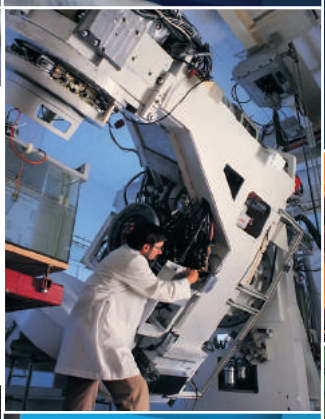
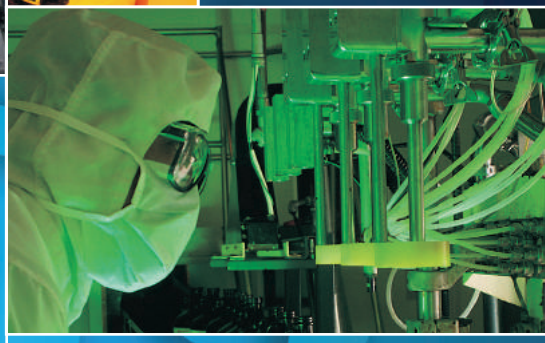
SRI

Leading the Fight Against Fire



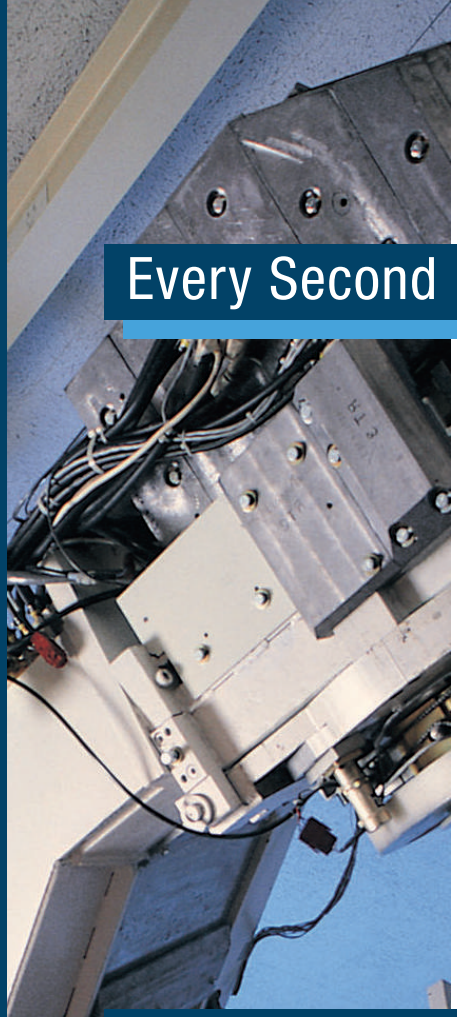


SR-200

HFC-227ea
Fire Suppression System

2016 *Edition*

VdS SCHADENVERHÜTUNG



Every Second Counts... in Fire

The once hard-built kingdom has vanished in split seconds. Flames of fire have destroyed all your belongings, leaving your company succumbing to critical losses of treasures that are left perished in fire. The destruction is even more heart-shattering in extreme fire cases as precious lives are swept away before any attempts to save them. It is going to take a long time to rebuild everything back from scratch.

Devastating as it is, your company's most valuable human resources, data, equipments and systems are all lost to fire. Unbearable truth of the aftermath is to face inoperable equipments, service interruptions and failure to produce necessary information for your customers' needs.

Ultimate Protection against Catastrophe

The best protection for high-value assets requires a product that could meet all the criteria necessary to minimize the risk of fire damages. Halon 1301 has been widely used as it proves to be an effective fire suppression agent, but Halon 1301 has significant environmental consequences due to its potential contribution to depleting the ozone layer.

The quest for a replacement resulted in the introduction of **HFC-227ea** to the marketplace. It has been designated as a replacement for CFC propellants in pharmaceutical metered dose inhalers in asthma medications.

Known as the world most widely accepted replacement for Halon 1301, **HFC-227ea** is considered as people-friendly and takes up less floor space than other systems. The U.S Environmental Protection Agency named it a non-ozone depleting agent for fire extinguishing systems installed in occupied places.

SR-200 Fire Suppression System

*SR-200 fire suppression system is an ideal choice for all users as it utilizes the agent **HFC-227ea** to combat fire in the fastest time.*

Exceptionally Fast and Protective

Once a developing fire in its initial stage is detected, **HFC-227ea** extinguishes it quickly by discharging in just 10± 1 seconds or lesser. **SR-200** fire suppression system effectively removes heat and breaks up the fire at molecular level. With fast and protective extinguishing action, sensitive components are not damaged. Toxicologically harmless, **HFC-227ea** discharges as gas and leaves no residue, thus there is no hassle for any clean-up cost, unlike sprinklers. Indeed, **SR-200** can provide greater coverage in the shortest time span than any other options. This is significant to minimize damages and interruptions for your business especially when your company relies heavily on the high availability of critical operating procedures.

Clean and Safer Choice

Colourless, odourless, and in gaseous form, **SR-200** extinguishes without leaving any residue. With speedy distribution throughout the room, **SR-200** is not erosive and electrically conductive thus causes no damage through short circuits. The function of **SR-200** is to deprive the heat and interrupt the combustion reaction.

Space Efficiency

SR-200 can be individually adapted to suit every area and desired corner in your company. Nozzle holes and container fill volumes are the result of object-specific calculations and characterize a system optimized down to the smallest detail. The charging pressures of up to 25 BAR depicts that multi-zone systems and longer pipe works can be designed. No separate space is needed for the supply of extinguishing agent; it can be located in the protected area itself. Equipped with environmental properties and good performance ratio, you will definitely get greater protection while utilizing less floor space.

7 different sizes of **SR-200** extinguishing cylinders. 5

SR-200 Fire Suppression System

Clean Agent Decision Criteria	
Excellent price / performance ratio	✓
Robust design, so low maintenance costs	✓
Compact and space-saving	✓
VdS approved	✓
Worldwide recognized and approved extinguishing agent	✓
Rapid extinguishing effect	✓
Safe for use in occupied areas	✓
No extinguishing agent residues	✓
Simple design and hydraulic calculation	✓
Higher operating pressure possible	✓

Extra Guaranteed Services	
Professional advice	✓
Technical and maintenance support	✓

SR-200 System Application

SR-200 fire suppression system protects enclosed areas where there is a need for quick reaction to fire, where people may be present, where fire may strike anytime or where damage from conventional agents cannot be tolerated. Some examples of such areas are:

Power Generation, Transmission & Distribution Facilities

- Power Plant
- Power Transmission
- Substation control room
- Substation switch room

Telecommunications Facilities

- Telephone Exchanges
- Central & Remote Cellular Sites
- Communication Centres
- Satellite Ground Stations

Commercial & Institutional Facilities

- Bank Vaults & Documents Storage
- Art Galleries & Achieves Storage
- Medical Diagnosis Rooms
- Museums & Libraries
- Aviation & Marine Applications
- Insurance Industry

Data Centres & Industrial Applications

- Computer Rooms & Electronics
- Server Rooms & Process Control Rooms
- Tape & Back Up Storage
- Laboratories & Clean Rooms
- Pharmaceutical / Medical Facilities
- Military Installations

Safety and Precautions

Exposure to **SR-200** at the design concentration of 7% to 9% is not hazardous to health within a permissible period of time. According to Non Observed Adverse Effect Level (NOAEL), the maximum human exposure time shall not exceed 5 minutes with 9% concentration level.

It is recommended that unnecessary exposure to any agent be avoided and that personnel evacuate protected areas as quickly as possible to avoid the decomposition products of the clean agent.

SR-200 can decompose at high temperature or under fire to a form of halogen acids which is readily detected as a sharp, pungent odor even after fire extinguished or long before hazardous maximum exposure levels are reached. Ventilation and openings are required to clear the protected areas after **SR-200** discharged, no one is allowed to enter the areas during system discharge or before the area is totally ventilated and safe for occupancy again.

Direct contact with the vaporizing liquid discharge from a **SR-200** nozzle has a cool chilling effect on objects and in extreme case can cause frostbite to the skin. One should avoid direct contact with the agent.

SR-200 shall not be used on fires involving the following materials:

- Certain chemicals or mixtures of chemicals, such as cellulose nitrate and gunpowder, those are capable of rapid oxidation in the absence of air.
- Reactive metals such as lithium, sodium, potassium, magnesium, titanium, zirconium, uranium and plutonium.
- Metal hydrides.
- Chemicals capable of under going auto thermal decomposition, such as certain organic peroxides and hydrazine.

Knowing the Agent Characteristics

HFC-227ea is a gaseous halocarbon agent containing no particles; it leaves no oily residues on electronic equipment and can be removed from the protected space by ventilation. It is the first environmentally acceptable replacement for Halon 1301.

The present understanding of the functioning of **HFC-227ea** is that 80% of its fire fighting effectiveness is achieved through heat absorption and 20% through direct chemical means. **HFC-227ea** is stored as a liquefied compressed gas super pressurized with dry nitrogen to 25 BAR and is discharged into the protected area as a vapor.

Summary of Agent Physical Properties	
Chemical Structure	CF_3 $CHFCF_3$
Chemical Name	1,1,1,2,3,3,3 - Heptafluoropropane
Molecular Weight	170 g/mol
Boiling Point at 1.013 Bar (abs)	-16.4°C (1.9°F)
Freezing Point	-131°C (-204°F)
Critical Temperature	101.7°C (214°F)
Critical Pressure	29.1Bar (422 psi)
Critical Volume	274 cc/mole (0.0258 cu.ft/lb)
Critical Density	621 kg/m^3 (38.76 lb/ft^3)
Specific Heat, Liquid at 25°C	1.184 kJ/kg°C
Specific Heat, 25°C Vapor at constant pressure 1 atm and 25°C	0.808 kJ/kg°C
Heat of Vaporization at Boiling Point	132.6 kJ/kg
Thermal Conductivity of Liquid @ 25°C	0.069 W/m°C
Viscosity, Liquid at Centipoise 25°C	0.184
Relative Dielectric Strength @ 1 atm	2
Solubility of Water in Agent @ 21°C	0.06% by weight
Saturated Vapor Density @ 20°C (68°F)	31.18 kg/m^3 (1.95 lb/ft^3)
Ozone Depletion (ODP)	0
Atmospheric Lifetime	36.5 yrs
No Observed Adverse Effect Level (NOAEL)	9%
Lowest Observed Adverse Effect Level (LOAEL)	>10.5%

SR-200 Fire Suppression System Approval

The **SR-200** fire suppression system is approved by VdS Schadenverhütung (Loss Prevention) Germany to VdS 2452 gas extinguishing system requirement and methods.

Key components of **SR-200** fire suppression system such as container valve, actuator, nozzle, discharge hose, connecting hose, check valves and etc are certified by VdS.

VdS (Vertrauen durch Sicherheit) is fully owned subsidiary of the German Insurance Association (GDV), and through its owner, has more than 100 years of experience in its core area of business, namely fire protection. For further details visit **www.vds.de**

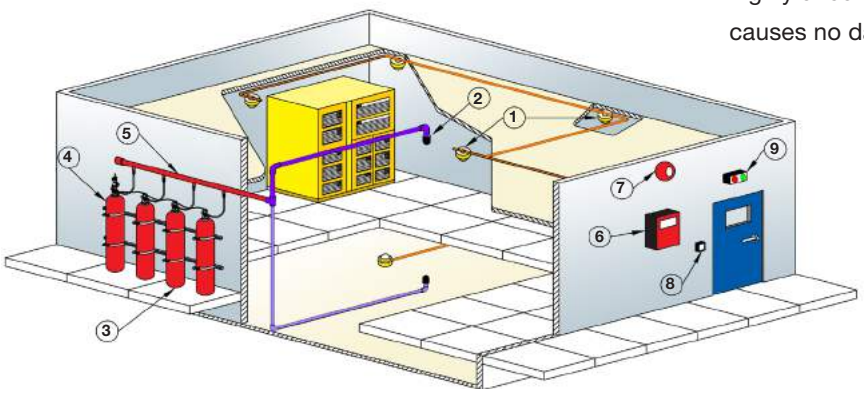
System Design and Operation

The **SR-200** fire suppression systems are designed, installed and maintained according to NFPA 2001 (Clean Agent Fire Extinguishing Systems).

SR-200 utilizes the halocarbon gas Heptafluoropropane **(HFC-227ea)** in NFPA 2001 and ISO 14520-1. The general requirements and design criteria are based on both NFPA 2001 and ISO 14520-1.

SR-200 is employed as a total flooding system and should not be used for local application system. **SR-200** suppresses fire by absorbing heat energy at its molecular level faster than the heat can be generated, so the fire cannot sustain itself.

It also forms free radicals to chemically interfere with the chain reaction of the combustion process. This makes it a highly effective fire fighting agent that is safe for people and causes no damage to equipment.



1. Smoke / heat detector
2. Nozzle
3. Slave cylinders
4. Master cylinder
5. Manifold
6. Control panel
7. Alarm bell
8. Manual call point (break glass)
9. Discharge light

Please refer to the System Components for more details (pg.7 - pg.13)

Design Calculations

The required agent quantity is based on the volume of protected area at the lowest expected ambient temperature and concentration required. To obtain the minimum agent quantity required, use the following equation:

$$W = (V/S) \times (C/100-C)$$

W = Weight of Agent required
V = Volume of protected area
S = Specific vapour volume
S = 0.1269 + 0.000513 T
C = Required **HFC-227ea** Design Concentration (% by volume) at Design Temperature (t)
T = Design temperature in protected area (°C)

SR-200 Fire Suppression System Application

No.	Description	Material
1	Valve Assembly	Brass
2	Electromagnetic Release Device	Brass & Stainless Steel
3	Manual / Pneumatic Release Device	Brass & Stainless Steel
4	Pressure Gauge	Plastic
5	Discharge Hose	Synthetic Rubber Hose With 2 High Tensile Steel Wire Braids Reinforcement
6	Check Valve	Gun Metal & Stainless Steel
7	Pilot Line Hose	Synthetic Rubber Hose With 2 High Tensile Steel Wire Braids Reinforcement
8	Pneumatic Release Device	Brass
9	TPED or DOT Cylinder	Chromium Molybdenum Steel

SR-200 Fire Suppression System Cylinders

SR-200 Cylinder Specification	
Materials	Chromium Molybdenum Steel
Filling	0.5kg/L up to maximum of 1kg/L
Filling Pressure	25 Bar @ 21°C
Test Pressure	50 Bar
Standard of Compliance	TPED 1999/36/Ce or acc. to International Standards
Colour	Red

Remarks: Each cylinder is fitted with a valve outlet cap.

WARNING:

The valve outlet cap must always be fitted onto the cylinder, irrespective of whether the cylinder is full or empty, when it is not connected to the pipe network or manifold.

No.	Part No.	Capacity (l)	Valve Outlet Size	Cylinder Height A (mm) ±5	Cylinder Diameter (O/D) B (mm)
1	32L SPS 227-CS-032-33	32	DN33	522.4	324
2	52L SPS 227-CS-052-33	52	DN33	782.4	324
3	100L SPS 227-CS-100-33	100	DN33	963	406
4	120L SPS 227-CS-120-49	120	DN49	1126	406
5	150L SPS 227-CS-150-49	150	DN49	1372	406
6	180L SPS 227-CS-180-49	180	DN49	1268	462
7	200L SPS 227-CS-200-49	200	DN49	1398	462

SR-200 System Approval Certificates

Zertifikat Certificate

Anerkennung
von Bauteilen und Systemen
Approval
of Components and Systems

VdS

Steel Recon Industries Sdn Bhd
No. 8, Jalan Subang 7, Taman Perindustrian Subang
MY-47610 Subang Jaya, Selangor Darul Ehsan

S 312005 | II | 06.03.2012 | 05.03.2016

HFC-227ea – Feuerlöschsystem /
HFC-227ea - fire extinguishing system
"SR200-HFC227ea"

in ortslesten HFC-227ea- Feuerlöschanlagen
in fixed HFC-227ea fire extinguishing systems

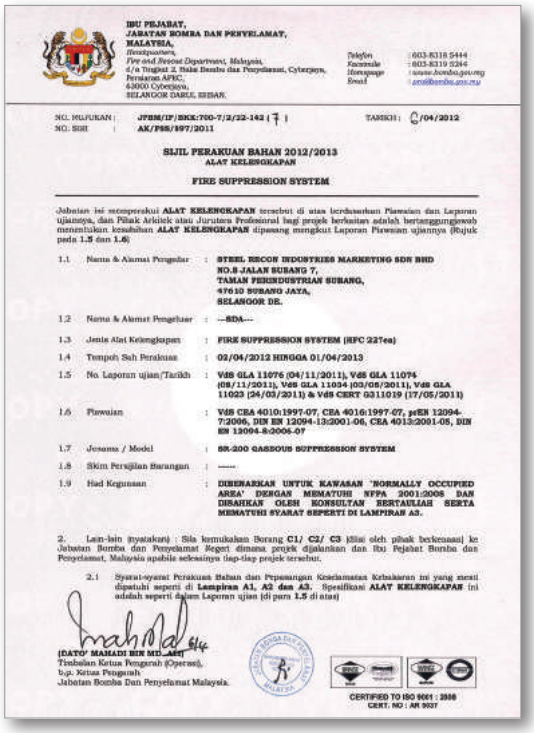
VdS 2344:2005-12
VdS 2454:1998-12

Köln, den 06.03.2012

DAT-ZE-805/92

Reinermann
i.V. Hecels

7 VdS Schadenverhütung Certificate



IBU PEJABAT,
JABATAN BOMBA DAN PENYELAMAT,
MALAYSIA,
Ibupejabat,
Fire and Rescue Department, Malaysia,
d/a Tingkat 2, Balai Bomba dan Penyelamat, Cyberjaya,
Persiaran APEC,
63000 Cyberjaya,
SELANGOR DARUL EHSAN.

Telefon : 603-8318 5444
Faksimile : 603-8319 0244
Laman Web/Homepage : www.bomba.gov.my
Email : pro@bomba.gov.my

NO. RUJUKAN : JPBM/IP/BKK:700-7/2/32-142 (7)
NO. SIRI : AK/PSS/897/2011
TARIKH : 02/04/2012

SIJIL PERAKUAN BAHAN 2012/2013
ALAT KELENGKAPAN
FIRE SUPPRESSION SYSTEM

Jabatan ini mengesahkan **ALAT KELENGKAPAN** tersebut di atas berdasarkan Piawaian dan Laporan ujiannya, dan Pihak Arkitek atau Juruteru Profesional bagi projek berkaitan adalah bertanggungjawab menentukan kesahihan **ALAT KELENGKAPAN** dipasang mengikut Laporan Piawaian ujiannya (Rujuk pada **1.5** dan **1.6**)

1.1	Nama & Alamat Pengilang	: **STEEL RECON INDUSTRIES MARKETING SDN BHD NO.8 JALAN SUBANG 7, TAMAN PERINDUSTRIAN SUBANG, 47610 SUBANG JAYA, SELANGOR DE.**
1.2	Nama & Alamat Pengeluar	: ---SDA---
1.3	Jenis Alat Kelengkapan	: **FIRE SUPPRESSION SYSTEM (HFC 227ea)**
1.4	Tempoh Sah Peralatan	: **02/04/2012 HINGGA 01/04/2013**
1.5	No. Laporan ujian/Tarikh	: **VdS GLA 11076 (04/11/2011), VdS GLA 11074 (08/11/2011), VdS GLA 11034 (03/05/2011), VdS GLA 11023 (24/03/2011) & VdS CERT 03110139 (17/05/2011)**
1.6	Piawaian	: **VdS CEA 4010:1997-07, CEA 4010:1997-07, prEN 12094-7:2006, DIN EN 12094-13:2001-06, CEA 4013:2001-05, DIN EN 12094-8:2006-07**
1.7	Jenama / Model	: **SR-200 GASSOUS SUPPRESSION SYSTEM**
1.8	Skim Persijilan Barangan	: -----
1.9	Had Kegunaan	: **DIBENARKAN UNTUK KAWASAN 'NORMALLY OCCUPIED AREA' DENGAN MEMATUHI NFPA 2001:2008 DAN DISAHKAN OLEH KONSULTAN BERTAULIAH SERTA MEMATUHI SYARAT SEPERTI DI LAMPIRAN A3.**

2. Lain-lain nyatakan) : Sila kemukakan Borang **C1/ C2/ C3** (Sila oleh pihak berkenaan) ke Jabatan Bomba dan Penyelamat Negeri dimana projek dijalankan dan Ibu Pejabat Bomba dan Penyelamat, Malaysia apabila selesainya tiap-tiap projek tersebut.

2.1 Syarat-syarat Perakuan Bahan dan Pepasangan Keselamatan Kebakaran ini yang mesti dipatuhi seperti di **Lampiran A1, A2 dan A3.** Spesifikasi **ALAT KELENGKAPAN** (ini adalah seperti dalam Laporan ujian (di para **1.5** di atas)

(DATO' MAHADI BIN MD. ...)
Timbalan Ketua Pengarah (Operasi),
b.p. Ketua Pengarah
Jabatan Bomba Dan Penyelamat Malaysia.

CERTIFIED TO ISO 9001 : 2008
CERT. NO : AR 9027

7 SR200 Bomba Certificate

SIJIL GUNA PAKAI
CERTIFICATE OF PRODUCT ACCEPTANCE

TENAGA NASIONAL BERHAD

Serial No : *D2013-0022*

Manufacturer / Assembler
STEEL RECON INDUSTRIES SDN. BHD.
No. 8, Jalan Subang 7
Taman Perindustrian Subang
47610 Petaling Jaya
Selangor Darul Ehsan

Item/Equipment
FIRE EXTINGUISHING SYSTEM

Make/ Model
SRI / SR-200

Qualification
Based on the assessment by TNBR QATS Sdn. Bhd., the above equipment has complied with the specified requirements of TNB Technical Specification named below and is hereby accepted for use in the TNB system.

TNBD Technical Specification –
KEJ06401:2011, Rev. 2, (Approved date: 22nd July 2011)
Technical Specification for *'Sistem Pemadam Kebakaran'*

This certificate shall be read together with the attachment(s).

IQNet
SIRIM
CERTIFIED TO ISO 9001:2008 CERT NO. : AR 1492

TNBR QATS Sdn. Bhd (979189-M)
No. 1, Larang Ayer Itam
Kawasan Institusi Penyelidikan
43000 Kajang
Selangor Darul Ehsan
Tel : +603-89225000
Fax : +603-89268829
http://www.tnbr.com.my

Dr. Ir. CHEONG KAM HOONG
Executive Director
TNBR QATS Sdn. Bhd.

Certified since : **24th October 2013**
Validity period : **13th November 2013 to 12th November 2016**

Certification is subject to the terms and conditions overleaf

7 TNB Certificate of Product Acceptance

SR-200 System Components

Valve Assembly

B0482 Type DN33

B0481 Type DN49

	B0482 Type DN33	B0481 Type DN49
Material	Brass	Brass
Temperature Range	-10°C to +50°C	-10°C to +50°C
Release Device Connection	M 42 x 1.5	M 42 x 1.5
Pressure Gauge Connection	M 10 x 1	M 10 x 1
Valve Outlet Connection	1⅞" - 12 UNJ	2½" - 12 UNJ
Valve Seat Diameter	33mm	49mm
Approval	VdS	VdS
Approval No.	G312003	G312003
Part No.	SPS-SR-001-33MM	SPS-SR-001-49MM

Check Valve

Valve DN 50

Valve DN 65

		Valve DN50	Valve DN65
Material	Body	Gun Metal	Gun Metal
	Seat	Nylon	Nylon
	Washer	Stainless Steel	Stainless Steel
	Nut	Stainless Steel	Stainless Steel
Max. Working Pressure		34 Bar	34 Bar
Temperature Range		-10°C to +50°C	-10°C to +50°C
Inlet & Outlet Connection		2" BSP	2½" BSP
Approval		VdS	VdS
Approval No.		G311029	G311029
Part No.		SPS-SR-006-50MM	SPS-SR-006-65MM

Electromagnetic Release Device

Material	Body	Brass & Stainless Steel
	Actuating Pin	Stainless Steel
Nominal Voltage		24V DC
Nominal Current		1.2A
Valve Connection		M 42 x 1.5
Approval		VdS
Approval No.		G302023 Type B0442XXXX
Part No.		ING 013

Pressure Gauge with Integrated Pressure Switch

Pressure Gauge

Pressure Gauge with Integrated Pressure Switch

	Pressure Gauge	Pressure Gauge with Intergrated Pressure Switch
Type	Spring Tube Manometer	Limit Signal Switch
Temperature Range	-15°C to +50°C	-10°C to +50°C
Connection to Valve	M 10 x 1	M 10 x 1
Part No. Approval	VdS	VdS
Approval No.	G308005	G309005
Part No.	SPS-SR-009-40MM	SPS-SR-009-50MM

Manual / Pneumatic Release Device

Material	Body	Brass
	Lever	Stainless Steel
	Safety Pin	Stainless Steel
Min. Actuating Pressure		15 Bar
Max. Working Pressure		250 Bar
Valve Connection		M 42 x 1.5
Pneumatic Connection		1/8" BSP
Approval		VdS
Approval No.		G302023 Type B04420065
Part No.		ING 012

Pneumatic Release Device

Material	Brass
Min. Actuating Pressure	15 Bar
Max. Working Pressure	250 Bar
Valve Connection	M 42 x 1.5
Pneumatic Connection	1/8" BSP
Approval	VdS
Approval No.	G302023 Type B04420066
Part No.	ING 019

SR-200 System Components

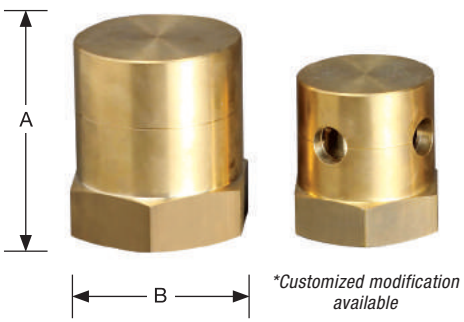
Pilot Line Hose

Material	Synthetic Rubber Hose with 2 High Tensile Steel Wire Braids Reinforcement
Max. Working Pressure	350 Bar
Temperature Range	-15°C to +50°C
Hose Connections	⅛" BSP
Fitting Conections	⅛" BSP
Approval	VdS
Approval No.	G304027
Part No.	SPS-SR-008-560MM SPS-SR-008-760MM

Discharge Hose

		Type DN38	Type DN50
Material		Synthetic Rubber Hose with 2 High Tensile Steel Wire Braids Reinforcement	Synthetic Rubber Hose with 2 High Tensile Steel Wire Braids Reinforcement
Max. Working Pressure		40 Bar	40 Bar
Temperature Range		-10°C to +50°C	-10°C to +50°C
Hose Connections	A	1⅞" - 12 UNJ	2½" - 12 UNJ
	B	2" BSP	2½" BSP
	C (Overall Length)	790mm	1220mm
Approval		VdS	VdS
Approval No.		G311019	G311015
Part No.		SPS-SR-010-38MM	SPS-SR-010-50MM SPS-SR-011-50MM

Discharge Nozzle



Customized modification available

Material	Brass
Approval	VdS
Approval No.	G311027

	Part No.	Sizes	Dim. A (mm)	Dim. B (mm)
Available Nozzle Sizes	SPS-SR-007-15MM	½''	49	31.75
	SPS-SR-007-20MM	¾''	54	38.10
	SPS-SR-007-25MM	1"	60	44.45
	SPS-SR-007-32MM	1¼''	70	57.15
	SPS-SR-007-40MM	1½''	74	63.50
	SPS-SR-007-50MM	2"	79	76.20

SR-200 Detection System Components

Gas Extinguishing Panel

Gas Extinguishing Panel
Type 1

Gas Extinguishing Panel
Type 2

	Type 1	Type 2
Main Supply Voltage	230V AC, 50/60Hz	230V AC, 50/60Hz
Internal Power Supply	24V DC NOMINAL	24V DC NOMINAL
Output Current	3A @ 230V AC (MAX)	Master - 120mA Per Trigger Zone - 70mA Output Devices - 100mA Flashing Light (LED) - 75mA Bell - 30mA
Battery Requirement	2 x 12V DC 7AH	2 x 12V DC 7AH
Battery Charge Current	0.7A	Trickle - 300mA Boost - 2.5A
Sounder Output Rating	21-28V DC, Fused@200mA Per CIRCUIT	-
No. of Auxilary Outputs	6 (Fire, Local Fire, Fan, 1st Stage, 2nd Stage, Fault)	6 (Fire, Local Fire, Fan, 1st Stage, 2nd Stage, Fault)
Relay Contact Rating	30V DC, 1A MAX	24V DC, 1A MAX
Maximum Detectors Per Zone	20 NOS	20 NOS
Extinguishant Release Output	21-28V DC, Rated at 1A for 5mins	90mA
No. of Monitored Inputs and Type	6 (Manual Release, Flow Switch, Low Pressure, Made, Hold, Abort)	2 (Manual Release, Abort)
Dimensions	439mm x 276mm x 70mm	428mm x 394mm x 178mm
Standard	EN 12094-1:2003 EN 54-2:1997 + A1:2006 + A2:2007 EN 54-4:1997 + A1:2002 + A2:2006	BS 5839-4:1988 EN 54-2:1997
	LPCB & Bomba	SIRIM & Bomba
Approval	176C	2005EL 0411, JPBM: BKK/005/19/28/32 Jilid1
Approval No.	FAS-EP203	FAS001-NO-002-RD
Part No.		

Discharge Indicator

Operating Voltage	24V DC / 75mA per light on
Dimension	190mm x 90mm x 110mm
Part No.	FAS-251

6" Alarm Bell

Operating Voltage	24V DC
Alarm Current	0.02A
Decibel 10ft	92db
Part No.	FAS-194

SR-200 Detection System Components

Optical Smoke Detector (EN-54)

Voltage DC	12-35V
Standby Current (Max) µA	35µA
Alarm Current (Max)	70mA
Surge Current	40µA
Start Up Time (Max)	60sec
Permissable Current (Max)	80mA
Emitting Duty	3-5sec
Temperature Range	-10°C to +50°C
Humidity	0 to 95% RH, NON CONDENSING
Materials of Body	ABS
Colour of Body	White
Approval	LPCB & Bomba
Approval No.	512a
Part No.	FAS-EA-318-2

Rate of Rise Heat Detector (EN-54)

Heat Sensor Setting	135°F (57°C) / >20°F (6.7°C) / Min
Voltage DC	10-35V
Start-Up Current (µA)	170µA
Standby Current (µA)	42µA
Alarm Current (Max)	60mA @ 24V
Max Rms. Ripple	25% of DC INPUT
Rate of Rise	>20°F (6.7°C) / Min
Temperature Range	0°C to +50°C
Materials of Body	ABS
Colour of Body	White
Approval	LPCB & Bomba
Approval No.	512d
Part No.	FAS-EA-323-2

Sounder

Operating Voltage	24V DC
Sounder Output	106dB (A) at 1mtr
Min current consumption	20mA
Part No.	FAS-4A-CS100 FAS-4A-Y04-24VDC

Battery - Sealed Lead Acid

Normal Voltage	12V
Capacity	7AH Min at 20 hours Discharging Time
Dimension (mm)	15 (L) x 60 (W) x 90 (H)
Weight	Max. 2.4kg
Approval	UL Approved
Part No.	FAS198-12V-7AH

Abort Switch

Operating Voltage	2 Amps @ 28V DC
Part No.	FAS-258

Door Warning Sign

Material	Aluminium Plate
Part No.	MISC-SPD-DIV

Evacuate Sign

Current Rating	220mA
Dimension (mm)	260 (W) x 105 (H) x 60 (D)
Indication	Red
Enclosure	Mild steel with wrinkle black
Part No.	FASKSB -15

Gas Release Key-Switch

Dimension (mm)	100 (W) x 100 (H) x 90 (D)
Part No.	FAS260-LA-28V-RD FAS260-PS-28V-RD

Room Intergrity Test

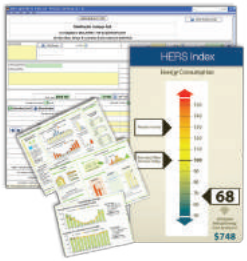
NFPA 2001 requires an enclosure Integrity test to check for air leaks and holding times as part of the system acceptance procedure. This test can be carried out using a calibrated blower door fan test unit by certified tester.

Blower Door Systems

Calibrated Fans

Digital Manometers

Accessories



Software

Award - Winning Global Supplier

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- Asia Pacific Super Excellent Brand
- Star Outstanding Business Awards
  - Platinum Award Global Market
  - Silver Award Best Use of Media
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