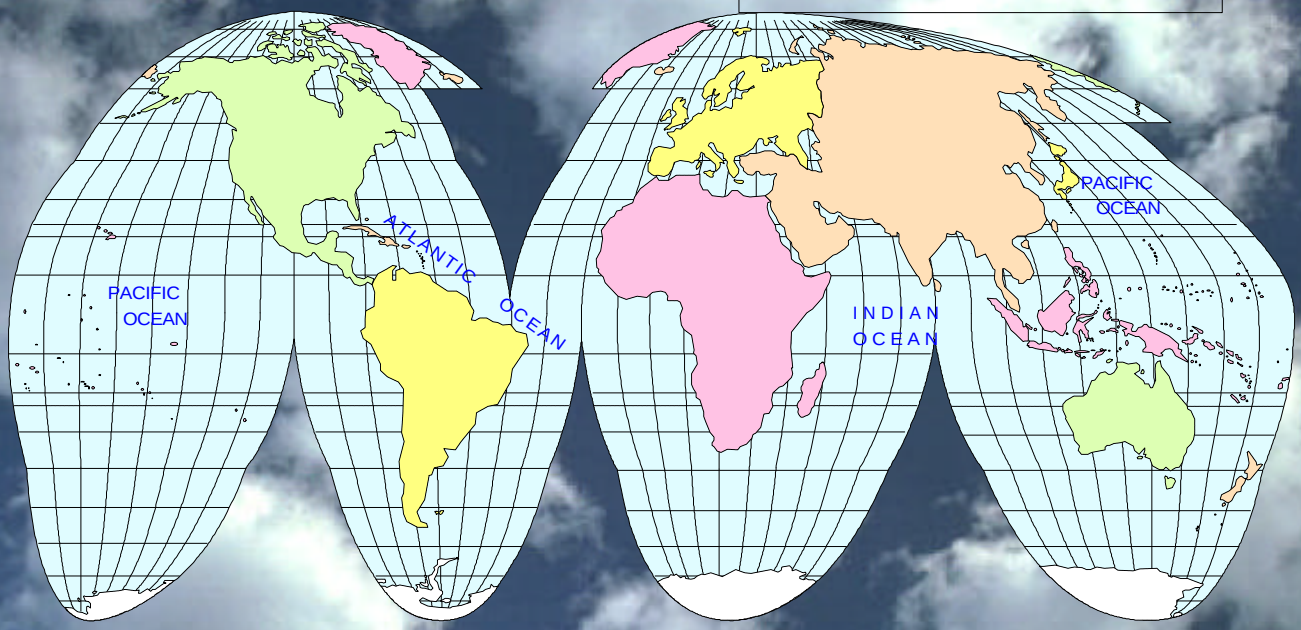
INERGEN

System manual
200 - 300 bar

ver 2006



FIRE EATER A/S

Indeks

1. General information

List of components
Material Safety Datasheet
Safety requirements working with High Pressure

List of components

All components are given by FE part number and name

Cylinders

200624	Cylinder 80-300 M25 EU (24m3)
200515	Cylinder 50-300 M25 EU (15 m^3)
200709	Cylinder 30-300 M25 EU (9 m^3)
200104	Cylinder 50-200 W25 EU (10 m^3)
200106	Cylinder 20-200 W25 EU (4 m^3)
200108	Cylinder 10-200 W25 EU (2 m^3)
200110	Cylinder 5-200 W25 EU (1 m^3)
400011	Cylinder 2-200 W25 EU (0.4 m^3)

Valves

603207	Hand Wheel valve W24 -200 bar 25E
603210	Hand Wheel valve W24 -200 bar 20E
603307	Hand Wheel valve W24 -200/300 bar 25E
603308	Hand wheel valve M25 -300 bar 25E
603312	Hand wheel valve M25 -300/400 bar 25E
304093	IV7-300 M25 Manosw conn.
304092	IV7-300 M25 sp 225 Manosw conn.
304090	IV7-300 M25 Basic master
303083	IV7-200 Manosw conn.
303078	IV7-150 Manosw conn.
303080	IV7-200 Basic master
305302	Non return valve
304042	DV7a-2 M25 (300 bar)
304043	DV7a-3 M25 (300 bar)

Selector valve

305150	SV22 selector valve
305160	SV22 Zone kit
305164	SV22 End plug kit
30517#	SV22 MT# kit (# = 2-8 connections)
305194	SV22 Startkit Tube Single IV7-300
305195	SV22 Startkit Tube Dual IV7-300
305196	SV22 next kit Tube
305199	SV22 Startkit PDS-80
305190	SV22 Switch kit
305188	Tool: SV22 switch kit installation
305320	Bleed fitting 400bar SV22

FIRE EATER ½

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DK- 3400 Hillerød
Tel +45 7022 2769
Fax +45 7023 2769

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Brackets

400109	Bracket 80l cylinder
400110	Bracket 50l cylinder
40020#	Cylinder rail 50l cylinder
40030#	Cylinder rail 80l cylinder
8584226	Pipe brakcte Dn 15 (1/2”)
8584232	Pipe bracket Dn 20 (3/4”)
8584239	Pipe bracket Dn 25 (1”)
8584247	Pipe bracket Dn 32 (1 1/4”)
8584254	Pipe bracket Dn 40 (1 172”)
8584261	Pipe bracket Dn 50 (2”)

Activation Pilot

212131	EA-M, metron activator unit
302424	EA-C, Comet gas pressure generator
404014	EA-C IP67 adapter for Comet
303123	IV7 dual comet adaptor
302071	NPP, Pneumatic activator
302400	MPH
302420	MPW Wire activator
302489	MPW cabinet Single
302476	MPW cabinet dual
302461	MPW cabinet Stainless (AISI304)
302459	Wire complete
302444	Handle for wire complete
302460	PDS-21 system std
302463	PDS-21 system solenoid
302464	PDS-21 system ATEX Bürkert Eex
302465	PDS-21 system ATEX Lucifer Eex
302488	PDS-21 Cabinet Manuel
302560	PDS-80 System Manuel
302561	PDS-80 System Solenoide
302560	PDS-80 Cabinet Manuel
302561	PDS-80 Cabinet Solenoide
303115	IV7 PDS startkit

Activation Slave

303120	IV7-50l PA start kit
303121	IV7-50l PA next kit short
303122	IV7-50l PA next kit long
303190	IV7-80l PA start kit
303191	IV7-80l PA next kit short
303192	IV7-80l PA next kit long

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Hoses

303102	Hose 3/8”-300, 0.5m INERGEN
303104	Hose 3/8”-300, 1.0m INERGEN
303106	Hose 3/8”-300, 1.5m INERGEN
303108	Hose 3/8”-300, 2.0m INERGEN
303109	Hose 3/8”-300, 2.5m INERGEN
303111	Hose 3/8”-300, 3.0m INERGEN
303113	Hose 3/8”-300, 4.0m INERGEN
303155	Hose 1/4"-300, 0.35m PA-DV7
303162	Hose 1/4"-300, 0.18m PA
303166	Hose 1/4"-300, 0.22m PA
303172	Hose 1/4"-300, 0.28m PA
205064	Hose 1/4"-300, 0.40m PA
303180	Hose 1/4"-300, 0.50m PA
205063	Hose 1/4"-300, 1.00m PA
303182	Hose 1/4"-300, 1.00m SV22
303183	Hose 1/4"-300, 3.00m SV22
303184	Hose 1/4"-300, 0.40m SV22

Manifolds

303140	Orifice IV7 manifold
30314#	MT# IV7 manifold (# = 2-8 connections)

Pipe system

24480##	Pipes DN15-DN50
700904##	Elbows DN15-DN50
701304##	Tee’s DN15- DN50
70130###	Reducing Tee’s
702414##	Reducers
702704##	Sockets
703414##	Unions

Nozzles

205148	Nozzle Cover 3/8”
205149	Nozzle Cover 1/2"
210016	Nozzle 3/4" Round
210017	Nozzle 5/4” Round
210020	Nozzle 1” Round
210021	Nozzle 1/2" Round
210034	Nozzle 1” Stainless steel
210114	Nozzle 3/8” Hex
210115	Nozzle 1/2" Hex
210062	Nozzle 1/2" NPT Brass
210063	Nozzle 3/4" NPT Brass
210065	Nozzle 1" NPT Brass

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Control panels

54000#	Sigma XT (# indicate language (3 = UK))
540200	Detector base
540210	Detector Optical
540220	Detector Heat
540230	Detector Multi Criteria
407320	Alarm call point EN54 Pictogram
407321	Alarm call point IP67 EN54 Pictogram
407330	Discharge call point EN54 Pictogram
407331	Discharge call point IP67 EN54 Pictogram
540150	Hold off switch
406032	Fire Bell 6” 24VDC
406033	Fire Bell 6” 24VDC IP55
406039	Sounder w. flash IP65 18-30VDC
406039	Sounder 12-24 VDC
407022	Flash Red 5W 24VDC IP67
406051	Sounder w flash XT-Siren
406053	Sounder w flash XT-Bell
540331	Isolation module ATEX

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Use of INERGEN fire extinguishing system

Genreal

INERGEN is to be used as a fire extinguishing agent for fires of class AB and C

This is as defined in ISO 14520 and in the EN12094 series of standard

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General

It should be noted that the approvals and type approvals issued for INERGEN and the Fire Eater INERGEN hardware and systems design, are always general approvals, and they do in no way take the place of a project approval that has to be granted for each specific project.

Special attention shall be given to the enclosure measurements, the proposed place for cylinder storage, the supervision and redundancy of discharge arrangements, and nozzle and pipework layout. Special national regulations and interpretations of SOLAS may apply, which are not directly mentioned in the letter of acceptance or the type approval certificate.

It is always the responsibility of the installer or systems supplier, to have the proposed project reviewed by the Authority (the flag state of the ship and/or the Class), and approved prior to the system installation.

We wish to draw the attention of the Authority and Class to the following:

SOLAS, Regulation 5: "*1.1 The use of a fire-extinguishing medium which, in the opinion of the Administration, either by itself or under expected conditions of use gives off toxic gases in such quantities as to endanger persons shall not be permitted.*"

Comment: If this corner-stone of the SOLAS rules was to be taken seriously, only inert gases and water based systems should be permitted. Halon 1301, all HCFC's, all HFC's, all PFC's, and CO_2-systems should not be permitted.

FIRE EATER ½

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Safety data sheet

According to EU directive 2001/58/EC

File: Sikkerhedsoplysninger INERGEN -uk.doc
version: 06-16-03

FIRE EATER A/S

01	Identification Use Company	**INERGEN, IG541** Fire extinguishing in enclosures. Fire Eater A/S, Vølundsvej 17, 3400 Hillerød Tel: +45 7022 2769
02	Composition	Gas mixture consisting of: 52%N_2, 40% Ar, 8% CO_2 Nitrogen: CAS RN 77727-37-9 ACX No: X1003258-9 Argon: CAS RN 7440-37-1 ACX No: X1002784-0 CO_2: CAS RN 37210-16-5 ACX No: X1056802-4
03	Hazards identification	None of the components are on the environment ministry's list. Asphyxiation if concentrated gas is inhaled. Freezing may occur if containers are discharged quickly.
04	First aid measures	Ensure fresh air. If no breathing apply artificial respiration. If necessary deploy oxygen treatment.
05	Fire-fighting measures	The gas mixture is NOT flammable and do NOT support combustion. The gas does not produce toxic decomposition products. Containers must be removed from fire. If containers have been exposed to increased heat they must be cooled and depressurized.
06	Accidental release measures	If released in enclosures these must be ventilated. No environmental actions are required as all components are part of the atmosphere.
07	Handling and storage	There must be access to fresh air. Directions for handling of pressurised vessels must be followed. Pressure vessels must be approved by authorities.
08	Exposure control	Carbondioxid: 5000ppm ≈ 9000 mg/m^3. If poor ventilation fresh air mask must be used.

09	Physical and chemical properties	Non liquefied inert colourless odourless gas mixture.
10	Stability and reactivity	Stable mixture of inert gasses.
11	Toxicological information	Inhaling concentrated gasses may cause asphyxiation. Long-term exposure to gas may cause headache, drowsiness, indisposition, asphyxia and breathing difficulties. No known post exposure long-term effects.
12	Ecological information	The gas mixture is a natural part of the atmosphere.
13	Disposal	Contents of containers are released in open atmosphere.
14	Transport	Transport of pressurised cylinders. Cylinders UN1956, Compressed gas, n.o.s (Nitrogen), 2 Transport / Class / Notes / Label / Limitations: ADR/RID 2 1 (a) 2 None IMDG 2,2 EmS:2-04 2 None Safety card for road transport must be available with more than 1000 kg.
15	Regulatory	None.
16	Other information	None.

Fire Eater ISO 9001

Dok.nr:	INMON001	**Håndtering af trykflasker og udstyr tilsluttet - Handling of cylinders and attached equipment**
Rev.nr:	0	

FORMÅL
At sikre korrekt håndtering af trykpåsatte flasker.
1 PURPOSE:
To ensure correct handling of pressurized cylinders

OMFANG
Alle medarbejdere der håndterer trykpåsatte flasker med INERGEN som anvendes i Fire Eaters systemer.
Kunder som er anlægsinstallatører skal orienteres om instruktionerne i nærværende dokument, og der skal inden salg til den pågældende kunde forefindes en positiv tilbagemelding om at han som et minimum overholder disse retningslinier.
2 SCOPE:
All staff involved in the handling of pressurized INERGEN cylinders used in Fire Eater systems.
Contractors using Fire Eater components in their INERGEN systems contracting activities, must be informed about this instruction, and a commitment from the customer to the fulfilment of the enclosed requirements shall be available prior to any sales.

HENVISNINGER

Links:	INPERS0020: Registrering af kvalifikationer

DEFINITIONER

- Anlægsinstallatør: kunde der er oprettet med rabat på prisliste i C5, eller kunde der på baggrund af tilbud køber INERGEN anlægskomponenter hos Fire Eater med henblik på anvendelse i systemer som denne sælger til tredjemand.
- Flaskehætte: Åben eller lukket beskyttelsesanordning som påskrues eller fastmonteres på flasken for at beskytte flaskens ventil.
- Udløseventil: Ventil der påskrues flaskeventilen med typebetegnelse IV* (f.x. IV4, IV7 osv.)
- C5: Fire Eaters økonomisystem hvor kunder, varelager, osv. er registreret. Hvis Fire Eaters økonomisystem udskiftes til andet end Navision C5, skal C5 blot betyde: det økonomisystem Fire Eater anvender.

4 DEFINITIONS:

- Contractor: Fire Eaters customer registered in C5 with a discount on the component pricelist, or any customer who purchases INERGEN system components based on a quote, for the intended use in a system installed and/or delivered by the customer to a 3rd party.
- Valve cap: Open or closed device attached to or permanently installed on the cylinder to protect the cylinder valve.
- Discharge valve: Valve that is attached to the cylinder valve with the type name IV* (e.g. IV4, IV7 etc.)
- C5: Fire Eaters administrative business software. If at any time it is changed from the existing Navision C5, it shall just mean whatever business system Fire Eater is utilizing at that time.

gyldighedsdato skal anlægsinstallatørens konto lukkes og salg må ikke ske til denne før forholdet er bragt i orden.

Det påhviler overmontør og sikkerhedsrepræsentanten at sikre og indskærpe at alle medarbejdere i Fire Eater er bekendt med nærværende dokument. Dette skal ske under introduktionsugen ved ansættelse af nye medarbejdere, og senest 2 måneder efter gyldighedsdagen for nærværende dokument skal eksisterende medarbejdere have påtegnet dokumentet.

De ovenstående retningslinier er krav der skal overholdes af medarbejdere ansat i Fire Eater. Yderligere krav eller forskrifter kan stilles af myndigheder eller kan være gældende.

5 EXECUTION:
No employee in Fire Eater may engage in work involving handling of pressurized cylinders or attachment of equipment hereto, unless the following registration of qualifications has been made:

Pt. 1-5 mentioned below: "Warehouse work"" or "Installation INERGEN".
Pt. 6-11 mentioned below: "Installation INERGEN".
Pt. 12 mentioned below: "Installation INERGEN" and "Booster"

It is the responsibility of any employee, initiating work involving - and handling of - pressurized equipment, and the obligation of any employee engaging into work involving - and handling of - pressurized equipment, that the required registration(s) of qualification(s) has been made. Employees shall also engage actively in the observance of the instructions pt. 1-12 below.

1. Pressurized cylinders may not be transported, handled or left unfastened without valve protection cap firmly attached.
2. Pressurized cylinders with valve protection cap may oly be left unfastened for a shorter period in relation to what is practically necessary in the process of transportation and handling. At all other times they shall be kept in cylinder cages, or fastened with a safety chain or another device preventing them tipping over.
3. In case of emptying, drawing off, or any other process involving opening of a cylinder valve which is not safely attached to a manifold and pipework, the cylinder must unconditionally be fastened in a cylinder cage or a fastening device at leat equivalent of a cylinder bracket. If hose(s) exceeding a length of 1 m is used in the process it must be safely fastened in both ends, and safeguarded with a hose safety wire. Only registered hoses with a correct maintenance status may be used ( ).
4. Cylinders may not be lifted or hoisted by using the valve protection cap (applies to both open and closed type).
5. During occasional transportaion by car/van (where cylinder cage cannot be used), the cylinders shall be laid down with the cylinder base (pointing forward) against a strong/solid separation or bar, and shall be safely lashed against the car bottom. Cylinders stored in the car/van, for e.g. testing, shall be fastened using a device equivalent to a cylinder bracket, and shall have the valve protection cap attached.
6. During installation of cylinders the valve protection cap may only be removed when a cylinderbracked is attached loosely with the bolt and nut in mesh, or otherwise safeguarded against tipping over. After the correct orientation of the cylinder, for the attachment of the discharge valve, the bracket(s) shall be tightened.
7. Prior to the opening of any valve, hose(s) shall be attached and firmly fastened at the discharge valve(s) and the manifold(s) connected to the same pipework.
8. If a cylinder is being removed from a system, all cylinder valves shallbe closed before any hose (attached to the same pipework) is loosened. If the system shall be commisioned with missing cylinder(s), the manifold shall have blind plug(s) safely fastened in the place of the missing cylinder(s), prior to the opening of any cylinder valve, or shall be equipped with non retur valves
9. Prior to the loosening or removal of cylinder bracket(s) the discharge valve shall be removed and the valve protection cap shall be attached.
10. If the cylinders are installed in a FlexiRack, the cylinder valves must be closed, and the cylinders shall be equipped with valve protection caps of the open type, and the IV20 discharge valve shall be secured with a valve outlet safety plug. If the cylinders are not equipped with valve protection caps of the open type, the FlexiRack parts must be dismantled and valve protection caps shall be attached. During the assembly of FlexiRack without open valve cap, the valve cap may not be

removed unless the cylinder is secured by FlexiRack beams, and it shall be safeguarded that the cylinder cannot move in the direction of the cylinder bottom. The latter sentence also applies to other cylinder installations where the cylinder is not standing on a firm surface (e.g. horizonthal installation).

11. Cylinders that are not installed in a system, but are used for e.g. pressure testing at the installation site, shall be securely fastened prior to the removal of the valve protection cap. If hoses are used the relevant part of pt. 3 above applies.
12. During the use of the booster unit, all hoses must be safely attached at both ends, and at all couplings, and shall be additionally secured by the hose safety wire along the full length of the hose(s). Cylinders being boosted to and from, shall be placed in a cylinder cage or fastened in their brackets.

The Project chief scandinavia shall, within his geographical area of responsibility, and the Sales Manager Export shall, within his geographical area of responsibility, ensure that all contractors has received this instruction (INMONT001), in 2 copies whereof 1 copy has been returned to Fire Eater duly signed as a commitment that the contractor accepts to at any time to carefully follow the instructions pt. 1-12 above. If a signed copy has not been received from a contractor (already registered in C5) at the latest 6 months after INMON001 enters into force, the contractors account shall be closed and no sales or supplies of components intended for pressurization may take place. The account shall remain closed untill correction has been made.

It is the duty of the Chief Technician and the Safety at Work Representative, to ensure that all employees of Fire Eater know the presence, contents and implications of this document. This shall be included in the introduction program for new employees, and at the latest 2 months after this document enters into force for existing employees.

The above guidelines shall be respected by all employees. Additional requirements and guidelines issued by authorities may be present.

DOKUMENTATION

Kopier af nærværende dokument påtegnet af anlægsinstallatører indsættes i separat mappe ved Salgschef eksport skrivebord. Opbevares i al den tid hvor kunden er registreret i C5, hvorefter den kan fjernes.

Overmontøren eller sikkerhedsrepræsentanten afleverer til administrationschefen kopier af nærværende dokument med påskrift af Fire Eater medarbejdere som dokumentation for at de er gjort bekendt med nærværende dokument. Administrationschefen indsætter kopierne i personalemappens afsnit for den pågældende medarbejder.

6 DOCUMENTATION:

Copies of the present document signed with "accepted, date and signature" of the contractor is inserted in a dedicated loose leaf binder near the desk of Sales Manager Export. It is stored in this location during the time the contractor is registered with an open account in C5, whereafter it may be removed.

The chief technician or the "safety at work liasion" passes on to the Chief of Administration, the copies of this document signed by each employee as documentation that they are all aware of the present document. The chief of administration is filing the copies in the employees files.

Læst og anerkendt (read and accepted)

Dato (date):

_____

firma/navn Company/name

LOGISTIK

Dokumenttype:	Instruktion	**ISO 9001:**	6.2.2 Kompetence-bevidsthed-uddannelse/ træning 6.4 Arbejdsforhold 7.0 Produktfrembringelse 7.1 Planlægning af produktfrembringelse 7.2 Kunderelaterede processer 7.2.1 Fastsættelse af krav knyttet til produktet 7.2.2 Gennemgang af krav knyttet til produktet 7.2.3 Kommunikation med kunden 7.5 Produktion og servicetilvejebringelse
Ansvar:	Salg og Projektchef Eksportchef		
Review-Ansvar:	Bjarne Rasmussen/BR/FireEater		
Review-måned:	August		
Udsendt til:	Notes net		
Proces:	Produkt Mekanik Salg Projektering Installation Lager		
Procesejer:	Bjarne Rasmussen		

Ændringsmeddelelse:
Nyudgivelse

Godkendt af:	**Dato:**
Bjarne Rasmussen/BR/FireEater	03-09-2002 09:19:05
Claus Hansen/CH/FireEater	29-08-2002 15:14:31
Lars Ravn/LR/FireEater	30-08-2002 08:43:30
Systemgodkendelse:	**Gyldig dato:**
Gitte Overgaard 03-09-2002	03-09-2002

Review udført	Dato	Bemærkninger
Bjarne Rasmussen	28-08-2003	Review udført
Bjarne Rasmussen	16-08-2004	Review udført

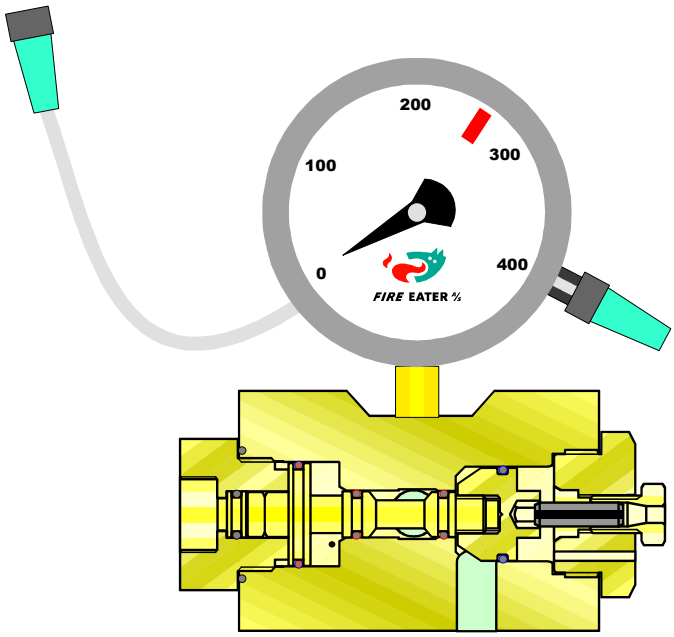
2. Manual & Instructions

Valves & Accessories

FIRE EATER A/S

Technical documentation IV7

Rev: 17-02-2005 /Rev.id: mk b2 / File: 801502 IV7 installation -uk.doc



Contents

1. General

1. 1. Description

The IV7 valve is a 7 mm Inergen® discharge valve, compatible with IV4HP discharge valve accessories.

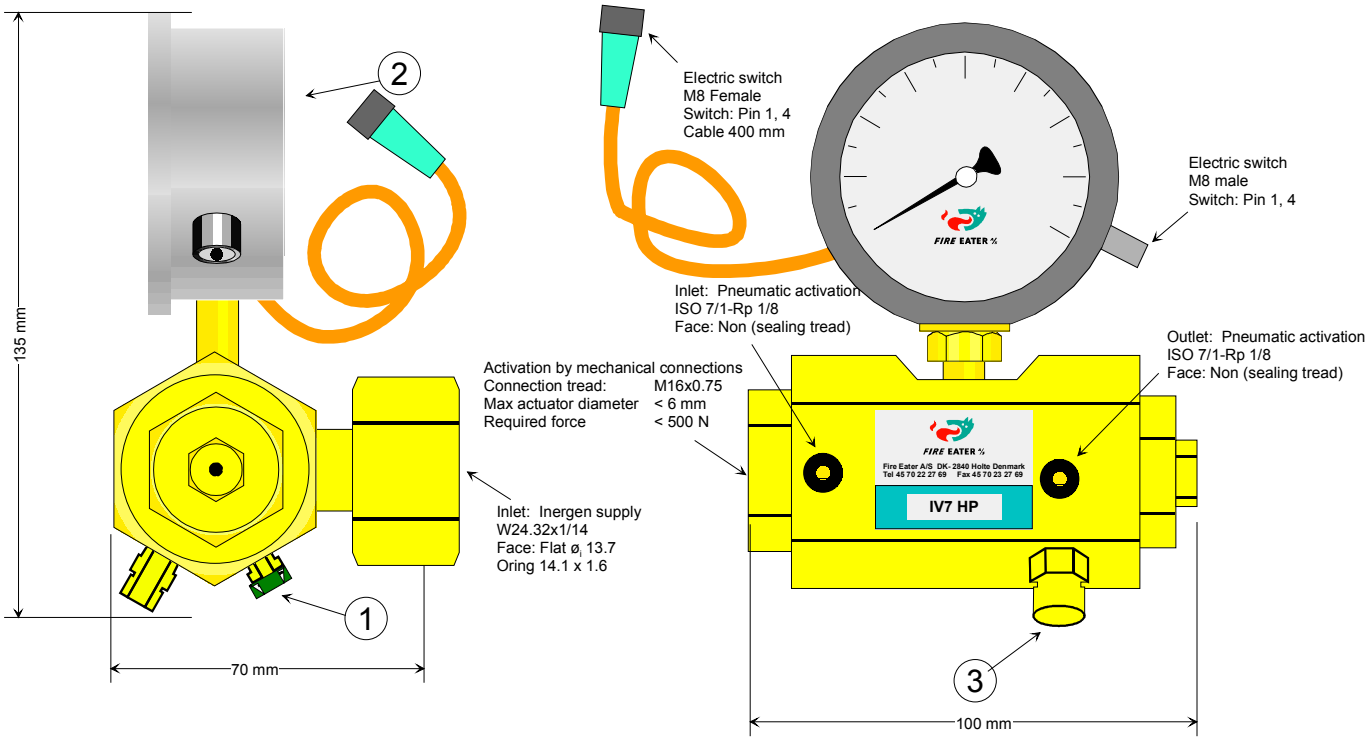
1. 2. Name and FE Item no.

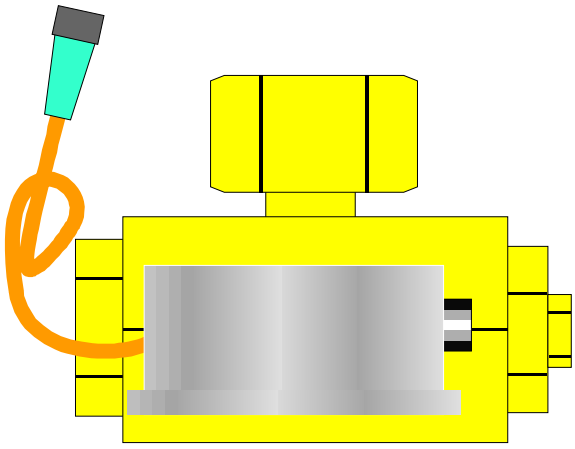
Item number	Name
303078	IV7-150 Manoswitch w. connector
303080	IV7-200 Basic
303083	IV7-200 Manoswitch w. connector
303090	IV7-300 W24 Basic
303093	IV7-300 W24 Manoswitch w. connector
304090	IV7-300 M25 Basic
304093	IV7-300 M25 Manoswitch w. connector

1. 3. Features

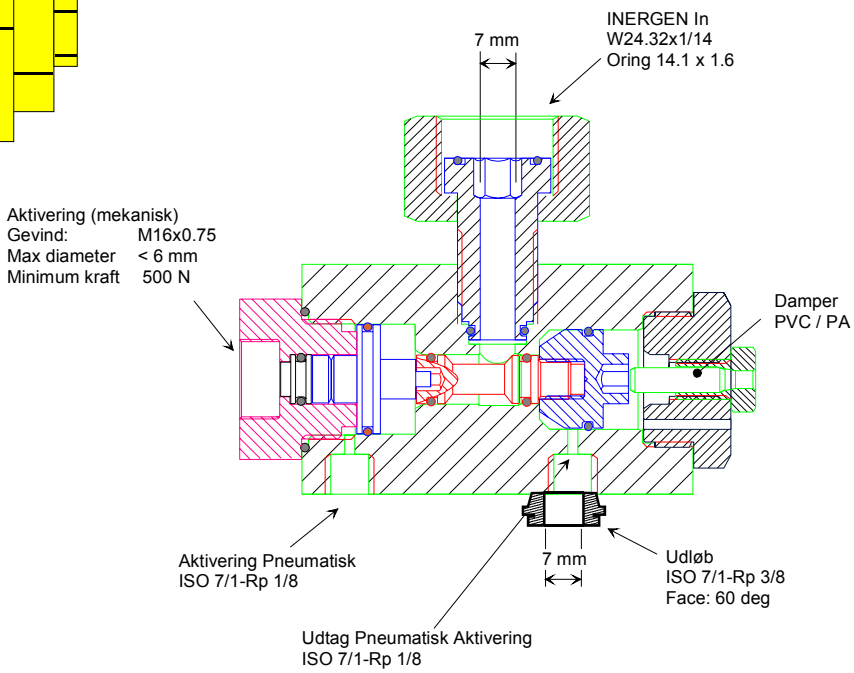
1. The valve is available for different pressures and in two configurations.
2. The main pressure groups are:
    1. 200 bar: Rupture disc burst pressure 300 bar.
    2. 300 bar: Rupture disc burst pressure 390 bar.
3. The two configurations are:
    1. Manoswitch w. connecotr: Pressure gauge with build in switch which may be dasy chained by a M8 industrial electrical connector
    2. Basic: No pressure monitoring device fitted.
4. Discharge hose is fitted with a union at the valve.
5. Activating equipment from the IV4 HP discharge valve is 100% compatible with the IV7 valve.

1. 4. Picture


135 mm
2
1
70 mm
Electric switch
M8 Female
Switch: Pin 1, 4
Cable 400 mm
Electric switch
M8 male
Switch: Pin 1, 4
Inlet: Pneumatic activation
ISO 7/1-Rp 1/8
Face: Non (sealing tread)
Activation by mechanical connections
Connection tread: M16x0.75
Max actuator diameter < 6 mm
Required force < 500 N
Outlet: Pneumatic activation
ISO 7/1-Rp 1/8
Face: Non (sealing tread)
Inlet: Inergen supply
W24.32x1/14
Face: Flat ø 13.7
Oring 14.1 x 1.6
FIRE EATER
Fire Eater A/S DK-2840 Holte Denmark
Tel 45 70 22 27 69 Fax 45 70 23 27 69
IV7 HP
3
100 mm



2.


7 mm
INERGEN In
W24.32x1/14
Oring 14.1 x 1.6
Aktivering (mekanisk)
Gevind: M16x0.75
Max diameter < 6 mm
Minimum kraft 500 N
Damper
PVC / PA
Aktivering Pneumatisk
ISO 7/1-Rp 1/8
7 mm
Udløb
ISO 7/1-Rp 3/8
Face: 60 deg
Udtag Pneumatisk Aktivering
ISO 7/1-Rp 1/8

Accessories

2. 1. Discharge hoses (High pressure)

303102 3/8 300 bar Hose 0,5 m (First 4 cylinders).

303104 3/8 300 bar Hose 1,0 m (5- 8 cylinders).

303106 3/8 300 bar Hose 1,5 m (9- 10 cylinders).

303108 3/8 300 bar Hose 2,0 m (Long distance between cylinders and manifold).

2. 1. a. Extended discharge

302419 Hand wheel valve orifice extended discharge.
This Orifice is used when different discharge times is desired for each cylinder with Inergen®.

2. 1. b. Installation

The orifice is drilled to specified diameter (calculated by use of IMT) and placed in the hand wheel valve outlet port (between the hand wheel valve and the discharge valve).

303131 Manifold Orifice for extended discharge.
This orifice is used when an extended discharge is desired for several cylinders, or if the pressure in pipes shall be reduced, or if the enclosure over-pressure during discharge shall be reduced.

2. 1. c. Installation

The orifice is drilled to specified diameter (calculated by use of IMT). The union in the manifold is unscrewed and the Orifice is placed between the manifold and the union for connecting the pipe system.

2. 2. Activation pneumatic (system redundancy)

303120 Pneumatic activator Start kit
Used when two or more cylinders are connected to the same discharge system.

303121 Pneumatic activator Follow kit
For each valve more than two per discharge system, one follow kit pr valve must be used.

303123 Comet direct adapter No pneumatic Connection
Used for activating the discharge valve with two Comet gas generators. No pneumatic connection is available in this kit.

303122 Comet direct adapter with pneumatic Connection
Used for activating the discharge valve with two Comet gas generators, and with other pneumatic source for multiplied redundancy.

On systems where pneumatic discharge is used as main activation system (ex PDS systems) no pneumatic activator start kit is to be used. only use pneumatic activator follow kit.

2. 3. Other actuation units

212131 Complete Metron actuator unit.
Connects to electrical discharge systems.

302424 Comet actuator
Connects to electrical discharge systems.

302400 M/P-H adapter.
Handle for mechanical manual activation, auxiliary connections for two pneumatic inlets or comets (302424).

302420 M/P-W adapter.
Wire adapter for mechanical manual activation, auxiliary connections for two pneumatic inlets or comets (302424).

302456 PMMD actuator
Mechanical manual activation, auxiliary connections for two pneumatic inlets as well as one metron actuator.

2. 4. Manifold

303141	IV7 MT1	
	Std Orifice:	5,0 mm
	Max Orifice:	6,4 mm
303142	IV7 MT2	
	Std Orifice:	7,0 mm
	Max Orifice:	9,1 mm
303143	IV7 MT3	
	Std Orifice:	8,7 mm
	Max Orifice:	11,1 mm
303144	IV7 MT4	
	Std Orifice:	10,0 mm
	Max Orifice:	12,8 mm
303145	IV7 MT5	
	Std Orifice:	11,0 mm
	Max Orifice:	14,3 mm
303146	IV7 MT6	
	Std Orifice:	12,0 mm
	Max Orifice:	15,6 mm
303147	IV7 MT7	
	Std Orifice:	13,0 mm
	Max Orifice:	16,4 mm
303148	IV7 MT8	
	Std Orifice:	14,0 mm
	Max Orifice:	16,4 mm
303149	IV7 MT9	
	Std Orifice:	15,0 mm
	Max Orifice:	16,4 mm
303150	IV7 MT10	
	Std Orifice:	15,5 mm
	Max Orifice:	16,4 mm

2. 4. a. Pressure reducers (Adapters for pipe systems)

777076 3/4 – 1/2
From high pressure manifold to pipe system.

777074 3/4 - 3/4
From high pressure manifold to pipe system.

207007 3/4 - 1
From high pressure manifold to pipe system.

777069 3/4 - 11/4
From high pressure manifold to pipe system.

777070 3/4 - 11/2
From high pressure manifold to pipe system.

777065 3/4 - 2
From high pressure manifold to pipe system.

2. 5. Service kit

303075 IV7 Service kit
Used to re-establish a discharged IV7 valve.

303040 Burst disc 300 bar (for 200 bar systems)

303045 Burst disc 390 bar (for 300 bar systems)

2. 6. Tool kit

303076 Complete tool kit

303470	1× End cutter (Piston pulling)
303454	1× 4× 60 mm Hex key (Piston A)
303455	1× 5× 60 mm Hex key (Drive piston)
303458	1× 8× 60 mm Hex key wrench (Inlet bolt)
303413	1× 13 mm Wrench (Stop prop insert)
303414	1× 14 mm Wrench (Manometer/burst disc)
303417	1× 17 mm Wrench (Outlet port)
303422	1× 22 mm Wrench (High pressure hose union)
303430	1× 30 mm Wrench (Stop plug)
303432	1× 32 mm Wrench (Cylinder connection/EDA plug)

3. Installation

1. The cover in the IV7 cylinder connection is removed and it is checked that the Oring is in the grove and well lubricated. The IV7 valve is connected to the cylinder hand wheel valve. The union is tightened till the O-ring is in the sealing position at the hand wheel valve, + app. 4° with a wrench.
2. A leak test is made (se Inspection).
3. Wires are connected to the monitoring system at valves with pressure gauge/switch (manoswitch).
4. High pressure discharge hose (3/8) is connected to the manifold and then to the discharge valve (it is recommendable to start from the centre of the manifold).
5. ∗ On the two valves where the electrical/mechanical activation is to be connected (It is recommended to place the activating valves in each end of the manifold/cylinder row) the plug in the pneumatic outlet is removed with a Hex key. An elbow is fitted in these outlets. The elbows include check valves (One way valves) so that **pressure can not enter the discharge valve** in the pneumatic outlet.
6. ∗ In the pneumatic inlet on **each** valve the plug is removed, and Tee's are fitted. On systems with "Direct Comet" activation the Tee and check valve for the gas generator is fitted before the tee for the pneumatic system. The check valve shall be placed so that no pressure from the gas generators may enter the pneumatic pipe system.
7. ∗ High pressure hoses (or pipes) is fitted between the check valve and the Tee on the activation valves. High pressure hoses (or pipes) is fitted between the rest of the valves.
8. Activation units are fitted to the activating valves. Wires are connected.

Paragraphs market ∗ is not carried out on systems where the pneumatic system (with system redundancy) is not used.

All taper treads PTFE tape or fluid sealant must be applied before assembly.

4. Inspection

1. Before installation of the discharge valve it must be verified that the O-ring in the hand wheel valve connection has not been damaged or misplaced.
2. The hand wheel valve is opened, if leakage is detected: Immediately close the valve and repair leakage. Otherwise the valve is left opened for five minutes.
3. All obstructions must be removed from the pipe system
4. The hand wheel valve is closed and is kept closed for 3 hours, when the valve is reopened the pressure gauge indicator shall not move.
5. It is controlled that all check valves in the pneumatic system is in the right direction:
   Pneumatic outlet ⇒ Pressure is only to go from valve to pipe system.
   Pneumatic inlet ⇒ Pressure is only to go from pipe system to valve.
   Pressure from the "Comet" gas generator shall not to enter the pneumatic pipe system.
6. All discharge hoses are to be tightened and checked for leakage indications.

5. Maintenance

5. 1. a. Monthly service

Pressure in the Inergen® storage cylinders are to be checked, and valves, activation system and discharge system is checked for damages.

5. 1. b. Annual service

As monthly +

Bleed holes on the discharge valve (located next to the safety valve) is checked for obstructions.

The activation loops (mechanical/pneumatic) is checked for proper function.

5. 2. Limited lifetime components

5. 2. a. IV7 valve

To be test discharged every tenth year.

5. 2. b. Metron Actuators: 212125

To be replaced every fifth year.

5. 2. c. Comet Actuators: 302424

To be replaced every third year.

5. 2. d. Pressure cylinders (200 & 300 bar)

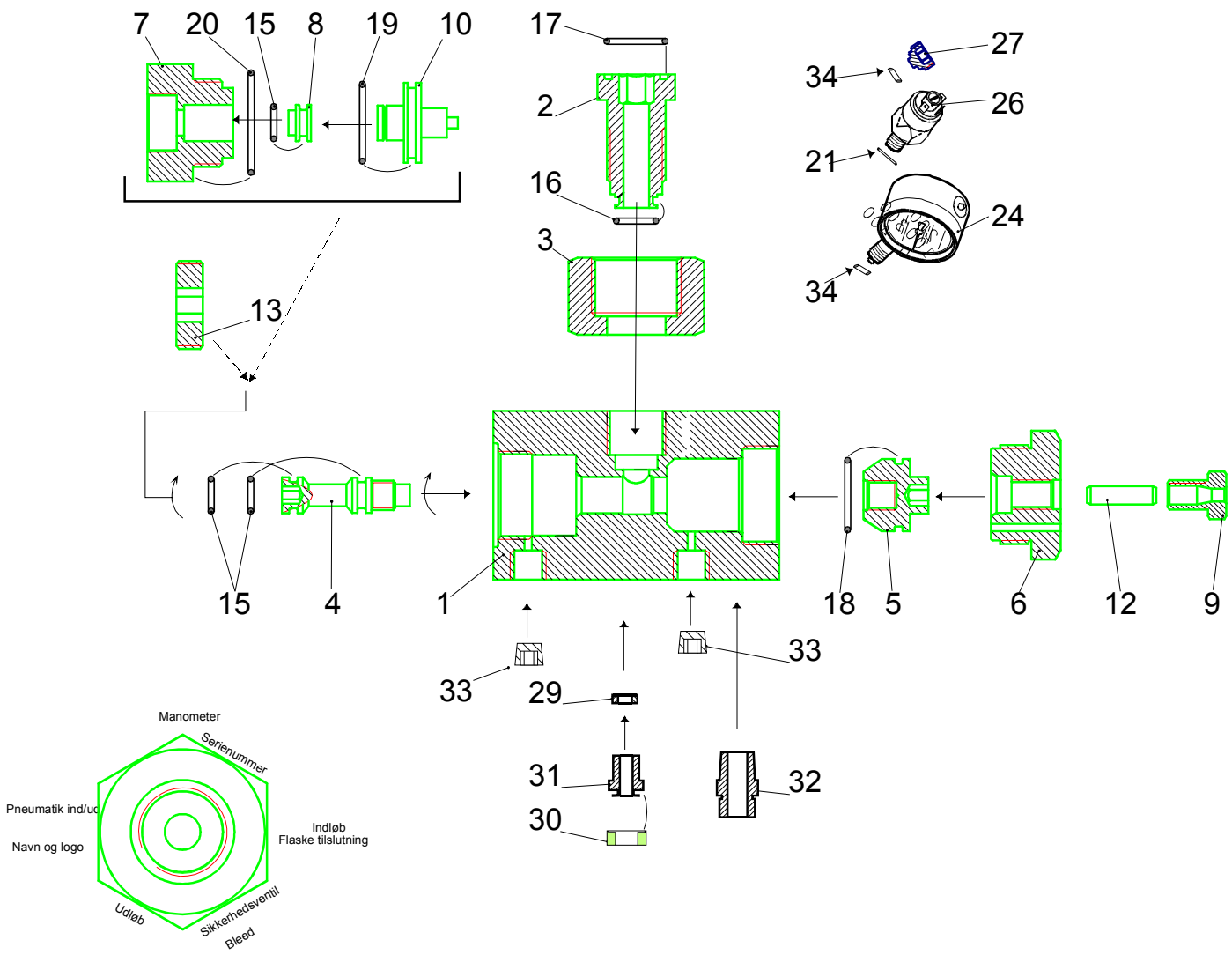
To be pressure tested every 10 year.

6. Re-establishing

All O-rings shall have a thin layer of O-ring lubricant applied prior to installation. O-ring lubricant of the type: OHA-Spezial O-ring-Fett (Item no.: 203008) shall be used.

1. Stop plug insert (303068) is unscrewed with a 13 mm wrench.
2. Damper (303071) is pressed out and discarded.
3. EDA plug (303066) is unscrewed, if an activation unit is fitted this unit must be removed/reset prior to EDA plug removal.
4. EDA piston (303067) is forced back until it rests firm in the EDA plug (303066).
5. Activation piston (303069) is removed by using the end cutter (303470), the O-ring is checked for damages and replaced if necessary.
6. The 5 mm Hex key (303455) is inserted through the stop plug (303065), and the piston is pushed back. The 4 mm Hex key (303454) is inserted from the activator side and the pistons are separated.
7. Piston (303063) is removed with the end cutter (303470). The piston drive (303064) chamber is inspected to be clean.
8. O-rings (302104) on piston (303063) are replaced (both shall be replaced).
9. Slide the piston back in place and screw the pistons together. (Do not apply force).
10. Activator piston (303069) is placed in the EDA plug (303066) and lowered into the valve body. The EDA plug is tightened.
11. It is checked with the 5 mm Hex key (through the stop plug) that the piston is pushed fully up against its rest in the activation side.
12. A new damper (303071) is placed in the Stop plug insert (303068), and the stop plug insert is screwed back in the stop plug.
13. The Inergen® cylinder is replaced.
14. Activation gear is refitted.
15. The Inspection is performed according to chapter “Inspection”.

7. Samlingstegning



1	303060	IV7 Body
2	303061	IV7 Union bolt
3	303062	IV7 Union nut
4	303063	IV7 Piston A
5	303064	IV7 Piston drive
6	303065	IV7 Stop plug
7	303066	IV7 EDA plug
8	303067	IV7 EDA piston
9	303068	IV7 Stop prop insert
10	303069	IV7 Activation piston
11	303070	IV7 PA plug
12	303071	IV7 Damper
13	303072	IV7 Plast plug
15	302104	7.1 x 1.6
16	302094	9.1 X 1.6
17	302107	14.1 x 1.6

18	302108	17.1 x 1.6
19	302223	19.1 x 1.6
20	302413	25.1 x 1.6
21	302222	13.1 x 1.6
24	303014	
	303018	200/300bar manoswitch
26	212206	Pressostat
27	303101	1/4" Blind plug
29	303035-49	Burst disc
30	303051-55	Cover for burst disc bolt
31	303050	Bolt for burst disc
32	303204	3/8" Nipple
33	302083	1/8" Blindplug
34	212181	Cu seal
36	900120	Plastic plug 3/8”

8. Commissioning log

IV7 *commissioning log.*

Customer : .....

Address : .....

Postal code and city .....

Oring between IV4 and cylinder controlled ☐

Valve screwed on cylinder ☐

Pressure hoses screwed on manifold ☐

Pressurize of every valve and hand wheel valve closed ☐

The pressurizesation shall be repeated once after 1 minute.

Leakage test between cylinder and valve ☐

The pressure for every valve shall be read and written in the tabel.

1		***2***		***3***		***4***		***5***		***6***	
7		***8***		***9***		***10***		***11***		***12***	

The pressure for every valve shall be read after 6 hours.
The pressure drop is not allowed to be more than 2-3 bar.

Valve approved for leakage ☐

Hand wheel valve opened and system pressurized ☐

Manoswitchsignal approved and found all right ☐

Sealing of valve and hand wheel valve done ☐

Manoswitch cable connected ☐

Discharge unit connected ☐

Discharge cable connected ☐

System is approved ☐

Date for approval : _____

_____

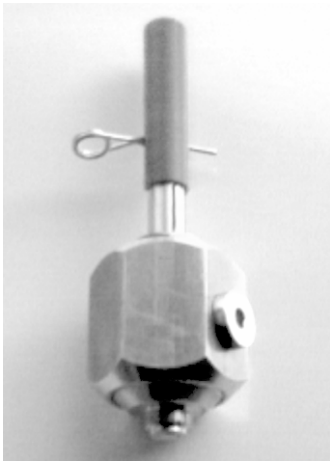
---------- ----------

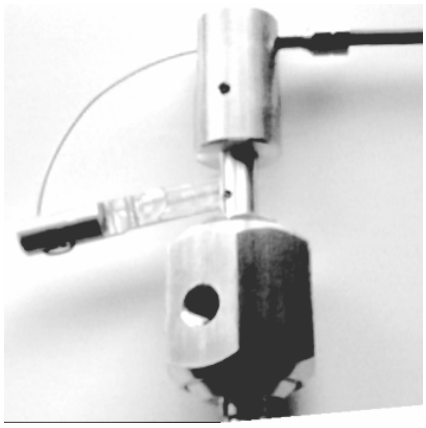
Responsible technician *Other resp. perst.*

FIRE EATER A/S

Technical Documentation
MPH MPW

Rev: 11-09-2006 /Rev.id: MK / File: 803121 TD MPH MPW -uk.doc.doc





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A/S reg. No.: 184.030 • www.fire-eater.dk • e-mail: info@fire-eater.dk

Contents

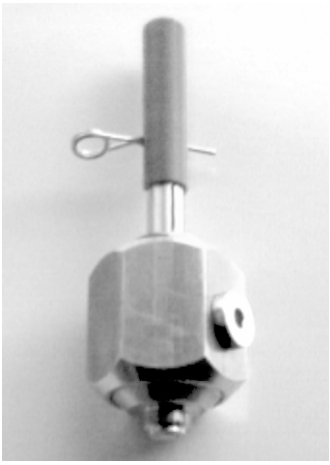
1. Description of the product

1. 1. Name and FE Item no.

Name: M/P-H Pneumatic adapter
Item no: 302400

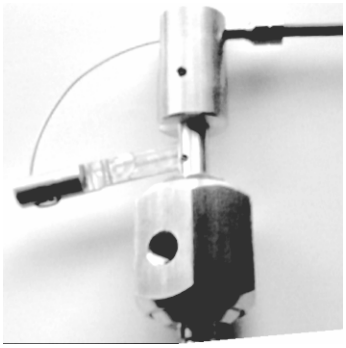
Name: M/P-W Pneumatic adapter
Item no: 302420

1. 2. Picture



M/P-H adapter, item 302400

M/P-W- adapter, *item 302420*



M/P-W- adapter, *item 302420.*

1. 3. Product scope

The MPH and MPW adapter is a activator unit which allows the operator to activate a discharge valve (IV4 or IV7) by use of pneumatic, and by hand (H) or wire (W).

1. 4. General description

The MPH and the MPW adapter is a mechanically and pneumatically operating actuation adapter for the IV4HP valve. The adapter has the following modes of operation:

- mechanically manual by using the handle or wire pull. This function is often used as an emergency utility in addition to a pneumatic or electronic main function.
- Pneumatic by one single source (one PDS unit).
- Pneumatic by a redundant pneumatic system (2 PDS units).
- Pneumatic with pressure from the manifold, and a separate activated discharge valve.
- Electrical by using one or two COMET Gas actuators.
- Combination of manual actuation, one pneumatic source and one DFE COMET actuator

1. 5. Product compatibility

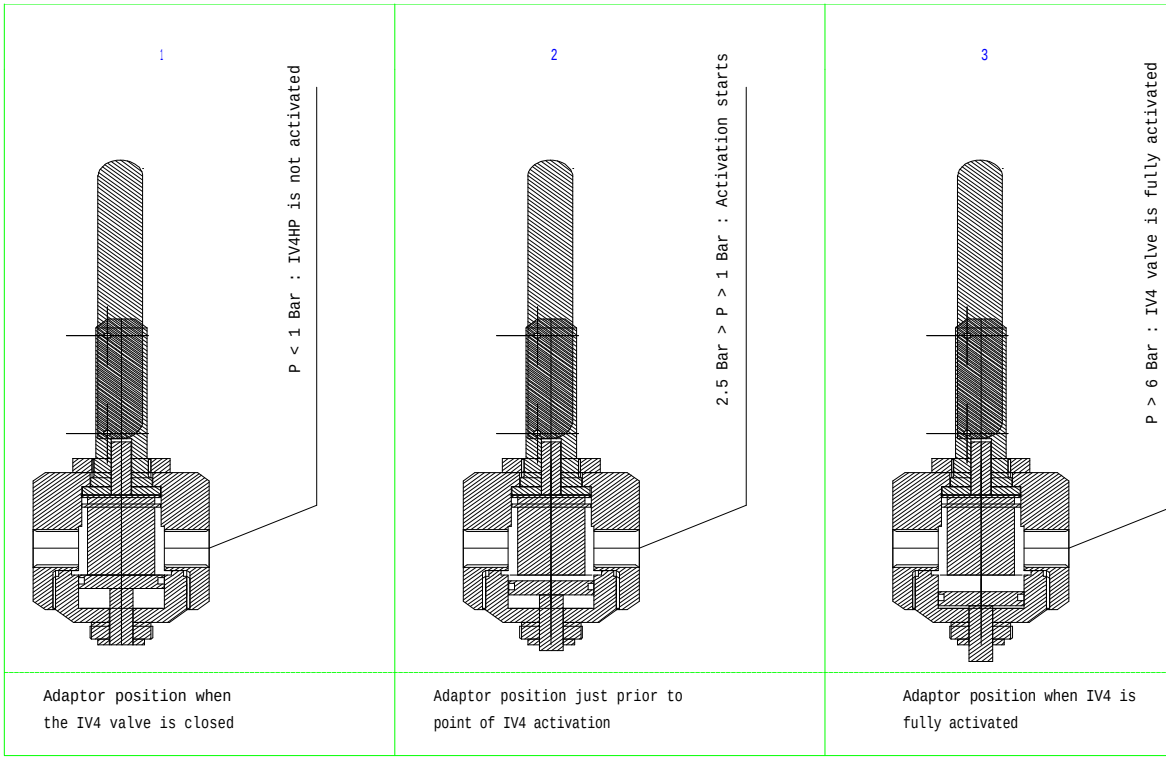
The MPH and MPW adapter is used with the IV4 or the IV7 valve for manual mechanical discharge, and for pneumatic and/or electrical discharge in combination with the mechanical manual option. The pneumatic operating pressure must exceed 6 Bar, and the operating pressure shall be maintained for minimum 5 seconds. The permanent stand by pressure in the piping may not exceed a maximum pressure of 0.5 Bar. If this limit is exceeded, it may cause inadvertent discharge of the valve.

The pneumatic activation pipework must be equipped with a pressure bleed device that will prevent activation pressure to built up in case of small leaks in the pressure source. The pressure bleed device is calibrated to allow for sufficient activation pressure to be present in case of system discharge. For pneumatic pressure source and pressure bleed device refer to the PDS documentation.

The M/P-H adapter is also designed to be electrically activated by a pneumatic source obtained from a gas actuation device. See the data sheets for further information about the EA-C comet actuator.

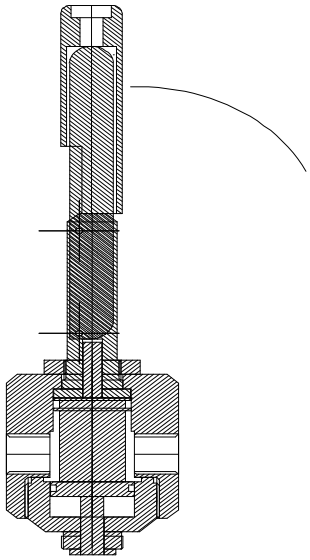
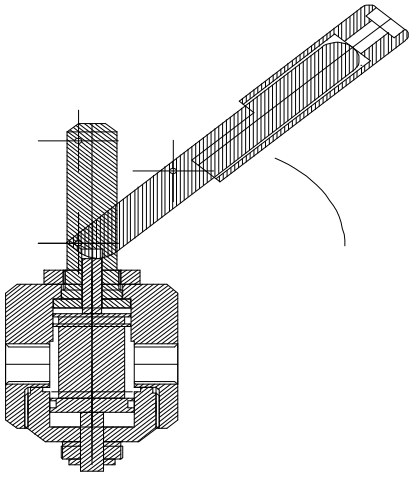
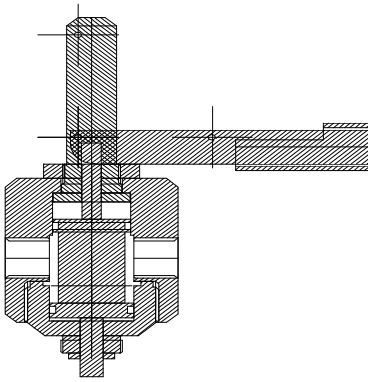
2. Principle of Function

2. 1. MPH Pneumatic activation



Adaptor position when the IV4 valve is closed	Adaptor position just prior to point of IV4 activation	Adaptor position when IV4 is fully activated

2. 2. MPH Mechanical activation

1	2	3
Pull out safety pin Pull handle	Pull handle	The IV4 valve is fully activated
		
Adaptor position when the IV4 valve is closed	Adaptor position just prior to point of IV4 activation	Adaptor position when IV4 is fully activated

2. 3. MPW mechanical activation

Fejl! Ugyldig kæde.

3. Related products

PDS systems,
Comet actuators,

4. Installation

4. 1. Installation of the MPH / MPW adapter

1. Before fixing the MPH or MPW adapter to the IV4 valve, make sure that the Piston-1 (302069) has been pushed back completely, so that it is flushing with or submerged into the body (302401).
2. Make sure that he safety pin (302214) is in place and sealed.
3. Screw the adapter on to the discharge valve in the M16 × 0.75 activator connection
4. Loosen the nut (302405) a little and align the handle in the appropriate direction (so that movement of handle is unhindered).
5. Tighten the nut (302405).
6. If the MPH / MPW actuator is used for manual hand or wire operation only. Then it is recommendable to seal of the two 1/4" pneumatic connections with 2 plugs (777055) (or alternatively a properly sealed ¼" BSP plug).
7. If the MPH / MPW actuator is used for one pneumatic function only the cover shall be closed by using 1 Plug item no. 777055 (or alternatively a properly sealed ¼" BSP plug).
8. If the M/P-H unit is used for one Comet actuator only in combination with pneumatic actuation, a check valve (non-return valve) must be used at the connection of the pneumatic pipe work. The non-return valve, Item 302452, shall be installed directly at the cover and must be closing by increasing pressure inside the M/P-H adapter.

4. 2. Installation of the wire

1. The outer cable is cut to the right length and the inner cable is inserted. The inner cable must be at least 200 mm longer than the outer cable to ensure proper installation.

2. The cable is routed and the adapter fitting (M8 wire MPW) is screwed on to the outer cable and into the MPW adapter.
   When routing the cable it is important that there is no sharp bends, and that the cable is not squeezed during installation.

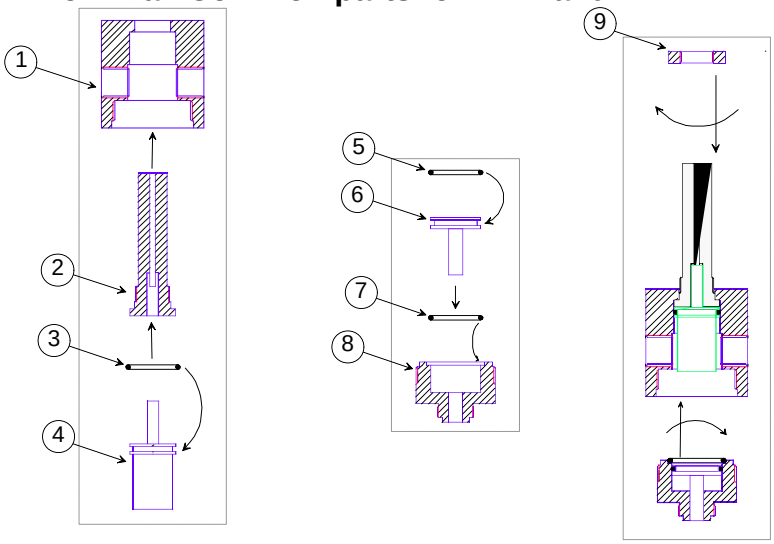
3. The end of the cable where the handle is to be fitted must be secured a firm place by using the M6 adapter.

4. The Handle is fitted to the cable, and the inner cable is pulled back to the MPW adapter.

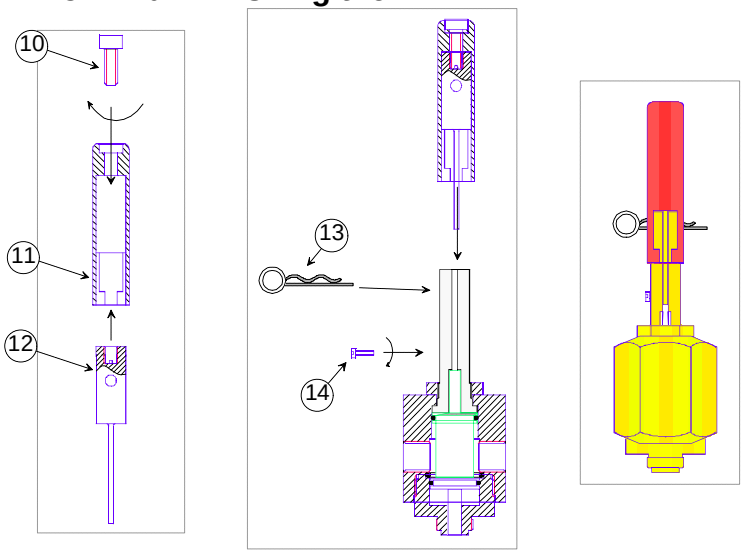
5. The cable is pulled carefully trough the small hole in the to of the MPW lever which in non activated state is in a 90° angle to the centreline of the MPW adapter. The cable has have a soft bend with an approximate radius of 200 mm.

5. Exploded view

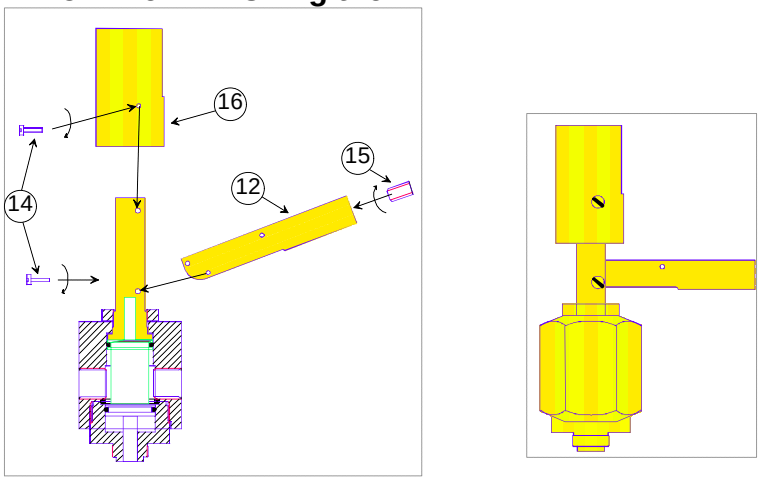
5. 1. a. Common parts for MPH and MPW



5. 1. b. Finishing the MPH



5. 1. c. Finishing the MPW



5. 1. d. Parts list

pos	Item no.	Name
1	302402	Mechanical Pneumatic cover
2	302403	M. P. Gallows
3	302407	Oring 17.17 × 1.78
4	302404	Piston
5	302077	Oring 18.17 × 1.78
6	302069	Piston
7	302426	Oring 21.95 × 1.78
8	302401	Mechanical Penumatic body
9	302405	Nut
10	402015	Screw M6 × 16
11	302409	Handle cover
12	302408	Handle
13	302214	Pin
14	302406	Screw M2 × 6
15	302421	Wire retainer
16	212225	Set Screw M6-

6. Assembly procedure

The MPH and MPW adapter does usually not require any particular servicing or changing of parts after use. However if the MPH / MPW adapter has been disassembled, the following procedure is followed:

Use the exploded view as a reference for any numbers.
All O-rings must be lubricated properly prior to assembly Oring lube: OHA-Spezial O-ring-Fett (Item no.: 203008).

1. O-Ring 21.95x1.78 (302423) is positioned in the open seat of the body (302401).
2. O-ring 18.77x1.78 (302077) is fitted to Piston-1 (302069).
3. O-ring 17.17x1.78 (302407) is fitted to Piston-2 (302404).
4. Insert Piston-1 (302069) into Body (302401). Push it down completely and from the other side push it back until it flushes the body.
5. Insert the Gallow (302403) into the cover. Tighten the nut (302405) lightly.
6. Insert Piston-2 (302404) into cover (302402).
7. Apply Locktite to one full thread of the body (302401) and then mount the cover (302402).

For MPH 302400

8. Fix the handle (302408) with the screw M2x6 (302406) at the indicated turning point. Use Locktite for the Bolt.
9. Align the Handle cover (302409) with the open side opposite the position of the bolt (302406).
10. Tighten the screw M6x16 (402015).
11. Insert the cotton pin (302214) trough the matching holes so that the handle can not be activated. Place a seal on the pin.

For MPW 302420

12. Fix the handle (302408) with the screw M2x6 (302406) at the indicated turning point. Use Locktite for the Bolt.
13. Place the wire retainer on the gallows and secure it with the screw (302406).
14. Place the set xcrew (212225) in the top of the handle and screw it in.

7. Test procedure

7. 1. MPH adapter

Testing the manual function without activating the IV4 valve:
- Remove the MPH adapter from the IV4 valve.
- Remove safety pin.
- pull handle, move to 90 degrees, and check that the piston-1 (302069) is pushing out more than 7 mm.
- Push the piston-1 back to the flushing position.
- Fix the M/P-H adapter to the IV4 valve.

Testing the manual function, and activate the IV4 valve:
- Close handle of the INERGEN cylinder(s).
- Proceed with above procedure omitting the part with removing the adapter..

7. 2. MPW adapter

Testing the manual function without activating the IV4 valve:
- Remove the MPW adapter from the IV4 valve.
- Pull handle in the end of the wire, check that the piston-1 (302069) is pushing out more than 7 mm.
- Push the piston-1 back to the flushing position.
- Fix the M/P-H adapter to the IV4 valve.

Testing the manual function, and activate the IV4 valve:
- Close handle of the INERGEN cylinder(s).
- Proceed with above procedure omitting the part with removing the adapter..

7. 3. MPH and MPW adapter

Testing the Pneumatic function (with the PDS system):
- Close handle of the INERGEN cylinder(s).
- Charge the PDS unit to maximum 10 Bar.
- Operate the Fire Alarm/Control Panel or the PDS unit, according to standard procedure for system discharge.
- Check that the system has been activated correctly.
- Reset the complete system.

Testing the system with a Comet actuator:
- Follow the same procedure as Pneumatic testing.
- Replace the Comet actuator after test. **The Comet actuator is a “one shot device”, which cannot be reused.**

8. Cleaning and maintenance

8. 1. Cleaning in general.

The MPH and MPW adapter it self is not affected by dirt, but should kept clean from heavy soil.

When cleaning the MPH and MPW adapter only mild detergent and water should be used.

Steam cleaners or high pressure water sprayers may only be used when great care is taken.

8. 1. a. The MPW cable

It is very important that the cable for the MPW adapter can move freely, and it is therefore important that no dirt is stuck in the wire, which should be lubricated at least during the annual inspection.

8. 2. Maintenance.

The system is only to be installed and serviced by authorised personnel. Non authorised personnel may be instructed in cleaning and maintaining the system if necessary skills has been acquired.

9. Technical Specifications

MPH and MPW:

Tread
- Actuation connection (discharg valve) M16x0.75
- Pneumatic inlet ..... ISO 7/1-Rp 1/4"

Pressure
- Minimum actuation pressure (T > 5 seconds) ..... 6 bar
- Maximum pressure ..... 200 bar
- Maximum admissable rest pressure ..... 0.5 bar
- Recomended working pressure ..... 12 - 40 bar

Actuation time at 6 Bar ..... 0.5 seconds

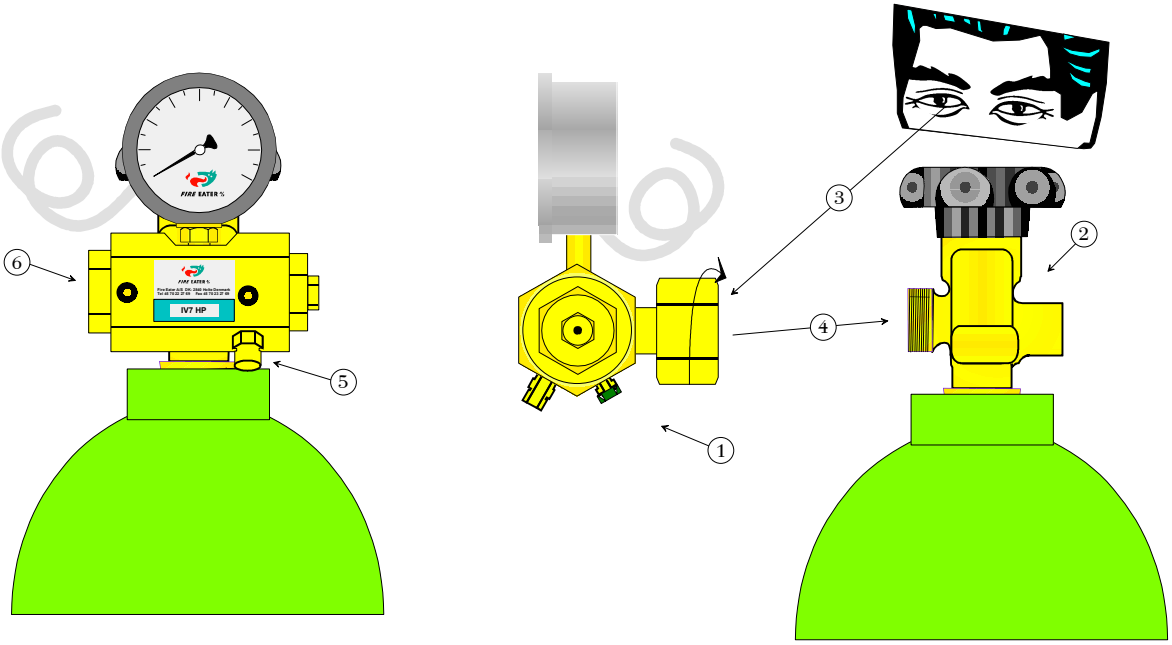
Material .....
- Body and parts ..... Brass, CuZn39Pb3
- Orings ..... NBR and FPM.

Pressure source ..... Air, Nitrogen, CO_2 or any inert gass.

3. Installation examples and Schematics

Engineering data sheet	Chapter: IV7 - cylinder
	Sheet: 805060

IV7 discharge valve to hand wheel valve



Remarks

1: IV7 discharge valve.

2: Hand wheel valve.

3: Inspect that the Oring is placed correctly, and is undamaged.
Inspect the Oring as well as the hand wheel valve connecting faces for dirt and replace/clean if necessary.

4: Screw discharge valve to hand wheel valve.
The discharge valve may be positioned in any way desired.
The valve is not to be rotated after the nut is tightened.

5: Outlet is located in the lower left side of valve.

6: Activation connection (M16×0.75) must be in the right side of the valve.

Instructions:

Tightening torque: Oring contact + 40°.

Document: 805060 IV7 - cylinder.doc		Pos	Text	Chapter
		1	IV7 Discharge valve	Valve
Product: IV7 Valve - Cylinder valve	Id lgemk			
	Rev B1	2	Hand wheel valve	Valve
		3		
		4		
		5		
		6		
		7		
		8		

FIRE EATER ½
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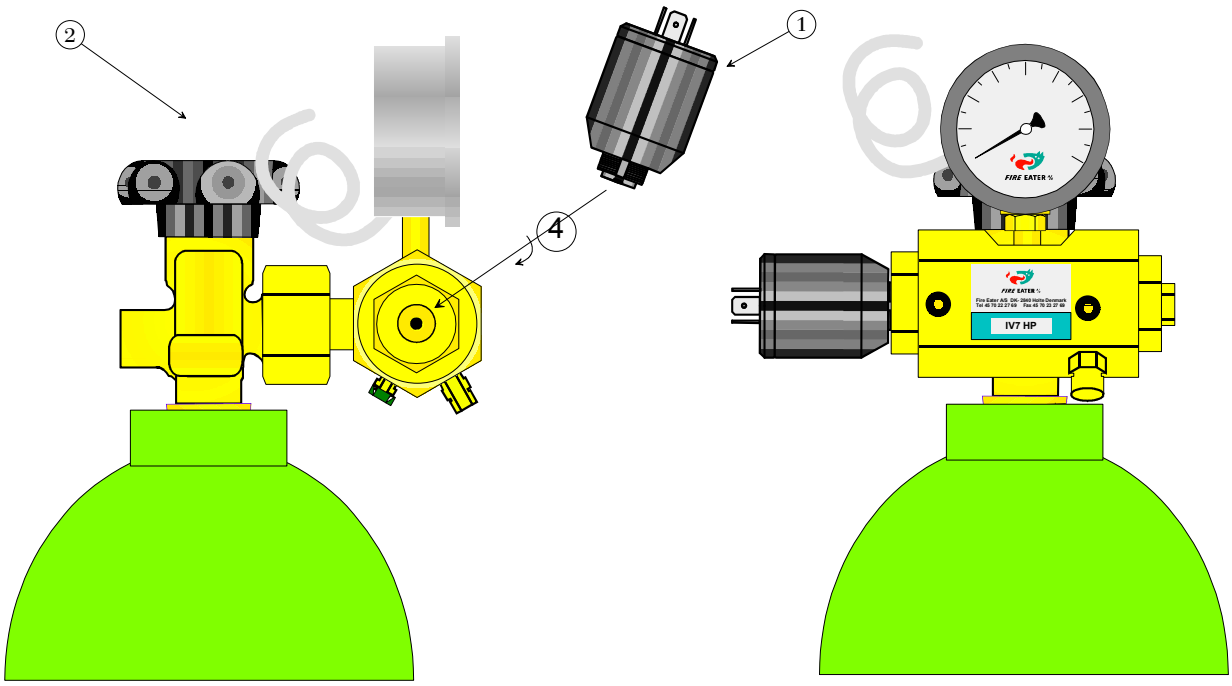
Fax+45 7023 2769

Engineering data sheet

Chapter:	Mechanical activation
Sheet:	805551

Metron to IV7 discharge valve



Remarks

1: Metron actuator unit.

2: IV7 discharge valve assembly.

3:.

4: Screw the metron into the activation connection in the IV7 Discharge valve.
Do not over tighten

Instructions:

Tightening torque: No force.

Document:	805551 IV7 - Metron.doc
Product: Metron - IV7 valve	Id mk
	Rev b1

Pos	Text	Chapter
1	Metron actuator	Activator
2	Valve/cylinder assembly	Cylinder and valve
3		
4		
5		
6		
7		
8		

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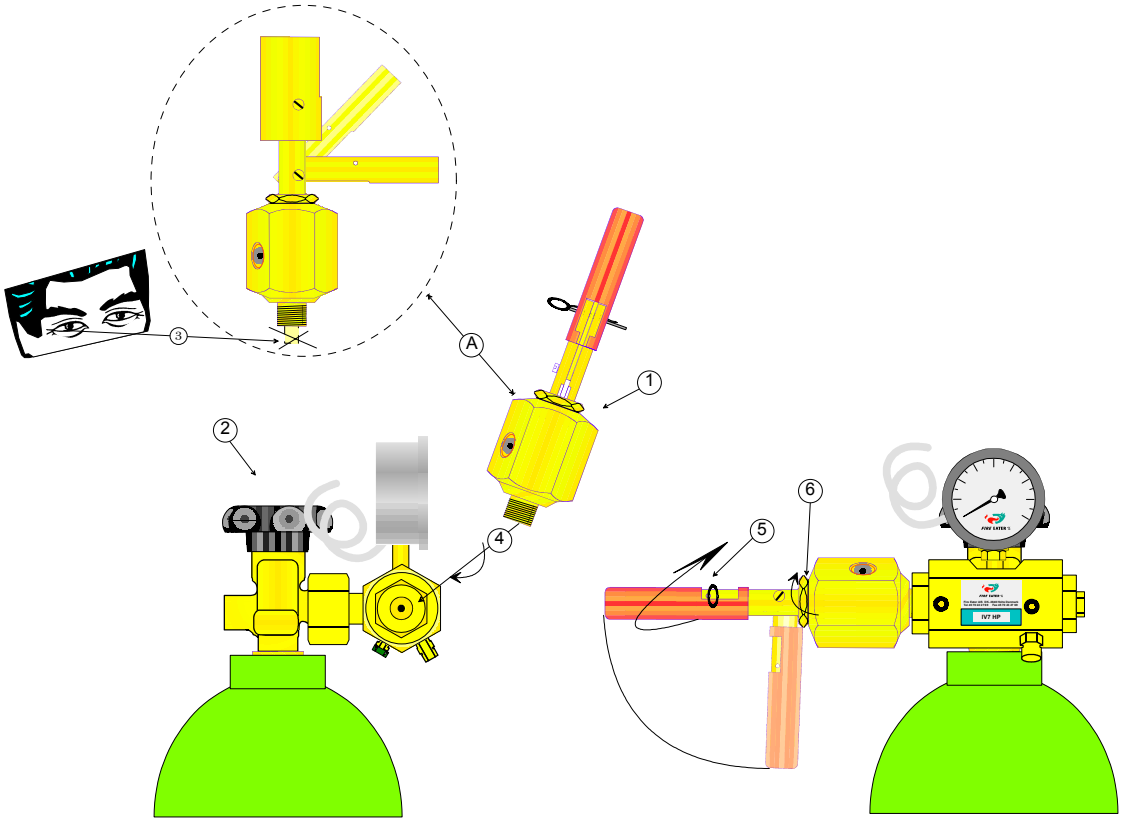
Fax+45 7023 2769

Engineering data sheet

Chapter:	Mechanical activation
Sheet:	805556

MPH / MPW adapter to IV7 discharge valve



Remarks

1: MPH/W actuator unit.

A: The unit can be either a MPH or a MPW adapter.

2: IV7 discharge valve assembly.

3: Observe that the actuation plunger is flush with or submerged into the adapter.

4: Screw the MPH/W adapter into the activation connection in the IV7 Discharge valve.

Do not over tighten.

5: Rotate lever to proper lever direction is reached.

6: Tighten nut to secure lever from rotating.

Instructions:

Tightening torque: No force.

Document:	805556 IV7 - MPH.doc	Id	mk
Product: MPH / MPW - IV7 valve		Rev	b1

Pos	Text	Chapter
1	MPH / MPW adapter	Activator
2	Valve cylinder assembly	Cylinder and valve
3		
4		
5		
6		
7		
8		

FIRE EATER

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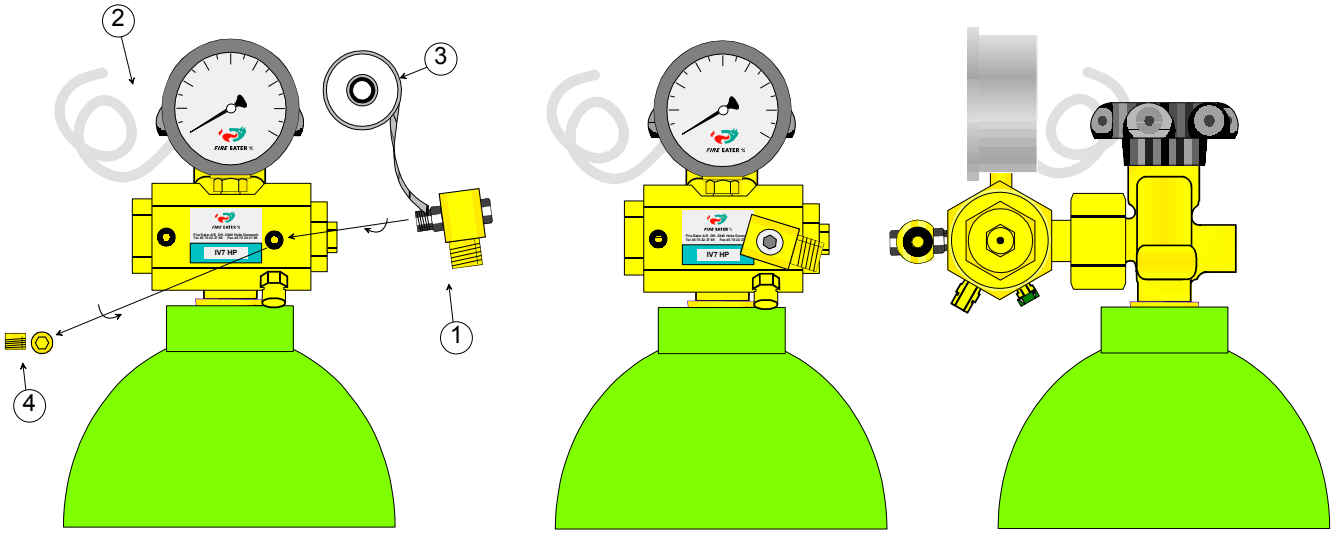
Engineering data sheet

Chapter:	Pneumatic activation
Sheet:	805660

PA Outlet adapter (check valve)



Remarks

The outlet adapter will allow pressure to enter the PA (pneumatic Activation) system to activate other discharge valves.

The PA outlet adapter is only to be installed on the IV7 on which the activator unit is to be fitted (MPH, MPW, PMMD, Metron, or Comet), and is only to be used in systems where multiple cylinders are to be discharged by the same discharge signal (Electrical or Mechanical).

*1: *PA outlet adapter (check valve)*

2: IV7 discharge valve assembly.

3: PTFE tape, or sealing fluid must be applied.

4: Unscrew the blind plug, and fit the PA outlet adapter.

Instructions:

Tightening torque: 8 Nm

Document:	805660 IV7 - PA outlet.doc	Id	mk
Product: IV7 Pneumatic outlet		Rev	5

Pos	Text	Chapter
1	IV7 PA outlet adapter	
2	IV7 / cylinder assemby	Cylinder and valve
3	PTFE tape / sealing fluid	
4	Outlet plug in IV7 outlet	
5		
6		
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FIRE EATER %
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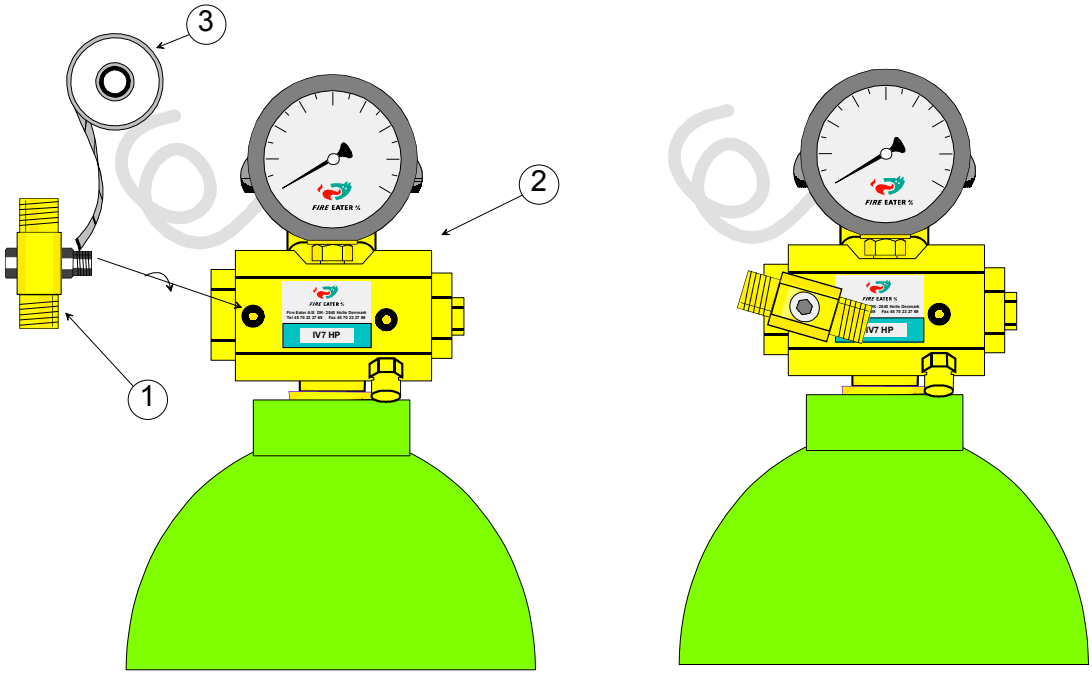
Engineering data sheet

Chapter:	Pneumatic activation
Sheet:	805661

PA inlet adapter (Tee/divider)



Remarks

The Inlet adapter will allow a high pressure hose to be fitted to the IV7 discharge valves PA (Pneumatic Activation) inlet, and allow another high pressure hose to lead to the next discharge valve.

If the inlet adapter is not connected to another discharge valve, or a double loop PA (PDS) system a blind plug must be fitted.

*1: *PA intlet adapter (Tee)*

2: IV7 discharge valve assembly.

3: PTFE tape, or sealing fluid must be applied.

4: The PA inlet adapter is screwed into the IV7 valve.

Instructions:

Tightening torque:

1/8” 8 Nm

Document:	805661 IV7 - PA inlet.doc		
Product: IV7 Pneumatic inlet		Id	MK
		Rev	6

FIRE EATER ⅘
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Pos	Text	Chapter
1	IV7 PA inlet adapter	801740
2	IV7 / cylinder assembly	805060 - 805069
3	PTFE or sealing fluid	
4		
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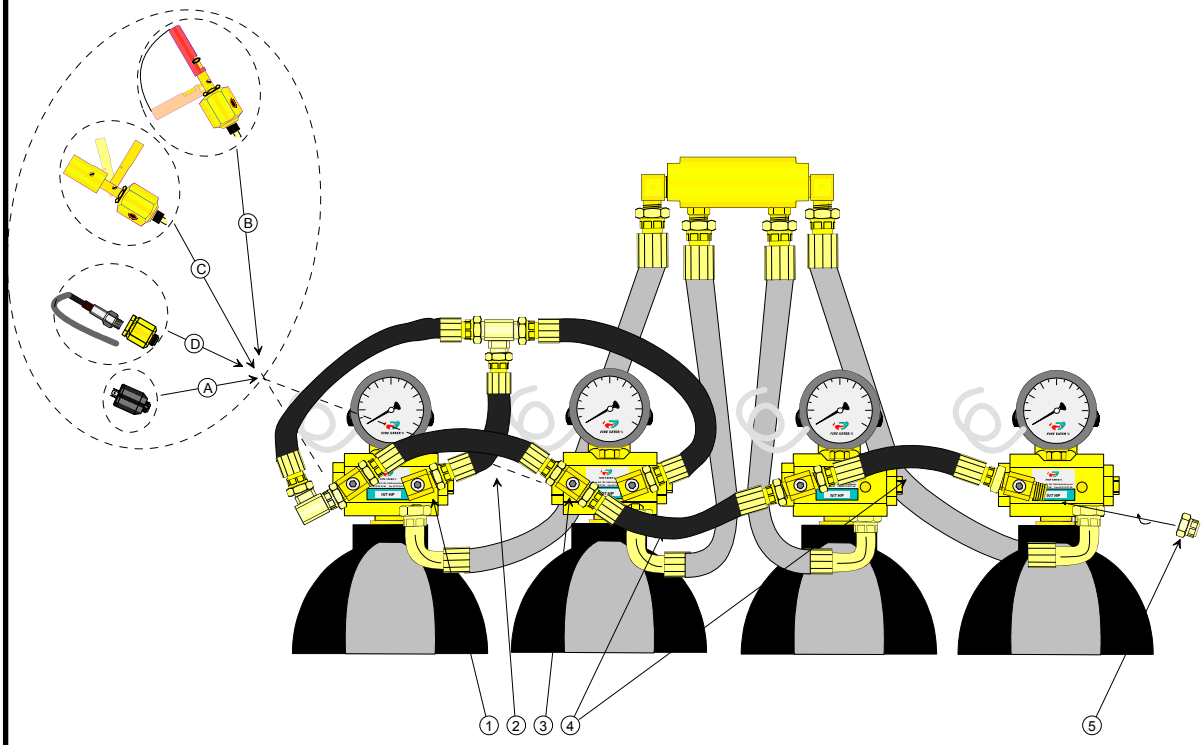
Engineering data sheet

Chapter:	Pneumatic Activation
Sheet:	805671

Pneumatic activation assembly (Single manifold, Dual activation)



Notes

1: PA Outlet adapter (check valve, elbow).
IV7 PA start kit.

2: High pressure hose 180 mm.
IV7 PA start kit.

3: PA Inlet adapter (Tee).
IV7 PA start kit. IV7 PA next kit.

4: High pressure hose.230 mm.
IV7 PA next kit.

5: End plug ¼".
IV7 PA start kit.

The Activation unit must be connected to the IV7 valve with the PA Outlet adapter. Space availability may limit which activation unit that can be used at the end.
The Activation unit may be any of the activators available.
A: Metron, B: MPH, C: MPW, D: NPP/Comet,

Instructions:
Tightening torque: 1/4" 20 Nm

Document: 805671 IV7 - PA system

Product: IV7 Pneumatic assembly

Id mk

Rev B1

FIRE EATER ⅘
Vølundsvej 17
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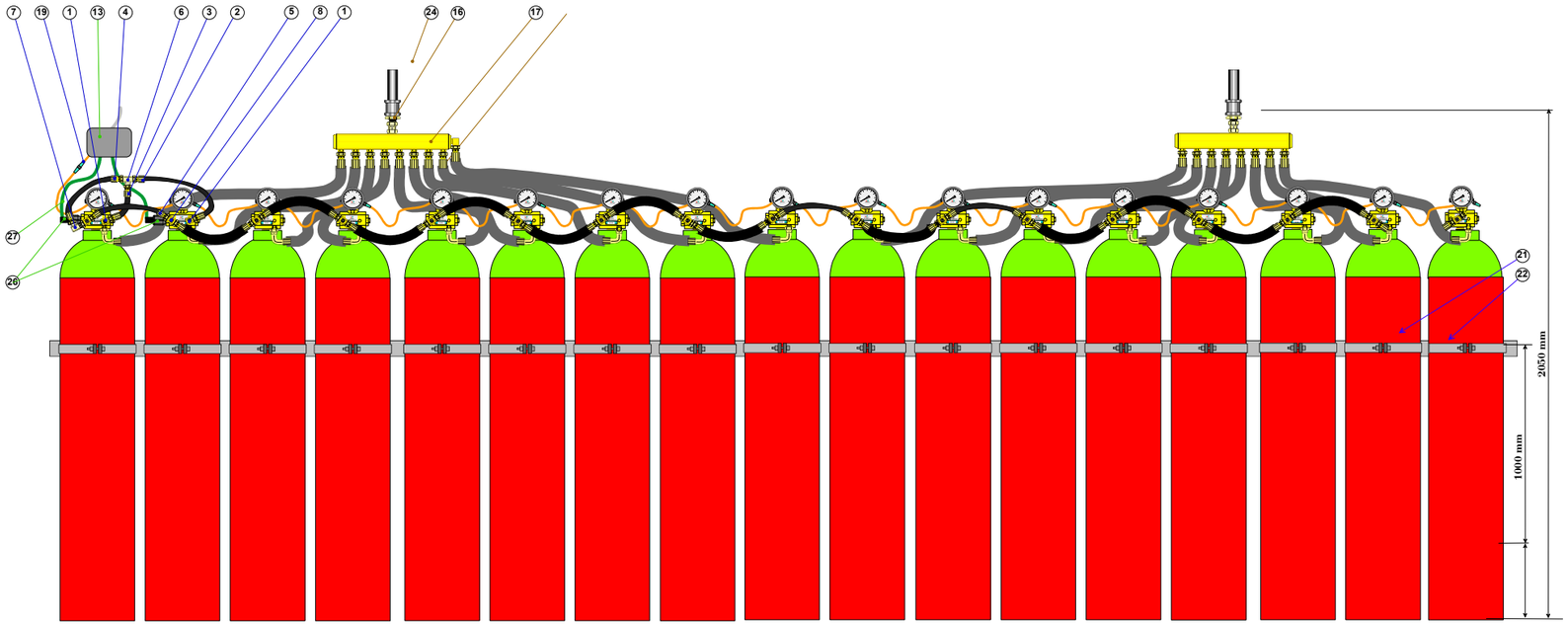
Pos	Text	Sheet
1	PA outlet adapter (check valve)	801742
2	High pressure hose ¼" 180 mm	801856
	High pressure hose ¼" 230 mm	801851
	High pressure hose ¼" 280 mm	801852
3	PA Inlet adapter (Tee)	8018740
4	High pressure hose ¼"	801853
5	Blind plug ¼"	801706

Engineering data sheet

Version date: 2004-08-12

17 pcs 80 l cylinder w. metron activation and PA system



Pos	Name		
1:	PA outlet adapter	incl. in 303190	303125
2:	Hose¼" 500 mm	incl. in 303190	303180
3:	Hose¼" 280 mm	incl. in 303190	303172
4:	Hose¼" 400 mm	incl. in 303190	205064
5:	Hose¼" 280 mm	incl. in 303190 & 303191	303172
6:	Tee ¼"	incl. in 303190	777017
7:	Elbow w. union ¼"	incl. in 303190	777049
8:	PA inlet adapter	incl. in 303190 & 303191	303126
9:	¼" blind plug 60	incl. in 303190	303520
10:	PA inlet adapter	incl. in 303190 & 303191	303126
13:	Discharge box		See control panel
15:	Hose PH3/8"-300, 0.5m, std. INERGEN		303102
	HosePH3/8"-300, 1.0m, std. INERGEN		303104
	Hose PH3/8"-300, 1.5m, std. INERGEN		303106
	Hose PH3/8"-300, 2.0m, std. INERGEN		303108
16:	Nippel ¾"- ½"		777076
	Nippel ¾"- ¾"		777074
	Nippel ¾"- 1"		207007
	Nippel ¾"- 1¼"		777069
	Nippel ¾"- 1½""		777070
	Nippel ¾"- 2"		777065
17:	IV7 MT-3 manifold		303144
18:	IV7-300 Manoswitch conn.		303093
	IV7-200 Manoswitch conn.		303083
	IV7-150 Manoswitch conn.		303078
19:	Manoswitch cable 2m start kit(2m cable)		303020
20:	Manoswitch cable 2m start kit (Terminator)		303020
21:	Bracket FE HP80 (300 mm Cyl. rail)		7302089
22:	Bracket FE HP80 (ø267 mm Bracket)		7302089
23:	FE-HP80/300 cylinder w. Inergen		200016
	FE-HP50/300 cylinder w. Inergen		200012
	FE-HP50/200 cylinder w. Inergen		200004
24:	Pipe system		See catalouge
25:	IN 3/8" Alu. nozzle 6kt calibrated		210114
	IN 1/2" Alu. Nozzle 6kt calibrated		210115
	IN 1/2" Alu. Round nozzle calibrated		210121
	IN 3/4" Alu. Round nozzle calibrated		210116
	IN 1" Alu. Round nozzle calibrated		210120
	IN 1¼" Alu. Round nozzle calibrated		210117
26:	EA-Inergen Metron aktuatore unit		212131
27:	EA Inergen diacharge cable 2m		404024
	EA Inergen discharge cable 3m IEC 331		404026

Document: 2010110317 -UK 17 pcs 80 l cylinder w metron and PA.doc

Product: Inergen®

Id: mk

Rev: 12.08.04

FIRE EATER A/S
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	Text
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Engineering data sheet

Version date: 2005-04-18

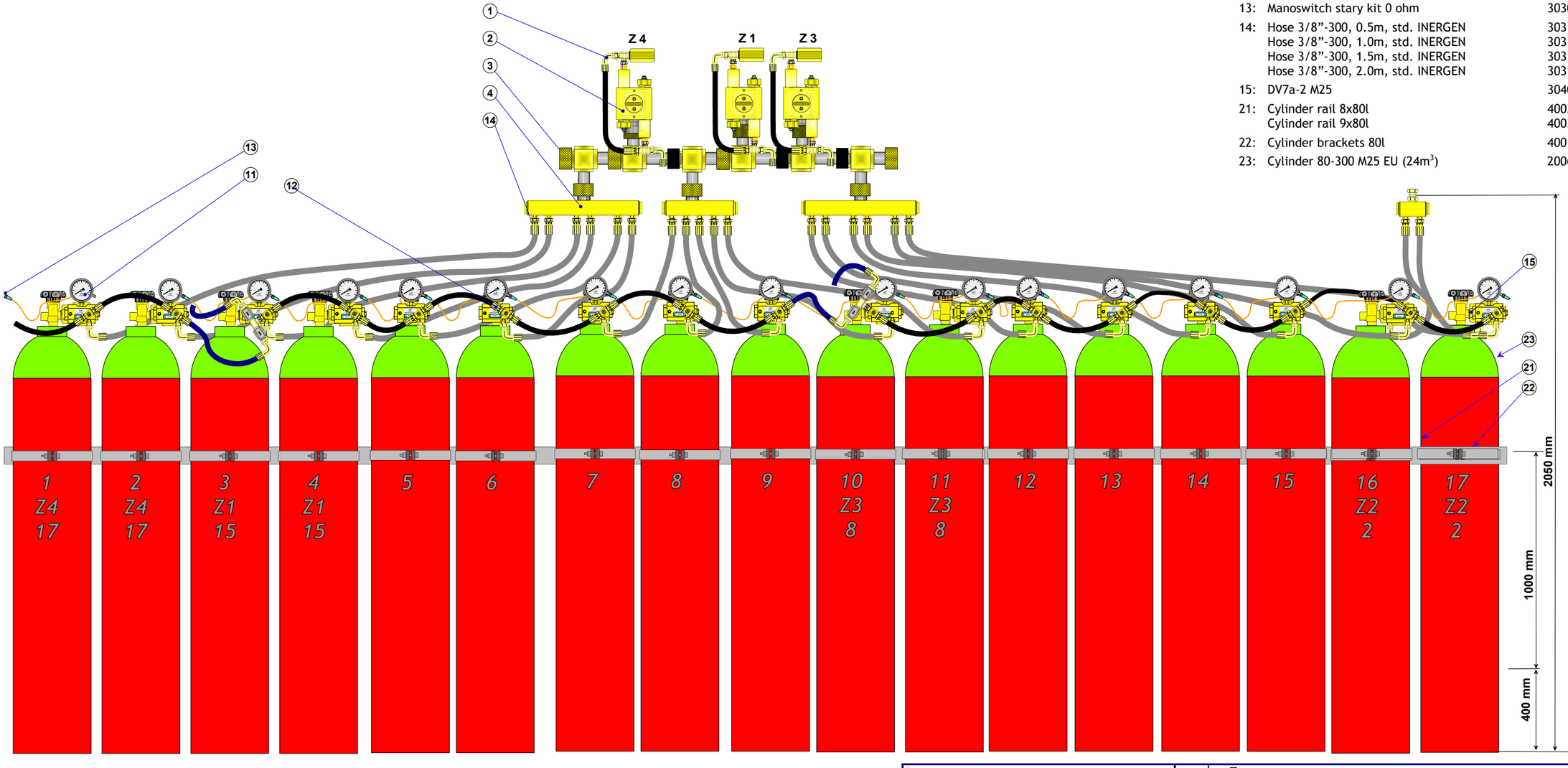
Chapter: SV22 Page: 1 of 2

Item: SV22-17x80 4z-12

Multizone system 4 zones, 17 cylinders

Zone 1	15 cyl	ø 19,2mm
Zone 2	2 cyl	ø 7,1mm
Zone 3	8 cyl	ø 14,0mm
Zone 4	17 cyl	ø 20,5mm

Pos.	Name	Quantity	Item
1:	SV22 Hose kit	302162	3
2:	SV22 Zone kit	305160	3
3:	SV22 Endplug kit	305164	1
4:	SV22 MT5 kit	305175	1
	SV22 MT6 kit	305176	2
	IV7 MT2 ø7.1	303142	1
10:	IV7-300 M25 Basic	304090	8
11:	IV7-300 M25 Manosw	304093	17
12:	Next kit PA IV/ 80l	303191	13
13:	Manoswitch stary kit 0 ohm	303020	1
14:	Hose 3/8"-300, 0.5m, std. INERGEN	303102	5
	Hose 3/8"-300, 1.0m, std. INERGEN	303104	4
	Hose 3/8"-300, 1.5m, std. INERGEN	303104	4
	Hose 3/8"-300, 2.0m, std. INERGEN	303104	4
15:	DV7a-2 M25	304042	8
21:	Cylinder rail 8x80l	400308	1
	Cylinder rail 9x80l	400309	1
22:	Cylinder brackets 80l	400109	17
23:	Cylinder 80-300 M25 EU (24m³)	200624	17



Document: SV22-17x80-4Z-12 -UK 17 Flasker (80) 4 zone 1 lag 2metron.doc

Product: Inergen®

Id: mk

Rev: 18.04.05

FIRE EATER ⅘

Vølundsvej 17
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	Text
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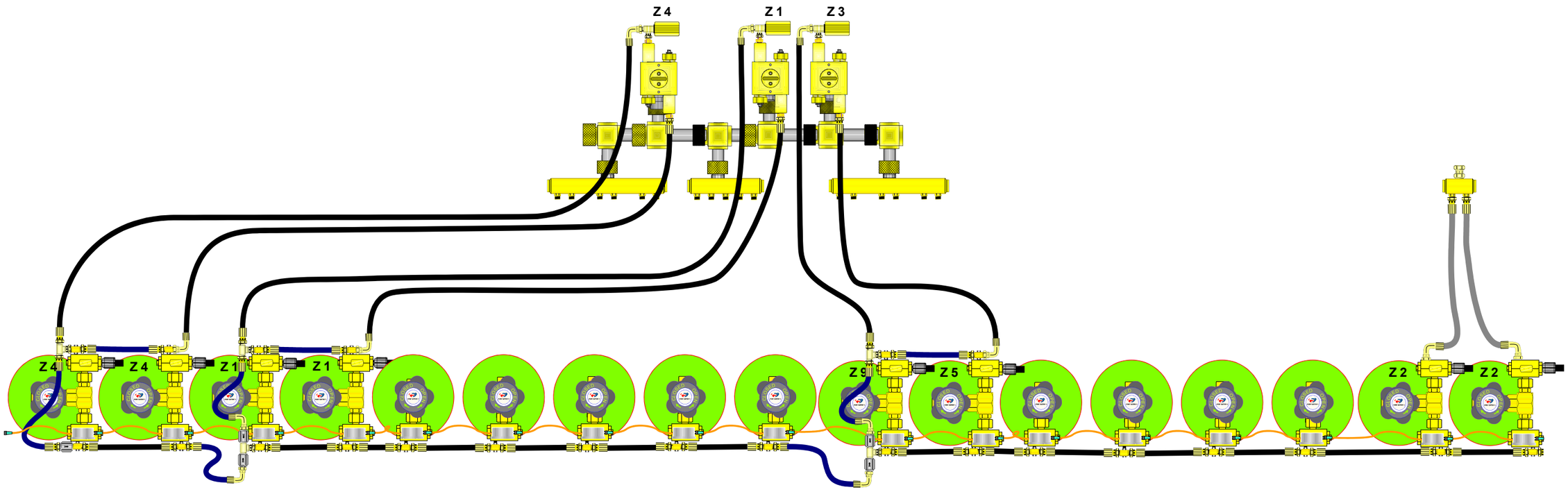
Multizone system 4 zones, 17 cylinders

Blind plugs for rail	400121	2
Bracket rail 2	400123	0
EA Metron	212131	8
Metron discharge cable	404024	8
Seals red	214009	17
Seal wire (coarse)	214010	17
Cylinder labels	801120	17

Top view



Document: SV22-17x80-4Z-12 -UK 17 Flasker (80) 4 zone 1 lag 2metron.doc

Product: Inergen®

Id: mk

Rev: 18.04.05

FIRE EATER ½

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4. Engineering Data Sheets

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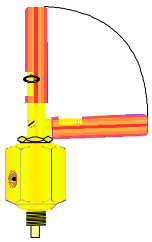
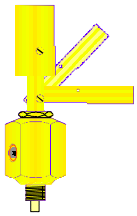
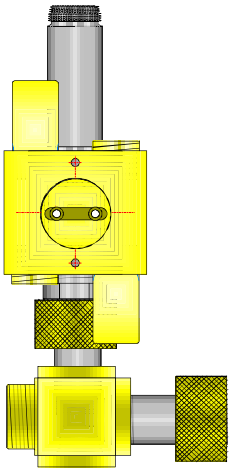
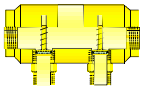
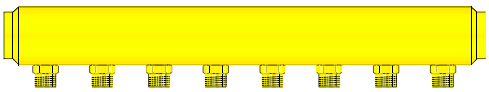
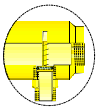


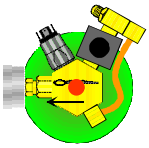


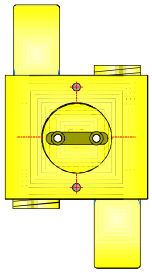


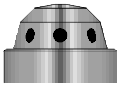


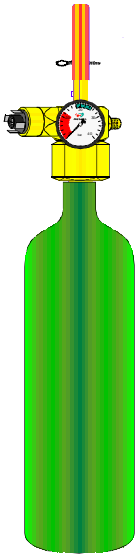


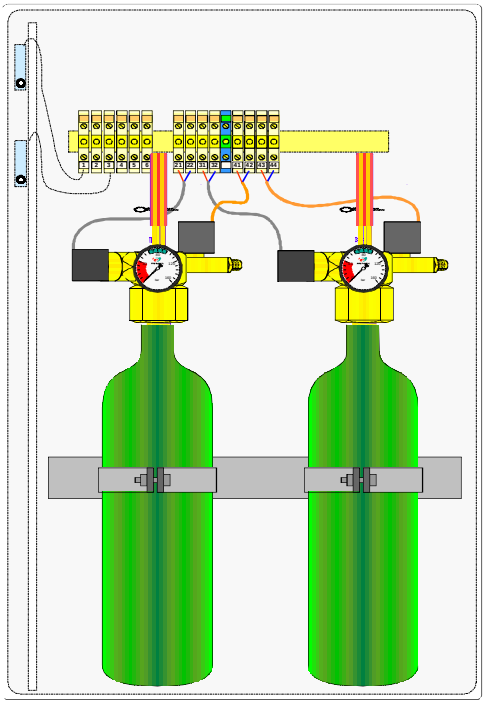


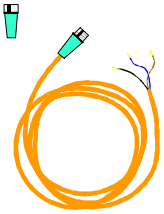




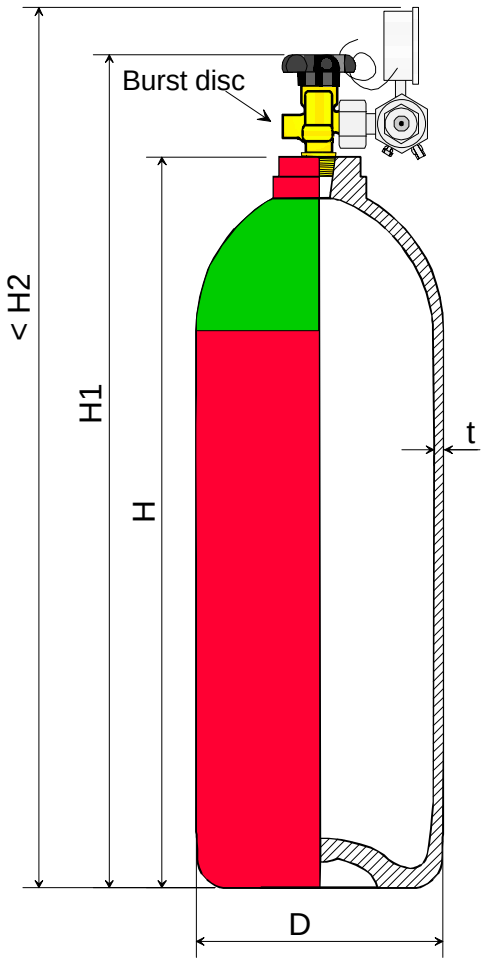








Cylinder 80-300 w. INERGEN

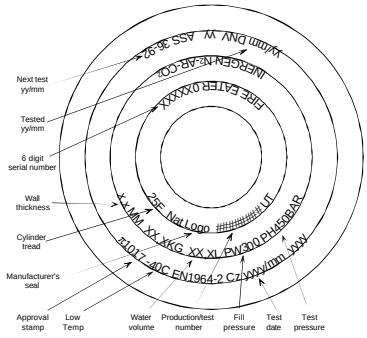


General

Complete steel cylinder with INERGEN and hand wheel valve used in Fire Eater INERGEN fire extinguishing systems.

Specifications

Dimension	
Diameter (D):	267 mm
Wall thickness (t):	7.4
Height cyl. (H):	1780 mm
Height (H1):	1880 mm
Height instld. (H2):	< 1950 mm
Weight:	140 kg
Pressure	
Fill @ 15°C:	300 bar
Test:	450 bar
Volume	
Water:	80 litre
INERGEN:	24 m^3
Colour	EN 1089/3
Cylinder:	Red (RAL 3001)
Shoulder:	Green (RAL 6018)
Standard & approval	
	EN1964-2, π 1017
	TPED EC1999/36
Material:	34CrMo4
Tread	
Cylinder:	25E (W28.8 × 1/14 Keg)
Valve outlet:	M25×1.5



Installation

Cylinders must be fixed firmly to wall or floor with suitable brackets. For installations with nozzles directly at the discharge valve the brackets must be able to support the force during discharge.
Hand wheel valve must be opened after installation of discharge valve.

Maintenance

Recertification (testing) every 10 years, or as per local authorities having jurisdiction.

Pos.	Name	Quantity	Item
A:	Cylinder 80-300	1	200240
B:	Hand wheel valve	1	603308
C:	INERGEN (m^3)	24	200500

FIRE EATER

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Engineering data sheet

Chapter:	Cylinder
Item:	200112

Cylinder 50l 300 bar

Pressure

Work:	300 bar
Test:	450 bar

Volume:

Water	50 l
Inergen®	15.0 m^3

Weight:

Emty	67 kg
Filled	90 kg

Colour

Cylinder:	Red (RAL 3000)
Shoulder:	EN 1089/3 Black (RAL 9005).

Standard:

TPED

84/525/EEC

EN1964-2

Markings:

"N_2 - Ar - CO_2 300 bar"

"DFE "+4 digits

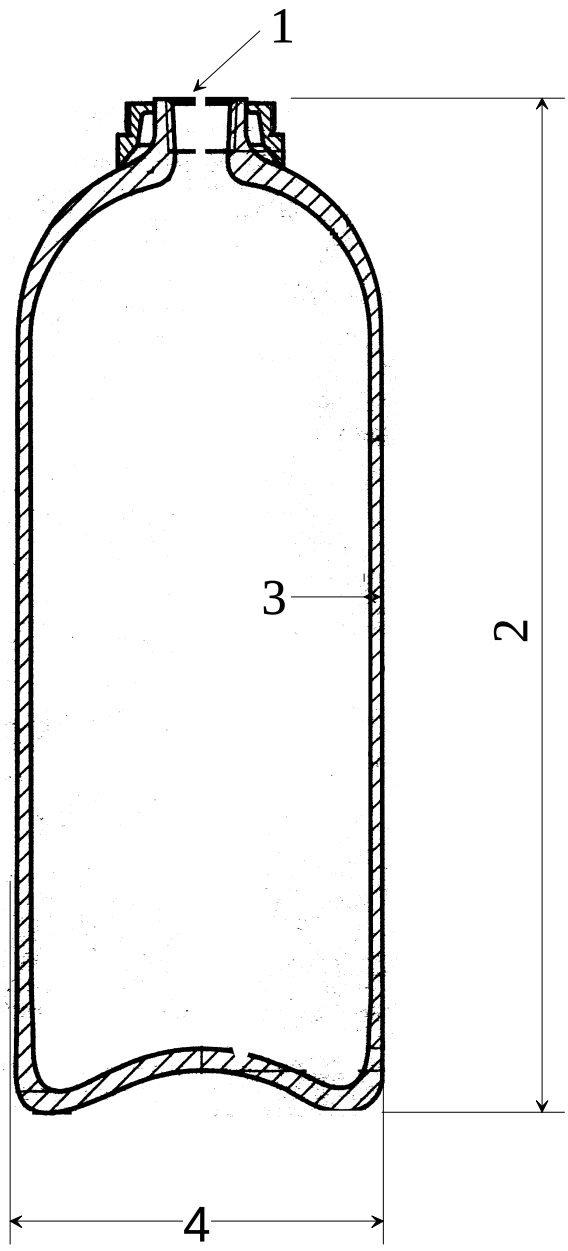
Production no: 5 - 8 digits

Approvals: Various

Year + month of manufacturing

Year + month of pressure testing

"T450"



Document:	200112 FE-HP50-300 Tom
Product: 50 liter 300 bar cylinder	Id lg Rev B2

Pos.	Text
1	Tread: W 28.8 × 1/14" keg DIN 477
2	Height: 1475 mm
3	Thickness: Min 7 mm
4	Diameter: 229 mm
5	
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FIRE EATER ½
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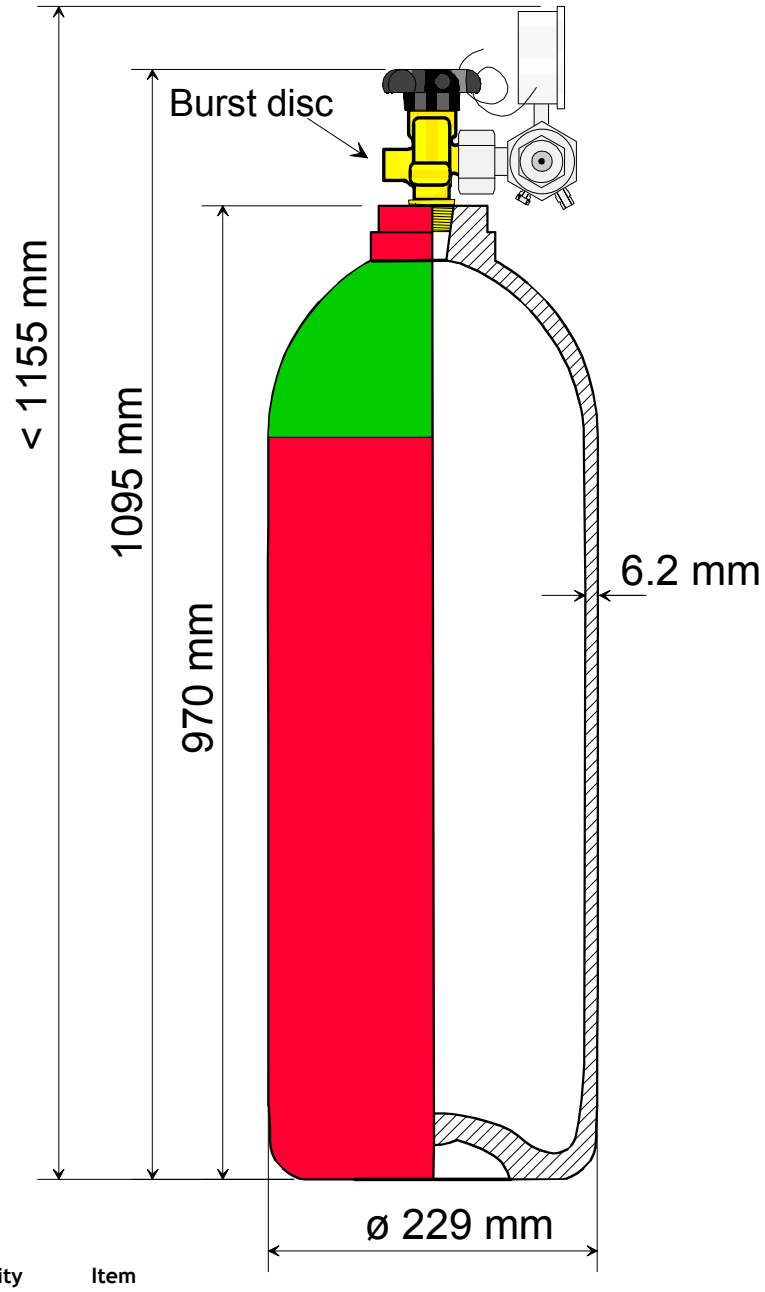
Engineering data sheet

Chapter: Cylinder	Page: 1 of 1
Item: 200709	

Cylinder 30-300 DNV w. INERGEN



Pos.	Name	Quantity	Item
A:	Cylinder 30-300	1	200109
B:	Hand wheel valve	1	603308
C:	INERGEN (m3)	9	200500

Document: 200709 Cylinder 30-300 DNV w INERGEN.doc

Product: Inergen®

Id: mk

Rev: 15.04.05

FIRE EATER ½

Vølundsvej 17
DK- 3400 Hillerød
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Engineering data sheet

Chapter:	Cylinder
Item:	200104

Cylinder 50l 200 bar

Pressure

Work:	200 bar
Test:	300 bar

Volume:

Water	50 l
Inergen®	10.5 m3

Weight:

Empty	60 kg
Filled	75 kg

Colour

Cylinder:	Red (RAL 3000)
Shoulder:	EN 1089/3 Green(RAL 6018) Black (RAL 9005).

Standard:

TPED

84/525/EEC

EN1964-2

Markings:

"N_2 - Ar - CO_2 200 bar"

"DFE "+4 digits

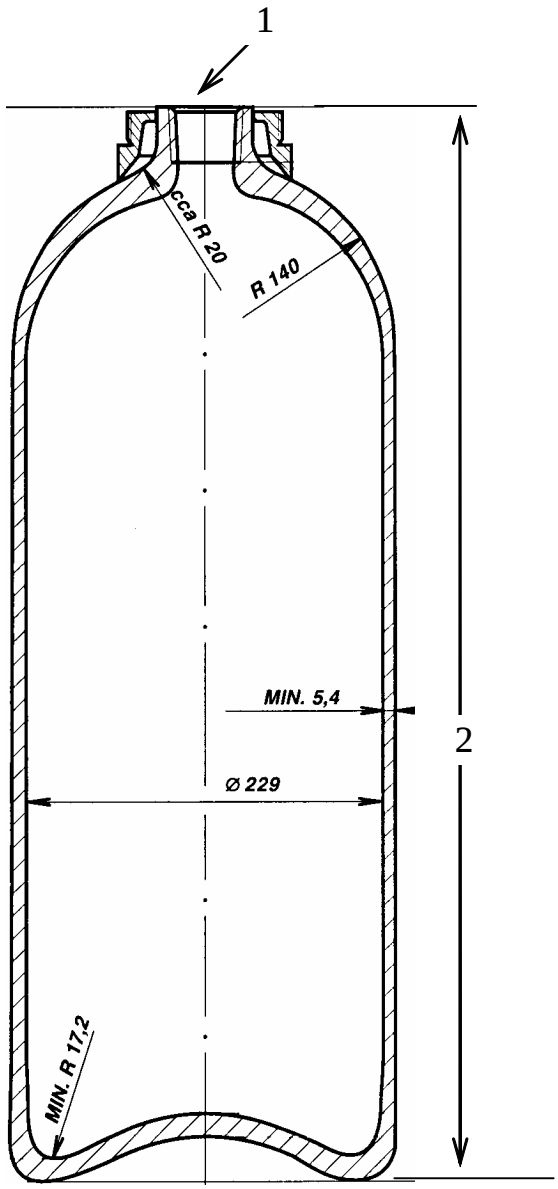
Production no: 5 - 8 digits

Approvals: Various

Year + month of manufacturing

Year + month of pressure testing

"T300"



Document:	200104 FE-HP50-200 Tom
Product: 50 liter 200 bar cylinder	Id lg Rev B2

FIRE EATER
Vølundsvej 17
DK- 3400 Hillerød
Tel+45 7022 2769
Fax+45 7023 2769

Pos.	Text
1	Tread: W 28.8 × 1/14" keg DIN 477
2	Height: 1475 mm
3	Thickness: Min 5.4 mm
4	Diameter: 229 mm
5	
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Engineering data sheet

Chapter:	Cylinder
Item:	200106

Cylinder 20l 200 bar

Pressure

Work:	200 bar
Test:	300 bar

Volume:

Water	20 litre
Inergen®	4.2 m^3

Weight:

Emty	27 kg
Filled	35 kg

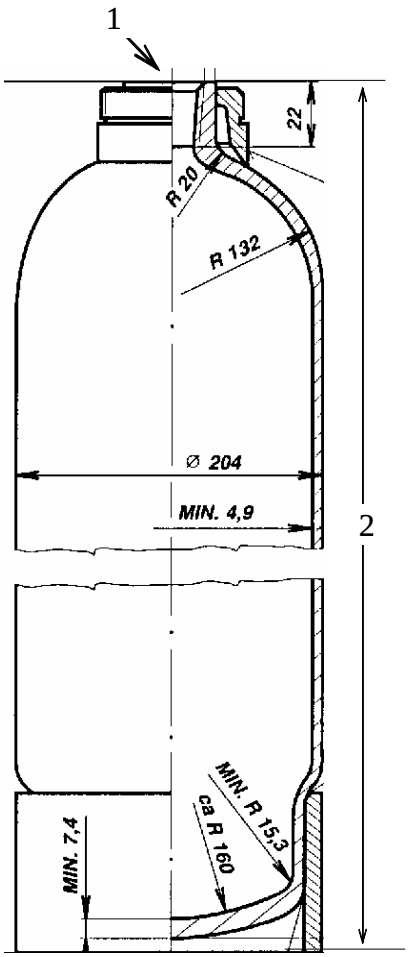
Colour

Cylinder:	Red (RAL 3000)
Shoulder:	Black, Dark grey, Light grey. Either circles or patches.

Approvals (certificates):

EU
TUV
DNV
Force

Approval no: 84/525/CEE/B95.41.



Markings:

"N_2 - Ar - CO_2 200 bar"
"DFE "+4 digits
Production no: 5 digits.
Approvals: Various
Year + month of manufacturing
Year + month of pressure testing
"T300"

Document:	200106 FE-HP20-200 Tom	Pos.	Text
Product: 20 liter 200 bar cylinder	Id lg / Rev B1	1	Tread: W 28.8 × 1/14" keg DIN 477
		2	Height: 830 mm
		3	Thickness: Min 4.9 mm
		4	Diameter: 204 mm
		5	
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		8	
		9	

FIRE EATER
Vølundsvej 17
DK- 3400 Hillerød
Tel+45 7022 2769
Fax+45 7023 2769

Engineering data sheet

Chapter:	Cylinder
Item:	200108

Cylinder 10l 200 bar

Pressure

Work:	200 bar
Test:	300 bar

Volume:

Water	10 litre
Inergen®	2.1 m^3

Weight:

Empty	18 kg
Filled	22 kg

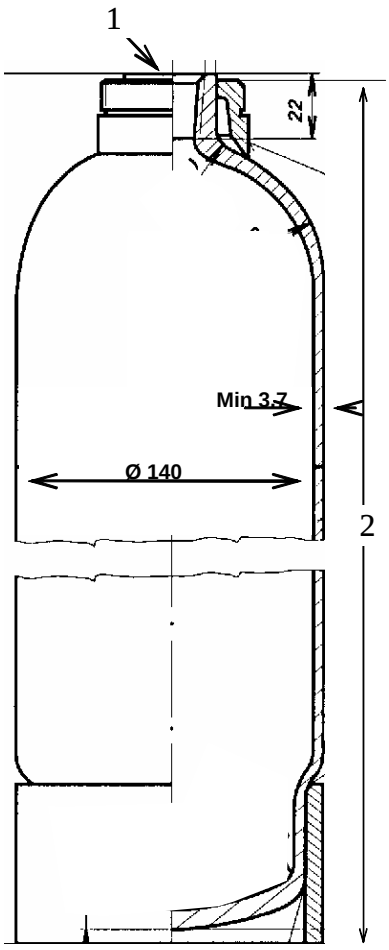
Colour

Cylinder:	Red (RAL 3000)
Shoulder:	Black, Dark grey, Light grey. Either circles or patches.

Approvals (certificates):

EU
TUV
DNV
Force

Approval no: 84/525/CEE/B95.41.



Markings:

"N_2 - Ar - CO_2 200 bar"
"DFE "+4 digits
Production no: 5 digits.
Approvals: Various
Year + month of manufacturing
Year + month of pressure testing
"T300"

Document:	200108 FE-HP10-200 Tom		
Product: 10 liter 200 bar cylinder		Id	Ig
		Rev	B1

FIRE EATER
Vølundsvej 17
DK- 3400 Hillerød
Tel+45 7022 2769
Fax+45 7023 2769

Pos.	Text
1	Tread: W 28.8 × 1/14" keg DIN 477
2	Height: 870 mm
3	Thickness: Min 3.7 mm
4	Diameter: 140 mm
5	
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Engineering data sheet

Chapter:	Cylinder
tem:	200110

Cylinder 5l 200 bar

Pressure

Work:	200 bar
Test:	300 bar

Volume:

Water	5 litre
Inergen®	1.1 m^3

Weight:

Empty	11,5 kg
Filled	13,5 kg

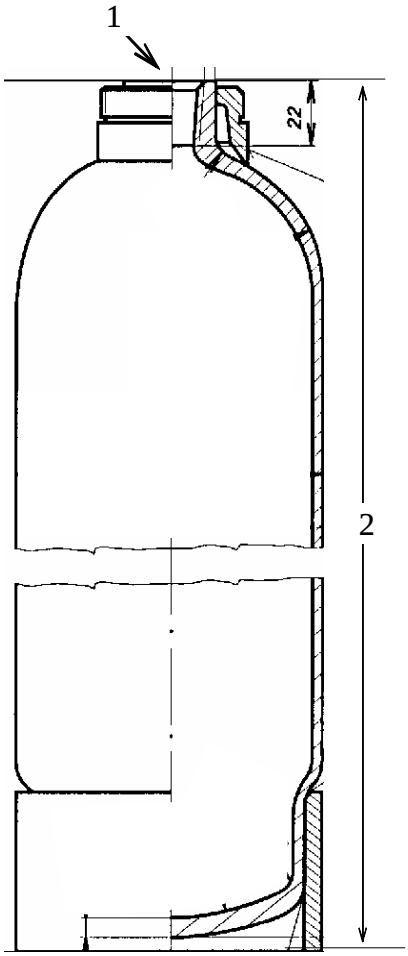
Colour

Cylinder:	Red (RAL 3000)
Shoulder:	Black, Dark grey, Light grey. Either circles or patches.

Approvals (certificates):

EU
TUV
DNV
Force

Approval no: 84/525/CEE/B95.41.



Markings:

"N_2 - Ar - CO_2 200 bar"
"DFE "+4 digits
Production no: 5 digits
Approvals: Various
Year + month of manufacturing
Year + month of pressure testing
"T300"

Document:	200110 FE-HP05-200 Tom	Id	lg
Product: 5 liter 200 bar cylinder		Rev	B1

Pos.	Text
1	Tread: W 28.8 × 1/14" keg DIN 477
2	Height: 515 mm
3	Thickness: Min 3.7 mm
4	Diameter: 140 mm
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FIRE EATER ½
Vølundsvej 17
DK- 3400 Hillerød
Tel+45 7022 2769
Fax+45 7023 2769

Hand wheel valve

Item numbers covered by this datasheet

603308 HWV M25×1.5 - 300/364
603310 HWV M25×1.5 - 300/400
603312 HWV M25×1.5 - 300/400

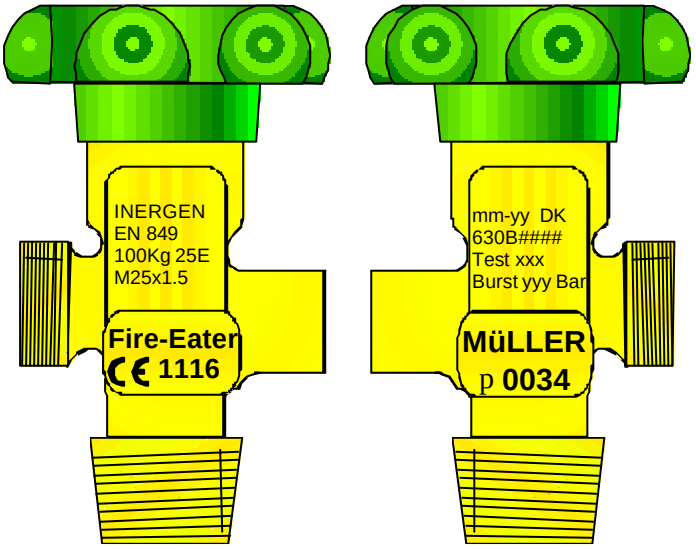
603207 HWV W24.32 - 200/250
603210 HWV W24.32 - 200/250
603307 HWV W24.32 - 200/364

General

Hand wheel valve for use in INERGE fire extinguishing systems.

The valve is fitted to the cylinder to ensure safe transport in accordance with current ADR regulation by conforming to the EU 1999/36 (TPED) directive.

Upon installation the discharge valve is installed and the HWV is opened.



FIRE EATER

Vølundsvej 17
DK- 3400 Hillerød
Tel +45 7022 2769
Fax +45 7023 2769

	Text
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Specifications

Pressure
- Work: See table 1
- Proof (burst): > 1200 bar
- Burst disc: See table 1 (type 3 valve)

Temperature: -60 to +100°C

Flow way: 50mm^2 (ø8mm)

Smallest container: 2l (200 or 300 bar @ 15°C)

Tread connections
- Cylinder: See table 1
- Discharge valve: See table 1

Materials: Brass, stainless steel, Viton

Dimension
- L×H×W: 65×110×65
- Weight: 0.5 – 0.6 kg

Table 1

Part number	Model	Hand Wheel colour	Pressure			Tread	
			Work	Burst disc	Fill @ 15°C	Cylinder	Discharge valve
			Bar	Bar	Bar		
603308	630B0014	Green	364	430 ±20	300	25E	M25×1.5
603310	630B0015	Green	364	430 ±20	300	17E	M25×1.5
603312	630B0018	Green	400	480 ±20	300	25E	M25×1.5
603207	630B0013	Black	264	330 ±15	200	25E	W24.32×1/14
603210	630B0017	Black	264	330 ±15	200	17E	W24.32×1/14
603307	630B0012	Black	364	430 ±20	200	25E	W24.32×1/14

Markings

INERGEN
EN 849
100kg >>Tread Cylinder<<
>>Tread Discharge valve<<
Fire Eater
CE1116

>>Date of production<< DK
Test >> Test pressure<<
Burst >>Pressure Burst disc<<
Müller

π0034

FIRE EATER

Vølundsvej 17
DK- 3400 Hillerød
Tel +45 7022 2769
Fax +45 7023 2769

	Text
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Installation

PTFE tape must be applied to the cylinder connection tread before the hand wheel valve is fitted to the cylinder. Be careful not to use excessive tape as this may damage the tread and lead to leakage.

Tightening torque as per ISO 13341 or
17E: 100Nm
25E: 200Nm

After fitting the discharge valve the cylinder valve is opened to the full position and sealed with coarse sealing wire and seal.

Operating

The valves do not need any operation after installation, as release is controlled by the discharge valve.

Maintenance

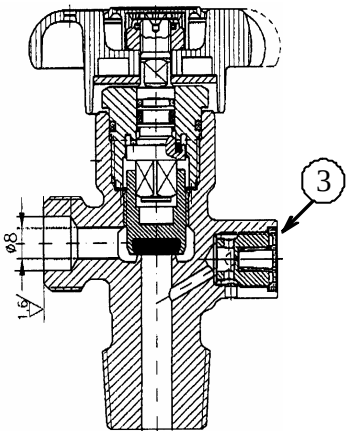
No requirements.

Routine testing

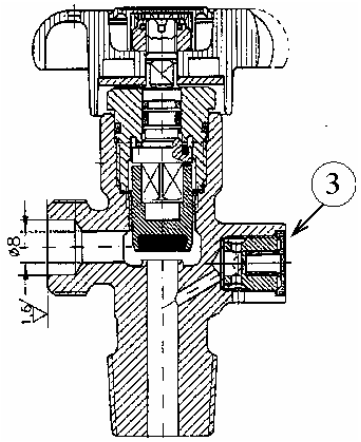
No requirements.

Section drawings

Valve in normal closed and fully opened position



Closed



Open

FIRE EATER A/S
Vølundsvej 17
DK- 3400 Hillerød
Tel +45 7022 2769
Fax +45 7023 2769

	Text
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Declaration of conformity & EC certificate (CPD)

CE
1116

Manufacturer:
Fire Eater A/S
Vølundsvej 14
DK-3400 Hillerød
Denmark

EN12094-4
Container valve assembly and their actuators

Hand wheel valve

Type 1
For inert gas (INERGEN)
Without dip tube

Work pressure 264, 364, 400 bar
Free flow diameter 8mm
Smallest container 8l

Based upon this Certificate of conformity, we declare that the container valve assembly designated above meets the provision of Annex ZA of the EN12094-4 standard.

The discharge valve is to be used in combination of Fire Eater discharge valve and actuator with the Ci designation.

Certification body for this product is
CNPP, B.P. 2265, F-27950 Saint_Marcel, www.cnpp.com
CNPP certificate: xxx

Signature: _____
Michael Kroneder, Technical manager
Date: 2006-05-01

FIRE EATER A/S
Vølundsvej 17
DK- 3400 Hillerød
Tel +45 7022 2769
Fax +45 7023 2769

	Text
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Declaration of conformity (TPED)

π

0034

Manufacturer:

Müller Gas Equipment A/S
Mommarksvej 7-11
DK-6400 Sønderborg
Denmark

EN 849

Transportable gas cylinders, Cylinder valves

Cylinder valve type 630

TÜV certificate: 6020/02/0207

FIRE EATER

Vølundsvej 17
DK- 3400 Hillerød
Tel +45 7022 2769
Fax +45 7023 2769

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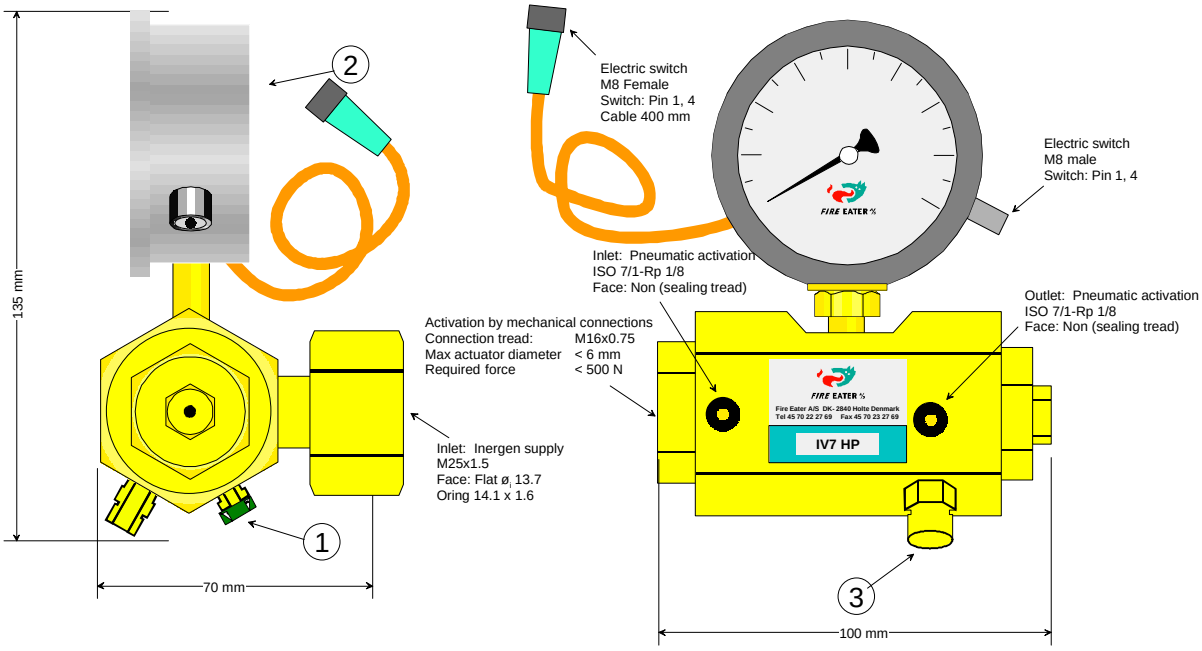
Dane techniczne

Rozdzial:	Zawor
Artykul:	304093

IV7-300 Manosw M25 Conn.



Specyikacje

Cisnienie robocze: 100 - 300 bar.
Cisnienie rozsadzajace:> 1500 bar.
Temperatura: -20°C - +70°C.

Aktywacja

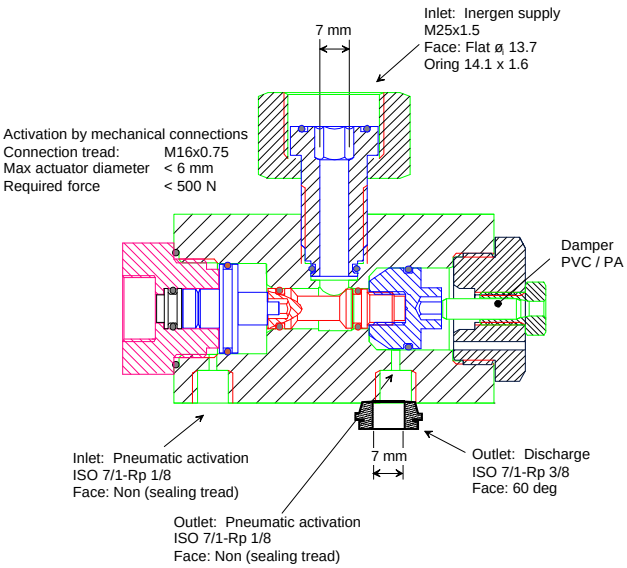
Cisnienie wsteczne: 12 bar

Mechaniczna:

Uderzenie: > 3mm
Sila: 500 N

Pneumatycza:

Cisnienie: > 10 bar



Material

Korpus: Mosiadz (CuZn39Pb3)
Orings: Viton (FPM)

Wymiary:

Waga: 1.5 kg

Otwory:

7.0 mm

Document:	304093 IV7-300 M25
Produkt: IV7 300 M25 Manosw.-	Id mk
	Rev a 1

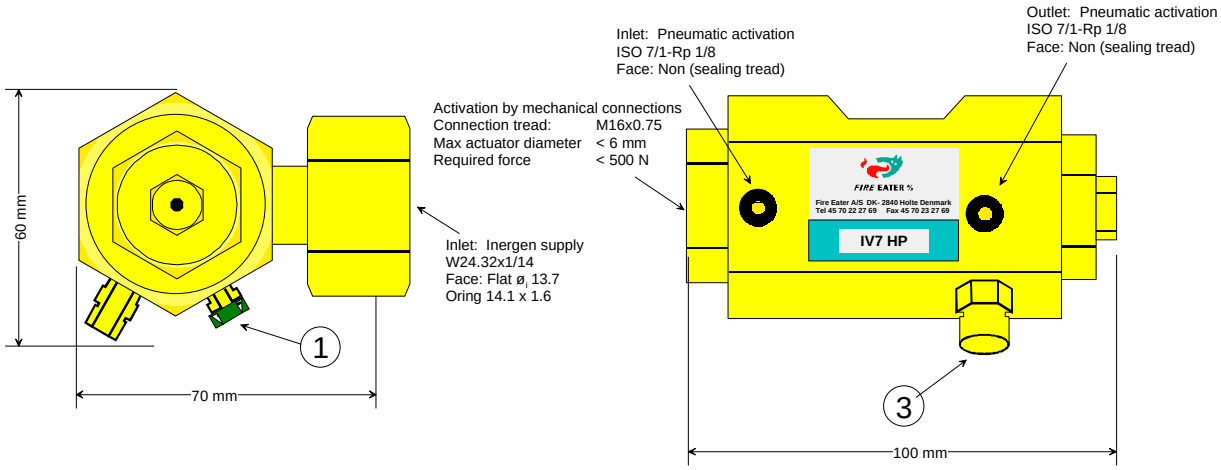
FIRE EATER ⅘
Vølundsvej 17
DK- 3400 Hillerød
Tel +45 7022 2769
Fax +45 7023 2769

Pos	Text	
1	Bust Disc	801556
2	Pressure gauge	303018
3	Outlet	ISO 228/1-G 3/8
4	Pneumatic activation	ISO 7/1-Rp 1/8
5	Mechanical activation	M16×0.75
6	Inergen supply inlet	M25×1.5
7		
8		
9		

Engineering data sheet

Chapter:	Valve
Item:	303090

IV7-300 Basic



Specifications

Work pressure: 100 - 300 bar.
Burst pressure: > 1500 bar.
Temperature: -20°C - +70°C.

Activation

Back pressure: 12 bar.

Mechanical:

Stroke: > 3mm.
Force: 500 N

Pneumatic:

Pressure: > 10 bar.

Material

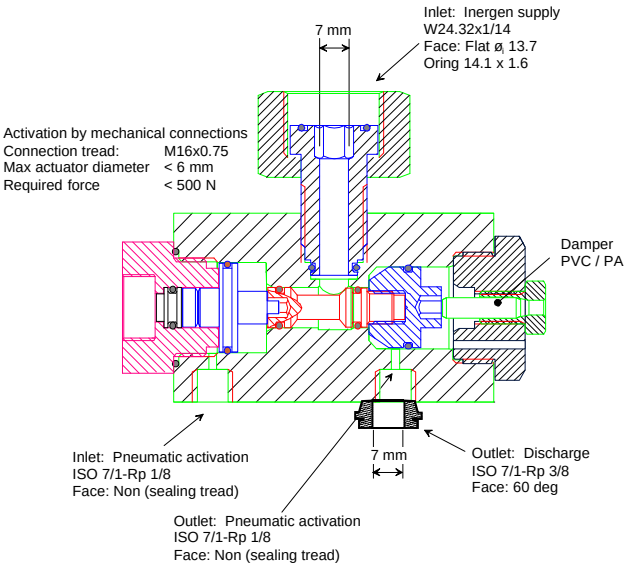
Body: Brass (CuZn39Pb3).
Orings: Viton (FPM).

Dimensions:

Weight: 1.5 kg.

Orifice:

7.0 mm.



Document:	303090 IV7-300 Basic		
Product: IV7 Basic Master Valve		Id	FE
		Rev	a 1

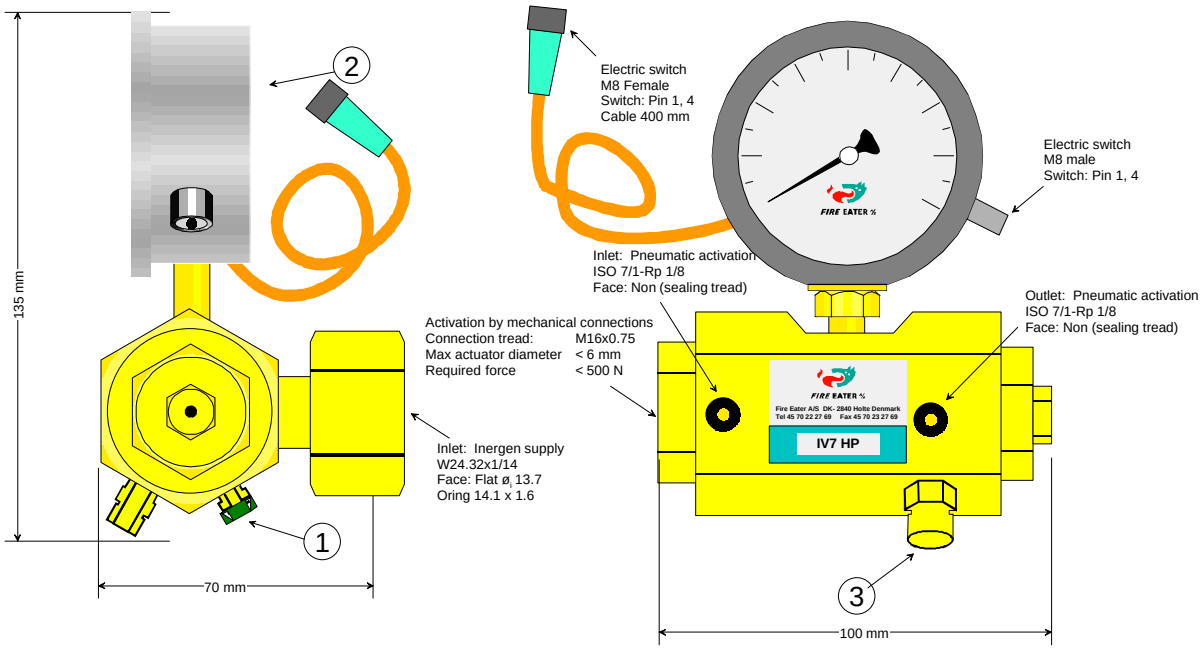
Pos	Text	
1	Bust Disc	801556
2	Blind plug	
3	Discharge outlet	ISO 228/1-G 3/8
4	Pneumatic activation	ISO 7/1-Rp 1/8
5	Mechanical activation	M16×0.75
6	Inergen supply inlet	
7		
8		
9		

FIRE EATER ⅘
Vølundsvej 17
DK- 3400 Hillerød
Tel +45 7022 2769
Fax +45 7023 2769

Engineering data sheet

Chapter:	Valve
Item:	303083

IV7-200 Manosw. -Conn



Specifications

Work pressure: 100 - 200 bar
Burst pressure: > 1500 bar
Temperature: -20°C - +70°C

Activation

Back pressure: 12 bar

Mechanical:

Stroke: > 3mm
Force: 500N

Pneumatic:

Pressure: > 10 bar

Material

Body: Brass (CuZn39Pb3)
Orings: Viton (FPM)

Dimensions:

Weight: 1.5 kg

Orifice:

7.0 mm

Document:	303083 IV7-200 manosw m
Product: IV7 Manosw. Conn Valve	Id lg
	Rev a 1

Pos	Text	
1	Bust Disc	801551
2	Pressure gauge	303014
3	Outlet	ISO 228/1-G 3/8
4	Pneumatic activation	ISO 7/1-Rp-1/8
5	Mechanical activation	M16×0.74
6	Inergen supply Inlet	W24.32×1/14
7		
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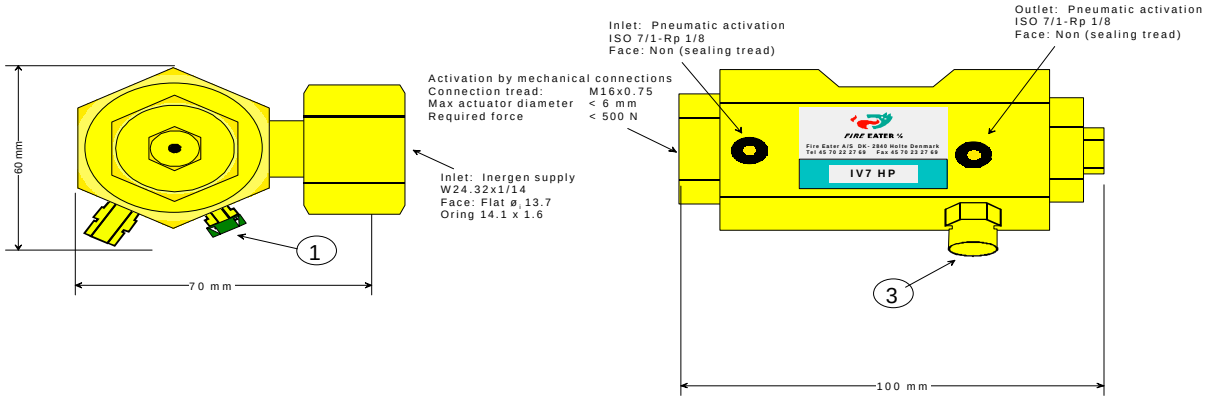
FIRE EATER ⅘
Vølundsvej 17
DK- 3400 Hillerød
Tel +45 7022 2769
Fax +45 7023 2769

Engineering data sheet

Chapter:	Valve
Item:	303080

IV7-200 Basic



Specifications

Work pressure: 100 - 200 bar.
Burst pressure: > 1500 bar.
Temperature: -20°C - +70°C.

Activation

Back pressure: 12 bar.

Mechanical:

Stroke: > 3mm.
Force: 500 N

Pneumatic:

Pressure: > 10 bar.

Material

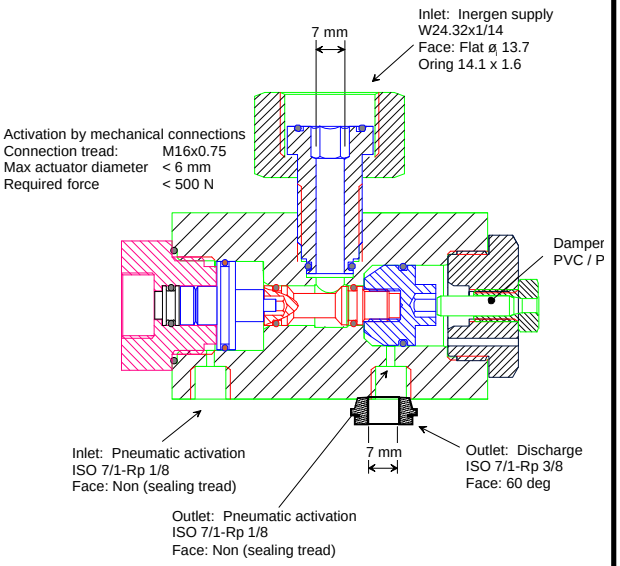
Body: Brass (CuZn39Pb3).
Orings: Viton (FPM).

Dimensions:

Weight: 1.5 kg.

Orifice:

7.0 mm.



Document:	303080 IV7-200 Basic
Product: IV7 Basic Valve	Id lg
	Rev a 1

FIRE EATER ½
Vølundsvej 17
DK- 3400 Hillerød
Tel +45 7022 2769
Fax +45 7023 2769

Pos	Text	
1	Bust Disc	801551
2	Blind plug	
3	Discharge outlet	ISO 228/1-G 3/8
4	Pneumatic activation	ISO 7/1-Rp 1/8
5	Mechanical activation	M16 ×0.75
6	Inergen supply inlet	W24.32×1/14
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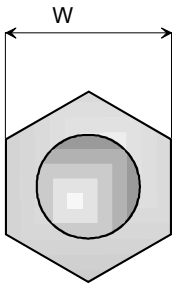
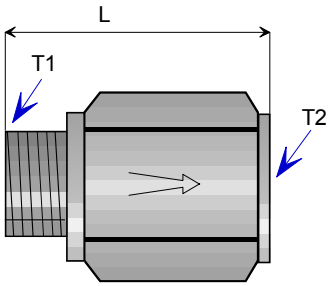
Non-return valve ¼" in-ext





General

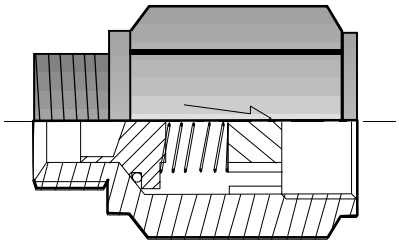
Non-return valve for use in pilot lines for activation of Inergen fire extinguishing system, may be used for check valve also.

Specifications:

Working pressure:	01-400 bar
Temp. (operating):	-40 to +70 °C.
T1:	ISO228 1/4" (60° face)
T2:	ISO228 1/4"

Dimensions:

W (hex) × L	19 × 36mm
Weight	0.05 kg



Material

External	Stainless steel, AISI316
Internal	Brass (CuZn39Pb3) and NBR

Maintenance

Leakage tests every 5. year.

Standards & pprovals

EN 12094-13
Approved to notified body ####

CE
####
Fire Eater A/S
Vølundsvej 17
3400 Hillerød

EN 12094-13
Non-return valve for INERGEN systems

Working pressure	1-400 bar
Free cross-sectional area	25 mm^2

FIRE EATER ½
Vølundsvej 17
DK- 3400 Hillerød
Tel +45 7022 2769
Fax +45 7023 2769

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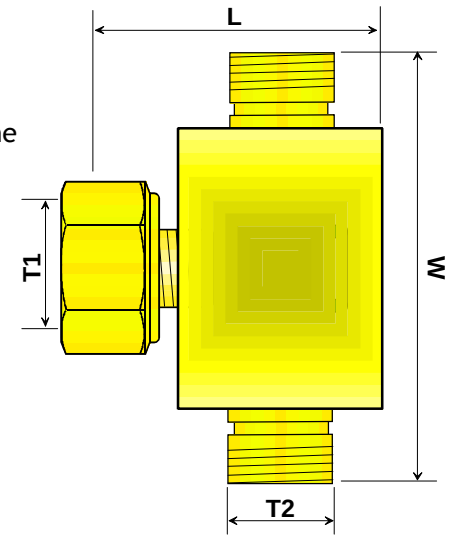
304042 DV7a-2 M25 (300bar)



General

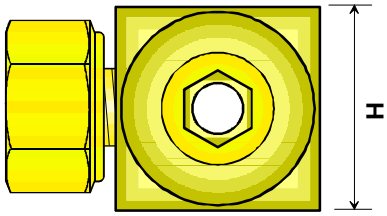
The DV7 is used where more discharge valves are to be connected to the same INERGEN cylinder.
The DV7a-2 has two outlet connections and so allows two IV7 valves to be fitted to one hand wheel valve

The DV7 is used when one common INERGEN bank is used for fire suppression in several zones.

Material

Metal:	Brass CuZn39Bp3
O-rings:	Viton 90°

Dimensions



L×W×H:	62×82×40 mm
T1:	M25×1.5
T2:	M25×1.5
Weight:	0.9 kg
P_{Work}:	0 - 400 bar
P_{Burst} :	> 1200 bar
Flow diameter:	7 mm (38.5mm^2)
O-rings:	14.1×1.6 90° FPM (Item: 302107)

Installation

The nut with tread T1 is screwed to the cylinder hand wheel valve according to good workmanship for connections sealed with O-rings.

The hand wheel valve must have M25x1.5 tread and a surface suitable for O-ring type seal.

The DV7 can be positioned in any desirable position.

Maintenance, operating, testing.

The DV7 should be cleaned regularly.

The component must be leakage tested when pressurized as per instructions with discharge valve.

No special maintenance is required.

FIRE EATER

Vølundsvej 17
DK- 3400 Hillerød
Tel +45 7022 2769
Fax +45 7023 2769

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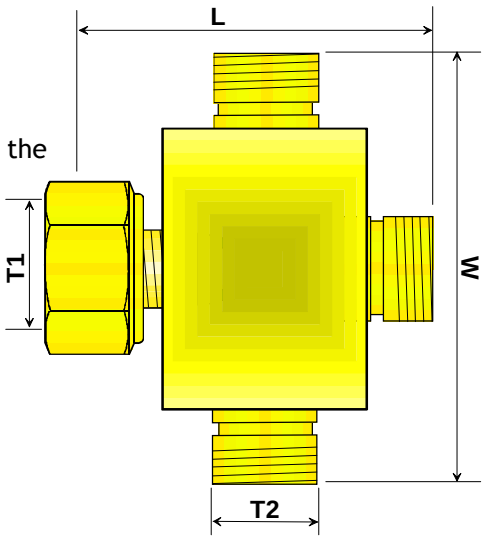
304043 DV7a-3 M25 (300bar)



General

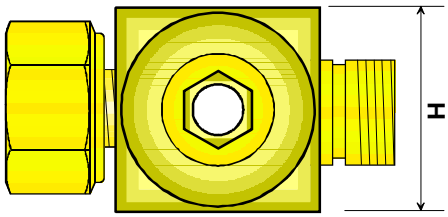
The DV7 is used where more discharge valves are to be connected to the same INERGEN cylinder.
The DV7a-3 has three outlet connections and so allows three IV7 valves to be fitted to one hand wheel valve

The DV7 is used when one common INERGEN bank is used for fire suppression in several zones.

Material

Metal:	Brass CuZn39Bp3
O-rings:	Viton 90°

Dimensions



L×W×H:	75×82×40
T1:	M25×1.5
T2:	M25×1.5
Weight:	0.9 kg
P_{Work}:	0 - 400 bar
P_{Burst} :	> 1200 bar
Flow diameter:	7 mm (38.5mm^2)
O-rings:	14.1×1.6 90° FPM (Item: 302107)

Installation

The nut with tread T1 is screwed to the cylinder hand wheel valve according to good workmanship for connections sealed with O-rings.

The hand wheel valve must have M25x1.5 tread and a surface suitable for O-ring type seal.

The DV7 can be positioned in any desirable position.

Maintenance, operating, testing.

The DV7 should be cleaned regularly.

The component must be leakage tested when pressurized as per instructions with discharge valve.

No special maintenance is required.

FIRE EATER

Vølundsvej 17
DK- 3400 Hillerød
Tel +45 7022 2769
Fax +45 7023 2769

	Text
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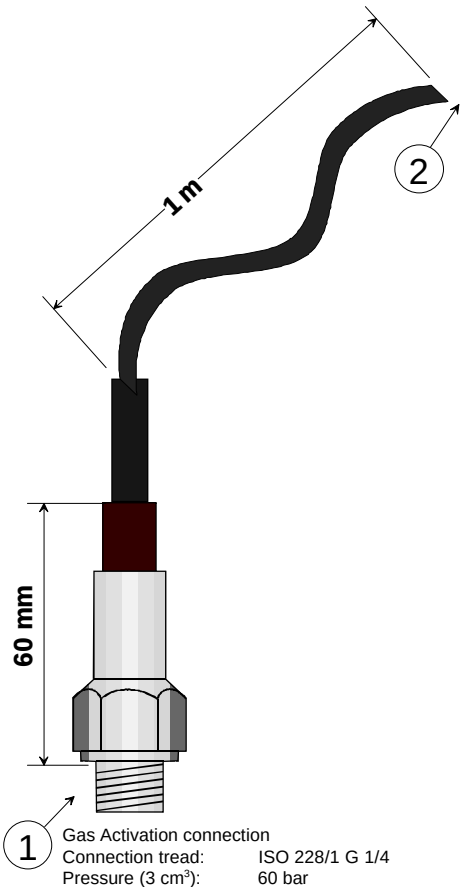
Engineering data sheet

Chapter:	Activator
Item:	302424

Comet gas generators



Material

Nickel plated brass.

Specifications:

Connecting tread:	ISO 228/1 G 1/4
Electrical connection:	Bare wire
Work temperature:	-40 - + 60°C
Less than 20 hours before discharge	-62 - +90 °C
Life time:	3 years.
Classification:	UN Class 1 (Non Explosive)
Reliability at 95% confidence level:	0.999.

Electrical characteristics

Nominal fire energy	6 mJ
Resistance	1.4 - 2.0 Ω
Max No fire current:	
30 sec. pulse	0.20 A
0.05 sec pulse	0.20 A
Min single fire current:	
DC	0.60 A
0.01 sec pulse	0.90 A
Recommended Fire Current	
Single	1.0 A
Series	3.0 A
Max monitoring current:	0.01 A

Transport

UN 0432
Articles, pyrotechnic, for technical purposes
Class 1.4S

Document:	302424 EA-C Comet gas		
Product: Comet gas generator	Id	lg	
	Rev	1	

Pos	Text	
1	Connection tread	ISO 228/1-G 1/4
2		
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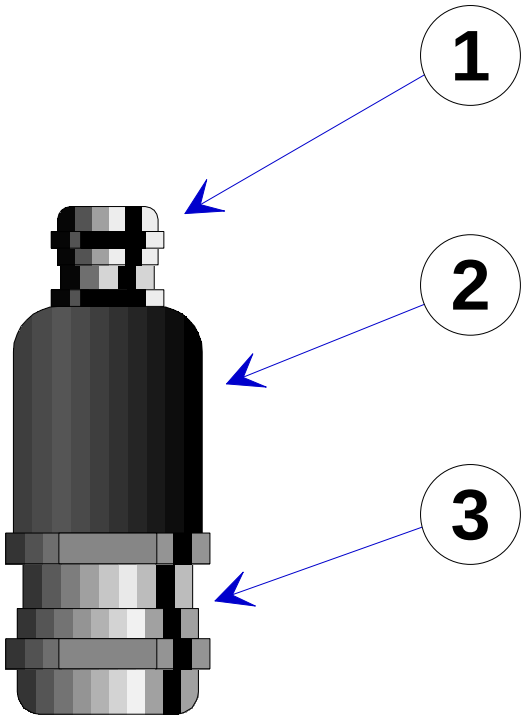
Engineering data sheet

Chapter:	Accessories
Item:	404014

Comet IP67 adapter



Material

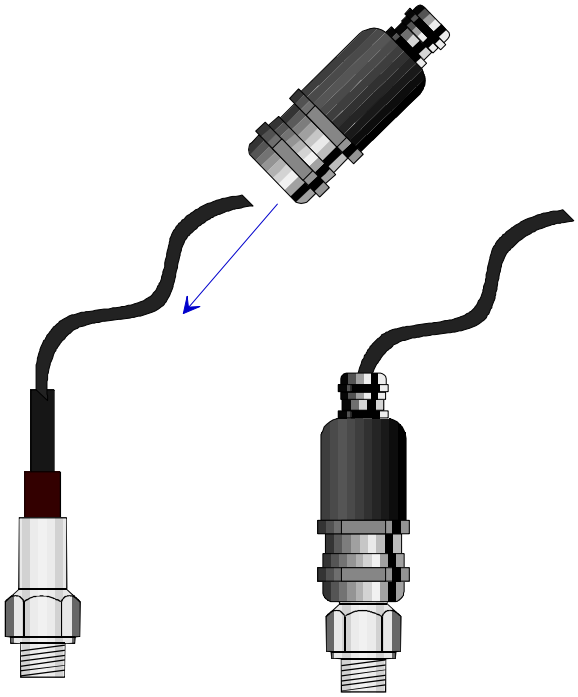
Housing: Black POM

Cable glands:

Material	Nickel plated Brass
IP class	IP68, 10 Bar
Seal:	NBR
Temp.	-40° - +120°C
Approval:	UL, CSA, VDE

Weight:

0.050 kg



Document:	404014 Comet IP67 adapter	Id	lg
Product: Comet IP67 adapter		Rev	1

Pos	Text	
1	PG IP68 M12	702470
2	Comet IP67 adapter body	404012
3	PG IP68 M20	702474
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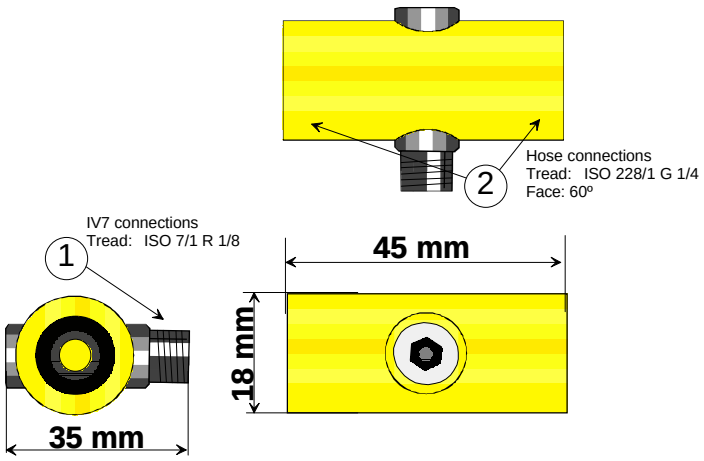
Engineering data sheet

Chapter:	Activator
Item:	303123

IV7 Dual Comet activator



Specifications

Work pressure: < 300 bar.
Burst pressure: > 1500 bar.
Temperature: -20°C - +80°C.

1

For connection to IV7 pneumatic inlet.
Tread: ISO 7/1 R 1/8.
Face: Sealing tread.

2

For connection of two “Comet” gas generators.
Tread: ISO 228/1 G ¼.
Face: Flat face uses copper washer.

Material

All parts: Brass (CuZn39Pb3).

Dimensions:

Weight: 0.300 kg.

Document:	303123 IV7 Dual Comet	Id	lg
Product: IV7 Dual Comet adapter		Rev	B2

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Pos	Text	
1	Connect to Discharge valve	ISO 7/1-Rp 1/8
	Comet connection	ISO 228/1-G 1/4
2		
3		
4		
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7		
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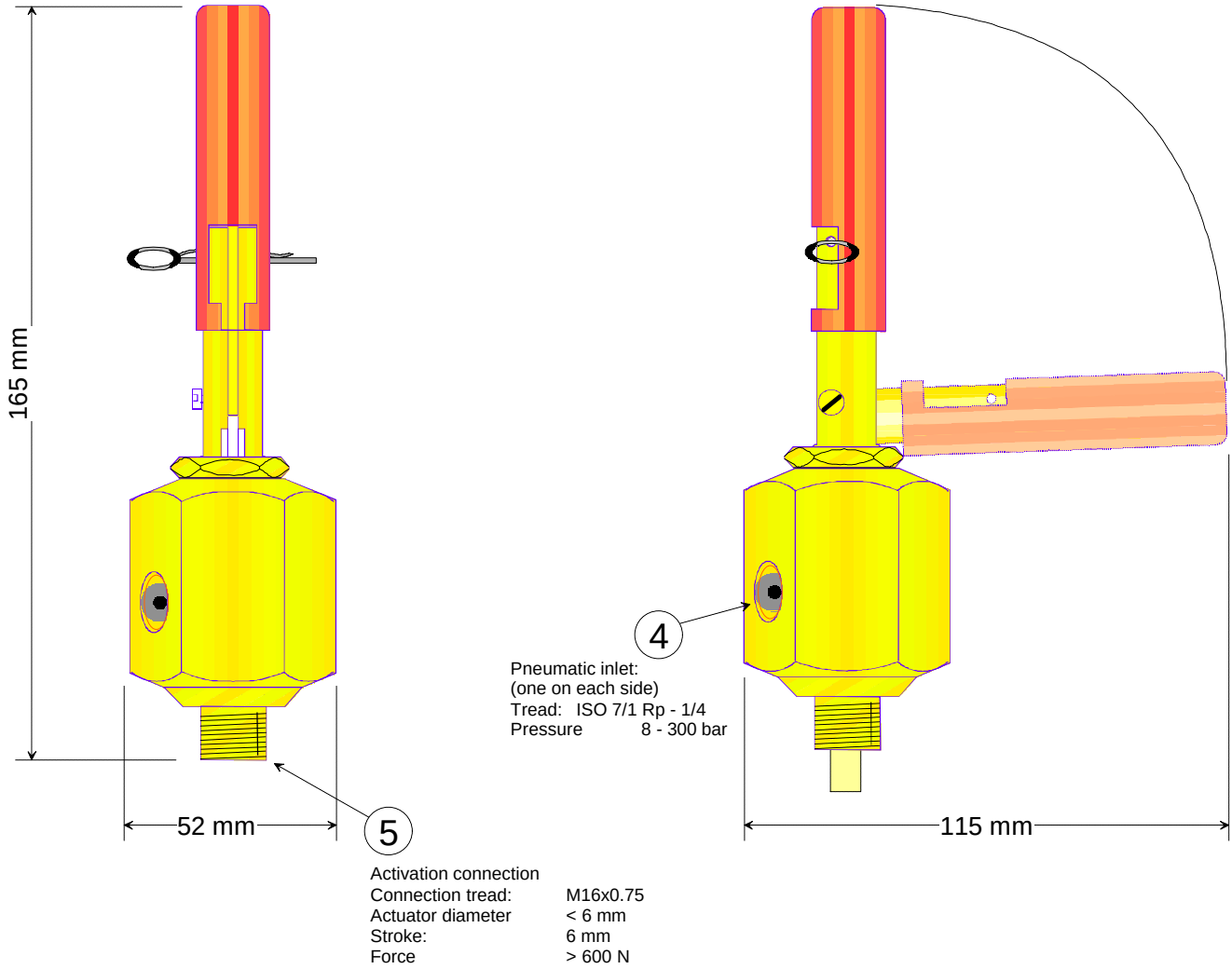
Engineering data sheet

Chapter:	Activator
Item:	302400

MPH activator unit



Material

Housing: Brass CuZn39Pb3.
Orings: Viton FPM.
Handle: Red PVC.

Weight:

0.775 kg

Document:	302400 MPH activator (IV4 -		
Product: MPH activator	Id lg		
	Rev B1		

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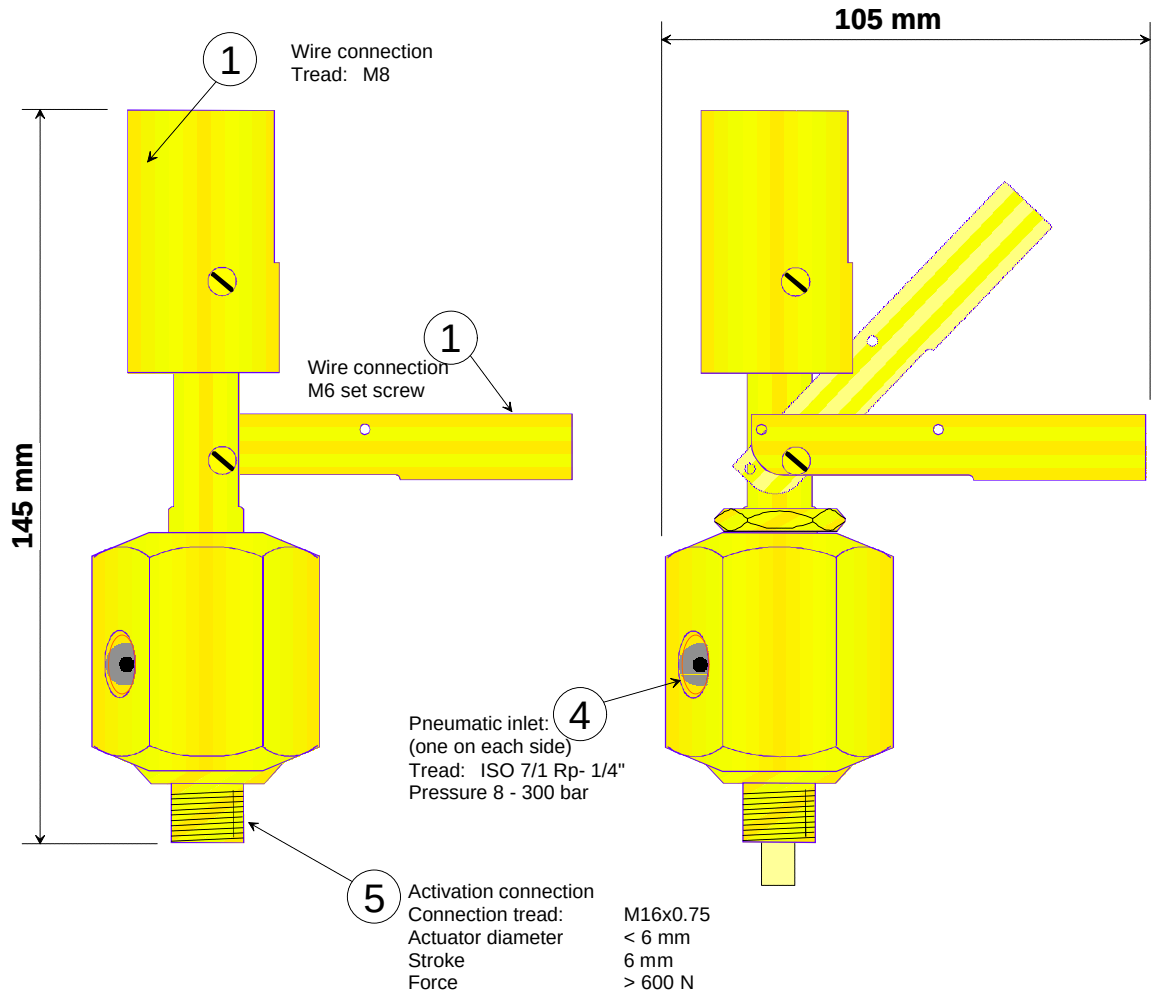
Pos	Text	
1		
2		
3		
4	Pneumatic activation	ISO 7/1-Rp 1/4
5	Mechanical activation	M16×0.75
6		
7		
8		
9		

Engineering data sheet

Chapter:	Activator
Item:	302420

MPW activator unit



Material

Housing: Brass CuZn39Pb3.
Orings: Viton FPM.
Handle: Brass CuZn39Pb3.

Weight:

1 kg

Document:	302420 MPW wire activator		
Product: MPW activator	Id lg	Rev B1	

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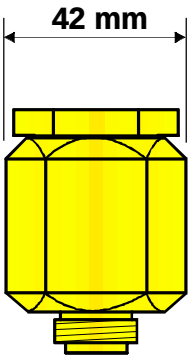
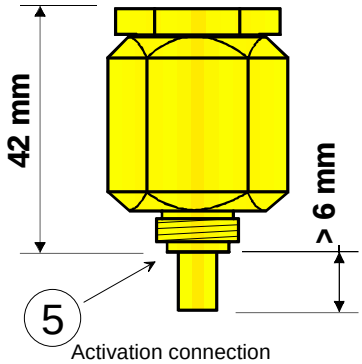
Pos	Text	
1	Wire connection	ø 2.1 mm
2		
3		
4	Pneumatic activation	ISO 7/1-Rp 1/4
5	Mechanical activation	M16×0.75
6		
7		
8		
9		

Engineering data sheet

Chapter:	Activator
Item:	302071

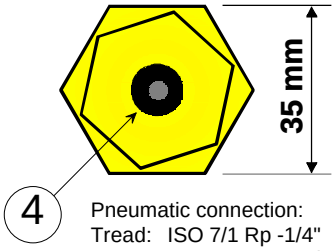
NPP activator





Activation connection

Connection tread:	M16x0.75
Actuator diameter	< 6 mm
Force	> 400 N



Pneumatic connection:

Tread:	ISO 7/1 Rp -1/4"
Pressure:	8 - 300 bar

Material

Housing: Brass CuZn39Pb3.
Orings: Viton FPM.

Weight:

0.300 kg

Document:	302071 NPP activator	
Product: NPP activator	Id	lg
	Rev	B1

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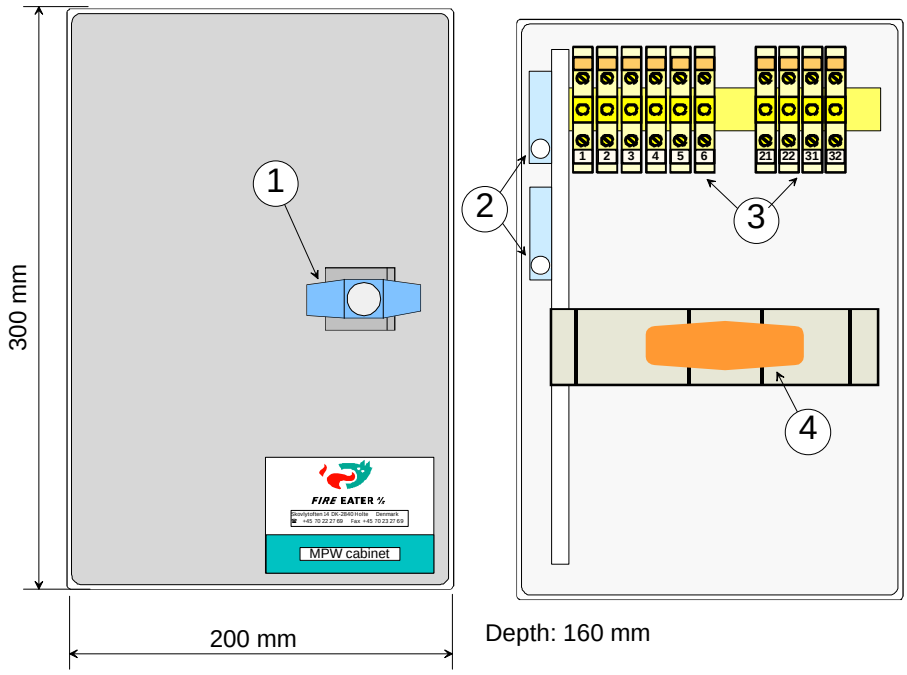
Pos	Text	
1		
2		
3		
4	Pneumatic activation	ISO 7/1-Rp 1/4
5	Mechanical activation	M16×0.75
6		
7		
8		
9		

Engineering data sheet

Chapter:	Activator
Item:	302489

Wire Cabinet



1: Door lock:

Door lock with separate key is included for customer replacement.

2: Switches:

Max Load 250 Vac 10A

3: Terminals:

Type: SAK 2.5

Connections

4: Handle:

Pull for discharge

Terminal	Connects to	Terminal	Connects to
1:	Top switch Com	4:	2´nd switch Com
2:	Top switch NO	5:	2´nd switch NO
3:	Top switch NC	6:	2´nd switch NC
21:	Pressure switch	22:	Pressure switch
31:	Electric discharge	32:	Electric discharge

Document:	302489 MPW Cabinet single		
Product: Wire cabinet	Id	lg	
	Rev	A1	

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Pos	Text	
1	Door lock	See text above
2	Switches	See text above
3	Terminals	See text above
4	Wire Handle	See chapter “Activation”
5		
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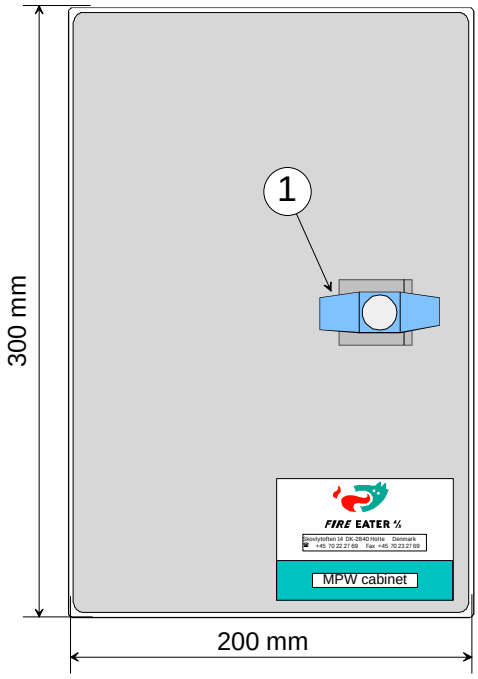
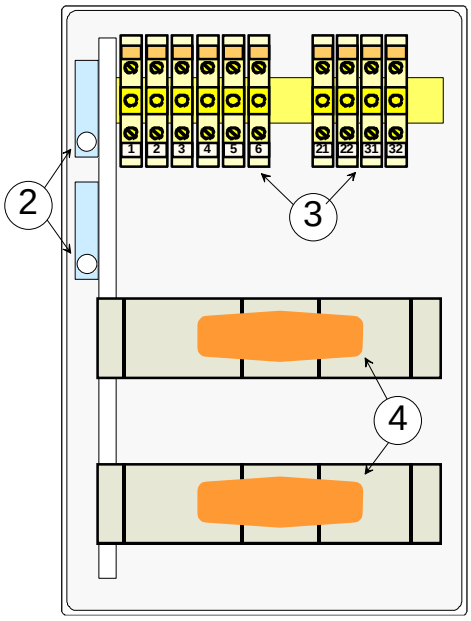
Engineering data sheet

Chapter:	Activator
Item:	302476

Dual Wire Cabinet





Depth: 160 mm

1: Door lock:

Door lock with separate key is included for customer replacement.

2: Switches:

Max Load 250 Vac 10A

3: Terminals:

Type: SAK 2.5

Connections

Terminal	Connects to	Terminal	Connects to
1:	Top switch Com	4:	2´nd switch Com
2:	Top switch NO	5:	2´nd switch NO
3:	Top switch NC	6:	2´nd switch NC
21:	Pressure switch	22:	Pressure switch
31:	Electric discharge	32:	Electric discharge

4: Handle:

Pull for discharge

Document:	302476 MPW Cabinet dual		
Product: Wire cabinet	Id	lg	
	Rev	3	

Pos	Text	
1	Door lock	See text above
2	Switches	See text above
3	Terminals	See text above
4	Wire Handle	See chapter “Activation”
5		
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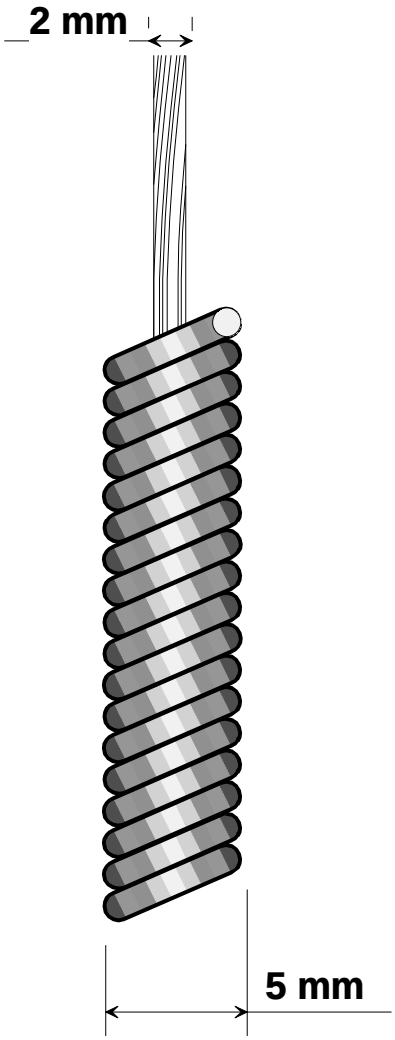
Engineering data sheet

Chapter:	Activator
Item:	302458

Steel Wire



Inner wire

Stainless steel

Outer cable

Stainless steel

Length

Cut to customers demand

Max recommendable: 7 m

Document:	302458 Steel wire	
Product: Steel wire	Id	lg
	Rev	B1

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Pos	Text
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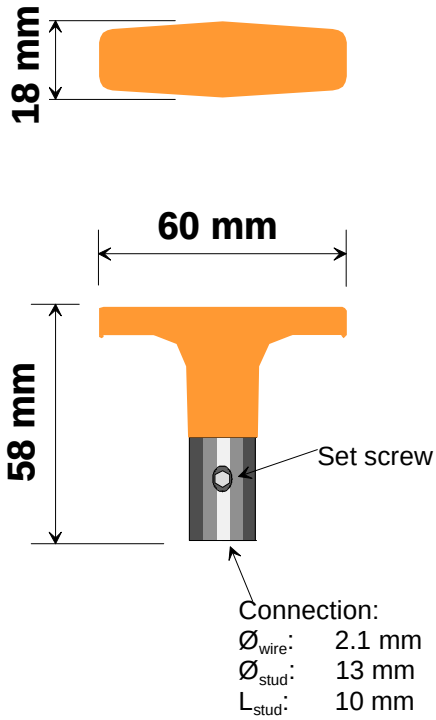
Engineering data sheet

Chapter:	Activator
Item:	302444

Handgrip complete

Material

Stainless Steel AISI 316
Orange/Red PVC



Document:	302444 Handgrip complete	
Product: Wire Handle	Id lg	
	Rev B1	

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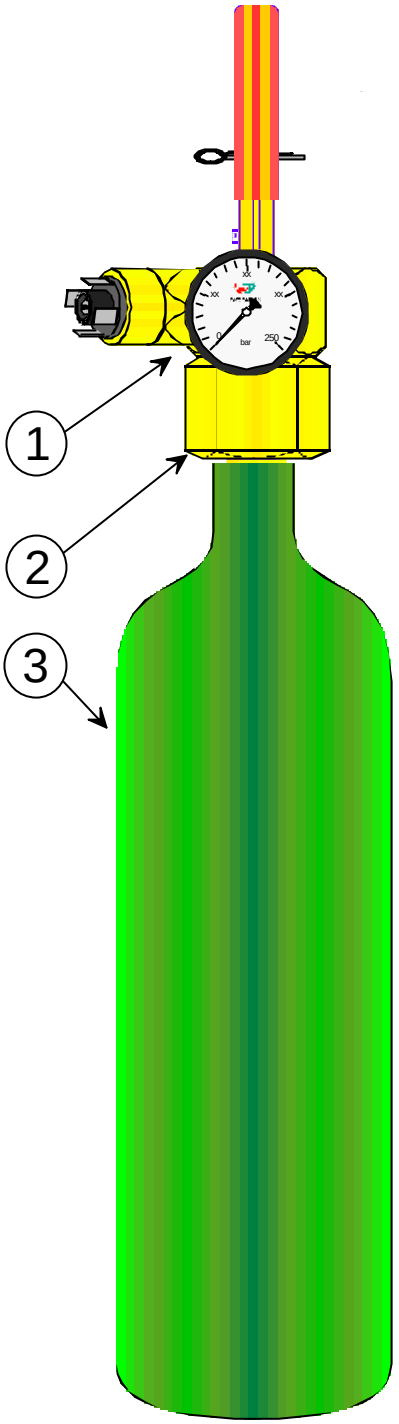
PDS-80 System Manual



General

The PDS system is used for activation of Fire Eater INERGEN discharge valves and SV22 selector valves.

The PDS system may be activated manually (handle) only.

Outlet

Type: Flare 6m, Female ¼" (adapter removed)
Tread: SAE 7/16, ISO228- G ¼" (adapter removed)
Flow way: ø1.2mm

Gauge

Range: 0- 160 bar
Dimension: ø40mm

Material

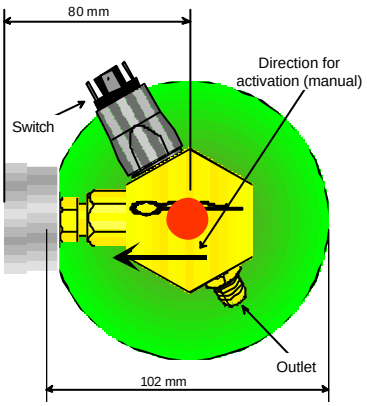
PDS valve: Brass CuZn39Pb3
O-rings: Viton (FPM)
Handle: Red PVC
Cylinder: Steel

Filling

Agent: INEERGEN or Nitrogen
Pressure: 80 bar @ 15°C

Dimensions

Weight: 4 kg
Height: 540 mm
Diameter: 102 mm



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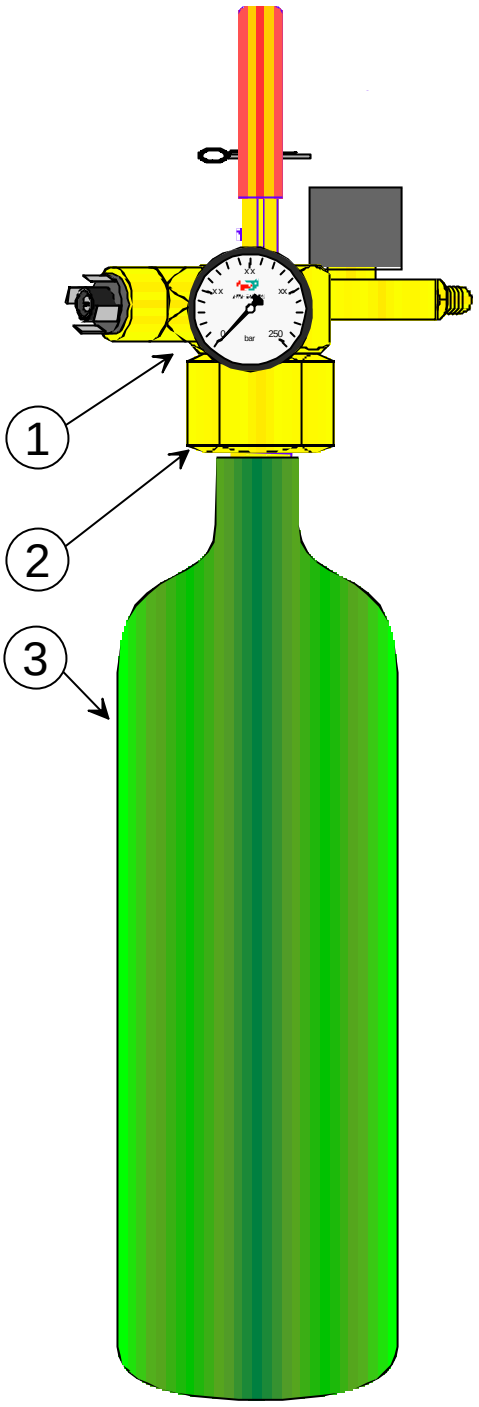
PDS-80 System Solenoid



General

The PDS system is used for activation of Fire Eater INERGEN discharge valves and SV22 selector valves.

The PDS system may be activated either manually (handle) or electrically (solenoid).

Outlet

Type:	Flare 6m, Female ¼" (adapter removed)
Tread:	SAE 7/16, ISO228- G ¼" (adapter removed)
Flow way:	ø1.2mm

Gauge

Range:	0- 160 bar
Dimension:	ø40mm

Material

PDS valve:	Brass CuZn39Pb3
O-rings:	Viton (FPM)
Handle:	Red PVC
Cylinder:	Steel

Filling

Agent:	INERGEN or Nitrogen
Pressure:	80 bar @ 15°C

Dimensions

Weight:	4 kg
Height:	540 mm
Diameter:	102 mm

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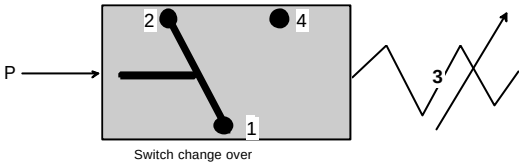
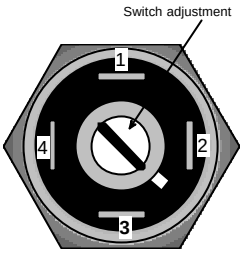
Electrical activation



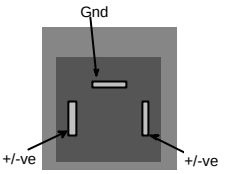


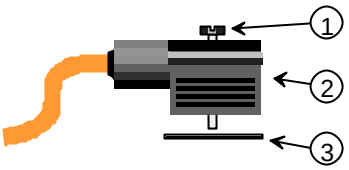
Pressure switch

Range: 0-250 bar
Set point: 40 bar
Connection: See drawings

Solenoid (electrical)

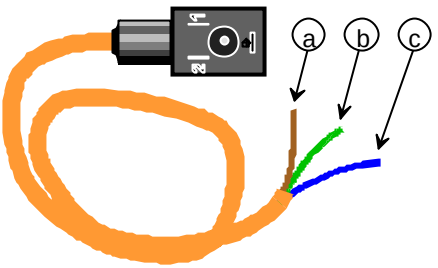
Voltage: 24 VDC
Power: 10 W
Connection: See drawing

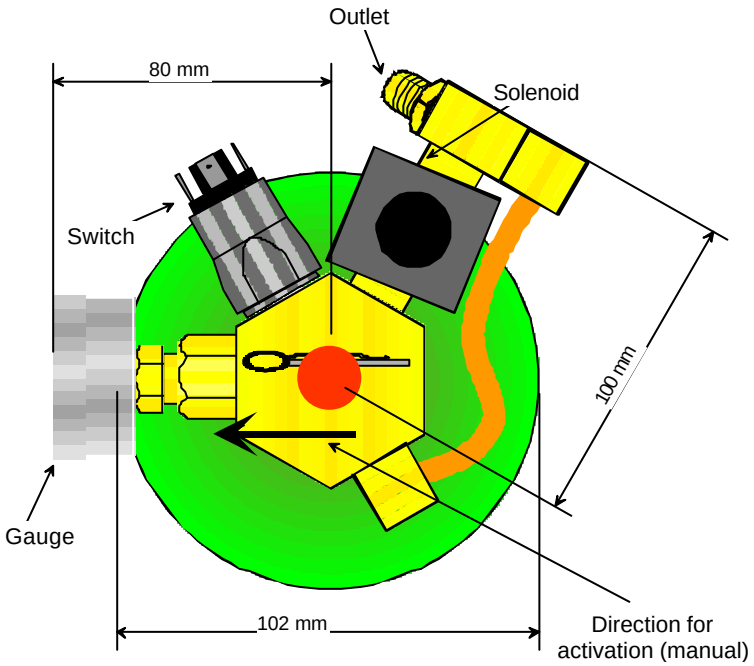




Cable (solenoid)

Cable: 3m IEC 331
Connect (Brown: +ve, blue: -ve, Yellow/green: Gnd)





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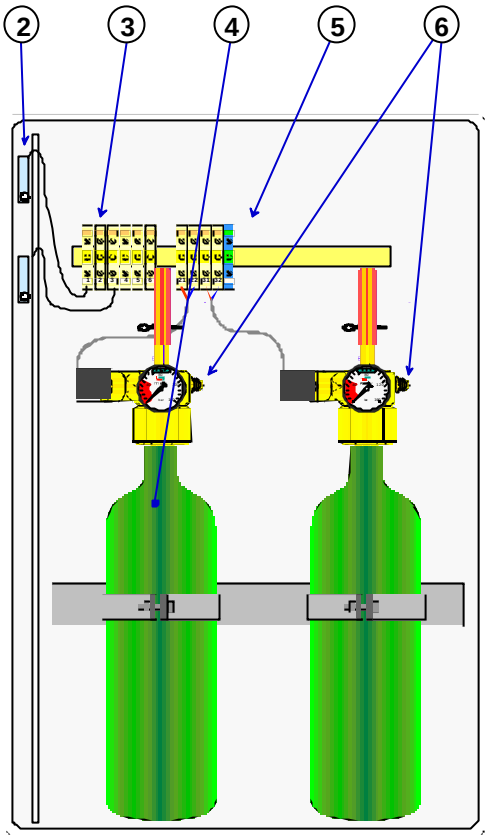
PDS-80 System Manual



General

The PDS cabinet consists of two PDS-80 systems, meeting the requirement for redundancy of the activation circuitry. Furthermore the cabinet is supplied with door contact sets for connecting discharge alarm warnings.

Outlet

Type:	Flare 6m Female ¼" (adapter removed)
Tread:	SAE 7/16 ISO228- G ¼" (adapter removed)
Flow way:	ø1.2mm

Gauge

Range:	0- 160 bar
Dimension:	ø40mm

Material

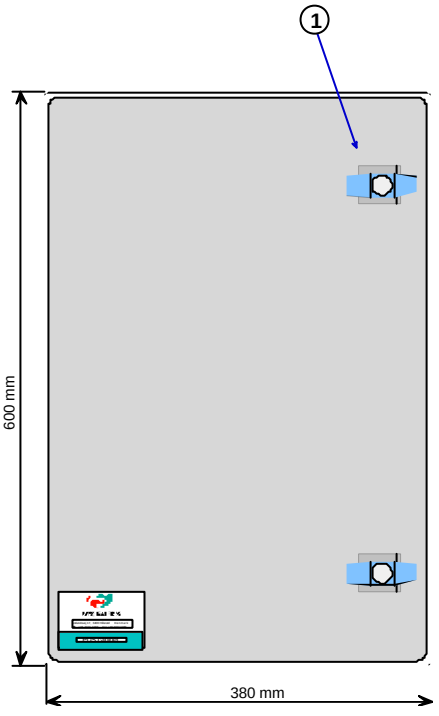
PDS valve:	Brass CuZn39Pb3
O-rings:	Viton (FPM)
Handle:	Red PVC
Cylinder:	Steel

Filling

Agent:	INERGEN or Nitrogen
Pressure:	80 bar @ 15°C

Dimensions

Weight:	10 kg
Height:	600 mm
Width:	380 mm
Depth:	210 mm



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	Text
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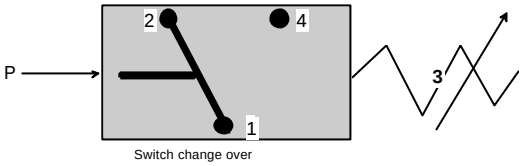
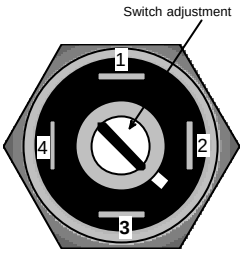
Electrical

Pressure switch

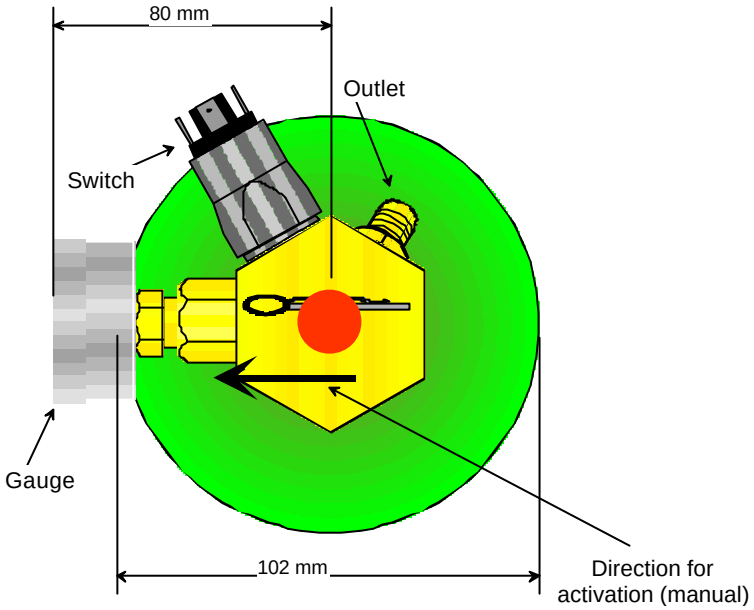
Range: 0-250 bar
Set point: 40 bar
Connection: See drawings

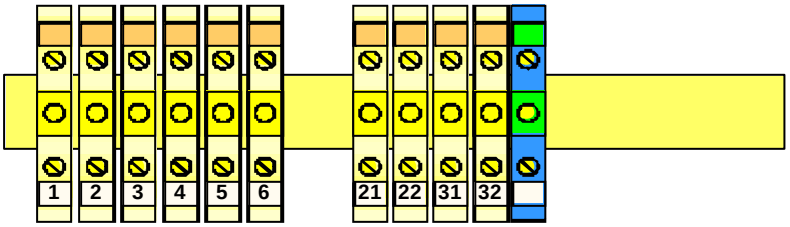




Terminals

1+4: Com (Door switch 1+2)
2+5: NO (Door switch 1+2)
3+6: NC (Door switch 1+2)
21+31: Com (Pressure switch 1+2)
22+32: NC (Pressure switch 1+2)
Ground: All





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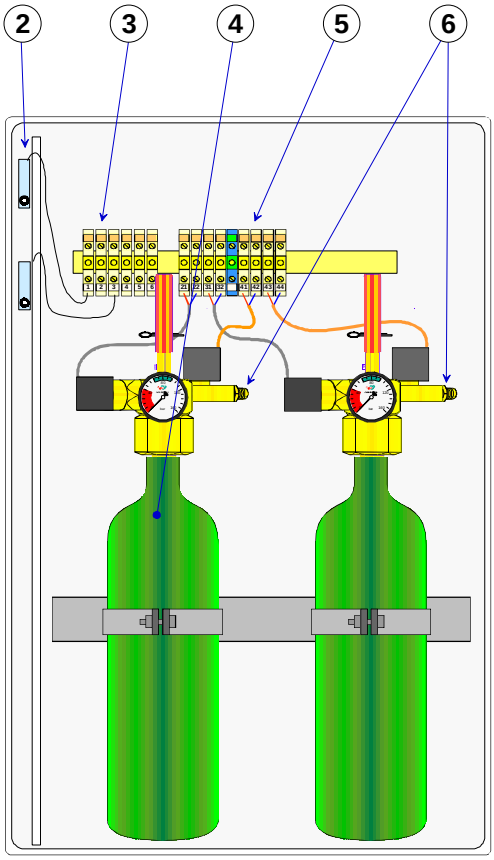
PDS-80 System Solenoid



General

The PDS cabinet consists of two PDS-80 systems, meeting the requirement for redundancy of the activation circuitry. Further the cabinet is supplied with door contact sets for connecting discharge alarm warnings.

Outlet

Type:	Flare 6m Female ¼" (adapter removed)
Tread:	SAE 7/16 ISO228- G ¼" (adapter removed)
Flow way:	ø1.2mm

Gauge

Range:	0- 160 bar
Dimension:	ø40mm

Material

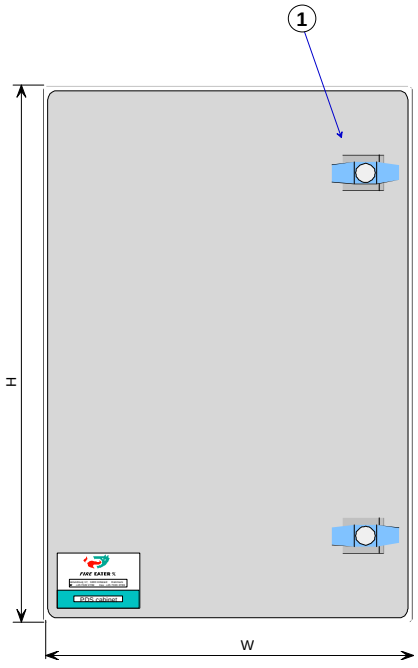
PDS valve:	Brass CuZn39Pb3
O-rings:	Viton (FPM)
Handle:	Red PVC
Cylinder:	Steel

Filling

Agent:	INERGEN or Nitrogen
Pressure:	80 bar @ 15°C

Dimensions

Weight:	10 kg
Height:	600 mm
Width:	380 mm
Depth:	210 mm



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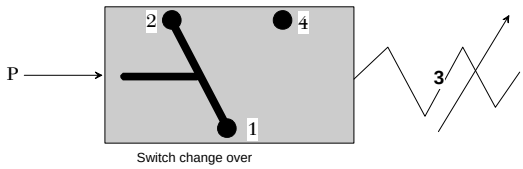
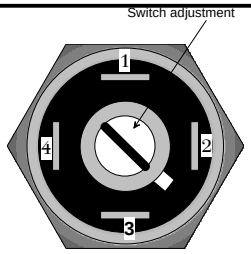
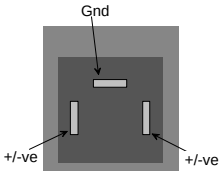
Electrical activation

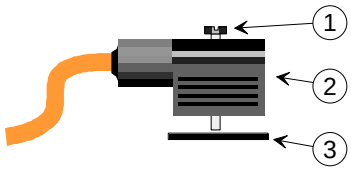




Pressure switch

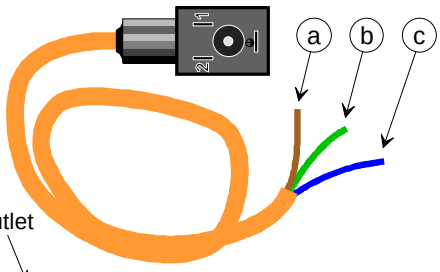
Range: 0-250 bar
Set point: 40 bar
Connection: See drawings





Solenoid (electrical)

Voltage: 24 VDC
Power: 10 W
Connection: See drawing

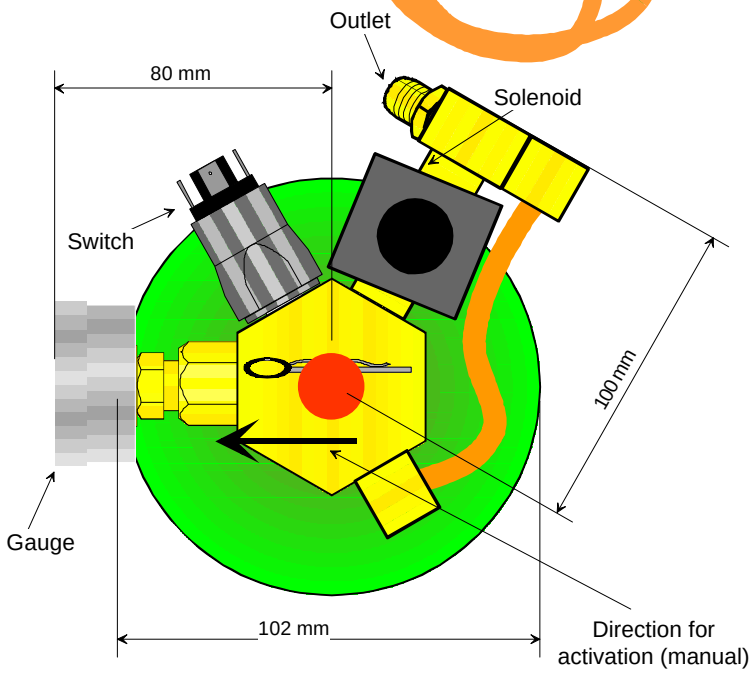


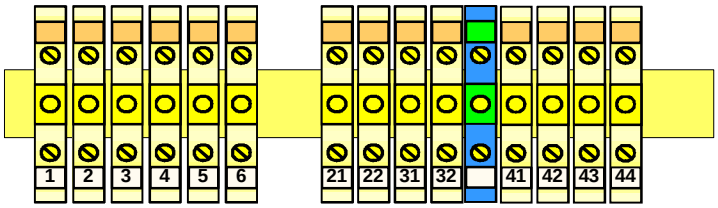
Cable (solenoid)

Cable: 3m IEC 331
Connect (Brown: +ve, blue: -ve, Yellow/green: Gnd)

Terminals

1+4: Com (Door switch 1+2)
2+5: NO (Door switch 1+2)
3+6: NC (Door switch 1+2)
21+31: Com (Pressure switch 1+2)
22+32: NC (Pressure switch 1+2)
Ground: All
41-44: Solenoid valves 1+2





FIRE EATER

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Engineering data sheet

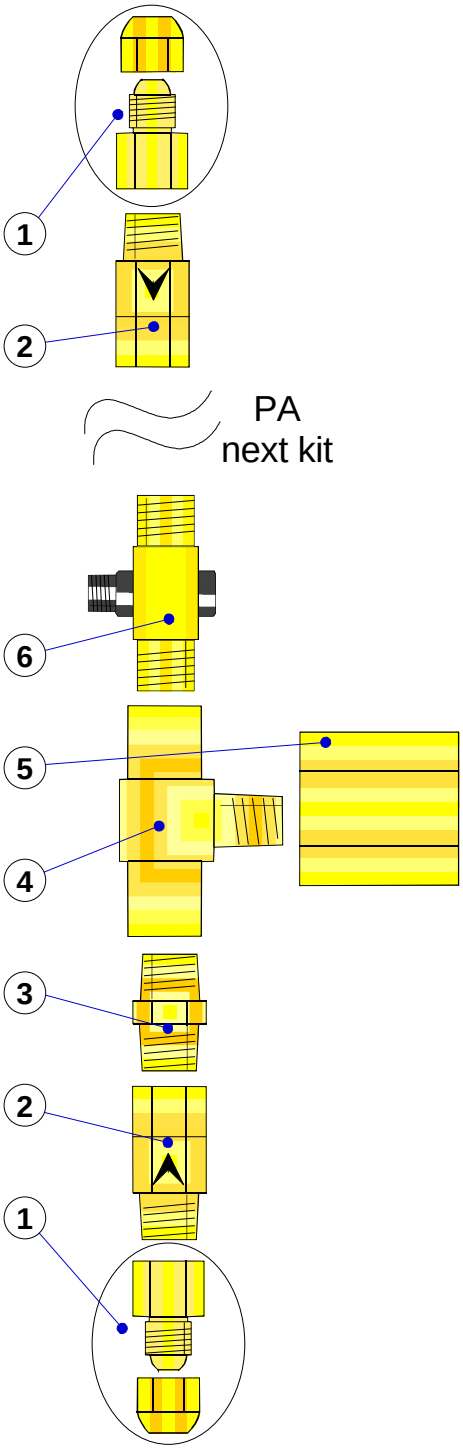
Chapter:	Activator
Item:	303115

IV7 PDS startkit

For connecting a pneumatic activation system (PDS) to the IV7 discharge valve

Components:

1:	203031	Nipple 1/4" SAE flare
2:	203015	Check valve
3:	302417	Nippel 1/4" -1/4”
4:	303210	Tee 1/4"
5:	302451	Bleed fitting
6:	303126	IV7-PA inlet adapter



FDocument:	303115 IV7 PDS startkit	Pos	Text
Product: IV7 PDS	Id KP	1	
	Rev a1	2	
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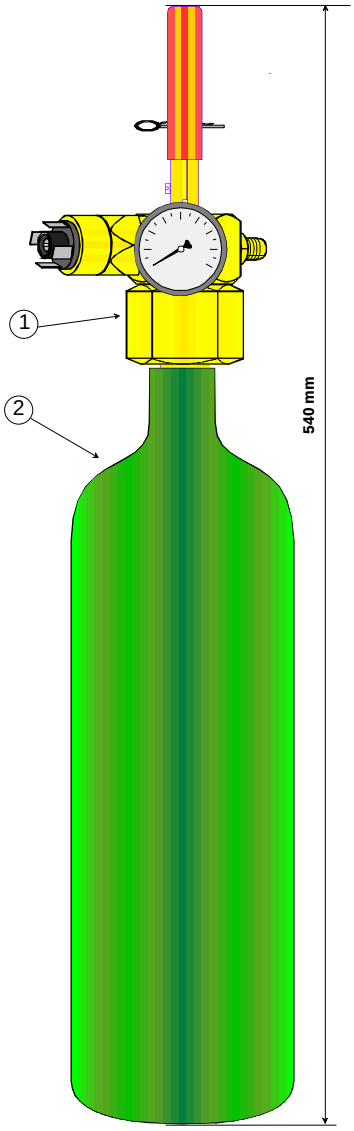
Engineering data sheet

Chapter:	Activator
Item:	302460

PDS activator unit



Material

Housing: Brass CuZn39Pb3.
Orings: Viton FPM.
Handle: Red PVC.

Weight:

4 kg

Pressure:

5 - 25 bar

Charge

Nitrogen.
Pressure max 25 bar.

Document:	302460 PDS Sys. TP-300	Id	Ig
Product: PDS System		Rev	B1

Pos	Text	
1	PDS Valve	801712
2	Cylinder	801975
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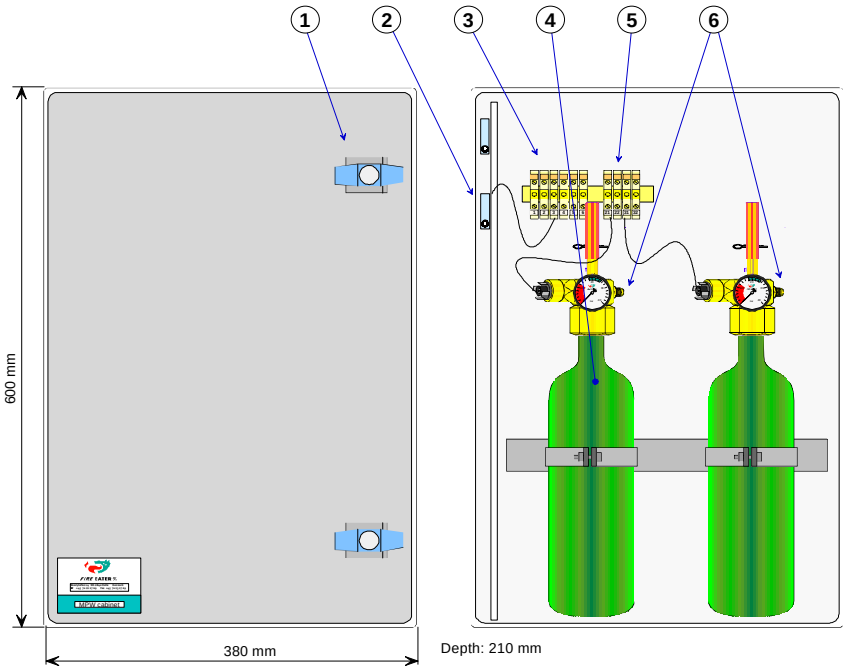
Engineering data sheet

Chapter:	Activator
Item:	302488

PDS Cabi



Cabinet:

Material: Painted Steel
Colour: RAL 7032 (Grey)

Door lock with separate key is included for customer replacement.

Electricals:

Terminals: Screw type SAK 2.5
Switche: max 250 Vac 10A

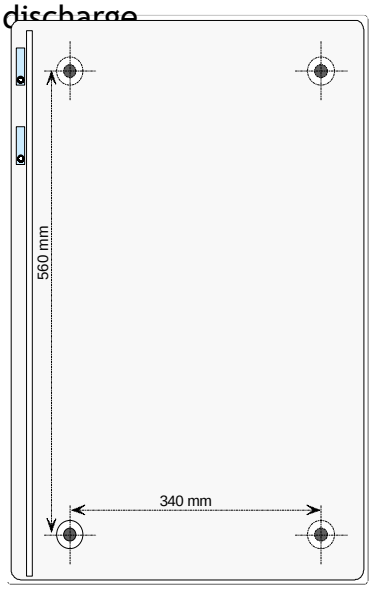
Terminal	Connects to	Terminal	Connects to
1:	Top switch Com	4:	2´nd switch Com
2:	Top switch NO	5:	2´nd switch NO
3:	Top switch NC	6:	2´nd switch NC
21:	Pressure switch	22:	Pressure switch
31:	Electric discharge	32:	Electric discharge

Pneumatic outlet:

See datasheet 801712

Installation:

4 mounting holes (ø9mm) placed as sketch.
Holes for pipe/hose must be drilled at installation site, bushings (PG) are supplied for protection of pipe/cabinet.



Document:	302488 PDS cabinet complete
Product: PDS cabinet	Id mk
	Rev a1

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Pos	Text	
1	Door lock	See text above
2	Switches	See text above
3	Terminals for door switches	See text above
4	PDS valve/cylinder assembly	See chapter “Activation”
5	Terminals for pressure switches	See text above
6	Pneumatic outlet	See sheet “801712”
7		
8		
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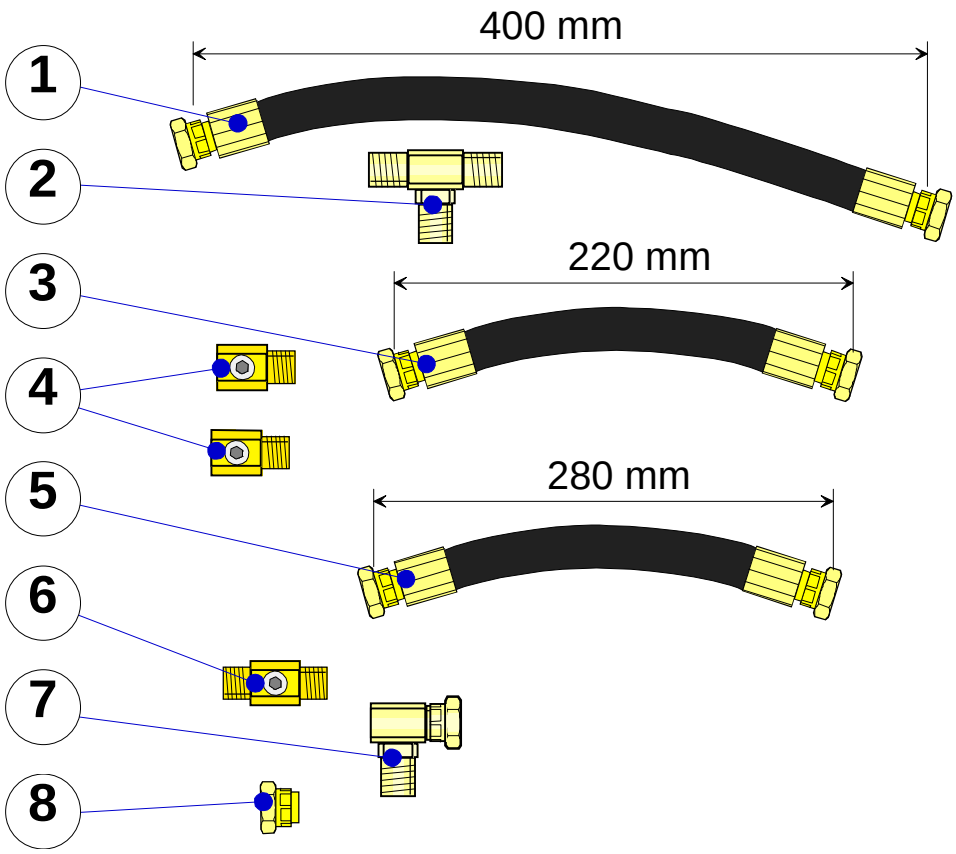
Engineering data sheet

Chapter:	Activator
Item:	303120

IV7 PA startkit 50l

Kit for Pneumatic Activation of IV7 discharge valves.
Connects the outlet of the first 2 cylinders to activate the system.



Components:

1:	205064	Pressure hose 1/4" 400 mm
2:	777017	Tee 1/4"
3:	303166	Pressure hose 1/4" 220 mm
4:	303125	IV7 PA outlet adapter
5:	303172	Pressure hose 1/4" 280 mm
6:	303126	IV7 PA inlet adapter
7:	777049	Elbow w. union
8:	303520	Blind plug 1/4"

Document:	303120 IV7 Pa startkit	
Product: IV7 PA system	Id lg	
	Rev a1	

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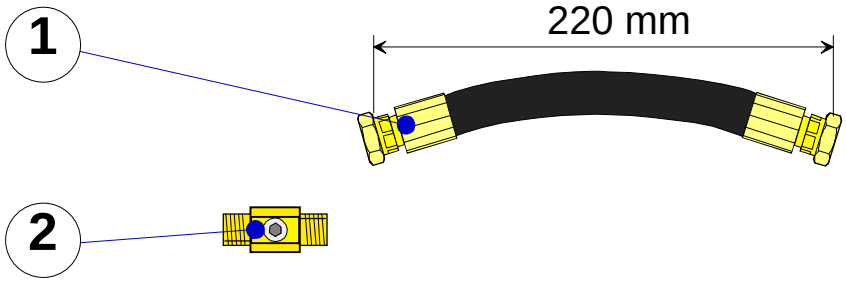
Engineering data sheet

Chapter:	Activator
Item:	303121

IV7 PA next kit 50l short

Kit for Pneumatic Activation of IV7 discharge valve.



Connects to the PA start kit and activates 1 IV7 discharge valve

Components:

1:	303166	Pressure hose 1/4" 220 mm
2:	303126	IV7 PA inlet adapter

Document:	303121 IV7 PA next kit 50l	
Product: IV7 PA system	Id lg	
	Rev a1	

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Pos	Text
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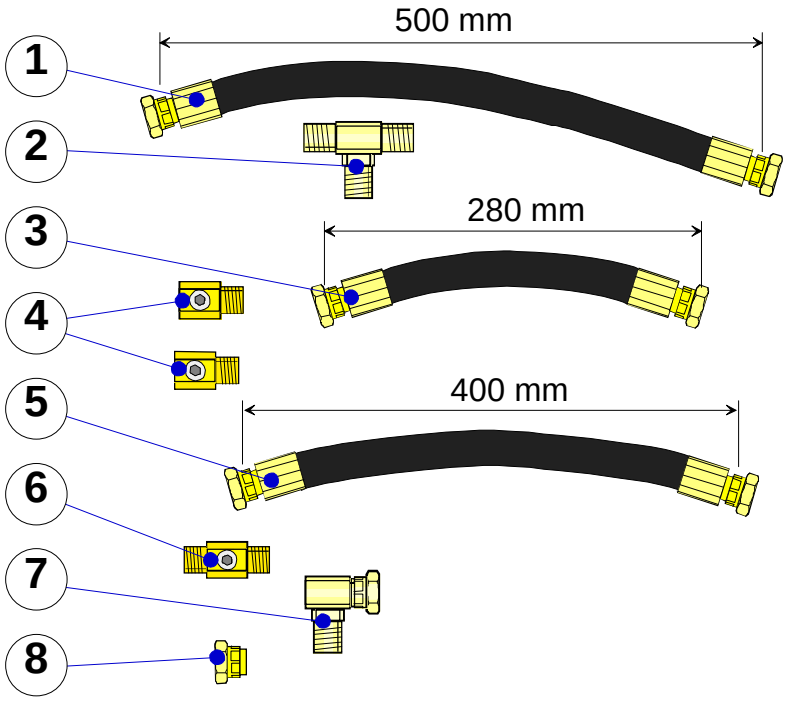
Engineering data sheet

Chapter: Activator

Item: 303190

Start kit PA IV7 80l



Components

1:	Pressure hose 500 mm	303180
2:	Tee ¼”	777017
3:	Pressure hose 280 mm	303172
4:	IV7 PA Outlet adapter	303125
5:	Pressure hose 400 mm	205064
6:	IV7 PA Inlet adapter	303126
7:	Elbow w. union	777049
8:	Blind plug	303520

Document: 303190 Startkit PA IV7 80 l

Product: INERGEN

Id lg

Rev a1

Pos	Text
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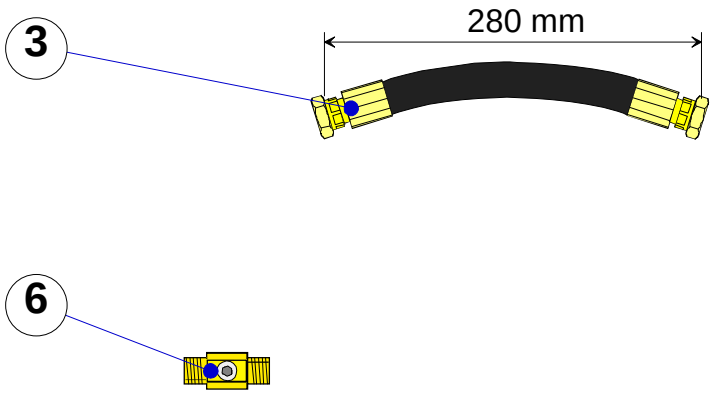
Engineering data sheet

Chapter: Activator

Item: 303191

Next kit PA IV7 80l short



Components

3:	Pressure hose 280 mm	303172
6:	IV7 PA Inlet adapter	303126

Document: 303191 Nextkit PA IV7 80 l kort

Product: INERGEN

Id lg

Rev a1

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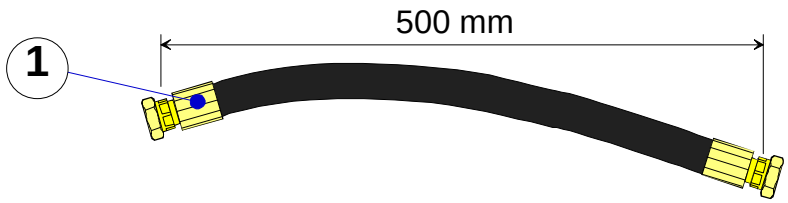
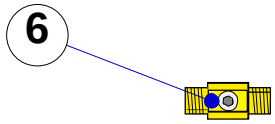
Engineering data sheet

Chapter: Activator

Item: 303192

Next kit PA IV7 80l long





Components

1:	Pressure hose 500 mm	303180
6:	IV7 PA Inlet adapter	303126

Document: 303192 Nextkit PA IV7 80 l lang

Product: INERGEN

Id lg

Rev a1

FIRE EATER

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Engineering data sheet	Chapter: Hose
	Item: 303102

3/8” High pressure hose

Type:

SAE 100 R2 AT, DIN 20022 Type 2SN

Dimension:

Nomination:	3/8"
Length	500 mm
Diameter inside:	10 mm
Diameter outside	19.7 mm

Construction

Black oil and weather resistant synthetic rubber.
2 ply steel wire.

Specifications

Work pressure:	< 330 bar
Burst pressure:	> 1320 bar
Bending radius:	> 130 mm
Temperature:	-40°C - +100°C

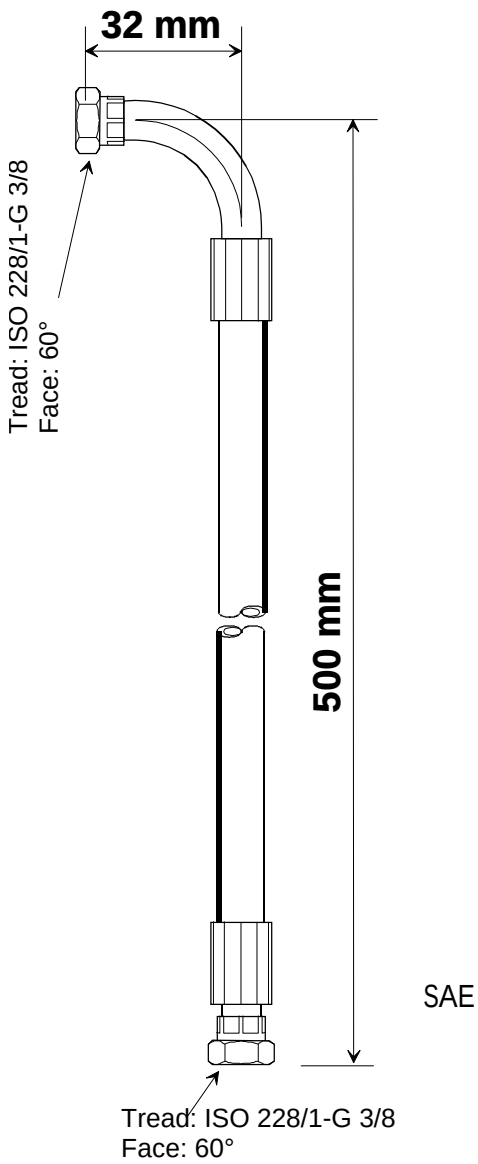
Fitting

Zinc plated steel
1. Straight union type 3/8" BSP with 60° face
2. 90° Elbow union type 3/8" BSP with 60° face

Flow diameter: 6 mm

Marking

Hose: =FIRE EATER=INERGEN=EN 853 2SN 10= 100R2AT 3/8=WP 33.0 Mpa SAE



Fittings: Date of assembly.

Approvals

GL	Flame resistant hydraulic hose.
DNV	Flexible hose of non-metallic material.

Ministry of Defense Def. Stan 47-2 issue 3 (UK).

Document: 303102 Hose PH 3-8" - 300.		Pos 1 Text
Product: 3/8 Pressure Hoses	Id lg	2
	Rev B1	3
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FIRE EATER ½
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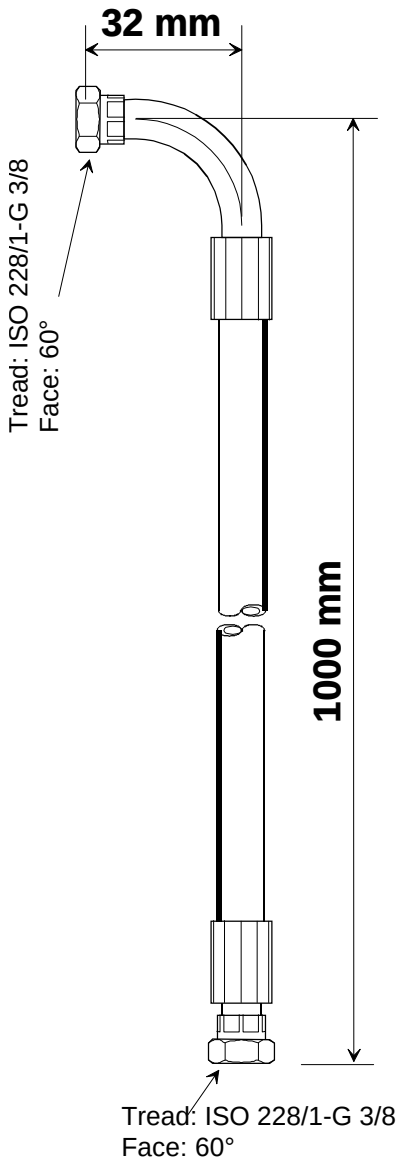
Engineering data sheet

Chapter:	Hose
Item:	303104

3/8” High pressure hose



Type:

SAE 100 R2 AT, DIN 20022 Type 2SN

Dimension:

Nomination:	3/8"
Length	1000 mm
Diameter inside:	10 mm
Diameter outside	19.7 mm

Construction

Black oil and weather resistant synthetic rubber.
2 ply steel wire.

Specifications

Work pressure:	< 330 bar
Burst pressure:	> 1320 bar
Bending radius:	> 130 mm
Temperature:	-40°C - +100°C

Fitting

Zinc plated steel
1. Straight union type 3/8" BSP with 60° face
2. 90° Elbow union type 3/8" BSP with 60° face

Flow diameter: 6 mm

Marking

Hose: =FIRE EATER=INERGEN=EN 853 2SN 10=
SAE 100R2AT 3/8=WP 33.0 Mpa
Fittings: Date of assembly.

Approvals

GL Flame resistant hydraulic hose.
DNV Flexible hose of non-metallic material.
Ministry of Defense Def. Stan 47-2 issue 3 (UK).

Document:	303104 Hose PH 3-8" - 300.	Pos	Text
Product: 3/8 Pressure Hoses	Id lg	1	
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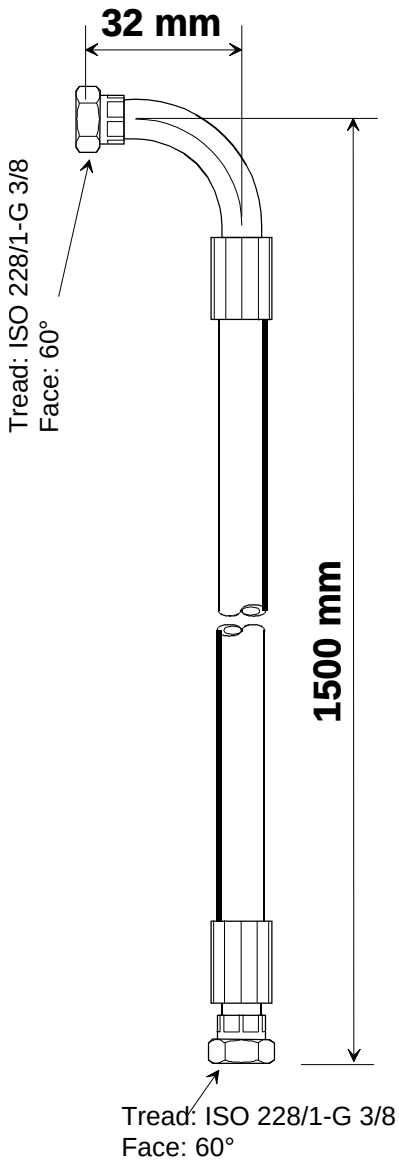
Engineering data sheet

Chapter:	Hose
Item:	303106

3/8” High pressure hose



Type:

SAE 100 R2 AT, DIN 20022 Type 2SN

Dimension:

Nomination:	3/8"
Length	1500 mm
Diameter inside:	10 mm
Diameter outside	19.7 mm

Construction

Black oil and weather resistant synthetic rubber.
2 ply steel wire.

Specifications

Work pressure:	< 330 bar
Burst pressure:	> 1320 bar
Bending radius:	> 130 mm
Temperature:	-40°C - +100°C

Fitting

Zinc plated steel
1. Straight union type 3/8" BSP with 60° face
2. 90° Elbow union type 3/8" BSP with 60° face

Flow diameter: 6 mm

Marking

Hose: =FIRE EATER=INERGEN=EN 853 2SN 10= SAE 100R2AT 3/8=WP 33.0 Mpa
Fittings: Date of assembly.

Approvals

GL	Flame resistant hydraulic hose.
DNV	Flexible hose of non-metallic material.

Ministry of Defense Def. Stan 47-2 issue 3 (UK).

Document:	303106 Hose PH 3-8" - 300.	Pos	Text
Product: 3/8 Pressure Hoses	Id lg	1	
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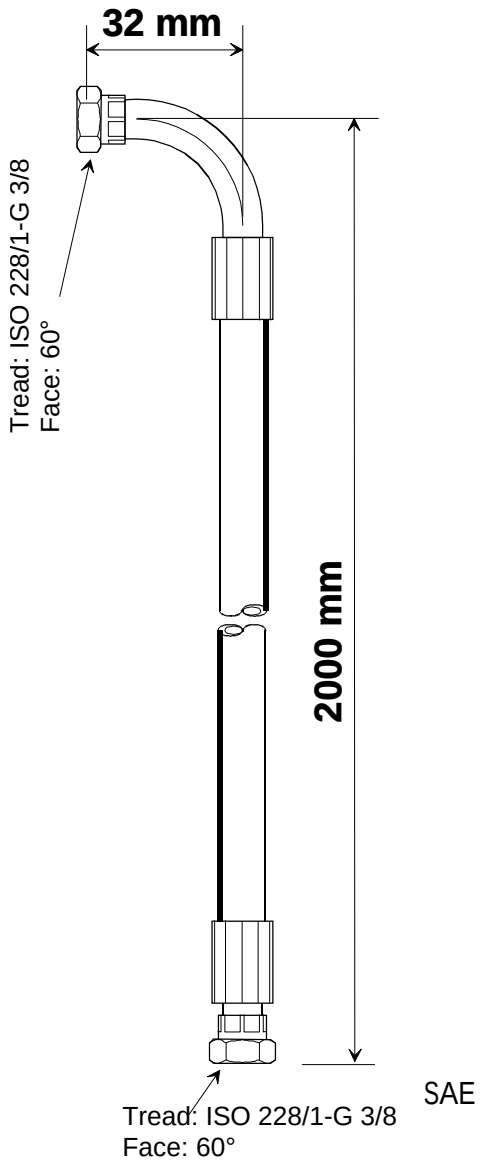
Engineering data sheet

Chapter:	Hose
Item:	303108

3/8” High pressure hose



Type:

SAE 100 R2 AT, DIN 20022 Type 2SN

Dimension:

Nomination:	3/8"
Length	2000 mm
Diameter inside:	10 mm
Diameter outside	19.7 mm

Construction

Black oil and weather resistant synthetic rubber.
2 ply steel wire.

Specifications

Work pressure:	< 330 bar
Burst pressure:	> 1320 bar
Bending radius:	> 130 mm
Temperature:	-40°C - +100°C

Fitting

Zinc plated steel
1. Straight union type 3/8" BSP with 60° face
2. 90° Elbow union type 3/8" BSP with 60° face

Flow diameter: 6 mm

Marking

Hose: =FIRE EATER=INERGEN=EN 853 2SN 10= 100R2AT 3/8=WP 33.0 Mpa
Fittings: Date of assembly.

Approvals

GL	Flame resistant hydraulic hose.
DNV	Flexible hose of non-metallic material.

Ministry of Defense Def. Stan 47-2 issue 3 (UK).

Document:	303108 Hose PH 3-8" - 300.	Id	lg
Product: 3/8 Pressure Hoses		Rev	B1

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FIRE EATER
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Engineering data sheet

Chapter: DV7
Item: 303155

Hose PH1/4”-300. 0.350 m DV7-PA System

Dimension:

Nomination:	¼”
Length	350 mm
Diameter outside	15.7
Diameter inside	6.3

Construction:

Black oil and weather resistant synthetic rubber.
2 ply steel wire.

Specifications:

Work pressure	< 400 bar
Burst pressure	> 1600 bar
Bending radius	> 100 mm
Temperature	- 40ºC – + 100 ºC

Fitting:

Zinc plated steel
90º Elbow union type ¼” BSP with 60º face
Flow diameter 3.4 mm

Marking:

Hose: = FIRE EATER = INERGEN = EN 853 2SN 6 = SAE 100R2AT ¼” = WP 40.0 MPA
Fittings: Date of assembly

Approvals:

GL	Flame resistant hydraulic hose
DNV	Flexible hose of non-metallic material

Ministry of Defence Def. Stan. 47-2 issue 3 (UK)

Document: 303155 Hose PH1-4 300 DV7-PA

Product: DV7

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FIRE EATER ½
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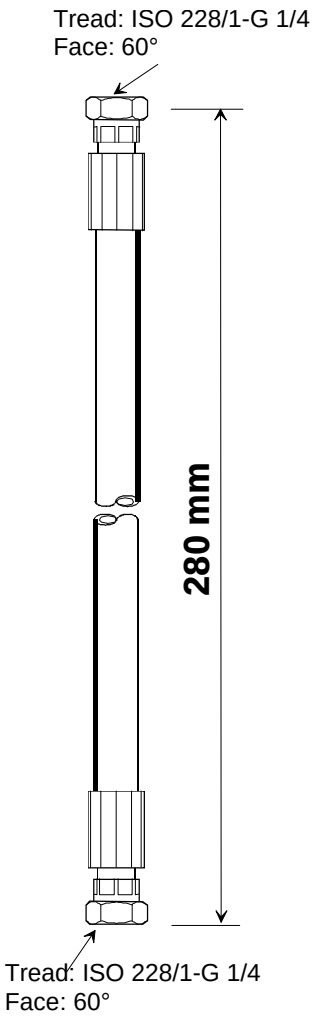
Engineering data sheet

Chapter:	Hose
Item:	303172

1/4" High pressure hose

Type:

SAE 100 R2 AT, DIN 20022 Type 2SN



Dimension:

Nomination:	1/4"
Length	280 mm
Diameter inside:	6.3 mm
Diameter outside	15.7 mm

Construction

Black oil and weather resistant synthetic rubber.
2 ply steel wire.

Specifications

Work pressure:	< 400 bar
Burst pressure:	> 1600 bar
Bending radius:	> 100 mm
Temperature:	-40°C - +100°C

Fitting

Zinc plated steel
1. Straight union type 1/4" BSP with 60° face
2. Straight union type 1/4" BSP with 60° face
Flow diameter: 3.4 mm

Marking

Hose: =FIRE EATER=INERGEN=EN 853 2SN 6=
SAE 100R2AT ¼=WP 40.0 Mpa
Fittings: Date of assembly.

Approvals

GL Flame resistant hydraulic hose.
DNV Flexible hose of non-metallic material.
Ministry of Defense Def. Stan 47-2 issue 3 (UK).

Document:	303172 Hose PH 1-4" -300.	Id	lg
Product: Pressure Hoses		Rev	B1

FIRE EATER ½
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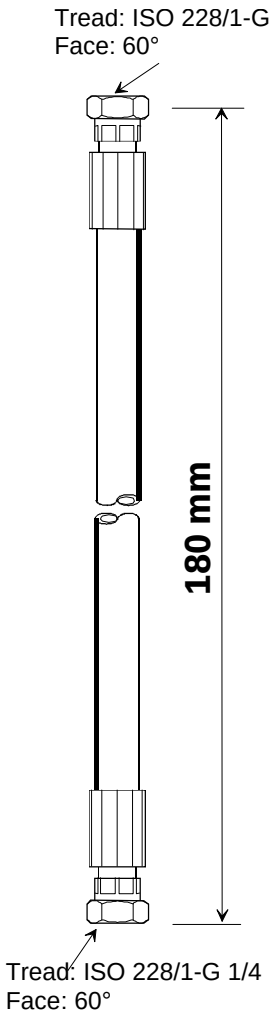
Engineering data sheet

Chapter:	Hose
Item:	303162

1/4" High pressure hose



Type:

SAE 100 R2 AT, DIN 20022 Type 2SN

Dimension:

Nomination:	1/4"
Length	180 mm
Diameter inside:	6.3 mm
Diameter outside	15.7 mm

Construction

Black oil and weather resistant synthetic rubber.
2 ply steel wire.

Specifications

Work pressure:	< 400 bar
Burst pressure:	> 1600 bar
Bending radius:	> 100 mm
Temperature:	-40°C - +100°C

Fitting

Zinc plated steel
1. Straight union type 1/4" BSP with 60° face
2. Straight union type 1/4" BSP with 60° face
Flow diameter: 3.4 mm

Marking

Hose: =FIRE EATER=INERGEN=EN 853 2SN 6=
SAE 100R2AT ¼=WP 40.0 Mpa
Fittings: Date of assembly.

Approvals

GL Flame resistant hydraulic hose.
DNV Flexible hose of non-metallic material.
Ministry of Defense Def. Stan 47-2 issue 3 (UK).

Document:	303162 Hose PH 1-4" - 300	Pos	Text
Product: Pressure Hoses	Id lg	1	
	Rev B1	2	
		3	
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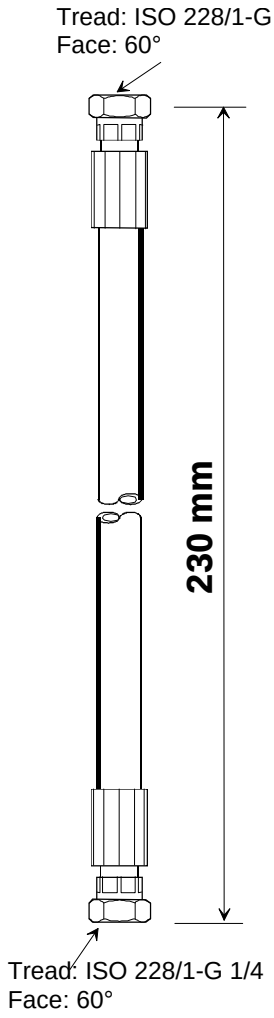
FIRE EATER ⅘
Vølundsvej 17
DK- 3400 Hillerød
Tel+45 7022 2769
Fax+45 7023 2769

Engineering data sheet

Chapter:	Hose
Item:	303166

1/4" High pressure hose



Type:

SAE 100 R2 AT, DIN 20022 Type 2SN

Dimension:

Nomination:	1/4"
Length	220 mm
Diameter inside:	6.3 mm
Diameter outside	15.7 mm

Construction

Black oil and weather resistant synthetic rubber.
2 ply steel wire.

Specifications

Work pressure:	< 400 bar
Burst pressure:	> 1600 bar
Bending radius:	> 100 mm
Temperature:	-40°C - +100°C

Fitting

Zinc plated steel
1. Straight union type 1/4" BSP with 60° face
2. Straight union type 1/4" BSP with 60° face
Flow diameter: 3.4 mm

Marking

Hose: =FIRE EATER=INERGEN=EN 853 2SN 6=
SAE 100R2AT ¼=WP 40.0 Mpa
Fittings: Date of assembly.

Approvals

GL Flame resistant hydraulic hose.
DNV Flexible hose of non-metallic material.
Ministry of Defense Def. Stan 47-2 issue 3 (UK).

Document:	303166 Hose PH 1-4' '- 300.	
Product: Pressure Hoses	Id lg	
	Rev B1	

FIRE EATER ½
Vølundsvej 17
DK- 3400 Hillerød
Tel+45 7022 2769
Fax+45 7023 2769

Pos	Text
1	
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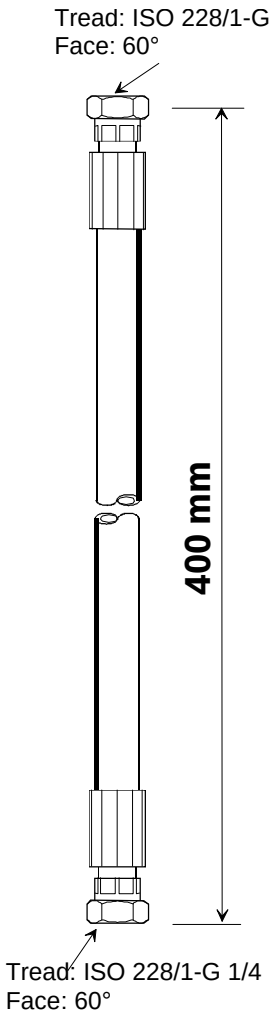
Engineering data sheet

Chapter:	Hose
Item:	205064

1/4" High pressure hose



Type:

SAE 100 R2 AT, DIN 20022 Type 2SN

Dimension:

Nomination:	1/4"
Length	400 mm
Diameter inside:	6.3 mm
Diameter outside	15.7 mm

Construction

Black oil and weather resistant synthetic rubber.
2 ply steel wire.

Specifications

Work pressure:	< 400 bar
Burst pressure:	> 1600 bar
Bending radius:	> 100 mm
Temperature:	-40°C - +100°C

Fitting

Zinc plated steel
1. Straight union type 1/4" BSP with 60° face
2. Straight union type 1/4" BSP with 60° face
Flow diameter: 3.4 mm

Marking

Hose: =FIRE EATER=INERGEN=EN 853 2SN 6=
SAE 100R2AT ¼=WP 40.0 Mpa
Fittings: Date of assembly.

Approvals

GL Flame resistant hydraulic hose.
DNV Flexible hose of non-metallic material.
Ministry of Defense Def. Stan 47-2 issue 3 (UK).

Document:	205064 Hose PH 1-4" - 300.	Pos	Text
Product: Pressure Hoses	Id lg / Rev B1	1	
		2	
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		8	
		9	

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Vølundsvej 17
DK- 3400 Hillerød
Tel+45 7022 2769
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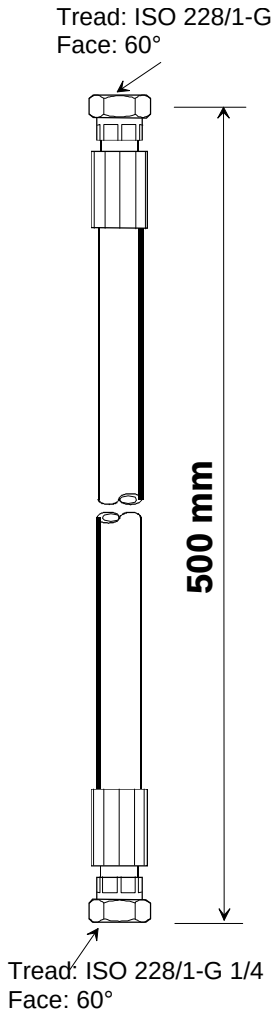
Engineering data sheet

Chapter:	Hose
Item:	303180

1/4" High pressure hose

Type:

SAE 100 R2 AT, DIN 20022 Type 2SN



Dimension:

Nomination:	1/4"
Length	500 mm
Diameter inside:	6.3 mm
Diameter outside	15.7 mm

Construction

Black oil and weather resistant synthetic rubber.
2 ply steel wire.

Specifications

Work pressure:	< 400 bar
Burst pressure:	> 1600 bar
Bending radius:	> 100 mm
Temperature:	-40°C - +100°C

Fitting

Zinc plated steel
1. Straight union type 1/4" BSP with 60° face
2. Straight union type 1/4" BSP with 60° face
Flow diameter: 3.4 mm

Marking

Hose: =FIRE EATER=INERGEN=EN 853 2SN 6=
SAE 100R2AT ¼=WP 40.0 Mpa
Fittings: Date of assembly.

Approvals

GL Flame resistant hydraulic hose.
DNV Flexible hose of non-metallic material.
Ministry of Defense Def. Stan 47-2 issue 3 (UK).

Document:	303180 Hose PH 1-4" - 300.
Product: Pressure Hoses	Id lg / Rev B1

FIRE EATER ½
Vølundsvej 17
DK- 3400 Hillerød
Tel+45 7022 2769
Fax+45 7023 2769

Pos	Text
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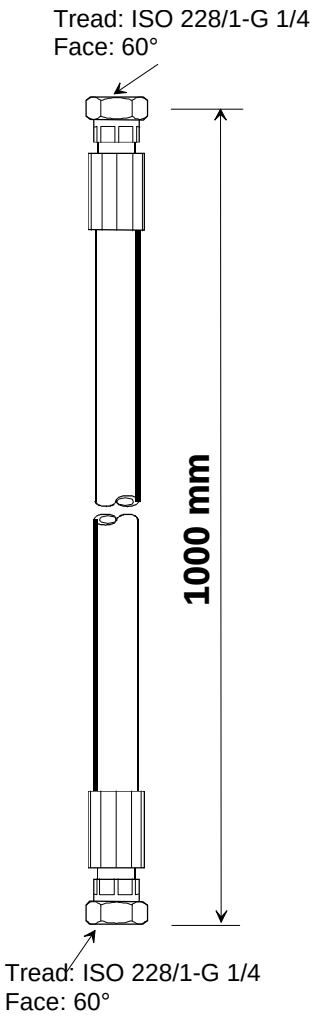
Engineering data sheet

Chapter:	Hose
Item:	205063

1/4" High pressure hose



Type:

SAE 100 R2 AT, DIN 20022 Type 2SN

Dimension:

Nomination:	1/4"
Length	1000 mm
Diameter inside:	6.3 mm
Diameter outside	15.7 mm

Construction

Black oil and weather resistant synthetic rubber.
2 ply steel wire.

Specifications

Work pressure:	< 400 bar
Burst pressure:	> 1600 bar
Bending radius:	> 100 mm
Temperature:	-40°C - +100°C

Fitting

Zinc plated steel
1. Straight union type 1/4" BSP with 60° face
2. Straight union type 1/4" BSP with 60° face
Flow diameter: 3.4 mm

Marking

Hose: =FIRE EATER=INERGEN=EN 853 2SN 6=
SAE 100R2AT ¼=WP 40.0 Mpa
Fittings: Date of assembly.

Approvals

GL Flame resistant hydraulic hose.
DNV Flexible hose of non-metallic material.
Ministry of Defense Def. Stan 47-2 issue 3 (UK).

Document:	205063 Hose PH 1-4" - 300.
Product: Pressure Hoses	Id lg / Rev B1

FIRE EATER ½
Vølundsvej 17
DK- 3400 Hillerød
Tel+45 7022 2769
Fax+45 7023 2769

Pos	Text
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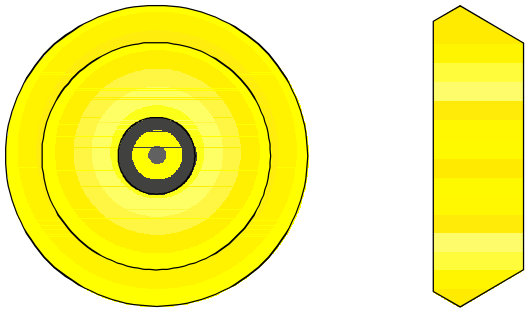
Engineering data sheet

Chapter:	Manifold
Item:	303140

Orifice for all MT -IV7 manifolds



Material:

Brass CuZn39Pb3.

Dimensions:

Diameter: 23.5 mm.
Height: 7 mm
Weight: 0.015 Kg.
Orifice: 0 - 15.5 mm.

Pressure:

Work: 300 bar.
Burst: > 1000 bar.

Document:	303140 Orifice til IV7 manifold	
Product: Manifold Orifice for MT-IV7	Id lg	
	Rev B1	

FIRE EATER
Vølundsvej 17
DK- 3400 Hillerød
Tel+45 7022 2769
Fax+45 7023 2769

Pos	Text
1	
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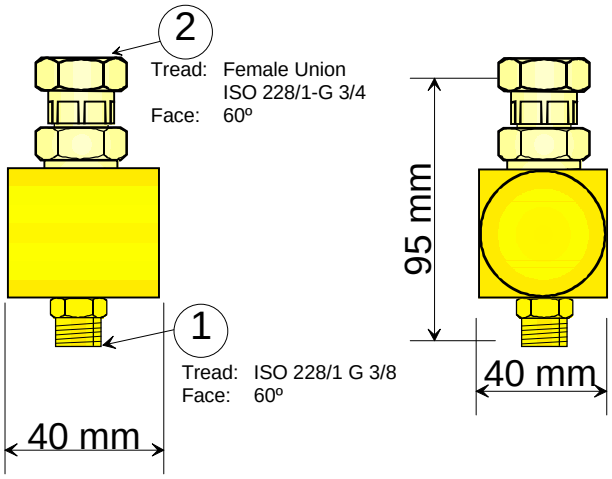
Engineering data sheet

Chapter:	Manifold
Item:	303141

Manifold for one 3/8” high pressure hoses



Material:

High pressure parts:	Brass	CuZn39Pb3
Union:	Steel	Electro galvanised

Weight:

0.5 Kg

Orifice:

max 6.4 mm (32.2 mm^2)

Orifice plate for optional orifices are available

Pressure:

Work:	300 bar
Leakage:	> 600 bar
Burst:	> 1000 bar

Document:	303141 Manifold IV7 MT1
Product: MT1-IV7 Manifold	Id lg
	Rev a1

FIRE EATER
Vølundsvej 17
DK- 3400 Hillerød
Tel+45 7022 2769
Fax+45 7023 2769

Pos	Text	
1	Inlet connection	ISO 228/1-G 3/8
2	Outlet connection	ISO 228/1-G 3/4
3		
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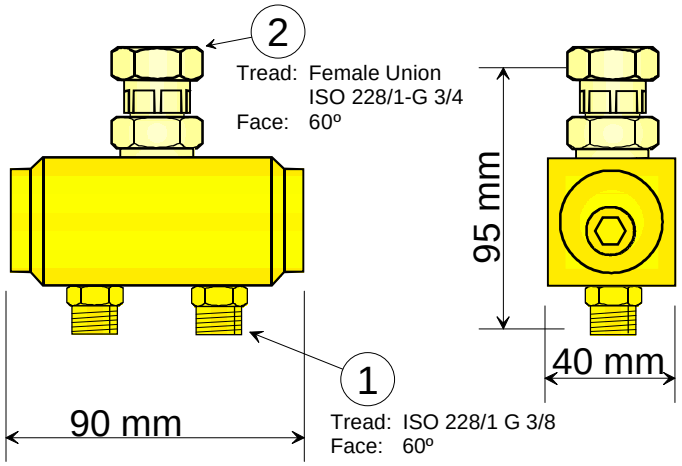
Engineering data sheet

Chapter:	Manifold
Item:	303142

Manifold for two 3/8” high pressure hoses



Material:

High pressure parts:	Brass	CuZn39Pb3
Union:	Steel	Electro galvanised

Weight:

1.1 Kg

Orifice:

max 9.1 mm (64.3 mm^2)

Orifice plate for optional orifices are available

Pressure:

Work:	300 bar
Leakage:	> 600 bar
Burst:	> 1000 bar

Document:	303142 Manifold IV7 MT2		
Product: MT2-IV7 Manifold	Id	lg	
	Rev	a1	

Pos	Text	
1	Inlet connection	ISO 228/1-G 3/8
2	Outlet connection	ISO 228/1-G 3/4
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FIRE EATER ½
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DK- 3400 Hillerød
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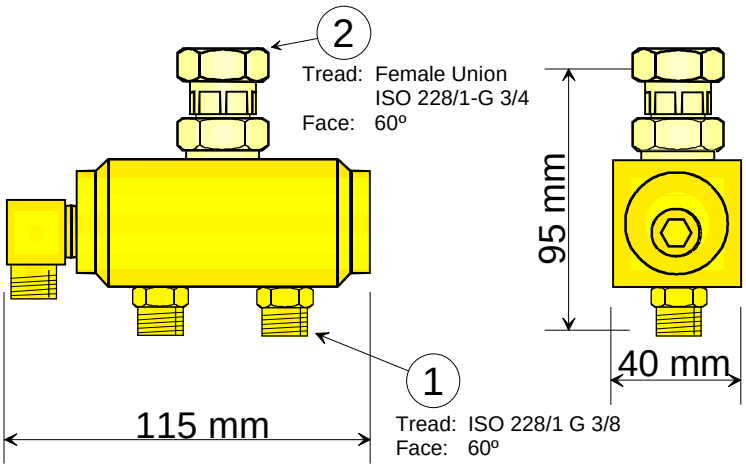
Fax+45 7023 2769

Engineering data sheet

Chapter:	Manifold
Item:	303143

Manifold for three 3/8” high pressure hoses



Material:

High pressure parts: Brass CuZn39Pb3
Union: Steel Electro galvanised

Weight:

1.2 Kg

Orifice:

max 11.1 mm (96.5 mm^2)
Orifice plate for optional orifices are available

Pressure:

Work: 300 bar
Leakage: > 600 bar
Burst: > 1000 bar

Document:	303143 Manifold IV7 MT3		
Product: MT3-IV7 Manifold	Id lg		
	Rev a1		

Pos	Text	
1	Inlet connection	ISO 228/1-G 3/8
2	Outlet connection	ISO 228/1-G 3/4
3		
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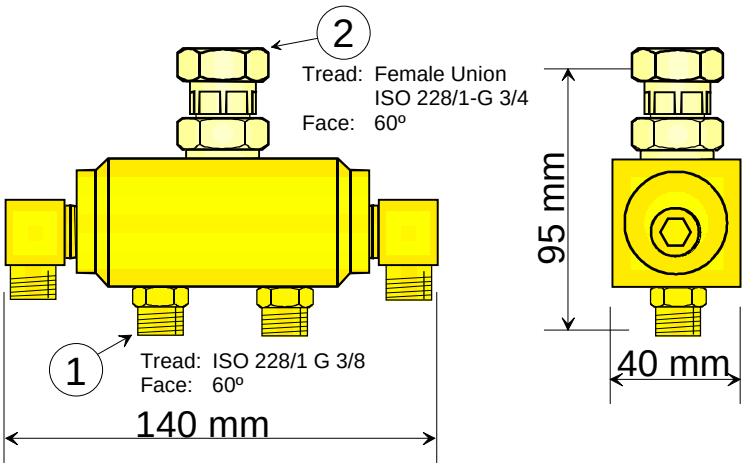
Fax+45 7023 2769

Engineering data sheet

Chapter:	Manifold
Item:	303144

Manifold for four 3/8” high pressure hoses



Material:

High pressure parts:	Brass	CuZn39Pb3
Union:	Steel	Electro galvanised

Weight:

1.3 Kg

Orifice:

max 12.8 mm (128.7 mm^2)

Orifice plate for optional orifices are available

Pressure:

Work:	300 bar
Leakage:	> 600 bar
Burst:	> 1000 bar

Document:	303144 Manifold IV7 MT4		
Product: MT4-IV7 Manifold	Id	lg	
	Rev	a1	

Pos	Text	
1	Inlet connection	ISO 228/1-G 3/8
2	Outlet connection	ISO 228/1-G 3/4
3		
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FIRE EATER ⅞
Vølundsvej 17
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Tel+45 7022 2769
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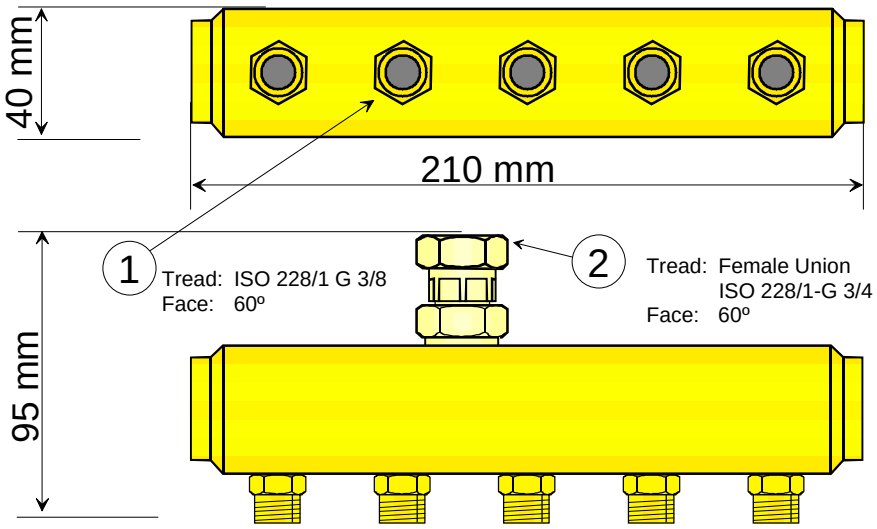
Engineering data sheet

Chapter:	Manifold
Item:	303145

Manifold for five 3/8” high pressure hoses



Material:

High pressure parts:	Brass	CuZn39Pb3
Union:	Steel	Electro galvanised

Weight:

2.6 Kg

Orifice:

max 14.3 mm (160.8 mm^2)

Orifice plate for optional orifices are available

Pressure:

Work:	300 bar
Leakage:	> 600 bar
Burst:	> 1000 bar

Document:	303145 Manifold IV7 MT5
Product: MT5-IV7 Manifold	Id lg
	Rev a1

Pos	Text	
1	Inlet connection	ISO 228/1-G 3/8
2	Outlet connection	ISO 228/1-G 3/4
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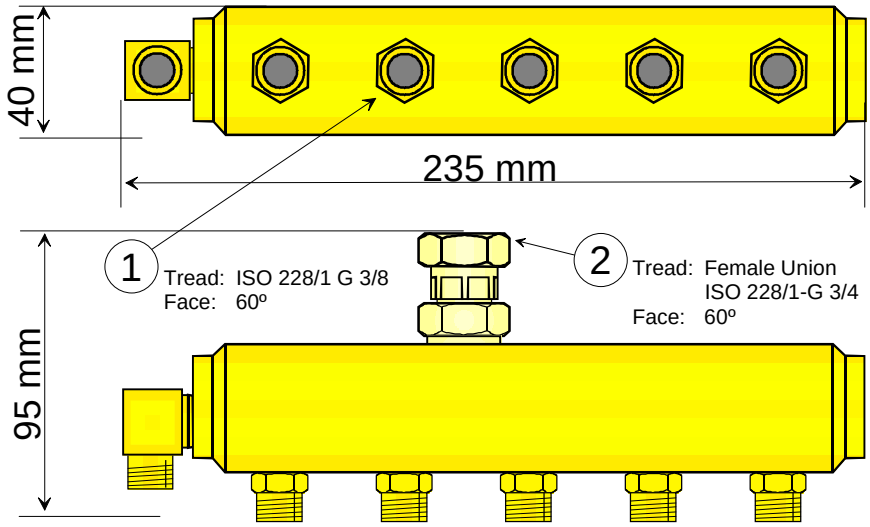
FIRE EATER ½
Vølundsvej 17
DK- 3400 Hillerød
Tel+45 7022 2769
Fax+45 7023 2769

Engineering data sheet

Chapter:	Manifold
Item:	303146

Manifold for six 3/8” high pressure hoses



Material:

High pressure parts:	Brass	CuZn39Pb3
Union:	Steel	Electro galvanised

Weight:

2.7 Kg

Orifice:

max 15.6 mm (191.1 mm^2)

Orifice plate for optional orifices are available

Pressure:

Work:	300 bar
Leakage:	> 600 bar
Burst:	> 1000 bar

Document:	303146 Manifold IV7 MT6		
Product: MT6-IV7 Manifold	Id lg		
	Rev a1		

Pos	Text	
1	Inlet connection	ISO 228/1-G 3/8
2	Outlet connection	ISO 228/1-G 3/4
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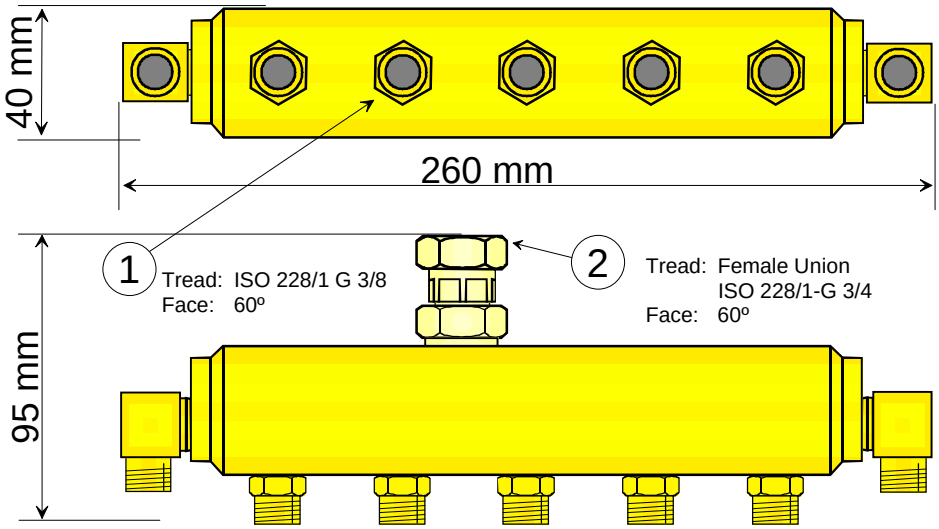
FIRE EATER ½
Vølundsvej 17
DK- 3400 Hillerød
Tel+45 7022 2769
Fax+45 7023 2769

Engineering data sheet

Chapter:	Manifold
Item:	303147

Manifold for seven 3/8” high pressure hoses



Material:

High pressure parts:	Brass	CuZn39Pb3
Union:	Steel	Electro galvanised

Weight:

2.8 Kg

Orifice:

max 16.4 mm (211.2 mm^2)

Orifice plate for optional orifices are available

Pressure:

Work:	300 bar
Leakage:	> 600 bar
Burst:	> 1000 bar

Document:	303147 Manifold IV7 MT7		
Product: MT7-IV7 Manifold	Id	lg	
	Rev	B1	

Pos	Text	
1	Inlet connection	ISO 228/1-G 3/8
2	Outlet connection	ISO 228/1-G 3/4
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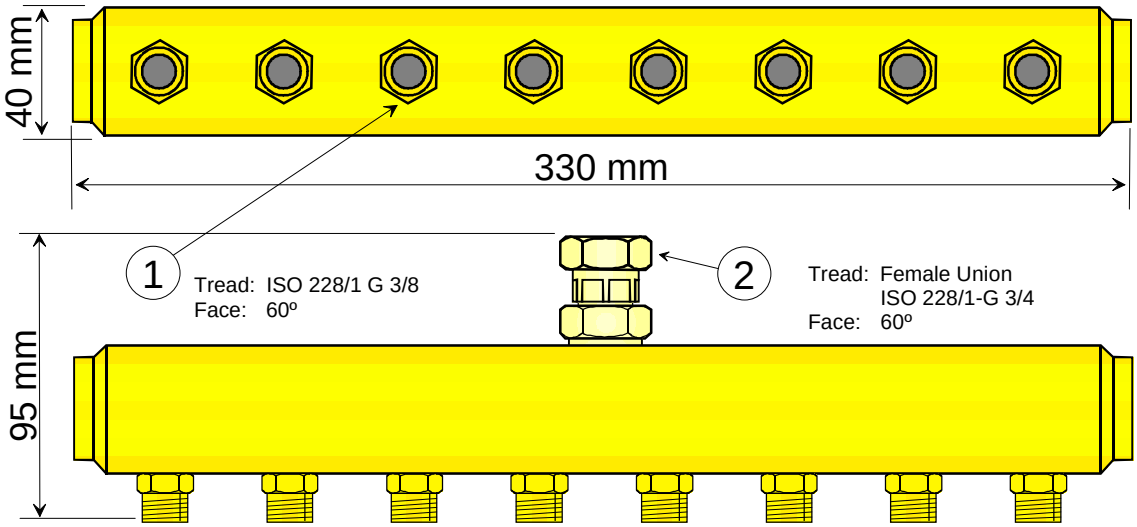
FIRE EATER ½
Vølundsvej 17
DK- 3400 Hillerød
Tel+45 7022 2769
Fax+45 7023 2769

Engineering data sheet

Chapter:	Manifold
Item:	303148

Manifold for eight 3/8” high pressure hoses



Material:

High pressure parts:	Brass	CuZn39Pb3
Union:	Steel	Electro galvanised

Weight:

4.1 Kg

Orifice:

max 16.4 mm (211.2 mm^2)

Orifice plate for optional orifices are available

Pressure:

Work:	300 bar
Leakage:	> 600 bar
Burst:	> 1000 bar

Document:	303148 Manifold IV7 MT8		
Product: MT8-IV7 Manifold	Id	lg	
	Rev	B1	

Pos	Text	
1	Inlet connection	ISO 228/1-G 3/8
2	Outlet connection	ISO 228/1-G 3/4 ”
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FIRE EATER ½
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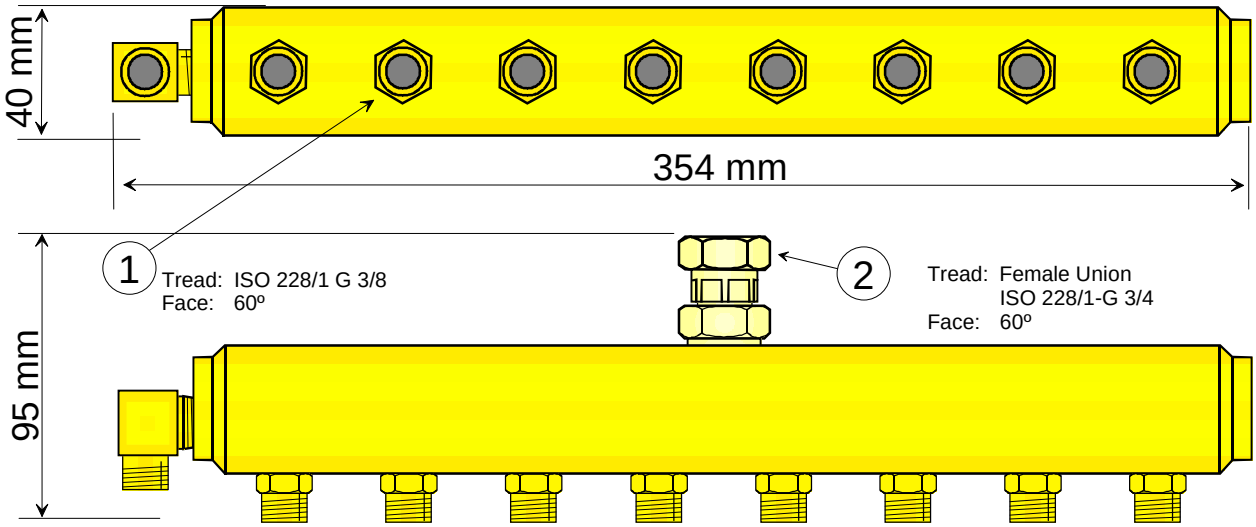
DK- 3400 Hillerød
Tel+45 7022 2769
Fax+45 7023 2769

Engineering data sheet

Chapter:	Manifold
Item:	303149

Manifold for nine 3/8” high pressure hoses



Material:

High pressure parts:	Brass	CuZn39Pb3
Union:	Steel	Electro galvanised

Weight:

4.2 Kg

Orifice:

max 16.4 mm (211.2 mm^2)

Orifice plate for optional orifices are available

Pressure:

Work:	300 bar
Leakage:	> 600 bar
Burst:	> 1000 bar

Document:	303149 Manifold IV7 MT9
Product: MT9-IV7 Manifold	Id lg
	Rev B1

Pos	Text	
1	Inlet connection	SO 228/1-G 3/8
2	Outlet connection	ISO 228/1-G 3/4 ”
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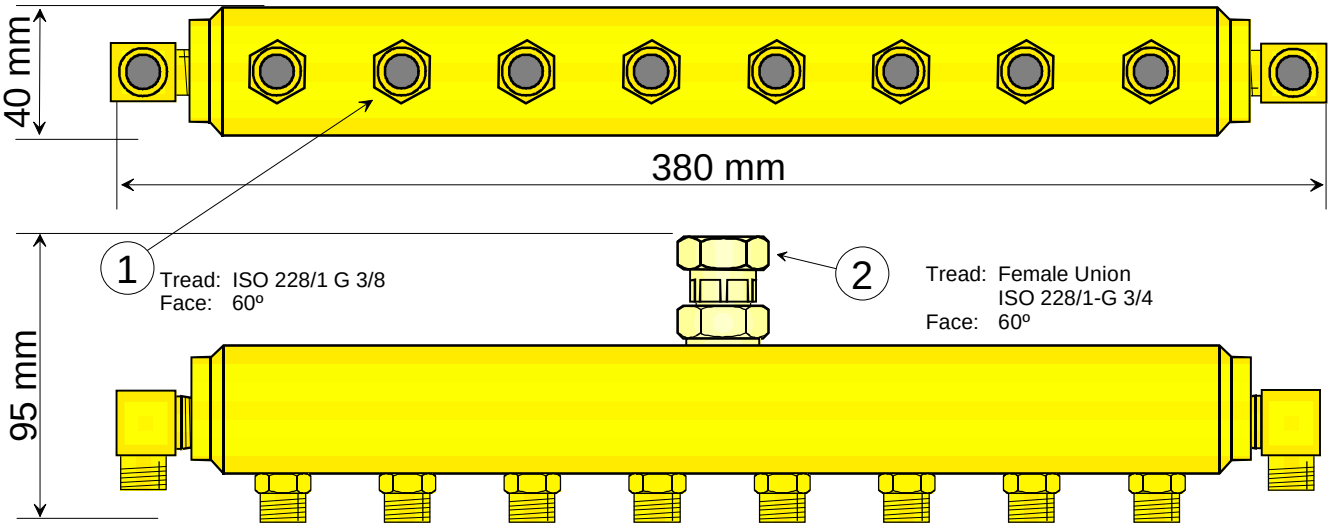
FIRE EATER ½
Vølundsvej 17
DK- 3400 Hillerød
Tel+45 7022 2769
Fax+45 7023 2769

Engineering data sheet

Chapter:	Manifold
Item:	303150

Manifold for ten 3/8” high pressure hoses



Material:

High pressure parts:	Brass	CuZn39Pb3
Union:	Steel	Electro galvanised

Weight:

4.3 Kg

Orifice:

max 16.4 mm (211.2 mm^2)

Orifice plate for optional orifices are available

Pressure:

Work:	300 bar
Leakage:	> 600 bar
Burst:	> 1000 bar

Document:	303150 Manifold IV7 MT10
Product: MT10-IV7 Manifold	Id lg Rev B1

Pos	Text	
1	Inlet connection	SO 228/1-G 3/8
2	Outlet connection	ISO 228/1-G 3/4 ”
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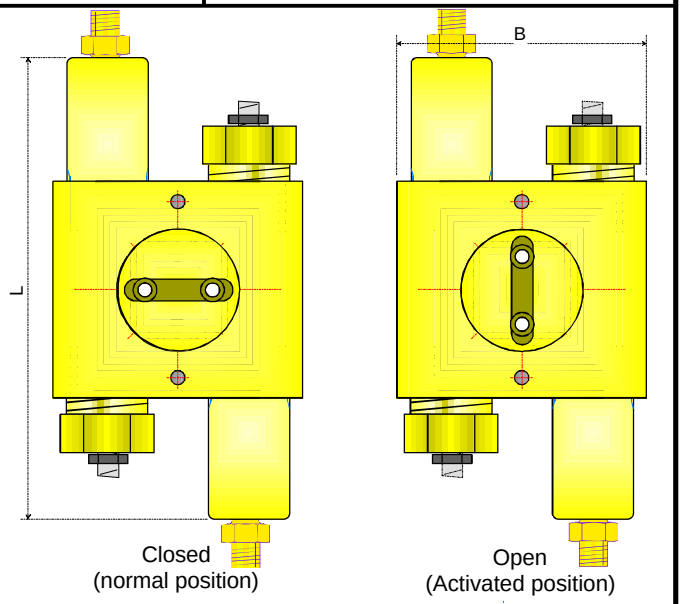
FIRE EATER ½
Vølundsvej 17
DK- 3400 Hillerød
Tel+45 7022 2769
Fax+45 7023 2769

Engineering data sheet

SV22 selector valve



General

Selector valve for use in INERGEN fire extinguishing systems. The valve is of the ball valve type with a pneumatic actuator and may be positioned in any position.

The selector valve is compatible with the Fire Eater SV22 series of equipment.

For use in systems where one common supply of INERGEN is used for protecting several rooms.

Specifications

Valve

Designation:	SV22
Working pressure:	0 - 400 bar.
Temp. (operating):	-40 to +70 °C.
Minimum pipe diameter:	22mm
Connections	ISO228G 1”

Actuator

Working pressure:	35 – 400 bar
Ta =	ISO228G 1/4"

Dimensions

L×W×H:	160×92×90mm
Weight:	4.38 kg

Material

Ball valve:	Electroplated steel
Actuator body:	Brass
Actuator parts:	Electroplated steel

Installation

The valve may be positioned freely.

Maintenance

Operate every 10 years,
Reset manually after discharge.

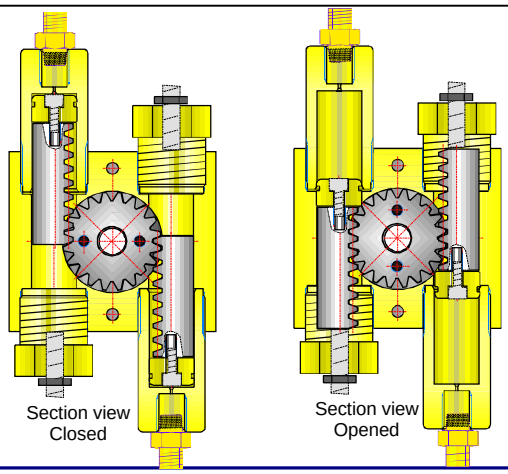
CE

####

Fire Eater A/S
Vølundsvej 17
3400 Hillerød

EN 12094-5
Selector valve SV22

Working pressure	35-400 bar
Free cross-sectional area	490 mm^2



Document: 305150 SV22 selector valve.doc

Product: Inergen®

Id: LGE
Rev: 27.09.05

FIRE EATER
Vølundsvej 17
DK- 3400 Hillerød
Tel +45 7022 2769
Fax +45 7023 2769

	Text
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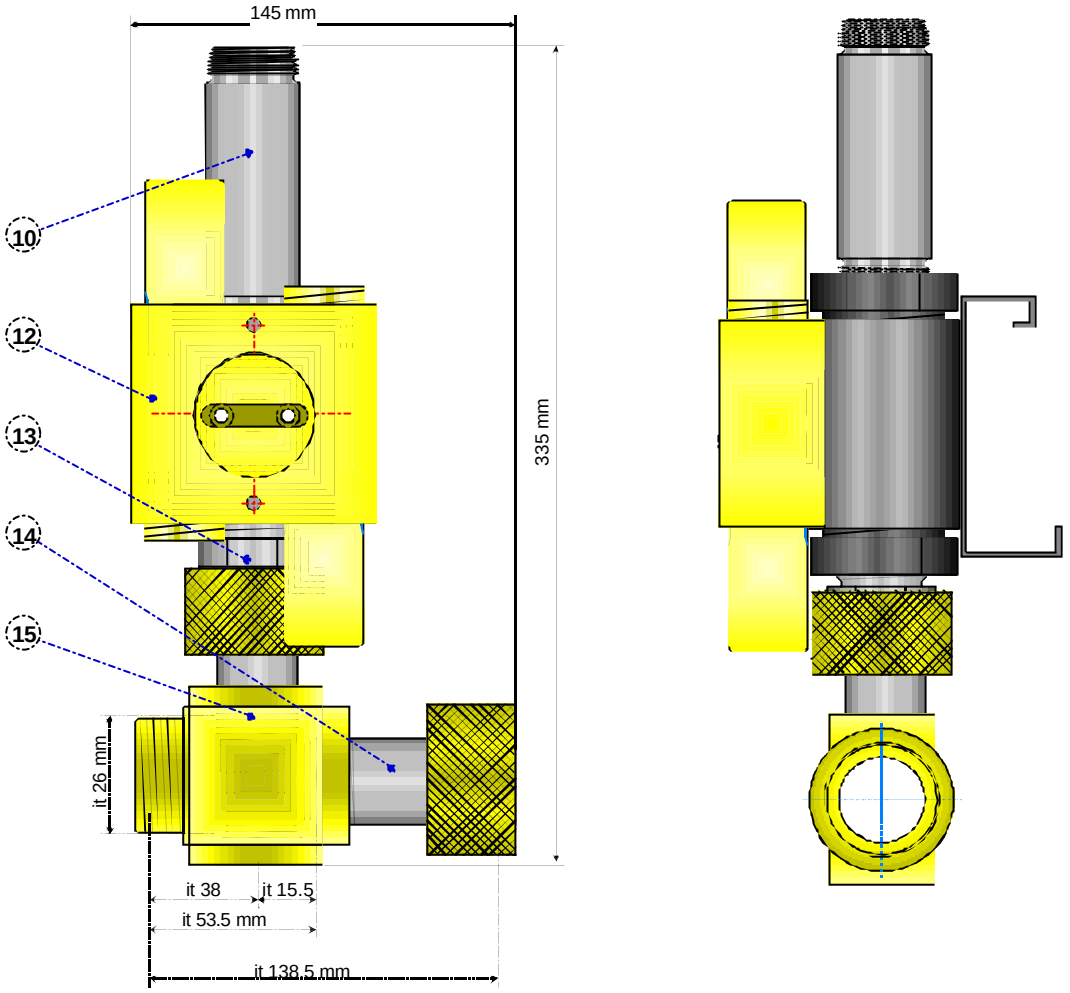
SV22 zone kit

General

A kit containing components for distribution of INERGEN to one zone in the SV22 system.



Components

Pos.	Name	Quantity	Item
10:	SV22 pipe adapter 1”	1	305234
	O-ring 19.1×1.6	1	302223
12:	SV22 selector valve	1	305150
13:	SV22 adapter 1” orifice	1	305234
	O-ring 19.1×1.6	1	302223
	O-ring 25.1×1.6	1	302413
14:	SV22 pipe 60mm	1	305154
15:	SV22 tee kit	1	305152
	SV22 valve bracket	1	305120
	SV22 wall bracket	1	305121

FIRE EATER A/S
Vølundsvej 17
DK- 3400 Hillerød
Tel +45 7022 2769
Fax +45 7023 2769

	Text
1	
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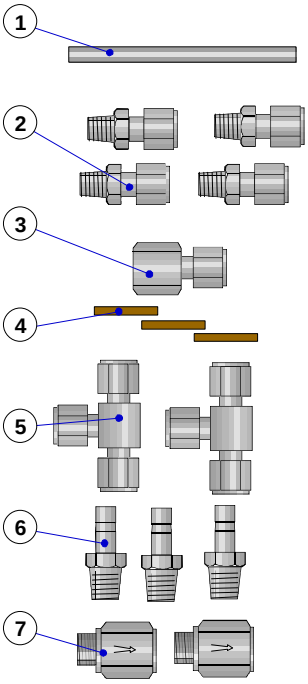
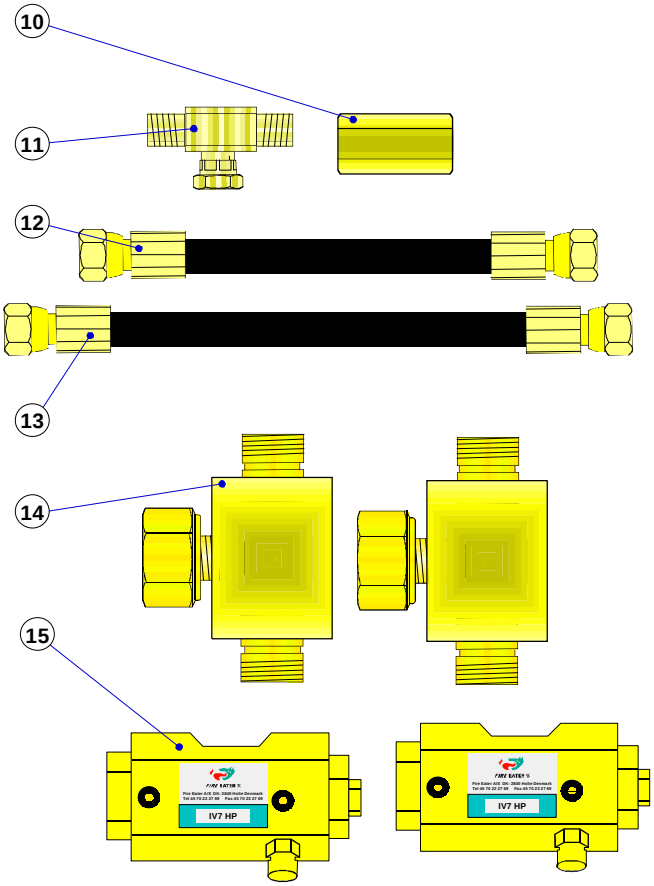
SV22 startkit Tube dual IV7-300

General

A kit containing components for installation of one selector valve (SV22) by control of two pilot valves.

Connections to SV22 and pilot cylinders are made with ø6mm tube.





Components

Pos.	Name	Quantity	Item
1:	Tube ø6mm	1	102012
2:	Compression fitting 1/8" BSPT - ø6	4	214058
3:	Compression fitting ¼" BSP (F) ø6	1	301382
4:	Bonded seal ¼"	3	777003
5:	Compression fitting Tee ø6	2	214035
6:	Compression fitting ¼" BSPT-ø6 Stud	4	214301
7:	Non-Return valve ¼"	2	305302
10:	Bleed fitting 400bar	1	305320
11:	Tee ¼" BSP (In-Union-In)	1	303281
12:	Pressure Hose ¼" -400 0.220m	1	303166
13:	Pressure Hose Dn6-400 0.330m	1	303174
14:	DV7a -2 M25 (300bar)	2	304042
15:	IV7-300 M25 Basic	2	304090

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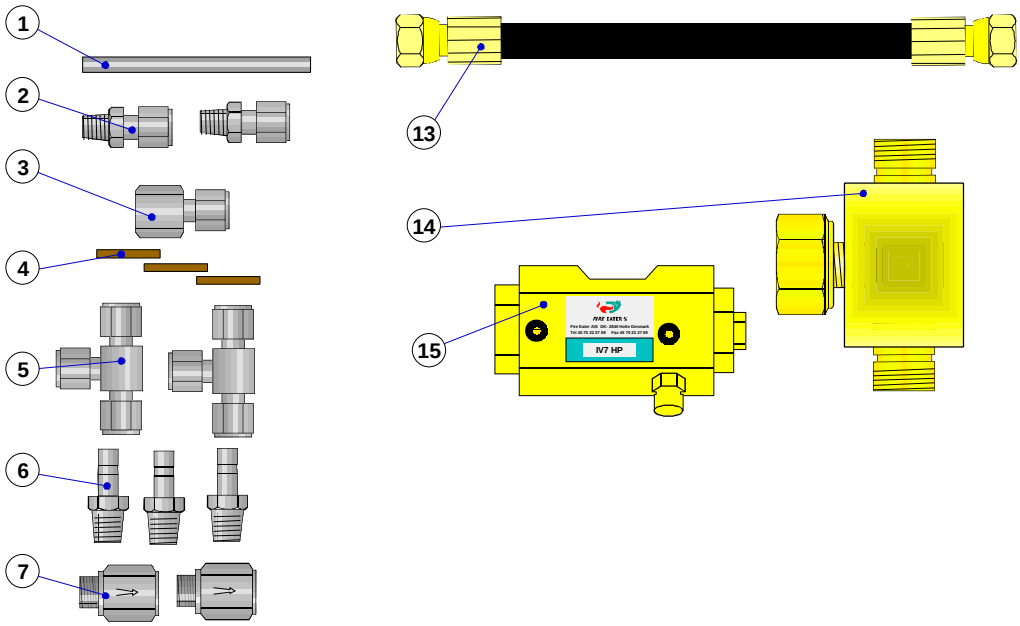
SV22 start kit tube single IV7-300

General

A kit containing components for installation of one selector valve (SV22) by control of one pilot valve.

Connections to SV22 and pilot cylinder are made with ø6mm tube.



Components

Pos.	Name	Quantity	Item
1:	Tube ø6mm	1	102012
2:	Compression fitting 1/8" BSPT - ø6	4	214058
3:	Compression fitting ¼" BSP (F) ø6	1	301382
4:	Bonded seal ¼"	3	777003
5:	Compression fitting tee ø6	2	214035
6:	Compression fitting ¼" BSPT-ø6 stud	2	214301
7:	Non-Return valve ¼"	2	305302
10:	Bleed fitting 400bar	1	305320
11:	Tee ¼" BSP (In-Union-In)	1	303281
12:	Pressure hose ¼" -400 0.220m	1	303166
13:	Pressure hose Dn6-400 0.330m	1	303174
14:	DV7a -2 M25 (300bar)	1	304042
15:	IV7-300 M25 Basic	1	304090

Document: 305194 SV22 startkit Tube Single IV7-300

Product: Kit

Id: mk
Rev: 10.07.06

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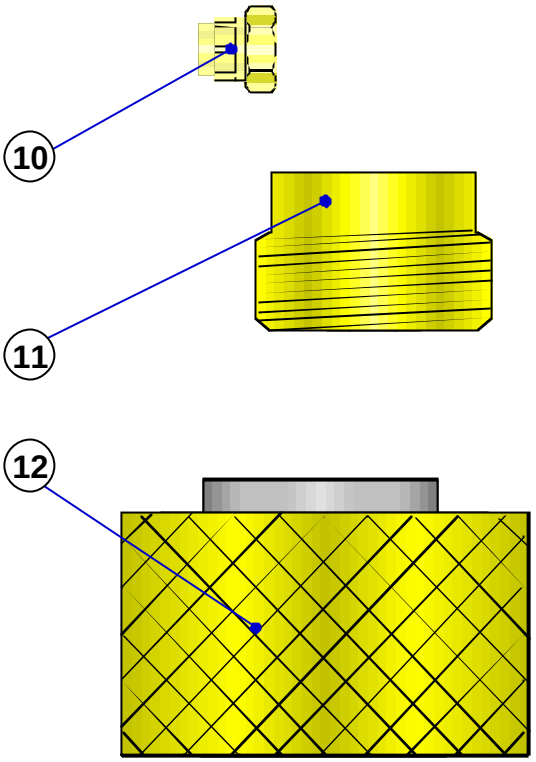
SV22 end plug kit



Generally

A kit containing components for blinding off openings which must be closed in the SV22 installation.

Components

Pos.	Name	Quantity	Item
10:	Blind plug 1/4" 60°	1	303520
11:	SV22 M30 plug	1	305212
12:	SV22 union nut	1	305223
	SV22 ø32 plug	1	305225

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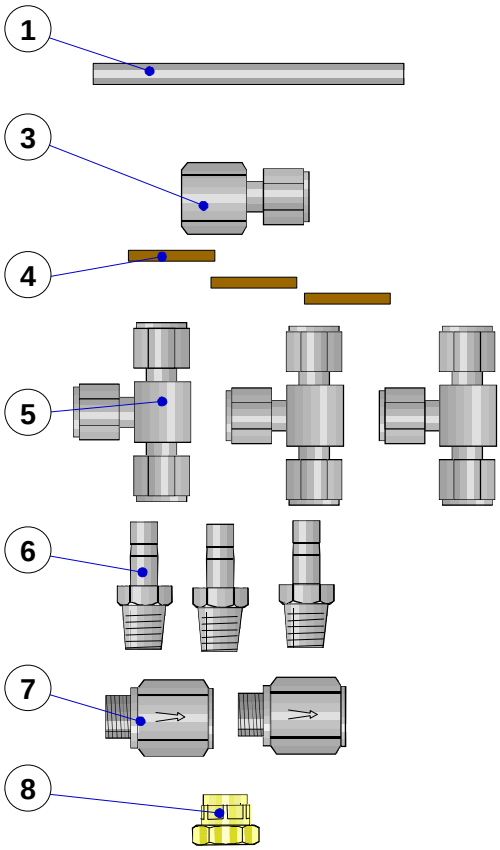
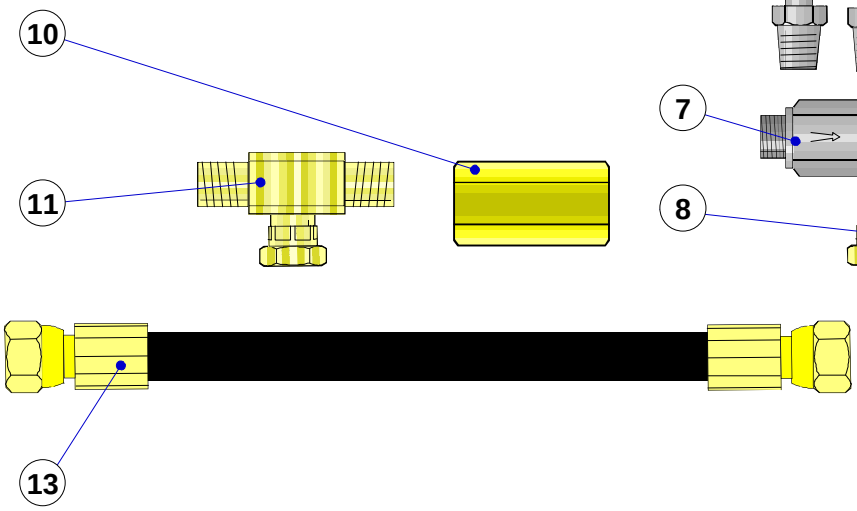
SV22 start kit PDS-80





General

A kit containing components for installation of one selector valve (SV22) by control of a PDS-80 Cabinet (system) as pilot system.

Connections to SV22 and PDS-80 are made with ø6mm tube.

Components

Pos.	Name	Quantity	Item
1:	Tube ø6mm	1	102012
3:	Compression fitting ¼" BSP (F) ø6	1	301382
4:	Bonded seal ¼"	3	777003
5:	Compression fitting tee ø6	3	214035
6:	Compression fitting ¼" BSPT-ø6 stud	3	214301
7:	Non-Return valve ¼"	2	305302
8:	Blind plug ¼"	1	303520
10:	Bleed fitting 400bar	1	305320
11:	Tee ¼" BSP (In-Union-In)	1	303281
13:	Pressure hose Dn6-400 0.330m	1	303174

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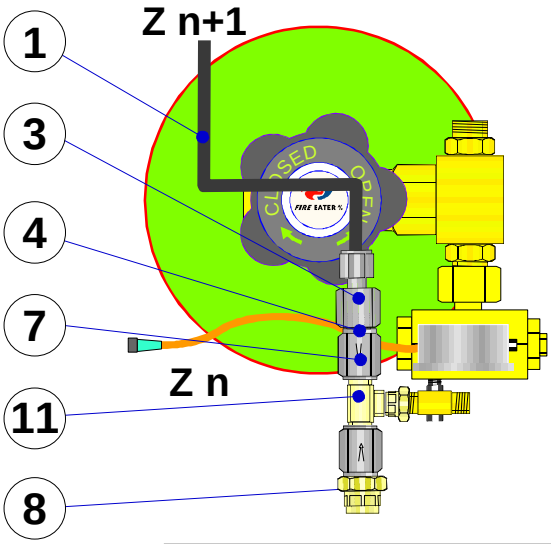
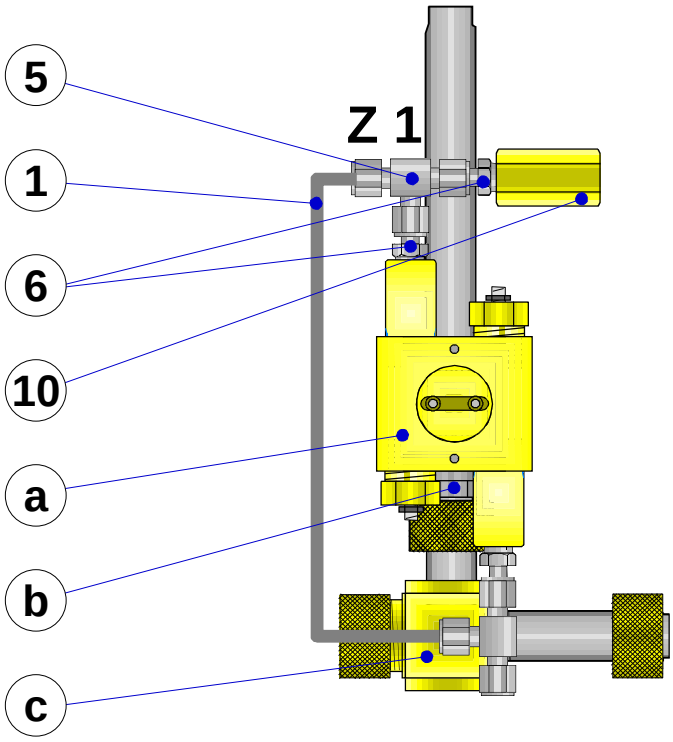
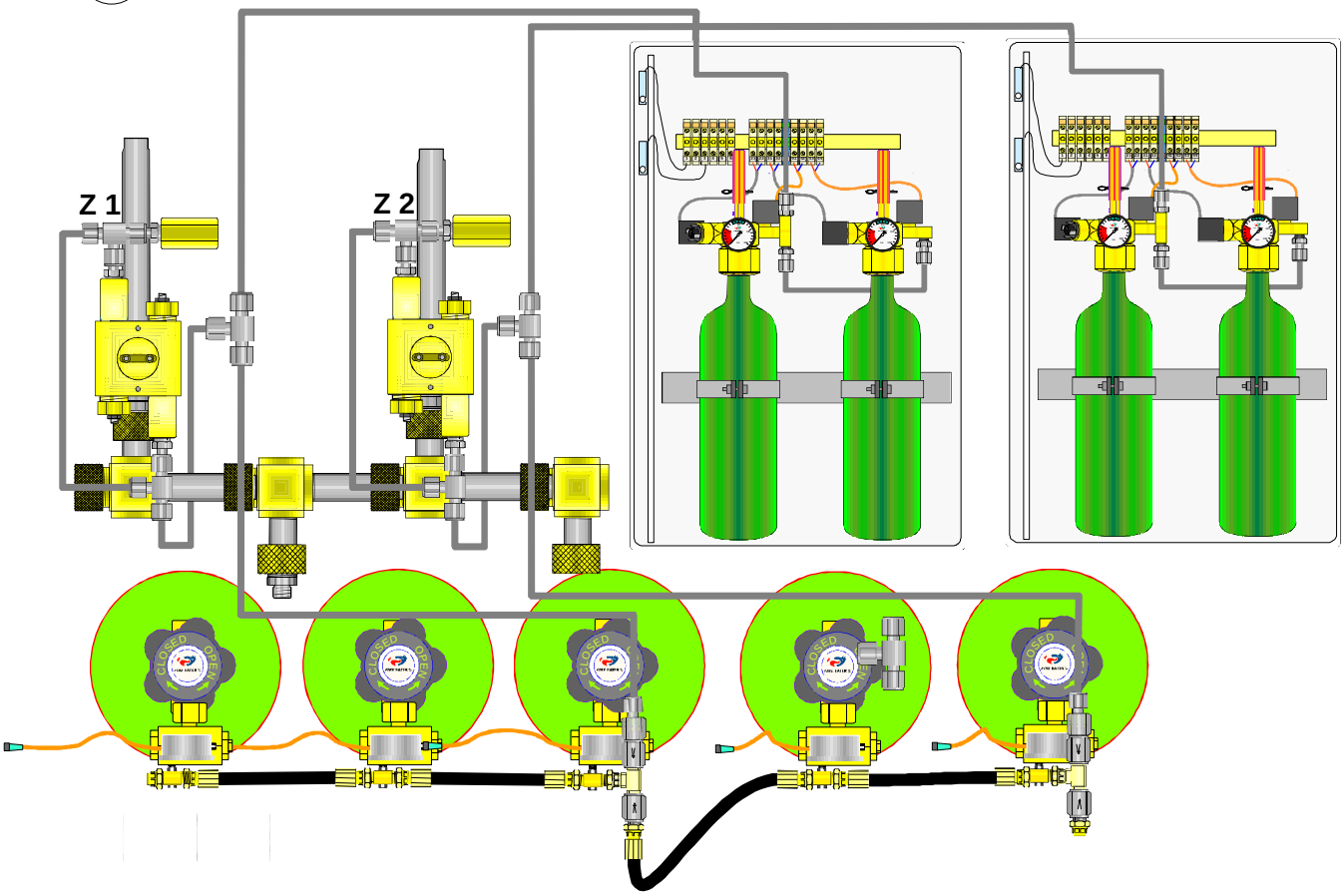
Installation

Position numbers refer to position number on previous page.

All connections are to be tightened.







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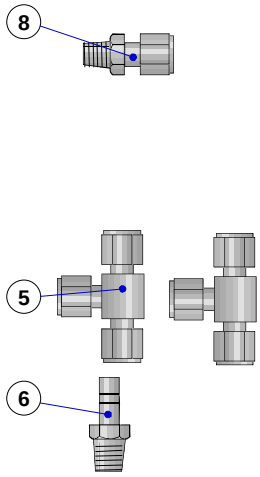
SV22 Next kit tube

General

A kit containing components for connection of one more selector valve (SV22) to be controlled by first selector valve (SV22).

The kit is used where a larger flow is needed than one SV22 can supply.

Connections between SV22 valves are made with ø6mm tube.



Components

Pos.	Name	Quantity	Item
5:	Compression fitting tee ø6	2	214035
6:	Compression fitting ¼" BSPT-ø6 stud	1	214301
8:	Compression fitting ¼" BSPT –ø6 tube	1	

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SV22 MT2 kit

General

This kit consists of

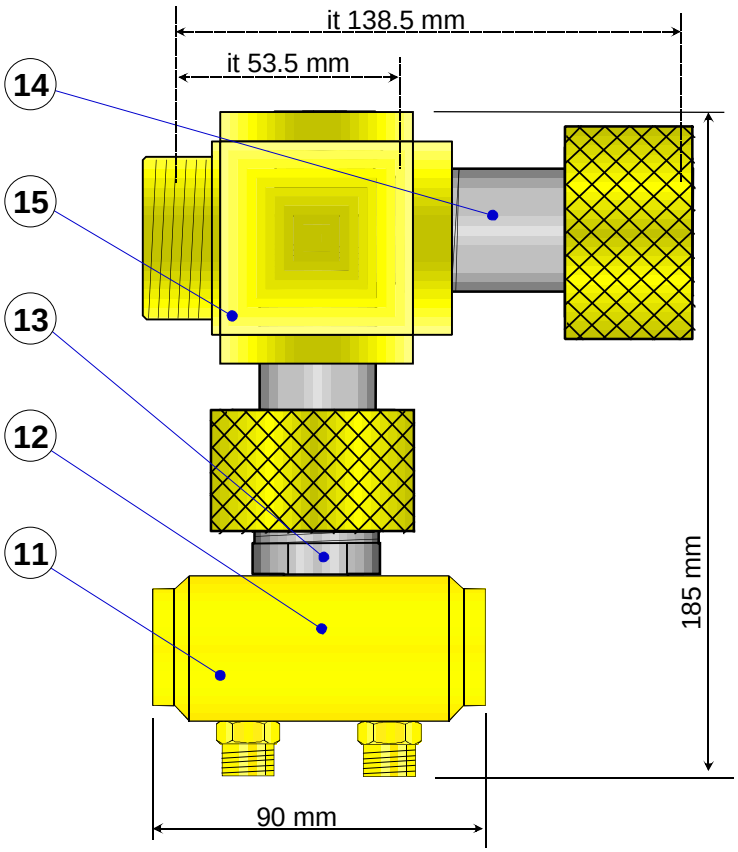
11:	SV22 MT manifold	305272
12:	Cu seal	777008
13:	SV22 adapter 3/4	305233
14:	SV22 pipe kit 85mm	305155
15:	SV22 tee kit	305152

Specifications

Stainless steel and brass

Work pressure: 400 bar

Standard: EN12094



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SV22 MT4 kit

General

This kit consists of:

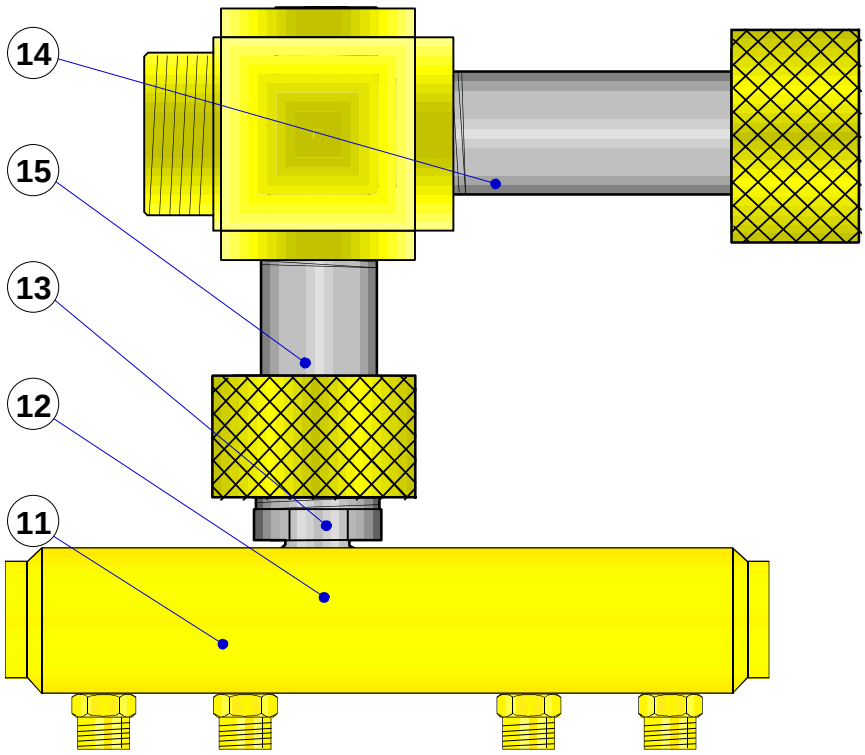
11:	SV22 MT manifold	305274
12:	Cu seal	777008
13:	SV22 adapter ¾"	305233
14:	SV22 pipe kit 125mm	305156
15:	SV22 tee kit	305152

Specifications

Stainless steel and brass

Work pressure: 400 bar

Standard: EN12094



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SV22 MT3 kit

General

This kit consists of:

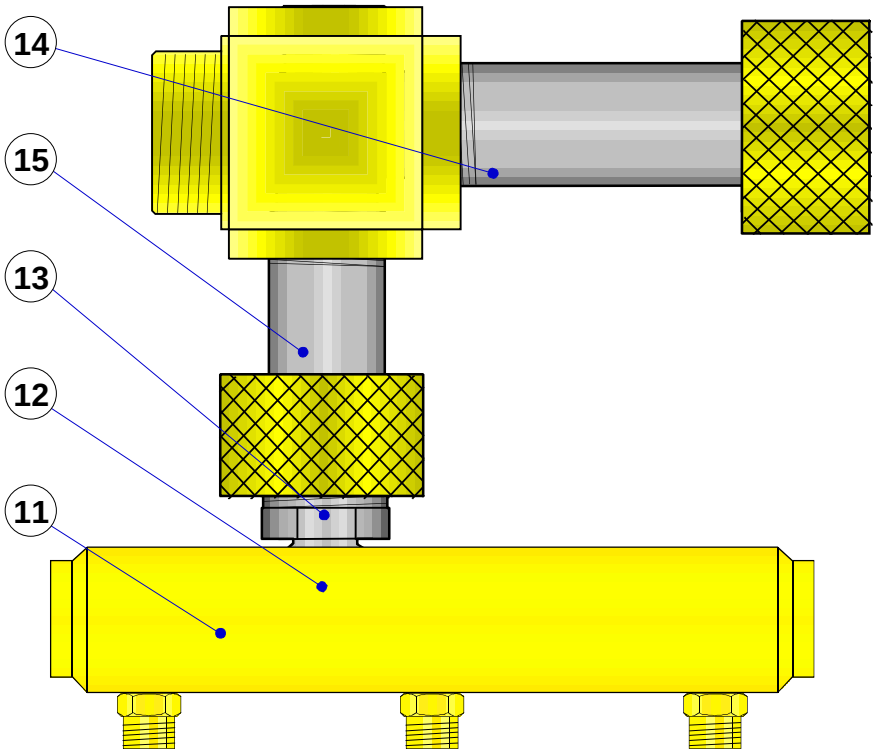
11:	SV22 MT manifold	305273
12:	Cu seal	777008
13:	SV22 adapter ¾"	305233
14:	SV22 pipe kit 125mm	305156
15:	SV22 tee kit	305152

Specifications

Stainless steel and brass

Work pressure: 400 bar

Standard: EN12094



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SV22 MT5 kit

General

This kit consists of:

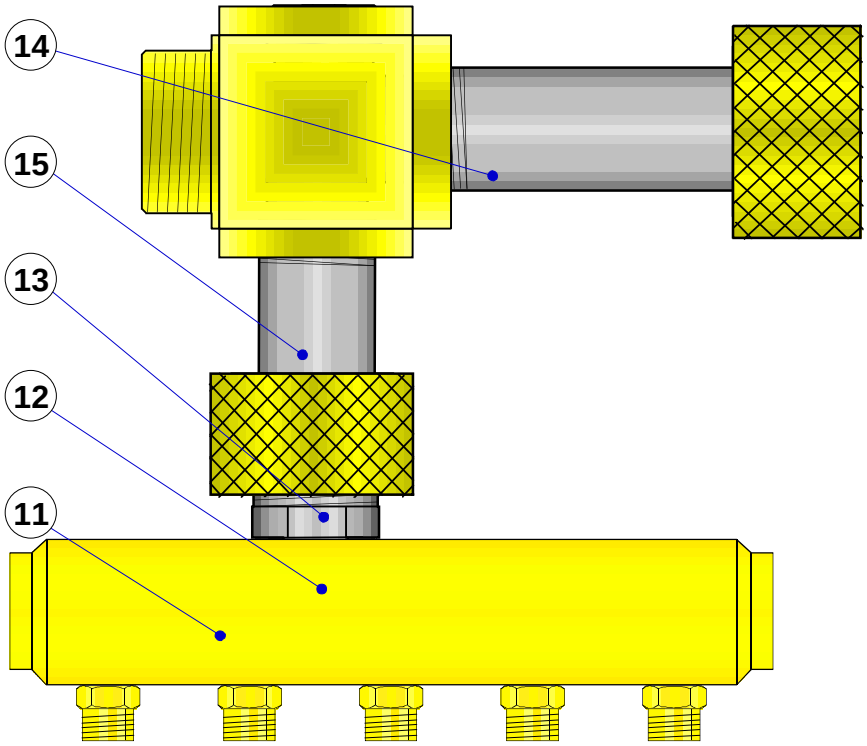
11:	SV22 MT manifold	305275
12:	Cu seal	777008
13:	SV22 adapter ¾"	305233
14:	SV22 pipe kit 125mm	305156
15:	SV22 tee kit	305152

Specifications

Stainless steel and brass

Work pressure: 400 bar

Standard: EN12094



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SV22 MT6 kit

General

This kit consists of:

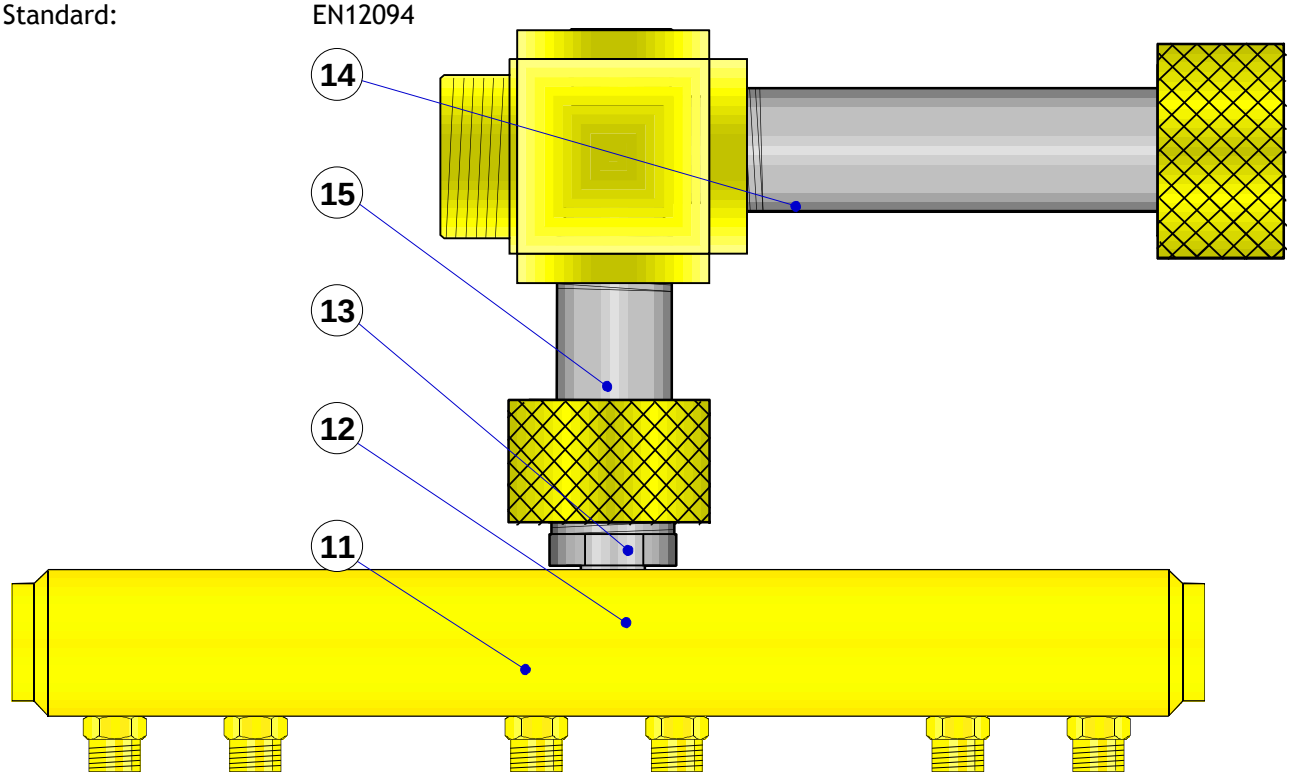
11:	SV22 MT manifold	305276
12:	Cu seal	777008
13:	SV22 adapter ¾"	305233
14:	SV22 pipe kit 160mm	305157
15:	SV22 tee kit	305152

Specifications

Stainless steel and brass

Work pressure: 400 bar

Standard: EN12094



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SV22 MT7 kit

General

This kit consists of:

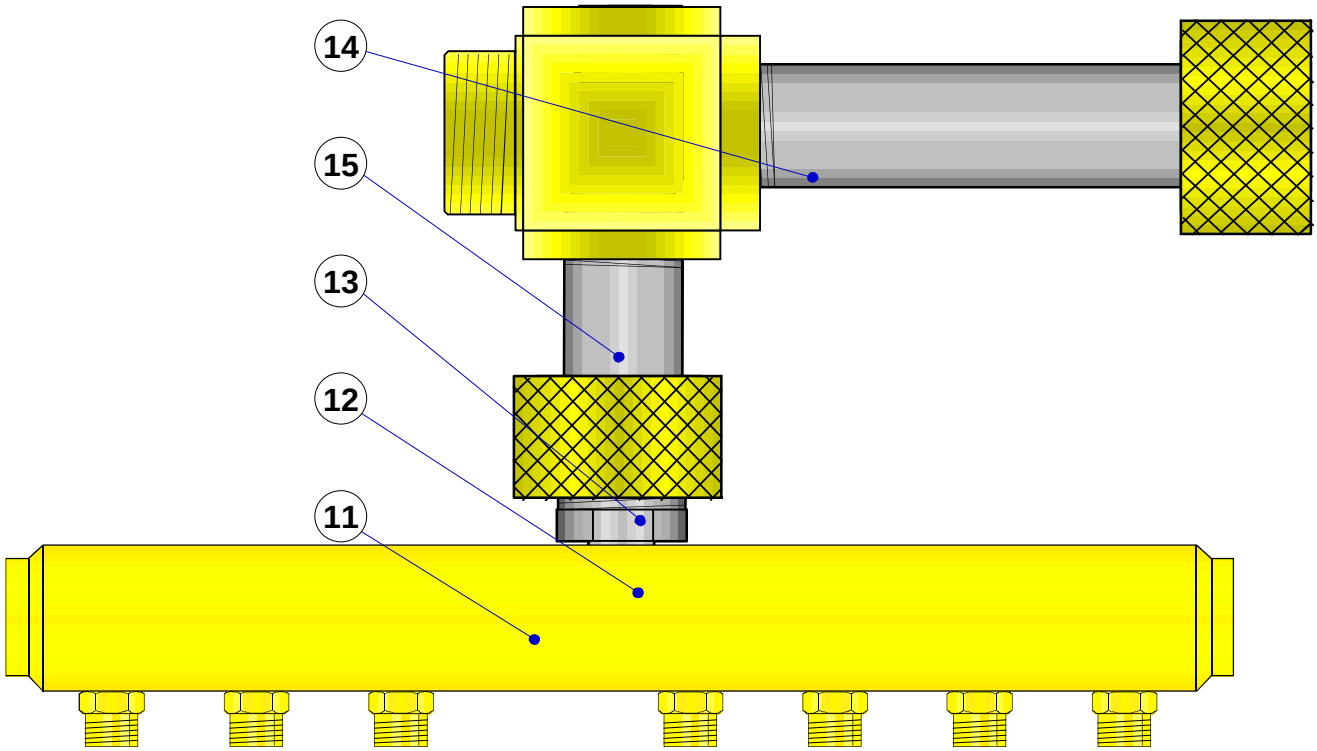
11:	SV22 MT manifold	305277
12:	Cu seal	777008
13:	SV22 adapter ¾"	305233
14:	SV22 pipe kit 160 mm	305157
15:	SV22 tee kit	305152

Specifications

Stainless steel and brass

Work pressure: 400 bar

Standard: EN12094



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SV22 MT8 kit

General

This kit consists of:

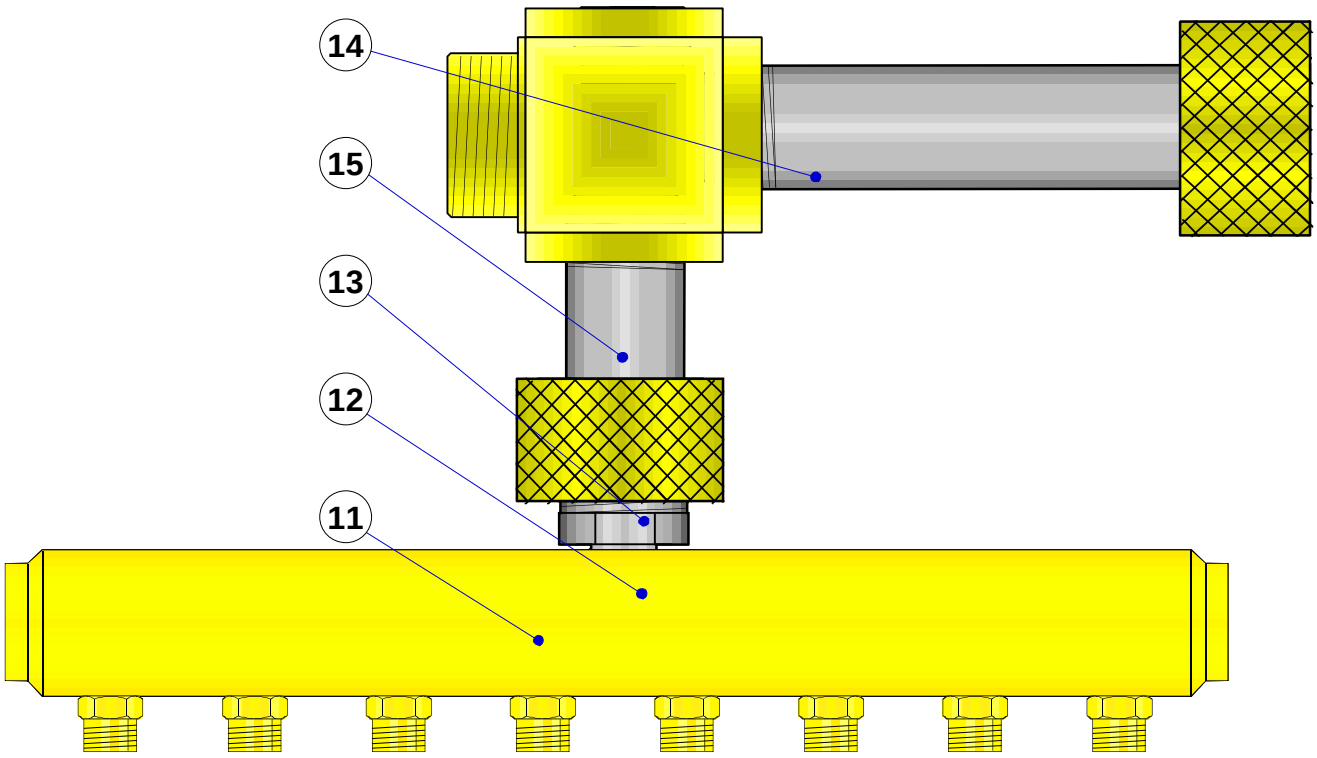
11:	SV22 MT manifold	305278
12:	Cu seal	777008
13:	SV22 adapter ¾"	305233
14:	SV22 pipe kit 160 mm	305157
15:	SV22 tee kit	305152

Specifications

Stainless steel and brass

Work pressure: 400 bar

Standard: EN12094



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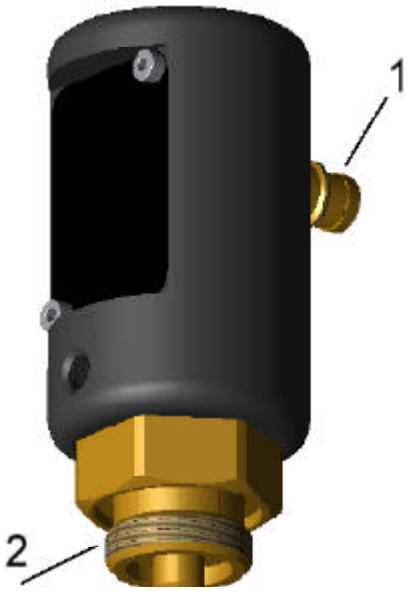
SV22 Switch kit



General

Accessories for the SV22 selector valve used for indicating the position of the valve.

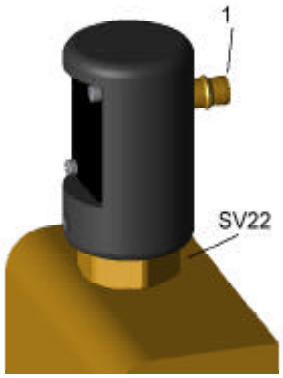
The switch is a change-over switch changing when the valve is no longer in the closed position.

Specifications

1: M8 Connector
2: ISO228 3/8" SV22 connection
Environm: IP67

Dimensions

D×L: ø30×57 mm (installed)
Weight: 0.10 kg

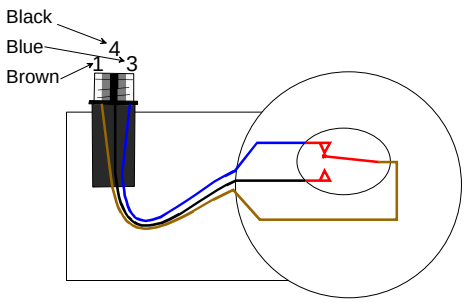


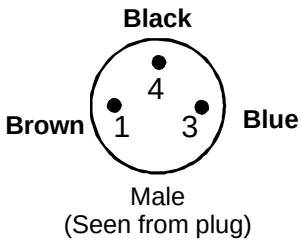
Switch

Voltage: 30 VDC
Current: 3 A
Connection: M8 (see drawing)

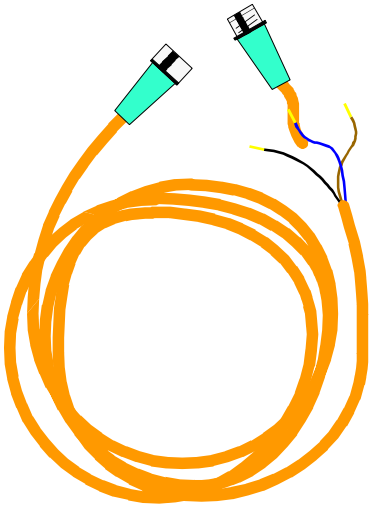
Material

Adapter: Brass (CuZn39Pb3)
Housing: POM
O-rings: Viton (FPM)





Male
(Seen from plug)



Document: 305190 SV22 Switch kit

Product: Inergen®

Id: mk
Rev: 28.06.06

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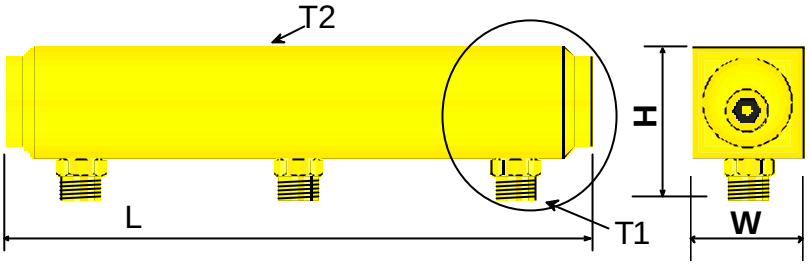
Technical data sheet

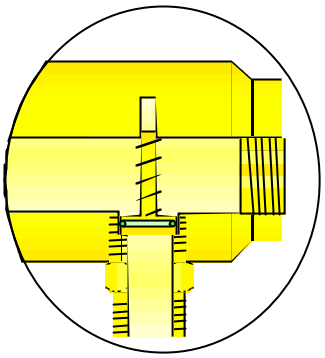
SV22 MT3 Manifold



Generally

For connecting pressure hoses from the IV7 valve to the pipe system or to the SV22 distribution system.

The manifold has built-in check valves in the 3/8" connections



Specifications

Designation:	MT3
Inlets (number of):	3 pcs.
Working pressure:	2 - 400 bar
Orifice:	ø11.1mm (96.5 mm^2)
T1:	ISO228 3/8" (parallel tread, 60°)
T2:	ISO228 3/4" (parallel tread, flat)

Dimensions

L×H×W:	90×40×40 mm
Weight:	2.1 kg

Material

Body + ext. parts:	Brass (CuZn39Pb3)
O-rings:	Viton (FPM)

Pressure

Temperature:	+20°C - +100°C.
O-rings:	Viton (FPM)

Maintenance

Leakage test @ 3 bar, every 10 years and after discharge.

Standards & approvals

EN 12094-13 Non-return valves

CE

####

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EN 12094-13
Non-return valve for Inergen fire extinguishing system

Working pressure	2-400 bar
Free cross-sectional area	96.5 mm^2

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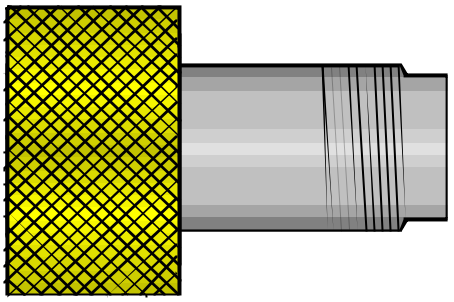
SV22 pipe 60mm kit



Generally

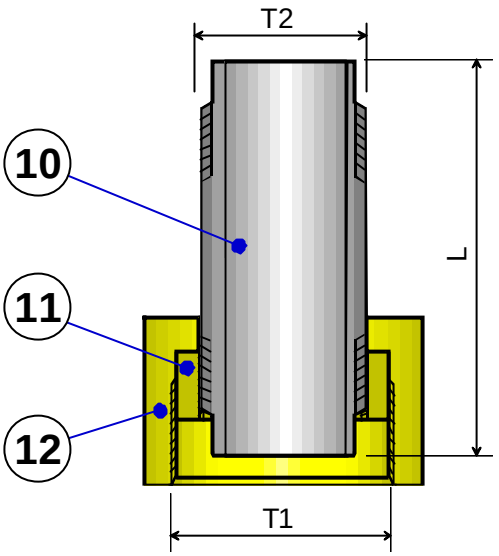
Pipe for connecting selector valves or manifolds to the tee.

Specifications

Working pressure:	0 - 400 bar.
Temp. (operating):	-40 to +70 °C.

Dimensions

L:	60, 85, 125, 160mm
T1:	40 (SV22)
T2:	M32 (SV22)
Weight:	0.4, 0.5, 0.6, 0.7 kg



Compatibility

SV22 components.

Components

Pos.	Name	Quantity	Item
10:	SV22 pipe M30mm (60) SV22 pipe M30mm (85) SV22 pipe M30mm (125) SV22 pipe M30mm (160)	1	305201 305202 305204 305206
11:	SV22 union ring	1	305221
12:	SV22 union nut	1	305223

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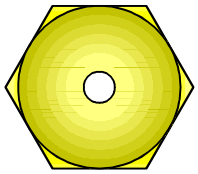
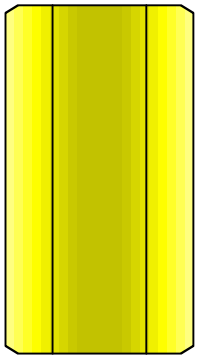
Bleed fitting





General

The bleed fitting is used for preventing pressure build up in pneumatic systems due to leakage, permutation through material, or temperature changes.

The bleed fitting 400 bar SV22 is of the active style, which permits free drain to the atmosphere until a specific pressure/flow rate is present and then it closes to prevent further leakage.

Specifications

Designation:	Bleed fitting 400 bar SV22
Temp. (operating):	-40 to +70 °C.
Connections	ISO228G 1/4”
Closing pressure:	2-9 bar
Leakage rate $_{max}$:	8-50 l/min

Dimensions

L×W:	42 × hex 21 mm
Weight:	0.120 kg

Material

Actuator body + parts:	Brass
O-ring:	Viton

Installation

The valve may be positioned freely.

Maintenance

Operate every 10 years.
Reset manually after discharge by pressing the tap opposite the connection tread.

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INERGEN Nozzle NPT

General

Nozzle for use in INERGEN systems.
The brass nozzles are suitable for use in marine environment due to the corrosion stability of the material.
Each nozzle is calibrated and marked individually for each INERGEN system.

Specifications

Max work pressure: 300 bar
Temperature: -60 to +300°C
Tread connections: ANSI/ASME B1
Material: CuZn39Pb3

Item:	210162	210163	210165	unit
Tread:	1/2"	3/4"	1"	ANSI/ASME B1
Flow way /orifice:	175 (15)	310 (20)	490 (25)	mm^2 (ø mm)
Do:	32	38	38	mm
D1	27	34	34	mm
Ht:	26.5	28.5	28.5	mm
Hb:	15	15	15	mm
Weight:	0.11	0.15	0.25	kg

Installation

The nozzle is screwed on to the pipe system either by hand or a spanner, tightening force app. 30Nm.

Operating

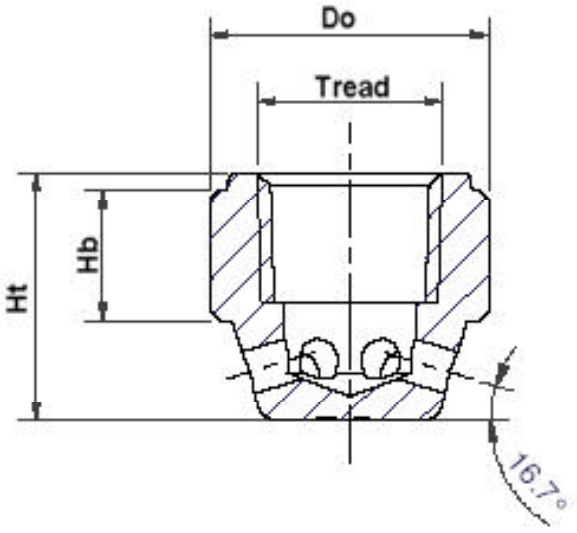
The nozzle is an open nozzle and there are no requirements.

Maintenance

Clean at regular intervals.
Avoid getting dirt inside the pipe system.

Routine testing

No requirements.



Document: 21016x IN NPT Nozle.doc

Product: Mech Components
Id: BH
Rev: 14.08.06

FIRE EATER A/S
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Fax +45 7023 2769

	Text
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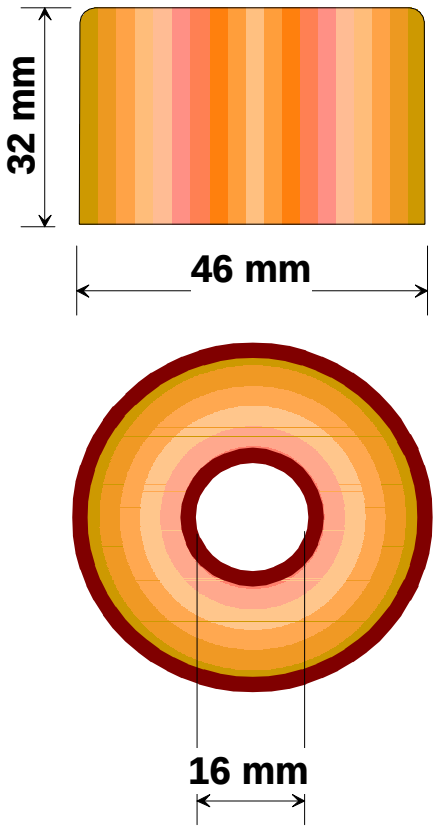
Engineering data sheet

Chapter:	Nozzle
Item:	205148

Nozzle cover



Material

Copper: Cu

Specifications:

For use with 3/8” nozzles

Temperature: -40°C - +200°C

Document:	205148 Nozzle cover 3-8"	
Product: Nozzles	Id lg	
	Rev B1	

FIRE EATER
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Pos	Text
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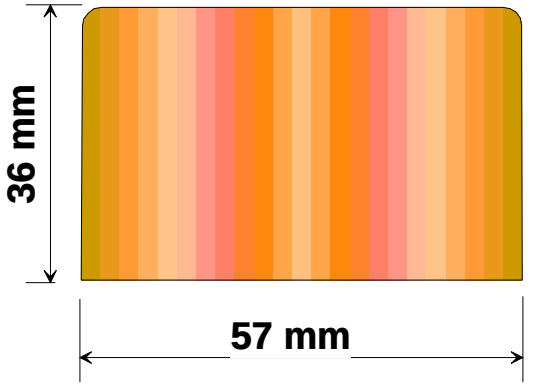
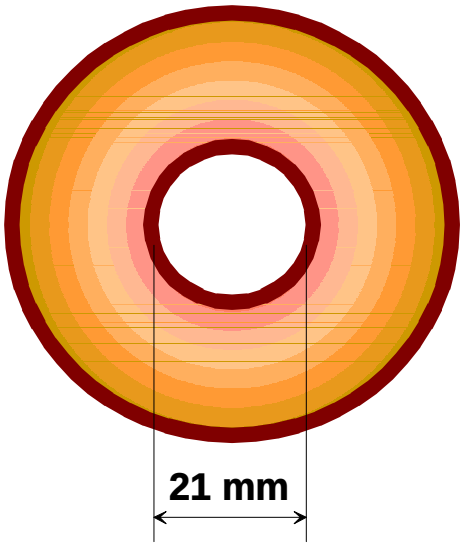
Engineering data sheet

Chapter:	Nozzle
Item:	205149

Nozzle cover





Material

Copper: Cu

Specifications:

For use with 1/2” nozzles

Temperature: -40°C - +200°C

Document:	205149 Nozzle cover 1-2"	Pos	Text
Product: Nozzles	Id lg	1	
	Rev B1	2	
		3	
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		9	

FIRE EATER ½
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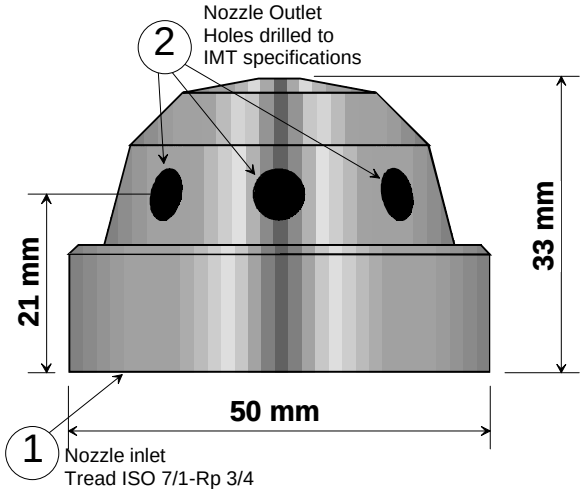
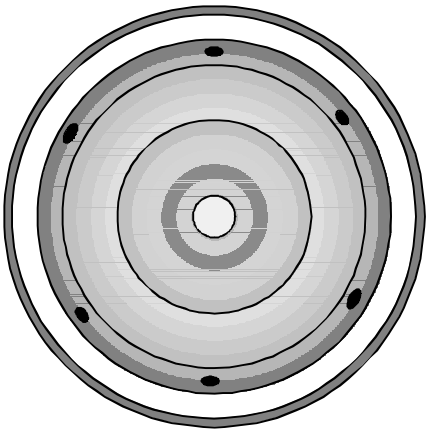
Engineering data sheet

Chapter:	Nozzle
Item:	210016

3/4" Round nozzle





Material

Aluminium: AlCuBiPb

Optional

Brass: CuZn39Pb3

Stainless steel: AISI 316

Specifications:

Work pressure: < 300 bar

Burst pressure: > 1000 bar

Temperature: -40°C - +200°C

Orifice: < 285 mm^2

Inter nozzle distance: < 8 m

Document:	210016 Nozzle 3-4" Alu. round		
Product: Nozzles	Id lg		
	Rev B1		

Pos	Text	
1	Inlet	ISO 7/1-Rp 3/4
2	Outlet	Drilled according to IMT
3		
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9		

FIRE EATER ½
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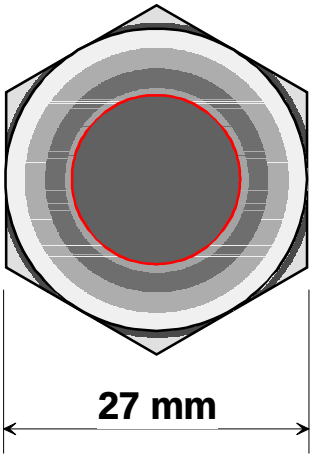
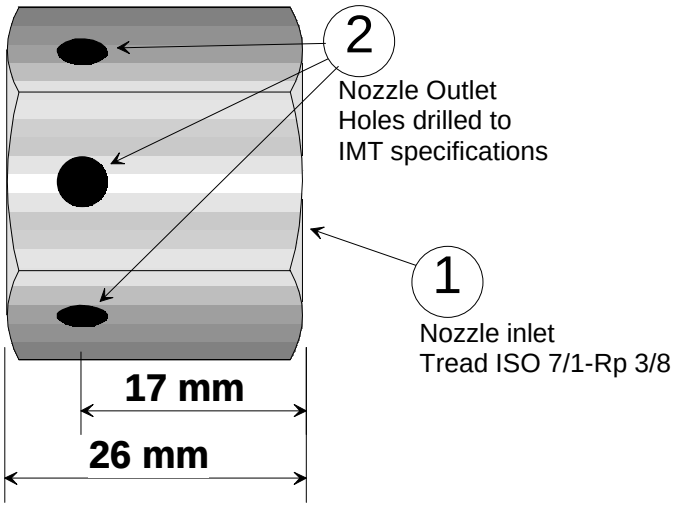
Engineering data sheet

Chapter:	Nozzles
Item:	210114

3/8" Hexagonal nozzle





Material

Aluminium: AlCuBiPb

Optional

Brass: CuZn39Pb3

Stainless steel: AISI 316

Specifications:

Work pressure: < 300 bar

Burst pressure: > 1000 bar

Temperature: -40°C - +200°C

Orifice: < 75 mm^2

Cover may be fitted for direction of Inergen® flow

Document:	210114 Nozzle 3-8" hex	Id	Ig
Product: Nozzles		Rev	B1

Pos	Text	
1	Inlet	ISO 7/1-Rp 3/8
2	Outlet	Drilled according to IMT
3		
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FIRE EATER

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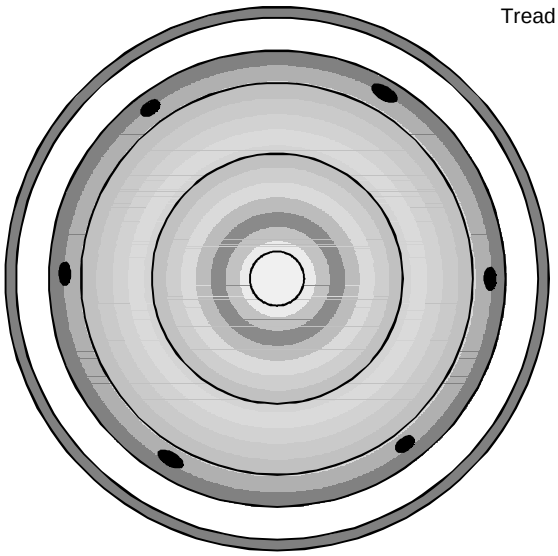
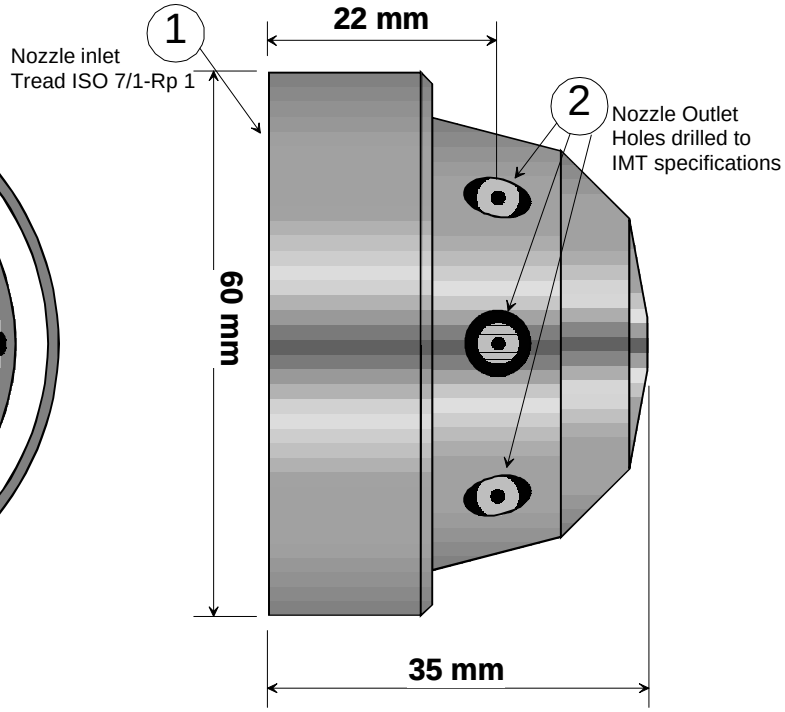
Engineering data sheet

Chapter:	Nozzle
Item:	210034

Nozzle 1'' Stainless steel





Material

Stainless steel: AISI 316

Specifications:

Work pressure:	< 300 bar
Burst pressure:	> 1000 bar
Temperature:	-40°C - +500°C
Orifice:	< 500 mm^2
Inter nozzle distance:	< 8 m
Minimum orifice diameter:	ø4 mm

Document:	210034 Nozzle 1" Stainless	Id	lg
Product:	Nozzles	Rev	B1

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Pos	Text	
1	Inlet	ISO 7/1-Rp 1
2	Outlet	Drilled according to IMT
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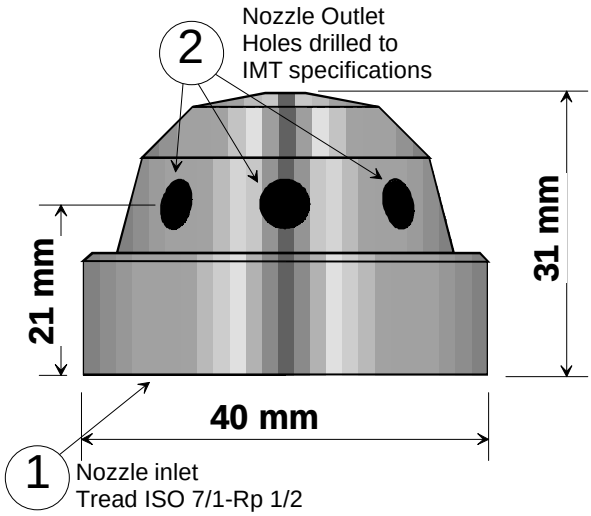
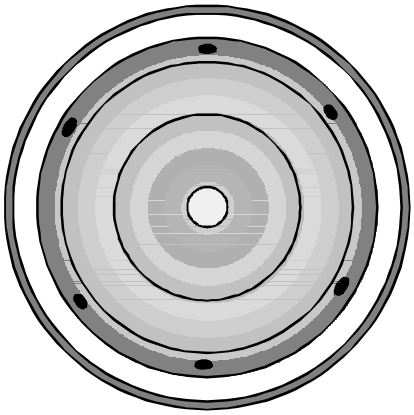
Engineering data sheet

Chapter:	Nozzles
Item:	210021

1/2" Round nozzle





Material

Aluminium: AlCuBiPB

Optional

Brass: CuZn39Pb3

Stainless steel: AISI 316

Specifications:

Work pressure: < 300 bar

Burst pressure: > 1000 bar

Temperature: -40°C - +200°C

Orifice: < 130 mm^2

Inter nozzle distance: < 8 m

Document:	210021 Nozzle 1-2" Alu. round		
Product: Nozzles	Id	lg	
	Rev	6	

Pos	Text	
1	Inlet	ISO 7/1-Rp 1/2
2	Outlet	Drilled according to IMT
3		
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FIRE EATER

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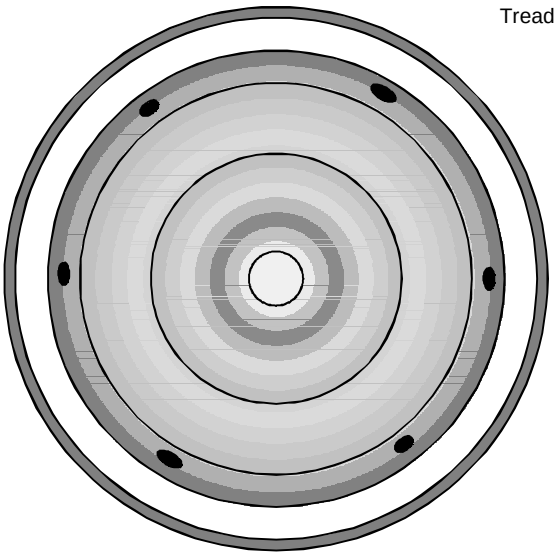
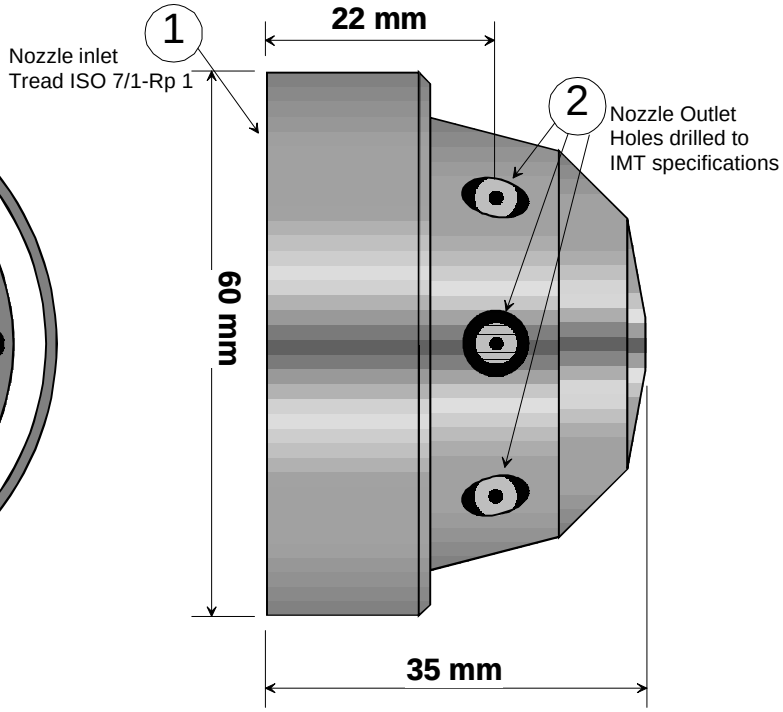
Engineering data sheet

Chapter:	Nozzle
Item:	210020

1" Nozzle





Material

Aluminium:	AlCuBiPb
Optional	
Brass:	CuZn39Pb3
Stainless steel:	AISI 316

Specifications:

Work pressure:	< 300 bar
Burst pressure:	> 1000 bar
Temperature:	-40°C - +200°C
Orifice:	< 500 mm^2
Inter nozzle distance:	< 8 m

Document:	210020 Nozzle 1" Alu. round		
Product:	Nozzles	Id	lg
		Rev	B1

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Pos	Text	
1	Inlet	ISO 7/1-Rp 1
2	Outlet	Drilled according to IMT
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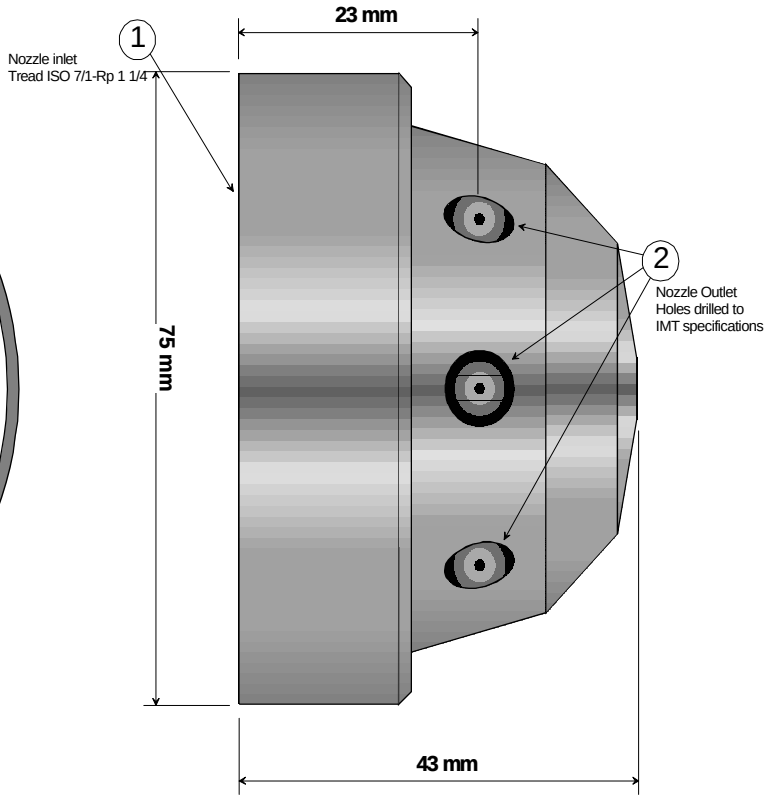
9		

Engineering data sheet

Chapter:	Nozzle
Item:	210017

1¼" Round nozzle



Material:

Aluminium: AlCuBiPb

Optional

Brass: CuZn39Pb3

Stainless steel: AISI 316

Specifications:

Work pressure: < 300 bar

Burst pressure: > 1000 bar

Temperature: -40°C - +200°C

Orifice: < 800 mm^2

Inter nozzle distance: < 8 m

Noise level > 92 dB

Document:	210017 Nozzle 5-4" Alu. round		
Product: Nozzles	Id lg		
	Rev b1		

Pos	Text	
1	Inlet	ISO 7/1-Rp 1 1/4
2	Outlet	Drilled according to IMT
3		
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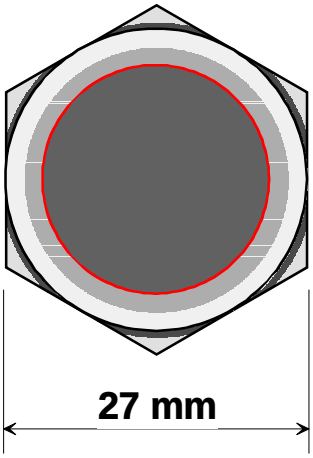
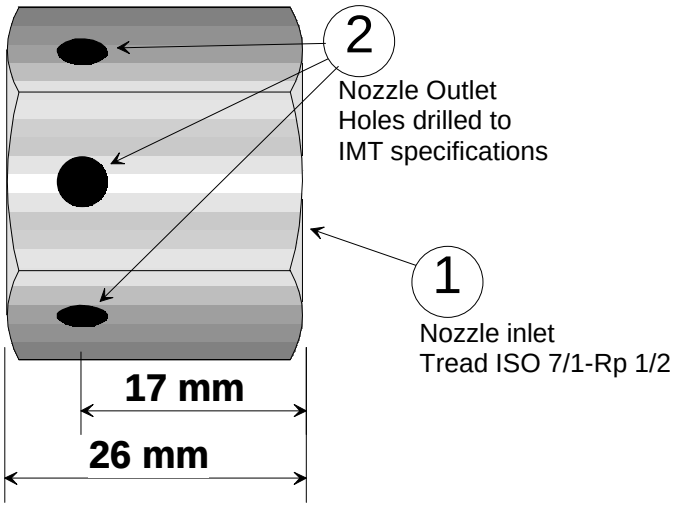
Engineering data sheet

Chapter:	Nozzles
Item:	210115

1/2" Hexagonal nozzle





Material

Aluminium:	AlCuBiPb
Optional	
Brass:	CuZn39Pb3
Stainless steel:	AISI 316

Specifications:

Work pressure:	< 300 bar
Burst pressure:	> 1000 bar
Temperature:	-40°C - +200°C
Orifice:	< 130 mm^2
Inter nozzle distance:	< 8 m

Document:	210115 Nozzle 1-2" hex		
Product:	Nozzles	Id	lg
		Rev	B1

Pos	Text	
1	Inlet	ISO 7/1-Rp 1/2
2	Outlet	Drilled according to IMT
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FIRE EATER
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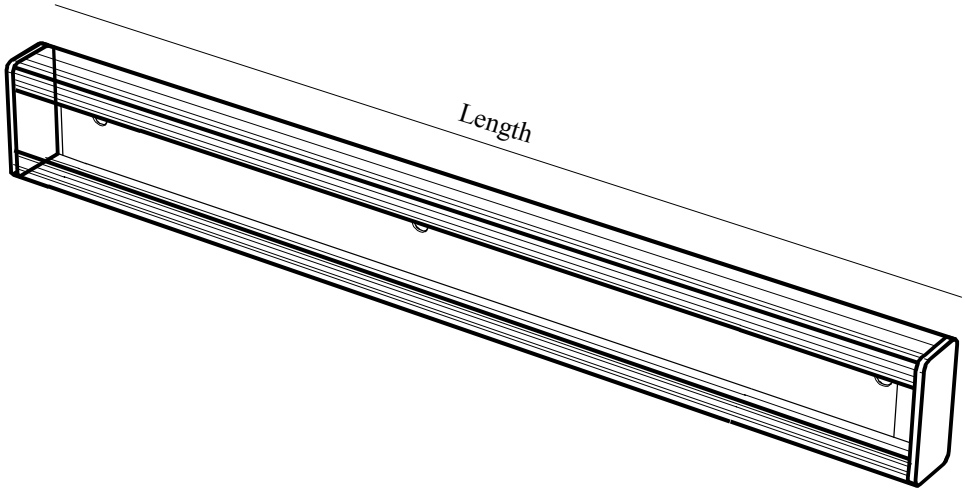
Engineering data sheet

Chapter:	Brackets
Item:	400301 - 400310

Cylinder rail for 80l cylinders



Specifications

Cylinder diameter:	267 mm.
Fastening distances:	< 350 mm.
Profile:	P4000 series.
Material:	Galv. steel.

Item number	No of cyl.	Lenght [mm]	Weight [kg]
400301	1	320	0.35
400302	2	640	0.70
400303	3	960	1.05
400304	4	1280	1.40
400305	5	1600	1.70
400306	6	1920	2.15
400307	7	2240	2.40
400308	8	2560	2.75
400309	9	2880	3.10
400310	10	3200	3.45

Use with bracket: 400109
Bracket ends: 400121

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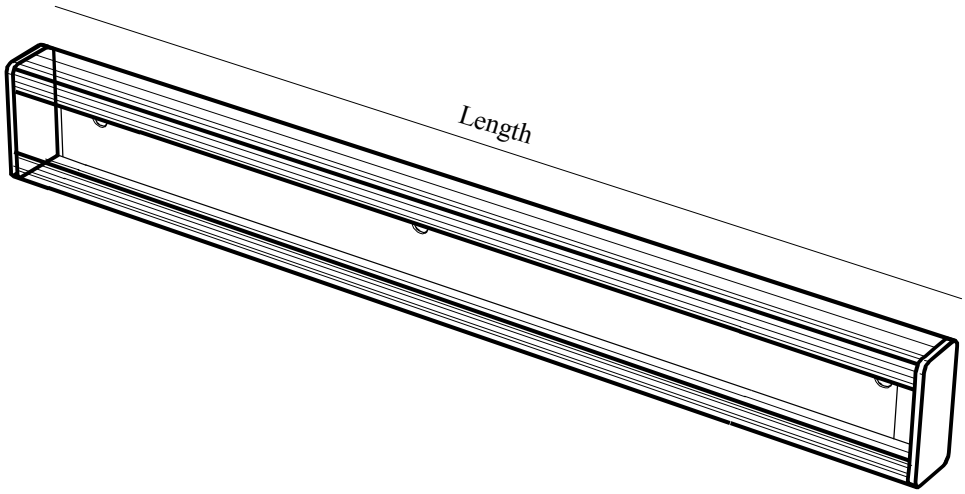
Engineering data sheet

Chapter:	Brackets
Item:	400200-400210

Cylinder rail for 50l cylinders



Specifications

Cylinder diameter:	229 mm.
Fastening distances:	< 350 mm.
Profile:	P4000 series.
Material:	Galv. steel.

Item number	No of cyl.	Lenght [mm]	Weight [kg]
400201	1	270	0.30
400202	2	540	0.60
400203	3	810	0.90
400204	4	1080	1.20
400205	5	1350	1.50
400206	6	1620	1.80
400207	7	1890	2.10
400208	8	2160	2.40
400209	9	2430	2.70
400210	10	2700	3.00

Use with bracket: 400110
Bracket ends: 400121

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Pipe brackets for INERGEN pipes

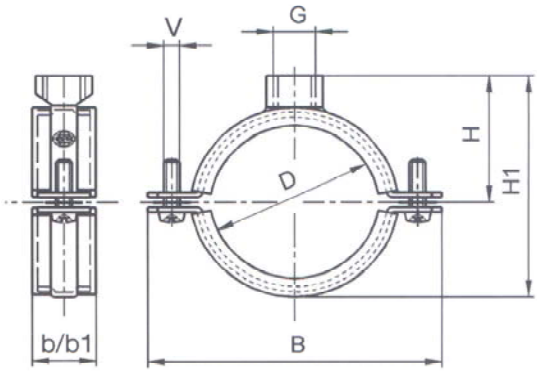
Pipe brackets must be securely fastened to the wall using fasteners which are not affected by heat.

Connection tread is ISO 7 G1/2"

Item	Name	B	H1	H
8584226	Pipe brakcte Dn 15 (1/2”)	70	56	35
8584232	Pipe bracket Dn 20 (3/4”)	75	61	38
8584239	Pipe bracket Dn 25 (1”)	80	67	41
8584247	Pipe bracket Dn 32 (1 1/4”)	92	79	47
8584254	Pipe bracket Dn 40 (1 172”)	98	84	49
8584261	Pipe bracket Dn 50 (2”)	111	97	56

General Dimensions

G:	Connecting tread	ISO7 Rp 1/2"
V:	M6	
b/b1:	23 mm	



FIRE EATER

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Pressure relief

General

For installation in walls to the fire protected enclosure to allow the excess air to exit the room, when INERGEN is released in the area.

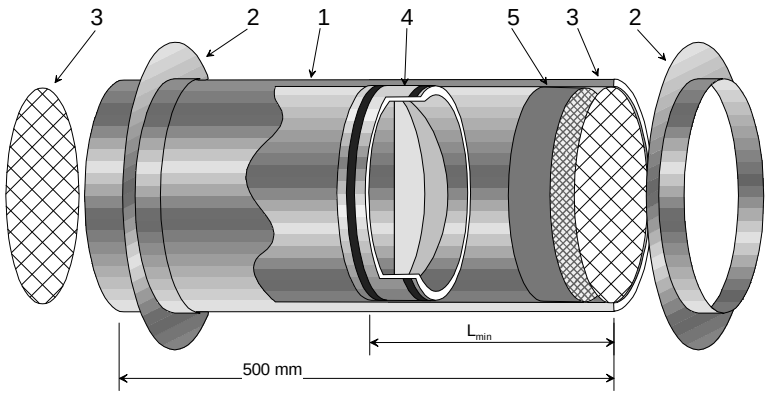
The relief incorporates a closing mechanism that provides a seal against the entry of flames and smoke. This is achieved by the use of a special intumescent material that swells at high temperatures.

The material has been tested by Warrington Fire Research and can withstand fire for more than 60 minutes.

To be installed with the intumescent material towards the unprotected enclosure, flush with the wall and the butterfly valve axis in vertical position.

The components

1. Duct
2. Wall plate
3. Mesh
4. Butterfly valve
5. Intumescent honeycomb



Specifications

Duct material:	Zinc plated steel
Valve material:	Aluminium
Intumescent material:	63mm Dufalite Fireblack

Item no.	Area [cm^2]	Ø [mm]	L_{min} [mm]	Designation
302720	40	80	90	Pressure relief A040
302721	65	100	95	Pressure relief A065
302722	95	125	105	Pressure relief A095
302723	150	160	125	Pressure relief A150
302724	250	200	165	Pressure relief A250
302725	385	250	210	Pressure relief A385
302726	615	315	245	Pressure relief A615
302728	1000	400	290	Pressure relief A1000

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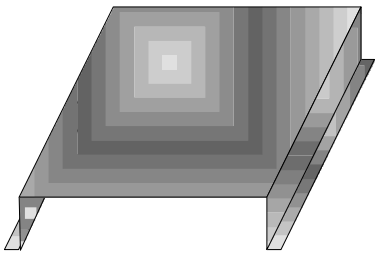
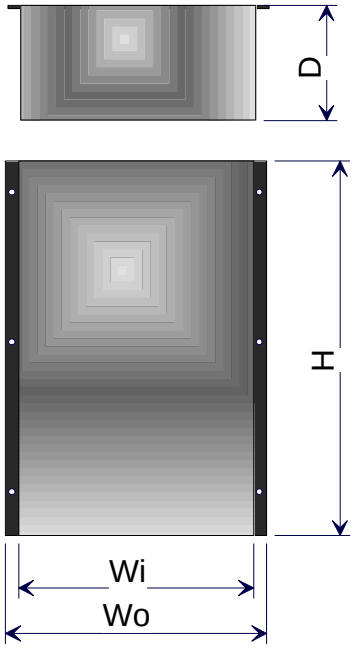
Pressure relief cover

General

For installation over the pressure relief, to protect the intumenscent element from water and moist.

The cover is mounted directly to the wall. Additional sealant may be applied.





Specifications

Material: 0.8mm Zinc plated steel

Item no.	Wi [mm]	D [mm]	H [mm]	To be used with		
302740	120	50	120	302720	Pressure relief A 040	ø080
302741	150	60	160	302721	Pressure relief A 065	ø100
302742	180	80	200	302722	Pressure relief A 095	ø125
302743	210	100	250	302723	Pressure relief A 150	ø160
302744	260	125	320	302724	Pressure relief A 250	ø200
302745	320	160	400	302725	Pressure relief A 385	ø250
302746	390	200	500	302726	Pressure relief A 615	ø315
302748	480	250	600	302728	Pressure relief A 1000	ø400

Outside width Wo is Wi + 50mm

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5. Test log, Service & maintenance

Log for pressure test of INERGEN pipe system

Pressure testing report in accordance with PED 97/23/EC,

Acc. to PED Annex I section 2.2.1: All pressurized equipment must as a minimum be pressure tested to 1.43 × work pressure.

The following documentation must be available:

General description of the pipe system, drawings and diagrams, list of used standards, dimensioning calculations, test report.

Company .:

Address ...: Zip.: City:

Att.....: Tel.:

Location ..:

General

Id. nr. for the used measuring equipment:_____

Test media: Air ❑ N_2 ❑ Water ❑ INERGEN ❑

Test pressure: _____Bar (Equivalent to 1.43 × work pressure)

Installed by : _____

Installation year : _____

	❑ Steel (Work press. 75 bar)		❑ other (Work press. ___ bar)
Pipe:	EN 102220, EN 10216, EN 10297 EN 10204 3.1B		
Fittings:	ISO 49, EN10242, EN10241-5.2 EN10204, VdS C2.1		

Procedure

1) Pipe system visually inspected and end plugs fitted ..... ❑
2) Areas evacuated and closed off ..... ❑
3) Pressure raised to 20% of testing pressure and kept for one minute ..... ❑
4) Testing pressure increased in steps of 10% of testing pressure ..... ❑
5) Holding time for testing pressure (total) _____ minutes (minimum 30 min.)
6) Testing pressure lowered to work pressure (_____ bar) ..... ❑
7) Pipe system visually inspected ..... ❑
8) Result: **Approved** ❑ **NOT Approved** ❑
9) Pipe system depressurized ..... ❑
10) **End plugs removed** and nozzles installed as per drawing.. ..... ❑

Signature

Test date : _____

_____ _____

Responsible technician Inspector

IV7 *Outset Report.*

Customer : .....

Adress : .....

Region : .....

O-ring between IV7 and cylinder valve checked ☐

Valve connected to the cylinder valve ☐

Pressure hose connected to manifold ☐

Each valve pressurised and cylinder valve closed ☐
Pressure is to be reapplied after 1 minute.

Leakage test between Valve and cylinder ☐

The applied pressure for each valve is to be recorded below.

1		2		3		4		5		6	
7		8		9		10		11		12	

Valve impermeability is verified ☐

Cylinder valve opened and system pressurised ☐

Pressure switch signal tested and found OK ☐

Valve and handles are secured and sealed ☐

Pressure switch cable connected ☐

Discharge unit fitted ☐

Discharge cable connected ☐

System checked and found free of faults ☐

Inspection Date : _____

---------- ----------

Responsible Technician *Supervisor*

IV7 *Outset Report.*

Customer : .....

Adress : .....

Region : .....

O-ring between IV7 and cylinder valve checked ☐

Valve connected to the cylinder valve ☐

Pressure hose connected to manifold ☐

Each valve pressurised and cylinder valve closed ☐
Pressure is to be reapplied after 1 minute.

Leakage test between Valve and cylinder ☐

The applied pressure for each valve is to be recorded below.

1		2		3		4		5		6	
7		8		9		10		11		12	

Valve impermeability is verified ☐

Cylinder valve opened and system pressurised ☐

Pressure switch signal tested and found OK ☐

Valve and handles are secured and sealed ☐

Pressure switch cable connected ☐

Discharge unit fitted ☐

Discharge cable connected ☐

System checked and found free of faults ☐

Inspection Date : _____

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Responsible Technician *Supervisor*

Engineering data sheet

Chapter: Final inspection
Sheet: 809002

Pneumatic activation system test

The procedure.

Disconnect pressure inlets to the discharge valves.

It is important that the pressure is measured after the first valve (must be disconnected to avoid discharge of Inergen®), to prove that all check valve are placed correctly.

For IV4 systems the hoses are separated at the first NPP adapter in the loop.

For IV7 valves the hose separated at the first PA inlet of the loop.

When the pressure gauge is installed the pneumatic pressure is opened.

Close the pneumatic pressure, and refill pressure storage tank.

Re connect the hoses, check all hoses for tightness with a wrench.

Repeat test procedure for the secondary system.

Mechanical activation system test

The procedure.

Disconnect the mechanical activation device.

Activate the mechanical device, observe that the plunger at the connection moves freely.

Reset the mechanical activator.

Re install the mechanical activator.

Observe that no obstruction may could prevent the handle from moving in case of a fire.

Electrical activation system test

The procedure.

Disconnect the wire connection.

Observ that the control panel registre the disconnection as a fault.

Place test lamps in stead of the actuators.

Discharge system.

Observe that the energy is sufficient to fire the actuators.

Acceptance.

Pneumatic pressure must exceed the minimum work pressure of all components
The activation handle must move freely.
Energy must be sufficient to fire actuators/generators.

Qualifications.

The personnel performing the test must be certified for doing the kind of operation, and knowing their responsibilities regarding safety regulations.

Document: 809002 Activation		Pos 1 Text
Product: Mechanical activation system	Id mk	2
	Rev b1	3
		4
		5
		6
		7

FIRE EATER ⅘
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Leakage test

The components

A very low leakage rate is acceptable due to the fact that there is a small leakage (Diffusion) of INERGEN® through the rubber parts used for sealing the valves and components.

Each component is tested before shipping from Fire Eater, but as certain assembly has to be performed at the installation site a test has to be conducted to ensure trouble free function.

Procedure for testing.

When the FlexiRack / Discharge valve has been installed the assembly is pressurised and the hand wheel valve is left open for 10 minutes to allow Orings to seat properly.

The hand wheel valve is then shut off. And the assembly is left to rest.

The period the system rests may vary, but a period of 24 hours or more is recommendable, and a period of 6 hours is minimum.

It is of utmost importance that the temperature at which the test is carried out is constant

When 6 hours has passed no pressure fall must be noticeable.

Long time testing

When time permits is recommendable to perform a long time leakage test. Acceptable pressure drops is listed, these pressure falls are based on a service interval of refilling of 10 years with a safety factor of 7 for Direct discharge valve - hand wheel valve connections and 4 for the FlexiRack system.

Acceptable pressure drops with shut hand wheel valves

Time	200 bar systems	300 bar systems
1 day	**3 bar**	**5 bar**
1 week	**13 bar**	**20 bar**
2 week	**20 bar**	**30 bar**
3 week	**27 bar**	**40 bar**
4 week	**30 bar**	**45 bar**

Corrections.

Any leakage rate greater than above is not acceptable, the leak must be located and fixed.

Qualifications.

The personnel performing the test must be certified for doing the kind of testing, and knowing their responsibilities regarding safety regulations.

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Pressure hoses

Inspection.
All pressure hoses connected, must be checked prior to committing the system for use.

Procedure for testing.
Using a wrench to check that all nuts and hoses are tightened properly.

Qualifications.
The personnel performing the test must be certified for doing the kind of testing, and knowing their responsibilities regarding safety regulations.

Documentation.
When all hoses are tightened proper documentation is filled to prove that the inspection has been performed.

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Opening valves

The procedure.

When pipe system has been approved (809010), leakage test performed (809000) and all hoses and joints been inspected (809005) the hand wheel valves are to be opened.

Each hand wheel valve is to be opened until the hand wheel can not be opened any further.

When the hand wheel valve is opened it is sealed with a wire and seal, so that is will be clear if the hand wheel valve is closed or tampered with. Heavy sealing wire is recommendable for this purpose, as the hand wheel valves is not to be operated during normal use.

When hand wheel valves are sealed all activators are inspected for proper position and sealing status. Only light wire is to be used for sealing and Fire extinguishing operating handles/lids etc. as these must be breakable in case of a fire.

Qualifications.

The personnel performing the operation must be certified for doing the kind of operation, and knowing their responsibilities regarding safety regulations.

FIRE EATER ⅘

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tem: 801371

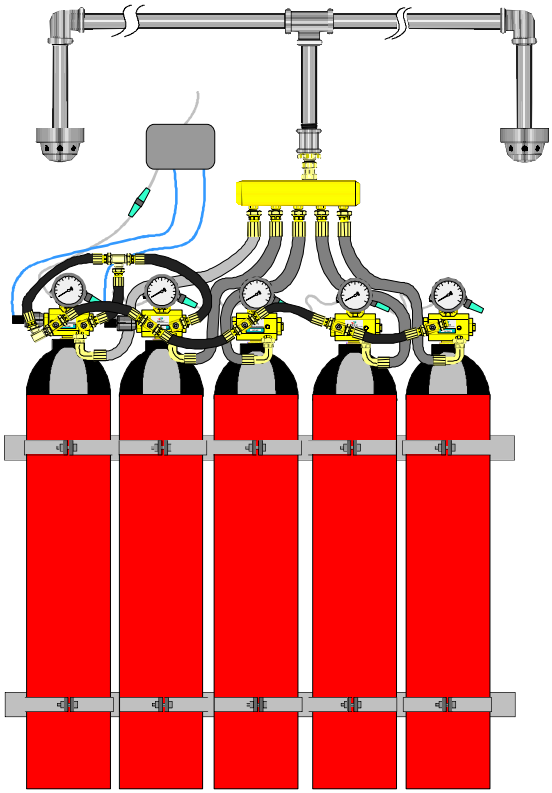
FIRE EATER A/S

User manual

INERGEN

Fire extinguishing system

Rev: 12-09-06 / mk, / File: 801371 INERGEN Brugermanual -uk A5.doc



Fire Eater A/S • Vølundsvej 17 • DK- 3400 Hillerød • Tel.:+45 7022 2769 • Fax: +45 7023 2769
A/S reg nr.: 184.030 • www.fire-eater.dk • e-mail: info@fire-eater.dk

Contents

1. Operating journal

Only filled in when information is not available in the control panel manual.

The system is installed at

Company :		Phone:	
Address :		Phone:	
Zip code. & city :		Fax.:	
Contact 1 :		Phone:	
Contact 2 :		Phone:	
Primary power supply from:			

Electrician:

Company :		Phone:	
Address :			
Zip code. & city :		Fax.:	

People in charge:

Contact 1:		Phone:	
Contact 2:		Phone:	
Contact 3:		Phone:	
Contact 4:		Phone:	

Date of installation			

Service performed by

Company:		Phone:	
Address:			
Zip code. & city :		Fax.:	
Contact:		Phone:	
Invoice address:			
Zip code. & city :			
Service is performed	1/4 yearly ☐	1/2 yearly ☐	1/1 yearly ☐	Other ☐ ____

Equipment list

Control panel:

- ❑ T112 ❑ T24 ❑ T159
- ❑ _____

Activation:

- ❑ Metron ❑ Comet ❑ NPP
- ❑ MPH ❑ MPW ❑ PMMD
- ❑ PDS ❑ PA ❑ _____

Cylinders:

- ❑ 5 l 200 bar ❑ 10 l 200 bar ❑ 20 l 200 bar
- ❑ 50 l 200 bar ❑ 50 l 300 bar ❑ 80 l 300 bar
- ❑ ___ l _____ bar

Discharge valves:

- ❑ IV7 ❑ _____
- ❑ IV20 ❑ FlexiRack ❑ _____

Visual and acoustic alarms:

- ❑ Bells ❑ Sirens ❑ Flash
- ❑ Alarm panels ❑ _____ ❑ _____

2. Operation of the fire extinguishing system.

Systems with electrical activation by control panel:

Depending on installation

- Find the yellow discharge call point marked ”INERGEN” placed at the entrance to the protected area.
- Abandon the room where the fire is detected.
- Break the seal, lift the lid (not all lids are sealed)
- Break the glass.
  The alarm is activated and after the pre-discharge alarm (typically 30 seconds) the INERGEN is discharged.
- Verify that all doors and windows are closed.
- After discharge:
- Verify that the fire is extinguished or call the local fire department.
- Repair the cause of the fire and reconnect the power supply.
- Contact the installation responsible for reestablishing of the system.

Depending on control panel

- Verify that the fire protected area is secured and doors and gussets are closed.
- Abandon the room where the fire is detected.
- Proceed to the fire station and open the control panel door. Locate the yellow push button for the section which is on fire.
- Lift the lid and push the button
  The alarm is activated and after the pre-discharge alarm (typically 30 seconds) the INERGEN is discharged.
- Verify that the fire is extinguished or call the local fire department.
- Repair the cause of the fire and reconnect the power supply.

- Contact the installation responsible for reestablishing of the system.

Systems with manual discharge:

MPH handle.

- Verify that the fire protected area is secured and doors, windows and gussets are closed.
- Abandon the room where the fire is detected.
- Disconnect any power supplies.
- Locate the activation handle.
- Remove the safety pin and pull the orange/red lever.
- Verify that the fire is extinguished and contact the local fire department.
- Repair the cause of the fire and reconnect the power.
- Contact the installation responsible for reestablishing of the system.

Remote wire handle.

- Verify that the fire protected area is secured and doors, windows and gussets are closed.
- Abandon the room where the fire is detected.
- Open the lid for the activation cabinet
  The power supply is disconnected and ventilation is stopped.
- Locate the activation handle.
- Remove the safety pin and pull the orange/red lever.
- Verify that the fire is extinguished and contact the local fire department.
- Repair the cause of the fire and reconnect the power.
- Contact the installation responsible for reestablishing of the system.

PMMD handle.

- Verify that the fire protected area is secured and doors, windows and gussets are closed.
- Abandon the room where the fire is detected.
- Disconnect any power supplies.
- Locate the activation handle.
- Remove the safety pin and pull with 2 fingers in the stainless lever.
- Verify that the fire is extinguished and contact the local fire department.
- Repair the cause of the fire and reconnect the power.
- Contact the installation responsible for reestablishing of the system.

PDS system (pneumatic).

- Verify that the fire protected area is secured and doors, windows and gussets are closed.
- Abandon the room where the fire is detected.
- Open the lid for the activation cabinet.
  The power supply is disconnected and ventilation is stopped.
- Wait for the ventilation to shut down.
- Remove the safety pin and pull the orange/red lever.
  On systems with two cylinders both are to be activated.
- Verify that the fire is extinguished and contact the local fire department.
- Repair the cause of the fire and reconnect the power.
- Contact the installation responsible for reestablishing of the system.

General

2. 2. Glossary

INERGEN:	A mixture of atmospheric gasses consisting of 52% Nitrogen, 40% Argon, 8% CO2
Cylinder:	Container for storage of the INERGEN gas. Typical pressure is 200 or 300 bar
Cylinder valve:	Hand wheel valve placed directly on the cylinder for holding the gasses during transport.
Discharge valve:	Valve which is placed on the cylinder valve at the installation site. Typically IV7HP.
Manifold:	Connection of several cylinders to the pipe system. Transition from high pressure to low pressure occurs here.
Activation system:	Electrical, mechanical and/or pneumatic.
PA system:	Pneumatic Activation. Pressure generated by the two first cylinders are used for activation of the rest of the cylinders.
Pipe system:	Distribution of the INERGEN is through an open pipe system, typically with a working pressure of 75 bar.
Nozzle:	All nozzles are calibrated individually and marked according to IMT.
Orifice:	The orifice in the manifold determines how fast the system discharges and the pipe system pressure/dimensions.
IMT:	INERGEN Management Tool. Calculation program for calculating INERGEN systems.

2. 3. Important

When working on electrical wires in the protected area the system responsible should be contacted prior to commencing the work.

The volume of the fire protected area is not to be changed.

Windows and doors to the fire protected area is not to be blocked in open position.

When installing ventilation systems in areas with fire extinguishing systems the system responsible must be contacted.

Nozzles are not to be blocked or altered.

Pipe systems are not to be dismantled or repaired without approval by local authorities.

Cylinders are not to be relocated without information of local authorities.

The efficiency and personal safety is calculated on the basis of the room dimensions.
Changes in the room dimensions will affect the safety unless compensation is made.

The pipe system is designed to work with gas under pressure and is covered by local and European law.

3. Related components

Cylinder, pipe and nozzles.

The cylinders are connected to a pipe system which distributes the INERGEN in the protected area. The nozzles, which are individually calibrated ensures that the right amount of INERGEN is distributed in each area. Objects which may alter the free flow of the INERGEN should not be placed in front of the nozzle. If the pipe system is dismantled it must be pressure tested at 1.3× work pressure, before the cylinders are reconnected.

INERGEN®.

The extinguishing agent INERGEN® is an inert gas and extinguishes fire by depletion of the oxygen. INERGEN consists of 52% Nitrogen, 40% Argon and 8% Carbon dioxide. These gasses are the major components of the air we normally breathe in.

During discharge of NERGEN® the oxygen concentration is lowered from the normal 20,9% to 10-13% and the CO2 level is increased to app. 4%.

Staying in enclosures with INERGEN® atmosphere is not dangerous. The body is exposed to a minor physical load equivalent to walking up stairs. The composition of INERGEN® affects the breathing which is increased to compensated for the lowered oxygen level hereby maintaining the oxygen flow for muscles and brain as in the normal atmosphere.

4. Cleaning/maintenance

General

Cleaning is only necessary when the components of the fire extinguishing system is heavily soiled.

The fire extinguishing system is only to be operated by instructed personnel.

Service and recharge of the system is only to be performed by a Fire Eater A/S approved fitter.

The installation responsible performs the service at 6 or 12 month intervals. Components with limited life is replaced during these inspections.

Pipe system

Pipes are not to be damaged, deformed or used for fixation of equipment. Pipe hangers are no to be removed or moved without proper approval.

Pipes may be painted.

Cleaning:

Pipes are cleaned with water and detergent suitable for cleaning cupper, aluminum or galvanized steel, depending on installation, NEVER use Chlorine or acidic cleaning agents.

Nozzles

Nozzles are not to be removed, blocked or altered in any way without consulting the installation responsible for directions.

Nozzles are not to be painted, as this may alter the nozzle area.

Cleaning:

Nozzles are cleaned with ordinary detergent and water suitable for cleaning of aluminum.

INERGEN® cylinders.
Steel cylinders with INERGEN® gas at 200 or 300 bar. The content information is located on a label on the side of the cylinder. Pressure information is also available here.

Cylinder color must be according to national and international standards if painted.

Cylinder valves must be sealed, if seal is broken contact the installation responsible.

Cleaning:
Water and ordinary detergent. High pressure cleaner may be used if heavily soiled (steam cleaner is not recommended due to elevated temperatures).

Discharge valve.
Brass valve with equipment according to specifications on datasheet.

Cleaning:
Water and ordinary detergent. Valves are not to be submerged into or sprayed with water.

4. 1. Alterations

Fire detection and fire extinguishing systems are dimensioned specially for the rooms they are installed in. If the rooms are changed the installation responsible must be contacted to evaluate if the alteration will affect the performance of the fire extinguishing system.

Small changes with large effect on the system performance:

Ventilation:	Change in effect control and place.
Doors/windows:	Change, installation, removal.
Lowered sealing:	Installation, removal.
Raised floors:	Installation, removal.
Walls:	Both light and heavy. Installation, removal.
Machines:	Change in effect control and place.

Pipe & cabling: Pipe and cable ducts and wall cutouts.

By changes contact the installation responsible

5. At fire

During fire alarm.

Inspect the area where the fire is detected, if a fire is observed proceed necessary action to extinguish the fire. Activate the fire extinguishing system as described in pt. 2.

Call the fire department by activating the red alarm call point if the control panel is transferring alarms, otherwise use a telephone to contact the fire department.

Abandon the area on fire.

It is not dangerous to stay in rooms with INERGEN, as INERGEN consists only of naturally occurring gases, but poisonous gasses may be produced by the fire itself.

After fire.

Verify that the fire is extinguished.Remove power sources and/or any sources of ignition before venting the area.

After venting the room it can be verified if the room is well vented by lighting a match.

Reestablishing.

After the discharge the system responsible must be contacted for reestablishing the INERGEN system.

Your local installation company can be reached at

Tel:

.

6. Periodic maintenance Standard

	Description	☒
1	**Room inspection** Verify that no alteration is made to the room. Doors and windows are closed/closes during fire.	 ❑ ❑
2	**Control panel** According to manual.	 ❑
3	**Signs** Signs are correctly placed and easy to follow.	 ❑
4	**Pressure hoses** Hoses are less than 10 years old (to be replaced in: _____) No cracks or mechanical damages (check at bends) No corrosion on hoses. No deep corrosion on hose fittings.	 ❑ ❑ ❑ ❑
5	**INERGEN valves** It is checked that all valves are undamaged. Cylinder pressure is ±10% of the nominal pressure @ 15°C All hoses are tightened and undamaged.	 ❑ ❑ ❑
6	**Manoswitch / Pressure gauge / Pressure switch** No mechanical damage, deformation, corrosion etc. Cables and plugs are undamaged.	 ❑ ❑
7	**Metron and Comet** Metrons are less than 5 years old (to be replaced year: _____) Comets are less than 3 years old (to be replaced year: _____) There are no damages on connectors, cables or units.	 ❑ ❑ ❑

8a	**NPP** No mechanical damages (deformation, cracks etc.) No damages to hoses or fittings. Models without serial numbers are depressurized.	❑ ❑ ❑
8b	**MPH / MPW** No mechanical damages (deformation, cracks etc.) No damages on lever or screws. All seals are intact.	❑ ❑ ❑
8c	**PMMD** Metrons are less than 5 years old (to be replaced year: _____) There are no damages on connectors, cables or units. No mechanical damages (deformation, cracks etc.) No damages on lever or screws. All seals are intact.	❑ ❑ ❑ ❑ ❑
8d	**PDS system** No mechanical damages (deformation, cracks etc.) No faults on pressure gauge or switch. No damages on lever or screws. All seals are intact.	❑ ❑ ❑ ❑
8e	**PA system** No mechanical damages (deformation, cracks etc.) No damages to hoses or fittings. All inlet/outlet adapters are tightened.	❑ ❑ ❑
8f	**Wire** Wire is free from sharp bends. No corrosion or mechanical damages. Wire handle operates freely. All seals are intact.	❑ ❑ ❑ ❑

9	**INERGEN cylinders** All cylinders are opened and sealed. No corrosion, mechanical damages or similar. INERGEN pressure checked and satisfactory. Cylinder test date is within limitation (to be tested year: _____)	❑ ❑ ❑ ❑
10	**Pipe system** Intact and without repair after last pressure test. No deep corrosion or mechanical damages.	❑ ❑
11	**Nozzles** Undisturbed flow of INERGEN. No corrosion or damages. Placed according to drawings and nozzle numbers.	❑ ❑ ❑
12	**Alarm equipment (if connected)** Bells, sirens and flash work. Alarm panels have correct function. Doors and ventilation close satisfactorily.	❑ ❑ ❑
13	**Final** All cylinders are opened and sealed. The system is set for use.	❑ ❑

7. Periodic maintenance Increased

As the standard + below items at the interval in ().

	Description	☒
4	**Pressure hoses (10 years)** Replaced, next replaced in year: _____ .	❑
6	**Manoswitch / Pressure gauge / Pressure switch (5 or 6 year)** Display correct at 0 bar Display correct at work pressure (_____ bar) Switch opens at falling pressure (_____ bar) Switch closes at increasing pressure (_____ bar)	❑ ❑ ❑ ❑
7	**Metron and Comet (3 or 5 year)** Metrons are replaced, next replaced in year: _____ . Comets are replaced, next replaced in year: _____ .	❑ ❑
8a	**NPP (5 or 6 year)** Activated and reset. Piston has free movement.	❑ ❑
8b	**MPH / MPW (5 or 6 year)** Activated and reset. Piston has free movement. Lever has free movement. Pin and sign is fitted and sealed.	❑ ❑ ❑ ❑
8c	**PMMD (5 year)** Metrons are replaced, next replaced in year: _____ . Activated and reset. Piston has free movement. Lever has free movement. Pin and sign is fitted and sealed.	❑ ❑ ❑ ❑ ❑

8d	**PDS system (10 year)** Activated and reset. Piston has free movement. Lever has free movement. Display correct at 0 bar Display correct at work pressure (_____ bar) Switch opens at falling pressure (_____ bar) Switch closes at increasing pressure (_____ bar) Pin and sign is fitted and sealed.	❑ ❑ ❑ ❑ ❑ ❑ ❑ ❑
8e	**PA system (10 year)** Pressure hoses replaced.	❑
8f	**Wire (Environment dependable)** Lubricated. Activated and reset. Piston has free movement. Lever has free movement. Pin and sign is fitted and sealed.	❑ ❑ ❑ ❑ ❑
9	**INERGEN cylinders (10 year)** Pressure tested and refilled / renovated, next replaced in year: _____ . Opened and sealed.	❑ ❑
13	**Final** All cylinders are opened and sealed. The system is set for use.	❑ ❑

1. **The system must be recalculated if:**
   walls are moved/changed.
   fixed installations are added or removed.
   ventilation is changed.

3. **Signs must contain:**
   ”Inergen etc etc” inside the room.
   ”Escape route” signs must be installed.
   ”Inergen etc etc etc” at all entrances.
   ”No admittance during alarm” at all entrances.
   ”Pressure cylinder” at entrance to room with pressure cylinders.

4. **Valves must be replaced if:**
   damaged due to physical actions.
   deep corrosion.

5. **Pressure hoses must be replaced if:**
   more than 10 years old.
   cracks in surface rubber (check at bends etc)
   signs of mechanical damages (deformation etc.)
   rust is running from the hose.
   corrosion, other than surface corrosion, in fittings.

6. **Pressure gauges must be replaced if:**
   display is incorrect at 0 bar or at work pressure.
   signs of mechanical damages.
   corrosion.

6. **Manoswitches must be replaced if:**
   display are incorrect at 0 bar or at work pressure.
   switch point is incorrect.
   signs of mechanical damages.
   damaged cables or connectors.
   corrosion.

6. **Pressure switches must be replaced if:**
   switch point is incorrect.
   signs of mechanical damages.

leakage.
corrosion.

7. Metron & Comet must be replaced if:

service life is overdue.
has been discharged.

8a+b+c. NPP, MPH/MPW, PMMD adapters must be replaced/serviced if:

signs of mechanical damages.
broken screws.
damaged hand lever.

8d. PDS system must be replaced/serviced if:

signs of mechanical damages.
switch point is incorrect.
display are incorrect at 0 bar or at work pressure.
damaged hand lever.

8e. PA system components must be replaced/serviced if:

more than 10 years old.
cracks in outer rubber (check at bends etc)
signs of mechanical damages (deformation etc.)
rust is running from the hose.
corrosion, other than surface corrosion, in fittings.
damages to PA inlet/outlet adapters.

8f. Wires must be replaced if:

signs of mechanical damages.
corrosion.
hard movement.

9. Cylinders must be replaced if:
test interval is overdue.
signs of mechanical damages.
corrosion.

10. Pipe system must be replaced/serviced if:
signs of mechanical damages.
corrosion, other than surface corrosion.

11. Nozzles must be replaced if:
signs of mechanical damages.
corrosion, other than surface corrosion.
incorrect numbers.

12. Alarm equipment must be replaced if:
bells, flash, sirens, alarm panels work incorrectly.

13. All cylinders must be opened and sealed
control log is filled in.

6. Authorization

Design must be made in accordance with ISO14520-1 +15

Installation of Fire Eater INERGEN

All installations of Fire Eater INERGEN systems must be performed by technicians who has passed the Fire Eater training course and has the passed the qualifying examine.

FIRE EATER

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FIRE EATER A/S

DIPLOMA

This certificate confirms that
Name: *Name of Person*

Company: *Name of Company, incl country*

Has participated in *...Hardware Mechanics...* at Fire Eater A/S
in Hillerød date *...8-12 December 2003...*
The course gives the participant knowledge in theoretical and practical handling, installation and service of
...INERGEN, IV7 valves and accessories...

The following test was passed without remarks.

Instructor: *...Michael Kroneder...*

Passing of the exam is confirmed by the instructors signature.

Hillerød 14-12-2003
Michael Kroneder
Ingeniør m.ida.

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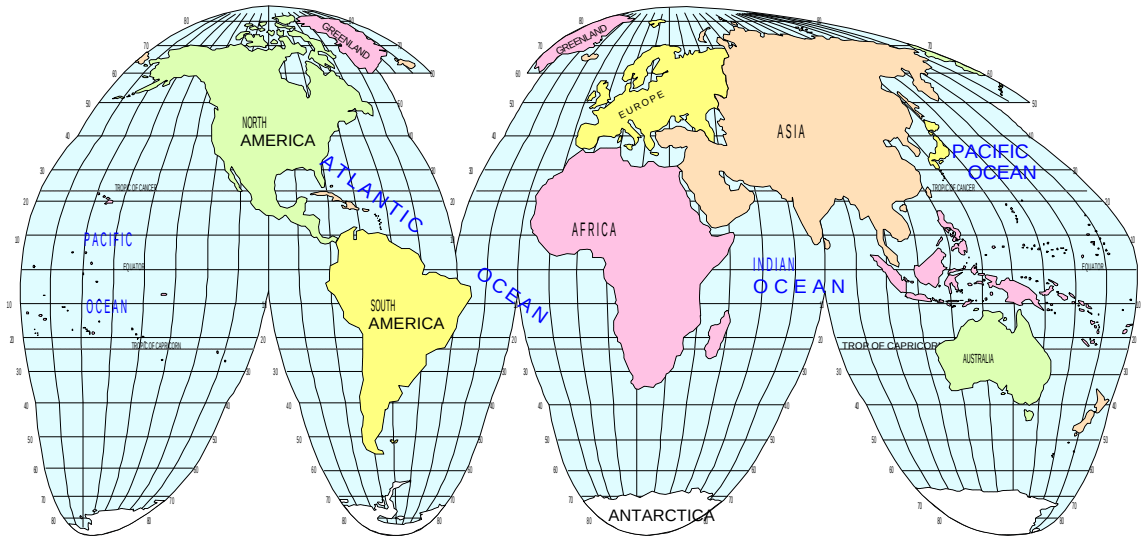
www.fire-eater.dk e-mail:info@fire-eater.dk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OCEAN
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ANTARCTICA
TROPIC OF CANCER
EQUATOR
TROPIC OF CAPRICORN