5 kg/l min. to 1.1 kg/l max.

Certificate No: 331Ax to EN 12094-4

**CLEAN AGENT Container Valve Actuators**

| Product Name | Description                   | LPCB Ref. No. |
|--------------|-------------------------------|---------------|
| AZ-02-12728  | Electronic/manual actuator    | 331Ax/06      |
| AZ-02-12729  | Pneumatic actuator            |               |
| AZ-70-290    | Impulse Releasing Interface   |               |
| AZ-02-14231  | Direct Impulse Valve actuator |               |

Notes:

- The range of equipment is approved for use in conjunction with Ayvaz Equipment, Design & Service Manual P/N AZ-06-439 (Rev. 0 / October, 2018)
- The following equipment is suitable for use at storage temperatures from -20°C to 50°C
- Containers are superpressurised to 25bar at 21°C
- Maximum system working pressure at 50°C for HFC227ea is 34.6 bar; fill ratios 0.5 kg/l min. to 1.1 kg/l max.

## **PART 4: SECTION 2.1**

### **GASEOUS SYSTEM COMPONENTS**

Certificate No: 331Ax to EN 12094-4

#### ***CLEAN AGENT Impulse Valve and Container Assemblies***

| <b>Product Name</b> | <b>Description</b>       | <b>LPCB Ref. No.</b> |
|---------------------|--------------------------|----------------------|
| AZ-70-348           | 1" Valve 5L - HFC227ea   | 331Ax/07             |
| AZ-70-349           | 1" Valve 9L - HFC227ea   |                      |
| AZ-70-350           | 1" Valve 16L - HFC227ea  |                      |
| AZ-70-278           | 1" Valve 26L - HFC227ea  |                      |
| AZ-70-255           | 1" Valve 45L - HFC227ea  |                      |
| AZ-70-256           | 3" Valve 83L - HFC227ea  |                      |
| AZ-70-257           | 3" Valve 150L - HFC227ea |                      |

Notes:

- The range of equipment is approved for use in conjunction with Ayvaz Equipment, Design & Service Manual P/N AZ-06-439 (Rev. 0 / October, 2018)
- The following equipment is suitable for use at storage temperatures from -20°C to 50°C
- Containers are superpressurised to 25bar at 21°C
- Maximum system working pressure at 50°C for HFC227ea is 34.6 bar; fill ratios 0.5 kg/l min. to 1.1 kg/l max.

Certificate No: 331Av to EN 12094-4 & an LPCB schedule of requirements

#### ***Actuator Assemblies***

| <b>Product Name</b> | <b>Description</b>  | <b>LPCB Ref. No.</b> |
|---------------------|---|----------------------|
| AZ-71-120           | Relay actuator  | 331Av/04             |
| AZ-70-325-2         | Nitrogen Actuator Assembly (Normally Open Pressure Switch Contacts)   |                      |
| AZ-70-325-4         | Nitrogen Actuator Assembly (Normally Closed Pressure Switch Contacts) |                      |

Notes:

- The range of equipment is approved for use in conjunction with Ayvaz Equipment, Design & Service Manual P/N AZ-06-439 (Rev. 0 / October, 2018)
- The following equipment is suitable for use at storage temperatures from -20°C to 50°C
- Containers are superpressurised to 25bar at 21°C
- Maximum system working pressure at 50°C for HFC227ea is 34.6 bar; fill ratios 0.5 kg/l min. to 1.1 kg/l max.

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#### **ARGONITE C60 FIXED FIRE FIGHTING COMPONENTS**

<sup>1</sup> This range of equipment is suitable for storage temperatures from -20°C to +50°C and is approved for use with Argonite.

<sup>2</sup> This range of equipment is approved for use in conjunction with the Kidde Fenwal design manual reference MA-01-9008-0102 (revision 0 dated July 2010)

<sup>3</sup> System pressure is specified at 300 bar @ 15°C.

<sup>4</sup> Cylinder is designed and manufactured in accordance with European Directive 1999/36/EEC (TPED) through compliance with EN1964-2

<sup>5</sup> Actuation hoses are available in a variety of lengths

Certificate No: 594Ba

**ARGONITE Hoses**

| Product Name      | Description                   | Nominal bore (mm) | System pressure (bar) | LPCB Ref. No. |
|-------------------|-------------------------------|-------------------|-----------------------|---------------|
| 01-3260-0100/1000 | Actuation Hose <sup>(5)</sup> | DN5               | 300                   | 594Ba/03      |
| 01-3261-0100/1000 | Actuation Hose <sup>(5)</sup> | DN5               | 300                   |               |
| 01-3271-1100/1200 | Actuation Hose <sup>(5)</sup> | DN5               | 300                   |               |
| 01-3272-1100/1200 | Actuation Hose <sup>(5)</sup> | DN5               | 300                   |               |
| 01-3273-1100/1200 | Actuation Hose <sup>(5)</sup> | DN5               | 300                   |               |

Certificate No: 594Ba

**ARGONITE Pilot Line Equipment**

| Product Name | Description                      | Nominal Bore (mm) | System pressure (bar) | LPCB Ref. No. |
|--------------|----------------------------------|-------------------|-----------------------|---------------|
| 01-6363-0000 | ¼" Pilot Line Check Valve        | -                 | 300                   | 594Ba/18      |
| 01-3388-0000 | Actuation Line Leak Bleeder Unit | -                 | 300                   |               |
| 15-8685-0651 | Actuation Line T-Piece           | DN5               | -                     |               |

Certificate No: 594Ba

Certificate No: 594Ba

**ARGONITE Divertor Valves**

| Product Name | Description | System pressure (bar) |
|--------------|-------------|-----------------------|
|--------------|-------------|-----------------------|

Certificate No: 594Ba

**ARGONITE Pressure Relief Devices**

| Product Name      | Description            | System pressure (bar) | LPCB Ref. No. |
|-------------------|------------------------|-----------------------|---------------|
| 01-6653-0003/0103 | Pressure Relief Device | 300                   | 594Ba/17      |

Certificate No: 594Ba

**ARGONITE Pressure Monitoring Devices**

| Product Name | Description                  | System pressure (bar) | LPCB Ref. No. |
|--------------|------------------------------|-----------------------|---------------|
| 01-7221-0300 | Manifold Pressure Gauge (½") | 300                   | 594Ba/15      |
| 03-5713-0000 | Discharge Pressure Switch    | 300                   |               |

**Kidde Fire Protection**

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**KIDDE GX20 RANGE OF FM200 FIXED FIRE FIGHTING COMPONENTS**

- This range of equipment is suitable for storage temperatures from -20°C to +54°C and is approved for use with FM200.
- This range of equipment is approved for use in conjunction with the Kidde Fire Protection Ltd, FM200 Design Manual.
- System pressure is specified at 25 bar @ 20°C and max service pressure of 34.5 bar @ 55°C.
- Nitrogen pilot pressure is specified as 124 bar @ 20°C.

<sup>1</sup> Cylinders are designed and manufactured to 84/525/EEC or TRG 330

<sup>2</sup> Vertical mount cylinder with straight syphon tube

<sup>3</sup> Horizontal mount cylinder with angled syphon tube continued

**KIDDE GX20 Container Valve, Container and Container Bracket Assemblies**

| Product Name | Description            | Capacity (ltr) | Strap     | Bracket No. |
|--------------|------------------------|----------------|-----------|-------------|
| E7763-102    | Cyl & GCV40 Valve Assy | 8 (1), (2)     | C6331-103 | D1162-002   |

## **PART 4: SECTION 2.1**

### **GASEOUS SYSTEM COMPONENTS**

| <b>Product Name</b> | <b>Description</b>      | <b>Capacity (ltr)</b> | <b>Strap</b> | <b>Bracket No.</b> |
|---------------------|-------------------------|-----------------------|--------------|--------------------|
| E7763-122           | Cyl & GCV40 Valve Assy  | 8 (1), (3)            | C6331-103    | D1162-002          |
| E7763-103           | Cyl & GCV40 Valve Assy  | 16 (1), (2)           | C6331-104    | D1162-003          |
| E7763-123           | Cyl & GCV40 Valve Assy  | 16 (1), (3)           | C6331-104    | D1162-003          |
| E7763-104           | Cyl & GCV40 Valve Assy  | 28 (1), (2)           | C6331-104    | D1162-004          |
| E7763-124           | Cyl & GCV40 Valve Assy  | 28 (1), (3)           | C6331-104    | D1162-004          |
| E7763-105           | Cyl & GCV40 Valve Assy  | 51 (1), (2)           | C6331-105    |                    |
| E7763-106           | Cyl & GCV50 Valve Assy  | 81 (1), (2)           | C6331-105    |                    |
| E7763-108           | Cyl & GCV50 Valve Assy  | 142 (1), (2)          | C6331-106    |                    |
| B6793-720           | Nitrogen Pilot Cylinder | 1.77                  |              | B6793-721          |
| E7763-101           | Cyl & GCV40 Valve Assy  | 5 (1), (2)            | C6331-103    | D1162-001          |
| E7763-121           | Cyl & GCV40 Valve Assy  | 5 (1), (3)            | C6331-103    | D1162-001          |

#### **KIDDE GX20 Container Valves**

| <b>Product Name</b> | <b>Description</b> |
|---------------------|--------------------|
| B6793-793           | GCV40 valve        |
| B6793-792           | GCV50 valve        |

#### **KIDDE GX20 Discharge Hoses, Outlet Adapters, Discharge Manifolds, including Check Valves and Bracket**

| <b>Product Name</b> | <b>Description</b>   | <b>Nominal bore (mm)</b> |
|---------------------|----------------------|--------------------------|
| B6793-760           | GCV40 Outlet Hose    | 40                       |
| B6793-761           | GCV50 Outlet Hose    | 50                       |
| K63497-02           | GCV40 Outlet Adaptor | 40                       |
| K63497-03           | GCV50 Outlet Adaptor | 50                       |
| B6793-762           | Elbow Check          | 50                       |
| D1511-006           | 2 Port Manifold      | 50                       |
| D1511-007           | 2 Port Manifold      | 80                       |
| D1511-009           | 2 Port Manifold      | 100                      |
| D1511-008           | 3 Port Manifold      | 80                       |
| D1511-010           | 3 Port Manifold      | 100                      |

#### **KIDDE GX20 Pressure Switches and Devices**

| <b>Product Name</b> | <b>Description</b>                            |
|---------------------|---|
| B6793-730           | Cylinder Contents Supervisory Pressure Switch |
| B6793-731           | Discharge Pressure Switch                     |
| B6793-732           | Discharge Pressure Switch (Explosion Proof)   |
|                     | Pressure Switch                               |
| B6793-733           | Pressure Trip                                 |

#### **KIDDE GX20 Discharge Nozzles**

| <b>Product Name</b> | <b>Description</b>   | <b>Nominal bore (mm)</b> |
|---------------------|----------------------|--------------------------|
| C3333-301-xx        | 180° Nozzle (4), (5) | 15                       |
| C3333-302-xx        | 180° Nozzle (4), (5) | 20                       |
| C3333-303-xx        | 180° Nozzle (4), (5) | 25                       |
| C3333-304-xx        | 180° Nozzle (4), (5) | 32                       |
| C3333-305-xx        | 180° Nozzle (4), (5) | 40                       |
| C3333-306-xx        | 180° Nozzle (4), (5) | 50                       |
| C3333-307-xx        | 360° Nozzle (4), (5) | 15                       |
| C3333-308-xx        | 360° Nozzle (4), (5) | 20                       |
| C3333-309-xx        | 360° Nozzle (4), (5) | 25                       |
| C3333-310-xx        | 360° Nozzle (4), (5) | 32                       |
| C3333-311-xx        | 360° Nozzle (4), (5) | 40                       |
| C3333-312-xx        | 360° Nozzle (4), (5) | 50                       |

<sup>4</sup> Nozzles drilled in accordance with system calculations.

<sup>5</sup> Nozzles are manufactured from brass.

#### **KIDDE GX20 Valve Actuators**

| <b>Product Name</b> | <b>Description</b>    |
|---------------------|-----------------------|
| B6793-701           | Electric Control Head |

**PART 4: SECTION 2.1**  
GASEOUS SYSTEM COMPONENTS

| Product Name | Description                                |
|--------------|--|
| B6793-702    | Electric & Cable Control Head              |
| B6793-703    | Cable & Electric Control Head (Flameproof) |
| B6793-704    | Cable Operated Control Head                |
| B6793-705    | Lever Operated Control Head                |
| B6793-706    | Pressure & Lever Operated Control Head     |
| B6793-707    | Pressure Operated Control Head             |
| B6793-708    | Pressure Operated Control Head (6)         |
| B6793-709    | Electric Control Head (6)                  |

<sup>6</sup> Stackable configuration

**KIDDE GX20 Pilot Equipment**

| Product Name | Description                 |
|--------------|-----------------------------|
| B6793-770    | Master Cylinder Adaptor Kit |
| B6793-771    | 559mm Long Pilot hose       |
| B6793-772    | 762mm Long Pilot hose       |
| B6793-773    | Male Straight Adaptor       |
| B6793-774    | Male Elbow Adaptor          |
| B6793-775    | Male Branch Tee             |

Certificate No: 273a/01

**Kidde GX20 Check Valves**

| Product Name | LPCB Ref. No. |
|--------------|---------------|
| B6793-808    | 273a/01       |
| B6793-809    |               |
| B6793-810    |               |
| B6793-811    |               |
| B6793-812    |               |

Notes:

- 1) This range of equipment is suitable for storage temperatures from -20°C to +50°C and is approved for use with HFC227ea (FM200).
- 2) This range of equipment is approved in conjunction with the Kidde GX20 Design, Installation, Operation and Maintenance Manual Ref. No. 59812-422 Issue D.
- 3) System pressure is specified as 25 bar @ 20°C and max. service pressure is 30 bar @ 50°C.

**ARGONITE C SERIES FIXED FIRE FIGHTING COMPONENTS**

1. This range of equipment is suitable for storage temperatures from -20°C to +50°C and is approved for use with Argonite.
2. This range of equipment is approved for use in conjunction with the Kidde Products Design manual reference: c60;- MA-01-9008-0100 (revision 1 dated November 2011)
3. System pressure is specified at 200 bar or 300 bar @ 15°C.
4. Cylinder is designed and manufactured in accordance with European Directive 2010/35/EU (TPED) through compliance with ISO 9809-2
5. A range of wall brackets, clamping bars, spacers and clamping bolts for secure container installation are also available.

Certificate No: 273b

**ARGONITE C Series Container/Valve Assemblies**

| Product Name | Description               | Capacity (ltr) | System Pressure (bar) | LPCB Ref. No. |
|--------------|---------------------------|----------------|-----------------------|---------------|
| 01-1524-5900 | C60 - 80.0 Litre Cylinder | 80.0           | 300 (3), (4), (5)     | 273b/01       |

Certificate No: 273b

**ARGONITE C Series Single Area Manifolds**

| Product Name                 | Description                                     | No. cylinders | System pressure (bar) | LPCB Ref. No. |
|------------------------------|---|---------------|-----------------------|---------------|
| 01-3506-5112 to 01-3506-5116 | Single Row Argonite C Series Discharge Manifold | 2 to 6        | 60                    | 273b/04       |

## **PART 4: SECTION 2.1**

### **GASEOUS SYSTEM COMPONENTS**

| <b>Product Name</b>          | <b>Description</b>                              | <b>No. cylinders</b> | <b>System pressure (bar)</b> | <b>LPCB Ref. No.</b> |
|------------------------------|---|----------------------|------------------------------|----------------------|
| 01-3506-5124 to 01-3506-5128 | Double Row Argonite C Series Discharge Manifold | 4 to 8               | 60                           |                      |

Certificate No: 273b to EN 12094-13

#### **ARGONITE C Series Manifold Check Valves**

| <b>Product Name</b> | <b>Description</b>   | <b>Nominal bore (mm)</b> | <b>System pressure (bar)</b> | <b>LPCB Ref. No.</b> |
|---------------------|----------------------|--------------------------|------------------------------|----------------------|
| 01-6546-0000        | Manifold Check Valve | 1" BSPT x ¾" BSPP        | 300                          | 273b/05              |

Certificate No: 273b to EN 12094-8

#### **ARGONITE C Series Hoses**

| <b>Product Name</b> | <b>Description</b> | <b>Nominal bore (mm)</b> | <b>System pressure (bar)</b> | <b>LPCB Ref. No.</b> |
|---------------------|--------------------|--------------------------|------------------------------|----------------------|
| 01-3288-0100        | Discharge Hose     | DN15                     | 300                          | 273b/06              |

Certificate No: 273b to EN 12094-4

#### **ARGONITE C Series Container Valves**

| <b>Product Name</b> | <b>Description</b> | <b>System Pressure (bar)</b> | <b>LPCB Ref. No.</b> |
|---------------------|--------------------|------------------------------|----------------------|
| 01-6481-0300        | Argonite C60 Valve | 300                          | 273b/02              |

Certificate No: 273b to EN 12094-4

#### **ARGONITE C Series Valve Actuators & Release Units**

| <b>Product Name</b> | <b>Description</b>             | <b>System pressure (bar)</b> | <b>LPCB Ref. No.</b> |
|---------------------|--------------------------------|------------------------------|----------------------|
| 01-4181-0000        | Pneumatic Actuator             | 300                          | 273b/03              |
| 01-7172-8300        | Manual/Electrical Release Unit | 300                          |                      |

Certificate No: 273b to EN12094 Part 10

#### **Argonite C Series Pressure Monitoring Devices**

| <b>Product Name</b> | <b>Description</b>  | <b>System Pressure (bar)</b> | <b>LPCB Ref. No.</b> |
|---------------------|---------------------|------------------------------|----------------------|
| 01-7171-8300        | Pressure Gauge Unit | 300                          | 273b/07              |

#### **KIDDE INERT GAS FIXED FIRE FIGHTING COMPONENTS**

1. This range of equipment is suitable for storage temperatures -20°C to +50°C and is approved for use with Argonite® (IG55), IG01, IG100 and IG541.
2. This range of equipment is approved for use in conjunction with Kidde Products Design manual reference MA-01-9006-0100 (Revision 11 dated January 2015)
3. System pressure is specified at 150 bar, 200 bar and 300 bar @ 15°C.

Certificate No: 273d to Schedule of Requirements

#### **Kidde Inert Gas - Container and Container Bracket Assemblies**

| <b>Product Name</b> | <b>Description</b>  | <b>Capacity (ltr)</b> | <b>System Pressure (bar)</b> | <b>LPCB Ref. No.</b> |
|---------------------|---------------------|-----------------------|------------------------------|----------------------|
| 01-1331-590X (7)    | 15.9 Litre Cylinder | 15.9                  | 150 (4), (5)                 | 273d/01              |
| 01-1311-590X (7)    | 67.5 Litre Cylinder | 67.5                  | 150 (4), (5)                 |                      |
| 01-1321-590X (7)    | 80.0 Litre Cylinder | 80.0                  | 150 (4), (5)                 |                      |
| 01-1332-590X (7)    | 15.9 Litre Cylinder | 15.9                  | 200 (4), (5)                 |                      |



**PART 4: SECTION 2.1**  
GASEOUS SYSTEM COMPONENTS

| Product Name     | Description          | Capacity (ltr) | System Pressure (bar) | LPCB Ref. No. |
|------------------|----------------------|----------------|-----------------------|---------------|
| 01-1312-590X (7) | 67.5 Litre Cylinder  | 67.5           | 200 (4), (5)          |               |
| 01-1322-590X (7) | 80.0 Litre Cylinder  | 80.0           | 200 (4), (5)          |               |
| 01-1334-590X (7) | 15.9 Litre Cylinder  | 15.9           | 300 (4), (5)          |               |
| 01-1314-590X (7) | 67.5 Litre Cylinder  | 67.5           | 300 (4), (5)          |               |
| 01-1324-590X (7) | 80.0 Litre Cylinder  | 80.0           | 300 (4), (5)          |               |
| 01-1394-590X (7) | 140.0 Litre Cylinder | 140.0          | 300 (4), (5)          |               |

4. Cylinder is designed and manufactured in accordance with European Directive 2010/35/EU (TPED) through compliance with ISO 9809-2
5. A range of wall brackets, clamping bars, spacers and clamping bolts for secure container installation are also available
6. Cylinder is designed and manufactured in accordance with BS 5045-1 and is for Indian service only. Cylinder is not compliant with European Directive 84/225/EEC and the TPED.
7. Where X can be: 0 - Argonite® (IG55), 2 - Nitrogen (IG-100), 4 - Argon (IG-01) & 5 - IG-541.

Certificate No: 273d to EN 12094 part 8

**Kidde Inert Gas and Argonite® C Series - Hoses**

| Product Name      | Description    | Nominal bore (mm) | System pressure (bar) | Length (mm) | LPCB Ref. No. |
|-------------------|----------------|-------------------|-----------------------|-------------|---------------|
| 01-3260-0200/1000 | Actuation hose | DN5               | 150, 200 & 300        | 200-1000    | 273d/03       |
| 01-3261-0200/1000 | Actuation Hose | DN5               | 150, 200 & 300        | 200-1000    |               |
| 01-3271-1100/1200 | Actuation Hose | DN5               | 150, 200 & 300        | 200-300     |               |
| 01-3272-1100/1200 | Actuation Hose | DN5               | 150, 200 & 300        | 250-500     |               |
| 01-3273-1100/1200 | Actuation Hose | DN5               | 150, 200 & 300        | 350-700     |               |

Certificate No: 273d to EN 12094 part 8

**Kidde Inert Gas - Hoses**

| Product Name      | Description    | Nominal bore (mm) | System pressure (bar) | Length (mm) | LPCB Ref. No. |
|-------------------|----------------|-------------------|-----------------------|-------------|---------------|
| 01-3284-0100/0200 | Discharge Hose | DN9               | 150, 200 & 300        | 400-700     | 273d/03       |

Certificate No: 273d to Schedule of Requirements

**Kidde Inert Gas - Pressure Restrictor Assemblies**

| Product Name                     | Description              | Orifice size (mm) | System pressure (bar) | LPCB Ref. No. |
|----------------------------------|--------------------------|-------------------|-----------------------|---------------|
| 01-370X-1030/1070 (8), (9), (10) | ½" Restrictor Assembly   | 3-7               | 150, 200 & 300        | 273d/04       |
| 01-370X-3050/3180 (9)            | 1.0" Restrictor Assembly | 5-18              | 150, 200 & 300        |               |
| 01-370X-4120/4270 (9)            | 1½" Restrictor Assembly  | 12-27             | 150, 200 & 300        |               |
| 01-370X-5200/5360 (9)            | 2.0" Restrictor Assembly | 20-36             | 150, 200 & 300        |               |

<sup>8</sup> Not available with NPT Female/NPT Female or NPT Female/BSP Female connections

<sup>9</sup> Where X can be 1 for NPT Male/NPT Female, 2 for NPT Female/NPT Female, 3 for NPT Male/BSP Female or 4 for NPT Female/BSP Female

<sup>10</sup> Also available with BSP Male/BSP Female (part no. 01-3706-1030/1070) or BSP Male/NPT Female connections (part no. 01-3705-1030/1070)

Certificate No: 273d to Schedule of Requirements

**Kidde Inert Gas and Argonite® C Series - Pressure Regulator Assemblies**

| Product Name | Description        | Orifice Size (mm) | System pressure (bar) | LPCB Ref. No. |
|--------------|--------------------|-------------------|-----------------------|---------------|
| 01-6017-0000 | Pressure Regulator | N/A               | 150, 200 & 300        | 273d/04       |

Certificate No: 273d to EN 12094 part 7

## **PART 4: SECTION 2.1**

### **GASEOUS SYSTEM COMPONENTS**

#### **Kidde Inert Gas and Argonite® C Series - Discharge Nozzles**

| Product Name             | Description         | Orifice size (mm) | Nozzle pressure (bar) | LPCB Ref. No. |
|--------------------------|---------------------|-------------------|-----------------------|---------------|
| 01-3465-X2030/X2100 (11) | ½" Nozzle Assembly  | 3-10              | 60                    | 273d/05       |
| 01-3465-X3070/X3140 (11) | ¾" Nozzle Assembly  | 7-14              | 60                    |               |
| 01-3465-X4100/X4180 (11) | 1" Nozzle Assembly  | 10-18             | 60                    |               |
| 01-3465-X5150/X5260 (11) | 1½" Nozzle Assembly | 15-26             | 60                    |               |

<sup>11</sup> Where X can be 1 for BSP or 2 for NPT connections

Certificate No: 273d to Schedule of Requirements

#### **Kidde Inert Gas - Single Area Manifolds**

| Product Name                 | Description                   | No. cylinders | System pressure (bar) | LPCB Ref. No. |
|------------------------------|-------------------------------|---------------|-----------------------|---------------|
| 01-3506-2011 to 01-3506-2019 | Single Row Discharge Manifold | 1 to 10       | 150, 200              | 273d/06       |
| 01-3506-2021 to 01-3506-2029 | Double Row Discharge Manifold | 4 to 20       | 150, 200              |               |
| 01-3506-3011 to 01-3506-3019 | Single Row Discharge Manifold | 1 to 10       | 300                   |               |
| 01-3506-3021 to 01-3506-3029 | Double Row Discharge Manifold | 4 to 20       | 300                   |               |

Certificate No: 273d to Schedule of Requirements

#### **Kidde Inert Gas and Argonite® C Series - Multi-Area Manifold Accessories**

| Product Name | Description                        | System Pressure (bar) | LPCB Ref. No. |
|--------------|------------------------------------|-----------------------|---------------|
| 01-3508-0002 | Pilot Manifold (2 Diverter Valves) | 150, 200, 300 (12)    | 273d/06       |
| 01-3508-0003 | Pilot Manifold (3 Diverter Valves) | 150, 200, 300 (12)    |               |
| 01-3508-0004 | Pilot Manifold (4 Diverter Valves) | 150, 200, 300 (12)    |               |
| 01-3508-0005 | Pilot Manifold (5 Diverter Valves) | 150, 200, 300 (12)    |               |

<sup>12</sup> Working Pressure Outlet 8 bar

Certificate No: 273d to EN 12094 part 5

#### **Kidde Inert Gas and Argonite® C Series - Diverter Valves**

| Product Name | Description    | Size | System pressure (bar) | LPCB Ref. No. |
|--------------|----------------|------|-----------------------|---------------|
| 01-6240-1000 | Diverter Valve | ½"   | 150, 200 & 300        | 273d/08       |
| 01-6242-1000 | Diverter Valve | 1"   | 150, 200 & 300        |               |
| 01-6244-1000 | Diverter Valve | 1½"  | 150, 200 & 300        |               |
| 01-6246-1000 | Diverter Valve | 2"   | 150, 200 & 300        |               |

Certificate No: 273d to EN 12094 part 13

#### **Kidde Inert Gas - Manifold Check Valves**

| Product Name | Description          | Nominal bore (mm) | System pressure (bar) | LPCB Ref. No. |
|--------------|----------------------|-------------------|-----------------------|---------------|
| 01-6454-0000 | Manifold Check Valve | ½" BSP & ¾" NPT   | 150, 200 & 300        | 273d/09       |

Certificate No: 273d to EN 12094 part 4

#### **Kidde Inert Gas - Container Valves**

| Product Name | Description              | System pressure (bar) | LPCB Ref. No. |
|--------------|--------------------------|-----------------------|---------------|
| 01-6471-0150 | Pneumatic Argonite Valve | 150                   | 273d/10       |
| 01-6471-0200 | Pneumatic Argonite Valve | 200                   |               |
| 01-6471-0300 | Pneumatic Argonite Valve | 300                   |               |

**PART 4: SECTION 2.1**  
GASEOUS SYSTEM COMPONENTS

Certificate No: 273d to EN 12094 part 4

**Kidde Inert Gas - Release Units**

| Product Name | Description  | System pressure (bar) | LPCB Ref. No. |
|--------------|--------------|-----------------------|---------------|
| 01-7172-1150 | Release Unit | 150                   | 273d/11       |
| 01-7172-1200 | Release Unit | 200                   |               |
| 01-7172-1300 | Release Unit | 300                   |               |
| 01-7173-1150 | Release Unit | 150                   |               |
| 01-7173-1200 | Release Unit | 200                   |               |
| 01-7173-1300 | Release Unit | 300                   |               |

Certificate No: 273d to EN 12094 part 10

**Kidde Inert Gas and Argonite® C Series - Pressure Monitoring Devices**

| Product Name | Description               | System pressure (bar)         | LPCB Ref. No. |
|--------------|---------------------------|-------------------------------|---------------|
| 01-7221-0300 | Manifold Pressure Gauge ½ | 150, 200 & 300                | 273d/15       |
| 03-5713-0000 | Discharge Pressure Switch | Max operating pressure 90 bar |               |

Certificate No: 273d to EN 12094 part 10

**Kidde Inert Gas - Pressure Monitoring Devices**

| Product Name | Description         | System pressure (bar) | LPCB Ref. No. |
|--------------|---------------------|-----------------------|---------------|
| 01-7171-1500 | Pressure Gauge Unit | 150                   | 273d/15       |
| 01-7171-1200 | Pressure Gauge Unit | 200                   |               |
| 01-7171-1300 | Pressure Gauge Unit | 300                   |               |

Certificate No: 273d to Schedule of Requirements

**Kidde Inert Gas and Argonite® C Series - Pressure Relief Devices**

| Product Name      | Description            | System pressure (bar) | LPCB Ref. No. |
|-------------------|------------------------|-----------------------|---------------|
| 01-6653-0001/0101 | Pressure Relief Device | 150                   | 273d/17       |
| 01-6653-0002/0102 | Pressure Relief Device | 200                   |               |
| 01-6653-0003/0103 | Pressure Relief Device | 300                   |               |

Certificate No: 273d to EN 12094 part 13 and Schedule of Requirements

**Kidde Inert Gas and Argonite® C Series - Pilot Line Equipment**

| Product Name | Description                      | Nominal bore (mm) | System pressure (bar) | LPCB Ref. No. |
|--------------|----------------------------------|-------------------|-----------------------|---------------|
| 01-6363-0000 | Pilot Line Check Valve           | ¼" BSP            | 150, 200 & 300        | 273d/18       |
| 01-3388-0000 | Actuation Line Leak Bleeder Unit | -                 | 150, 200 & 300        |               |
| 01-4131-0000 | Actuation Line T-Piece           | DN5               | 150, 200 & 300        |               |
| 01-4130-1000 | Actuation Line Cross             | DN5               | 150, 200 & 300        |               |

Certificate No: 273e to EN 12094-13

**CO2 FIXED FIREFIGHTING COMPONENTS.**

| Product Name | Description | Nominal Bore (mm) | System pressure (bar) | LPCB Ref. No. |
|--------------|-------------|-------------------|-----------------------|---------------|
| D8562-008    | Co2 NRV     | DN2               | 140                   | 273e/01       |

Certificate No: 273f to an LPCB schedule of requirements

## **PART 4: SECTION 2.1**

### **GASEOUS SYSTEM COMPONENTS**

#### ***Kidde Inert Gas System (400 Series) Containers***

| <b>Product Name</b> | <b>Description</b>   | <b>Container pressure, bar</b> | <b>LPCB Ref. No.</b> |
|---------------------|----------------------|--------------------------------|----------------------|
| 38-418021-XXX (3)   | 80.0 litre cylinder  | 200 (1) (2)                    | 273f/01              |
| 38-418031-XXX (3)   | 80.0 litre cylinder  | 300 (1) (2)                    | 273f/02              |
| 38-411431-XXX (3)   | 140.0 litre cylinder | 300 (1) (2)                    | 273f/03              |

#### **KIDDE INERT GAS SYSTEM (400) SERIES), FIXED FIRE FIGHTING COMPONENTS**

- This range of equipment is suitable for storage temperatures -20°C to +50°C and is approved for use with: Argonite® (IG55), Nitrogen (IG-100), Argon (IG-01) and IG541
- This range of equipment is approved for use in conjunction with Kidde Fire Protection Design manual reference: 06-237518-001 (Revision AA dated May 2018)
- System pressure is specified at 200 bar and 300 bar @ 15°C.

#### **Notes:**

- (1) Cylinder is designed and manufactured in accordance with European Directive 2010/35/EU (TPED) and/or UN (USA) through compliance with ISO 9809-2, ADR and/or DOT
- (2) A range of wall brackets, clamping bars, spacers and clamping bolts for secure container installation are available.
- (3) Where XXX can be: 055" = Argonite® (IG55), "100" = Nitrogen (IG-100), "001" = Argon (IG-01) or "541" = IG-541.

**Certificate No: 273g to EN 12094-4**

#### ***Kidde Inert Gas (M400 Series) Container Valves***

| <b>Product Name</b> | <b>Description</b>                                 | <b>LPCB Ref. No.</b> |
|---------------------|--|----------------------|
| 38-400000-001       | Kidde Inert Gas Valve (400 Series) (1) 200/300 bar | 273g/01              |

#### **KIDDE INERT GAS SYSTEM (400) SERIES), FIXED FIRE FIGHTING COMPONENTS**

- This range of equipment is suitable for storage temperatures -20°C to +50°C and is approved for use with: Argonite® (IG55), Nitrogen (IG-100), Argon (IG-01) and IG541
- This range of equipment is approved for use in conjunction with Kidde Fire Protection Design manual reference: 06-237518-001 (Revision AA dated May 2018)
- System pressure is specified at 200 bar and 300 bar @ 15°C.

#### **Notes:**

- (1) Nominal outlet pressure 55 bar.

**Certificate No: 273h to EN 12094-4**

#### ***Kidde Inert Gas (M400 Series) Release Assemblies***

| <b>Product Name</b> | <b>Description</b>  | <b>LPCB Ref. No.</b> |
|---------------------|---|----------------------|
| 38-400001-001       | Release Unit (400 Series)-200 bar, manual/electric, N.O. Gauge 160 bar switch (1) | 273h/01              |
| 38-400001-002       | Release Unit (400 Series)-200 bar, manual/electric, N.C. Gauge 160 bar switch (1) | 273h/02              |
| 38-400001-003       | Release Unit (400 Series)-300 bar, manual/electric, N.O. Gauge 240 bar switch (1) | 273h/03              |
| 38-400001-004       | Release Unit (400 Series)-300 bar, manual/electric, N.C. Gauge 240 bar switch (1) | 273h/04              |

#### **KIDDE INERT GAS SYSTEM (400) SERIES), FIXED FIRE FIGHTING COMPONENTS**

- This range of equipment is suitable for storage temperatures -20°C to +50°C and is approved for use with: Argonite® (IG55), Nitrogen (IG-100), Argon (IG-01) and IG541
- This range of equipment is approved for use in conjunction with Kidde Fire Protection Design manual reference: 06-237518-001 (Revision AA dated May 2018)
- System pressure is specified at 200 bar and 300 bar @ 15°C.

#### **Notes:**

- (1) Gauge switch type; Normally Closed (N.C.) or Normally Open (N.O.) under pressure at and above the Switchpoint

Certificate No: 273i to EN 12094-10 and an LPCB schedule of requirements

***Kidde Inert Gas System(400 Series) Pressure Monitoring Devices***

| Product Name  | Description  | LPCB Ref. No. |
|---------------|--|---------------|
| 38-400005-001 | Pressure Gauge Unit, Gauge Switch N.O. 160 bar (1) | 273i/01       |
| 38-400005-002 | Pressure Gauge Unit, Gauge Switch N.C. 160 bar (1) | 273i/02       |
| 38-400005-003 | Pressure Gauge Unit, Gauge Switch N.O. 240 bar (1) | 273i/03       |
| 38-400005-004 | Pressure Gauge Unit, Gauge Switch N.C. 240 bar (1) | 273i/04       |
| 01-7221-0300  | Manifold Pressure Gauge                            | 273i/05       |
| 03-5713-0000  | Discharge Pressure Switch                          | 273i/06       |

**KIDDE INERT GAS SYSTEM (400) SERIES), FIXED FIRE FIGHTING COMPONENTS**

- This range of equipment is suitable for storage temperatures -20°C to +50°C and is approved for use with: Argonite® (IG55), Nitrogen (IG-100), Argon (IG-01) and IG541
- This range of equipment is approved for use in conjunction with Kidde Fire Protection Design manual reference: 06-237518-001 (Revision AA dated May 2018)
- System pressure is specified at 200 bar and 300 bar @ 15°C.

**Notes:**

- (1) Gauge switch type; Normally Closed (N.C.) or Normally Open (N.O.) under pressure at and above the Switchpoint

Certificate No: 273j to EN 12094-8:2006

***Kidde Inert Gas System (400 Series) Discharge and Pilot Connectors***

| Product Name      | Description                                      | LPCB Ref. No. |
|-------------------|--|---------------|
| 38-401ABX-XXX (1) | Pilot Hose, 1/4" Quick Connect (2)               | 273j/01       |
| 38-400ABX-XXX (3) | Discharge Hose 3/4"                              | 273j/02       |
| 01-3273-1000      | 1/4" Straight x 90° for Selector Valve actuation | 273j/03       |

**KIDDE INERT GAS SYSTEM (400) SERIES), FIXED FIRE FIGHTING COMPONENTS**

- This range of equipment is suitable for storage temperatures -20°C to +50°C and is approved for use with: Argonite® (IG55), Nitrogen (IG-100), Argon (IG-01) and IG541
- This range of equipment is approved for use in conjunction with Kidde Fire Protection Design manual reference: 06-237518-001 (Revision AA dated May 2018)
- System pressure is specified at 200 bar and 300 bar @ 15°C.

**Notes:**

- (1) A or B at either end or both ends of the hose is defined as:
- 1 = Straight coupling, zinc plated mild steel
  - 2 = 45°, set 0°, zinc plated mild steel
  - 3 = 90°, set 0°, zinc plated mild steel
- X-XXX = length of Hose in mm (300-3000)
- (2) Approved for use with Festo couplings
- (3) A or B at either end or both ends of the hose is defined as:
- 1 = Straight coupling, zinc plated mild steel
  - 2 = 45°, set 180°, zinc plated mild steel
  - 3 = 90°, set 180°, zinc plated mild steel
- X-XXX = length of Hose in mm (300-3000)

Certificate No: 273k to EN 12094-13

***Kidde Inert Gas System (400 Series) Pilot Line Equipment***

| Product Name  | Description                 | Nominal bore, mm | Working pressure, bar | LPCB Ref. No. |
|---------------|-----------------------------|------------------|-----------------------|---------------|
| 38-400002-003 | Pilot Line Non-Return Valve | 2                | 10                    | 273k/01       |

**KIDDE INERT GAS SYSTEM (400) SERIES), FIXED FIRE FIGHTING COMPONENTS**

## **PART 4: SECTION 2.1**

### **GASEOUS SYSTEM COMPONENTS**

- This range of equipment is suitable for storage temperatures -20°C to +50°C and is approved for use with: Argonite® (IG55), Nitrogen (IG-100), Argon (IG-01) and IG541
- This range of equipment is approved for use in conjunction with Kidde Fire Protection Design manual reference: 06-237518-001 (Revision AA dated May 2018)
- System pressure is specified at 200 bar and 300 bar @ 15°C.

**Certificate No: 273l to an LPCB schedule of requirements**

#### ***Kidde Inert Gas System (400 Series) Manifolds***

| <b>Product Name</b>            | <b>Description</b>   | <b>No. cylinders</b> | <b>Working pressure, bar</b> | <b>LPCB Ref. No.</b> |
|--------------------------------|--|----------------------|------------------------------|----------------------|
| 38-351000-004 to 38-351000-008 | Single Row, Kidde IGS 400 Series Discharge Manifold (80L cylinders)  | 2 to 6               | 70                           | 273l/01              |
| 38-351000-009 to 38-351000-011 | Double Row, Kidde IGS 400 Series Discharge Manifold (80L cylinders)  | 4 to 8               | 70                           | 273l/02              |
| 38-351140-004 to 38-351140-008 | Single Row, Kidde IGS 400 Series Discharge Manifold (140L cylinders) | 2 to 6               | 70                           | 273l/03              |
| 38-351140-009 to 38-351140-011 | Single Row, Kidde IGS 400 Series Discharge Manifold (140L cylinders) | 4 to 8               | 70                           | 273l/04              |

#### **KIDDE INERT GAS SYSTEM (400) SERIES, FIXED FIRE FIGHTING COMPONENTS**

- This range of equipment is suitable for storage temperatures -20°C to +50°C and is approved for use with: Argonite® (IG55), Nitrogen (IG-100), Argon (IG-01) and IG541
- This range of equipment is approved for use in conjunction with Kidde Fire Protection Design manual reference: 06-237518-001 (Revision AA dated May 2018)
- System pressure is specified at 200 bar and 300 bar @ 15°C.

**Certificate No: 273m to EN 12094-13**

#### ***Kidde Inert Gas System (400 Series) Manifold Check Valve***

| <b>Product Name</b> | <b>Description</b>   | <b>Nominal bore, mm</b> | <b>Working pressure, bar</b> | <b>LPCB Ref. No.</b> |
|---------------------|----------------------|-------------------------|------------------------------|----------------------|
| 38-400002-002       | Manifold Check Valve | 14                      | 300                          | 273m/01              |

#### **KIDDE INERT GAS SYSTEM (400) SERIES, FIXED FIRE FIGHTING COMPONENTS**

- This range of equipment is suitable for storage temperatures -20°C to +50°C and is approved for use with: Argonite® (IG55), Nitrogen (IG-100), Argon (IG-01) and IG541
- This range of equipment is approved for use in conjunction with Kidde Fire Protection Design manual reference: 06-237518-001 (Revision AA dated May 2018)
- System pressure is specified at 200 bar and 300 bar @ 15°C.

**Certificate No: 273n to an LPCB schedule of requirements**

#### ***Kidde Inert Gas System(400 Series) Pressure Relief Devices***

| <b>Product Name</b> | <b>Description</b>              | <b>Working pressure, bar</b> | <b>LPCB Ref. No.</b> |
|---------------------|---------------------------------|------------------------------|----------------------|
| 38-400006-002       | Manifold Pressure Relief Device | 70                           | 273n/01              |

#### **KIDDE INERT GAS SYSTEM (400) SERIES, FIXED FIRE FIGHTING COMPONENTS**

- This range of equipment is suitable for storage temperatures -20°C to +50°C and is approved for use with: Argonite® (IG55), Nitrogen (IG-100), Argon (IG-01) and IG541
- This range of equipment is approved for use in conjunction with Kidde Fire Protection Design manual reference: 06-237518-001 (Revision AA dated May 2018)
- System pressure is specified at 200 bar and 300 bar @ 15°C.

**Certificate No: 273s to EN 12094-5**

#### ***Kidde Inert Gas (M400 Series) Selector Valves***

| <b>Product Name</b> | <b>Description</b> | <b>Max Working pressure, bar</b> | <b>LPCB Ref. No.</b> |
|---------------------|--------------------|----------------------------------|----------------------|
| 22-37140-025        | 1 Selector Valve   | 140                              | 273s/01              |

**PART 4: SECTION 2.1**  
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| Product Name | Description         | Max Working pressure, bar | LPCB Ref. No. |
|--------------|---------------------|---------------------------|---------------|
| 22-37140-040 | 1 ½" Selector Valve | 140                       | 273s/02       |
| 22-37140-050 | 2 Selector Valve    | 140                       | 273s/03       |
| 22-37140-080 | 3 Selector Valve    | 140                       | 273s/04       |
| 22-37140-100 | 4 Selector Valve    | 140                       | 273s/05       |

Certificate No: 273p to an LPCB schedule of requirements

**Kidde Inert Gas System (400 Series) Multi-area Manifold Accessories**

| Product Name | Description                        | LPCB Ref. No. |
|--------------|------------------------------------|---------------|
| 01-3508-0002 | Pilot Manifold (2 Divertor Valves) | 273p/01       |
| 01-3508-0003 | Pilot Manifold (3 Divertor Valves) | 273p/02       |
| 01-3508-0004 | Pilot Manifold (4 Divertor Valves) | 273p/03       |
| 01-3508-0005 | Pilot Manifold (5 Divertor Valves) | 273p/04       |

**KIDDE INERT GAS SYSTEM (400) SERIES), FIXED FIRE FIGHTING COMPONENTS**

- This range of equipment is suitable for storage temperatures -20°C to +50°C and is approved for use with: Argonite® (IG55), Nitrogen (IG-100), Argon (IG-01) and IG541
- This range of equipment is approved for use in conjunction with Kidde Fire Protection Design manual reference: 06-237518-001 (Revision AA dated May 2018)
- System pressure is specified at 200 bar and 300 bar @ 15°C.

**Notes:**

Outlet pressure 8 bar.

Certificate No: 273q to prEN12094-7 and an LPCB schedule of requirements

**Kidde Inert Gas System(400 Series) Nozzles**

| Product Name         | Description                      | Orifice Size (mm) | LPCB Ref. No. |
|----------------------|----------------------------------|-------------------|---------------|
| 38-4A7100-XXX (1)(2) | ½" Nozzle assembly - 360° Holes  | 3 10              | 273q/01       |
| 38-4A7200-XXX (1)(2) | ¾" Nozzle assembly - 360° Holes  | 7 13.5            | 273q/02       |
| 38-4A7300-XXX (1)(2) | 1" Nozzle assembly - 360° Holes  | 10 17             | 273q/03       |
| 38-4A7400-XXX (1)(2) | 1½" Nozzle assembly - 360° Holes | 14 - 26           | 273q/04       |
| 38-4A7500-XXX (1)(2) | ½" Nozzle assembly - 180° Holes  | 3 10              | 273q/05       |
| 38-4A7600-XXX (1)(2) | ¾" Nozzle assembly - 180° Holes  | 7 13.5            | 273q/06       |
| 38-4A7700-XXX (1)(2) | 1" Nozzle assembly - 180° Holes  | 10 17             | 273q/07       |
| 38-4A7800-XXX (1)(2) | 1½" Nozzle assembly - 180° Holes | 14 - 26           | 273q/08       |

**KIDDE INERT GAS SYSTEM (400) SERIES), FIXED FIRE FIGHTING COMPONENTS**

- This range of equipment is suitable for storage temperatures -20°C to +50°C and is approved for use with: Argonite® (IG55), Nitrogen (IG-100), Argon (IG-01) and IG541
- This range of equipment is approved for use in conjunction with Kidde Fire Protection Design manual reference: 06-237518-001 (Revision AA dated May 2018)
- System pressure is specified at 200 bar and 300 bar @ 15°C.

**Notes:**

- (1) Where XXX is Orifice size, e.g. 070 = 7mm, 075 = 7.5mm, 115 = 11.5mm, etc  
 (2) Where A can be 1 for BSP and 0 for NPT connections

Certificate No: 273r to an LPCB schedule of requirements

**Kidde Inert Gas System (400, 469 & C60 Series) Nozzle Sound Reduction Devices**

| Product Name | Description                    | Orifice Size (mm) | LPCB Ref. No. |
|--------------|--------------------------------|-------------------|---------------|
| 01-3470-0015 | ½" Nozzle Silencer (1)         | 3 10 (2)          | 273r/01       |
| 01-3470-0020 | ¾" Nozzle Silencer (1)         | 7 13.5 (2)        | 273r/02       |
| 01-3470-0025 | 1 Nozzle Silencer (1)          | 10 17 (2)         | 273r/03       |
| 01-3470-1015 | ½" FSN 112 Nozzle Silencer (1) | 3 10 (2)          | 273r/04       |

## **PART 4: SECTION 2.1**

### **GASEOUS SYSTEM COMPONENTS**

#### **KIDDE INERT GAS SYSTEM (400) SERIES), FIXED FIRE FIGHTING COMPONENTS**

- This range of equipment is suitable for storage temperatures -20°C to +50°C and is approved for use with: Argonite® (IG55), Nitrogen (IG-100), Argon (IG-01) and IG541
- This range of equipment is approved for use in conjunction with Kidde Fire Protection Design manual reference: 06-237518-001 (Revision AA dated May 2018)
- System pressure is specified at 200 bar and 300 bar @ 15°C.

#### **Notes:**

- (1) BSP thread
- (2) For use in connection with Kidde with Kidde IGS - 400, 469 & C60 Series 360° Nozzle Assemblies

### **LPG Técnicas En Extinción De Incendios, S.L.**

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**Certificate No: 446a**

#### **LPG Discharge Valves for Inert (200 bar) and Inert (300 bar)**

| Product Name | Description                      | LPCB Ref. No. |
|--------------|----------------------------------|---------------|
| 2000306V     | 128-60 container valve (200 bar) | 446a/01       |
| 26512800     | 128-65 container valve (300 bar) |               |

a) This range of equipment is suitable for storage and environmental conditions from -20° to +50° and is approved for use with IG541, IG55, IG100 and IG01.

b) This range of equipment is approved for use with LPG Design Manual reference: MD/55/01/IN.

c) Inert(200 bar) & Inert (300 bar) Nominal system pressure is specified as 200 bar and 300 bar at 15°C.

**Certificate No: 446a**

#### **LPG Container Valve Assemblies for Inert (200 bar)**

| Product Name | Description  | LPCB Ref. No. |
|--------------|--|---------------|
| 73131018H    | 80L Container Valve Assembly, LPG128-60 IG541 (1)  | 446a/24       |
| 73131018T    | 80L Container Valve Assembly, LPG128-60 IG541 (1)  |               |
| 73131018     | 80L Container Valve Assembly, LPG128-60 IG541 (1)  |               |
| 73119039     | 80L Container Valve Assembly, LPG128-60 IG55 (1)   |               |
| 73119039H    | 80L Container Valve Assembly, LPG128-60 IG55 (1)   |               |
| 73119039T    | 80L Container Valve Assembly, LPG128-60 IG55 (1)   |               |
| 73119039F    | 80L Container Valve Assembly, LPG128-60 IG55 (1)   |               |
| 73106035     | 80L Container Valve Assembly, LPG128-60 IG01 (1)   |               |
| 73106035T    | 80L Container Valve Assembly, LPG128-60 IG01 (1)   |               |
| 73121036     | 80L Container Valve Assembly, LPG128-60 IG100 (1)  |               |
| 76131009     | 140L Container Valve Assembly, LPG128-60 IG541 (1) |               |
| 76119012     | 140L Container Valve Assembly, LPG128-60 IG55 (1)  |               |
| 76119012H    | 140L Container Valve Assembly, LPG128-60 IG55 (1)  |               |
| 76119012T    | 140L Container Valve Assembly, LPG128-60 IG55 (1)  |               |
| 76119012F    | 140L Container Valve Assembly, LPG128-60 IG55 (1)  |               |
| 76106008     | 140L Container Valve Assembly, LPG128-60 IG01 (1)  |               |
| 76106008T    | 140L Container Valve Assembly, LPG128-60 IG01 (1)  |               |
| 73106034     | 80L Container Valve assembly, LPG128-60 IG01 (2)   |               |
| 73106034T    | 80L Container Valve assembly, LPG128-60 IG01 (2)   |               |
| 73121035     | 80L Container Valve assembly, LPG128-60 IG100 (2)  |               |
| 76131015     | 140L Container Valve assembly, LPG128-60 IG100 (2) |               |
| 76121010     | 140L Container Valve assembly, LPG128-60 IG100 (2) |               |
| 76131009H    | 140L Container Valve assembly, LPG128-60 IG541 (2) |               |
| 76131009T    | 140L Container Valve assembly, LPG128-60 IG541 (2) |               |



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**Notes:**

- (1) Includes pressure gauge + switch  
(2) Includes pressure gauge

- a) This range of equipment is suitable for storage and environmental conditions from -20° to +50° and is approved for use with IG541, IG55, IG100 and IG01.  
b) This range of equipment is approved for use with LPG Design Manual reference: MD/55/01/IN.  
c) Inert(200 bar) & Inert (300 bar) Nominal system pressure is specified as 200 bar and 300 bar at 15°C.

**Certificate No: 446a**

**LPG Container Valve Assemblies for Inert (300 bar)**

| Product Name | Description  | LPCB Ref. No. |
|--------------|--|---------------|
| 73130002     | 80L Container Valve Assembly, LPG128-65 IG541 (1)      | 446a/25       |
| 73130002H    | 80L Container Valve Assembly, LPG128-65 IG541 (1)      |               |
| 73130002T    | 80L Container Valve Assembly, LPG128-65 IG541 (1)      |               |
| 73120025     | 80L Container Valve Assembly, LPG128-65 IG55 (1)       |               |
| 73120025H    | 80L Container Valve Assembly, LPG128-65 IG55 (1)       |               |
| 73120025T    | 80L Container Valve Assembly, LPG128-65 IG55 (1)       |               |
| 73120025F    | 80L Container Valve Assembly, LPG128-65 IG55 (1)       |               |
| 73107018     | 80L Container Valve Assembly, LPG128-65 IG01 (1)       |               |
| 73107018T    | 80L Container Valve Assembly, LPG128-65 IG01 (1)       |               |
| 73122018     | 80L Container Valve Assembly, LPG128-65 IG100 (1)      |               |
| 76130002     | 140L Container Valve Assembly, LPG128-65 IG541 (1)     |               |
| 76130002H    | 140L Container Valve Assembly, LPG128-65 IG541 (1)     |               |
| 76130002T    | 140L Container Valve Assembly, LPG128-65 IG541 (1)     |               |
| 76120005     | 140L Container Valve Assembly, LPG128-65 IG55 (1)      |               |
| 76120005H    | 140L Container Valve Assembly, LPG128-65 IG55 (1)      |               |
| 76120005T    | 140L Container Valve Assembly, LPG128-65 IG55 (1)      |               |
| 76120005F    | 140L Container Valve Assembly, LPG128-65 IG55 (1)      |               |
| 76107001     | 140L Container Valve Assembly, LPG128-65 IG01 (1)      |               |
| 76107001T    | 140L Container Valve Assembly, LPG128-65 IG01 (1)      |               |
| 76122005     | 140L Container Valve assembly, LPG128-65 IG100 (1)     |               |
| 73107017     | 80L Container Valve assembly, LPG128-65 IG01 (2)       |               |
| 73107017T    | 80L Container Valve assembly, LPG128-65 IG01 (2)       |               |
| 73122017     | 80L Container Valve assembly, LPG128-65 IG100 (2)      |               |
| 76130004     | 140L Container Valve assembly, LPG128-65 IG541 (2)     |               |
| 76130007     | 140L Container Valve assembly, LPG128-65 IG100 (2)     |               |
| 73130030     | 80L PESO Container Valve Assembly, LPG128-65 IG541 (1) |               |
| 73120017     | 80L PESO Container Valve assembly, LPG128-65 IG55 (1)  |               |
| 73130030H    | 80L PESO Container Valve assembly, LPG128-65 IG541 (1) |               |
| 73130030T    | 80L PESO Container Valve assembly, LPG128-65 IG541 (1) |               |

**Notes:**

- (1) Includes pressure gauge + switch  
(2) Includes pressure gauge

- a) This range of equipment is suitable for storage and environmental conditions from -20° to +50° and is approved for use with IG541, IG55, IG100 and IG01.  
b) This range of equipment is approved for use with LPG Design Manual reference: MD/55/01/IN.  
c) Inert(200 bar) & Inert (300 bar) Nominal system pressure is specified as 200 bar and 300 bar at 15°C.

**Certificate No: 446a**

**LPG Restrictors for Inert (200 bar) and Inert (300 bar)**

| Product Name | Description                 | LPCB Ref. No. |
|--------------|-----------------------------|---------------|
| 61350005     | 3/4" Restrictor NPT x NPT   | 446a/17       |
| 61350006     | 1 Restrictor NPT x NPT      |               |
| 61350007     | 1 1/4" Restrictor NPT x NPT |               |
| 61350008     | 1 1/2" Restrictor NPT x NPT |               |
| 61350009     | 2 Restrictor NPT x NPT      |               |
| 61350012     | 2 1/2" Restrictor NPT x NPT |               |
| 61350013     | 3 Restrictor NPT x NPT      |               |
| 61350014     | 4 Restrictor NPT x NPT      |               |
| 61016121     | 3/4" Restrictor NPT x BSPT  |               |

## **PART 4: SECTION 2.1**

### **GASEOUS SYSTEM COMPONENTS**

| <b>Product Name</b> | <b>Description</b>         | <b>LPCB Ref. No.</b> |
|---------------------|----------------------------|----------------------|
| 61016122            | 1 Restrictor NPT x BSPT    |                      |
| 61016123            | 1 ¼" Restrictor NPT x BSPT |                      |
| 61016124            | 1 ½" Restrictor NPT x BSPT |                      |
| 61016125            | 2 Restrictor NPT x BSPT    |                      |
| 61016126            | 2 ½" Restrictor NPT x BSPT |                      |
| 61016127            | 3 Restrictor NPT x BSPT    |                      |
| 61016128            | 4 Restrictor NPT x BSPT    |                      |

a) This range of equipment is suitable for storage and environmental conditions from -20° to +50° and is approved for use with IG541, IG55, IG100 and IG01.

b) This range of equipment is approved for use with LPG Design Manual reference: MD/55/01/IN.

c) Inert(200 bar) & Inert (300 bar) Nominal system pressure is specified as 200 bar and 300 bar at 15°C.

**Certificate No: 446a**

#### ***LPG Discharge Hoses for Inert (200 bar) and Inert (300 bar)***

| <b>Product Name</b> | <b>Description</b> | <b>LPCB Ref. No.</b> |
|---------------------|--------------------|----------------------|
| 30522010            | ¾" flexible hose   | 446a/18              |

a) This range of equipment is suitable for storage and environmental conditions from -20° to +50° and is approved for use with IG541, IG55, IG100 and IG01.

b) This range of equipment is approved for use with LPG Design Manual reference: MD/55/01/IN.

c) Inert(200 bar) & Inert (300 bar) Nominal system pressure is specified as 200 bar and 300 bar at 15°C.

**Certificate No: 446a**

#### ***LPG Discharge Containers for Inert (200 bar) and Inert (300 bar)***

| <b>Product Name</b> | <b>Description</b>           | <b>LPCB Ref. No.</b> |
|---------------------|------------------------------|----------------------|
| 10800080            | 80 litre cylinder (200 bar)  | 446a/19              |
| 11400060            | 140 litre cylinder (200 bar) |                      |
| 10800300            | 80 litre cylinder (300 bar)  |                      |
| 11400300            | 140 litre cylinder (300 bar) |                      |

a) This range of equipment is suitable for storage and environmental conditions from -20° to +50° and is approved for use with IG541, IG55, IG100 and IG01.

b) This range of equipment is approved for use with LPG Design Manual reference: MD/55/01/IN.

c) Inert(200 bar) & Inert (300 bar) Nominal system pressure is specified as 200 bar and 300 bar at 15°C.

**Certificate No: 446a**

#### ***LPG Check Valves for Inert (200 bar) and Inert (300 bar)***

| <b>Product Name</b> | <b>Description</b> | <b>LPCB Ref. No.</b> |
|---------------------|--------------------|----------------------|
| 20006050            | ¾" check valve     | 446a/20              |

a) This range of equipment is suitable for storage and environmental conditions from -20° to +50° and is approved for use with IG541, IG55, IG100 and IG01.

b) This range of equipment is approved for use with LPG Design Manual reference: MD/55/01/IN.

c) Inert(200 bar) & Inert (300 bar) Nominal system pressure is specified as 200 bar and 300 bar at 15°C.

**Certificate No: 446a**

#### ***LPG Inerts Pressure Gauges for Inert (200bar) and Inert (300bar)***

| <b>Product Name</b> | <b>Description</b>               | <b>LPCB Ref. No.</b> |
|---------------------|----------------------------------|----------------------|
| 30245003            | 0-400 gauge + switch set 270 bar | 446a/22              |
| 30116035            | 0-315 gauge + switch set 180 bar |                      |
| 30116043            | 0-450 bar pressure gauge         |                      |
| 3021316B            | 0-315 bar pressure gauge         |                      |

**PART 4: SECTION 2.1**  
GASEOUS SYSTEM COMPONENTS

- a) This range of equipment is suitable for storage and environmental conditions from -20° to +50° and is approved for use with IG541, IG55, IG100 and IG01.  
 b) This range of equipment is approved for use with LPG Design Manual reference: MD/55/01/IN.  
 c) Inert(200 bar) & Inert (300 bar) Nominal system pressure is specified as 200 bar and 300 bar at 15°C.

**Certificate No: 446a**

**LPG Nozzles for Inert (200 bar),(300 bar), HFC23, HFC125 and HFC227ea**

| Product Name | Description        | LPCB Ref. No. |
|--------------|--------------------|---------------|
| 30400000     | 3/8" 360° nozzle   | 446a/21       |
| 30400001     | 1/2" 360° nozzle   |               |
| 30400002     | 3/4" 360° nozzle   |               |
| 30400003     | 1" 360° nozzle     |               |
| 30400004     | 1 1/4" 360° nozzle |               |
| 30400005     | 1 1/2" 360° nozzle |               |
| 30400006     | 2" 360° nozzle     |               |
| 30400007     | 3/8" 180° nozzle   |               |
| 30400008     | 1/2" 180° nozzle   |               |
| 30400009     | 3/4" 180° nozzle   |               |
| 30400010     | 1" 180° nozzle     |               |
| 30400011     | 1 1/4" 180° nozzle |               |
| 30400012     | 1 1/2" 180° nozzle |               |
| 30400013     | 2" 180° nozzle     |               |

- a) This range of equipment is suitable for storage from - 20° to 50°C  
 b) Systems are specified as follows:  
     HFC23: System pressure is specified as 41 bar @ 20°C, maximum filling density 0.85 kg/l.  
     HFC125: System pressure is specified as 41 bar @ 20°C, maximum filling density 0.93 kg/l.  
     HFC227ea: System pressure is specified as 41 bar @ 20°C, maximum filling density 1.15 kg/l.  
 c) Systems with HFC23 are not superpressurised.  
 d) Components listed are appropriate for the gas as indicated.

**Certificate No: 446a**

**LPG HFCS Discharge Valves, including syphon tube for HFC23**

| Product Name | Description | LPCB Ref. No. |
|--------------|-------------|---------------|
| 2131910B     | LPG190-13   | 446a/03       |
| 2131450B     | LPG145-13   |               |
| 2131280B     | LPG128-13   |               |

- a) This range of equipment is suitable for storage from - 20° to 50°C  
 b) Systems are specified as follows:  
     HFC23: System pressure is specified as 41 bar @ 20°C, maximum filling density 0.85 kg/l.  
     HFC125: System pressure is specified as 41 bar @ 20°C, maximum filling density 0.93 kg/l.  
     HFC227ea: System pressure is specified as 41 bar @ 20°C, maximum filling density 1.15 kg/l.  
 c) Systems with HFC23 are not superpressurised.  
 d) Components listed are appropriate for the gas as indicated.

**Certificate No: 446a**

**LPG HFCS Discharge Valves, including syphon tube for HFC125 and HFC227ea**

| Product Name | Description | LPCB Ref. No. |
|--------------|-------------|---------------|
| 2001910B     | LPG190-00   | 446a/04       |
| 2001450B     | LPG145-00   |               |
| 2001280B     | LPG128-00   |               |

- a) This range of equipment is suitable for storage from - 20° to 50°C  
 b) Systems are specified as follows:  
     HFC23: System pressure is specified as 41 bar @ 20°C, maximum filling density 0.85 kg/l.  
     HFC125: System pressure is specified as 41 bar @ 20°C, maximum filling density 0.93 kg/l.  
     HFC227ea: System pressure is specified as 41 bar @ 20°C, maximum filling density 1.15 kg/l.  
 c) Systems with HFC23 are not superpressurised.  
 d) Components listed are appropriate for the gas as indicated.

# **PART 4: SECTION 2.1**

## **GASEOUS SYSTEM COMPONENTS**

Certificate No: 446a

### **LPG HFCS Discharge Containers for HFC23, HFC125 and HFC227ea**

| <b>Product Name</b> | <b>Description</b> | <b>LPCB Ref. No.</b> |
|---------------------|--------------------|----------------------|
| 10120100            | 120 l. container   | 446a/05              |
| 10950100            | 100 l. container   |                      |
| 10750100            | 75 l. container    |                      |
| 10670080            | 67 l. container    |                      |
| 10400080            | 40.2 l. container  |                      |
| 10260060            | 26.8 l. container  |                      |
| 10130060            | 13.4 l. container  |                      |
| 10050060            | 5.0 l. container   |                      |

- a) This range of equipment is suitable for storage from - 20° to 50°C
- b) Systems are specified as follows:
  - HFC23: System pressure is specified as 41 bar @ 20°C, maximum filling density 0.85 kg/l.
  - HFC125: System pressure is specified as 41 bar @ 20°C, maximum filling density 0.93 kg/l.
  - HFC227ea: System pressure is specified as 41 bar @ 20°C, maximum filling density 1.15 kg/l.
- c) Systems with HFC23 are not superpressurised.
- d) Components listed are appropriate for the gas as indicated.

Certificate No: 446a

### **LPG HFC227ea Container Valve Assemblies**

| <b>Product Name</b> | <b>Description</b>                            | <b>LPCB Ref. No.</b> |
|---------------------|---|----------------------|
| 70102070            | 5L Container Valve Assembly, LPG128-00 (1)    | 446a/23              |
| 70102076            | 13.4L Container Valve Assembly, LPG128-00 (1) |                      |
| 70102079            | 13.4L Container Valve Assembly, LPG128-00 (2) |                      |
| 70102057            | 26.8L Container Valve Assembly, LPG128-00 (1) |                      |
| 70102060            | 26.8L Container Valve Assembly, LPG128-00 (2) |                      |
| 70102063            | 40.2L Container Valve Assembly, LPG145-00 (1) |                      |
| 70102066            | 40.2L Container Valve Assembly, LPG145-00 (2) |                      |
| 71102019            | 67L Container Valve Assembly, LPG145-00 (1)   |                      |
| 71102022            | 67L Container Valve Assembly, LPG145-00 (3)   |                      |
| 71102024            | 67L Container Valve Assembly, LPG145-00 (2)   |                      |
| 72102019            | 75L Container Valve Assembly, LPG190-00 (1)   |                      |
| 72102023            | 75L Container Valve Assembly, LPG190-00 (3)   |                      |
| 72102017            | 75L Container Valve Assembly, LPG190-00 (2)   |                      |
| 74102016            | 100L Container Valve Assembly, LPG190-00 (1)  |                      |
| 74102019            | 100L Container Valve Assembly, LPG190-00 (3)  |                      |
| 74102020            | 100L Container Valve Assembly, LPG190-00 (2)  |                      |
| 75102018            | 120L Container Valve Assembly, LPG190-00 (1)  |                      |
| 75102021            | 120L Container Valve Assembly, LPG190-00 (3)  |                      |
| 75102023            | 120L Container Valve Assembly, LPG190-00 (2)  |                      |

Notes:

- (1) Master with solenoid actuator
  - (2) Slave with blind cap w/out solenoid actuator
  - (3) Master with 1/8 " solenoid actuator
- All above assemblies include pressure gauge + switch

- a) This range of equipment is suitable for storage from - 20° to 50°C
- b) Systems are specified as follows:
  - HFC23: System pressure is specified as 41 bar @ 20°C, maximum filling density 0.85 kg/l.
  - HFC125: System pressure is specified as 41 bar @ 20°C, maximum filling density 0.93 kg/l.
  - HFC227ea: System pressure is specified as 41 bar @ 20°C, maximum filling density 1.15 kg/l.
- c) Systems with HFC23 are not superpressurised.
- d) Components listed are appropriate for the gas as indicated.

Certificate No: 446a

### **LPG HFCS Discharge Hoses for HFC23, HFC125 and HFC227ea**

| <b>Product Name</b> | <b>Description</b>             | <b>LPCB Ref. No.</b> |
|---------------------|--------------------------------|----------------------|
| 30508HFC            | Rigid telescopic hose 1.5" (1) | 446a/06              |
| 30508080            | Rigid hose 1½" HG/MF (1)       |                      |

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| Product Name | Description                  | LPCB Ref. No. |
|--------------|------------------------------|---------------|
| 30508000     | Rigid hose 1½" HG/HG (1)     |               |
| 30506HFC     | Rigid telescopic hose 1" (1) |               |
| 30502140     | R2F hose 400 G 1" HG/HF (1)  |               |
| 30506000     | R2F hose 320 G 1" HG/HG (1)  |               |
| 30506070     | R2F hose 400 G ¾" HG/HF (1)  |               |

(1) Maximum Working Pressure 160 bar

- a) This range of equipment is suitable for storage from - 20° to 50°C  
b) Systems are specified as follows:  
HFC23: System pressure is specified as 41 bar @ 20°C, maximum filling density 0.85 kg/l.  
HFC125: System pressure is specified as 41 bar @ 20°C, maximum filling density 0.93 kg/l.  
HFC227ea: System pressure is specified as 41 bar @ 20°C, maximum filling density 1.15 kg/l.  
c) Systems with HFC23 are not superpressurised.  
d) Components listed are appropriate for the gas as indicated.

**Certificate No: 446a**

**LPG HFCS Manifolds for HFC23, HFC125 and HFC227ea**

| Product Name | Description         | LPCB Ref. No. |
|--------------|---------------------|---------------|
| 3811VCCD     | Single Row manifold | 446a/12       |

According to the following:

V denotes container size: '1' means 67L, '2' means 75L and '4' means 100L/120L

CC denotes number of ports

D denotes manifold diameter where '3' means 1 ¼", '4' means 1 ½", '5' means 2", '6' means 2 ½", '7' means 3" and '8' means 4"

- a) This range of equipment is suitable for storage from - 20° to 50°C  
b) Systems are specified as follows:  
HFC23: System pressure is specified as 41 bar @ 20°C, maximum filling density 0.85 kg/l.  
HFC125: System pressure is specified as 41 bar @ 20°C, maximum filling density 0.93 kg/l.  
HFC227ea: System pressure is specified as 41 bar @ 20°C, maximum filling density 1.15 kg/l.  
c) Systems with HFC23 are not superpressurised.  
d) Components listed are appropriate for the gas as indicated.

**Certificate No: 446a**

**LPG Discharge Pressure Switch for Inert 200 bar, Inert 300 bar, HFC23, HFC125 and HFC227ea**

| Product Name | Description               | LPCB Ref. No. |
|--------------|---------------------------|---------------|
| 30330010     | Discharge pressure switch | 446a/14       |

- a) This range of equipment is suitable for storage from - 20° to 50°C  
b) Systems are specified as follows:  
HFC23: System pressure is specified as 41 bar @ 20°C, maximum filling density 0.85 kg/l.  
HFC125: System pressure is specified as 41 bar @ 20°C, maximum filling density 0.93 kg/l.  
HFC227ea: System pressure is specified as 41 bar @ 20°C, maximum filling density 1.15 kg/l.  
c) Systems with HFC23 are not superpressurised.  
d) Components listed are appropriate for the gas as indicated.

**Certificate No: 446a**

**LPG HFCS Pressure Gauges for HFC23**

| Product Name | Description   | LPCB Ref. No. |
|--------------|---|---------------|
| 30216010     | 0-160 pressure gauge short socket                       | 446a/15       |
| 30116052     | 0-160 pressure gauge + switch, short socket, set 90 bar |               |
| 30116053     | 0-160 pressure gauge + switch, long socket, set 90 bar  |               |
| 3021160B     | 0-160 pressure gauge, long socket                       |               |

- a) This range of equipment is suitable for storage from - 20° to 50°C  
b) Systems are specified as follows:  
HFC23: System pressure is specified as 41 bar @ 20°C, maximum filling density 0.85 kg/l.

## **PART 4: SECTION 2.1**

### **GASEOUS SYSTEM COMPONENTS**

HFC125: System pressure is specified as 41 bar @ 20°C, maximum filling density 0.93 kg/l.

HFC227ea: System pressure is specified as 41 bar @ 20°C, maximum filling density 1.15 kg/l.

- c) Systems with HFC23 are not superpressurised.
- d) Components listed are appropriate for the gas as indicated.

**Certificate No: 446a**

#### **LPG Pressure Gauge for Inert (100 bar)**

| <b>Product Name</b> | <b>Description</b>            | <b>LPCB Ref. No.</b> |
|---------------------|-------------------------------|----------------------|
| 30116054            | 0-160 pressure gauge + switch | 446a/27              |

**Certificate No: 446a**

#### **LPG HFCs Pressure Gauges for HFC125 and HFC227ea**

| <b>Product Name</b> | <b>Description</b>                          | <b>LPCB Ref. No.</b> |
|---------------------|---|----------------------|
| 30210100            | 0-100 pressure gauge short socket           | 446a/16              |
| 3021100B            | 0-100 pressure gauge long socket            |                      |
| 30116040            | 0-100 pressure gauge + switch, short socket |                      |
| 30116037            | 0-100 pressure gauge + switch, long socket  |                      |

- a) This range of equipment is suitable for storage from - 20° to 50°C
- b) Systems are specified as follows:
  - HFC23: System pressure is specified as 41 bar @ 20°C, maximum filling density 0.85 kg/l.
  - HFC125: System pressure is specified as 41 bar @ 20°C, maximum filling density 0.93 kg/l.
  - HFC227ea: System pressure is specified as 41 bar @ 20°C, maximum filling density 1.15 kg/l.
- c) Systems with HFC23 are not superpressurised.
- d) Components listed are appropriate for the gas as indicated.

**Certificate No: 446a**

#### **LPG Check Valves for HFC23, HFC125 and HFC227ea**

| <b>Product Name</b> | <b>Description</b>                                  | <b>LPCB Ref. No.</b> |
|---------------------|---|----------------------|
| 20006060            | Ball check valve 1.0" (brass) (1)                   | 446a/07              |
| 20006067            | Ball check valve 1" (steel) (1)                     |                      |
| 20006HFC            | Ball telescopic check valve 1.0" (brass) (1)        |                      |
| 20007HFC            | Ball telescopic check valve 1" (steel) (1)          |                      |
| 20008000            | Piston check valve 2" (1)                           |                      |
| 2008HFC             | Piston telescopic check valve 2" (1)                |                      |
| 21006302            | Piston check valve 2" (U. L. version) (1)           |                      |
| 21006303            | Piston telescopic check valve 2" (U.L. version) (1) |                      |

(1) these check valves are rated for a maximum working pressure of 160bar

- a) This range of equipment is suitable for storage from - 20° to 50°C
- b) Systems are specified as follows:
  - HFC23: System pressure is specified as 41 bar @ 20°C, maximum filling density 0.85 kg/l.
  - HFC125: System pressure is specified as 41 bar @ 20°C, maximum filling density 0.93 kg/l.
  - HFC227ea: System pressure is specified as 41 bar @ 20°C, maximum filling density 1.15 kg/l.
- c) Systems with HFC23 are not superpressurised.
- d) Components listed are appropriate for the gas as indicated.

**Certificate No: 446a**

#### **LPG HFCs Brackets for HFC23, HFC125 and HFC227ea**

| <b>Product Name</b> | <b>Description</b> | <b>LPCB Ref. No.</b> |
|---------------------|--------------------|----------------------|
| 30620310            | Modular 3L         | 446a/11              |
| 30621310            | Modular 5/7/13L    |                      |
| 30625010            | Modular 26/40L     |                      |
| 30626711            | Modular 67/75L     |                      |
| 30621010            | Modular 100/120L   |                      |
| 306XX6SS(1)         | Single row 67L     |                      |

## PART 4: SECTION 2.1

### GASEOUS SYSTEM COMPONENTS

| Product Name | Description                       | LPCB Ref. No. |
|--------------|-----------------------------------|---------------|
| 306XX7SN(1)  | Single row 75L                    |               |
| 306021002    | Kit 2 bottles 100/120L single row |               |
| 306031002    | Kit 3 bottles 100/120L single row |               |

<sup>1</sup> XX denotes the number of containers.

<sup>2</sup> The number and combination of kits depends on the number of containers in the battery.

- a) This range of equipment is suitable for storage from - 20° to 50°C
- b) Systems are specified as follows:
  - HFC23: System pressure is specified as 41 bar @ 20°C, maximum filling density 0.85 kg/l.
  - HFC125: System pressure is specified as 41 bar @ 20°C, maximum filling density 0.93 kg/l.
  - HFC227ea: System pressure is specified as 41 bar @ 20°C, maximum filling density 1.15 kg/l.
- c) Systems with HFC23 are not superpressurised.
- d) Components listed are appropriate for the gas as indicated.

**Certificate No: 446a**

#### **LPG Pneumatic Line Actuation for Inert 200 bar, Inert 300 bar, HFC23, HFC125 and HFC 227ea**

| Product Name | Description  | LPCB Ref. No. |
|--------------|--|---------------|
| 3023024B     | Solenoid actuator 13W/24V  | 446a/09       |
| 30130197     | Solenoid actuator 1/8" output  |               |
| 30180APB     | Manual actuator  |               |
| 3018NAPB     | Dual manual actuator   |               |
| 30118APB     | 3 ways cone high pressure with blind plug (used with inert)                | 446a/10       |
| 30116APBH    | 3 ways cone high pressure with blind plug (used with HFCs)                 |               |
| 302.200.075  | ¼" relief valve  |               |
| 3080008C     | Pressure relief screw (short)  |               |
| 3080008L     | Pressure relief screw (long)   |               |
| 30522001     | PTFE hose ¼" x 700mm (1)   |               |
| 30506014     | PTFE hose ¼" x 580mm (1)   |               |
| 29012804     | 128-90 pilot container valve with pressure gauge + switch                  |               |
| 29012804.SOL | 128-90 pilot container valve with pressure gauge and std solenoid          |               |
| 2901280B     | 128-90 pilot container valve with pressure gauge                           |               |
| 2901280B.SOL | 128-90 pilot container valve with pressure gauge and std solenoid          |               |
| 21114045     | 128-97 pilot container valve with pressure gauge + switch                  |               |
| 21114045.SOL | 128-97 pilot container valve with pressure gauge + switch and std solenoid |               |
| 21114008     | 128-97 pilot container valve with pressure gauge                           |               |
| 21114008.SOL | 128-97 pilot container valve with pressure gauge and std solenoid          |               |

**Notes:**

- (1) Maximum working pressure = 140 bar

**Certificate No: 446a**

#### **LPG Pilot Valve Assemblies (100 bar Nitrogen)**

| Product Name | Description                                       | LPCB Ref. No. |
|--------------|---|---------------|
| 10030000     | 3L Pilot Valve Assembly, LPG128-90, W28.8 DIN477  | 446a/26       |
| 10030NPT     | 3L Pilot Valve Assembly, LPG128-97, 1 NGT         |               |
| 70100075     | 3L Pilot Valve Assembly, LPG128-90, W28.8 DIN477  |               |
| 70100075H    | 3L Pilot Valve Assembly, LPG128-90, W28.8, DIN477 |               |
| 70100075F    | 3L Pilot Valve Assembly, LPG128-90, W28.8, DIN477 |               |
| 70100075T    | 3L Pilot Valve Assembly, LPG128-90, W28.8 DIN477  |               |
| 70100075TCH  | 3L Pilot Valve Assembly, LPG128-90, W28.8, DIN477 |               |
| 441403       | 3L Pilot Valve Assembly, LPG128-97, 1 NGT         |               |
| 70100082     | 13L Pilot Valve Assembly, LPG128-90               |               |
| 70100082H    | 13L Pilot Valve Assembly, LPG128-90               |               |
| 70100082F    | 13L Pilot Valve Assembly, LPG128-90               |               |
| 70100082T    | 13L Pilot Valve Assembly, LPG128-90               |               |
| 70100082TCH  | 13L Pilot Valve Assembly, LPG128-90               |               |
| 70121011     | 50L Pilot Valve Assembly, LPG128-90               |               |
| 70121011H    | 50L Pilot Valve Assembly, LPG128-90               |               |
| 70121011T    | 50L Pilot Valve Assembly, LPG128-90               |               |
| 70121011TCH  | 50L Pilot Valve Assembly, LPG128-90               |               |
| 70121011F    | 50L Pilot Valve Assembly, LPG128-90               |               |
| 70121012     | 50L Pilot Valve Assembly, LPG128-90               |               |
| 70100083     | 13L PESO Pilot Valve Assembly, LPG128-90          |               |

## **PART 4: SECTION 2.1**

### **GASEOUS SYSTEM COMPONENTS**

**Certificate No: 446c**

#### **LPG Sapphire (Novec 1230) Fixed Fire Fighting Components**

- This range of equipment is suitable for storage temperatures -20°C to 50°C and is approved for use with Sapphire™ (Novec 1230)
- This range of equipment is approved for use in conjunction with the LPG Design Manual Reference : 14A-06L issue 5
- System pressure is specified @ 25bar @ 20°C
- Containers are designed to be mounted vertically
- All container assemblies with the exception of modular assemblies include container valve, container, siphon tube and pressure gauge.
- Modular assemblies include container valve, container, siphon tube, nozzle, bracket, pressure gauge and supervisory switch.

**Certificate No: 446c**

#### **LPG Sapphire (Novec 1230) Container Valve Assemblies**

| <b>Product Name</b> | <b>Description</b>                           | <b>LPCB Ref. No.</b> |
|---------------------|--|----------------------|
| 303.207.010         | 4.5 litre container assembly (DOT) (Welded)  | 446c/02              |
| 303.207.001         | 8 litre container assembly (DOT) (Welded)    |                      |
| 303.207.002         | 16 litre container assembly (DOT) (Welded)   |                      |
| 303.207.003         | 32 litre container assembly (DOT) (Welded)   |                      |
| 303.207.004         | 52 litre container assembly (DOT) (Welded)   |                      |
| 303.207.005         | 106 litre container assembly (DOT) (Welded)  |                      |
| 303.207.006         | 147 litre container assembly (DOT) (Welded)  |                      |
| 303.207.007         | 180 litre container assembly (DOT) (Welded)  |                      |
| 303.207.015         | 8 litre container assembly (TPED) (Welded)   |                      |
| 303.207.016         | 16 litre container assembly (TPED) (Welded)  |                      |
| 303.207.017         | 32 litre container assembly (TPED) (Welded)  |                      |
| 303.207.012         | 52 litre container assembly (TPED) (Welded)  |                      |
| 303.207.013         | 106 litre container assembly (TPED) (Welded) |                      |
| 303.207.014         | 147 litre container assembly (TPED) (Welded) |                      |
| 303.207.018         | 180 litre container assembly (TPED) (Welded) |                      |

**Certificate No: 446c**

#### **LPG Sapphire (Novec 1230) Discharge Nozzles**

| <b>Product Name</b> | <b>Description</b>                       | <b>LPCB Ref. No.</b> |
|---------------------|--|----------------------|
| 310.207.101/102     | Aluminium nozzle - 15 mm 180°/360° (BSP) | 446c/04              |
| 310.207.103/104     | Aluminium nozzle - 20mm 180°/360° (BSP)  |                      |
| 310.207.105/106     | Aluminium nozzle - 25mm 180°/360° (BSP)  |                      |
| 310.207.107/108     | Aluminium nozzle - 32mm 180°/360° (BSP)  |                      |
| 310.207.109/110     | Aluminium nozzle - 40mm 180°/360° (BSP)  |                      |
| 310.207.111/112     | Aluminium nozzle - 50mm 180°/360° (BSP)  |                      |
| 310.207.113/114     | Aluminium nozzle - 15mm 180°/360° (NPT)  |                      |
| 310.207.115/116     | Aluminium nozzle - 20mm 180°/360° (NPT)  |                      |
| 310.207.117/118     | Aluminium nozzle - 25mm 180°/360° (NPT)  |                      |
| 310.207.119/120     | Aluminium nozzle - 32mm 180°/360° (NPT)  |                      |
| 310.207.121/122     | Aluminium nozzle - 40mm 180°/360° (NPT)  |                      |
| 310.207.123/124     | Aluminium nozzle - 50mm 180°/360° (NPT)  |                      |
| 310.207.201/202     | Brass nozzle - 15 mm 180°/360° (BSP)     |                      |
| 310.207.203/204     | Brass nozzle - 20mm 180°/360° (BSP)      |                      |
| 310.207.205/206     | Brass nozzle - 25mm 180°/360° (BSP)      |                      |
| 310.207.207/208     | Brass nozzle - 32mm 180°/360° (BSP)      |                      |
| 310.207.209/210     | Brass nozzle - 40mm 180°/360° (BSP)      |                      |
| 310.207.211/212     | Brass nozzle - 50mm 180°/360° (BSP)      |                      |
| 310.207.213/214     | Brass nozzle - 15 mm 180°/360° (NPT)     |                      |
| 310.207.215/216     | Brass nozzle - 20mm 180°/360° (NPT)      |                      |
| 310.207.217/218     | Brass nozzle - 25mm 180°/360° (NPT)      |                      |
| 310.207.219/220     | Brass nozzle - 32mm 180°/360° (NPT)      |                      |
| 301.207.221/222     | Brass nozzle - 40mm 180°/360° (NPT)      |                      |
| 310.207.223/224     | Brass nozzle - 50mm 180°/360° (NPT)      |                      |

**Certificate No: 446c**



**PART 4: SECTION 2.1**  
GASEOUS SYSTEM COMPONENTS

**LPG Sapphire Container Labels**

| Product Name | Description  | LPCB Ref. No. |
|--------------|--|---------------|
| 314.207.064  | Sapphire™ (Novec 1230) Container Label, 32, 106, 147 & 180 litre | 446c/17       |
| 314.207.065  | Sapphire™ (Novec 1230) Container Label, 4.5, 8, 16 & 52 litre    |               |

Certificate No: 446c

**LPG Sapphire Actuators**

| Product Name | Description   | LPCB Ref. No. |
|--------------|---|---------------|
| 304.001.001  | Electrical actuator - DIN plug and lead (suppression diode) | 446c/05       |
| 304.001.002  | Electrical actuator - DIN plug and lead (bridge rectifier)  |               |
| 304.205.001  | Electrical actuator - standard (suppression diode)          |               |
| 304.209.001  | Electrical actuator - standard (bridge rectifier)           |               |
| 304.205.002  | ATEX Electrical actuator (flameproof)                       |               |
| 304.209.002  | Local manual actuator                                       |               |
| 304.209.004  | Pneumatic actuator  |               |
| 304.209.003  | Remote manual actuator                                      |               |

Certificate No: 446c

**LPG Sapphire Pressure Gauges & Switches**

| Product Name | Description   | LPCB Ref. No. |
|--------------|---|---------------|
| 304.205.006  | Supervisory pressure switch - standard (open on fall) | 446c/06       |
| 305.209.005  | Supervisory pressure switch - special (close on fall) |               |
| 305.209.002  | Supervisory pressure switch - 15 bar modular          |               |
| 305.205.004  | Supervisory pressure switch - ATEX                    |               |
| 305.205.005  | Discharge pressure switch - standard                  | 446c/07       |
| 305.205.003  | Discharge pressure switch - ATEX                      |               |
| 302.207.012  | Pressure Gauge (50mm) Sapphire™ (Novec 1230) 0-40 bar | 446c/08       |
| 302.207.010  | Pressure Gauge (50mm) Sapphire™ (Novec 1230) 0-60 bar |               |
| 302.209.012  | Pilot Pressure Gauge (50mm) 0-100 bar                 |               |

Certificate No: 446c

**LPG Sapphire Discharge and Pilot Hoses**

| Product Name | Description          | LPCB Ref. No. |
|--------------|----------------------|---------------|
| 306.205.003  | Flexible pilot hose  | 446c/09       |
| 306.207.001  | 25 mm discharge hose |               |
| 306.207.002  | 50 mm discharge hose |               |

Certificate No: 446c

**LPG Sapphire Check and Non-Return Valves**

| Product Name | Description                        | LPCB Ref. No. |
|--------------|------------------------------------|---------------|
| 302.209.004  | 25 mm manifold check valve         | 446c/10       |
| 302.209.005  | 50 mm manifold check valve         |               |
| 302.209.009  | Non return valve                   |               |
| 302.209.011  | Non return valve Male Adaptor      | 446c/11       |
| 302.209.010  | Non return valve Standpipe adaptor |               |

Certificate No: 446c

**LPG Sapphire Manifolds and Accessories**

| Product Name    | Description                       | LPCB Ref. No. |
|-----------------|-----------------------------------|---------------|
| 307.209.022-024 | 65mm manifold BSPT - 2 to 4 Port  | 446c/12       |
| 307.209.001-003 | 65 mm manifold NPT - 2 to 4 Port  |               |
| 307.209.025-29  | 80 mm manifold BSPT - 2 to 6 Port |               |
| 307.209.004-008 | 80 mm manifold NPT - 2 to 6 Port  |               |

## **PART 4: SECTION 2.1**

### **GASEOUS SYSTEM COMPONENTS**

| <b>Product Name</b> | <b>Description</b>                     | <b>LPCB Ref. No.</b> |
|---------------------|--|----------------------|
| 307.209.030-034     | 100 mm manifold BSPT - 2 to 6 Port     |                      |
| 307.209.009-013     | 100 mm manifold NPT - 2 to 6 Port      |                      |
| 307.209.014-021     | 150 mm manifold Flanged - 3 to 10 Port |                      |
| 302.200.016         | Vent valve                             |                      |
| 13281               | Manifold burst disc assembly           |                      |

- 65 mm manifolds for use on 4.5/8/16/32 litre containers only

- 80/100/150 mm manifolds for use with 52/106/147/180 litre containers

- 150 mm manifolds require a DN150 300 lb carbon steel A105 mating flange to connect to the pipework

- Manifolds are supplied without check valve and end caps

**Certificate No: 446c**

#### ***LPG Sapphire Brackets***

| <b>Product Name</b> | <b>Description</b>                                      | <b>LPCB Ref. No.</b> |
|---------------------|---|----------------------|
| 311.205.020         | 4.5 litre container bracket (strap style)               | 446c/13              |
| 311.205.013         | 8/16/32 litre container bracket (strap style)           |                      |
| 311.205.014         | 52/106/147/180 litre container bracket (strap style)    |                      |
| 311.205.021         | 40 litre container bracket (strap style)                |                      |
| 311.205.017         | 67.5 litre container bracket (strap style)              |                      |
| 311.205.018         | 80 litre container bracket (strap style)                |                      |
| 311.209.002         | 8/16/32 litre container brackets (hoop style)           |                      |
| 311.209.003         | 52/106/147/180 litre container bracket (hoop style)     |                      |
| 304.209.011         | ATEX electrical actuator - 25 mm valve support brackets | 446c/14              |
| 304.209.012         | ATEX electrical actuator - 50 mm valve support brackets |                      |
| 311.205.015         | 65mm manifold bracket assembly                          | 446c/15              |
| 311.205.010         | 80mm manifold bracket assembly                          |                      |
| 311.205.011         | 100mm manifold bracket assembly                         |                      |
| 311.205.012         | 150mm manifold bracket assembly                         |                      |

**Certificate No: 446c**

#### ***LPG Sapphire Pilot Actuation and Accessories***

| <b>Product Name</b> | <b>Description</b> | <b>LPCB Ref. No.</b> |
|---------------------|--------------------|----------------------|
| 302.200.076         | ¼" NPT Bleed valve | 446c/16              |
| 304.209.007         | Pilot cylinder     |                      |

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**Certificate No: 587a**

#### ***LPG Discharge Valves for Inert (200 bar) and Inert (300 bar)***

| <b>Product Name</b> | <b>Description</b>               | <b>LPCB Ref. No.</b> |
|---------------------|----------------------------------|----------------------|
| 2000306V            | 128-60 container valve (200 bar) | 587a/21              |
| 26512800            | 128-65 container valve (300 bar) |                      |

**Certificate No: 587a**

**PART 4: SECTION 2.1**  
GASEOUS SYSTEM COMPONENTS

**LPG Container Valve Assemblies for Inert (200 bar)**

| Product Name | Description  | LPCB Ref. No. |
|--------------|--|---------------|
| 73131018     | 80L Container Valve Assembly, LPG128-60 IG541 (1)  | 587a/22       |
| 73131018H    | 80L Container Valve Assembly, LPG128-60 IG541 (1)  |               |
| 73131018T    | 80L Container Valve Assembly, LPG128-60 IG541 (1)  |               |
| 73119039     | 80L Container Valve Assembly, LPG128-60 IG55 (1)   |               |
| 73119039H    | 80L Container Valve Assembly, LPG128-60 IG55 (1)   |               |
| 73119039T    | 80L Container Valve Assembly, LPG128-60 IG55 (1)   |               |
| 73119039F    | 80L Container Valve Assembly, LPG128-60 IG55 (1)   |               |
| 73106035     | 80L Container Valve Assembly, LPG128-60 IG01 (1)   |               |
| 73106035T    | 80L Container Valve Assembly, LPG128-60 IG01 (1)   |               |
| 73121036     | 80L Container Valve Assembly, LPG128-60 IG100 (1)  |               |
| 76131009     | 140L Container Valve Assembly, LPG128-60 IG541 (1) |               |
| 76131009H    | 140L Container Valve assembly, LPG128-60 IG541 (1) |               |
| 76131009T    | 140L Container Valve assembly, LPG128-60 IG541 (1) |               |
| 76119012     | 140L Container Valve Assembly, LPG128-60 IG55 (1)  |               |
| 76119012H    | 140L Container Valve Assembly, LPG128-60 IG55 (1)  |               |
| 76119012T    | 140L Container Valve Assembly, LPG128-60 IG55 (1)  |               |
| 76119012F    | 140L Container Valve Assembly, LPG128-60 IG55 (1)  |               |
| 76106008     | 140L Container Valve Assembly, LPG128-60 IG01 (1)  |               |
| 76106008T    | 140L Container Valve Assembly, LPG128-60 IG01 (1)  |               |
| 76121010     | 140L Container Valve assembly, LPG128-60 IG100 (1) |               |
| 73106034     | 80L Container Valve assembly, LPG128-60 IG01 (2)   |               |
| 73106034T    | 80L Container Valve assembly, LPG128-60 IG01 (2)   |               |
| 73121035     | 80L Container Valve assembly, LPG128-60 IG100 (2)  |               |
| 76131015     | 140L Container Valve assembly, LPG128-60 IG100 (2) |               |

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**LPG Container Valve Assemblies for Inert (300 bar)**

| Product Name | Description  | LPCB Ref. No. |
|--------------|--|---------------|
| 73130002     | 80L Container Valve Assembly, LPG128-65 IG541 (1)      | 587a/23       |
| 73130002H    | 80L Container Valve Assembly, LPG128-65 IG541 (1)      |               |
| 73130002T    | 80L Container Valve Assembly, LPG128-65 IG541 (1)      |               |
| 73120025     | 80L Container Valve Assembly, LPG128-65 IG55 (1)       |               |
| 73120025H    | 80L Container Valve Assembly, LPG128-65 IG55 (1)       |               |
| 73120025T    | 80L Container Valve Assembly, LPG128-65 IG55 (1)       |               |
| 73120025F    | 80L Container Valve Assembly, LPG128-65 IG55 (1)       |               |
| 73107018     | 80L Container Valve Assembly, LPG128-65 IG01 (1)       |               |
| 73107018T    | 80L Container Valve Assembly, LPG128-65 IG01 (1)       |               |
| 73122018     | 80L Container Valve Assembly, LPG128-65 IG100 (1)      |               |
| 76130002     | 140L Container Valve Assembly, LPG128-65 IG541 (1)     |               |
| 76130002H    | 140L Container Valve Assembly, LPG128-65 IG541 (1)     |               |
| 76130002T    | 140L Container Valve Assembly, LPG128-65 IG541 (1)     |               |
| 76120005     | 140L Container Valve Assembly, LPG128-65 IG55 (1)      |               |
| 76120005H    | 140L Container Valve Assembly, LPG128-65 IG55 (1)      |               |
| 76120005T    | 140L Container Valve Assembly, LPG128-65 IG55 (1)      |               |
| 76120005F    | 140L Container Valve Assembly, LPG128-65 IG55 (1)      |               |
| 76107001     | 140L Container Valve Assembly, LPG128-65 IG01 (1)      |               |
| 76107001T    | 140L Container Valve Assembly, LPG128-65 IG01 (1)      |               |
| 76122005     | 140L Container Valve assembly, LPG128-65 IG100 (1)     |               |
| 73107017     | 80L Container Valve assembly, LPG128-65 IG01 (2)       |               |
| 73107017T    | 80L Container Valve assembly, LPG128-65 IG01 (2)       |               |
| 73122017     | 80L Container Valve assembly, LPG128-65 IG100 (2)      |               |
| 76130004     | 140L Container Valve assembly, LPG128-65 IG541 (2)     |               |
| 76130007     | 140L Container Valve assembly, LPG128-65 IG100 (2)     |               |
| 73130030     | 80L PESO Container Valve Assembly, LPG128-65 IG541 (1) |               |
| 73130030H    | 80L PESO Container Valve assembly, LPG128-65 IG541 (1) |               |
| 73130030T    | 80L PESO Container Valve assembly, LPG128-65 IG541 (1) |               |
| 73120017     | 80L PESO Container Valve assembly, LPG128-65 IG55 (1)  |               |

Certificate No: 587a

**LPG Restrictors for Inert (200 bar) and Inert (300 bar)**

| Product Name | Description               | LPCB Ref. No. |
|--------------|---------------------------|---------------|
| 61350005     | 3/4" Restrictor NPT x NPT | 587a/24       |
| 61350006     | 1 Restrictor NPT x NPT    |               |

## **PART 4: SECTION 2.1**

### **GASEOUS SYSTEM COMPONENTS**

| <b>Product Name</b> | <b>Description</b>             | <b>LPCB Ref. No.</b> |
|---------------------|--------------------------------|----------------------|
| 61350007            | 1 ¼" Restrictor NPT x NPT      |                      |
| 61350008            | 1 ½" Restrictor NPT x NPT      |                      |
| 61350009            | 2 Restrictor NPT x NPT         |                      |
| 61350012            | 2 ½" Restrictor NPT x NPT (1)  |                      |
| 61350013            | 3 Restrictor NPT x NPT (1)     |                      |
| 61350014            | 4 Restrictor NPT x NPT (1)     |                      |
| 61016121            | ¾" Restrictor NPT x BSPT       |                      |
| 61016122            | 1 Restrictor NPT x BSPT        |                      |
| 61016123            | 1 ¼" Restrictor NPT x BSPT     |                      |
| 61016124            | 1 ½" Restrictor NPT x BSPT     |                      |
| 61016125            | 2 Restrictor NPT x BSPT        |                      |
| 61016126            | 2 ½" Restrictor NPT x BSPT (1) |                      |
| 61016127            | 3 Restrictor NPT x BSPT (1)    |                      |
| 61016128            | 4 Restrictor NPT x BSPT (1)    |                      |

Certificate No: 587a

#### ***LPG Discharge Hoses for Inert (200 bar) and Inert (300 bar)***

| <b>Product Name</b> | <b>Description</b> | <b>LPCB Ref. No.</b> |
|---------------------|--------------------|----------------------|
| 30522010            | ¾" flexible hose   | 587a/25              |

Certificate No: 587a

#### ***LPG Discharge Containers for Inert (200 bar) and Inert (300 bar)***

| <b>Product Name</b> | <b>Description</b>           | <b>LPCB Ref. No.</b> |
|---------------------|------------------------------|----------------------|
| 10800080            | 80 litre cylinder (200 bar)  | 587a/26              |
| 11400060            | 140 litre cylinder (200 bar) |                      |
| 10800300            | 80 litre cylinder (300 bar)  |                      |
| 11400300            | 140 litre cylinder (300 bar) |                      |

Certificate No: 587a

#### ***LPG Check Valves for Inert (200 bar) and Inert (300 bar)***

| <b>Product Name</b> | <b>Description</b> | <b>LPCB Ref. No.</b> |
|---------------------|--------------------|----------------------|
| 20006050            | ¾" check valve     | 587a/27              |

Certificate No: 587a

#### ***LPG Inerts Pressure Gauges for Inert (200 bar) and Inert (300 bar)***

| <b>Product Name</b> | <b>Description</b>               | <b>LPCB Ref. No.</b> |
|---------------------|----------------------------------|----------------------|
| 30245003            | 0-400 gauge + switch set 270 bar | 587a/28              |
| 30116035            | 0-315 gauge + switch set 180 bar |                      |
| 30116043            | 0-450 bar pressure gauge         |                      |
| 3021316B            | 0-315 bar pressure gauge         |                      |

Certificate No: 587a

#### ***LPG Nozzles for Inert (200 bar),(300 bar), HFC23, HFC125 and HFC227ea***

| <b>Product Name</b> | <b>Description</b> | <b>LPCB Ref. No.</b> |
|---------------------|--------------------|----------------------|
| 30400000            | ⅜" 360° nozzle     | 587a/29              |
| 30400001            | ½" 360° nozzle     |                      |
| 30400002            | ¾" 360° nozzle     |                      |
| 30400003            | 1" 360° nozzle     |                      |
| 30400004            | 1 ¼" 360° nozzle   |                      |
| 30400005            | 1 ½" 360° nozzle   |                      |
| 30400006            | 2" 360° nozzle     |                      |
| 30400007            | 3/8" 180° nozzle   |                      |

**PART 4: SECTION 2.1**  
GASEOUS SYSTEM COMPONENTS

| Product Name | Description      | LPCB Ref. No. |
|--------------|------------------|---------------|
| 30400008     | ½" 180° nozzle   |               |
| 30400009     | ¾" 180° nozzle   |               |
| 30400010     | 1" 180° nozzle   |               |
| 30400011     | 1 ¼" 180° nozzle |               |
| 30400012     | 1 ½" 180° nozzle |               |
| 30400013     | 2" 180° nozzle   |               |

Certificate No: 587a

**LPG HFCS Discharge Valves, including syphon tube for HFC23**

| Product Name | Description | LPCB Ref. No. |
|--------------|-------------|---------------|
| 2131910B     | LPG190-13   | 587a/30       |
| 2131450B     | LPG145-13   |               |
| 2131280B     | LPG128-13   |               |

Certificate No: 587a

**LPG HFCS Discharge Valves, including syphon tube for HFC125 and HFC227ea**

| Product Name | Description | LPCB Ref. No. |
|--------------|-------------|---------------|
| 2001910B     | LPG190-00   | 587a/31       |
| 2001450B     | LPG145-00   |               |
| 2001280B     | LPG128-00   |               |

Certificate No: 587a

**LPG HFCS Discharge Containers for HFC23, HFC125 and HFC227ea**

| Product Name | Description       | LPCB Ref. No. |
|--------------|-------------------|---------------|
| 10120100     | 120 l. container  | 587a/32       |
| 10950100     | 100 l. container  |               |
| 10750100     | 75 l. container   |               |
| 10670080     | 67 l. container   |               |
| 10400080     | 40.2 l. container |               |
| 10260060     | 26.8 l. container |               |
| 10130060     | 13.4 l. container |               |
| 10050060     | 5.0 l. container  |               |

Certificate No: 587a

**LPG HFC227ea Container Valve Assemblies**

| Product Name | Description                                   | LPCB Ref. No. |
|--------------|---|---------------|
| 70102070     | 5L Container Valve Assembly, LPG128-00 (1)    | 587a/33       |
| 70102076     | 13.4L Container Valve Assembly, LPG128-00 (1) |               |
| 70102079     | 13.4L Container Valve Assembly, LPG128-00 (2) |               |
| 70102057     | 26.8L Container Valve Assembly, LPG128-00 (1) |               |
| 70102060     | 26.8L Container Valve Assembly, LPG128-00 (2) |               |
| 70102063     | 40.2L Container Valve Assembly, LPG145-00 (1) |               |
| 70102066     | 40.2L Container Valve Assembly, LPG145-00 (2) |               |
| 71102019     | 67L Container Valve Assembly, LPG145-00 (1)   |               |
| 71102022     | 67L Container Valve Assembly, LPG145-0 (3)    |               |
| 71102024     | 67L Container Valve Assembly, LPG145-00 (2)   |               |
| 72102019     | 75L Container Valve Assembly, LPG190-00 (1)   |               |
| 72102023     | 75L Container Valve Assembly, LPG190-00 (3)   |               |
| 72102017     | 75L Container Valve Assembly, LPG190-00 (2)   |               |
| 74102016     | 100L Container Valve Assembly, LPG190-00 (1)  |               |
| 74102019     | 100L Container Valve Assembly, LPG190-00 (3)  |               |
| 74102020     | 100L Container Valve Assembly, LPG190-00 (2)  |               |
| 75102018     | 120L Container Valve Assembly, LPG190-00 (1)  |               |
| 75102021     | 120L Container Valve Assembly, LPG190-00 (3)  |               |
| 75102023     | 120L Container Valve Assembly, LPG190-00 (2)  |               |

## **PART 4: SECTION 2.1**

### **GASEOUS SYSTEM COMPONENTS**

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#### **LPG HFCS Discharge Hoses for HFC23, HFC125 and HFC227ea**

| <b>Product Name</b> | <b>Description</b>             | <b>LPCB Ref. No.</b> |
|---------------------|--------------------------------|----------------------|
| 30508HFC            | Rigid telescopic hose 1.5" (1) | 587a/34              |
| 30508080            | Rigid hose 1½" HG/MF (1)       |                      |
| 30508000            | Rigid hose 1½" HG/HG (1)       |                      |
| 30506HFC            | Rigid hose 1" (1)              |                      |
| 30502140            | R2F hose 400 G 1" HG/HF (1)    |                      |
| 30506000            | R2F hose 320 G 1" HG/HG (1)    |                      |
| 30506070            | R2F hose 400 G ¾" HG/HF (1)    |                      |

Certificate No: 587a

#### **LPG HFCS Manifolds for HFC23, HFC125 and HFC227ea**

| <b>Product Name</b> | <b>Description</b>  | <b>LPCB Ref. No.</b> |
|---------------------|---------------------|----------------------|
| 3811VCCD            | Single Row manifold | 587a/35              |

Certificate No: 587a

#### **LPG Discharge Pressure Switches for Inert 200 bar, Inert 300 bar, HFC23, HFC125 and HFC227ea**

| <b>Product Name</b> | <b>Description</b>        | <b>LPCB Ref. No.</b> |
|---------------------|---------------------------|----------------------|
| 30330010            | Discharge Pressure Switch | 587a/36              |

Certificate No: 587a

#### **LPG HFCS Pressure Gauges for HFC23**

| <b>Product Name</b> | <b>Description</b>                                      | <b>LPCB Ref. No.</b> |
|---------------------|---|----------------------|
| 30216010            | 0-160 pressure gauge short socket                       | 587a/37              |
| 302160B             | 0-160 pressure gauge, long socket                       |                      |
| 30116052            | 0-160 pressure gauge + switch, short socket, set 90 bar |                      |
| 30116053            | 0-160 pressure gauge + switch, long socket, set 90 bar  |                      |

Certificate No: 587a

#### **LPG HFCS Pressure Gauges for HFC125 and HFC227ea**

| <b>Product Name</b> | <b>Description</b>                          | <b>LPCB Ref. No.</b> |
|---------------------|---|----------------------|
| 30210100            | 0-100 pressure gauge short socket           | 587a/38              |
| 3021100B            | 0-100 pressure gauge long socket            |                      |
| 30116040            | 0-100 pressure gauge + switch, short socket |                      |
| 30116037            | 0-100 pressure gauge + switch, long socket  |                      |

Certificate No: 587a

#### **LPG Pressure Gauge for Inert (100 bar)**

| <b>Product Name</b> | <b>Description</b>            | <b>LPCB Ref. No.</b> |
|---------------------|-------------------------------|----------------------|
| 30116054            | 0-160 pressure gauge + switch | 587a/39              |

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**LPG Check Valves for HFC23, HFC125 & HFC227ea**

| Product Name | Description   | LPCB Ref. No. |
|--------------|---|---------------|
| 20006060     | Ball check valve 1.0" (brass) (1)                   | 587a/40       |
| 20006067     | Ball check valve 1" (steel) (1)                     |               |
| 20006HFC     | Ball telescopic check valve 1.0" (brass) (1)        |               |
| 20007HFC     | Ball telescopic check valve 1" (steel) (1)          |               |
| 20008000     | Piston check valve 2"(1)                            |               |
| 20008HFC     | Piston telescopic check valve 2" (1)                |               |
| 21006302     | Pistonvalve 2" (U. L. version) (1)                  |               |
| 21006303     | Piston telescopic check valve 2" (U.L. version) (1) |               |

Certificate No: 587a

**LPG HFCS Brackets for HFC23, HFC125 and HFC227ea**

| Product Name | Description                       | LPCB Ref. No. |
|--------------|-----------------------------------|---------------|
| 30620310     | Modular 3L                        | 587a/41       |
| 30621310     | Modular 5/7/13L                   |               |
| 30625010     | Modular 26/40L                    |               |
| 30626711     | Modular 67/75L                    |               |
| 30621010     | Modular 100/120L                  |               |
| 306XX6SS(1)  | Single row 67L                    |               |
| 306XX7SN(1)  | Single row 75L                    |               |
| 306021002    | Kit 2 bottles 100/120L single row |               |
| 306031002    | Kit 3 bottles 100/120L single row |               |

Certificate No: 587a

**LPG Pneumatic Line Actuation for Inert 200 bar, Inert 300 bar, HFC23, HFC125 and HFC 227ea**

| Product Name | Description                  | LPCB Ref. No. |
|--------------|------------------------------|---------------|
| 3023024B     | Solenoid actuator 13W/24V    | 587a/42       |
| 30130197     | Solenoid actuator 1/8 output |               |
| 30180APB     | Manual actuator              |               |
| 3018NAPB     | Dual manual actuator         |               |

Certificate No: 587a

**LPG Pneumatic Line Actuation for Inert 200 bar, Inert 300 bar, HFC23, HFC125 and HFC 227ea**

| Product Name | Description  | LPCB Ref. No. |
|--------------|--|---------------|
| 30027200     | Pneumatic cone (used with HFCs)  | 587a/43       |
| 30027201     | Pneumatic cone (used with Inerts)  |               |
| 35116429     | Tee for pneumatic cone (3 way + ¼" plug)                                   |               |
| 302.200.075  | ¼" relief valve  |               |
| 30027301     | Decompression screw (short)  |               |
| 30506014     | PTFE hose ¼" x 580mm (1)   |               |
| 30522001     | PTFE hose ¼" x 700mm (1)   |               |
| 29012804     | 128-90 pilot container valve with pressure gauge + switch                  |               |
| 29012804.SOL | 128-90 pilot container valve with pressure gauge and std solenoid          |               |
| 2901280B     | 128-90 pilot container valve with pressure gauge                           |               |
| 2901280B.SOL | 128-90 pilot container valve with pressure gauge and std solenoid          |               |
| 21114045     | 128-97 pilot container valve with pressure gauge + switch                  |               |
| 21114045.SOL | 128-97 pilot container valve with pressure gauge + switch and std solenoid |               |
| 21114008     | 128-97 pilot container valve with pressure gauge                           |               |
| 21114008.SOL | 128-97 pilot container valve with pressure gauge and std solenoid          |               |

Certificate No: 587a

**LPG Pilot Valve Assemblies (100 bar Nitrogen)**

| Product Name | Description                                       | LPCB Ref. No. |
|--------------|---|---------------|
| 70100075     | 3L Pilot Valve Assembly, LPG128-90, W28.8, DIN477 | 587a/44       |
| 70100082     | 13L Pilot Valve Assembly, LPG128-90, DIN 477      |               |

## **PART 4: SECTION 2.1**

### **GASEOUS SYSTEM COMPONENTS**

| <b>Product Name</b> | <b>Description</b>                                | <b>LPCB Ref. No.</b> |
|---------------------|---|----------------------|
| 70121011            | 50L Pilot Valve Assembly, LPG128-90, DIN 477      |                      |
| 70100083            | 13L PESO Pilot Valve Assembly, LPG128-90, DIN 477 |                      |
| 70121012            | 50L PESO Pilot Valve Assembly, LPG128-90, DIN 477 |                      |

Certificate No: 587a

#### **FM-200® 25 bar CONTAINER ASSEMBLIES - DOT (WELDED)**

| <b>Product Name</b> | <b>Description</b>                                 | <b>LPCB Ref. No.</b> |
|---------------------|--|----------------------|
| 303.205.026         | 4.5 litre container assembly (DOT) (Welded)        | 587a/01              |
| 303.205.015         | 8 litre container assembly (DOT) (Welded)          |                      |
| 303.205.016         | 16 litre container assembly (DOT) (Welded)         |                      |
| 303.205.017         | 32 litre container assembly (DOT) (Welded)         |                      |
| 303.205.018         | 52 litre container assembly (DOT) (Welded)         |                      |
| 303.205.019         | 106 litre container assembly (DOT) (Welded)        |                      |
| 303.205.020         | 147 litre container assembly (DOT) (Welded)        |                      |
| 303.205.021         | 180 litre container assembly (DOT) (Welded)        |                      |
| 303.205.068         | 4.5 litre container assembly (DOT) (Welded) (ATEX) |                      |
| 303.205.069         | 8 litre container assembly (DOT) (Welded) (ATEX)   |                      |
| 303.205.070         | 16 litre container assembly (DOT) (Welded) (ATEX)  |                      |
| 303.205.071         | 32 litre container assembly (DOT) (Welded) (ATEX)  |                      |
| 303.205.072         | 52 litre container assembly (DOT) (Welded) (ATEX)  |                      |
| 303.205.073         | 106 litre container assembly (DOT) (Welded) (ATEX) |                      |
| 303.205.074         | 147 litre container assembly (DOT) (Welded) (ATEX) |                      |
| 303.205.075         | 180 litre container assembly (DOT) (Welded) (ATEX) |                      |

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#### **FM-200® 25 bar CONTAINER ASSEMBLIES - TPED (WELDED)**

| <b>Product Name</b> | <b>Description</b>                         | <b>LPCB Ref. No.</b> |
|---------------------|--|----------------------|
| 303.205.002         | 8 litre container assembly (TPED)          | 587a/01              |
| 303.205.003         | 16 litre container assembly (TPED)         |                      |
| 303.205.004         | 32 litre container assembly (TPED)         |                      |
| 303.205.012         | 52 litre container assembly (TPED)         |                      |
| 303.205.013         | 106 litre container assembly (TPED)        |                      |
| 303.205.014         | 147 litre container assembly (TPED)        |                      |
| 303.205.005         | 180 litre container assembly (TPED)        |                      |
| 303.205.076         | 8 litre container assembly (TPED) (ATEX)   |                      |
| 303.205.077         | 16 litre container assembly (TPED) (ATEX)  |                      |
| 303.205.078         | 32 litre container assembly (TPED) (ATEX)  |                      |
| 303.205.079         | 52 litre container assembly (TPED) (ATEX)  |                      |
| 303.205.080         | 106 litre container assembly (TPED) (ATEX) |                      |
| 303.205.081         | 147 litre container assembly (TPED) (ATEX) |                      |
| 303.205.082         | 180 litre container assembly (TPED) (ATEX) |                      |

Certificate No: 587a

#### **SAPPHIRE™ (NOVEC 1230) 25 bar CONTAINER ASSEMBLIES - DOT (WELDED)**

| <b>Product Name</b> | <b>Description</b>                                 | <b>LPCB Ref. No.</b> |
|---------------------|--|----------------------|
| 303.207.010         | 4.5 litre container assembly (DOT) (Welded)        | 587a/02              |
| 303.207.001         | 8 litre container assembly (DOT) (Welded)          |                      |
| 303.207.002         | 16 litre container assembly (DOT) (Welded)         |                      |
| 303.207.003         | 32 litre container assembly (DOT) (Welded)         |                      |
| 303.207.004         | 52 litre container assembly (DOT) (Welded)         |                      |
| 303.207.005         | 106 litre container assembly (DOT) (Welded)        |                      |
| 303.207.006         | 147 litre container assembly (DOT) (Welded)        |                      |
| 303.207.007         | 180 litre container assembly (DOT) (Welded)        |                      |
| 303.207.051         | 4.5 litre container assembly (DOT) (Welded) (ATEX) |                      |
| 303.207.052         | 8 litre container assembly (DOT) (Welded) (ATEX)   |                      |
| 303.207.053         | 16 litre container assembly (DOT) (Welded) (ATEX)  |                      |
| 303.207.054         | 32 litre container assembly (DOT) (Welded) (ATEX)  |                      |
| 303.207.055         | 52 litre container assembly (DOT) (Welded) (ATEX)  |                      |
| 303.207.056         | 106 litre container assembly (DOT) (Welded) (ATEX) |                      |
| 303.207.057         | 147 litre container assembly (DOT) (Welded) (ATEX) |                      |



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| Product Name | Description  | LPCB Ref. No. |
|--------------|--|---------------|
| 303.207.058  | 180 litre container assembly (DOT) (Welded) (ATEX) |               |

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**SAPPHIRE™ (NOVEC 1230) 25 bar CONTAINER ASSEMBLIES - TPED (WELDED)**

| Product Name | Description                                | LPCB Ref. No. |
|--------------|--|---------------|
| 303.207.015  | 8 litre container assembly (TPED)          | 587a/02       |
| 303.207.016  | 16 litre container assembly (TPED)         |               |
| 303.207.017  | 32 litre container assembly (TPED)         |               |
| 303.207.012  | 52 litre container assembly (TPED)         |               |
| 303.207.013  | 106 litre container assembly (TPED)        |               |
| 303.207.014  | 147 litre container assembly (TPED)        |               |
| 303.207.018  | 180 litre container assembly (TPED)        |               |
| 303.207.059  | 8 litre container assembly (TPED) (ATEX)   |               |
| 303.207.060  | 16 litre container assembly (TPED) (ATEX)  |               |
| 303.207.061  | 32 litre container assembly (TPED) (ATEX)  |               |
| 303.207.062  | 52 litre container assembly (TPED) (ATEX)  |               |
| 303.207.063  | 106 litre container assembly (TPED) (ATEX) |               |
| 303.207.064  | 147 litre container assembly (TPED) (ATEX) |               |
| 303.207.065  | 180 litre container assembly (TPED) (ATEX) |               |

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**SAPPHIRE™ (NOVEC 1230) 41 bar CONTAINER ASSEMBLIES - TPED (WELDED)**

| Product Name | Description                         | LPCB Ref. No. |
|--------------|-------------------------------------|---------------|
| 303.207.030  | 8 litre container assembly (TPED)   | 587a/20       |
| 303.207.031  | 16 litre container assembly (TPED)  |               |
| 303.207.032  | 32 litre container assembly (TPED)  |               |
| 303.207.033  | 52 litre container assembly (TPED)  |               |
| 303.207.034  | 106 litre container assembly (TPED) |               |
| 303.207.035  | 147 litre container assembly (TPED) |               |
| 303.207.036  | 180 litre container assembly (TPED) |               |

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**SAPPHIRE™ (NOVEC 1230) 70 bar CONTAINER ASSEMBLIES - TPED (SEAMLESS)**

| Product Name | Description                                 | LPCB Ref. No. |
|--------------|---|---------------|
| 303700001    | 15 litre container assembly (TPED) PG 50C   | 587a/45       |
| 303700002    | 30 litre container assembly (TPED) PG 50C   |               |
| 303700003    | 45 litre container assembly (TPED) PG 50C   |               |
| 303700004    | 60 litre container assembly (TPED) PG 50C   |               |
| 303700005    | 120 litre container assembly (TPED) PG 50C  |               |
| 303700006    | 180 litre container assembly (TPED) PG 50C  |               |
| 303700007    | 15 litre container assembly (TPED) PGS 50C  |               |
| 303700008    | 30 litre container assembly (TPED) PGS 50C  |               |
| 303700009    | 45 litre container assembly (TPED) PGS 50C  |               |
| 303700010    | 60 litre container assembly (TPED) PGS 50C  |               |
| 303700011    | 120 litre container assembly (TPED) PGS 50C |               |
| 303700012    | 180 litre container assembly (TPED) PGS 50C |               |

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**CONTAINERS BRACKETS (WELDED CONTAINERS)**

| Product Name | Description  | LPCB Ref. No. |
|--------------|--|---------------|
| 311.205.020  | 4.5 litre container bracket (strap style)            | 587a/13       |
| 311.205.013  | 8/16/32 litre container bracket (strap style)        |               |
| 311.205.014  | 52/106/147/180 litre container bracket (strap style) |               |
| 311.209.002  | 8/16/32 litre container brackets (hoop style)        |               |
| 311.209.003  | 52/106/147/180 litre container bracket (hoop style)  |               |

## **PART 4: SECTION 2.1**

### **GASEOUS SYSTEM COMPONENTS**

Certificate No: 587a

#### **CONTAINER BRACKETS (SEAMLESS CONTAINERS)**

| <b>Product Name</b> | <b>Description</b>   | <b>LPCB Ref. No.</b> |
|---------------------|--|----------------------|
| 311700002           | 15 litre container bracket 204mm Dia. (strap style)                | 587a/46              |
| 311700003           | 30 litre container bracket 229mm Dia (strap style)                 |                      |
| 311700004           | 45 & 60 litre container bracket 267mm Dia (strap style)            |                      |
| 311700005           | 120 litre container bracket 360mm Dia (strap style)                |                      |
| 311700006           | 180 litre container bracket 406mm Dia (strap style)                |                      |
| 311700007           | 120 litre container multi-bracket Assy x 4 360mm Dia (strap style) |                      |
| 311700008           | 120 litre container multi-bracket Assy x 6 360mm Dia (strap style) |                      |
| 311700009           | 120 litre container multi-bracket Assy x 8 360mm Dia (strap style) |                      |
| 311700010           | 180 litre container multi-bracket Assy x 4 406mm Dia (strap style) |                      |
| 311700011           | 180 litre container multi-bracket Assy x 6 406mm Dia (strap style) |                      |
| 311700012           | 180 litre container multi-bracket Assy x 8 406mm Dia (strap style) |                      |

Certificate No: 587a

#### **CONTAINER VALVES & ACTUATORS 25/41/70 bar**

| <b>Product Name</b> | <b>Description</b>   | <b>LPCB Ref. No.</b> |
|---------------------|--|----------------------|
| 302.209.001         | 25mm container valve (25bar)   | 587a/05              |
| 302.209.002         | 50mm container valve (25bar)   |                      |
| 302.209.022         | 25mm container valve (alternative burst disc) (41bar)                  | 587a/18              |
| 302.209.023         | 50mm container valve (alternative burst disc) (41bar)                  |                      |
| 302700001           | 25mm container valve (70bar)   | 587a/48              |
| 302700002           | 50mm container valve (70bar)   |                      |
| 304.001.001         | Electrical actuator - DIN plug and lead (suppression diode) (25/41bar) | 587a/05              |
| 304.001.002         | Electrical actuator - DIN plug and lead (bridge rectifier) (25/41bar)  |                      |
| 304.205.001         | Electrical actuator - standard (suppression diode) (25/41bar)          |                      |
| 304.209.001         | Electrical actuator - standard (bridge rectifier UL) (25/41bar)        |                      |
| 304.205.002         | Electrical actuator - flameproof (ATEX) (25bar)                        |                      |
| 304.205.010         | Electrical actuator - standard (suppression diode UL) (25/41bar)       |                      |
| 304205030           | Electrical actuator (TLX) (25/41bar)                                   |                      |
| 304205040           | Electrical actuator (TLX) (25/41bar)                                   |                      |
| 304.209.002         | Local manual actuator (25/41bar)                                       |                      |
| 304.209.004         | Pneumatic actuator   |                      |
| 304700001           | Electrical actuator TLX (70bar)  | 587a/47              |
| 304700002           | Electrical actuator Barnbrook (70bar)                                  |                      |
| 304700003           | Manual/Pneumatic actuator  |                      |
| 304.209.011         | ATEX electrical actuator - 25 mm valve support brackets (25bar)        | 587a/14              |
| 304.209.012         | ATEX electrical actuator - 50 mm valve support brackets (25bar)        |                      |

Certificate No: 587a

#### **PRESSURE GAUGES and PRESSURE SWITCHES**

| <b>Product Name</b> | <b>Description</b>   | <b>LPCB Ref. No.</b> |
|---------------------|--|----------------------|
| 304.205.006         | Supervisory pressure switch - standard (open on fall) (25bar)  | 587a/06              |
| 305.209.005         | Supervisory pressure switch - special (close on fall) (25bar)  |                      |
| 305.209.007         | Supervisory pressure switch - conduit (open or close on fall) (25bar)                                    |                      |
| 305.205.004         | Supervisory pressure switch - ATEX (25bar)   |                      |
| 305.209.009         | Discharge pressure switch - standard (25/41/70bar)   | 587a/07              |
| 305.205.003         | Discharge pressure switch- ATEX (25bar)  |                      |
| 302.205.022         | Pressure Gauge (50mm) FM-200@ 0-60 bar (25bar)   | 587a/08              |
| 302.207.010         | Pressure Gauge (50mm) Sapphire™ (Novac 1230) 0-60 bar (25bar)  |                      |
| 302.207.011         | Pressure Gauge (50mm) Sapphire™ (Novac 1230) 0-100 bar (41bar)   |                      |
| 302.209.012         | Pilot Pressure Gauge (50mm) 0-100 bar (50bar)  |                      |
| 302.209.027         | Pressure Gauge (50mm) 0-40 bar (VdS dial) (25bar)  |                      |
| 302.209.026         | Pressure Gauge (50mm) 0-60 bar (VdS dial) (41bar)  |                      |
| 302700003           | Pressure Gauge (50mm) SAPPHIRE™ PLUS (Novac 1230) 0-160bar (50C) (70bar)                                 | 587a/49              |
| 302700004           | Contacted Pressure Gauge (50mm) SAPPHIRE™ PLUS (Novac 1230) 0-160bar (50C) (70bar)<br>open on fall 63bar |                      |
| 302700005           | Pressure Gauge (50mm) SAPPHIRE™ PLUS (Novac 1230) 0-160bar (70bar)<br>(50C) (with UL/FM 65C marking)     |                      |

**PART 4: SECTION 2.1**  
GASEOUS SYSTEM COMPONENTS

| Product Name | Description  | LPCB Ref. No. |
|--------------|--|---------------|
| 302700006    | Contacted Pressure Gauge (50mm) SAPPHIRE™ PLUS (Novec 1230) 0-160bar (70bar) (50C) (with UL/FM 65C marking) open on fall 65bar |               |
| 30116054     | Contacted Pressure Gauge (40mm) Pilot 0-160 bar (50C) (100bar) open on fall (90bar)  | 587a/39       |

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**VALVE UNION ADAPTORS**

| Product Name | Description              | LPCB Ref. No. |
|--------------|--------------------------|---------------|
| 309.002.016  | 25mm Valve Union Adaptor | 587a/50       |
| 309.002.017  | 50mm Valve Union Adaptor |               |

Certificate No: 587a

**PILOT HOSES**

| Product Name | Description                            | LPCB Ref. No. |
|--------------|--|---------------|
| 306.205.003  | Flexible pilot/actuation hose x 710mm  | 587a/09       |
| 306205010    | Flexible pilot/actuation hose x 815mm  |               |
| 306205011    | Flexible pilot/actuation hose x 1070mm |               |

Certificate No: 587a

**DISCHARGE HOSES 25/41 bar**

| Product Name | Description          | LPCB Ref. No. |
|--------------|----------------------|---------------|
| 306.207.002  | 25 mm discharge hose | 587a/09       |
| 306.207.003  | 50 mm discharge hose |               |

Certificate No: 587a

**DISCHARGE HOSES 70 bar**

| Product Name | Description         | LPCB Ref. No. |
|--------------|---------------------|---------------|
| 306700001    | 25mm discharge hose | 587a/51       |
| 306700002    | 50mm discharge hose |               |

Certificate No: 587a

**CHECK VALVES & ADJUSTABLE HEIGHT ADAPTORS**

| Product Name | Description                    | LPCB Ref. No. |
|--------------|--------------------------------|---------------|
| 302.209.004  | 25mm manifold check valve      | 587a/10       |
| 302.209.005  | 50mm manifold check valve      |               |
| 306700003    | 25mm Adjustable height adaptor | 587a/52       |
| 306700004    | 50mm Adjustable height adaptor |               |

Certificate No: 587a

**MANIFOLDS**

| Product Name    | Description  | LPCB Ref. No. |
|-----------------|--|---------------|
| 307.209.001-003 | 65 mm manifold NPT - 2 to 4 Port                     | 587a/12       |
| 307.209.004-008 | 80 mm manifold NPT - 2 to 6 Port 508mm centres       |               |
| 307.209.009-013 | 100 mm manifold NPT - 2 to 6 Port 508mm centres      |               |
| 307.209.014-021 | 150 mm manifold Flanged - 3 to 10 Port 508mm centres |               |
| 307700004-008   | 80mm manifold NPT 2 to 6 Port 500mm centres          | 587a/53       |
| 307700009-013   | 100mm manifold NPT 2 to 6 Port 500mm centres         |               |

## **PART 4: SECTION 2.1**

### **GASEOUS SYSTEM COMPONENTS**

| <b>Product Name</b> | <b>Description</b>                            | <b>LPCB Ref. No.</b> |
|---------------------|---|----------------------|
| 307700014-021       | 150mm manifold NPT 3 to 10 Port 500mm centres |                      |

Certificate No: 587a

#### **MANIFOLD UNIONS 25/41/70 bar**

| <b>Product Name</b> | <b>Description</b>   | <b>LPCB Ref. No.</b> |
|---------------------|--|----------------------|
| 30888001            | Manifold union 3/4 NPT x NPT, 140bar WP (with no drilled plate)    | 587a/54              |
| 30888002            | Manifold union 1 NPT x NPT, 140bar WP (with no drilled plate)      |                      |
| 30888003            | Manifold union 1 1/4 NPT x NPT, 140bar WP (with no drilled plate)  |                      |
| 30888004            | Manifold union 1 1/2 NPT x NPT, 140bar WP (with no drilled plate)  |                      |
| 30888005            | Manifold union 2 NPT x NPT, 140bar WP (with no drilled plate)      |                      |
| 30888006            | Manifold union 2 1/2 NPT x NPT, 140bar WP (with no drilled plate)  |                      |
| 30888007            | Manifold union 3 NPT x NPT, 140bar WP (with no drilled plate)      |                      |
| 30888008            | Manifold union 4 NPT x NPT, 140bar WP (with no drilled plate)      |                      |
| 30888027            | Manifold union 3/4 NPT x BSPT, 140bar WP (with no drilled plate)   |                      |
| 30888028            | Manifold union 1 NPT x BSPT, 140bar WP (with no drilled plate)     |                      |
| 30888029            | Manifold union 1 1/4 NPT x BSPT, 140bar WP (with no drilled plate) |                      |
| 30888030            | Manifold union 1 1/2 NPT x BSPT, 140bar WP (with no drilled plate) |                      |
| 30888031            | Manifold union 2 NPT x BSPT, 140bar WP (with no drilled plate)     |                      |
| 30888032            | Manifold union 2 1/2 NPT x BSPT, 140bar WP (with no drilled plate) |                      |
| 30888033            | Manifold union 3 NPT x BSPT, 140bar WP (with no drilled plate)     |                      |
| 30888034            | Manifold union 4 NPT x BSPT, 140bar WP (with no drilled plate)     |                      |

Certificate No: 587a

#### **MANIFOLD BRACKET ASSEMBLIES 25/41/70 bar**

| <b>Product Name</b> | <b>Description</b>                            | <b>LPCB Ref. No.</b> |
|---------------------|---|----------------------|
| 311.205.015         | 65mm manifold bracket assembly                | 587a/15              |
| 311.205.010         | 80mm manifold bracket assembly                |                      |
| 311.205.011         | 100mm manifold bracket assembly               |                      |
| 311.205.012         | 150mm manifold bracket assembly 508mm centres |                      |
| 311700001           | 150mm manifold bracket assembly 500mm centres | 587a/55              |

Certificate No: 587a

#### **FM-200® DISCHARGE NOZZLES**

| <b>Product Name</b> | <b>Description</b>                       | <b>LPCB Ref. No.</b> |
|---------------------|--|----------------------|
| 310.205.101/102     | Aluminium nozzle - 10mm 180°/360° (BSP)  | 587a/03              |
| 310.205.103/104     | Aluminium nozzle - 15 mm 180°/360° (BSP) |                      |
| 310.205.105/106     | Aluminium nozzle - 20mm 180°/360° (BSP)  |                      |
| 310.205.107/108     | Aluminium nozzle - 25mm 180°/360° (BSP)  |                      |
| 310.205.109/110     | Aluminium nozzle - 32mm 180°/360° (BSP)  |                      |
| 310.205.111/112     | Aluminium nozzle - 40mm 180°/360° (BSP)  |                      |
| 310.205.113/114     | Aluminium nozzle - 50mm 180°/360° (BSP)  |                      |
| 310.205.115/116     | Aluminium nozzle - 10mm 180°/360° (NPT)  |                      |
| 310.205.117/118     | Aluminium nozzle - 15mm 180°/360° (NPT)  |                      |
| 310.205.119/120     | Aluminium nozzle - 20mm 180°/360° (NPT)  |                      |
| 310.205.121/122     | Aluminium nozzle - 25mm 180°/360° (NPT)  |                      |
| 310.205.123/124     | Aluminium nozzle - 32mm 180°/360° (NPT)  |                      |
| 310.205.125/126     | Aluminium nozzle - 40mm 180°/360° (NPT)  |                      |
| 310.205.127/128     | Aluminium nozzle - 50mm 180°/360° (NPT)  |                      |
| 310.205.201/202     | Brass nozzle - 10mm 180°/360° (BSP)      |                      |
| 310.205.203/204     | Brass nozzle - 15 mm 180°/360° (BSP)     |                      |
| 310.205.205/206     | Brass nozzle - 20mm 180°/360° (BSP)      |                      |
| 310.205.207/208     | Brass nozzle - 25mm 180°/360° (BSP)      |                      |
| 310.205.209/210     | Brass nozzle - 32mm 180°/360° (BSP)      |                      |
| 301.205.211/212     | Brass nozzle - 40mm 180°/360° (BSP)      |                      |
| 310.205.213/214     | Brass nozzle - 50mm 180°/360° (BSP)      |                      |
| 310.205.215/216     | Brass nozzle - 10mm 180°/360° (NPT)      |                      |
| 310.205.217/218     | Brass nozzle - 15mm 180°/360° (NPT)      |                      |
| 310.205.219/220     | Brass nozzle - 20mm 180°/360° (NPT)      |                      |
| 310.205.221/222     | Brass nozzle - 25mm 180°/360° (NPT)      |                      |
| 310.205.223/224     | Brass nozzle - 32mm 180°/360° (NPT)      |                      |

**PART 4: SECTION 2.1**  
GASEOUS SYSTEM COMPONENTS

| Product Name    | Description                         | LPCB Ref. No. |
|-----------------|-------------------------------------|---------------|
| 301.205.225/226 | Brass nozzle - 40mm 180°/360° (NPT) |               |
| 310.205.227/228 | Brass nozzle - 50mm 180°/360° (NPT) |               |

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**FM-200® DISCHARGE NOZZLES (Stainless Steel)**

| Product Name    | Description                                   | LPCB Ref. No. |
|-----------------|---|---------------|
| 310.205.301/302 | Stainless steel nozzle – 10mm 180°/360° (BSP) | 587a/56       |
| 310.205.303/304 | Stainless steel nozzle – 15mm 180°/360° (BSP) |               |
| 310.205.305/306 | Stainless steel nozzle – 20mm 180°/360° (BSP) |               |
| 310.205.307/308 | Stainless steel nozzle – 25mm 180°/360° (BSP) |               |
| 310.205.309/310 | Stainless steel nozzle – 32mm 180°/360° (BSP) |               |
| 310.205.311/312 | Stainless steel nozzle – 40mm 180°/360° (BSP) |               |
| 310.205.313/314 | Stainless steel nozzle – 50mm 180°/360° (BSP) |               |
| 310.205.315/316 | Stainless steel nozzle – 10mm 180°/360° (NPT) |               |
| 310.205.317/318 | Stainless steel nozzle – 15mm 180°/360° (NPT) |               |
| 310.205.319/320 | Stainless steel nozzle – 20mm 180°/360° (NPT) |               |
| 310.205.321/322 | Stainless steel nozzle – 25mm 180°/360° (NPT) |               |
| 310.205.323/324 | Stainless steel nozzle – 32mm 180°/360° (NPT) |               |
| 310.205.325/326 | Stainless steel nozzle – 40mm 180°/360° (NPT) |               |
| 310.205.327/328 | Stainless steel nozzle – 50mm 180°/360° (NPT) |               |

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**SAPPHIRE™ (NOVEC 1230) DISCHARGE NOZZLES**

| Product Name    | Description                              | LPCB Ref. No. |
|-----------------|--|---------------|
| 310.207.101/102 | Aluminium nozzle - 15 mm 180°/360° (BSP) | 587a/04       |
| 310.207.103/104 | Aluminium nozzle - 20mm 180°/360° (BSP)  |               |
| 310.207.105/106 | Aluminium nozzle - 25mm 180°/360° (BSP)  |               |
| 310.207.107/108 | Aluminium nozzle - 32mm 180°/360° (BSP)  |               |
| 310.207.109/110 | Aluminium nozzle - 40mm 180°/360° (BSP)  |               |
| 310.207.111/112 | Aluminium nozzle - 50mm 180°/360° (BSP)  |               |
| 310.207.113/114 | Aluminium nozzle - 15mm 180°/360° (NPT)  |               |
| 310.207.115/116 | Aluminium nozzle - 20mm 180°/360° (NPT)  |               |
| 310.207.117/118 | Aluminium nozzle - 25mm 180°/360° (NPT)  |               |
| 310.207.119/120 | Aluminium nozzle - 32mm 180°/360° (NPT)  |               |
| 310.207.121/122 | Aluminium nozzle - 40mm 180°/360° (NPT)  |               |
| 310.207.123/124 | Aluminium nozzle - 50mm 180°/360° (NPT)  |               |
| 310.207.201/202 | Brass nozzle - 15 mm 180°/360° (BSP)     |               |
| 310.207.203/204 | Brass nozzle - 20mm 180°/360° (BSP)      |               |
| 310.207.205/206 | Brass nozzle - 25mm 180°/360° (BSP)      |               |
| 310.207.207/208 | Brass nozzle - 32mm 180°/360° (BSP)      |               |
| 310.207.209/210 | Brass nozzle - 40mm 180°/360° (BSP)      |               |
| 310.207.211/212 | Brass nozzle - 50mm 180°/360° (BSP)      |               |
| 310.207.213/214 | Brass nozzle - 15 mm 180°/360° (NPT)     |               |
| 310.207.215/216 | Brass nozzle - 20mm 180°/360° (NPT)      |               |
| 310.207.217/218 | Brass nozzle - 25mm 180°/360° (NPT)      |               |
| 310.207.219/220 | Brass nozzle - 32mm 180°/360° (NPT)      |               |
| 301.207.221/222 | Brass nozzle - 40mm 180°/360° (NPT)      |               |
| 310.207.223/224 | Brass nozzle - 50mm 180°/360° (NPT)      |               |

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**SAPPHIRE™ (NOVEC 1230) DISCHARGE NOZZLES (Stainless Steel)**

| Product Name    | Description                                   | LPCB Ref. No. |
|-----------------|---|---------------|
| 310.207.301/302 | Stainless steel nozzle – 15mm 180°/360° (BSP) | 587a/57       |
| 310.207.303/304 | Stainless steel nozzle – 20mm 180°/360° (BSP) |               |
| 310.207.305/306 | Stainless steel nozzle – 25mm 180°/360° (BSP) |               |
| 310.207.307/308 | Stainless steel nozzle – 32mm 180°/360° (BSP) |               |
| 310.207.309/310 | Stainless steel nozzle – 40mm 180°/360° (BSP) |               |
| 310.207.311/312 | Stainless steel nozzle – 50mm 180°/360° (BSP) |               |
| 310.207.313/314 | Stainless steel nozzle – 15mm 180°/360° (NPT) |               |
| 310.207.315/316 | Stainless steel nozzle – 20mm 180°/360° (NPT) |               |

## **PART 4: SECTION 2.1**

### **GASEOUS SYSTEM COMPONENTS**

| <b>Product Name</b> | <b>Description</b>                            | <b>LPCB Ref. No.</b> |
|---------------------|---|----------------------|
| 310.207.317/318     | Stainless steel nozzle – 25mm 180°/360° (NPT) |                      |
| 310.207.319/320     | Stainless steel nozzle – 32mm 180°/360° (NPT) |                      |
| 310.207.321/322     | Stainless steel nozzle – 40mm 180°/360° (NPT) |                      |
| 310.207.323/324     | Stainless steel nozzle – 50mm 180°/360° (NPT) |                      |

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#### **PILOT CONTAINER AND ACCESSORIES 25/41/70 bar**

| <b>Product Name</b> | <b>Description</b>  | <b>LPCB Ref. No.</b> |
|---------------------|---|----------------------|
| 302.209.011         | Non return valve 1/4" BSPT x 10mm male adaptor (25/41bar) | 587a/11              |
| 302.209.010         | Non return valve 6mm x 10mm Standpipe reducer (25/41bar)  |                      |
| 302.209.009         | Non return valve (25/41bar)                               | 587a/10              |
| 302700015           | Non return valve 1/4" BSPP (70bar)                        | 587a/60              |
| 302.200.016         | Vent valve (25/41bar)                                     | 587a/12              |
| 302700014           | Vent valve assembly 1/2" NPT (70bar)                      | 587a/59              |
| 13281               | Manifold burst disc assembly (25bar)                      | 587a/12              |
| 302.200.070         | Manifold burst disc assembly (65.5 bar) (41bar)           | 587a/61              |
| 302700007           | Manifold burst disc assembly (108 bar) (70bar)            |                      |
| 302.200.076         | 1/4" NPT female bleed valve (25/41/71bar)                 | 587a/16              |
| 302.200.075         | 1/4" BSPP male bleed valve (70bar)                        | 587a/43              |
| 30027301            | Decompression Screw 1/4" BSPP (70bar)                     |                      |
| 304.209.007         | Pilot Container assembly (25/41bar)                       | 587a/16              |
| 304700008           | Pilot Container assembly (70bar)                          | 587a/58              |

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#### **FM-200® CONTAINER LABELS**

| <b>Product Name</b> | <b>Description</b>                                       | <b>LPCB Ref. No.</b> |
|---------------------|--|----------------------|
| 314.205.025         | HYGOOD Container Label - 32, 106, 147, 180 & 343 litre   | 587a/17              |
| 314.205.026         | HYGOOD Container Label - 4.5, 8, 16 & 52 litre           |                      |
| 314.205.029         | TSP Container Label - 32, 106, 147, 180 & 343 litre      |                      |
| 314.205.030         | TSP Container Label - 4.5, 8, 16 & 52 litre              |                      |
| 314.205.027         | FIREATER Container Label - 32, 106, 147, 180 & 343 litre |                      |
| 314.205.028         | FIREATER Container Label - 4.5, 8, 16 & 52 litre         |                      |
| 314.205.031         | THORN Container Label - 32, 106, 147, 180 & 343 litre    |                      |
| 314.205.032         | THORN Container Label - 4.5, 8, 16 & 52 litre            |                      |
| 304.204.104         | LPG Container Label 32, 106, 147, 180 & 343 litre        | 587a/62              |
| 304.204.105         | LPG Container Label 4.5, 8, 16 & 52 litre                |                      |
| 304.204.114         | LPG Container Label 32, 106, 147, 180 & 343 litre (ESP)  |                      |
| 304.204.115         | LPG Container Label 4.5, 8, 16 & 52 litre (ESP)          |                      |

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#### **SAPPHIRE™ (NOVEC 1230) 25 bar CONTAINER LABELS**

| <b>Product Name</b> | <b>Description</b>                                       | <b>LPCB Ref. No.</b> |
|---------------------|--|----------------------|
| 314.207.017         | HYGOOD Container Label - 32, 106, 147, 180 & 343 litre   | 587a/17              |
| 314.207.018         | HYGOOD Container Label - 4.5, 8, 16 & 52 litre           |                      |
| 314.207.023         | TSP Container Label - 32, 106, 147, 180 & 343 litre      |                      |
| 314.207.024         | TSP Container Label - 4.5, 8, 16, 52 litre               |                      |
| 314.207.019         | FIREATER Container Label - 32, 106, 147, 180 & 343 litre |                      |
| 314.207.020         | FIREATER Container Label - 4.5, 8, 16, 52 litre          |                      |
| 314.207.021         | THORN Container Label - 32, 106, 147, 180 & 343 litre    |                      |
| 314.207.022         | THORN Container Label - 4.5, 8, 16, 52 litre             |                      |
| 314.207.073         | LPG Container Label - 32, 106, 147, 180 & 343 litre      |                      |
| 314.207.074         | LPG Container Label - 4.5, 8, 16, 52 litre               |                      |
| 314.207.064         | LPG Container Label - 32, 106, 147, 180 litre (ESP)      |                      |
| 314.207.065         | LPG Container Label - 4.5, 8, 16, 52 litre (ESP)         |                      |

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**PART 4: SECTION 2.1**  
GASEOUS SYSTEM COMPONENTS

**SAPPHIRE™ (NOVEC 1230) 41 bar CONTAINER LABELS**

| Product Name | Description   | LPCB Ref. No. |
|--------------|---|---------------|
| 314.207.058  | HYGOOD Container Label - 32, 106, 147 & 180 litre   | 587a/17       |
| 314.207.099  | HYGOOD (India) Container Label - 80 & 120 litre     |               |
| 314.207.059  | HYGOOD Container Label - 8, 16 & 52 litre           |               |
| 314.207.056  | TSP Container Label - 32, 106, 147 & 180 litre      |               |
| 314.207.057  | TSP Container Label - 8, 16, 52 litre               |               |
| 314.207.052  | FIREATER Container Label - 32, 106, 147 & 180 litre |               |
| 314.207.053  | FIREATER Container Label - 8, 16, 52 litre          |               |
| 314.207.054  | THORN Container Label - 32, 106, 147 & 180 litre    |               |
| 314.207.055  | THORN Container Label - 8, 16, 52 litre             |               |
| 314.207.087  | LPG Container Label - 32, 106, 147 & 180 litre      |               |
| 314.207.088  | LPG Container Label - 8, 16, 52 litre               |               |
| 314.207.091  | LPG Container Label - 32, 106, 147, 180 litre (ESP) |               |
| 314.207.092  | LPG Container Label - 8, 16, 52 litre (ESP)         |               |

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**SAPPHIRE PLUS (NOVEC 1230) 70 bar CONTAINER LABELS**

| Product Name | Description                   | LPCB Ref. No. |
|--------------|-------------------------------|---------------|
| 314700003    | Cont. label GEM (European)    | 587a/63       |
| 314700009    | Cont. label HYGOOD (European) |               |
| 314700012    | Cont. label LPG (European)    |               |

Certificate No: 587a

**SELECTOR VALVES 25/41 bar**

| Product Name | Description          | Connection    | LPCB Ref. No. |
|--------------|----------------------|---------------|---------------|
| 308.209.001  | 40mm Selector valve  | NPT Threaded  | 587a/19       |
| 308.209.002  | 50mm Selector valve  | NPT Threaded  |               |
| 308.209.003  | 65mm Selector valve  | NPT Threaded  |               |
| 308.209.004  | 80mm Selector valve  | NPT Threaded  |               |
| 308.209.005  | 100mm Selector valve | NPT Threaded  |               |
| 308.209.007  | 40mm Selector valve  | BSPT Threaded |               |
| 308.209.008  | 50mm Selector valve  | BSPT Threaded |               |
| 308.209.009  | 65mm Selector valve  | BSPT Threaded |               |
| 308.209.010  | 80mm Selector valve  | BSPT Threaded |               |
| 308.209.011  | 100mm Selector valve | BSPT Threaded |               |

Certificate No: 587a

**SELECTOR VALVES 70 bar**

| Product Name | Description, Connection, Working Pressure (bar)       | LPCB Ref. No. |
|--------------|---|---------------|
| 445043       | SV shipping assy 3/4" metric, 140bar, manual release  | 587a/64       |
| 445044       | SV shipping assy 1 metric, 140bar, manual release     |               |
| 445045       | SV shipping assy 1 1/4 metric, 140bar, manual release |               |
| 445046       | SV shipping assy 1 1/2 metric, 140bar, manual release |               |
| 445047       | SV shipping assy 2 metric, 140bar, manual release     |               |
| 445048       | SV shipping assy 2 1/2 metric, 140bar, manual release |               |
| 445049       | SV shipping assy 3 metric, 140bar, manual release     |               |
| 445050       | SV shipping assy 4 metric, 140bar, manual release     |               |

Certificate No: 587a

**SELECTOR VALVE ACCESSORIES 70 bar**

| Product Name | Description                                 | LPCB Ref. No. |
|--------------|---|---------------|
| 30650022     | Bracket for 2x actuator for selector valves | 587a/65       |
| 30650013     | Bracket for 3x actuator for selector valves |               |
| 30650014     | Bracket for 4x actuator for selector valves |               |
| 30116011     | Selector Valve Microswitch                  |               |

## **PART 4: SECTION 2.1**

### **GASEOUS SYSTEM COMPONENTS**

#### **RG Green Systems**

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E-mail: jgonzalez@komtes.com

Certificate No: 1475a to EN 12094-4;2004

#### **Constant Flow Container Valves**

| Product Name | Description   | Max. Working Pressure, bar | Max. Outlet Pressure, bar | LPCB Ref. No. |
|--------------|---|----------------------------|---------------------------|---------------|
| RGS-MAM-RD9  | max free cross sectional area<br>70.9mm <sup>2</sup>  | 360                        | 60                        | 1475a/01      |
| RGS-MAM-RD11 | max free cross sectional area<br>103.9mm <sup>2</sup> | 360                        | 60                        | 1475a/02      |

#### **Notes:**

The above components are suitable for use with IG55 and IG541 at service temperatures of -20°C to +50°C.

Container pressure is specified as 150, 200 or 300 bar at 15°C.

System pressure downstream of the container valves is specified as a maximum of 60bar.

Certificate No: 1475b to EN 12094-4;2004

#### **Container Valve Actuators**

| Product Name | Description                             | Max. Working Pressure, bar | LPCB Ref. No. |
|--------------|---|----------------------------|---------------|
| RGS-MAM-03   | Pilot cartridge valve adaptor           | 190                        | 1475b/01      |
| 227 SOLR     | Electrical (mounted on RGS-MAM-03)      | 65                         | 1475b/02      |
| 227 SOLCR    | Electrical (mounted on RGS-MAM-03)      | 200                        | 1475b/03      |
| 227 DM       | Manual (mounted on electrical actuator) | 360                        | 1475b/04      |
| 227 DMS      | Manual (mounted on electrical actuator) | 360                        | 1475b/05      |

#### **Notes:**

The above components are suitable for use with IG55 and IG541 at service temperatures of -20°C to +50°C.

Container pressure is specified as 150, 200 or 300 bar at 15°C.

System pressure downstream of the container valves is specified as a maximum of 60bar.

Certificate No: 1475c to EN 12094-4;2004

#### **Pilot Cylinder Valves**

| Product Name  | Description                                      | Max. Working Pressure, bar | LPCB Ref. No. |
|---------------|--|----------------------------|---------------|
| RGS-MAM-11-4  | max free cross sectional area 113mm <sup>2</sup> | 190                        | 1475c/01      |
| RGS-MAM-12-4* | max free cross sectional area 113mm <sup>2</sup> | 190                        | 1475c/02      |

#### **Notes:**

The above components are suitable for use with IG55 and IG541 at service temperatures of -20°C to +50°C.

Container pressure is specified as 150, 200 or 300 bar at 15°C.

System pressure downstream of the container valves is specified as a maximum of 60bar.

\*with additional pressure switch port and pilot port

Certificate No: 1475d to EN 12094-4;2004



**Pilot Cylinder Valve Actuators**

| Product Name | Description | Max. Working Pressure, bar | LPCB Ref. No. |
|--------------|-------------|----------------------------|---------------|
| 227 SOL      | Electrical  | 65                         | 1475d/01      |
| 227 SOLC     | Electrical  | 200                        | 1475d/02      |
| 227 CN       | Pneumatic   | 360                        | 1475d/03      |

**Notes:**

The above components are suitable for use with IG55 and IG541 at service temperatures of -20°C to +50°C.  
Container pressure is specified as 150, 200 or 300 bar at 15°C.  
System pressure downstream of the container valves is specified as a maximum of 60bar.

**Certificate No: 1475e to EN 12094-10:2003**

**Pressure Gauges & Pressure Gauges + Switch**

| Product Name | Description                     | Pressure ranges, bar                | LPCB Ref. No. |
|--------------|---------------------------------|-------------------------------------|---------------|
| PGS.11.040   | Pressure gauge + switch 1/8 NPT | 0-60, 0-100, 0-250, 0-315 and 0-400 | 1475e/01      |

**Notes:**

The above components are suitable for use with IG55 and IG541 at service temperatures of -20°C to +50°C.  
Container pressure is specified as 150, 200 or 300 bar at 15°C.  
System pressure downstream of the container valves is specified as a maximum of 60bar.

**Certificate No: 1475g to EN 12094-8:2006**

**Connectors**

| Product Name | Description                           | Max. Working Pressure, bar | LPCB Ref. No. |
|--------------|---------------------------------------|----------------------------|---------------|
| FH-15CO      | Flexible discharge connector (type 1) | 275                        | 1475g/01      |
| FH-20HC      | Flexible discharge connector (type 1) | 215                        | 1475g/02      |
| FH-20A       | Flexible discharge connector (type 1) | 360                        | 1475g/03      |
| FH-21A       | Flexible discharge connector (type 1) | 360                        | 1475g/04      |
| DH 21        | Flexible discharge connector (type 1) | 280                        | 1475g/05      |
| DH 21I*      | Flexible discharge connector (type 1) | 280                        | 1475g/06      |
| FH-6PO       | Flexible actuator hose (type 3)       | 224                        | 1475g/07      |
| FH-7PO       | Flexible actuator hose (type 3)       | 360                        | 1475g/08      |
| DH 10        | Flexible actuator hose (type 3)       | 280                        | 1475g/09      |
| DH 10I*      | Flexible actuator hose (type 3)       | 280                        | 1475g/10      |
| DH 11        | Flexible actuator hose (type 3)       | 450                        | 1475g/11      |
| DH 11I*      | Flexible actuator hose (type 3)       | 450                        | 1475g/12      |

**Notes:**

The above components are suitable for use with IG55 and IG541 at service temperatures of -20°C to +50°C.  
Container pressure is specified as 150, 200 or 300 bar at 15°C.  
System pressure downstream of the container valves is specified as a maximum of 60bar.

\*connections made with AISI 306 stainless steel

**Certificate No: 1475h to EN 12094-13:2001**

**Check Valves and Non-Return Valves**

| Product Name   | Description           | Max. Working Pressure, bar | LPCB Ref. No. |
|----------------|-----------------------|----------------------------|---------------|
| VALAN-15CO     | Check valve 1/2"      | 240                        | 1475h/01      |
| VALAN-21A      | Check valve 3/4"      | 360                        | 1475h/02      |
| VALAN-22A      | Check valve 3/4"      | 360                        | 1475h/03      |
| VALAN-WFR8     | Non-return valve 1/4" | 240                        | 1475h/04      |
| VALAN-WFR8-316 | Non-return valve 1/4" | 240                        | 1475h/05      |

## **PART 4: SECTION 2.1**

### **GASEOUS SYSTEM COMPONENTS**

#### **Notes:**

The above components are suitable for use with IG55 and IG541 at service temperatures of -20°C to +50°C.

Container pressure is specified as 150, 200 or 300 bar at 15°C.

System pressure downstream of the container valves is specified as a maximum of 60bar.

**Certificate No: 1475i to EN 12094-5:2006**

#### **Selector Valves for IG55 & IG541**

| <b>Product Name</b> | <b>Description</b>  | <b>Max. Working Pressure, bar</b> | <b>LPCB Ref. No.</b> |
|---------------------|---|-----------------------------------|----------------------|
| SVD20               | Selector Valve, CO <sub>2</sub> , HFC-125, HFC-227ea, FK-5-1-12 | 140                               | 1475i/01             |
| SVD25               | Selector Valve, CO <sub>2</sub> , HFC-125, HFC-227ea, FK-5-1-12 | 140                               | 1475i/02             |
| SVD32               | Selector Valve, CO <sub>2</sub> , HFC-125, HFC-227ea, FK-5-1-12 | 140                               | 1475i/03             |
| SVD40               | Selector Valve, CO <sub>2</sub> , HFC-125, HFC-227ea, FK-5-1-12 | 140                               | 1475i/04             |
| SVD50               | Selector Valve, CO <sub>2</sub> , HFC-125, HFC-227ea, FK-5-1-12 | 140                               | 1475i/05             |
| SVD65               | Selector Valve, CO <sub>2</sub> , HFC-125, HFC-227ea, FK-5-1-12 | 140                               | 1475i/11             |
| SVD80               | Selector Valve, CO <sub>2</sub> , HFC-125, HFC-227ea, FK-5-1-12 | 140                               | 1475i/12             |
| SVD100              | Selector Valve, CO <sub>2</sub> , HFC-125, HFC-227ea, FK-5-1-12 | 140                               | 1475i/13             |
| SVDA25              | Selector Valve, inert gas                                       | 360                               | 1475i/06             |
| SVDA32              | Selector Valve, inert gas                                       | 360                               | 1475i/07             |
| SVDA40              | Selector Valve, inert gas                                       | 360                               | 1475i/08             |
| SVDA50              | Selector Valve, inert gas                                       | 360                               | 1475i/09             |
| SVDA65              | Selector Valve, inert gas                                       | 360                               | 1475i/10             |

#### **Notes:**

The above components are suitable for use with IG55 and IG541 at service temperatures of -20°C to +50°C.

Container pressure is specified as 150, 200 or 300 bar at 15°C.

System pressure downstream of the container valves is specified as a maximum of 60bar.

**Certificate No: 1475j & 1475k to prEN 12094-7:2006**

#### **Nozzles**

| <b>Product Name</b> | <b>Description</b> | <b>Size</b> | <b>LPCB Ref. No.</b> |
|---------------------|--------------------|-------------|----------------------|
| FEDR10              | 360°nozzle         | G 3/8       | 1475j/01             |
| FEDR10A             | 360°nozzle         | G 3/8       | 1475j/02             |
| FEDR15              | 360°nozzle         | G 1/2       | 1475j/03             |
| FEDR15A             | 360°nozzle         | G 3/4       | 1475j/04             |
| FEDR20              | 360°nozzle         | G 3/4       | 1475j/05             |
| FEDR20A             | 360°nozzle         | G 3/4       | 1475j/06             |
| FEDR25              | 360°nozzle         | G 1         | 1475j/07             |
| FEDR25A             | 360°nozzle         | G 1         | 1475j/08             |
| FEDR32              | 360°nozzle         | G 1 1/4     | 1475j/09             |
| FEDR32A             | 360°nozzle         | G 1 1/4     | 1475j/10             |
| FEDR40              | 360°nozzle         | G 1 1/2     | 1475j/11             |
| FEDR40A             | 360°nozzle         | G 1 1/2     | 1475j/12             |
| FEDR50              | 360°nozzle         | G 2         | 1475j/13             |
| FEDR10180           | 180°nozzle         | G 3/8       | 1475k/01             |
| FEDR10180A          | 180°nozzle         | G 3/8       | 1475k/02             |
| FEDR15180           | 180°nozzle         | G 1/2       | 1475k/03             |
| FEDR15180A          | 180°nozzle         | G 1/2       | 1475k/04             |
| FEDR20180           | 180°nozzle         | G 3/4       | 1475k/05             |
| FEDR20180A          | 180°nozzle         | G 3/4       | 1475k/06             |
| FEDR25180           | 180°nozzle         | G 1         | 1475k/07             |
| FEDR25180A          | 180°nozzle         | G 1         | 1475k/08             |
| FEDR32180           | 180°nozzle         | G 1 1/4     | 1475k/09             |
| FEDR32180A          | 180°nozzle         | G 1 1/4     | 1475k/10             |
| FEDR40180           | 180°nozzle         | G 1 1/2     | 1475k/11             |
| FEDR40180A          | 180°nozzle         | G 1 1/2     | 1475k/12             |
| FEDR50180           | 180°nozzle         | G 2         | 1475k/13             |

#### **Notes:**

The above components are suitable for use with IG55 and IG541 at service temperatures of -20°C to +50°C.

Container pressure is specified as 150, 200 or 300 bar at 15°C.

System pressure downstream of the container valves is specified as a maximum of 60bar.

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Certificate No: 969a

### NAF S 125 & NAF S 227 Container Valves

| Product Name | Description | Agent     | LPCB Ref. No. |
|--------------|-------------|-----------|---------------|
| SH20025128   | SHT V20     | NAF S 125 | 969a/01       |
| SH20025129   | SHT V20     | NAF S 227 |               |
| SH20025145   | SHT V25     | NAF S 125 |               |
| SH20025146   | SHT V25     | NAF S 227 |               |
| SH20025190   | SHT V40     | NAF S 125 |               |
| SH20025191   | SHT V40     | NAF S 227 |               |
| SH20012128   | SHT V20-N2  | Nitrogen  |               |

- a. This range of equipment is suitable for storage from -20° to 50°C (HFC125) or 0° to 50°C (HFC227ea), (See Note 2).  
b. Nominal system pressure for HFC 227ea and HFC 125 components at 21°C is stated at 42 bar.

Certificate No: 969a

### NAF S 125 & NAF S 227 Container Valve Actuators

| Product Name | Description                       | LPCB Ref. No. |
|--------------|-----------------------------------|---------------|
| SH31009401   | Manual actuator                   | 969a/02       |
| SH30027302   | 1 way high pressure cone          |               |
| SH30027303   | 2 way high pressure cone          |               |
| SH21006403   | Solenoid actuator                 |               |
| SH21006404   | Solenoid actuator 1/8" connection |               |
| SH31009402   | Manual / Pneumatic actuator       |               |

- a. This range of equipment is suitable for storage from -20° to 50°C (HFC125) or 0° to 50°C (HFC227ea), (See Note 2).  
b. Nominal system pressure for HFC 227ea and HFC 125 components at 21°C is stated at 42 bar.

Certificate No: 969a

### NAF S 125 & NAF S 227 Discharge Connectors

| Product Name | Description   | LPCB Ref. No. |
|--------------|---|---------------|
| SH30506000   | 1 x 320 mm flexible connector type 1 <sup>(1)</sup>         | 969a/03       |
| SH30502140   | 1 x 400 mm flexible connector type 1 <sup>(2)</sup>         |               |
| SH30506070   | 3/4" x 400 mm flexible connector type 1 <sup>(3)</sup>      |               |
| SH30503290   | 1/8 x 160 mm PTFE flexible connector type 3 <sup>(4)</sup>  |               |
| SH30506014   | 1/4" x 580 mm PTFE flexible connector type 3 <sup>(4)</sup> |               |
| SH30522001   | 1/4" x 700 mm PTFE flexible connector type 3 <sup>(4)</sup> |               |
| SH30508080   | 1 1/2" rigid connector type 5 <sup>(4)</sup>                |               |
| SH30508000   | 1 1/2" rigid connector type 5 <sup>(4)</sup>                |               |

<sup>(1)</sup> Max Working Pressure 69 bar

<sup>(2)</sup> Max Working Pressure 185 bar

<sup>(3)</sup> Max Working Pressure 240 bar

<sup>(4)</sup> Max Working Pressure 132 bar

Certificate No: 969a

### NAF S 125 & NAF S 227 Check Valves

| Product Name | Description   | LPCB Ref. No. |
|--------------|---------------|---------------|
| SH20006060   | 1 Check Valve | 969a/04       |

## **PART 4: SECTION 2.1**

### **GASEOUS SYSTEM COMPONENTS**

| <b>Product Name</b> | <b>Description</b> | <b>LPCB Ref. No.</b> |
|---------------------|--------------------|----------------------|
| SH21006302          | 2 Check Valve      |                      |

#### **Siemens Switzerland Limited**

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#### **Siemens Sinorix™ CO2 Fire Fighting Components**

1. This range of equipment is suitable for storage temperatures from -20°C to +60°C and is approved for use with CO2
2. This range of equipment is approved for use with Siemens Building Technologies data sheet 04-01-902 Revision: 0
3. System pressure is specified as 60 bar at +20°C

Certificate No: 126z

#### **Siemens Sinorix™ CO2 Container valves**

| <b>Product Name</b> | <b>Description</b>  | <b>LPCB Ref. No.</b> |
|---------------------|---------------------|----------------------|
| CX505127            | CO2 Container Valve | 126z/10              |

#### **Siemens Sinorix™ Cerexen ® Fire Fighting Components**

1. This range of equipment is suitable for storage temperatures from -20°C to +60°C and is approved for use with 200 bar inert gas
2. This range of equipment is approved for use with Siemens Building Technologies data sheet 04-02-901 Revision: 0
3. System pressure is specified as 200 bar at +15°C

Certificate No: 126z

#### **Siemens Sinorix™ Cerexen ® 200 bar Inert Container valves**

| <b>Product Name</b> | <b>Description</b>            | <b>LPCB Ref. No.</b> |
|---------------------|-------------------------------|----------------------|
| CX505120            | 200 bar Inert Container Valve | 126z/07              |

#### **Siemens Sinorix™ Cerexen ® 300 bar Inert Container valves**

4. This range of equipment is suitable for storage temperatures from -20°C to +60°C and is approved for use with 300 bar inert gas
5. This range of equipment is approved for use with Siemens Building Technologies data sheet 04-02-902 Revision: 0
6. System pressure is specified as 300 bar at +15°C

Certificate No: 126z

#### **Siemens Sinorix™ Cerexen ® 300 bar Inert Container valves**

| <b>Product Name</b> | <b>Description</b>            | <b>LPCB Ref. No.</b> |
|---------------------|-------------------------------|----------------------|
| CX505135            | 300 bar Inert Container Valve | 126z/08              |

Certificate No: 724a

#### **Siemens Sinorix Cerexen Inert Container Valves Discharge Regulator**

| <b>Product Name</b> | <b>Description</b>                    | <b>LPCB Ref. No.</b> |
|---------------------|---------------------------------------|----------------------|
| S54476-B263-A1      | Discharge Constant Pressure Regulator | 724a/05              |

**Siemens Sinorix™ Cerexen ® Actuators**

7. This range of equipment is suitable for storage temperatures from -20°C to +60°C and is approved for use with Siemens CX505127, CX505120 and CX505135 Container Valves.
8. This range of equipment is approved for use with Siemens Building Technologies data sheet 04-03-900 Revision: 0

Certificate No: 126z

**Siemens Sinorix™ Cerexen ® Actuators**

| Product Name | Description               | LPCB Ref. No. |
|--------------|---------------------------|---------------|
| CX505131     | Pneumatic Actuator        | 126z/09       |
| CX505130     | Pneumatic Actuator        |               |
| CX505132     | Pneumatic/Manual Actuator |               |
| CX505134     | Electrical Actuator       |               |

Certificate No: 126z

**Siemens Sinorix™ Cerexen ® 200 bar and 300 bar Inert Container Valve Assemblies**

| Product Name   | Description   | LPCB Ref. No. |
|----------------|---|---------------|
| S54476-C3-C2   | 10 litre Container Valve Assembly - (Nitrogen/200 bar)  | 126z/06       |
| S54476-C1-C5   | 80 litre Container Valve Assembly - (Nitrogen/200 bar)  |               |
| S54476-C2-C1   | 140 litre Container Valve Assembly - (Nitrogen/200 bar) |               |
| S54476-C1-C15  | 80 litre Container Valve Assembly - (Nitrogen/300 bar)  |               |
| S54476-C140-A1 | 140 litre Container Valve Assembly - (Nitrogen/300 bar) |               |
| S54476-C8-C2   | 80 litre Container Valve Assembly - (Argon/200 bar)     |               |
| S54476-C9-C1   | 140 litre Container Valve Assembly - (Argon/200 bar)    |               |
| S54476-C8-C4   | 80 litre Container Valve Assembly - (Argon/300 bar)     |               |
| S54476-C140-A2 | 140 litre Container Valve Assembly - (Argon/300 bar)    |               |
| S54476-C9-A1   | 80 litre Container Valve Assembly - (IG541/300 bar)     |               |
| S54476-C140-A3 | 140 litre Container Valve Assembly - (IG541/300 bar)    |               |

**Siemens Sinorix™ Cerexen ® Nozzles**

9. This range of equipment is suitable for storage temperatures of -20°C to 50°C and is approved for use with Cerexen
10. This range of equipment is approved for us in conjunction with Siemens Design manual reference 000010\_a. - Revision: March 2005
11. Nominal system pressure at 15°C is stated at 200 bar.

Certificate No: 126z

**Siemens Sinorix™ Cerexen ® Nozzles**

| Product Name                 | Description | LPCB Ref. No. |
|------------------------------|-------------|---------------|
| Cerexen Type Nozzle - 2 Hole | Nozzle      | 126z/02       |
|                              | ½" Nozzle   |               |
|                              | ¾" Nozzle   |               |
|                              | 1 Nozzle    |               |
|                              | 1 ¼" Nozzle |               |
|                              | 1 ½" Nozzle |               |
| Cerexen Type Nozzle - 4 Hole | 2 Nozzle    | 126z/03       |
|                              | Nozzle      |               |
|                              | ½" Nozzle   |               |
|                              | ¾" Nozzle   |               |
|                              | 1 Nozzle    |               |
|                              | 1 ¼" Nozzle |               |
|                              | 1 ½" Nozzle |               |
|                              | 2 Nozzle    |               |

**Siemens Sinorix™ Cerexen ® Flexible Connectors**

9. This range of equipment is suitable for storage temperatures of -20°C to 50°C and is approved for use with Cerexen
10. This range of equipment is approved for us in conjunction with Siemens Design manual reference 000010\_a. - Revision: March 2005

## **PART 4: SECTION 2.1**

### **GASEOUS SYSTEM COMPONENTS**

11. Nominal system pressure at 15°C is stated at 200 bar.

Certificate No: 126z

#### **Siemens Sinorix™ Cerexen ® Flexible Connectors**

| Product Name         | Description              | LPCB Ref. No. |
|----------------------|--------------------------|---------------|
| MTD2040N-P 1006KP    | Pilot line hose (Type 3) | 126z/04       |
| MTD2040N-P 1010KP    | Pilot line hose (Type 3) |               |
| MTKH60000-P 1112KZ2P | Manifold hose (Type 1)   |               |

#### **Siemens Sinorix™ Cerexen ® Pressure Reduction Devices**

9. This range of equipment is suitable for storage temperatures of -20°C to 50°C and is approved for use with Cerexen  
10. This range of equipment is approved for us in conjunction with Siemens Design manual reference 000010\_a. - Revision: March 2005  
11. Nominal system pressure at 15°C is stated at 200 bar.

Certificate No: 126z

#### **Siemens Sinorix™ Cerexen ® Pressure Reduction Devices**

| Product Name            | Description       | LPCB Ref. No. |
|-------------------------|-------------------|---------------|
| Cerexen Blende Type 1½" | 1½" Orifice Plate | 126z/05       |
| Cerexen Blende Type 2"  | 2 Orifice Plate   |               |

### **Tyco Fire and Integrated Solutions (the trading company for Tyco Fire and Integrated Solutions (UK) Limited and Tyco Fire and Integrated Solutions (Ireland) Limited)**

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Website: [www.tycofis.com](http://www.tycofis.com)

#### **Inergen Fire Fighting Components**

- This range of equipment is suitable for storage temperatures of -20°C to +50°C and is approved for use with Inergen.
- This range of equipment is approved for use in conjunction with Tyco Fire and Integrated Solutions Design Manual Reference 'Inergen 300 bar Manual'.
- System pressure is specified as 300 bar at 15°C.
- A range of mounting brackets and retention assemblies for secure container are also available.

Certificate No: 014a

#### **INERGEN Container and Container Bracket Assemblies**

| Product Name | Description | Capacity (ltr) | LPCB Ref. No. |
|--------------|-------------|----------------|---------------|
| SL93035      | 80 litre    | 80             | 014a/01       |
| SL93036      | 67 litre    | 67             |               |
| SL93037      | 40 litre    | 40             |               |
| SL93038      | 27 litre    | 27             |               |

Certificate No: 014a

#### **INERGEN Discharge Manifolds**

| Product Name | Description         | Nominal Bore (mm) | LPCB Ref. No. |
|--------------|---------------------|-------------------|---------------|
| SL94063      | 560-6 Manifold      | 50                | 014a/02       |
| SL94064      | 840-9 Manifold      | 50                |               |
| SL94065      | 1120-12 Manifold    | 50                |               |
| SL94066      | 1400-15 Manifold    | 50                |               |
| SL94146      | DOS Manifold 900-3  | 25                |               |
| SL94147      | DOS Manifold 1200-4 | 25                |               |
| SL94148      | DOS Manifold 1500-5 | 25                |               |

**PART 4: SECTION 2.1**  
GASEOUS SYSTEM COMPONENTS

Certificate No: 014a

**INERGEN Check Valves**

| Product Name | Description             | Nominal Bore (mm) | LPCB Ref. No. |
|--------------|-------------------------|-------------------|---------------|
| SL94228      | Check Valve             | DN7               | 014a/03       |
| SL93812      | Pilot Cylinder Assembly | -                 |               |

Certificate No: 014a

**INERGEN Orifice Units**

| Product Name | Description      | Orifice Size | LPCB Ref. No. |
|--------------|------------------|--------------|---------------|
| SL94076      | 2" Orifice Unit  | 3mm - 30mm   | 014a/04       |
| SL94092      | 3" Orifice Unit  | 20mm 56mm    |               |
| SL94143      | DOS Orifice Unit | 1mm 5mm      |               |

Certificate No: 014a

**INERGEN Nozzles**

| Product Name | Description  | Orifice Size | LPCB Ref. No. |
|--------------|--------------|--------------|---------------|
| SL93943      | ½" 360° NPT  | 3mm - 10mm   | 014a/05       |
| SL93938      | 1" 360° NPT  | 10mm - 20mm  |               |
| SL93773      | 1½" 360° NPT | 8mm - 28mm   |               |

Nozzles sized in accordance with system calculations.

Certificate No: 014a

**INERGEN Connectors**

| Product Name | Description    | Nominal Bore (mm) | LPCB Ref. No. |
|--------------|----------------|-------------------|---------------|
| SL94061      | Discharge Hose | DN10              | 014a/06       |
| SL94049      | Actuation Hose | DN8               |               |
| SL94050      | Pilot hose     | DN6               |               |

Certificate No: 724Aa

**INERGEN Container Valves**

| Product Name | Description                   | LPCB Ref. No. |
|--------------|-------------------------------|---------------|
| BL0480 2007  | 300 bar Inert Container Valve | 724Aa/03      |

Certificate No: 724Aa

**INERGEN Actuators**

| Product Name | Description               | LPCB Ref. No. |
|--------------|---------------------------|---------------|
| SL94045      | Electric Actuator         | 724Aa/04      |
| SL94046      | Pneumatic Actuator        |               |
| SL94047      | Pneumatic/Manual Actuator |               |
| SL942124     | Manual Actuator           | 014a/07       |

Certificate No: 014a

## **PART 4: SECTION 2.1**

### **GASEOUS SYSTEM COMPONENTS**

#### ***INERGEN Pressure Gauge***

| <b>Product Name</b> | <b>Description</b> | <b>LPCB Ref. No.</b> |
|---------------------|--------------------|----------------------|
| SL94059             | Cylinder 300 bar   | 014a/08              |

#### **Tyco Fire Protection Products (Barcelona)**

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E-mail: [TFFP\\_EMEA\\_Communications@tyco-bspd.com](mailto:TFFP_EMEA_Communications@tyco-bspd.com) • Website: [www.tffpemea.com](http://www.tffpemea.com)

#### ***Tyco 200 bar and 300 bar Inert Fixed fire Fighting Components***

1. This range of equipment is suitable for storage and environmental conditions from -20° to +50° and is approved for use with Inert 55 and all combinations of Argon and Nitrogen.
2. This range of equipment is approved for use with Tyco Design Manual reference: MD/55/01/IN/TY.
3. Nominal system pressure is specified as 200 bar and 300 bar at 15°C.

Certificate No: 446Ba

#### ***Tyco Discharge Valves for Inert (200 bar) and Inert (300 bar)***

| <b>Product Name</b> | <b>Description</b>               | <b>LPCB Ref. No.</b> |
|---------------------|----------------------------------|----------------------|
| 2000306V            | 128-60 container valve (200 bar) | 446Ba/01             |
| 26512800            | 128-65 container valve (330 bar) |                      |
| 2000280V            | 128-80 container valve (200 bar) | 446Ba/02             |
| 28512800            | 128-85 container valve (330 bar) |                      |

Certificate No: 446Ba

#### ***Tyco Restrictors for Inert (200 bar) and Inert (300 bar)***

| <b>Product Name</b> | <b>Description</b> | <b>LPCB Ref. No.</b> |
|---------------------|--------------------|----------------------|
| 61350005            | ¾" Restrictor      | 446Ba/17             |
| 61350006            | 1 Restrictor       |                      |
| 61350007            | 1 ¼" Restrictor    |                      |
| 61350008            | 1 ½" Restrictor    |                      |
| 61350009            | 2 Restrictor       |                      |

Certificate No: 446Ba

#### ***Tyco Discharge Containers for Inert (200 bar) and Inert (300 bar)***

| <b>Product Name</b> | <b>Description</b>           | <b>LPCB Ref. No.</b> |
|---------------------|------------------------------|----------------------|
| 10800080            | 80 litre cylinder (200 bar)  | 446Ba/19             |
| 11400060            | 140 litre cylinder (200 bar) |                      |
| 10800300            | 80 litre cylinder (300 bar)  |                      |
| 11400300            | 140 litre cylinder (300 bar) |                      |

Certificate No: 446Ba

#### ***Tyco Discharge Hoses for Inert (200 bar) and Inert (300 bar)***

| <b>Product Name</b> | <b>Description</b> | <b>LPCB Ref. No.</b> |
|---------------------|--------------------|----------------------|
| 30522010            | ¾" flexible hose   | 446Ba/18             |

Certificate No: 446Ba



**PART 4: SECTION 2.1**  
GASEOUS SYSTEM COMPONENTS

**Tyco Check Valves for Inert (200 bar) and Inert (300 bar)**

| Product Name | Description    | LPCB Ref. No. |
|--------------|----------------|---------------|
| 20006050     | ¾" check valve | 446Ba/20      |

Certificate No: 446Ba

**Tyco Nozzles for Inert (200 bar) and Inert (300 bar)**

| Product Name | Description      | LPCB Ref. No. |
|--------------|------------------|---------------|
| 30400000     | ⅜" 360° nozzle   | 446Ba/21      |
| 30400001     | ½" 360° nozzle   |               |
| 30400002     | ¾" 360° nozzle   |               |
| 30400003     | 1" 360° nozzle   |               |
| 30400004     | 1 ¼" 360° nozzle |               |
| 30400005     | 1 ½" 360° nozzle |               |
| 30400006     | 2" 360° nozzle   |               |
| 30400007     | ⅜" 180° nozzle   |               |
| 30400008     | ½" 180° nozzle   |               |
| 30400009     | ¾" 180° nozzle   |               |
| 30400010     | 1" 180° nozzle   |               |
| 30400011     | 1 ¼" 180° nozzle |               |
| 30400012     | 1 ½" 180° nozzle |               |
| 30400013     | 2" 180° nozzle   |               |

Certificate No: 446Ba

**Tyco Pneumatic Line Actuation for Inert 200 bar, Inert 300 bar**

| Product Name | Description                   | LPCB Ref. No. |
|--------------|-------------------------------|---------------|
| 3023024B     | Solenoid actuator 13W/24V     | 446Ba/09      |
| 30130197     | Solenoid actuator 1/8" output |               |
| 30180APB     | Manual actuator               |               |
| 30180NAPB    | Dual manual actuator          |               |
| 2901280B     | 128-90 container valve        | 446Ba/10      |
| 30111APB     | 1 way cone high pressure      |               |
| 30112APB     | 2 way cone high pressure      |               |
| 30113APB     | 3 way cone high pressure      |               |
| 20007020     | ¼" relief valve               |               |
| 3080008C     | Pressure relief screw (short) |               |
| 3080008L     | Pressure relief screw (long)  |               |
| 30522001     | PTFE hose ¼" x 700mm          |               |
| 30506014     | PTFE hose ¼" x 580mm          |               |
| 10020000     | 2 litre cylinder              |               |

**WIKA Alexander Wiegand SE & Co. KG**

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E-mail: christian.luley@wika.com • Website: www.wika.de

Certificate No: 980a/01 to EN12094-10

**Wika Pressure gauges with switch**

| Product Name | Description   | LPCB Ref. No. |
|--------------|---|---------------|
| PGS 21.050   | 0-40 bar range<br>0-60 bar range<br>0-100 bar range<br>0-160 bar range<br>0-250 bar range<br>0-315 bar range<br>0-400 bar range | 980a/01       |

**PART 4: SECTION 2.1**  
GASEOUS SYSTEM COMPONENTS

Approved with cable connection; PG9 Cable gland; DIN Snap connector or M8 Plug and cable electrical connectors.

- LPCB approval of system components (Part 4: Section 2.1);
- Assessment to the relevant parts of ISO 14520 - *Gaseous fire-extinguishing systems* or EN 15004 - *Fixed Firefighting Systems - Gas Extinguishing Systems*;
- Testing to LPS 1230: *Requirements for Fire Testing of Fixed Gaseous Fire Extinguishing Systems*; and
- Review of the system design manual, software programme and installation & maintenance manual specified in the system approval Listing

**Notes:**

1. Gases used for extinguishing fires are generally hazardous to health. In selecting a system, specifiers are advised to carry out proper risk assessments based on the latest health and safety datasheets.
2. LPCB strongly recommends that the design and installation of these systems be carried out by a Certificated LPS 1204 company (see Part 4, Section 1).

**Carrier Airconditioning & Refrigeration Ltd**

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Certificate No: 594Cb to LPS 1230

**ARGONITE 150, 200, 300 bar Fixed Gaseous Fire Extinguishing System**

| Product Name | Risk   | Design Concentration | Comments  | LPCB Ref. No. |
|--------------|--|----------------------|---|---------------|
| ARGONITE     | Class A Standard<br>(Solid fires e.g. Paper, wood, plastics) | 40.1%                | Design concentration includes 30% safety factor     | 594Cb/01      |
|              | Class A Cables<br>(Solid fire risks including Cables)        | 47.6%                | Confirmation that minimum safety factor is adequate |               |
|              | Class B<br>(Liquid Fires e.g. heptane)                       | 47.1%                | Design concentration includes 30% safety factor     |               |

Design concentration Class A Standard and Class B = Extinguishing concentration x safety factor (minimum 1.3).

Design concentration Class A Cables System test concentration. Where this value is lower than the Class A Standard value, the Class A Standard value should be used for design purposes.

Design concentrations are as tested to LPS 1230 in BRE Test Report Number 206880.

Extinguishing concentrations are as tested in BRE Test Report Numbers 206879 and 216485 (ISO 14520-1 tests).

**This system uses:**

Design, Installation, Maintenance and User Manual:

General Manual - Argonite System, MA-01-9006-0100, Revision 10 dated February 2008

Software Programme: VdS-Version 7.2 (2007)

- a) This system is suitable for storage in environmental conditions from -20°C to +55°C
- b) System pressure is specified as 150 bar, 200 bar and 300 bar @ 15°C

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Certificate No: 1329e to LPS 1230

## PART 4: SECTION 2.2

### GASEOUS SYSTEMS

#### Ceasefire HFC227ea 25 bar and 42 bar Fixed Gaseous Fire Extinguishing System

| Product Name   | Risk  | Design Concentration | Comments  | LPCB Ref. No. |
|--|---|----------------------|---|---------------|
| Ceasefire HFC227ea 25 bar and 42 bar Fixed Gaseous Fire Extinguishing System | Class A Standard (Solid fires e.g. Paper, wood, plastics) | 7.8 %                | Design concentration includes 30% safety factor     | 1329e/01      |
|  | Class A Cables (Solid fire risks including Cables)        | 8.2 %                | Confirmation that minimum safety factor is adequate |               |
|  | Class B (Liquid Fires e.g. heptane)                       | 9.2 %                | Design concentration includes 30% safety factor     |               |

#### Notes:

Design concentration Class A Standard and Class B = Extinguishing concentration x safety factor (minimum 1.3).

Design concentration Class A Cables System test concentration. Where this value is lower than the Class A Standard value, the Class A Standard value should be used for design purposes.

Design concentrations are as tested to LPS 1230 in BRE Test Report Number 300712.

Extinguishing concentrations are as verified in BRE Test Report Number 300712

This system is suitable for storage in environmental conditions from -20°C to +50°C

System pressure is specified as 25 bar or 42 bar @ 21°C

#### This system uses:

Components as listed in Part 4, Section 2.1 and described in Handbook of Design, Installation, Operation and System Maintenance of Ceasefire HFC227ea: - CF/HFC/MAN/001, dated 12.04.2017, Version 01, Revision 00 which utilises

Software Programme:

Hughes Associates Inc., S/N000001 CFG: 705161

For 25 bar system; AgentCalcs for HFC227ea-25 bar GEN 3.02; Copyright Hughes Associates, Inc.; S/N000001 -408AEC6C CFG: 705161400 Rev:3.0.261

For 42 bar system; AgentCalcs for HFC227ea-42 bar GEN 3.12 Copyright Hughes Associates, Inc.; S/N000001 -36E48F9A CFG: 705161400 Rev:3.0.263

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Certificate No: 1222a to LPS 1230

#### Eurotech227 & Eurosafe227 - 25 bar & 42 bar HFC 227ea Gaseous Fire Suppression Systems

| Product Name              | Risk  | Design Concentration | Comments  | LPCB Ref. No. |
|---------------------------|---|----------------------|---|---------------|
| Eurotech227 & Eurosafe227 | Class A Standard (Solid fires e.g. paper, wood, plastics) | 7.8%                 | Design concentration includes 30% safety factor     | 1222a/01      |
|                           | Class A Cables (Solid fires risks including cables)       | 8.2%                 | Confirmation that minimum safety factor is adequate |               |
|                           | Class B (Liquid Fires e.g.heptane)                        | 9.2%                 | Design concentration includes 30% safety factor     |               |

Design concentration Class A Standard and Class B = Extinguishing concentration x safety factor (minimum 1.3).

Design concentrations are as tested to LPS 1230 In BRE Test Report Numbers 231870 (25 bar) & 254632 (42 bar) (Class A and B risks) and Test Letter 282069 (Class A Cables risks)

Extinguishing concentrations are as tested in BRE Test Report Number 231870 (ISO 14520-1 tests).

#### This system uses:

Design Manual: 'Eurotech Fire HFC227 Manual' - Issue 13-03

Software Programme : Vds Schadenverhutung calculation package version 7.3

This system is suitable for storage and environmental conditions from -20° to 50°C.

System pressure is specified as 25 bar and 42 bar at 20°.

Certificate No: 1222a to LPS 1230

**Eurotech1230 & Eurosafe1230 - 25 bar & 42 bar FK 5-1-12 (Novec™ 1230) Gaseous Fire Suppression Systems**

| Product Name                | Risk  | Design Concentration | Comments  | LPCB Ref. No. |
|-----------------------------|---|----------------------|---|---------------|
| Eurotech1230 & Eurosafe1230 | Class A Standard (Solid fires e.g. paper, wood, plastics) | 5.3%                 | Design concentration includes 30% safety factor     | 1222a/02      |
|                             | Class A Cables (Solid fires risks including cables)       | 5.5%                 | Confirmation that minimum safety factor is adequate |               |
|                             | Class B (Liquid Fires e.g.heptane)                        | 6.5%                 | Design concentration includes 30% safety factor     |               |

Design concentration Class A Standard and Class B = Extinguishing concentration x safety factor (minimum 1.3).

Design concentrations are as tested to LPS 1230 in BRE Test Report Numbers 231870 (25 bar) & 254632 (42 bar) (Class A and B risks) and Test Letter 282069 (Class A Cables risks)

Extinguishing concentrations are as tested in BRE Test Report Number 231870 (ISO 14520-1 tests).

This system uses:

Design Manual: 'Eurotech Fire Novec1230 Manual' - Issue 13-04

Software Program: VdS Schadenverhütung calculation package version 7.2

This system is suitable for storage and environmental conditions from -20° to 50°C.

System pressure is specified as 25 bar and 42 bar at 20°C.

**Certificate No: 1222a to LPS 1230**

**Inertech IG-01 200 bar & 300 bar Gaseous Fire Suppression Systems**

| Product Name   | Risk  | Design Concentration | Comments  | LPCB Ref. No. |
|----------------|---|----------------------|---|---------------|
| Inertech IG-01 | Class A Standard (Solid fires e.g. paper, wood, plastics) | 45.5%                | Design concentration includes 30% safety factor       | 1222a/03      |
|                | Class A Cables (Solid fires risks including cables)       | 49.6%                | Confirmation that 'minimum safety factor' is adequate |               |
|                | Class B (Liquid Fires e.g.heptane)                        | 52.7%                | Design concentration includes 30% safety factor       |               |

Design concentration Class A Standard and Class B = Extinguishing concentration x safety factor (minimum 1.3).

Design concentrations are as tested to LPS 1230 in BRE Test Report Numbers 270432

Extinguishing concentrations are as tested in BRE Test Report Number 270432 (EN 15004-1 tests).

This system uses:

Design Manual: 'Eurotech Inertech System Manual' Issue June 2013

Software Program: VdS Flow Calc Version 2.2 .

This system is suitable for storage and environmental conditions from -20° to 50°C.

System pressure is specified as 200 bar and 300 bar at 15°C.

**Certificate No: 1222a to LPS 1230**

**Inertech IG-55 200 bar & 300 bar Gaseous Fire Suppression Systems**

| Product Name   | Risk  | Design Concentration | Comments  | LPCB Ref. No. |
|----------------|---|----------------------|---|---------------|
| Inertech IG-55 | Class A Standard (Solid fires e.g. paper, wood, plastics) | 40.0%                | Design concentration includes 30% safety factor       | 1222a/04      |
|                | Class A Cables (Solid fires risks including cables)       | 43.8%                | Confirmation that 'minimum safety factor' is adequate |               |
|                | Class B (Liquid Fires e.g.heptane)                        | 47.1%                | Design concentration includes 30% safety factor       |               |

Design concentration Class A Standard and Class B = Extinguishing concentration x safety factor (minimum 1.3).

Design concentrations are as tested to LPS 1230 in BRE Test Report Numbers 270432

Extinguishing concentrations are as tested in BRE Test Report Number 270432 (EN 15004-1 tests).

This system uses:

Design Manual: 'Eurotech Inertech System Manual' Issue June 2013

Software Program: VdS Flow Calc Version 2.2 .

This system is suitable for storage and environmental conditions from -20° to 50°C.

System pressure is specified as 200 bar and 300 bar at 15°C.

# PART 4: SECTION 2.2

## GASEOUS SYSTEMS

Certificate No: 1222a to LPS 1230

### ***Inertech IG-100 200 bar & 300 bar Gaseous Fire Suppression Systems***

| Product Name    | Risk  | Design Concentration | Comments  | LPCB Ref. No. |
|-----------------|---|----------------------|---|---------------|
| Inertech IG-100 | Class A Standard (Solid fires e.g. paper, wood, plastics) | 38.9%                | Design concentration includes 30% safety factor       | 1222a/05      |
|                 | Class A Cables (Solid fires risks including cables)       | 42.8%                | Confirmation that 'minimum safety factor' is adequate |               |
|                 | Class B (Liquid Fires e.g.heptane)                        | 46.3%                | Design concentration includes 30% safety factor       |               |

Design concentration Class A Standard and Class B = Extinguishing concentration x safety factor (minimum 1.3).  
Design concentrations are as tested to LPS 1230 in BRE Test Report Numbers 270432  
Extinguishing concentrations are as tested in BRE Test Report Number 270432 (EN 15004-1 tests).

This system uses:

Design Manual: 'Eurotech Inertech System Manual' Issue June 2013.  
Software Program: VdS Flow Calc Version 2.2 .  
This system is suitable for storage and environmental conditions from -20° to 50°C.  
System pressure is specified as 200 bar and 300 bar at 15°C.

Certificate No: 1222a to LPS 1230

### ***Inertech IG-541 200 bar & 300 bar Gaseous Fire Suppression Systems***

| Product Name    | Risk  | Design Concentration | Comments  | LPCB Ref. No. |
|-----------------|---|----------------------|---|---------------|
| Inertech IG-541 | Class A Standard (Solid fires e.g. paper, wood, plastics) | 38.5%                | Design concentration includes 30% safety factor       | 1222a/06      |
|                 | Class A Cables (Solid fires risks including cables)       | 45.7%                | Confirmation that 'minimum safety factor' is adequate |               |
|                 | Class B (Liquid Fires e.g.heptane)                        | 46.5%                | Design concentration includes 30% safety factor       |               |

Design concentration Class A Standard and Class B = Extinguishing concentration x safety factor (minimum 1.3).  
Design concentrations are as tested to LPS 1230 in BRE Test Report Number 270432  
Extinguishing concentrations are as tested in BRE Test Report Number 270432 (EN 15004-1 tests).

This system uses:

Design Manual: 'Eurotech Inertech System Manual' Issue June 2013  
Software Program: VdS Flow Calc Version 2.2 .  
This system is suitable for storage and environmental conditions from -20° to 50°C.  
System pressure is specified as 200 bar and 300 bar at 15°C.

## **Fike Safety Technology Ltd**

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Certificate No: 331w to LPS 1230

### ***Fike Prolnert Fixed Gaseous Fire Extinguishing System***

| Product Name  | Risk  | Design Concentration | Comments  | LPCB Ref. No. |
|---|---|----------------------|---|---------------|
| Fike Prolnert Fixed Gaseous Fire Extinguishing System | Class A Standard (Solid fires e.g. paper, wood, plastics) | 39.7%                | Design concentration includes 30% safety factor     | 331w/01       |
|   | Class A Cables (Solid fire risks including cables)        | 44.3%                | Confirmation that minimum safety factor is adequate |               |
|   | Class B (Liquid Fires e.g. heptane)                       | 46.0%                | Design concentration includes 30% safety factor     |               |

Design concentration Class A Standard and Class B = Extinguishing concentration x safety factor (minimum 1.3).  
 Design concentration Class A Cables System test concentration. Where this value is lower than the Class A Standard value, the Class A Standard value should be used for design purposes.  
 Design concentrations are as tested to LPS 1230 in BRE Test Report Number 214668.  
 Extinguishing concentrations are as tested in BRE Test Report Number 214668 (ISO 14520-1 tests).

**This system uses:**

Design, Installation, Maintenance and User Manual: Fike manual, P/N 06-294, Issue August 2009.  
 Software Programme: Fike ProInert flow calculation Software, Version 6.2

- a) This system is suitable for storage in environmental conditions from -20° to +50°.  
 b) Container pressure is specified as 200 bar or 300 bar @ 15°C

**Fire Eater A/S**

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Certificate No: 1287b to LPS 1230

**Fire Eater IG541 200 bar & 300 bar**

| Product Name                        | Risk  | Design Concentration | Comments  | LPCB Ref. No. |
|-------------------------------------|---|----------------------|---|---------------|
| Fire Eater Control<br>Inert INERGEN | Class A Standard (Solid fires e.g. paper, wood, plastics) | 37.2%                | Design concentration includes 30% safety factor     | 1287b/01      |
|                                     | Class A Cables (Solid fires risks including cables)       | 42.6%                | Confirmation that minimum safety factor is adequate |               |
|                                     | Class B (Liquid Fires e.g.heptane)                        | 43.7%                | Design concentration includes 30% safety factor     |               |

Design concentration Class A Standard and Class B = Extinguishing concentration x safety factor (minimum 1.3).  
 Design concentrations are as tested to LPS 1230 in BRE Test Report Number 291411 (200 bar and 300 bar)  
 Extinguishing concentrations are as tested in BRE Test Report Number 291410 (EN 15004-1 tests).

This system uses:

Design Manual: 'Fire Eater Control Inert Extinguishing System - Design, Installation, Maintenance and User Manual' – Revision 2015-02-23  
 Software Program: Fire Eater A/S Inergen Program, IMT version 2.2.x.  
 This system is suitable for storage and environmental conditions from -20°C to +65°C.  
 System pressure is specified as 200 bar and 300 bar at 15°C.

**Fireater**

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Certificate No: 587Cb to LPS 1230

**Sapphire™**

| Product Name          | Risk  | Design Concentration | Comments  | LPCB Ref. No. |
|-----------------------|---|----------------------|---|---------------|
| Fireater<br>Sapphire™ | Class A Standard (Solid fires e.g. paper, wood, plastics) | 6.0%                 | Design concentration includes 30% safety factor     | 587Cb/01      |
|                       | Class A Cables (Solid fire risks including cables)        | 6.1%                 | Confirmation that minimum safety factor is adequate |               |
|                       | Class B (Liquid fires e.g. heptane)                       | 6.4%                 | Design concentration includes 30% safety factor     |               |

## **PART 4: SECTION 2.2**

### **GASEOUS SYSTEMS**

Design concentration Class A Standard and Class B = Extinguishing concentration x safety factor (minimum 1.3).  
Design concentration Class A Cables System test concentration. Where this value is lower than the Class A Standard value, the Class A Standard value should be used for design purposes.  
Design concentrations are as tested to LPS 1230 in BRE Test Report Number 208832 v2.  
Extinguishing concentrations are as tested in BRE Test Report Number 208831 (ISO 14520-1 tests)

#### **This system uses:**

Design, Installation, Maintenance and User Manual: Fireater Novec™ 1230 Total Flooding Systems (Engineered & Pre-engineered) Design Manual Reference 14a-06F Issue 5  
Software Programme: TSPNovec 1230 FlowCalc Version FIRE3.60b

- a) This system is suitable for storage in environmental conditions from -20° to +50°.
- b) System pressure is specified as 25 bar @ 20°C

### **Kidde Fire Protection**

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Certificate No: 594b to LPS 1230

#### **Argonite 150, 200, 300 bar Fixed Gaseous Fire Extinguishing System**

| Product Name | Risk  | Design Concentration | Comments   | LPCB Ref. No. |
|--------------|---|----------------------|--|---------------|
| Argonite     | Class A Standard (Solid fires e.g. paper, wood, plastics) | 40.1%                | Design concentration includes 30% safety factor      | 594b/01       |
|              | Class A Cables (Solid fire risks including cables)        | 47.6%                | Confirmation that minimum safety factor is adequate. |               |
|              | Class B (Liquid Fires e.g. heptane)                       | 47.1%                | Design concentration includes 30% safety factor      |               |

Design concentration Class A Standard and Class B = Extinguishing concentration x safety factor (minimum 1.3).  
Design concentrations Class A Cables System test concentration - where this is lower than the Class A Standard value, the Class A Standard value should be used for design purposes.  
Design concentrations are as tested to LPS 1230 in BRE Test Report Number 206880.  
Extinguishment concentrations are as tested in BRE Test Report Number 206879 & 216485 (ISO 14520-1 tests)

#### **This system uses:**

Design, Installation, Maintenance and User Manual:  
General Manual - Argonite System, MA-01-9006-0100, Revision 11 dated January 2015.

Software Programme : VdS-Version 7.3 (2009)

- a) This system is suitable for storage in environmental conditions from -20° to +55°.
- b) System pressure is specified as 150 bar, 200 bar and 300 bar @ 15°C.

Certificate No: 594d to LPS 1230

#### **Argonite C Series 300 bar Fixed Gaseous Fire Extinguishing System**

| Product Name      | Risk  | Design Concentration | Comments   | LPCB Ref. No. |
|-------------------|---|----------------------|--|---------------|
| Argonite C Series | Class A Standard (Solid fires e.g. paper, wood, plastics) | 40.3%                | Design concentration includes 30% safety factor      | 594d/01       |
|                   | Class A Cables (Solid fire risks including cables)        | 44.0%                | Confirmation that minimum safety factor is adequate. |               |
|                   | Class B (Liquid Fires e.g. heptane)                       | 47.5%                | Design concentration includes 30% safety factor      |               |

#### **Notes:**

Design concentration Class A Standard and Class B = Extinguishing concentration x safety factor (minimum 1.3).



Design concentrations Class A Cables System test concentration - where this is lower than the Class A Standard value, the Class A Standard value should be used for design purposes.

Design concentrations are as tested to LPS 1230 in BRE Test Report Number 253355

Extinguishment concentrations are as tested in BRE Test Report Number 206879 & 216485 (ISO 14520-1 tests).

**This system uses:**

Design, Installation, Maintenance and User Manual: General Manual - Argonite C60 System, MA -01-9008-0100, Revision 1.0 dated November 2011.

Software Programme: Kidde Argonite Program, VdS-Version 1.7 (2009).

- a) This system is suitable for storage in environmental conditions from -20° to +50°.
- b) Container pressure is specified as 300 bar @ 15°C.

**Certificate No: 594e to LPS 1230**

***Kidde Inert Gas System (400 Series) - IG01***

| Product Name | Risk   | Design Concentration | Comments  | LPCB Ref. No. |
|--------------|--|----------------------|---|---------------|
| IG-01        | Class A Standard<br>(Solid fires e.g. Paper, wood, plastics) | 42.4 %               | Design concentration includes 30% safety factor     | 594e/01       |
|              | Class A Cables<br>(Solid fire risks including Cables)        | 50.2 %               | Confirmation that minimum safety factor is adequate |               |
|              | Class B<br>(Liquid Fires e.g. heptane)                       | 51.6 %               | Design concentration includes 30% safety factor     |               |

**Notes:**

This system is suitable for storage in environmental conditions from -20°C to +50°C  
Storage pressure is specified as 200 bar or 300 bar @ 15°C. System pressure is specified as 55 bar.

**This system uses:**

Components as listed in Part 4, Section 2.1 and as described in

Kidde Fire Protection Inert Gas System (400 Series) Design, Installation, Operation and Maintenance Manual: P/N 06-237518-001, dated July 2018, Revision AA which utilises the following software

Software Programme: Kidde Fire Protection - Flow Calculation v 4.00,  
Licensed to Kidde Fenwal  
Copyright: Jensen Hughes Inc

Design concentration Class A Standard and Class B = Extinguishing concentration x safety factor (minimum 1.3).  
Design concentration Class A Cables System test concentration. Where this value is lower than the Class A Standard value, the Class A Standard value should be used for design purposes.  
Design concentrations are as tested to LPS 1230 in BRE Test Report Number P102562-1002.  
Extinguishing concentrations are as verified in BRE Test Report Number P102562-1001

**Certificate No: 594e to LPS 1230**

***Kidde Inert Gas System (400 Series) - IG55***

| Product Name | Risk   | Design Concentration | Comments  | LPCB Ref. No. |
|--------------|--|----------------------|---|---------------|
| IG-55        | Class A Standard<br>(Solid fires e.g. Paper, wood, plastics) | 38.9 %               | Design concentration includes 30% safety factor     | 594e/02       |
|              | Class A Cables<br>(Solid fire risks including Cables)        | 44.2 %               | Confirmation that minimum safety factor is adequate |               |
|              | Class B<br>(Liquid Fires e.g. heptane)                       | 45.9 %               | Design concentration includes 30% safety factor     |               |

**Notes:**

This system is suitable for storage in environmental conditions from -20°C to +50°C  
Storage pressure is specified as 200 bar or 300 bar @ 15°C. System pressure is specified as 55 bar.

**This system uses:**

## **PART 4: SECTION 2.2**

### **GASEOUS SYSTEMS**

Components as listed in Part 4, Section 2.1 and as described in

Kide Fire Protection Inert Gas System (400 Series) Design, Installation, Operation and Maintenance Manual:  
P/N 06-237518-001, dated July 2018, Revision AA which utilises the following software

Software Programme: Kidde Fire Protection - Flow Calculation v 4.00,  
Licensed to Kidde Fenwal  
Copyright: Jensen Hughes Inc

Design concentration Class A Standard and Class B = Extinguishing concentration x safety factor (minimum 1.3).  
Design concentration Class A Cables System test concentration. Where this value is lower than the Class A Standard value, the Class A Standard value should be used for design purposes.  
Design concentrations are as tested to LPS 1230 in BRE Test Report Number P102562-1002.  
Extinguishing concentrations are as verified in BRE Test Report Number P102562-1001

**Certificate No: 594e to LPS 1230**

#### ***Kidde Inert Gas System (400 Series) - IG100***

| <b>Product Name</b> | <b>Risk</b>  | <b>Design Concentration</b> | <b>Comments</b>                                     | <b>LPCB Ref. No.</b> |
|---------------------|--|-----------------------------|---|----------------------|
| IG-100              | Class A Standard<br>(Solid fires e.g. Paper, wood, plastics) | 38.9 %                      | Design concentration includes 30% safety factor     | 594e/03              |
|                     | Class A Cables<br>(Solid fire risks including Cables)        | 43.2 %                      | Confirmation that minimum safety factor is adequate |                      |
|                     | Class B<br>(Liquid Fires e.g. heptane)                       | 46.0 %                      | Design concentration includes 30% safety factor     |                      |

**Notes:**

This system is suitable for storage in environmental conditions from -20°C to +50°C  
Storage pressure is specified as 200 bar or 300 bar @ 15°C. System pressure is specified as 55 bar.

**This system uses:**

Components as listed in Part 4, Section 2.1 and as described in

Kide Fire Protection Inert Gas System (400 Series) Design, Installation, Operation and Maintenance Manual:  
P/N 06-237518-001, dated July 2018, Revision AA which utilises the following software

Software Programme: Kidde Fire Protection - Flow Calculation v 4.00,  
Licensed to Kidde Fenwal  
Copyright: Jensen Hughes Inc

Design concentration Class A Standard and Class B = Extinguishing concentration x safety factor (minimum 1.3).  
Design concentration Class A Cables System test concentration. Where this value is lower than the Class A Standard value, the Class A Standard value should be used for design purposes.  
Design concentrations are as tested to LPS 1230 in BRE Test Report Number P102562-1002.  
Extinguishing concentrations are as verified in BRE Test Report Number P102562-1001

**Certificate No: 594e to LPS 1230**

#### ***Kidde Inert Gas System (400 Series) - IG541***

| <b>Product Name</b> | <b>Risk</b>  | <b>Design Concentration</b> | <b>Comments</b>                                     | <b>LPCB Ref. No.</b> |
|---------------------|--|-----------------------------|---|----------------------|
| IG-541              | Class A Standard<br>(Solid fires e.g. Paper, wood, plastics) | 39.1 %                      | Design concentration includes 30% safety factor     | 594e/04              |
|                     | Class A Cables<br>(Solid fire risks including Cables)        | 42.1 %                      | Confirmation that minimum safety factor is adequate |                      |
|                     | Class B<br>(Liquid Fires e.g. heptane)                       | 44.6 %                      | Design concentration includes 30% safety factor     |                      |

**Notes:**

This system is suitable for storage in environmental conditions from -20°C to +50°C

Storage pressure is specified as 200 bar or 300 bar @ 15°C. System pressure is specified as 55 bar.

**This system uses:**

Components as listed in Part 4, Section 2.1 and as described in

Kide Fire Protection Inert Gas System (400 Series) Design, Installation, Operation and Maintenance Manual: P/N 06-237518-001, dated July 2018, Revision AA which utilises the following software

Software Programme: Kidde Fire Protection - Flow Calculation v 4.00,  
Licensed to Kidde Fenwal  
Copyright: Jensen Hughes Inc

Design concentration Class A Standard and Class B = Extinguishing concentration x safety factor (minimum 1.3).  
Design concentration Class A Cables System test concentration. Where this value is lower than the Class A Standard value, the Class A Standard value should be used for design purposes.  
Design concentrations are as tested to LPS 1230 in BRE Test Report Number P102562-1002.  
Extinguishing concentrations are as verified in BRE Test Report Number P102562-1001

**LPG Técnicas En Extinción De Incendios, S.L.**

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Certificate No: 446b to LPS 1230

**LPG FE-13 Fixed gaseous fire extinguishing system**

| Product Name | Risk  | Design Concentration | Comments  | LPCB Ref. No. |
|--------------|---|----------------------|---|---------------|
| LPG FE-13    | Class A Standard (Solid Fires e.g. paper, wood, plastics) | 15.9%                | Design concentration includes 30% safety factor     | 446b/01       |
|              | Class A Cables (Solid fire risks including cables)        | 16.5%                | Confirmation that minimum safety factor is adequate |               |
|              | Class B (Liquid Fires e.g. heptane)                       | 16.1%                | Design concentration includes 30% safety factor     |               |

Design concentration Class A Standard and Class B = Extinguishing concentration x safety factor (minimum 1.3).  
Design concentration Class A Cables System test concentration. Where this value is lower than the Class A Standard value, the Class A Standard value should be used for design purposes.  
Design concentrations are as tested to LPS 1230 in BRE Test Report Number 206580.  
Extinguishment concentrations are as tested in BRE Test Report Number 206579 (ISO 14520-1 tests)

**This system uses:**

Design Manual: MD/FE/IN-01 Rev 5  
Software Programme : Firenet version 2.5, LPC, Nov. 2001.  
Installation, Maintenance and User Manual for FE-13 Fire Extinguishing Systems, MU/FE/IN\_02 Rev: 00  
a) This system is suitable for storage in environmental conditions from -20° to 55°.  
b) System pressure is specified as 41 bar @ 20°C and container maximum filling density is 0.85 kg/l.  
c) Systems are not superpressurized.

Certificate No: 446b

**LPG 'Inert 55' 200 bar and 300 bar Inert Gaseous Fire Suppression System**

| Product Name | Risk  | Design Concentration | Comments  | LPCB Ref. No. |
|--------------|---|----------------------|---|---------------|
| Inert 55     | Class A Standard (Solid fires e.g. paper, wood, plastics) | 41.0%                | Design concentration includes 30% safety factor     | 446b/02       |
|              | Class A Cables (Solid fires risks including cables)       | 45.6%                | Confirmation that minimum safety factor is adequate |               |
|              | Class B (Liquid Fires e.g.heptane)                        | 45.2%                | Design concentration includes 30% safety factor     |               |

Design concentration Class A Standard and Class B = Extinguishing concentration x safety factor (minimum 1.3).  
Design concentration Class A Cables System test concentration. Where this value is lower than the Class A Standard value, the Class A Standard value should be used for design purposes.

# PART 4: SECTION 2.2

## GASEOUS SYSTEMS

Design concentrations are as tested to LPS 1230 in BRE Test Report Number 213932  
Extinguishing concentrations are as tested in BRE Test Report Number 216936 (ISO 14520-1 tests).

### This system uses:

Design Manual: MD/55/01/IN  
Software Program: VdS Schadenverhütung calculation package version 4.6a.  
This system is suitable for storage and environmental conditions from -20° to 50°.  
System pressure is specified as 200 bar and 300 bar at 15°C.

Certificate No: 446d to LPS 1230

### LPG Sapphire

| Product Name | Risk  | Design Concentration | Comments  | LPCB Ref. No. |
|--------------|---|----------------------|---|---------------|
| LPG Sapphire | Class A Standard (Solid fires e.g. paper, wood, plastics) | 6.0%                 | Design concentration includes 30% safety factor     | 446d/01       |
|              | Class A Cables (Solid fire risks including cables)        | 6.1%                 | Confirmation that minimum safety factor is adequate |               |
|              | Class B (Liquid Fires e.g. heptane)                       | 6.4%                 | Design concentration includes 30% safety factor     |               |

Design concentration Class A Standard and Class B = Extinguishing concentration x safety factor (minimum 1.3).  
Design concentration Class A Cables System test concentration. Where this value is lower than the Class A Standard value, the Class A Standard value should be used for design purposes.  
Design concentrations are as tested to LPS 1230 in BRE Test Report Number 208832 v2.  
Extinguishing concentrations are as tested in BRE Test Report Number 208831 (ISO 14520-1 tests)

### This system uses:

Design, Installation, Maintenance and User Manual: LPG Novtec™ 1230 Total Flooding Systems (Engineered & Pre-engineered)  
Design Manual Reference 14a-06L Issue 5

Software Programme: TSPNovtec 1230 FlowCalc Version TSP3.60b

- This system is suitable for storage in environmental conditions from -20° to +50°.
- System pressure is specified as 25 bar @ 20°C

## Macron Safety Systems (UK) Ltd

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Certificate No: 587Bb to LPS 1230

### Hygood Sapphire™

| Product Name     | Risk   | Design Concentration | Comments  | LPCB Ref. No. |
|------------------|--|----------------------|---|---------------|
| Hygood Sapphire™ | Class A Standard (Solid fires, e.g. paper, wood, plastics) | 6.0%                 | Design concentration includes 30% safety factor     | 587Bb/01      |
|                  | Class A Cables (Solid fire risks including cables)         | 6.1%                 | Confirmation that minimum safety factor is adequate |               |
|                  | Class B (Liquid fires e.g. heptane)                        | 6.4%                 | Design concentration includes 30% safety factor     |               |

Design concentration Class A Standard and Class B = Extinguishing concentration x safety factor (minimum 1.3).  
Design concentration Class A Cables System test concentration. Where this value is lower than the Class A Standard value, the Class A Standard value should be used for design purposes.  
Design concentrations are as tested to LPS 1230 in BRE Test Report Number 208832 v2.  
Extinguishing concentrations are as tested in BRE Test Report Number 208831 (ISO 14520-1 tests)

### This system uses:

Design, Installation, Maintenance and User Manual: Hygood Novtec™ 1230 Total Flooding Systems (Engineered & Pre-engineered)  
Design Manual Reference 14a-06H Issue 5

Software Programme: Novec 1230 FlowCalc Version HYG3.60b

- a) This system is suitable for storage in environmental conditions from -20° to +50°.  
 b) System pressure is specified as 24.8 bar @ 20°C

**Thorn Security Limited**

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Certificate No: 587Ab to LPS 1230

**Thorn Sapphire**

| Product Name    | Risk  | Design Concentration | Comments  | LPCB Ref. No. |
|-----------------|---|----------------------|---|---------------|
| Thorn Sapphire™ | Class A Standard (solid fires e.g. paper, wood, plastics) | 6.0%                 | Design concentration includes 30% safety factor     | 587Ab/01      |
|                 | Class A Cables (solid fire risks including cables)        | 6.1%                 | Confirmation that minimum safety factor is adequate |               |
|                 | Class B (liquid fires e.g. heptane)                       | 6.4%                 | Design concentration includes 30% safety factor     |               |

Design concentration Class A Standard and Class B = Extinguishing concentration x safety factor (minimum 1.3).

Design concentration Class A Cables System test concentration. Where this value is lower than the Class A Standard value, the Class A Standard value should be used for design purposes.

Design concentrations are as tested to LPS 1230 in BRE Test Report Number 208832 v2.

Extinguishing concentrations are as tested in BRE Test Report Number 208831 (ISO 14520-1 tests)

**This system uses:**Design, Installation, Maintenance and User Manual:  
engineered) Design Manual Reference 14a-06 Issue 5

Thorn Novec™ 1230 Total Flooding Systems (Engineered &amp; Pre-

Software Programme:

ThornNovec 1230 FlowCalc Version TSP3.60b

- a) This system is suitable for storage in environmental conditions from -20° to +50°.  
 b) System pressure is specified as 25 bar @ 20°C

**Tyco Fire and Integrated Solutions (the trading company for Tyco Fire and Integrated Solutions (UK) Limited and Tyco Fire and Integrated Solutions (Ireland) Limited)**

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Website: [www.tycofis.com](http://www.tycofis.com)

Certificate No: 014b to LPS 1230

| Product Name          | Risk  | Design Concentration | Comments  | LPCB Ref. No. |
|-----------------------|---|----------------------|---|---------------|
| Wormald Ansul INERGEN | Class A Standard) Solid fires e.g. paper, wood, plastics) | 43%                  | Design concentration includes 30% safety factor     | 014b/01       |
|                       | Class A Cables (Solid fire risks including cables)        | 47.8%                | Confirmation that minimum safety factor is adequate |               |
|                       | Class B (Liquid fires e.g. heptane)                       | 46.7%                | Design concentration includes 30% safety factor     |               |

Design concentration Class A Standard and Class B = Extinguishing concentration x safety factor (minimum 1.3).

Design concentration Class A Cables System test concentration. Where this value is lower than the Class A Standard value, the Class A Standard value should be used for design purposes.

Design concentrations are as tested to LPS 1230 in BRE Test Report Number 206885.

## **PART 4: SECTION 2.2**

### **GASEOUS SYSTEMS**

Extinguishing concentrations are as tested in BRE Test Report Number 206884 (ISO 14520-1 tests)

This system uses:

Design, Installation, Maintenance and User Manual:  
INERGEN 300 bar manual, P/N 13646raw, Issue March 2011  
Software Programme:

C.A.P Version 14.04

- a) This system is suitable for storage in environmental conditions from -20° to +50°C.
- b) System pressure is specified as 300 bar @ 15°C
- c) If this fixed gaseous fire extinguishing system is used with existing pipework (so called drop-in systems) it is the responsibility of the installing company to ensure that:
  - all pipework can withstand system pressures and will be safe during operation;
  - all pipework meets the requirements of the gas system manufacturers design manual; and
  - all applicable legislation is complied with.

### **Tyco Safety Products (Great Yarmouth)**

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Certificate No: 587b to LPS 1230

#### **Tyco Safety Products Sapphire™**

| Product Name                   | Risk  | Design Concentration | Comments  | LPCB Ref. No. |
|--------------------------------|---|----------------------|---|---------------|
| Tyco Safety Products Sapphire™ | Class A Standard (Solid fires e.g. paper, wood, plastics) | 6.0%                 | Design concentration includes 30% safety factor     | 587b/01       |
|                                | Class A Cables (Solid fire risks including cables)        | 6.1%                 | Confirmation that minimum safety factor is adequate |               |
|                                | Class B (Liquid Fires e.g. heptane)                       | 6.4%                 | Design concentration includes 30% safety factor     |               |

Design concentration Class A Standard and Class B = Extinguishing concentration x safety factor (minimum 1.3).

Design concentration Class A Cables System test concentration. Where this value is lower than the Class A Standard value, the Class A Standard value should be used for design purposes.

Design concentrations are as tested to LPS 1230 in BRE Test Report Number 208832 v2.

Extinguishing concentrations are as tested in BRE Test Report Number 208831 (ISO 14520-1 tests)

**This system uses:**

Design, Installation, Maintenance and User Manual:  
engineered) Design Manual Reference 14a-06T Issue 5

TSP Novec™ 1230 Total Flooding Systems (Engineered & Pre-

Software Programme:

TSPNovec 1230 FlowCalc Version TSP3.60b

- a) This system is suitable for storage in environmental conditions from -20° to +50°.
- b) System pressure is specified as 25 bar @ 20°C

The LPCB Approval Scheme for fixed fire extinguishing systems for catering equipment has been developed to provide protection against the specific risks posed by oil fires in cooking appliances used in catering or food production establishments.

### **Product Testing**

The listed systems below have been assessed against LPS 1223 *Requirements and Testing Procedures for Approval of Fixed Fire Extinguishing Systems for Catering Equipment*. This standard not only addresses the fire extinguishing performance of the system but also includes the performance of the detection and associated control systems. The requirements of LPS 1223 include:

- Design manual assessment
- Component testing, including pressure testing
- System discharge tests
- System fire detection and extinguishment tests
- Long term ageing tests

Traditional extinguishing agents do not readily extinguish catering equipment oil fires because they do not provide a sufficient cooling effect to reduce the cooking oil to below its auto-ignition temperature. The fire extinguishing tests in LPS 1223 recognise this requirement together with the need to ensure that neither the composition of the agent nor the manner in which it is discharged onto the fire causes flaming oil to be ejected.

All listed systems are subject ongoing audit programmes.

### **Authorised installer requirement**

Such fixed extinguishing systems rely upon competent designers and installers and as such LPS 1223 contains requirements placed upon the listed manufacturers to ensure they maintain adequate control over their authorised installers.

### **Fish and chip ranges**

Fish and chip ranges are a specialised type of catering equipment that require special consideration with regards to protection, based on the position and orientation of the extract system.

Unless otherwise stated in the individual product entries, the listed systems are not approved for protection of fish and chip ranges.

**Note:** LPS 1263:Part 1 *Fire Performance Requirements for Kitchen Extract Systems*. has also been developed to provide additional protection against potential fire spread in the extract ductwork associated with grease filtration systems.

---

### **AIR Fire S.p.A.**

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**Certificate No:** 1408a to LPS 1223: Issue 2.3

## **PART 4: SECTION 3**

### **FIXED FIRE EXTINGUISHING SYSTEMS FOR CATERING EQUIPMENT**

#### **ARMANfire Chef Fixed Fire Extinguishing System for Catering Equipment**

| <b>Product Name</b>                                    | <b>Designation</b> | <b>Description</b>  | <b>LPCB Ref. No.</b> |
|--|--------------------|---|----------------------|
| ARMANfire Chef "Piccolo"<br>Kitchen Suppression System | ARFCHEF06C         | Manual and automatic operation, 11.8 litre cylinder (6 litres wet chemical agent), maximum of 3 discharge nozzles   | 1408a/01             |
|  | ARFCHEF08C         | Manual and automatic operation, 11.8 litre cylinder (8 litres wet chemical agent), maximum of 4 discharge nozzles   | 1408a/02             |
| ARMANfire Chef "Medio" Kitchen<br>Suppression System   | ARFCHEF10C         | Manual and automatic operation, 15.9 litre cylinder (10 litres wet chemical agent), maximum of 5 discharge nozzles  | 1408a/03             |
|  | ARFCHEF12C         | Manual and automatic operation, 15.9 litre cylinder (12 litres wet chemical agent), maximum of 6 discharge nozzles  | 1408a/04             |
|  | ARFCHEF14C         | Manual and automatic operation, 25.3 litre cylinder (14 litres wet chemical agent), maximum of 7 discharge nozzles  | 1408a/05             |
| ARMANfire Chef "Grande"<br>Kitchen Suppression System  | ARFCHEF16C         | Manual and automatic operation, 25.3 litre cylinder (16 litres wet chemical agent), maximum of 8 discharge nozzles  | 1408a/06             |
|  | ARFCHEF18C         | Manual and automatic operation, 25.3 litre cylinder (18 litres wet chemical agent), maximum of 9 discharge nozzles  | 1408a/07             |
|  | ARFCHEF20C         | Manual and automatic operation, 25.3 litre cylinder (20 litres wet chemical agent), maximum of 10 discharge nozzles | 1408a/08             |

Note:

AIR Fire S.p.A., ARMANfire Chef fixed fire extinguishing system for catering equipment, shall be installed, commissioned and maintained in accordance with the system manual 'ARMANfire Chef Kitchen Fire Suppression Installation and Maintenance User Manual', version 1.7 dated 11 Dec 2017.

#### **Amerex Corporation**

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E-mail: sales@amerex-fire.com • Website: www.amerex-fire.com/fireinfo

Certificate No: 407a to LPS 1223

#### **Amerex KP and ZD Fire Suppression System for catering equipment**

| <b>Product Name</b> | <b>Designation</b> | <b>Description</b>   | <b>LPCB Ref. No.</b> |
|---------------------|--------------------|--|----------------------|
| KP                  | 275                | Manual and automatic operation, 10.41 litres Amerex Kitchen Wet Chemical Agent | 407a/01              |
|                     | 375                | Manual and automatic operation, 14.2 litres Amerex Kitchen Wet Chemical Agent  |                      |
|                     | 475                | Manual and automatic operation, 18.17 litres Amerex Kitchen Wet Chemical Agent |                      |
|                     | 600                | Manual and automatic operation, 23.23 litres Amerex Kitchen Wet Chemical Agent |                      |
| ZD                  | 275                | Manual and automatic operation, 10.41 litres Kitchen Wet Chemical Agent        | 407a/02              |
|                     | 375                | Manual and automatic operation, 14.2 litres Amerex Kitchen Wet Chemical Agent  |                      |
|                     | 475                | Manual and automatic operation, 18.17 litres Amerex Kitchen Wet Chemical Agent |                      |

KP and ZD system shall be designed, installed and maintained in accordance with Amerex Design, Installation, Maintenance and Recharge Manual No 20150 Rev. MM#20150-12/2008 dated December 2008.

#### **Ansul Incorporated**

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Website: www.ansul.com

Certificate No: 591a to LPS 1223

#### **Ansul R-102 Restaurant Fire Suppression System**

| <b>Product Name</b> | <b>Designation</b>                      | <b>Description</b>   | <b>LPCB Ref. No.</b> |
|---------------------|---|--|----------------------|
| R-102               | Single Tank System (1.5 or 3 US gallon) | Manual and automatic operation, 5.8 or 11.6 litres Ansulex LpH™ liquid agent | 591a/01              |



## PART 4: SECTION 3

### FIXED FIRE EXTINGUISHING SYSTEMS FOR CATERING EQUIPMENT

| Product Name | Designation                                   | Description  | LPCB Ref. No. |
|--------------|---|--|---------------|
|              | Double Tank System (4.5 or 6 US gallon)       | Manual and automatic operation 17.1 or 22.7 litres Ansulex LpH™ liquid agent |               |
|              | Multiple Tank System                          | Manual and automatic operation, 28.4 - 170 litres Ansulex LpH™ liquid agent  |               |
| Piranha      | Single Tank System (1.5, 2.25 or 3 US gallon) | Manual and automatic operation, 5.7, 8.5 or 11.4 litres PRX™ liquid agent    | 591a/02       |
|              | Multiple Tank System                          | Manual and automatic operation, 11.4 to 34.2 litres PRX™ liquid agent        |               |

#### Buckeye Fire Equipment

110 Kings Road, Kings Mountain, 28086, USA

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Certificate No: 1467a to LPS 1223: Issue 2.3

#### ***Kitchen Mister Fixed Fire Extinguishing System for Catering Equipment***

| Product Name   | Designation | Description   | LPCB Ref. No. |
|--|-------------|---|---------------|
| Kitchen Mister Restaurant Cooking Area Fire Suppression System | BFR-5       | Manual and automatic operation, 7.2 litres wet chemical agent, maximum of 5 flow points   | 1467a/01      |
|  | BFR-10      | Manual and automatic operation, 14.4 litres wet chemical agent, maximum of 10 flow points | 1467a/02      |
|  | BFR-15      | Manual and automatic operation, 21.6 litres wet chemical agent, maximum of 15 flow points | 1467a/03      |
|  | BFR-20      | Manual and automatic operation, 28.8 litres wet chemical agent, maximum of 20 flow points | 1467a/04      |

#### Notes:

Buckeye Fire Equipment, Kitchen Mister Restaurant Cooking Area Fire Suppression System, shall be installed, commissioned and maintained in accordance with the system manual 'BFR-TM', Revision 5 dated January 1, 2013.

#### Ceasefire Industries Pvt. Ltd

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Certificate No: 1329a to LPS 1223: issue 2.3

#### ***Restaurant Fire Suppression System***

| Product Name   | Designation    | Description  | LPCB Ref. No. |
|--|----------------|--|---------------|
| Ceasefire water mist kitchen suppression system 2 x 6.5 litre capacity (1) | 2 x 6.5 litre  | Manual and automatic operation, water mist extinguishant   | 1329a/1       |
| Ceasefire water mist kitchen suppression system 4 x 6.5 litre capacity (1) | 4 x 6.5 litre  | Manual and automatic operation, water mist extinguishant   | 1329a/2       |
| Ceasefire water mist kitchen suppression system 26 litre capacity (1)      | 1 x 26 litre   | Manual and automatic operation, water mist extinguishant   | 1329a/3       |
| Ceasefire wet chemical kitchen suppression system, 11.5 litre capacity (2) | 1 x 11.5 litre | Manual and Automatic operation, Wet chemical extinguishant | 1329a/4       |

## **PART 4: SECTION 3**

### **FIXED FIRE EXTINGUISHING SYSTEMS FOR CATERING EQUIPMENT**

| <b>Product Name</b>  | <b>Designation</b> | <b>Description</b>   | <b>LPCB Ref. No.</b> |
|--|--------------------|--|----------------------|
| Ceasefire wet chemical kitchen suppression system, 15.6 litre capacity (2) | 1 x 15.6 litre     | Manual and Automatic operation, Wet chemical extinguishant | 1329a/5              |
| Ceasefire wet chemical kitchen suppression system, 25 litre capacity (2)   | 1 x 25 litre       | Manual and Automatic operation, Wet chemical extinguishant | 1329a/6              |
| Ceasefire Kitchen Safe Enviro Series water mist suppression system (3)     | 11.5 litre         | Manual and automatic operation, water mist extinguishant   | 1329a/7              |
|  | 27 litre           | Manual and automatic operation, water mist extinguishant   | 1329a/8              |
|  | 56 litre           | Manual and automatic operation, water mist extinguishant   | 1329a/9              |
| Ceasefire Kitchen Safe Ultra Series wet chemical suppression system (4)    | 11.5 litre         | Manual and automatic operation, wet chemical extinguishant | 1329a/10             |
|  | 18 litre           | Manual and automatic operation, wet chemical extinguishant | 1329a/11             |
|  | 27 litre           | Manual and automatic operation, wet chemical extinguishant | 1329a/12             |
| Ceasefire Kitchen Safe Ultra + Series wet chemical suppression system (5)  | 11.5 litre         | Manual and automatic operation, wet chemical extinguishant | 1329a/13             |
|  | 18 litre           | Manual and automatic operation, wet chemical extinguishant | 1329a/14             |
|  | 27 litre           | Manual and automatic operation, wet chemical extinguishant | 1329a/15             |

**Certificate No: 1239Bb to LPS 1223: issue 2.2**

#### ***Restaurant Fire Suppression System***

| <b>Product Name</b>  | <b>Designation</b>      | <b>Description</b>   | <b>LPCB Ref. No.</b> |
|--|-------------------------|--|----------------------|
| Ceasefire Wet Chemical Kitchen Safe Ultra Series Suppression System 11.5 litre | 1 x 11.5 litre Cylinder | Manual and automatic operation, wet chemical containing up to 8 litres of extinguishant  | 1239Bb/01            |
| Ceasefire Wet Chemical Kitchen Safe Ultra Series Suppression System 15.6 litre | 1 x 15.6 litre Cylinder | Manual and automatic operation, wet chemical containing up to 12 litres of extinguishant | 1239Bb/02            |
| Ceasefire Wet Chemical Kitchen Safe Ultra Series Suppression System 25 litre   | 1 x 25 litre Cylinder   | Manual and automatic operation, wet chemical containing up to 20 litres of extinguishant | 1239Bb/03            |

**Note:**

Ceasefire Wet Chemical Kitchen Safe Ultra Series Suppression System shall be installed, operated and maintained in accordance with the Ceasefire Handbook of Design, Installation, Operation and System Maintenance manual version, 00 Rev 0.1, Dated 19.11.2014.

#### **Ceodeux Extinguisher Valves Technology S.A. (ROTAREX FIRETEC)**

24 rue de Diekirch, L-7440 Lintgen, Luxembourg

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E-mail: [info@firetec.rotarex.com](mailto:info@firetec.rotarex.com) • Website: [www.rotarex.com](http://www.rotarex.com)

**Certificate No: 724b to LPS 1223: Issue 2.3**

#### ***ROTAREX FIRETEC – TRIPLESTAR wet chemical, restaurant fire suppression system***

| <b>Product Name</b>                             | <b>Designation</b>                                | <b>Description</b>  | <b>LPCB Ref. No.</b> |
|---|---|---|----------------------|
| TRIPLESTAR, restaurant fire suppression system. | 9 liters wet chemical extinguishant <sup>1</sup>  | Manual and Automatic operation, 9 liters of agent, 3 nozzles.       | 724b/01              |
|   | 16 liters wet chemical extinguishant <sup>2</sup> | Manual and Automatic operation, 16 liters of agent, 4 to 6 nozzles. | 724b/03              |
|   | 25 liters wet chemical extinguishant <sup>2</sup> | Manual and Automatic operation, 25 liters of agent, 7 to 9 nozzles. | 724b/04              |

**Emirates Fire Fighting Equipment Factory L.L.C. (FIREX)**

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Certificate No: 863f to LPS 1223: Issue 2.3

***FIREX FX-KHS (Kitchen Hood System) Fixed Fire Extinguishing System for Catering Equipment***

| Product Name                     | Designation | Description  | LPCB Ref. No. |
|----------------------------------|-------------|--|---------------|
| FIREX FX-KHS Kitchen Hood System | KHSC10      | Manual and automatic operation, wet chemical, 1 x 10 litre cylinder. | 863f/01       |
|                                  | KHSC20      | Manual and automatic operation, wet chemical, 1 x 20 litre cylinder. | 863f/02       |

Note:

Emirates Fire Fighting Equipment Factory L.L.C. (FIREX), FX-KHS (Kitchen Hood System) fixed fire extinguishing system for catering equipment, shall be installed, commissioned and maintained in accordance with the FIREX FX-KHS system manual 'Manual for Fixed Fire Extinguishing System for Catering Equipment' Rev. 1 dated 14/12/2016.

**Finder Yangin Güvenlik Elektronik Sistemler Mühendislik San. ve Tic. A.Ş**

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Certificate No: 1530a to LPS 1223: Issue 2.3

***'Defender DM' and 'Defender DP' Fixed Fire Extinguishing Systems for Catering Equipment***

| Product Name                             | Designation | Description   | LPCB Ref. No. |
|--|-------------|---|---------------|
| Defender DM Kitchen Extinguishing System | DM8         | Manual and automatic operation, 9.5 litres Fire Eraser wet chemical agent, maximum of 8 flow points   | 1530a/01      |
|  | DM12        | Manual and automatic operation, 15 litres Fire Eraser wet chemical agent, maximum of 12 flow points   | 1530a/02      |
|  | DM18        | Manual and automatic operation, 22.7 litres Fire Eraser wet chemical agent, maximum of 18 flow points | 1530a/03      |
| Defender DP Kitchen Extinguishing System | DP4         | Manual and automatic operation, 6 litres Fire Eraser wet chemical agent, maximum of 4 flow points     | 1530a/04      |
|  | DP8         | Manual and automatic operation, 9.5 litres Fire Eraser wet chemical agent, maximum of 8 flow points   | 1530a/05      |
|  | DP16        | Manual and automatic operation, 20 litres Fire Eraser wet chemical agent, maximum of 16 flow points   | 1530a/06      |

**Jactone Products Limited**

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Certificate No: 783c to LPS 1223: issue 2.3

## PART 4: SECTION 3

### FIXED FIRE EXTINGUISHING SYSTEMS FOR CATERING EQUIPMENT

| Product Name  | Designation | Description  | LPCB Ref. No. |
|---|-------------|--|---------------|
| PAFSS KitchenGuard restaurant fire suppression system (1) | FSGA010     | Manual and Automatic operation, wet chemical, 1 x 9 litre cylinder.  | 783c/01       |
|   | FSGA011     | Manual and Automatic operation, wet chemical, 2 x 6 litre cylinder.  | 783c/02       |
|   | FSGA012     | Manual and Automatic operation, wet chemical, 2 x 9 litre cylinder.  | 783c/03       |
| PAFSS KitchenGuard restaurant fire suppression system (2) | FSGA8L      | Manual and Automatic operation, wet chemical, 1 x 8 litre cylinder.  | 783c/04       |
|   | FSGA12L     | Manual and Automatic operation, wet chemical, 1 x 12 litre cylinder. | 783c/05       |

#### Notes:

(1) Jactone Products Limited, PAFSS KitchenGuard fixed fire suppression system for catering equipment, shall be installed, commissioned and maintained in accordance with System Manual, Automatic Fixed Fire Extinguishing Systems for catering equipment, ISSUE 4

(2) Jactone Products Limited, PAFSS KitchenGuard fixed fire suppression system for catering equipment, shall be installed, commissioned and maintained in accordance with System Manual, Automatic Fixed Fire Extinguishing Systems for catering equipment, ISSUE 5.2 - 01/10/2015

## MOBIAK S.A.

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Certificate No: 1534a to LPS 1223: Issue 2.3

### 'Alexander The Great Kitchen System' Fixed Fire Extinguishing Systems for Catering Equipment

| Product Name                       | Designation                    | Description  | LPCB Ref. No. |
|------------------------------------|--------------------------------|--|---------------|
| Alexander The Great Kitchen System | MBK15-090FCS-LPCB<br>(0501091) | Manual and automatic operation<br>9 litres wet chemical agent<br>maximum of 4 nozzles  | 1534a/01      |
|                                    | MBK15-120FCS-LPCB<br>(0501105) | Manual and automatic operation<br>12 litres wet chemical agent<br>maximum of 6 nozzles | 1534a/02      |
|                                    | MBK15-160FCS-LPCB<br>(0501106) | Manual and automatic operation<br>16 litres wet chemical agent<br>maximum of 8 nozzles | 1534a/03      |

A copy of the certificate, confirming the full scope of approval including notes relating to the superscript references in the above table, may be viewed online by clicking on the certificate link in the associated entry on [www.RedBookLive.com](http://www.RedBookLive.com)

## Nobel Fire Systems

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Certificate No: 642a to LPS 1223: issue 2.2

| Product Name   | Designation | Description  | LPCB Ref. No. |
|--|-------------|--|---------------|
| Nobel K series, wet chemical restaurant fire suppression system. | K5          | 5 litre, Manual and Automatic operation, wet chemical extinguishant  | 642a/01       |
|  | K15         | 15 litre, Manual and Automatic operation, wet chemical extinguishant | 642a/02       |
|  | K30         | 30 litre, Manual and Automatic operation, wet chemical extinguishant | 642a/03       |

#### Note:

Nobel K series, wet chemical restaurant fire suppression systems shall be installed, maintained and operated in accordance with Nobel Fire Systems, K-Series, Design, Installation and Maintenance Manual V3 Rev. 6.1 June 2014.

### Spoon2 International Limited

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Certificate No: 970a to LPS 1223

#### Brand name "Spoon2"

| Product Name | Designation | Description   | LPCB Ref. No. |
|--------------|-------------|---|---------------|
| SP2          | SP2 - 1     | Manual and automatic operation, 14, 28 or 42 litres Spoon2 K2 liquid agent    | 970a/01       |
|              | SP2 - 2     | Manual and automatic operation, 56, 70 or 84 litres Spoon2 K2 liquid agent    |               |
|              | SP2 - 3     | Manual and automatic operation, 98, 112 or 126 litres Spoon2 K2 liquid agent  |               |
|              | SP2 - 4     | Manual and automatic operation, 141, 155 or 169 litres Spoon2 K2 liquid agent |               |
|              | SP2 - 5     | Manual and automatic operation, 183, 197 or 211 litres Spoon2 K2 liquid agent |               |

SP2 systems shall be designed, installed and maintained in accordance with Spoon2 International limited  
Installation manual 1004 July 09, Testing and commissioning manual 206 July 09, Recharging manual 304 July 09, Operating and maintenance manual 302 QMF 22 Issue 1 June 09, Service manual 407 July 09.

Certificate No: 970a to LPS 1223

#### Brand name "Fireguard"

| Product Name | Designation | Description   | LPCB Ref. No. |
|--------------|-------------|---|---------------|
| K2           | K2 - 1      | Manual and automatic operation, 14, 28 or 42 litres Spoon2 K2 liquid agent    | 970a/01       |
|              | K2 - 2      | Manual and automatic operation, 56, 70 or 84 litres Spoon2 K2 liquid agent    |               |
|              | K2 - 3      | Manual and automatic operation, 98, 112 or 126 litres Spoon2 K2 liquid agent  |               |
|              | K2 - 4      | Manual and automatic operation, 141, 155 or 169 litres Spoon2 K2 liquid agent |               |
|              | K2 - 5      | Manual and automatic operation, 183, 197 or 211 litres Spoon2 K2 liquid agent |               |

SP2 & K2 systems shall be designed, installed and maintained in accordance with Spoon2 International limited  
Installation manual 1004 July 09, Testing and commissioning manual 206 July 09, Recharging manual 304 July 09, Operating and maintenance manual 302 QMF 22 Issue 1 June 09, Service manual 407 July 09.

### Steel Recon Industries Sdn Bhd

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Certificate No: 1239Ab to LPS 1223: issue 2.3

#### Kitchen Shield F808, wet chemical, restaurant fire suppression system

| Product Name   | Designation | Description   | LPCB Ref. No. |
|--|-------------|---|---------------|
| Kitchen Shield F808, wet chemical, restaurant fire suppression system. | F8081000    | 9 litre, Manual and Automatic operation, wet chemical extinguishant     | 1239Ab/01     |
|  | F8082000    | 2 X 6 litre, Manual and Automatic operation, wet chemical extinguishant | 1239Ab/02     |
|  | F8083000    | 2 X 9 litre, Manual and Automatic operation, wet chemical extinguishant | 1239Ab/03     |

**Note:**

Steel Recon Industries Sdn Bhd, wet chemical restaurant fire suppression systems shall be installed, maintained and operated in accordance with Steel Recon Industries Sdn Bhd, Installation and Maintenance Handbook version 1.5 dated 6 March 2014 Rev.

## **PART 4: SECTION 3**

### **FIXED FIRE EXTINGUISHING SYSTEMS FOR CATERING EQUIPMENT**

Certificate No: 1435a to LPS 1223: issue 2.3

#### ***KitchenShield, fire detection and suppression system for commercial kitchens and deep fat fryers***

| <b>Product Name</b>   | <b>Designation</b> | <b>Description</b>   | <b>LPCB Ref. No.</b> |
|---|--------------------|--|----------------------|
| KitchenShield, fire detection and suppression system for commercial kitchens and deep fat fryers. | SPS-KS014-CYL-15L  | 8 litre, Manual and automatic operation, wet chemical extinguishant            | 1435a/01             |
|   | SPS-KS014-CYL-12L  | 10 litre, Manual and automatic operation, wet chemical extinguishant           | 1435a/02             |
|   | SPS-KS014-CYL-20L  | 12 or 15 litre, Manual and automatic operation, wet chemical extinguishant     | 1435a/03             |
|   | SPS-KS014-CYL-30L  | 17, 19 or 22 litre, Manual and automatic operation, wet chemical extinguishant | 1435a/04             |
|   | SPS-KS014-CYL-35L  | 24 or 26 litre, Manual and automatic operation, wet chemical extinguishant     | 1435a/05             |
|   |                    |  |                      |

**Note:**

Steel Recon Industries Sdn Bhd, wet chemical restaurant fire suppression systems shall be installed, maintained and operated in accordance with Steel Recon Industries Sdn Bhd, Fire Detection and Suppression System Manual for Commercial Kitchens and Deep Fat Fryer, version 6/date: 25 January 2018.

#### **Telesto Sp. z o.o.**

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Certificate No: 1129a to LPS 1223: issue 2.3

#### ***"Safety Chef" Restaurant Fire Suppression System***

| <b>Product Name</b> | <b>Designation</b> | <b>Description</b>  | <b>LPCB Ref. No.</b> |
|---------------------|--------------------|---|----------------------|
| SafetyChef          | 320 cm             | Manual and Automatic operation, water mist restaurant suppression system up to 320 cm protected length supplied from single or manifold containers, 12.27, 30 and 50 litre volumes. | 1129a/01             |
|                     | 800 cm             | Manual and Automatic operation, water mist restaurant suppression system up to 800 cm protected length supplied from single or manifold containers, 12.27, 30 and 50 litre volumes. | 1129a/02             |

**Notes:**

1. "SafetyChef" restaurant water mist suppression systems shall be installed, maintained and operated in accordance with Telesto Sp. z o.o SafetyChef fire extinguishing mist system installation, operation and maintenance manual No. SGMP-K/IMS/5 Rev. 5 dated 22.05.2015, and Telesto SafetyChef system technical specification No. SGMP-K/DTI/6 Rev 6 dated 22.05.2015.
2. For use only with Fusible link, glass bulb and pneumatic detection systems as detailed in Telesto SafetyChef system technical specification No. SGMP-K/DTI/6 Rev 6 dated 22.05.2015.

#### **Watermist Ltd**

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Certificate No: 1077a to LPS 1223

#### ***Hydramist Fire Suppression System for Catering Equipment***

| <b>Product Name</b> | <b>Designation</b>                | <b>Description</b>   | <b>LPCB Ref. No.</b> |
|---------------------|-----------------------------------|--|----------------------|
| Hydramist 15AMPU    | Single phase electric pump system | Manual and Automatic operation, potable water used to produce water mist extinguishant | 1077a/01             |
| Hydramist 18AMPU    | Three phase electric pump system  | Manual and Automatic operation, potable water used to produce water mist extinguishant | 1077a/02             |

**PART 4: SECTION 3**

**FIXED FIRE EXTINGUISHING SYSTEMS FOR CATERING EQUIPMENT**

(A)MPU system shall be designed, installed and maintained in accordance with the Hydramist System Manual (A)MPU-D02 issue 6 (16/02/15) and Hydramist Service Manual (A)MPU-D05. Section 12 of the system manual details the design parameters for the system applications.

## **PART 4: SECTION 4**

### **DIRECT LOW PRESSURE (DLP) APPLICATION SYSTEMS**

The approval of the fire suppression systems listed in this section is based on LPS 1666: Issue 1.0 *Requirements and test procedures for the LPCB approval of direct low pressure (DLP) application fixed fire suppression systems, using heat sensitive pneumatic detection tubing, for the protection of small defined volume unoccupied enclosures.*

This standard specifies the requirements and test procedures for LPCB approval of direct low pressure (DLP) application fixed fire suppression systems, using heat sensitive pneumatic detection tubing, designed for the protection of small unoccupied defined volume enclosures such as electrical switchgear cabinets, server racking and similar installations from small local flaming fire sources.

The objective of the approval is to assess the ability of the system to prevent fire spread between units by evaluating the effectiveness and reliability of a system to detect and extinguish the fire at its source. The system shall also be capable of isolating the power to the protected enclosures and generating a signal for an alarm. The evaluation of a system is essentially a verification of the parameters specified in the system manual.

The selection and specification of fire protection equipment should be based on the completion of a suitable risk assessment and local regulatory requirements.

**These systems are intended solely to provide enhanced local fire protection. They are not intended for use as whole room or building fire protection systems.**

The requirements and test procedures specified herein are those which generally enable a satisfactory evaluation of a system to be made. However, the LPCB reserves the right to apply special considerations dependant on the scope of application of a particular system if it is not adequately dealt with by this standard.

The scheme provides approval for systems with:

- A single container heat detection tube installation run protecting a maximum single volume of 2m<sup>3</sup>.
- Up to 4 heat detection tube runs connected to a single container where no single protected volume exceeds a 2m<sup>3</sup> volume.
- A maximum heat detection tube length of 10m from the container outlet to the end of any single detection tube run.

The range of materials and products employed within these enclosed volumes is large and whilst this scheme addresses a number of potential fire scenarios it cannot be considered to address all applications in particular where the electrical power supply is not isolated/removed upon activation of the suppression system and the risk of re-ignition remains high.

#### **AIR Fire S.p.A.**

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Certificate No: 1408b to LPS 1666: Issue 1.0

#### **ARMANfire HFC-227ea Direct Low Pressure (DLP) Application Fixed Fire Suppression Systems**

| Product Name | Container Size | Description               | Detector Tube             | Ventilation (Enclosed or Open Vents) | Air Flow (Forced / Natural) | LPCB Ref. No. |
|--------------|----------------|---------------------------|---------------------------|--------------------------------------|-----------------------------|---------------|
| ARF22701TB   | 1.0 Litre      | 1 kg HFC-227ea DLP system | P/N:<br>125101<br>6mm o/d | Enclosed & open options <sup>4</sup> | Natural airflow only        | 1408b/01      |
| ARF22703TB   | 3.8 Litre      | 2 kg HFC-227ea DLP system | P/N:<br>125101<br>6mm o/d | Enclosed & open options <sup>4</sup> | Natural airflow only        | 1408b/02      |

Notes:



**PART 4: SECTION 4**  
DIRECT LOW PRESSURE (DLP) APPLICATION SYSTEMS

- 1) AIR Fire S.p.A., ARMANfire HFC-227ea DLP Systems shall be configured, installed, serviced and maintained in accordance with;
  - Design and Calculations Manual ARMANfire - DCMARF2270XTBEN-A - V1.1 / Date: 31/10/2018
  - Technical User Manual ARMANfire - TUMARF2270XTBEN-A - V1.1 / Date: 18/09/2018
- 2) These systems are intended solely to provide enhanced local fire protection. They are not intended for use as whole room or building fire protection systems.
- 3) The systems use a single method for detection and delivery of the extinguishing agent to the activation point.
  - System operation pressure: 18 bar @ 20°C.
  - System operation temperature range: -20°C to +60°C.
- 4) The above systems may have air vents at low and/or high level (refer note 1).

**Ceasefire Industries Pvt. Ltd**

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**Certificate No: 1329c to LPS 1666: Issue 1.0**

**Ceasefire Industries Ltd HFC-236fa Direct Low Pressure (DLP) Application Fixed Fire Suppression Systems**

| Product Name | Container Size | Description               | Detector Tube             | Ventilation (Enclosed or Open Vents) | Air Flow (Forced / Natural)   | LPCB Ref. No. |
|--------------|----------------|---------------------------|---------------------------|--------------------------------------|-------------------------------|---------------|
| CF-000792    | 2 kg           | 2 kg HFC-236fa DLP system | P/N:TI-000010A<br>6mm o/d | Enclosed & open options <sup>4</sup> | Forced & natural <sup>5</sup> | 1329c/01      |
| CF-000793    | 4 kg           | 4 kg HFC-236fa DLP system | P/N:TI-000010A<br>6mm o/d | Enclosed & open options <sup>4</sup> | Forced & natural <sup>5</sup> | 1329c/02      |

**Notes:**

- 1) Ceasefire Industries Ltd HFC-236fa DLP Systems shall be configured, installed, serviced and maintained in accordance with Ceasefire Industries Ltd System Manual CQRS/DIR/MAN/01 Version.01 Rev.04 - 16.04.2018.
- 2) These systems are intended solely to provide enhanced local fire protection. They are not intended for use as whole room or building fire protection systems.
- 3) The systems use a single method for detection and delivery of the extinguishing agent to the activation point.
  - System operation pressure: 15 bar @ 20°C.
  - System operation temperature range: -20°C to +60°C.
- 4) The above systems may have air vents at low and/or high level (refer note 1).
- 5) The above systems may have forced ventilation (refer note 1).

**Certificate No: 1329d to LPS 1666: Issue 1.0**

**Ceasefire Industries Ltd HFC-227ea Direct Low Pressure (DLP) Application Fixed Fire Suppression Systems**

| Product Name | Container Size | Description               | Detector Tube             | Ventilation (Enclosed or Open Vents) | Air Flow (Forced / Natural)   | LPCB Ref. No. |
|--------------|----------------|---------------------------|---------------------------|--------------------------------------|-------------------------------|---------------|
| CF-000880    | 2 kg           | 2 kg HFC-227ea DLP system | P/N:TI-000010A<br>6mm o/d | Enclosed & open options <sup>4</sup> | Forced & natural <sup>5</sup> | 1329d/01      |
| CF-000881    | 4 kg           | 4 kg HFC-227ea DLP system | P/N:TI-000010A<br>6mm o/d | Enclosed & open options <sup>4</sup> | Forced & natural <sup>5</sup> | 1329d/02      |

**Notes:**

## **PART 4: SECTION 4**

### **DIRECT LOW PRESSURE (DLP) APPLICATION SYSTEMS**

- 1) Ceasefire Industries Ltd HFC-227ea DLP Systems shall be configured, installed, serviced and maintained in accordance with Ceasefire Industries Ltd System Manual CQRS/DIR/MAN/01 Version.01 Rev.04 - 16.04.2018.
- 2) These systems are intended solely to provide enhanced local fire protection. They are not intended for use as whole room or building fire protection systems.
- 3) The systems use a single method for detection and delivery of the extinguishing agent to the activation point.
  - System operation pressure: 15 bar @ 20°C.
  - System operation temperature range: -20°C to +60°C.
- 4) The above systems may have air vents at low and/or high level (refer note 1).
- 5) The above systems may have forced ventilation (refer note 1).

**Certificate No: 1329k to LPS 1666: Issue 1.0**

#### **Ceasefire Industries Pvt. Ltd FK-5-1-12 Direct Low Pressure (DLP) Application Fixed Fire Suppression Systems**

| <b>Product Name</b> | <b>Container Size</b> | <b>Description</b>        | <b>Detector Tube</b>      | <b>Ventilation (Enclosed or Open Vents)</b> | <b>Air Flow (Forced / Natural)</b> | <b>LPCB Ref. No.</b> |
|---------------------|-----------------------|---------------------------|---------------------------|---|------------------------------------|----------------------|
| CF-000792A          | 2 kg                  | 2 kg FK-5-1-12 DLP system | P/N:TI-000010A<br>6mm o/d | Enclosed & open options <sup>4</sup>        | Forced & natural <sup>5</sup>      | 1329k/01             |
| CF-000792B          | 3 kg                  | 3 kg FK-5-1-12 DLP system | P/N:TI-000010A<br>6mm o/d | Enclosed & open options <sup>4</sup>        | Forced & natural <sup>5</sup>      | 1329k/02             |
| CF-000792C          | 4 kg                  | 4 kg FK-5-1-12 DLP system | P/N:TI-000010A<br>6mm o/d | Enclosed & open options <sup>4</sup>        | Forced & natural <sup>5</sup>      | 1329k/03             |

#### **EKC International FZE**

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**Certificate No: 1400Ba to LPS 1666: Issue 1.0**

#### **EKC International FZE 3M™ Novec™ 1230 Direct Low Pressure (DLP) Application Fixed Fire Suppression Systems**

| <b>Product Name</b> | <b>Container Size</b> | <b>Description</b>            | <b>Detector Tube</b>   | <b>Ventilation (Enclosed or Open Vents)</b> | <b>Air Flow (Forced / Natural)</b> | <b>LPCB Ref. No.</b> |
|---------------------|-----------------------|-------------------------------|------------------------|---|------------------------------------|----------------------|
| EKC-920205          | 2.5 lb                | 2.5 lb Novec™ 1230 DLP system | P/N: 200005<br>6mm o/d | Enclosed only                               | None                               | 1400Ba/01            |
|                     | 2.5 lb                | 2.5 lb Novec™ 1230 DLP system | P/N: 200007<br>8mm o/d | Enclosed only                               | None                               | 1400Ba/02            |
| EKC-898001          | 1 kg                  | 1 kg Novec™ 1230 DLP system   | P/N: 200005<br>6mm o/d | Enclosed only                               | None                               | 1400Ba/03            |
|                     | 1 kg                  | 1 kg Novec™ 1230 DLP system   | P/N: 200007<br>8mm o/d | Enclosed only                               | None                               | 1400Ba/04            |
| EKC-920505          | 5 lb                  | 5 lb Novec™ 1230 DLP system   | P/N: 200005<br>6mm o/d | Enclosed only                               | None                               | 1400Ba/05            |
|                     | 5 lb                  | 5 lb Novec™ 1230 DLP system   | P/N: 200007<br>8mm o/d | Enclosed only                               | None                               | 1400Ba/06            |
| EKC-898002          | 2 kg                  | 2 kg Novec™ 1230 DLP system   | P/N: 200005<br>6mm o/d | Enclosed only                               | None                               | 1400Ba/07            |
|                     | 2 kg                  | 2 kg Novec™ 1230 DLP system   | P/N: 200007<br>8mm o/d | Enclosed only                               | None                               | 1400Ba/08            |
| EKC-921005          | 10 lb                 | 10 lb Novec™ 1230 DLP system  | P/N: 200005<br>6mm o/d | Enclosed only                               | None                               | 1400Ba/09            |
|                     | 10 lb                 | 10 lb Novec™ 1230 DLP system  | P/N: 200007<br>8mm o/d | Enclosed only                               | None                               | 1400Ba/10            |
| EKC-898003          | 5 kg                  | 5 kg Novec™ 1230 DLP system   | P/N: 200005<br>6mm o/d | Enclosed only                               | None                               | 1400Ba/11            |

# PART 4: SECTION 4

## DIRECT LOW PRESSURE (DLP) APPLICATION SYSTEMS

| Product Name | Container Size | Description                 | Detector Tube          | Ventilation (Enclosed or Open Vents) | Air Flow (Forced / Natural) | LPCB Ref. No. |
|--------------|----------------|-----------------------------|------------------------|--------------------------------------|-----------------------------|---------------|
|              | 5 kg           | 5 kg Novec™ 1230 DLP system | P/N: 200007<br>8mm o/d | Enclosed only                        | None                        | 1400Ba/12     |

### Notes:

- 1) EKC International FZE 3MTM Novec™ 1230 DLP Systems shall be configured, installed, serviced and maintained in accordance with EKC International FZE System Manual EKC-800035-000 - 11/08/2017.
  - 2) These systems are intended solely to provide enhanced local fire protection. They are not intended for use as whole room or building fire protection systems.
  - 3) The systems use a single method for detection and delivery of the extinguishing agent to the activation point.
- System operation pressure: 195 psig @ 70°F (13.5 bar @ 21.1°C).
- System operation temperature range: -20°C to +60°C.

Certificate No: 1400Bb to LPS 1666: Issue 1.0

### **EKC International FZE HFC-227ea Direct Low Pressure (DLP) Application Fixed Fire Suppression Systems**

| Product Name | Container Size | Description                | Detector Tube          | Ventilation (Enclosed or Open Vents) | Air Flow (Forced / Natural) | LPCB Ref. No. |
|--------------|----------------|----------------------------|------------------------|--------------------------------------|-----------------------------|---------------|
| EKC-920301   | 3 lb           | 3 lb HFC-227ea DLP system  | P/N: 200005<br>6mm o/d | Enclosed only                        | None                        | 1400Bb/01     |
|              | 3 lb           | 3 lb HFC-227ea DLP system  | P/N: 200007<br>8mm o/d | Enclosed only                        | None                        | 1400Bb/02     |
| EKC-898004   | 1 kg           | 1 kg HFC-227ea DLP system  | P/N: 200005<br>6mm o/d | Enclosed only                        | None                        | 1400Bb/03     |
|              | 1 kg           | 1 kg HFC-227ea DLP system  | P/N: 200007<br>8mm o/d | Enclosed only                        | None                        | 1400Bb/04     |
| EKC-920601   | 6 lb           | 6 lb HFC-227ea DLP system  | P/N: 200005<br>6mm o/d | Enclosed only                        | None                        | 1400Bb/05     |
|              | 6 lb           | 6 lb HFC-227ea DLP system  | P/N: 200007<br>8mm o/d | Enclosed only                        | None                        | 1400Bb/06     |
| EKC-898005   | 2 kg           | 2 kg HFC-227ea DLP system  | P/N: 200005<br>6mm o/d | Enclosed only                        | None                        | 1400Bb/07     |
|              | 2 kg           | 2 kg HFC-227ea DLP system  | P/N: 200007<br>8mm o/d | Enclosed only                        | None                        | 1400Bb/08     |
| EKC-921201   | 12 lb          | 12 lb HFC-227ea DLP system | P/N: 200005<br>6mm o/d | Enclosed only                        | None                        | 1400Bb/09     |
|              | 12 lb          | 12 lb HFC-227ea DLP system | P/N: 200007<br>8mm o/d | Enclosed only                        | None                        | 1400Bb/10     |
| EKC-898006   | 5 kg           | 5 kg HFC-227ea DLP system  | P/N: 200005<br>6mm o/d | Enclosed only                        | None                        | 1400Bb/11     |
|              | 5 kg           | 5 kg HFC-227ea DLP system  | P/N: 200007<br>8mm o/d | Enclosed only                        | None                        | 1400Bb/12     |

### Notes:

- 1) EKC International FZE HFC-227ea DLP Systems shall be configured, installed, serviced and maintained in accordance with EKC International FZE System Manual EKC-800023-000 - 11/08/2017.
  - 2) These systems are intended solely to provide enhanced local fire protection. They are not intended for use as whole room or building fire protection systems.
  - 3) The systems use a single method for detection and delivery of the extinguishing agent to the activation point.
- System operation pressure: 150 psig @ 70°F (10.3 bar @ 21.1°C).
- System operation temperature range: -20°C to +60°C.

## **PART 4: SECTION 4**

### **DIRECT LOW PRESSURE (DLP) APPLICATION SYSTEMS**

#### **Firetrace International LLC**

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Certificate No: 1400a to LPS 1666: Issue 1.0

#### **Firetrace International LLC 3M™ Novec™ 1230 Direct Low Pressure (DLP) Application Fixed Fire Suppression Systems**

| Product Name | Container Size | Description                   | Detector Tube          | Ventilation (Enclosed or Open Vents) | Air Flow (Forced / Natural) | LPCB Ref. No. |
|--------------|----------------|-------------------------------|------------------------|--------------------------------------|-----------------------------|---------------|
| 920205       | 2.5 lb         | 2.5 lb Novec™ 1230 DLP system | P/N: 200005<br>6mm o/d | Enclosed only                        | None                        | 1400a/01      |
|              | 2.5 lb         | 2.5 lb Novec™ 1230 DLP system | P/N: 200007<br>8mm o/d | Enclosed only                        | None                        | 1400a/02      |
| 898001       | 1 kg           | 1 kg Novec™ 1230 DLP system   | P/N: 200005<br>6mm o/d | Enclosed only                        | None                        | 1400a/03      |
|              | 1 kg           | 1 kg Novec™ 1230 DLP system   | P/N: 200007<br>8mm o/d | Enclosed only                        | None                        | 1400a/04      |
| 920505       | 5 lb           | 5 lb Novec™ 1230 DLP system   | P/N: 200005<br>6mm o/d | Enclosed only                        | None                        | 1400a/05      |
|              | 5 lb           | 5 lb Novec™ 1230 DLP system   | P/N: 200007<br>8mm o/d | Enclosed only                        | None                        | 1400a/06      |
| 898002       | 2 kg           | 2 kg Novec™ 1230 DLP system   | P/N: 200005<br>6mm o/d | Enclosed only                        | None                        | 1400a/07      |
|              | 2 kg           | 2 kg Novec™ 1230 DLP system   | P/N: 200007<br>8mm o/d | Enclosed only                        | None                        | 1400a/08      |
| 921005       | 10 lb          | 10 lb Novec™ 1230 DLP system  | P/N: 200005<br>6mm o/d | Enclosed only                        | None                        | 1400a/09      |
|              | 10 lb          | 10 lb Novec™ 1230 DLP system  | P/N: 200007<br>8mm o/d | Enclosed only                        | None                        | 1400a/10      |
| 898003       | 5 kg           | 5 kg Novec™ 1230 DLP system   | P/N: 200005<br>6mm o/d | Enclosed only                        | None                        | 1400a/11      |
|              | 5 kg           | 5 kg Novec™ 1230 DLP system   | P/N: 200007<br>8mm o/d | Enclosed only                        | None                        | 1400a/12      |

#### **Notes:**

- 1) Firetrace International LLC 3M™ Novec™ 1230 DLP Systems shall be configured, installed, serviced and maintained in accordance with Firetrace International LLC System Manual 800035-003 – 12/01/2017.
  - 2) These systems are intended solely to provide enhanced local fire protection. They are not intended for use as whole room or building fire protection systems.
  - 3) The systems use a single method for detection and delivery of the extinguishing agent to the activation point.
- System operation pressure: 195 psig @ 70°F (13.5 bar @ 21.1°C).  
- System operation temperature range: -20°C to +60°C.

Certificate No: 1400b to LPS 1666: Issue 1.0

#### **Firetrace International LLC HFC-227ea Direct Low Pressure (DLP) Application Fixed Fire Suppression Systems**

| Product Name | Container Size | Description               | Detector Tube          | Ventilation (Enclosed or Open Vents) | Air Flow (Forced / Natural) | LPCB Ref. No. |
|--------------|----------------|---------------------------|------------------------|--------------------------------------|-----------------------------|---------------|
| 920301       | 3 lb           | 3 lb HFC-227ea DLP system | P/N: 200005<br>6mm o/d | Enclosed only                        | None                        | 1400b/01      |
|              | 3 lb           | 3 lb HFC-227ea DLP system | P/N: 200007<br>8mm o/d | Enclosed only                        | None                        | 1400b/02      |
| 898004       | 1 kg           | 1 kg HFC-227ea DLP system | P/N: 200005<br>6mm o/d | Enclosed only                        | None                        | 1400b/03      |

## PART 4: SECTION 4

### DIRECT LOW PRESSURE (DLP) APPLICATION SYSTEMS

| Product Name | Container Size | Description                | Detector Tube          | Ventilation (Enclosed or Open Vents) | Air Flow (Forced / Natural) | LPCB Ref. No. |
|--------------|----------------|----------------------------|------------------------|--------------------------------------|-----------------------------|---------------|
| 920601       | 1 kg           | 1 kg HFC-227ea DLP system  | P/N: 200007<br>8mm o/d | Enclosed only                        | None                        | 1400b/04      |
|              | 6 lb           | 6 lb HFC-227ea DLP system  | P/N: 200005<br>6mm o/d | Enclosed only                        | None                        | 1400b/05      |
| 898005       | 6 lb           | 6 lb HFC-227ea DLP system  | P/N: 200007<br>8mm o/d | Enclosed only                        | None                        | 1400b/06      |
|              | 2 kg           | 2 kg HFC-227ea DLP system  | P/N: 200005<br>6mm o/d | Enclosed only                        | None                        | 1400b/07      |
| 921201       | 2 kg           | 2 kg HFC-227ea DLP system  | P/N: 200007<br>8mm o/d | Enclosed only                        | None                        | 1400b/08      |
|              | 12 lb          | 12 lb HFC-227ea DLP system | P/N: 200005<br>6mm o/d | Enclosed only                        | None                        | 1400b/09      |
| 898006       | 12 lb          | 12 lb HFC-227ea DLP system | P/N: 200007<br>8mm o/d | Enclosed only                        | None                        | 1400b/10      |
|              | 5 kg           | 5 kg HFC-227ea DLP system  | P/N: 200005<br>6mm o/d | Enclosed only                        | None                        | 1400b/11      |
|              | 5 kg           | 5 kg HFC-227ea DLP system  | P/N: 200007<br>8mm o/d | Enclosed only                        | None                        | 1400b/12      |

#### Notes:

- 1) Firetrace International LLC HFC-227ea DLP Systems shall be configured, installed, serviced and maintained in accordance with Firetrace International LLC System Manual 800023-006 – 12/01/2017.
- 2) These systems are intended solely to provide enhanced local fire protection. They are not intended for use as whole room or building fire protection systems.
- 3) The systems use a single method for detection and delivery of the extinguishing agent to the activation point.

- System operation pressure: 150 psig @ 70°F (10.3 bar @ 21.1°C).

- System operation temperature range: -20°C to +60°C.

## Firetrace Limited

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Certificate No: 1430a to LPS 1666: Issue 1.0

### **Firetrace® Ltd 3M™ Novec™ 1230 Direct Low Pressure (DLP) Application Fixed Fire Suppression Systems**

| Product Name   | Container Size | Description                 | Detector Tube | Ventilation (Enclosed or Open Vents) | Air Flow (Forced / Natural) | LPCB Ref. No. |
|----------------|----------------|-----------------------------|---------------|--------------------------------------|-----------------------------|---------------|
| 2Kg Firetrace® | 2 kg           | 2 kg Novec™ 1230 DLP system | FT0115        | Enclosed only                        | None                        | 1430a/01      |

#### Notes:

- 1) Firetrace Ltd. 3M™ Novec™ 1230 DLP Systems shall be configured, installed, serviced and maintained in accordance with Firetrace Ltd. System Manual FIRETRACE LPCB 1116 - 04/03/2017.
- 2) These systems are intended solely to provide enhanced local fire protection. They are not intended for use as whole room or building fire protection systems.
- 3) The systems use a single method for detection and delivery of the extinguishing agent to the activation point.
  - System operation pressure: 12 bar @ 20°C.
  - System operation temperature range: -20°C to +60°C.

## **PART 4: SECTION 4**

### **DIRECT LOW PRESSURE (DLP) APPLICATION SYSTEMS**

#### **Jactone Products Limited**

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Certificate No: 783d to LPS 1666: Issue 1.0

#### **Jactone® PAFSS® 3M™ Novec™ 1230 Direct Low Pressure (DLP) Application Fixed Fire Suppression Systems**

| Product Name | Container Size | Description                   | Detector Tube | Ventilation (Enclosed or Open Vents) | Air Flow (Forced / Natural)   | LPCB Ref. No. |
|--------------|----------------|-------------------------------|---------------|--------------------------------------|-------------------------------|---------------|
| PAFSSND2     | 2 kg           | 2 kg Novec™ 1230 DLP system   | FSTFV300      | Enclosed & open options <sup>4</sup> | Forced & natural <sup>5</sup> | 783d/01       |
| PAFSSND25    | 2.5 kg         | 2.5 kg Novec™ 1230 DLP system | FSTFV300      | Enclosed & open options <sup>4</sup> | Forced & natural <sup>5</sup> | 783d/02       |
| PAFSSND3     | 3 kg           | 3 kg Novec™ 1230 DLP system   | FSTFV300      | Enclosed & open options <sup>4</sup> | Forced & natural <sup>5</sup> | 783d/03       |

#### **Macron Safety Systems (UK) Ltd**

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Certificate No: 587c to LPS 1666: Issue 1.0

#### **SAPPHIRE COMPACT 3M™ Novec™ 1230 Direct Low Pressure (DLP) Application Fixed Fire Suppression Systems**

| Product Name       | Container Size | Description                       | Detector Tube | Ventilation (Enclosed or Open Vents) | Air Flow (Forced / Natural)   | LPCB Ref. No. |
|--------------------|----------------|-----------------------------------|---------------|--------------------------------------|-------------------------------|---------------|
| 3031500XX (F13516) | 2 kg           | SAPPHIRE COMPACT 2kg DLP system   | 304150013     | Enclosed & open options <sup>4</sup> | Forced & natural <sup>5</sup> | 587c/01       |
| 3031500XX (F13517) | 2.5 kg         | SAPPHIRE COMPACT 2.5kg DLP system | 304150013     | Enclosed & open options <sup>4</sup> | Forced & natural <sup>5</sup> | 587c/02       |
| 3031500XX (F13518) | 3 kg           | SAPPHIRE COMPACT 3kg DLP system   | 304150013     | Enclosed & open options <sup>4</sup> | Forced & natural <sup>5</sup> | 587c/03       |

#### **NAFFCO FZ Co**

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Certificate No: 463p to LPS 1666: Issue 1.0

#### **Naffco FZ Co HFC-236fa Direct Low Pressure (DLP) Application Fixed Fire Suppression Systems**

| Product Name | Container Size | Description                  | Detector Tube              | Ventilation (Enclosed or Open Vents) | Air Flow (Forced / Natural)   | LPCB Ref. No. |
|--------------|----------------|------------------------------|----------------------------|--------------------------------------|-------------------------------|---------------|
| NF01DLP236-1 | 1.2 Litre      | 0.75 kg HFC-236fa DLP system | P/N: NF07800301<br>6mm o/d | Enclosed & open options <sup>4</sup> | Forced & natural <sup>5</sup> | 463p/01       |
| NF01DLP236-2 | 2.6 Litre      | 1.5 kg HFC-236fa DLP system  | P/N: NF07800301<br>6mm o/d | Enclosed & open options <sup>4</sup> | Forced & natural <sup>5</sup> | 463p/02       |

# PART 4: SECTION 4

## DIRECT LOW PRESSURE (DLP) APPLICATION SYSTEMS

| Product Name | Container Size | Description                 | Detector Tube              | Ventilation (Enclosed or Open Vents) | Air Flow (Forced / Natural)   | LPCB Ref. No. |
|--------------|----------------|-----------------------------|----------------------------|--------------------------------------|-------------------------------|---------------|
| NF01DLP236-3 | 3.8 Litre      | 2.5 kg HFC-236fa DLP system | P/N: NF07800301<br>6mm o/d | Enclosed & open options <sup>4</sup> | Forced & natural <sup>5</sup> | 463p/03       |
| NF01DLP236-4 | 4.8 Litre      | 3.5 kg HFC-236fa DLP system | P/N: NF07800301<br>6mm o/d | Enclosed & open options <sup>4</sup> | Forced & natural <sup>5</sup> | 463p/04       |
| NF01DLP236-5 | 2.6 Litre      | 2 kg HFC-236fa DLP system   | P/N: NF07800301<br>6mm o/d | Enclosed & open options <sup>4</sup> | Forced & natural <sup>5</sup> | 463p/05       |
| NF01DLP236-6 | 3.8 Litre      | 3 kg HFC-236fa DLP system   | P/N: NF07800301<br>6mm o/d | Enclosed & open options <sup>4</sup> | Forced & natural <sup>5</sup> | 463p/06       |
| NF01DLP236-7 | 4.8 Litre      | 4 kg HFC-236fa DLP system   | P/N: NF07800301<br>6mm o/d | Enclosed & open options <sup>4</sup> | Forced & natural <sup>5</sup> | 463p/07       |

### Notes:

- 1) Naffco FZ Co HFC-236fa DLP Systems shall be configured, installed, serviced and maintained in accordance with Naffco FZ Co System Manual NF01DLP236M Rev No.00 Issue:B - 18/09/2018.
- 2) These systems are intended solely to provide enhanced local fire protection. They are not intended for use as whole room or building fire protection systems.
- 3) The systems use a single method for detection and delivery of the extinguishing agent to the activation point.
  - System operation pressure: 12 bar @ 21.1°C.
  - System operation temperature range: -20°C to +60°C.
- 4) The above systems may have air vents at low and/or high level (refer note 1).
- 5) The above systems may have forced ventilation (refer note 1).

Certificate No: 463q to LPS 1666: Issue 1.0

### ***Naffco FZ Co HFC-227ea Direct Low Pressure (DLP) Application Fixed Fire Suppression Systems***

| Product Name | Container Size | Description                  | Detector Tube              | Ventilation (Enclosed or Open Vents) | Air Flow (Forced / Natural)   | LPCB Ref. No. |
|--------------|----------------|------------------------------|----------------------------|--------------------------------------|-------------------------------|---------------|
| NF01DLP227-1 | 1.2 Litre      | 0.75 kg HFC-227ea DLP system | P/N: NF07800301<br>6mm o/d | Enclosed & open options <sup>4</sup> | Forced & natural <sup>5</sup> | 463q/01       |
| NF01DLP227-2 | 2.6 Litre      | 1.5 kg HFC-227ea DLP system  | P/N: NF07800301<br>6mm o/d | Enclosed & open options <sup>4</sup> | Forced & natural <sup>5</sup> | 463q/02       |
| NF01DLP227-3 | 3.8 Litre      | 2.5 kg HFC-227ea DLP system  | P/N: NF07800301<br>6mm o/d | Enclosed & open options <sup>4</sup> | Forced & natural <sup>5</sup> | 463q/03       |
| NF01DLP227-4 | 4.8 Litre      | 3.5 kg HFC-227ea DLP system  | P/N: NF07800301<br>6mm o/d | Enclosed & open options <sup>4</sup> | Forced & natural <sup>5</sup> | 463q/04       |
| NF01DLP227-5 | 2.6 Litre      | 2 kg HFC-227ea DLP system    | P/N: NF07800301<br>6mm o/d | Enclosed & open options <sup>4</sup> | Forced & natural <sup>5</sup> | 463q/05       |
| NF01DLP227-6 | 3.8 Litre      | 3 kg HFC-227ea DLP system    | P/N: NF07800301<br>6mm o/d | Enclosed & open options <sup>4</sup> | Forced & natural <sup>5</sup> | 463q/06       |
| NF01DLP227-7 | 4.8 Litre      | 4 kg HFC-227ea DLP system    | P/N: NF07800301<br>6mm o/d | Enclosed & open options <sup>4</sup> | Forced & natural <sup>5</sup> | 463q/07       |

### Notes:

- 1) Naffco FZ Co HFC-227ea DLP Systems shall be configured, installed, serviced and maintained in accordance with Naffco FZ Co System Manual NF01DLP227M Rev No.00 Issue:B - 18/09/2018.
- 2) These systems are intended solely to provide enhanced local fire protection. They are not intended for use as whole room or building fire protection systems.
- 3) The systems use a single method for detection and delivery of the extinguishing agent to the activation point.
  - System operation pressure: 12 bar @ 21.1°C.
  - System operation temperature range: -20°C to +60°C.
- 4) The above systems may have air vents at low and/or high level (refer note 1).
- 5) The above systems may have forced ventilation (refer note 1).

# PART 4: SECTION 4

## DIRECT LOW PRESSURE (DLP) APPLICATION SYSTEMS

Certificate No: 463r to LPS 1666: Issue 1.0

### Naffco FZ Co HFC-236fa Direct Low Pressure (DLP) Application Fixed Fire Suppression Systems

| Product Name | Container Size | Description                  | Detector Tube              | Ventilation (Enclosed or Open Vents) | Air Flow (Forced / Natural)   | LPCB Ref. No. |
|--------------|----------------|------------------------------|----------------------------|--------------------------------------|-------------------------------|---------------|
| NF02DLP236-1 | 1.2 Litre      | 0.75 kg HFC-236fa DLP system | P/N: NF07800302<br>6mm o/d | Enclosed & open options <sup>4</sup> | Forced & natural <sup>5</sup> | 463r/01       |
| NF02DLP236-2 | 2.6 Litre      | 1.5 kg HFC-236fa DLP system  | P/N: NF07800302<br>6mm o/d | Enclosed & open options <sup>4</sup> | Forced & natural <sup>5</sup> | 463r/02       |
| NF02DLP236-3 | 3.8 Litre      | 2.5 kg HFC-236fa DLP system  | P/N: NF07800302<br>6mm o/d | Enclosed & open options <sup>4</sup> | Forced & natural <sup>5</sup> | 463r/03       |
| NF02DLP236-4 | 4.8 Litre      | 3.5 kg HFC-236fa DLP system  | P/N: NF07800302<br>6mm o/d | Enclosed & open options <sup>4</sup> | Forced & natural <sup>5</sup> | 463r/04       |
| NF02DLP236-5 | 2.6 Litre      | 2 kg HFC-236fa DLP system    | P/N: NF07800302<br>6mm o/d | Enclosed & open options <sup>4</sup> | Forced & natural <sup>5</sup> | 463r/05       |
| NF02DLP236-6 | 3.8 Litre      | 3 kg HFC-236fa DLP system    | P/N: NF07800302<br>6mm o/d | Enclosed & open options <sup>4</sup> | Forced & natural <sup>5</sup> | 463r/06       |
| NF02DLP236-7 | 4.8 Litre      | 4 kg HFC-236fa DLP system    | P/N: NF07800302<br>6mm o/d | Enclosed & open options <sup>4</sup> | Forced & natural <sup>5</sup> | 463r/07       |

Certificate No: 463s to LPS 1666: Issue 1.0

### Naffco FZ Co HFC-227ea Direct Low Pressure (DLP) Application Fixed Fire Suppression Systems

| Product Name | Container Size | Description                  | Detector Tube              | Ventilation (Enclosed or Open Vents) | Air Flow (Forced / Natural)   | LPCB Ref. No. |
|--------------|----------------|------------------------------|----------------------------|--------------------------------------|-------------------------------|---------------|
| NF02DLP227-1 | 1.2 Litre      | 0.75 kg HFC-227ea DLP system | P/N: NF07800302<br>6mm o/d | Enclosed & open options <sup>4</sup> | Forced & natural <sup>5</sup> | 463s/01       |
| NF02DLP227-2 | 2.6 Litre      | 1.5 kg HFC-227ea DLP system  | P/N: NF07800302<br>6mm o/d | Enclosed & open options <sup>4</sup> | Forced & natural <sup>5</sup> | 463s/02       |
| NF02DLP227-3 | 3.8 Litre      | 2.5 kg HFC-227ea DLP system  | P/N: NF07800302<br>6mm o/d | Enclosed & open options <sup>4</sup> | Forced & natural <sup>5</sup> | 463s/03       |
| NF02DLP227-4 | 4.8 Litre      | 3.5 kg HFC-227ea DLP system  | P/N: NF07800302<br>6mm o/d | Enclosed & open options <sup>4</sup> | Forced & natural <sup>5</sup> | 463s/04       |
| NF02DLP227-5 | 2.6 Litre      | 2 kg HFC-227ea DLP system    | P/N: NF07800302<br>6mm o/d | Enclosed & open options <sup>4</sup> | Forced & natural <sup>5</sup> | 463s/05       |
| NF02DLP227-6 | 3.8 Litre      | 3 kg HFC-227ea DLP system    | P/N: NF07800302<br>6mm o/d | Enclosed & open options <sup>4</sup> | Forced & natural <sup>5</sup> | 463s/06       |
| NF02DLP227-7 | 4.8 Litre      | 4 kg HFC-227ea DLP system    | P/N: NF07800302<br>6mm o/d | Enclosed & open options <sup>4</sup> | Forced & natural <sup>5</sup> | 463s/07       |

## Regulus Fire Systems

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Certificate No: 1400Aa to LPS 1666: Issue 1.0

### Regulus Fire Systems 3M™ Novec™ 1230 Direct Low Pressure (DLP) Application Fixed Fire Suppression Systems

| Product Name | Container Size | Description                   | Detector Tube          | Ventilation (Enclosed or Open Vents) | Air Flow (Forced / Natural) | LPCB Ref. No. |
|--------------|----------------|-------------------------------|------------------------|--------------------------------------|-----------------------------|---------------|
| 02-921542    | 2.5 lb         | 2.5 lb Novec™ 1230 DLP system | P/N: 200005<br>6mm o/d | Enclosed only                        | None                        | 1400Aa/01     |
|              | 2.5 lb         | 2.5 lb Novec™ 1230 DLP system | P/N: 200007<br>8mm o/d | Enclosed only                        | None                        | 1400Aa/02     |
| 02-899338    | 1 kg           | 1 kg Novec™ 1230 DLP system   | P/N: 200005<br>6mm o/d | Enclosed only                        | None                        | 1400Aa/03     |
|              | 1 kg           | 1 kg Novec™ 1230 DLP system   | P/N: 200007<br>8mm o/d | Enclosed only                        | None                        | 1400Aa/04     |



**PART 4: SECTION 4****DIRECT LOW PRESSURE (DLP) APPLICATION SYSTEMS**

| Product Name | Container Size | Description                  | Detector Tube          | Ventilation (Enclosed or Open Vents) | Air Flow (Forced / Natural) | LPCB Ref. No. |
|--------------|----------------|------------------------------|------------------------|--------------------------------------|-----------------------------|---------------|
| 02-921842    | 5 lb           | 5 lb Novec™ 1230 DLP system  | P/N: 200005<br>6mm o/d | Enclosed only                        | None                        | 1400Aa/05     |
|              | 5 lb           | 5 lb Novec™ 1230 DLP system  | P/N: 200007<br>8mm o/d | Enclosed only                        | None                        | 1400Aa/06     |
| 02-899339    | 2 kg           | 2 kg Novec™ 1230 DLP system  | P/N: 200005<br>6mm o/d | Enclosed only                        | None                        | 1400Aa/07     |
|              | 2 kg           | 2 kg Novec™ 1230 DLP system  | P/N: 200007<br>8mm o/d | Enclosed only                        | None                        | 1400Aa/08     |
| 02-922342    | 10 lb          | 10 lb Novec™ 1230 DLP system | P/N: 200005<br>6mm o/d | Enclosed only                        | None                        | 1400Aa/09     |
|              | 10 lb          | 10 lb Novec™ 1230 DLP system | P/N: 200007<br>8mm o/d | Enclosed only                        | None                        | 1400Aa/10     |
| 02-899340    | 5 kg           | 5 kg Novec™ 1230 DLP system  | P/N: 200005<br>6mm o/d | Enclosed only                        | None                        | 1400Aa/11     |
|              | 5 kg           | 5 kg Novec™ 1230 DLP system  | P/N: 200007<br>8mm o/d | Enclosed only                        | None                        | 1400Aa/12     |

**Notes:**

- Regulus Fire Systems 3MTM Novec™ 1230 DLP Systems shall be configured, installed, serviced and maintained in accordance with Regulus Fire Systems System Manual 02-801372-000 - 11/08/2017.
- These systems are intended solely to provide enhanced local fire protection. They are not intended for use as whole room or building fire protection systems.
- The systems use a single method for detection and delivery of the extinguishing agent to the activation point.
  - System operation pressure: 195 psig @ 70°F (13.5 bar @ 21.1°C).
  - System operation temperature range: -20°C to +60°C.

Certificate No: 1400Ab to to LPS 1666: Issue 1.0

**Regulus Fire Systems HFC-227ea Direct Low Pressure (DLP) Application Fixed Fire Suppression Systems**

| Product Name | Container Size | Description                | Detector Tube          | Ventilation (Enclosed or Open Vents) | Air Flow (Forced / Natural) | LPCB Ref. No. |
|--------------|----------------|----------------------------|------------------------|--------------------------------------|-----------------------------|---------------|
| 02-921638    | 3 lb           | 3 lb HFC-227ea DLP system  | P/N: 200005<br>6mm o/d | Enclosed only                        | None                        | 1400Ab/01     |
|              | 3 lb           | 3 lb HFC-227ea DLP system  | P/N: 200007<br>8mm o/d | Enclosed only                        | None                        | 1400Ab/02     |
| 02-899341    | 1 kg           | 1 kg HFC-227ea DLP system  | P/N: 200005<br>6mm o/d | Enclosed only                        | None                        | 1400Ab/03     |
|              | 1 kg           | 1 kg HFC-227ea DLP system  | P/N: 200007<br>8mm o/d | Enclosed only                        | None                        | 1400Ab/04     |
| 02-921938    | 6 lb           | 6 lb HFC-227ea DLP system  | P/N: 200005<br>6mm o/d | Enclosed only                        | None                        | 1400Ab/05     |
|              | 6 lb           | 6 lb HFC-227ea DLP system  | P/N: 200007<br>8mm o/d | Enclosed only                        | None                        | 1400Ab/06     |
| 02-899342    | 2 kg           | 2 kg HFC-227ea DLP system  | P/N: 200005<br>6mm o/d | Enclosed only                        | None                        | 1400Ab/07     |
|              | 2 kg           | 2 kg HFC-227ea DLP system  | P/N: 200007<br>8mm o/d | Enclosed only                        | None                        | 1400Ab/08     |
| 02-922538    | 12 lb          | 12 lb HFC-227ea DLP system | P/N: 200005<br>6mm o/d | Enclosed only                        | None                        | 1400Ab/09     |
|              | 12 lb          | 12 lb HFC-227ea DLP system | P/N: 200007<br>8mm o/d | Enclosed only                        | None                        | 1400Ab/10     |
| 02-899343    | 5 kg           | 5 kg HFC-227ea DLP system  | P/N: 200005<br>6mm o/d | Enclosed only                        | None                        | 1400Ab/11     |
|              | 5 kg           | 5 kg HFC-227ea DLP system  | P/N: 200007<br>8mm o/d | Enclosed only                        | None                        | 1400Ab/12     |

**Notes:**

- Regulus Fire Systems HFC-227ea DLP Systems shall be configured, installed, serviced and maintained in accordance with Regulus Fire Systems System Manual 02-801360-000 - 11/08/2017.

## ***PART 4: SECTION 4***

### **DIRECT LOW PRESSURE (DLP) APPLICATION SYSTEMS**

- 2) These systems are intended solely to provide enhanced local fire protection. They are not intended for use as whole room or building fire protection systems.
- 3) The systems use a single method for detection and delivery of the extinguishing agent to the activation point.
  - System operation pressure: 150 psig @ 70°F (10.3 bar @ 21.1°C).
  - System operation temperature range: -20°C to +60°C.

These generators comprise a non-pressurized container filled with a dry solid fire extinguishing compound which, when activated, discharges an aerosol to extinguish the fire. They are designed to be fixed in place for “total flooding” applications, where the whole protected risk area is filled to achieve a specific design application density.

Subject to satisfactory performance and function tests, including full scale fire tests, these generators can be designated for use against the following classes:

- Class A (solid surface burning fires)
- Class B (liquid pool fires)

The selection and specification of fire protection equipment should be based on the completion of a suitable risk assessment and local regulatory requirements.

Generators are typically activated by appropriate fire detectors with the aim of ensuring that they operate early in the fire development phase. Guidance on the use, limitations, safety considerations and precautions, venting and structural strength of compartments, detection, actuation and control arrangements as well as commissioning, acceptance and maintenance procedures can be found in prEN 15276 parts 1 and 2.

Condensed aerosol generators are approved on the basis that they will be installed and maintained in accordance with prEN 15276 and the manufacturer’s instructions.

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Certificate No: 1417a to SD0228 and Selected Clauses of prEN15276-1 and prEN15276-2 (Sept 2017)

#### Condensed Aerosol Generator

| Product Name     | Description   | LPCB Ref. No. |
|------------------|---|---------------|
| FP-1200 (note 1) | Condensed aerosol generator (electrical activation only) and mounting bracket | 1417a/01      |
| FP-2000 (note 1) | Condensed aerosol generator (electrical activation only) and mounting bracket | 1417a/02      |
| FP-3000 (note 1) | Condensed aerosol generator (electrical activation only) and mounting bracket | 1417a/03      |
| FP-4200 (note 2) | Condensed aerosol generator (electrical activation only) and mounting bracket | 1417a/04      |
| FP-5700 (note 1) | Condensed aerosol generator (electrical activation only) and mounting bracket | 1417a/05      |

#### General Notes:

This approval covers the components listed when used in accordance with the FirePro “Instruction, information and user manual” version 7.0, dated 18<sup>th</sup> October 2017.

This approval does not cover system design, system performance or installation.

The Application Densities for these components, as defined in prEN15276-1 Clause 5.2, for the following applications are:

- Class A (surface burning fire only) - 97.6 g/m<sup>3</sup>
- Class B - 68.6 g/m<sup>3</sup>

The component approval does not cover applications for:

- Potentially Explosive Atmospheres, or
- Grouped Power or Data Cables.

#### Table Notes:

(1) The Product is available in 4 variants:

FP-xxxx - Mild Steel Body

FP-xxxxS - Stainless Steel Body

FP-xxxxT - Mild Steel Body; Thermal Activation Model Variant in Electrical Activation Mode Only

FP-xxxxTS - T Variant with Stainless Steel Body

(2) The Product is available in 2 variants:

FP-xxxxT - Mild Steel Body, Thermal Activation Model Variant in Electrical Activation Mode Only

FP-xxxxTS - T Variant with Stainless Steel Body

**PART 4: SECTION 5**

CONDENSED AEROSOL EXTINGUISHING GENERATORS