



# 君目消防 JUNMO™

JUNMO FIRE PROTECTION (JIANGSU) CO., LTD.

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# CONTENTS

## SECTION 1 : HFC-227ea FIRE EXTINGUISHING SYSTEM

Description .....	2
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## SECTION 2 : SYSTEM COMPONENTS

2.1a Typical Manifold System Arrangement.....	3
2.1b Typical System Without Manifold.....	4
2.1b2 Typical System of Multi-Cylinder Without Manifold.....	5
2.2 HFC-227ea Container Detail.....	7
2.3 HFC-227ea Container Assembly.....	8
2.4 Container Label.....	16
2.5 Cylinder Fixing Brackets.....	17
2.6 Container Valve.....	19
2.7 Safety Relief Device.....	20
2.8 Pressure Gauge.....	21
2.9 Discharge Pressure Switch.....	22
2.10 Safety Valve.....	23
2.11 Electrical Actuator (Removable).....	24
2.12 Pneumatic/Manual Actuator.....	25
2.13 Pneumatic Actuator.....	25
2.14 Manual Actuator.....	26
2.15 Discharge Hose.....	26
2.16 Valve Outlet Adaptor.....	27
2.17 Pilot Hose.....	28
2.18 Bleed Valve.....	28
2.19 Manifold.....	29
2.20 Manifold Bracket Assembly.....	31
2.21 Manifold Check Valve.....	32
2.22 Discharge Nozzle.....	32
2.23 Pilot Pipe Connector G1/8.....	36
2.24 Pilot Hose Connector.....	36
2.25 Pilot Pipe Connector NPT¼.....	37
2.26 Pressure Switch Connector.....	37
2.27 Inside Warning Sign.....	38
2.28 Outside Warning Sign.....	38

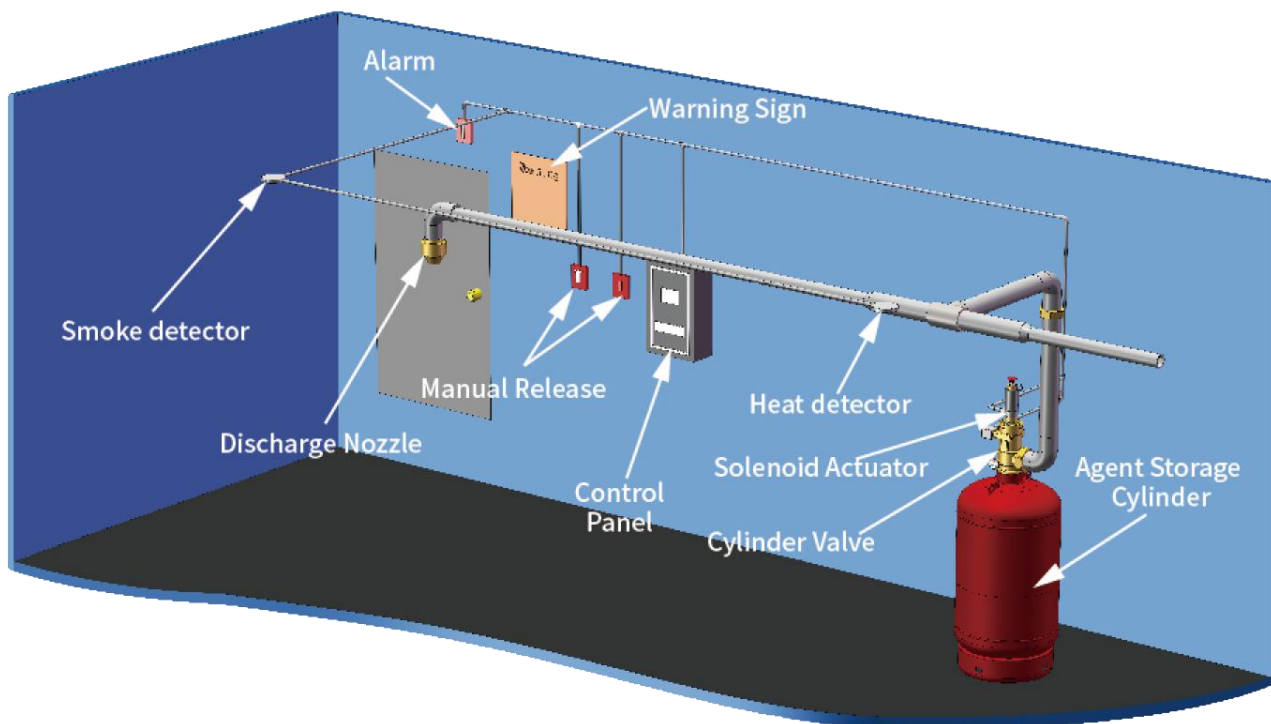
## SECTION 1 : HFC-227ea FIRE EXTINGUISHING SYSTEM

### Description

The JUNMO Fire Systems SP Series Clean Agent Fire Extinguishing System utilizes HFC-227ea as the extinguishing medium. HFC-227ea is a colorless, non-toxic gas perfectly suited to protect high value assets in areas that may be normally occupied, in locations where clean-up of other agents is problematic, when storage space for a fire suppression agent is restricted or when an electrically non-conductive agent is required. Each system consists of the following components and their associated accessories:

- **HFC-227ea Storage Components** - Storage components consist of the cylinder assembly(s) which contains the HFC 227ea chemical agent, and the cylinder bracket(s), which holds the cylinder assembly securely in place.
- **HFC-227ea Distribution Components** - Distribution components consist of the discharge nozzles used to introduce the HFC-227ea agent into a protected hazard along with the associated piping system used to connect the nozzles to the cylinder assembly.
- **Trim Components** - Trim components complete the installation of the HFC-227ea system and consist of connection fittings, pressure gauge, low-pressure supervisory switch, electric valve actuator, and manual valve actuator.
- **Slave Arrangement Components** - Slave arrangement components consist of the pneumatic valve actuator(s), actuation check valve, bleed valve, pilot hose, and fittings required for a multiple cylinder (slave) arrangement.
- **Supplemental Components** - Supplemental components include the discharge pressure switch and manifold check valve. They supplement the core equipment or complete a specific multi-cylinder configuration.
- **Control Panel** - This device monitors the condition of the electric actuator, detectors, warning devices, cylinder pressure, and any manual release and abort stations. All electric or electronic devices must connect to the control panel in order to function.

### Typical Clean Agent System Layout



## SECTION 2 : SYSTEM COMPONENTS

### 2.1a Typical Manifold System Arrangement

JUNMO typical manifold systems are only for single area protection.

For single area system, the solenoid actuator will act to open the master cylinder after getting the instruction from control panel, and then the gas from the master cylinder will open the slave cylinders.

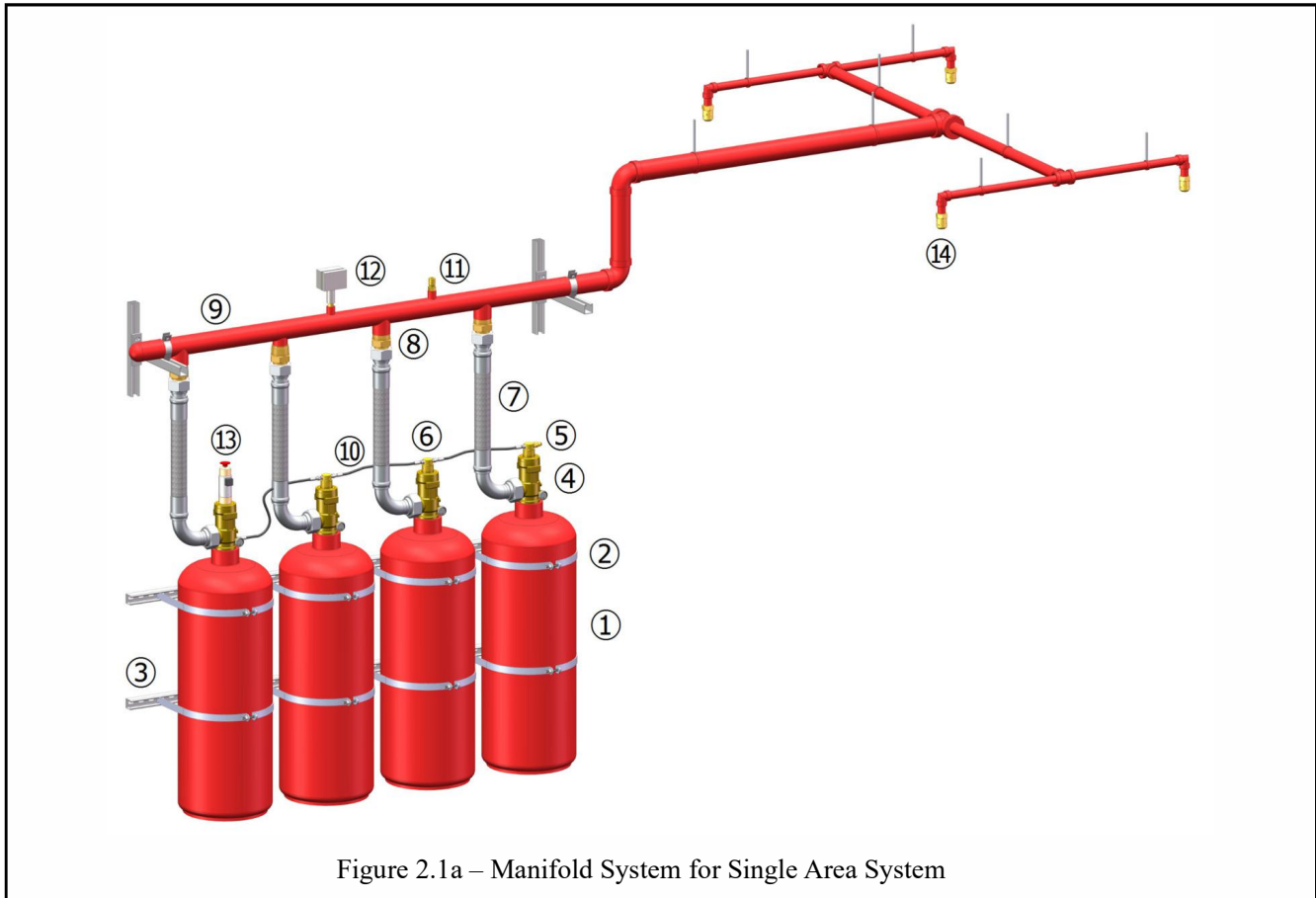


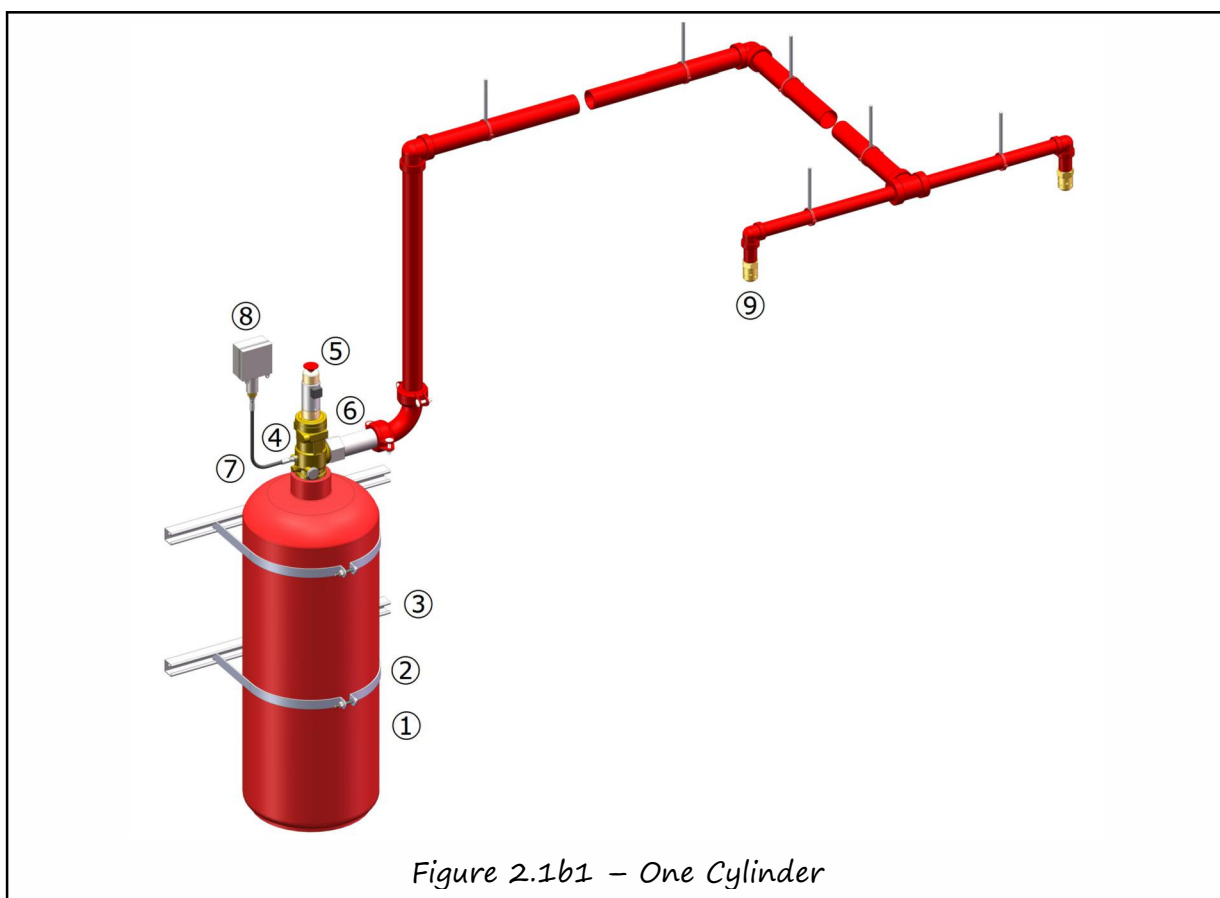
Figure 2.1a – Manifold System for Single Area System

No.	Part Name	No.	Part Name
1	Cylinder	8	Manifold Check Valve
2	Mounting Bracket	9	Manifold
3	Fix Steel Channel	10	Pilot Hose
4	Container Valve	11	Manifold Safety Valve
5	Bleed Valve	12	Discharge Pressure Switch
6	Pneumatic Actuator	13	Electrical Actuator
7	Discharge Hose	14	Nozzle



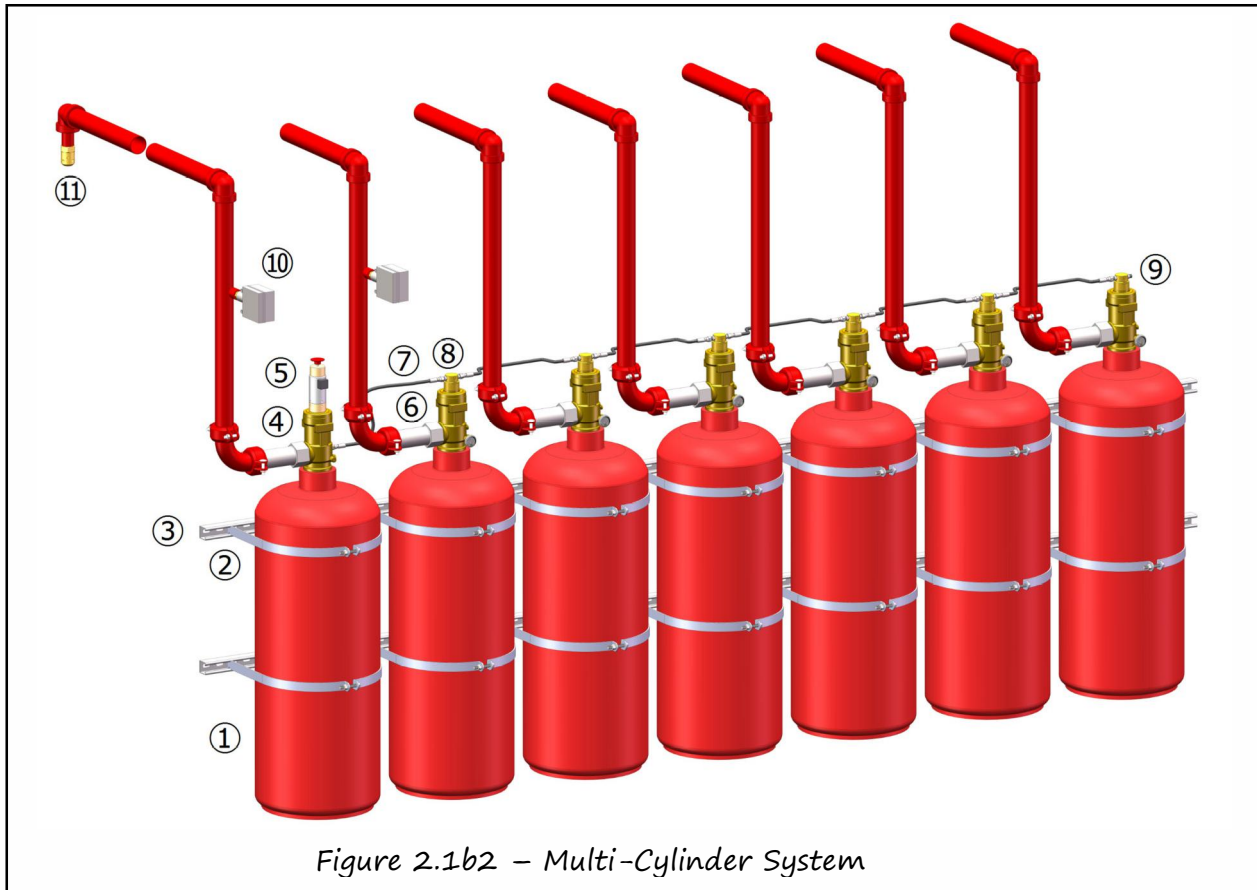
## 2.1b Typical System of One Cylinder Without Manifold

The application of JUNMO HFC-227ea gas fire extinguishing system can also adopt the mode without manifold. The typical one cylinder system is shown in Figure 2.1b1. The typical multi-cylinder system without manifold is shown in Figure 2.1b2. JUNMO multi-cylinder system without manifold is suitable for the cylinders connected by pilot hose. For cylinders close coupled (reach of one flex pilot hose, max. 700 mm) using pressure from one master cylinder, a maximum of six slave cylinders close coupled can be actuated from that one master cylinders, using pneumatic actuator on the slave cylinders. The slave cylinder operation will be through pilot hoses.



No.	Part Name	No.	Part Name
1	Cylinder	6	Valve Outlet Adaptor
2	Mounting Bracket	7	Pilot Hose
3	Fix Steel Channel	8	Discharge Pressure Switch
4	Container Valve	9	Nozzle
5	Electrical Actuator		

2.1b2 Typical System of Multi-Cylinder Without Manifold



No.	Part Name	No.	Part Name
1	Cylinder	7	Pilot Hose
2	Mounting Bracket	8	Pneumatic Actuator
3	Fix Steel Channel	9	Bleed Valve
4	Container Valve	10	Discharge Pressure Switch
5	Electrical Actuator	11	Nozzle
6	Valve Outlet Adaptor		

## 2.2 HFC-227ea Container Detail

Multiple series of containers are available, including:

The 16.6, 28.3, 40, 50, 60, 70, 80, 90, 100, 120, 150, 160 & 170 L containers are manufactured in accordance with TPED.

The 40, 50, 60, 70, 80, 90, 100, 120, 150 & 170 L containers are manufactured in accordance with GB.

The 16.7, 28.3, 49, 52, 62, 80, 103, 106, 147 & 153 L containers are manufactured in accordance with DOT.

Table 2.2.1 HFC-227ea TPED Container	
Material	P355M Carbon: ≤ 0.14% Manganese: ≤ 1.60% Silicon: ≤ 0.50% Phosphorus: ≤ 0.025% Sulphur: ≤ 0.010%
Nominal Working Pressure	42 bar ( 609 psi )
Pneumatic Test Pressure	63 bar ( 914 psi )
Burst Test Pressure	≥126 bar ( 1827 psi )
Paint Specification	Red Polyester Powder Coated
Certification	TPED

Table 2.2.2 HFC-227ea GB Container	
Material	HP345 Carbon: ≤ 0.20% Manganese: ≤ 1.50% Silicon: ≤ 0.35% Phosphorus: ≤ 0.025% Sulphur: ≤ 0.015% Aluminium acid-soluble: ≤ 0.015
Nominal Working Pressure	53 bar
Hydrostatic Test Pressure	80 bar
Paint Specification	Red Polyester Powder Coated
Certification	GB

Table 2.2.3 HFC-227ea DOT Container	
Material	HP345 (G3) Carbon: ≤ 0.20% Manganese: ≤ 1.25% Phosphorus: ≤ 0.025% Sulphur: ≤ 0.015%
Nominal Working Pressure	500 psi
Hydrostatic Test Pressure	1000 psi
Burst Test Pressure	> 2000 psi
Paint Specification	Red Polyester Powder Coated
Certification	DOT

### 2.3 HFC-227ea Container Assembly

The agent storage vessel consists of a container fitted with a valve and internal syphon tube, factory filled with HFC-227ea, and super-pressurized with dry nitrogen to 25 bar @ 21°C (360 psi @ 70°C) and 42 bar @ 21°C (600 psi @ 70°C).

Containers sharing the same manifold shall be equal in size and fill density. Containers are finished in red and are available in various sizes.

A nameplate is adhered to the container displaying the agent weight, tare weight, gross weight, fill density and charge date.

Table 2.3.1 HFC-227ea Container Assembly Details (TPED Container)							
Cylinder with Valve Assembly Part No.	Container Assembly Type	Nominal Working Pressure (bar)	Nominal Cylinder Volume (L)	Fill Capacity (kg)		Outlet Size (mm)	Empty Weight (kg)
				Min.	Max.		
811.101.0156	MS227SP-25-40D	25	40	19.2	44.8	49	42
811.101.0166	MS227SP-25-50D	25	50	24.0	56.0	49	48
811.101.0176	MS227SP-25-60D	25	60	28.8	67.2	49	53
811.101.0186	MS227SP-25-70D	25	70	33.6	78.4	49	59
811.101.0196	MS227SP-25-80D	25	80	38.4	89.6	49	64
811.101.0206	MS227SP-25-90D	25	90	43.2	100.8	49	73
811.101.0216	MS227SP-25-100D	25	100	48.0	112.0	49	78
811.101.0226	MS227SP-25-120D	25	120	57.6	134.4	49	89
811.101.0236	MS227SP-25-150D	25	150	72.0	168.0	49	105
811.101.0246	MS227SP-25-160D	25	160	76.8	179.2	49	104
811.101.0135	MS227SP-25-16.6C	25	16.6	8.0	18.6	33	21
811.101.0145	MS227SP-25-28.3C	25	28.3	13.6	31.7	33	29
811.101.0155	MS227SP-25-40C	25	40	19.2	44.8	33	37
811.101.0165	MS227SP-25-50C	25	50	24.0	56.0	33	42

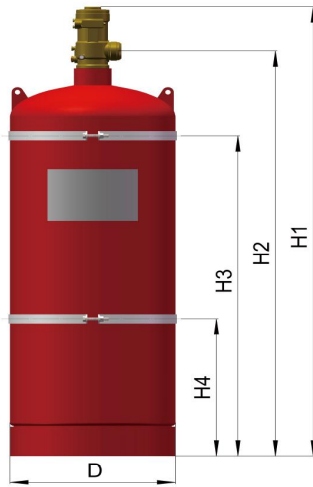


Cylinder with Valve Assembly Part No.	Container Assembly Type	Nominal Working Pressure (bar)	Nominal Cylinder Volume (L)	Fill Capacity (kg)		Outlet Size (mm)	Empty Weight (kg)
				Min.	Max.		
811.101.0175	MS227SP-25-60C	25	60	28.8	67.2	33	47
811.101.0158	MS227SP-42-40D	42	40	19.2	44.8	49	42
811.101.0168	MS227SP-42-50D	42	50	24.0	56.0	49	48
811.101.0178	MS227SP-42-60D	42	60	28.8	67.2	49	53
811.101.0188	MS227SP-42-70D	42	70	33.6	78.4	49	59
811.101.0198	MS227SP-42-80D	42	80	38.4	89.6	49	64
811.101.0208	MS227SP-42-90D	42	90	43.2	100.8	49	73
811.101.0218	MS227SP-42-100D	42	100	48.0	112.0	49	78
811.101.0228	MS227SP-42-120D	42	120	57.6	134.4	49	89
811.101.0238	MS227SP-42-150D	42	150	72.0	168.0	49	105
811.101.0248	MS227SP-42-160D	42	160	76.8	179.2	49	104
811.101.0258	MS227SP-42-170D	42	170	81.6	190.4	49	108
811.101.0137	MS227SP-42-16.6C	42	16.6	8.0	18.6	33	21
811.101.0147	MS227SP-42-28.3C	42	28.3	13.6	31.7	33	29
811.101.0157	MS227SP-42-40C	42	40	19.2	44.8	33	37
811.101.0167	MS227SP-42-50C	42	50	24.0	56.0	33	42
811.101.0177	MS227SP-42-60C	42	60	28.8	67.2	33	47

Cylinder with Valve Assembly Part No.	Container Assembly Type	Nominal Working Pressure (bar)	Nominal Cylinder Volume (L)	Fill Capacity(kg)		Outlet Size (mm)	Empty Weight (kg)
				Min.	Max.		
811.101.0766	MS227SP-25-49S	25	49	23.5	54.9	49	48
811.101.0776	MS227SP-25-52S	25	52	25.0	58.2	49	56
811.101.0786	MS227SP-25-62S	25	62	29.8	69.4	49	53
811.101.0806	MS227SP-25-80S	25	80	38.4	89.6	49	65
811.101.0826	MS227SP-25-103S	25	103	49.4	115.4	49	82
811.101.0836	MS227SP-25-106S	25	106	50.9	118.7	49	84
811.101.0856	MS227SP-25-147S	25	147	70.6	164.6	49	105
811.101.0866	MS227SP-25-153S	25	153	73.4	171.4	49	108
811.101.0735	MS227SP-25-16.7R	25	16.7	8.0	18.7	33	21
811.101.0745	MS227SP-25-28.3R	25	28.3	13.6	31.7	33	29
811.101.0765	MS227SP-25-49R	25	49	23.5	54.9	33	42
811.101.0775	MS227SP-25-52R	25	52	25.0	58.2	33	50
811.101.0785	MS227SP-25-62R	25	62	29.8	69.4	33	47

**Table 2.3.3 HFC-227ea Container Assembly Details (GB Container)**

Cylinder with Valve Assembly Part No.	Container Assembly Type	Nominal Working Pressure (bar)	Nominal Cylinder Volume (L)	Fill Capacity (kg)		Outlet Size (mm)	Empty Weight (kg)
				Min.	Max.		
811.101.0456	MS227SP-25-40M	25	40	19.2	44.8	49	47
811.101.0466	MS227SP-25-50M	25	50	24.0	56.0	49	58
811.101.0476	MS227SP-25-60M	25	60	28.8	67.2	49	65
811.101.0486	MS227SP-25-70M	25	70	33.6	78.4	49	72
811.101.0496	MS227SP-25-80M	25	80	38.4	89.6	49	80
811.101.0506	MS227SP-25-90M	25	90	43.2	100.8	49	94
811.101.0516	MS227SP-25-100M	25	100	48.0	112.0	49	100
811.101.0526	MS227SP-25-120M	25	120	57.6	134.4	49	113
811.101.0546	MS227SP-25-150M	25	150	72.0	168.0	49	134
811.101.0455	MS227SP-25-40K	25	40	19.2	44.8	33	41
811.101.0465	MS227SP-25-50K	25	50	24.0	56.0	33	52
811.101.0475	MS227SP-25-60K	25	60	28.8	67.2	33	59
811.101.0458	MS227SP-42-40M	42	40	19.2	44.8	49	47
811.101.0468	MS227SP-42-50M	42	50	24.0	56.0	49	58
811.101.0478	MS227SP-42-60M	42	60	28.8	67.2	49	65
811.101.0488	MS227SP-42-70M	42	70	33.6	78.4	49	72
811.101.0498	MS227SP-42-80M	42	80	38.4	89.6	49	80
811.101.0508	MS227SP-42-90M	42	90	43.2	100.8	49	94
811.101.0518	MS227SP-42-100M	42	100	48.0	112.0	49	100
811.101.0528	MS227SP-42-120M	42	120	57.6	134.4	49	113
811.101.0548	MS227SP-42-150M	42	150	72.0	168.0	49	134
811.101.0568	MS227SP-42-170M	42	170	81.6	190.4	49	149
811.101.0457	MS227SP-42-40K	42	40	19.2	44.8	33	41
811.101.0467	MS227SP-42-50K	42	50	24.0	56.0	33	52
811.101.0477	MS227SP-42-60K	42	60	28.8	67.2	33	59



**Table 2.3.4 HFC-227ea Container Assembly Dimension (TPED Container)**

Cylinder with Valve Assembly Part No.	Container Assembly Type	Nominal Working Pressure (bar)	Nominal Cylinder Volume (L)	H1 (mm)	H2 (mm)	H3 (mm)	H4 (mm)	D (mm)
811.101.0156	MS227SP-25-40D	25	40	841	695	470	220	Ø324
811.101.0166	MS227SP-25-50D	25	50	969	823	600	330	Ø324
811.101.0176	MS227SP-25-60D	25	60	1102	956	600	330	Ø324
811.101.0186	MS227SP-25-70D	25	70	1231	1085	800	450	Ø324
811.101.0196	MS227SP-25-80D	25	80	1362	1216	950	450	Ø324
811.101.0206	MS227SP-25-90D	25	90	1084	938	600	330	Ø406
811.101.0216	MS227SP-25-100D	25	100	1166	1020	750	450	Ø406
811.101.0226	MS227SP-25-120D	25	120	1329	1183	900	450	Ø406
811.101.0236	MS227SP-25-150D	25	150	1575	1429	1050	450	Ø406
811.101.0246	MS227SP-25-160D	25	160	1346	1200	900	450	Ø462
811.101.0135	MS227SP-25-16.6C	25	16.6	668	566	400	200	Ø228.6
811.101.0145	MS227SP-25-28.3C	25	28.3	975	873	600	330	Ø228.6
811.101.0155	MS227SP-25-40C	25	40	775	673	470	220	Ø324
811.101.0165	MS227SP-25-50C	25	50	903	801	600	330	Ø324
811.101.0175	MS227SP-25-60C	25	60	1036	934	600	330	Ø324
811.101.0158	MS227SP-42-40D	42	40	841	695	470	220	Ø324
811.101.0168	MS227SP-42-50D	42	50	969	823	600	330	Ø324
811.101.0178	MS227SP-42-60D	42	60	1102	956	600	330	Ø324
811.101.0188	MS227SP-42-70D	42	70	1231	1085	800	450	Ø324
811.101.0198	MS227SP-42-80D	42	80	1362	1216	950	450	Ø324
811.101.0208	MS227SP-42-90D	42	90	1084	938	600	330	Ø406
811.101.0218	MS227SP-42-100D	42	100	1166	1020	750	450	Ø406
811.101.0228	MS227SP-42-120D	42	120	1329	1183	900	450	Ø406
811.101.0238	MS227SP-42-150D	42	150	1575	1429	1050	450	Ø406
811.101.0248	MS227SP-42-160D	42	160	1346	1200	900	450	Ø462

Cylinder with Valve Assembly Part No.	Container Assembly Type	Nominal Working Pressure (bar)	Nominal Cylinder Volume (L)	H1 (mm)	H2 (mm)	H3 (mm)	H4 (mm)	D (mm)
811.101.0258	MS227SP-42-170D	42	170	1407	1261	900	450	Ø462
811.101.0137	MS227SP-42-16.6C	42	16.6	668	566	400	200	Ø228.6
811.101.0147	MS227SP-42-28.3C	42	28.3	975	873	600	330	Ø228.6
811.101.0157	MS227SP-42-40C	42	40	775	673	470	220	Ø324
811.101.0167	MS227SP-42-50C	42	50	903	801	600	330	Ø324
811.101.0177	MS227SP-42-60C	42	60	1036	934	600	330	Ø324

Cylinder with Valve Assembly Part No.	Container Assembly Type	Nominal Working Pressure (bar)	Nominal Cylinder Volume (L)	H1 (mm)	H2 (mm)	H3 (mm)	H4 (mm)	D (mm)
811.101.0766	MS227SP-25-49S	25	49	964	820	600	300	Ø324
811.101.0776	MS227SP-25-52S	25	52	764	618	400	200	Ø406
811.101.0786	MS227SP-25-62S	25	62	1134	988	750	300	Ø324
811.101.0806	MS227SP-25-80S	25	80	1367	1221	900	300	Ø324
811.101.0826	MS227SP-25-103S	25	103	1179	1033	750	300	Ø406
811.101.0836	MS227SP-25-106S	25	106	1204	1058	750	300	Ø406
811.101.0856	MS227SP-25-147S	25	147	1539	1393	1050	300	Ø406
811.101.0866	MS227SP-25-153S	25	153	1589	1443	1050	300	Ø406
811.101.0735	MS227SP-25-16.7R	25	16.7	674	572	400	200	Ø228.6
811.101.0745	MS227SP-25-28.3R	25	28.3	979	877	600	300	Ø228.6
811.101.0765	MS227SP-25-49R	25	49	900	798	600	300	Ø324
811.101.0775	MS227SP-25-52R	25	52	700	596	400	200	Ø406
811.101.0785	MS227SP-25-62R	25	62	1068	966	750	300	Ø324

Cylinder with Valve Assembly Part No.	Container Assembly Type	Nominal Working Pressure (bar)	Nominal Cylinder Volume (L)	H1 (mm)	H2 (mm)	H3 (mm)	H4 (mm)	D (mm)
811.101.0456	MS227SP-25-40M	25	40	1134	988	750	300	Ø260
811.101.0466	MS227SP-25-50M	25	50	1119	973	750	300	Ø312
811.101.0476	MS227SP-25-60M	25	60	1261	1115	750	300	Ø312
811.101.0486	MS227SP-25-70M	25	70	1403	1257	1050	300	Ø312
811.101.0496	MS227SP-25-80M	25	80	1545	1399	1050	300	Ø312
811.101.0506	MS227SP-25-90M	25	90	1126	980	750	300	Ø416
811.101.0516	MS227SP-25-100M	25	100	1200	1055	750	300	Ø416
811.101.0526	MS227SP-25-120M	25	120	1360	1214	900	300	Ø416
811.101.0546	MS227SP-25-150M	25	150	1599	1453	1050	300	Ø416
811.101.0455	MS227SP-25-40K	25	40	1068	966	750	300	Ø260
811.101.0465	MS227SP-25-50K	25	50	1055	953	750	300	Ø312
811.101.0475	MS227SP-25-60K	25	60	1197	1095	750	300	Ø312
811.101.0458	MS227SP-42-40M	42	40	1134	988	750	300	Ø260
811.101.0468	MS227SP-42-50M	42	50	1119	973	750	300	Ø312
811.101.0478	MS227SP-42-60M	42	60	1261	1115	750	300	Ø312
811.101.0488	MS227SP-42-70M	42	70	1403	1257	1050	300	Ø312
811.101.0498	MS227SP-42-80M	42	80	1545	1399	1050	300	Ø312
811.101.0508	MS227SP-42-90M	42	90	1126	980	750	300	Ø416
811.101.0518	MS227SP-42-100M	42	100	1200	1055	750	300	Ø416
811.101.0528	MS227SP-42-120M	42	120	1360	1214	900	300	Ø416
811.101.0548	MS227SP-42-150M	42	150	1599	1453	1050	300	Ø416
811.101.0568	MS227SP-42-170M	42	170	1758	1612	1200	300	Ø416
811.101.0457	MS227SP-42-40K	42	40	1068	966	750	300	Ø260
811.101.0467	MS227SP-42-50K	42	50	1055	953	750	300	Ø312
811.101.0477	MS227SP-42-60K	42	60	1197	1095	750	300	Ø312



\*When the part number of the pressure gauge used in the container assembly is 811.101.089, the detailed parameters of the container assembly are shown in Table 2.3.7 to Table 2.3.10,

Cylinder with Valve Assembly Part No.	Container Assembly Type	Nominal Working Pressure (bar)	Nominal Cylinder Volume (L)	Fill Capacity (kg)		Outlet Size (mm)	Empty Weight (kg)
				Min.	Max.		
811.101.2158	MS227SP2-42-40D	42	40	19.2	44.8	49	42
811.101.2168	MS227SP2-42-50D	42	50	24.0	56.0	49	48
811.101.2178	MS227SP2-42-60D	42	60	28.8	67.2	49	53
811.101.2188	MS227SP2-42-70D	42	70	33.6	78.4	49	59
811.101.2198	MS227SP2-42-80D	42	80	38.4	89.6	49	64
811.101.2208	MS227SP2-42-90D	42	90	43.2	100.8	49	73
811.101.2218	MS227SP2-42-100D	42	100	48.0	112.0	49	78
811.101.2228	MS227SP2-42-120D	42	120	57.6	134.4	49	89
811.101.2238	MS227SP2-42-150D	42	150	72.0	168.0	49	105
811.101.2248	MS227SP2-42-160D	42	160	76.8	179.2	49	104
811.101.2258	MS227SP2-42-170D	42	170	81.6	190.4	49	108
811.101.2137	MS227SP2-42-16.6C	42	16.6	8.0	18.6	33	21
811.101.2147	MS227SP2-42-28.3C	42	28.3	13.6	31.7	33	29
811.101.2157	MS227SP2-42-40C	42	40	19.2	44.8	33	37
811.101.2167	MS227SP2-42-50C	42	50	24.0	56.0	33	42
811.101.2177	MS227SP2-42-60C	42	60	28.8	67.2	33	47

Cylinder with Valve Assembly Part No.	Container Assembly Type	Nominal Working Pressure (bar)	Nominal Cylinder Volume (L)	Fill Capacity (kg)		Outlet Size (mm)	Empty Weight (kg)
				Min.	Max.		
811.101.2458	MS227SP2-42-40M	42	40	19.2	44.8	49	47
811.101.2468	MS227SP2-42-50M	42	50	24.0	56.0	49	58
811.101.2478	MS227SP2-42-60M	42	60	28.8	67.2	49	65
811.101.2488	MS227SP2-42-70M	42	70	33.6	78.4	49	72
811.101.2498	MS227SP2-42-80M	42	80	38.4	89.6	49	80
811.101.2508	MS227SP2-42-90M	42	90	43.2	100.8	49	94
811.101.2518	MS227SP2-42-100M	42	100	48.0	112.0	49	100
811.101.2528	MS227SP2-42-120M	42	120	57.6	134.4	49	113
811.101.2548	MS227SP2-42-150M	42	150	72.0	168.0	49	134
811.101.2568	MS227SP2-42-170M	42	170	81.6	190.4	49	149
811.101.2457	MS227SP2-42-40K	42	40	19.2	44.8	33	41
811.101.2467	MS227SP2-42-50K	42	50	24.0	56.0	33	52
811.101.2477	MS227SP2-42-60K	42	60	28.8	67.2	33	59

**Table 2.3.9 HFC-227ea Container Assembly Dimension (TPED Container)**  
\* The part numbers of the pressure gauge used in the container assembly is 811.101.089.

Cylinder with Valve Assembly Part No.	Container Assembly Type	Nominal Working Pressure (bar)	Nominal Cylinder Volume (L)	H1 (mm)	H2 (mm)	H3 (mm)	H4 (mm)	D (mm)
811.101.2158	MS227SP2-42-40D	42	40	841	695	470	220	Ø324
811.101.2168	MS227SP2-42-50D	42	50	969	823	600	330	Ø324
811.101.2178	MS227SP2-42-60D	42	60	1102	956	600	330	Ø324
811.101.2188	MS227SP2-42-70D	42	70	1231	1085	800	450	Ø324
811.101.2198	MS227SP2-42-80D	42	80	1362	1216	950	450	Ø324
811.101.2208	MS227SP2-42-90D	42	90	1084	938	600	330	Ø406
811.101.2218	MS227SP2-42-100D	42	100	1166	1020	750	450	Ø406
811.101.2228	MS227SP2-42-120D	42	120	1329	1183	900	450	Ø406
811.101.2238	MS227SP2-42-150D	42	150	1575	1429	1050	450	Ø406
811.101.2248	MS227SP2-42-160D	42	160	1346	1200	900	450	Ø462
811.101.2258	MS227SP2-42-170D	42	170	1407	1261	900	450	Ø462
811.101.2137	MS227SP2-42-16.6C	42	16.6	668	566	400	200	Ø228.6
811.101.2147	MS227SP2-42-28.3C	42	28.3	975	873	600	330	Ø228.6
811.101.2157	MS227SP2-42-40C	42	40	775	673	470	220	Ø324
811.101.2167	MS227SP2-42-50C	42	50	903	801	600	330	Ø324
811.101.2177	MS227SP2-42-60C	42	60	1036	934	600	330	Ø324

**Table 2.3.10 HFC-227ea Container Assembly Dimension (GB Container)**  
\* The part numbers of the pressure gauge used in the container assembly is 811.101.089.

Cylinder with Valve Assembly Part No.	Container Assembly Type	Nominal Working Pressure (bar)	Nominal Cylinder Volume (L)	H1 (mm)	H2 (mm)	H3 (mm)	H4 (mm)	D (mm)
811.101.2458	MS227SP2-42-40M	42	40	1134	988	750	300	Ø260
811.101.2468	MS227SP2-42-50M	42	50	1119	973	750	300	Ø312
811.101.2478	MS227SP2-42-60M	42	60	1261	1115	750	300	Ø312
811.101.2488	MS227SP2-42-70M	42	70	1403	1257	1050	300	Ø312
811.101.2498	MS227SP2-42-80M	42	80	1545	1399	1050	300	Ø312
811.101.2508	MS227SP2-42-90M	42	90	1126	980	750	300	Ø416
811.101.2518	MS227SP2-42-100M	42	100	1200	1055	750	300	Ø416
811.101.2528	MS227SP2-42-120M	42	120	1360	1214	900	300	Ø416
811.101.2548	MS227SP2-42-150M	42	150	1599	1453	1050	300	Ø416
811.101.2568	MS227SP2-42-170M	42	170	1758	1612	1200	300	Ø416
811.101.2457	MS227SP2-42-40K	42	40	1068	966	750	300	Ø260
811.101.2467	MS227SP2-42-50K	42	50	1055	953	750	300	Ø312
811.101.2477	MS227SP2-42-60K	42	60	1197	1095	750	300	Ø312

## 2.4 Container Label

The container label details the weight of HFC-227ea contained, empty weight, fill density and charge date. Once the label is applied to the container surface, and to avoid possible tampering it cannot be removed intact. When the part number of the pressure gauge used in the system is 811.101.070 to 811.101.083, the part number of the applicable container label is 811.108.101. When the part number of the pressure gauge used in the system is 811.101.089, the part number of the applicable container label is 811.108.111.

Table 2.4.1 Technical Information	
Part No.	811.108.101. for Containers 16.6, 16.7, 28.3, 40, 49, 50, 52, 60, 62, 70, 80, 90, 100,103, 106, 120, 147, 150, 153, 160 & 170 L
Material	PET
Adhesive	A general purpose permanent, acrylic based adhesive.
Dimensions	279.8mm x 168.0 mm (11" x 6.5")

**ENGINEERED FIRE SUPPRESSION SYSTEM**  
Designed for use with HFC-227ea  
READ AND FOLLOW ALL INSTRUCTIONS ON THIS LABEL FOR SAFE HANDLING





**PART NO.:**  
MANUFACTURING DATE IS ON THE CONTAINER

**THIS CONTAINER IS FILLED WITH HFC-227EA (HEPTAFLUOROPROPANE) AND IS PRESSURIZED WITH DRY NITROGEN AT**  
 25BAR(360PSI) AT 21°C (70°F)     42BAR(600PSI) AT 21°C (70°F)

**HFC227EA WEIGHT:**                    KG                    (lb.)  
**TARE WEIGHT:**                        KG                    (lb.)  
**GROSS WEIGHT:**                      KG                    (lb.)  
**FILL DENSITY:**                        KG/L                (lb/ft<sup>3</sup>)  
**CHARGE DATE:**

**SUITABLE FOR USE IN TEMPERATURES OF 0°C TO 55°C (32°F TO 130°F)**

**CONTAINER SIZES:**  
 16.6L    16.7L    28.3L    40L    49L    50L    52L  
 60L    62L    70L    80L    90L    100L    103L  
 106L    120L    147L    150L    153L    160L    170L

**ALL CONTAINERS ARE TPED OR GB OR DOT CERTIFIED**  
**FACTORY TESTED WITH PNEUMATIC PRESSURE 63 BAR AT LEAST 30S**

REFER TO INSTALLATION MANUAL (ENGINEERED SYSTEM ),PART NO. 811\_011\_120\_VER 1.30 , (AVAILABLE FROM MOSAFE ),AND NFPA 2001 FOR ADDITIONAL INSPECTION AND MAINTENANCE INSTRUCTIONS.

**INSPECT AND MAINTENANCE**  
**Inspect monthly or more frequently:**  
 - Examine piping and nozzles to make sure they are unobstructed. Check pressure gauge. If pressure loss exceeds 10%, refill or replace container.  
**Inspect every 6 months:**  
 - Check agent quantity and pressure refill or replace if a loss in agent quantity of more than 5% or a loss in pressure (adjusted for temperature) of more than 10% is determined.

**Record date of inspection or recharge on record tag. If system fails above inspections use only a qualified service agency to safety restore system to operating condition.**

**RECHARGE INSTRUCTIONS**  
 Recharge cylinder immediately after any use. Recharge must be performed by a qualified recharge agent.

**CONTENTS IDENTIFICATION**  
 HFC-227ea HMIS 2-0-0 /HEPTAFLUOROPROPANE /  
 SEE WARNINGS ON PRODUCT LABEL /  
 CONTENTS UNDER PRESSURE  
 NITROGEN EXPELLENT GAS HMIS 0-0-0 /VERY COLD DISCHARGE. CONTENTS UNDER HIGH PRESSURE.  
 CONSULT SINOCHEM LANTIAN CO., LTD. HANGZHOU 312369,ZHEJIANG,CHINA.+86-571-87397288 FOR MATERIAL SAFETY DATA SHEET

**WARNING: THE DISCHARGE OF CLEAN AGENT SYSTEMS TO EXTINGUISH A FIRE CAN RESULT IN POTENTIAL HAZARD TO PERSONNEL FROM THE NATURAL FORM OF THE CLEAN AGENT OR FROM THE PRODUCTS OF COMBUSTION THAT RESULT FROM EXPOSURE OF THE AGENT TO THE FIRE OR HOT SURFACES. UNNECESSARY EXPOSURE OF PERSONNEL EITHER TO THE NATURAL AGENT OR TO THE PRODUCTS OF DECOMPOSITION SHALL BE AVOIDED. CONTACT MOSAFE IMMEDIATELY AFTER A DISCHARGE OF FIRE SITUATION.**

**CAUTIONS:** THIS CYLINDER MUST BE MOUNTED AND TRANSPORTED VERTICALLY. IMPROPER INSTALLATION WILL RESULT IN SYSTEM MALFUNCTION.

**WARNING:** SAFETY CAP MUST BE INSTALLED ON VALVE OUTLET AT ANY TIMES EXCEPT WHEN CONNECTED INTO SYSTEM OR WHEN FILLING. DO NOT ATTEMPT TO REMOVE CYLINDER FROM INSTALLATION IF SAFETY CAP IS NOT AVAILABLE.



RECYCLING PROTECTS THE ENVIRONMENT. DO NOT DISPOSE. DISCHARGE ONLY IN CASE OF FIRE. IF CONTAINER CONTENTS MUST BE REMOVED FOR SERVICE, MAINTENANCE OR DISMANTLING OF THE CLEAN AGENT SYSTEM - PRIOR TO REMOVAL, CONTACT YOUR LOCAL INSTALLER OR MANUFACTURER FOR INSTRUCTIONS ON HANDLING EQUIPMENT AND ON RECLAIMING OR RECYCLING CLEAN AGENT

**DO NOT COVER, REMOVE OR DEFACE THIS LABEL**

JUNMO FIRE PROTECTION (JIANGSU) CO., LTD.  
 INDUSTRIAL CONCENTRATION ZONE, SANDUO TOWN, GAOYOU CITY, JIANGSU PROVINCE, CHINA.

Figure 2.4.1 - Container Label P/N 811.108.101

Table 2.4.2 Technical Information	
Part No.	811.108.111 for Containers 16.6, 28.3, 40, 50, 60, 70, 80, 90, 100, 120, 150, 160 & 170 L)
Material	PET
Adhesive	A general purpose permanent, acrylic based adhesive.
Dimensions	279.8mm x 168.0 mm (11" x 6.5")

**ENGINEERED FIRE SUPPRESSION SYSTEM**  
Designed for use with HFC-227ea  
READ AND FOLLOW ALL INSTRUCTIONS ON THIS LABEL FOR SAFE HANDLING

**PART NO.:**  
MANUFACTURING DATE IS ON THE CONTAINER

**THIS CONTAINER IS FILLED WITH HFC-227EA (HEPTAFLUOROPROPANE) AND IS PRESSURIZED WITH DRY NITROGEN AT 42 BAR (600PSI) AT 21°C (70°F)**

HFC227EA WEIGHT:	KG	(lb.)
TARE WEIGHT:	KG	(lb.)
GROSS WEIGHT:	KG	(lb.)
FILL DENSITY:	KG/L	(lb/ft <sup>3</sup> )
CHARGE DATE:		

SUITABLE FOR USE IN TEMPERATURES OF 0°C TO 50°C (32°F TO 122°F)

**CONTAINER SIZES:**

<input type="checkbox"/> 16.6L	<input type="checkbox"/> 28.3L	<input type="checkbox"/> 40L	<input type="checkbox"/> 50L	<input type="checkbox"/> 60L
<input type="checkbox"/> 70L	<input type="checkbox"/> 80L	<input type="checkbox"/> 90L	<input type="checkbox"/> 100L	<input type="checkbox"/> 120L
<input type="checkbox"/> 150L	<input type="checkbox"/> 160L	<input type="checkbox"/> 170L		

ALL CONTAINERS ARE TPED OR GB OR DOT CERTIFIED  
FACTORY TESTED WITH PNEUMATIC PRESSURE 63 BAR AT LEAST 30S

RECYCLING PROTECTS THE ENVIRONMENT. DO NOT DISPOSE. DISCHARGE ONLY IN CASE OF FIRE. IF CONTAINER CONTENTS MUST BE REMOVED FOR SERVICE, MAINTENANCE OR DISMANTLING OF THE CLEAN AGENT SYSTEM - PRIOR TO REMOVAL, CONTACT YOUR LOCAL INSTALLER OR MANUFACTURER FOR INSTRUCTIONS ON HANDLING EQUIPMENT AND ON RECLAIMING OR RECYCLING CLEAN AGENT

**DO NOT COVER, REMOVE OR DEFACE THIS LABEL**

JUNMO FIRE PROTECTION (JIANGSU) CO., LTD.  
INDUSTRIAL CONCENTRATION ZONE, SANDUO TOWN, GAOYOU CITY, JIANGSU PROVINCE, CHINA.

REFER TO INSTALLATION MANUAL (ENGINEERED SYSTEM), PART NO. 811.011.120, VER. 1.30, (AVAILABLE FROM MOSAFE), AND NFPA 2001, FOR ADDITIONAL INSPECTION AND MAINTENANCE INSTRUCTIONS.

**INSPECT AND MAINTENANCE**  
Inspect monthly or more frequently:  
- Examine piping and nozzles to make sure they are unobstructed. Check pressure gauge. If pressure loss exceeds 10%, refill or replace container.  
**Inspect every 6 months:**  
- Check agent quantity and pressure refill or replace if a loss in agent quantity of more than 5% or a loss in pressure (adjusted for temperature) of more than 10% is determined.

**Record date of inspection or recharge on record tag. If system fails above inspections use only a qualified service agency to safety restore system to operating condition.**

**RECHARGE INSTRUCTIONS**  
Recharge cylinder immediately after any use. Recharge must be performed by a qualified recharge agent.

**CONTENTS IDENTIFICATION**  
HFC-227ea HMIS 2-0-0  
/HEPTAFLUOROPROPANE/  
SEE WARNINGS ON PRODUCT LABEL /  
CONTENTS UNDER PRESSURE  
NITROGEN EXPELLANT GAS HMIS 0-0-0 / VERY COLD DISCHARGE. CONTENTS UNDER HIGH PRESSURE.  
CONSULT SINOCHEM LANTIAN CO., LTD.  
HANGZHOU 312369, ZHEJIANG, CHINA +86-571-87397288 FOR MATERIAL SAFETY DATA SHEET

Figure 2.4.2 - Container Label P/N 811.108.111



## 2.5 Cylinder Fixing Brackets

The bracket assembly consists of a nut and bolt, two bracket straps and one back channel. To securely hold the container in position during the system discharge, two bracket assemblies are required per container.

Each strap is notched for insertion into the back channel allowing the container to be properly aligned. The bracket assembly is designed to be mounted to a rigid vertical surface with the container assembly resting fully

Part No.	Container Volume (L)	Container Dia. (mm)
811.106.601	16.6, 16.7, 28.3	Φ228.6
811.106.602	40	Φ260
811.106.603	50, 60, 70, 80	Φ312
811.106.604	40, 49, 50, 60, 62, 70, 80	Φ324
811.106.605	90, 100, 103, 106, 120, 147, 150, 153, 170	Φ406, Φ416
811.106.606	160, 170	Φ462
Fastening Bolt	M10X60	

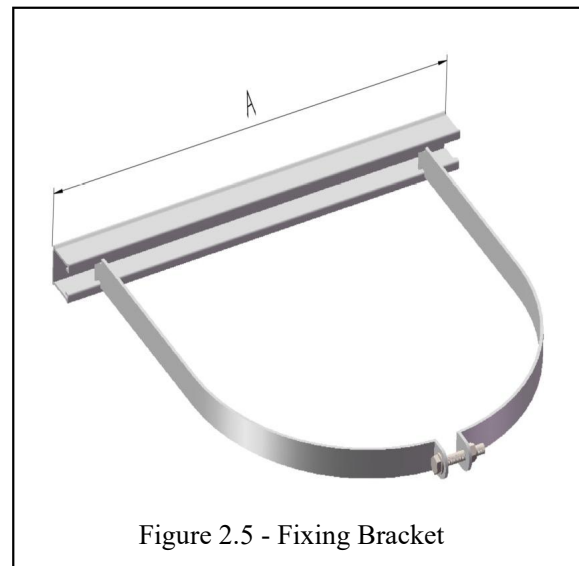


Figure 2.5 - Fixing Bracket

Part No.	Container Diameter (mm)	Dimension A (mm)										
		Container Quantity										
		1	2	3	4	5	6	7	8	9	10	
811.106.731-811.106.740	Φ228.6 Φ260	500	800	1100	1400	1700	2000	2300	2600	2900	3200	
811.106.701-811.106.710	Φ312 Φ324	600	1000	1400	1800	2200	2600	3000	3400	3800	4200	
811.106.711-811.106.720	Φ406 Φ416	700	1200	1700	2200	2700	3200	3700	4200	4700	5200	
811.106.721-811.106.730	Φ462	700	1200	1700	2200	2700	3200	3700	4200	4700	5200	



## 2.6 Container Valve

Installed in the gas cylinder is used to control the release of agent. Build up the container valve extinguishing kit together with cylinders started by Solenoid Actuator, Manual Actuator or Pneumatic Actuator. Container valve has long service life, low leakage rate, can automatically reset after use, re-filling agent needn't change any accessories (such as burst disc, etc.). The pressure gauge port of the container valve are available with connection thread of M10X1 or NPT1/8.

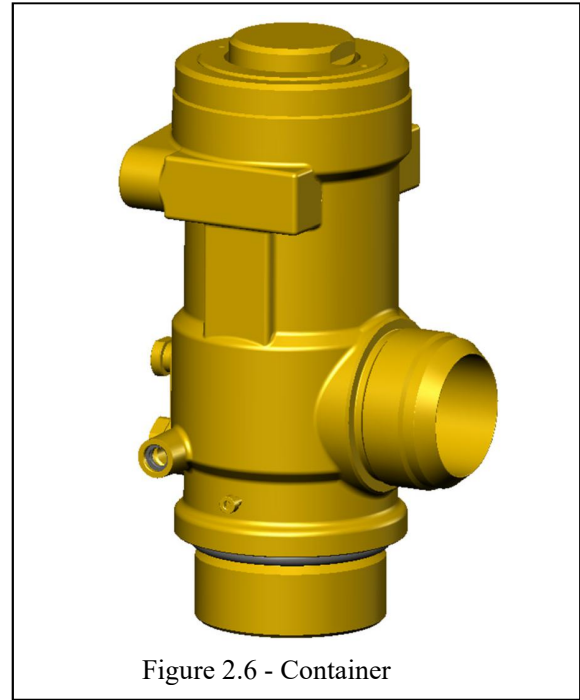


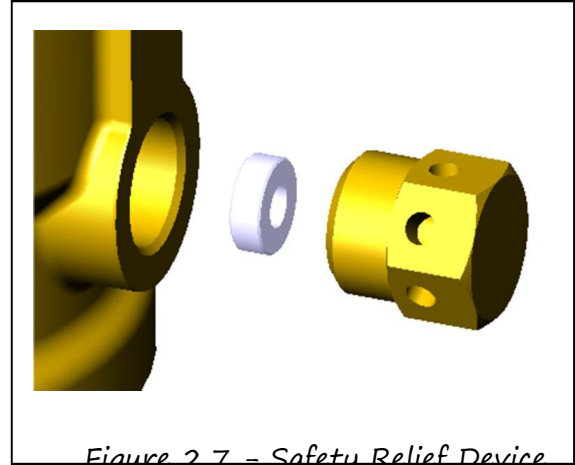
Figure 2.6 - Container

Type	33 mm 25 bar		33 mm 42 bar		49 mm 25 bar		49 mm 42 bar	
Part No.	811.101.0013	811.101.0017	811.101.0014	811.101.0018	811.101.0023	811.101.0027	811.101.0024	811.101.0028
Body Material	Brass		Brass		Brass		Brass	
Nominal Working Pressure	25 bar @21°C		42 bar @21°C		25 bar @21°C		42 bar @21°C	
Safety Relief pressure (Burst Disc Rating)	60±6 bar		100±10 bar		60±6 bar		100±10 bar	
Work Temperature	-20 °C ~ 60 °C							
Inlet	2.5"-12UN				3"-12UN			
Outlet	1.875"-12UN				2.5"-12UN			
Actuator Port	M42X1.5							
Pilot Pipe Connection	G1/8							
Pressure Gauge Port	M10X1	NPT1/8	M10X1	NPT1/8	M10X1	NPT1/8	M10X1	NPT1/8
Overall Size (mm)	124 (L) ×102 (W) ×184 (H)	124 (L) ×121 (W) ×184 (H)	124 (L) ×102 (W) ×184 (H)	124 (L) ×121 (W) ×184 (H)	149 (L) ×110 (W) ×238 (H)	149 (L) ×129 (W) ×238 (H)	149 (L) ×110 (W) ×238 (H)	149 (L) ×129 (W) ×238 (H)
Weight	4.9 kg				9.5 kg			

## 2.7 Safety Relief Device

A burst disc is factory fitted to every container valve assembly. It is designed to rupture when the container becomes over pressurized when subjected to temperatures above the designed storage temperature of the container.

Table 2.7 Safety Relief Device		
Part No.	811.101.090	811.101.091
Applicable System	25 bar system	42 bar system
Body Material	Brass	
Burst Disc Material	Nickel	
Burst Pressure	60 ± 6 bar	100 ± 10 bar
Work Temperature	-20 °C ~ 55 °C	
Installation Torque	35 Nm	



## 2.8 Pressure Gauge

Agent Pressure Gauge is installed on each extinguishing agent container valve, as a method of visually monitoring the internal pressure condition of the container assembly.

Gauge Diameter	φ41 mm
Material	Body: Stainless steel Socket: Brass
Work Temperature	-20 °C ~ 60 °C
Connection Thread	Axial M10X1 or Axial NPT1/8
Weight	0.05 kg
Certification	UL

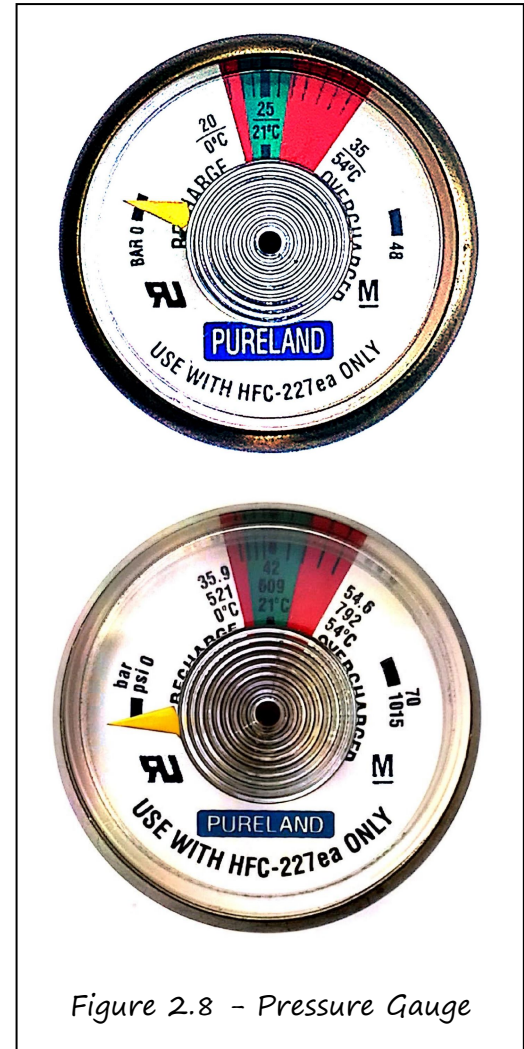


Figure 2.8 - Pressure Gauge

Part No.	Applicable System	Nominal Pressure (bar)	Min. Working Pressure (bar)	Max. Working Pressure (bar)	Max. Indicated Pressure (bar)	Connection Thread	Manufacturer
811.101.080	25 bar	25 @ 21°C	20 @ 0°C	35 @ 54°C	48	Axial M10X1	MIJA
MILJOCO							
811.101.081	42 bar	42 @ 21°C	35.9 @ 0°C	54.6 @ 54°C	70	Axial M10X1	MIJA
811.101.082	25 bar	25 @ 21°C	20 @ 0°C	35 @ 54°C	48	Axial NPT1/8	MIJA
811.101.083	42 bar	42 @ 21°C	35.9 @ 0°C	54.6 @ 54°C	70	Axial NPT1/8	MIJA
811.101.089	42 bar	42 @ 21°C	37.5 @ 0°C	53 @ 50°C	70	Axial NPT1/8	MIJA

## 2.9 Discharge Pressure Switch

Feedback the information generated by the agent release pressure to tell the extinguishing control panel that system is opened, to indicate extinguishing agent released.

Wiring: Remove the two screws retaining the cover and cover gasket. A 1/2" NPT conduit connection is provided on the left hand side of the enclosure. Two cast-in knockouts for the 1/2" conduit are located on the side and back of the enclosure. These can easily be knocked out by placing the blade of a screwdriver in the groove and tapping sharply with a hammer. The three switch terminals are clearly labeled "common", "normally open" and "normally closed". For switches supplied with leadwires, the following color coding applies: Common-Yellow, Normally Closed-Orange, Normally Open-Brown.

Table 2.9	Discharge Pressure Switch
Part No.	811.108.008
Model	SYK101
Material	Die cast aluminum, epoxy powder coated internally and externally
Work Temperature	-40°C ~ 70°C
Over Range Pressure	103.4 bar/ 1500 psi
Proof Pressure	172.4 bar/ 2500 psi
Bursting Pressure	"200 bar
Action Pressure	3.5 bar
Switch Output	One SPDT snap action switch; switch may be wired "normally open"
Electrical Rating	15A 125/250/480 VAC, 2A 24VDC
Protection Grade	IP65
Connection Thread	NPT1/4 Female
Electrical Entry	NPT1/2 Female
Overall Size	102mm W × 178mm H × 60mm T
Weight	1.0 kg
Life	6,000 Times
Certification	UL



Figure 2.9.1 - Discharge Pressure

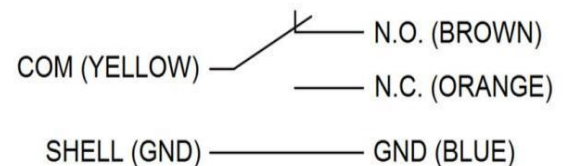


Figure 2.9.2 – Discharge Pressure Switch  
Wire Diagram

## 2.10 Safety Valve

The Safety Valve is installed in the Manifold; a burst disc is fitted to this valve. When the internal pressure of the manifold exceeds the expected pressure, the safety disc will be broken quickly, then release the inside pressure. The burst disc is designed to rupture when the manifold becomes over pressurized.

Table 2.10		Safety Valve	
Part No.	811.108.004	811.108.005	
Applicable System	25 bar system	42 bar system	
Body Material	Brass		
Burst Disc Material	Stainless Steel		
Burst Disc Color Code	Blue (Atmospheric Side)	Red (Atmospheric Side)	
Burst Pressure	46 ± 4.6 bar	72 ± 7.2 bar	
Work Temperature	-20°C ~ 55°C		
Installation Torque	35 Nm		
Connection Thread	NPT3/4 or R3/4		
Overall Size	72 mm (L) × φ47mm (D)		
Weight	0.15 kg		

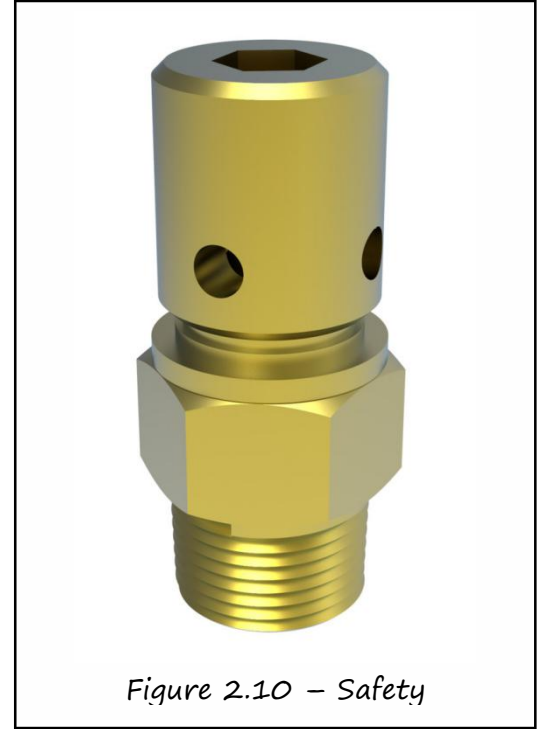


Figure 2.10 – Safety



## 2.11 Electrical Actuator (Removable)

The removable Electrical Actuator locates to the top of the container valve. 24 VDC is required for electrical operation. Provision is made for the connection of a manual actuator to the top of the actuator assembly. Due to the design of the bridge rectifier it will operate regardless of how it is wired up; the positive supply from control panel can be connected to either terminal 1 or 2 with the reverse for the negative supply.

Table 2.11 Electrical Actuator	
Part No.	811.101.060
Manufacturer	TLX Technologies
Model	PA0421
Material	Body: Mild Steel Swivel Nut: Brass
	Manual Button: ABS
	Limit Pin: Stainless Steel
	Voltage Supply: 24 VDC
	Current Supply: 0.50 A
Electrical/	Monitoring Current: <30 mA
Electronic	Reverse Polarity Compatible Via
Configurations	Bridge Rectifier Circuit.
	Supervisory Switch (N.C.) internal to Actuator.
Mechanical Configurations	Nominal Pin Movement: 6.35 mm
	Connection: M42x1.5 Female Overall
	Size: 175 mm x Ø 53 mm Min Force Provided: 240 N
	Max Manual Actuation Force: 150 N
Actuation Type	Latching
Reset Method	Manually Via Reset Tool Supplied
Working Temperature	-20 °C to 55 °C
Weight	0.9 kg
Factory Test	100% Check on Start/ Finish Position
Approvals	UL



Figure 2.11.1 - Electrical

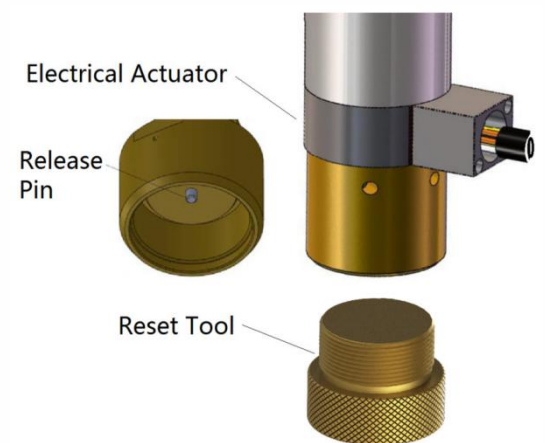


Figure 2.11.2 - Actuator

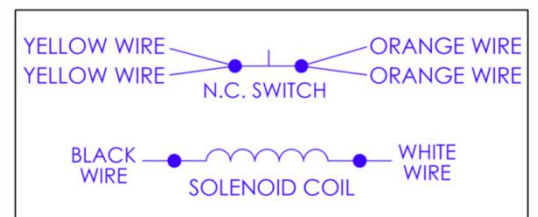


Figure 2.11.3 - Electrical Actuator

The Electrical Actuator will operate after receiving a 24 VDC nominal voltage signal from the panel. The actuator will latch in the fire position after the signal terminates. It will require to be manually reset by removing the unit from the valve and inserting (screwing in) the Reset Tool (Part No.811.101.066, see Figure 2.11.2)

A Manual Button is installed on the top of the actuator. In addition to the electrically actuate, the actuator can be activated directly by pressing the Manual Button. Before pressing the Button manually, the limit pin at the bottom of the button should be pulled

## 2.12 Pneumatic/Manual Actuator

The actuator is installed on the container valve, is used to manually or pneumatically operate container valve.

The Pneumatic and Manual Actuator is used to manual mechanically or pneumatically operate the system at the container position and is fitted to the top of the valve assembly. Pressure from a 'Master' container or manual force is used to actuate the valve.

Table 2.12 Pneumatic/Manual Actuator	
Part No.	811.101.065
Material	Body / Piston Rod: Brass Handle/SafetyPin: SS304
Max. Working Pressure	60 bar
Min Actuation Pressure	4 bar
Manual Operating Force	30 N
Install Thread	M42×1.5 Female
Pneumatic Port	G1/8 Female
Work Temperature	-20 °C ~ 60 °C
Overall Size	150 mm (H) × φ50mm (D)
Weight	0.6 kg
Install Torque	~15 Nm

## 2.13 Pneumatic Actuator

The Pneumatic Actuator is used to pneumatically operate the system at the container position and is fitted to the top of the valve assembly. Pressure from a 'Master' Container is used to actuate the valve, via small bore piping or a flexible hose.

Table 2.13 Pneumatic Actuator	
Part No.	811.101.064
Material	Body: Brass Piston Rod: Brass
Max. Working Pressure	60 bar
Min Actuation Pressure	4 bar
Install Thread	M42×1.5 Female
Pneumatic Port	G1/8 Female
Work Temperature	-20 °C ~ 60 °C
Overall Size	50 mm (H) × φ50mm (D)
Weight	0.5 kg
Install Torque	~15 Nm



Figure 2.12 - Pneumatic &

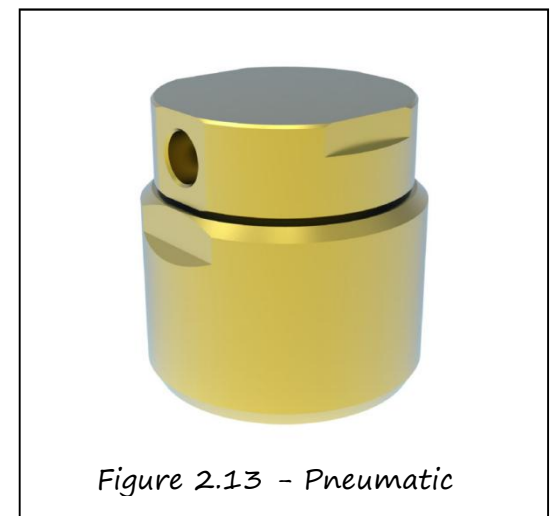


Figure 2.13 - Pneumatic

## 2.14 Manual Actuator

The Manual Actuator is used to mechanically operate the system at the container position and is fitted to the top of the valve assembly. Inadvertent operation is prevented by a safety pin which has to be removed before releasing.

Table 2.14 Manual Actuator	
Part No.	811.101.063
Material	Body / Piston Rod: Brass Handle / Safety Pin: SS304
Manual Operating Force	30 N
Install Thread	M42×1.5 Female
Work Temperature	-20 °C ~ 60 °C
Overall Size	110mm (L) × 50mm (W)_x 60mm (H)
Weight	0.5 kg
Install Torque	~15 Nm



Figure 2.14 - Manual Release

## 2.15 Discharge Hose

Container installations may be connected to the system by means of a flexible discharge hose. This enables containers to be disconnected for maintenance or recharge without dismantling other container mountings, manifold connections and pipework, etc. The flexible discharge hose is provided with a swivel fitting at the inlet. Discharge hose is installed between container valve and check valve used to connect agent cylinder in a system, convenient installation and maintenance of them.

Table 2.15 Discharge Hose		
Part No.	811.102.001	811.102.002
Hose Material	Teflon hose with stainless steel braid overlay	
Type	1¼" (33 mm)	2" (49 mm)
Length	550 mm	700 mm
Inlet Thread	1.875"-12UN	2.5"-12 UN
Outlet Thread	1.875"-12UN	2.5"-12 UN
Minimum Bending Radius	400 mm	500 mm
Working Temperature	-20°C ~60°C	-20°C ~60°C
Working Pressure	42 bar	42 bar
Burst Pressure	>200 bar	>200 bar
Weight	2.8 kg	4.6 kg

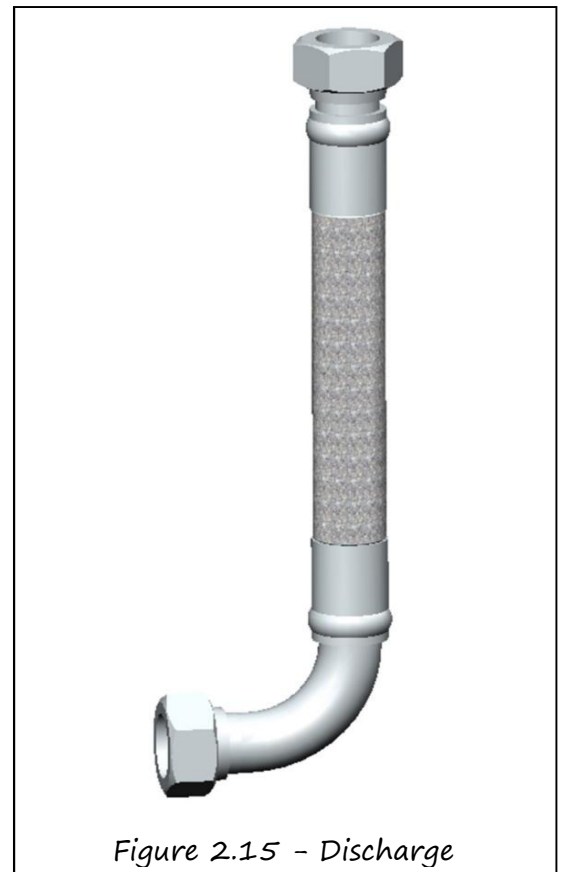


Figure 2.15 - Discharge

## 2.16 Valve Outlet Adaptor

When a single container is being used without a manifold, three type adaptors are available for connection to the container valve outlet, either grooved, threaded or welded.

**Table 2.16.1 Valve Outlet Adaptor- Grooved Type**

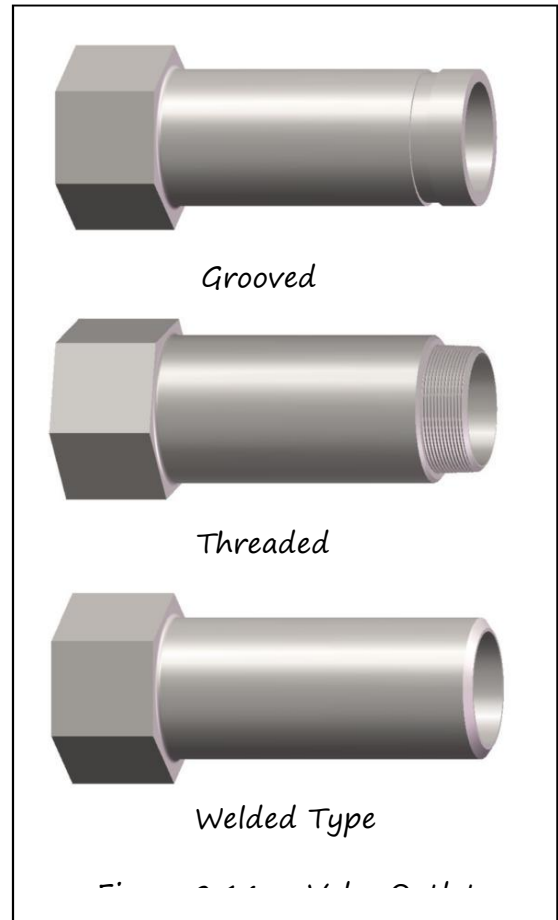
Part No.	811.102.010	811.102.011
Material	Stainless Steel	
Type	VOA-33G	VOA-49G
Nominal Diameter	1¼" (33 mm)	2" (49 mm)
Length	150 mm	184 mm
Inlet Thread	1.875"-12UN	2.5"-12 UN
Working Temperature	-20°C ~60°C	-20°C ~60°C
Working Pressure	42 bar	42 bar
Weight	0.9 kg	1.7 kg

**Table 2.16.2 Valve Outlet Adaptor- Threaded Type**

Part No.	811.102.014	811.102.015
Material	Stainless Steel	
Type	VOA-33T	VOA-49T
Nominal Diameter	1¼" (33 mm)	2" (49 mm)
Length	150 mm	184 mm
Inlet Thread	1.875"-12UN	2.5"-12 UN
Outlet Thread	NPT or R 1¼"	NPT or R 2"
Working Temperature	-20°C ~60°C	-20°C ~60°C
Working Pressure	42 bar	42 bar
Weight	1.0 kg	2.0 kg

**Table 2.16.3 Valve Outlet Adaptor- Welded Type**

Part No.	811.102.012	811.102.013
Material	Stainless Steel	
Type	VOA-33W	VOA-49W
Nominal Diameter	1¼" (33 mm)	2" (49 mm)
Length	150 mm	184 mm
Inlet Thread	1.875"-12UN	2.5"-12 UN
Working Temperature	-20°C ~60°C	-20°C ~60°C
Working Pressure	42 bar	42 bar
Weight	0.9 kg	1.7 kg



## 2.17 Pilot Hose

The pilot hose is used to connect pressure activated devices to the system, e.g. the master cylinder to the slave container to the pressure switch.

Table 2.17		Pilot Hose		
Part No.	811.102.003	811.102.004	811.102.005	
Hose Material	Steel wire braided rubber hose			
Nominal Diameter	Φ6 mm			
Length	400 mm	500 mm	700 mm	
Connection Thread	M12×1.5			
Install Torque	22.5±2.5 N·m			
Min. Bending Radius	60 mm			
Working Temperature	-20°C to 60°C			
Working Pressure	42 bar			
Burst Pressure	>200 bar			



Figure 2.17 - Pilot

## 2.18 Bleed Valve

On manifold systems with connected reserves it is necessary to fit bleed valves at the location of the pneumatic actuator of the last slave container of both duty and reserve actuation lines. Also a bleed valve is required to be fitted into the pilot line.

The bleed valve acts to relieve a gradual pressure build-up occurring perhaps as a result of a leaking container valve or check valve. It also provides a means by which pressure trapped in the actuation line may be manually relieved. The bleed valve relieves automatically up to a pressure of approximately 1.5 bar and seals at pressures above this.

Bleed valve is installed in the end of a closed pipeline, normal opened. It is used to eliminate leakage gas due to accumulate in the pipeline, to prevent the system false starts, it will be closed, while inlet pressure up to setting point. After activation press the valve button, release the gas in the pipeline, then valve is reset.

Table 2.18		Bleed Valve
Part No.	811.108.006	
Material	Brass	
Max. Working Pressure	64 bar	
Flow Rate	≥ 6 L/min @ 0.6 bar	
Closed Pressure	0.7 ~ 1.5 bar	
Install Thread	G1/8	
Work Temperature	-20 °C ~ 60 °C	
Overall Size	50 mm H × φ24 mm Dia	
Weight	0.1 kg	
Install Torque	8 Nm	

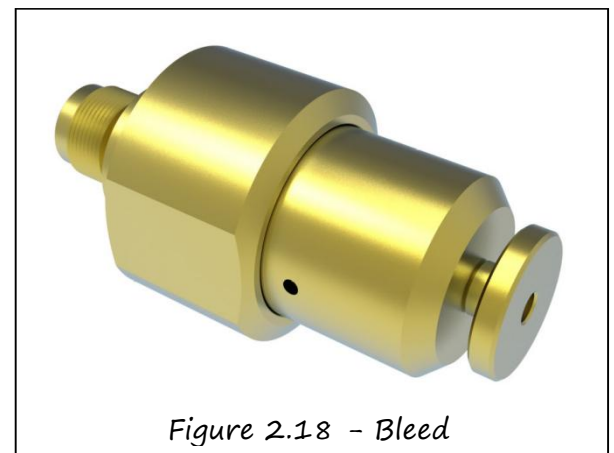


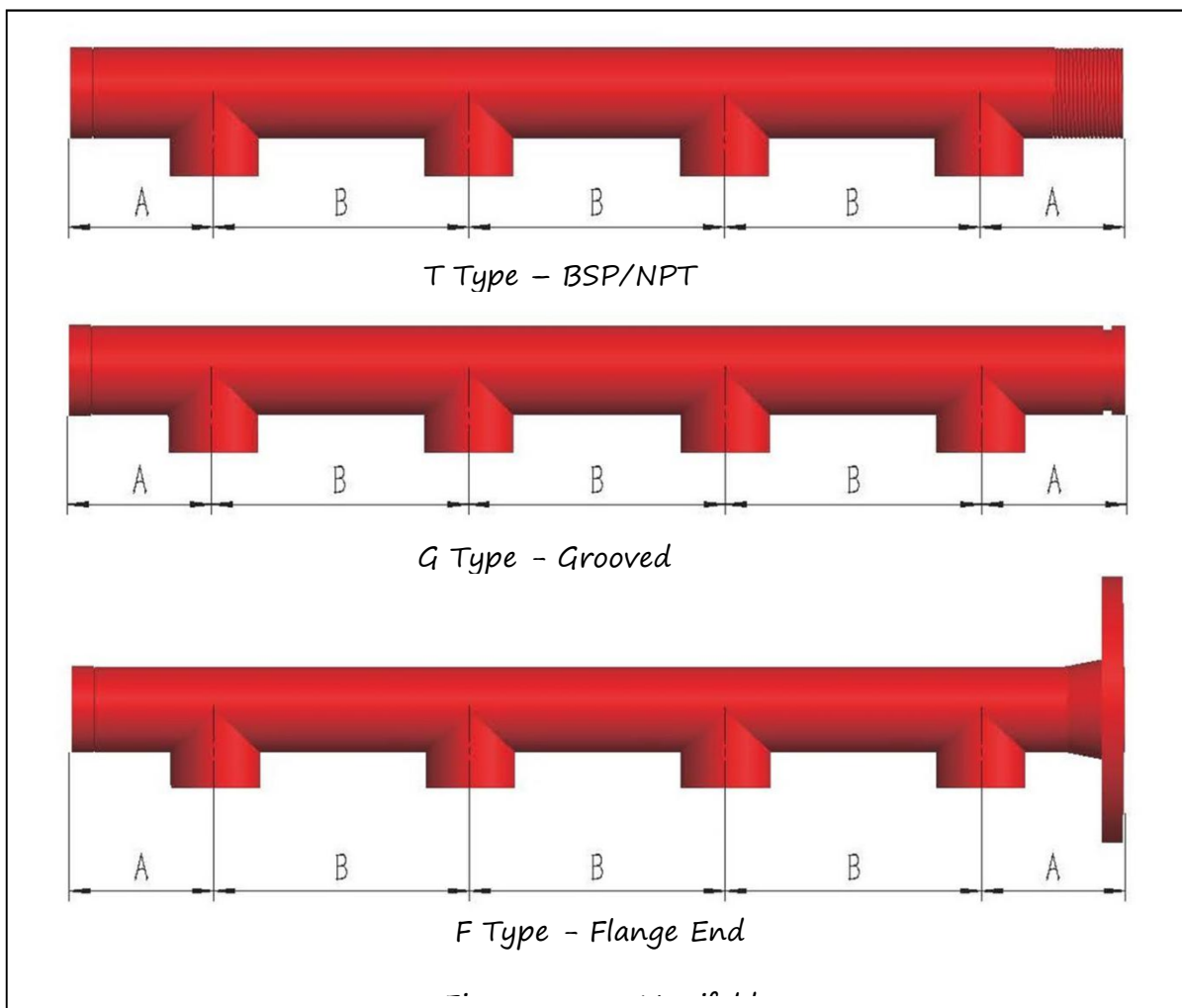
Figure 2.18 - Bleed



## 2.19 Manifold

Manifolds are fabricated sections of steel pipe-work. They enable multiple containers to be connected to a common pipe network. They can be used in conjunction with check valves in situations where main / reserve containers arrangements are required.

Table 2.19.1 Manifold	
Part No.	811.101.006
Material	ASTM A106 Gr B / BS 3601 Schedule 80
Inter	Check valve threaded connections
Outlet	BSP/NPT Taper, Flange and Grooved Coupling
Test Pressure	90 bar ( 1305 psi )



Finish: Primed, Ready to paint on site.

Note: 1. Assembly includes 33 / 49mm check valves connection and end cap.

2. T- Thread Connection, F- Flange Connection, G- Grooved Connection.

Table 2.19.2					Manifolds Size				
Part No.	Size (mm)	A (mm)	B (mm)	Check Valve Size	Part No.	Size (mm)	A (mm)	B (mm)	Check Valve Size
811.105.532T/F/G	2 port 65	150	400	33	811.105.757T/F/G	7 port 100	150	450	49
811.105.533T/F/G	3 port 65	150	400	33	811.105.762T/F/G	2 port 100	150	500	49
811.105.534T/F/G	4 port 65	150	400	33	811.105.763T/F/G	3 port 100	150	500	49
811.105.535T/F/G	5 port 65	150	400	33	811.105.764T/F/G	4 port 100	150	500	49
811.105.632T/F/G	2 port 80	150	400	33	811.105.765T/F/G	5 port 100	150	500	49
811.105.633T/F/G	3 port 80	150	400	33	811.105.766T/F/G	6 port 100	150	500	49
811.105.634T/F/G	4 port 80	150	400	33	811.105.767T/F/G	7 port 100	150	500	49
811.105.635T/F/G	5 port 80	150	400	33	811.105.842T/F/G	2 port 125	150	400	49
811.105.636T/F/G	6 port 80	150	400	33	811.105.843T/F/G	3 port 125	150	400	49
811.105.642T/F/G	2 port 80	150	400	49	811.105.844T/F/G	4 port 125	150	400	49
811.105.643T/F/G	3 port 80	150	400	49	811.105.845T/F/G	5 port 125	150	400	49
811.105.644T/F/G	4 port 80	150	400	49	811.105.846T/F/G	6 port 125	150	400	49
811.105.645T/F/G	5 port 80	150	400	49	811.105.847T/F/G	7 port 125	150	400	49
811.105.646T/F/G	6 port 80	150	400	49	811.105.852T/F/G	2 port 125	150	450	49
811.105.652T/F/G	2 port 80	150	450	49	811.105.853T/F/G	3 port 125	150	450	49
811.105.653T/F/G	3 port 80	150	450	49	811.105.854T/F/G	4 port 125	150	450	49
811.105.654T/F/G	4 port 80	150	450	49	811.105.855T/F/G	5 port 125	150	450	49
811.105.655T/F/G	5 port 80	150	450	49	811.105.856T/F/G	6 port 125	150	450	49
811.105.662T/F/G	2 port 80	150	500	49	811.105.857T/F/G	7 port 125	150	450	49
811.105.663T/F/G	3 port 80	150	500	49	811.105.862T/F/G	2 port 125	150	500	49
811.105.664T/F/G	4 port 80	150	500	49	811.105.863T/F/G	3 port 125	150	500	49
811.105.732T/F/G	2 port 100	150	400	33	811.105.864T/F/G	4 port 125	150	500	49
811.105.733T/F/G	3 port 100	150	400	33	811.105.865T/F/G	5 port 125	150	500	49
811.105.734T/F/G	4 port 100	150	400	33	811.105.866T/F/G	6 port 125	150	500	49
811.105.735T/F/G	5 port 100	150	400	33	811.105.867T/F/G	7 port 125	150	500	49
811.105.736T/F/G	6 port 100	150	400	33	811.105.952T/F/G	2 port 150	150	450	49
811.105.737T/F/G	7 port 100	150	400	33	811.105.953T/F/G	3 port 150	150	450	49
811.105.742T/F/G	2 port 100	150	400	49	811.105.954T/F/G	4 port 150	150	450	49
811.105.743T/F/G	3 port 100	150	400	49	811.105.955T/F/G	5 port 150	150	450	49
811.105.744T/F/G	4 port 100	150	400	49	811.105.956T/F/G	6 port 150	150	450	49
811.105.745T/F/G	5 port 100	150	400	49	811.105.957T/F/G	7 port 150	150	450	49
811.105.746T/F/G	6 port 100	150	400	49	811.105.962T/F/G	2 port 150	150	500	49
811.105.747T/F/G	7 port 100	150	400	49	811.105.963T/F/G	3 port 150	150	500	49
811.105.752T/F/G	2 port 100	150	450	49	811.105.964T/F/G	4 port 150	150	500	49
811.105.753T/F/G	3 port 100	150	450	49	811.105.965T/F/G	5 port 150	150	500	49

811.105.754T/F/G	4 port 100	150	450	49	811.105.966T/F/G	6 port 150	150	500	49
811.105.755T/F/G	5 port 100	150	450	49	811.105.967T/F/G	7 port 150	150	500	49
811.105.756T/F/G	6 port 100	150	450	49					

## 2.20 Manifold Bracket Assembly

A manifold bracket assembly consists of two lengths of uni-strut, mounted vertically on a wall or bulk head to enable height adjustment of the manifold assembly. Cantilever brackets are located on the uni-strut and each is held in position using a uni-strut long spring, washer and hex head screw. Manifold brackets slot into the cantilever and are clamped using a hex head screw and plain nut.

Part No.	Manifold Nominal Diameter	Manifold Outer Diameter (mm)
811.107.007	DN50 (2")	60
811.107.008	DN65 (2.5")	76
811.107.009	DN80 (3")	89
811.107.010	DN100 (4")	114
811.107.011	DN125 (5")	141
811.107.012	DN150 (6")	165
Fastening Bolt	M8X35	
Adapter Bracket	Manifold Cantilever Support Part No. 811.107.101	
Adapter Bracket Length	400 mm	

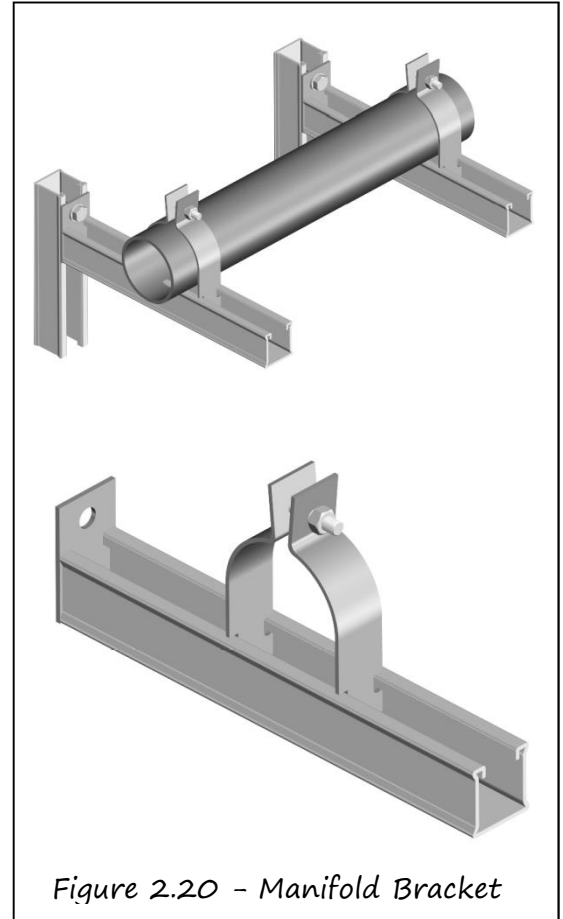


Figure 2.20 - Manifold Bracket

## 2.21 Manifold Check Valve

Part No.	811.103.001	811.103.002
Size	33mm	49mm
Body Material	Brass	Brass
Stem Material	Stainless steel	Stainless steel
Work Pressure	80 bar	80 bar
Leakage Test Pressure	80 bar	80 bar
Hydraulic Strength Test Pressure	100 bar	100 bar
Inlet Thread	1.875"-12UN	2.5"-12UN
Outlet Thread	NPT2 or R2	NPT2½ or R2½

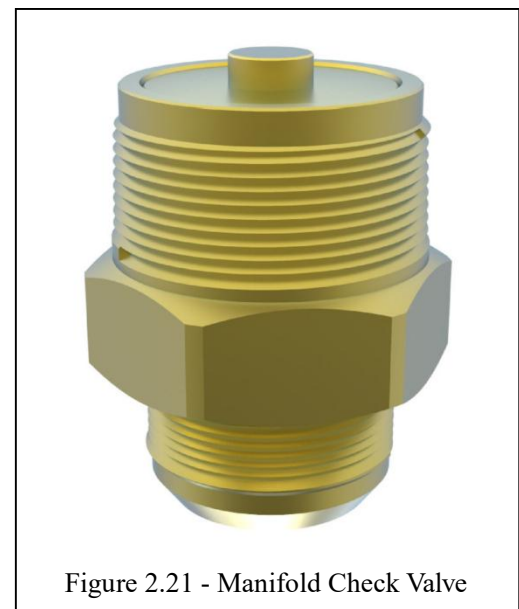


Figure 2.21 - Manifold Check Valve

Weight:	0.9 Kg	1.82 Kg
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Manifold check valves are of mushroom pattern type and lift into the manifold as discharge occurs. The function of the check valve is to prevent loss of extinguishing agent during discharge from an outlet, should a container have been removed. All check valves are ordered separately to the manifold assembly.

Manifold check valve is installed on the manifold behind the discharge hose to control the extinguishing agent.

## 2.22 Discharge Nozzle

HFC-227ea is distributed within the protected area by the discharge nozzle which is sized to ensure the correct flow of agent for the risk. Nozzles are available with 8 ports to allow for 180° or 360° horizontal discharge patterns. Ports are drilled in special increments to the specified system design. Discharge nozzles are installed in the end of pipeline hole size is calculated, discharge the gas uniformly, and satisfies the requirement of discharge time.

Table 2.22.1		Discharge Nozzle	
Part No.	811.104.XXX	811.114.XXX	
Nozzle Type	180° 8 Port	360° 8 Port	
Material	Brass		
Distance From Ceiling	Max. 370 mm		
Connection Thread	NPT or Rc 3/8 to 2 Female		
Installation Mode	Side Wall	Center	
Installation Orientation	Pendent or Upright		

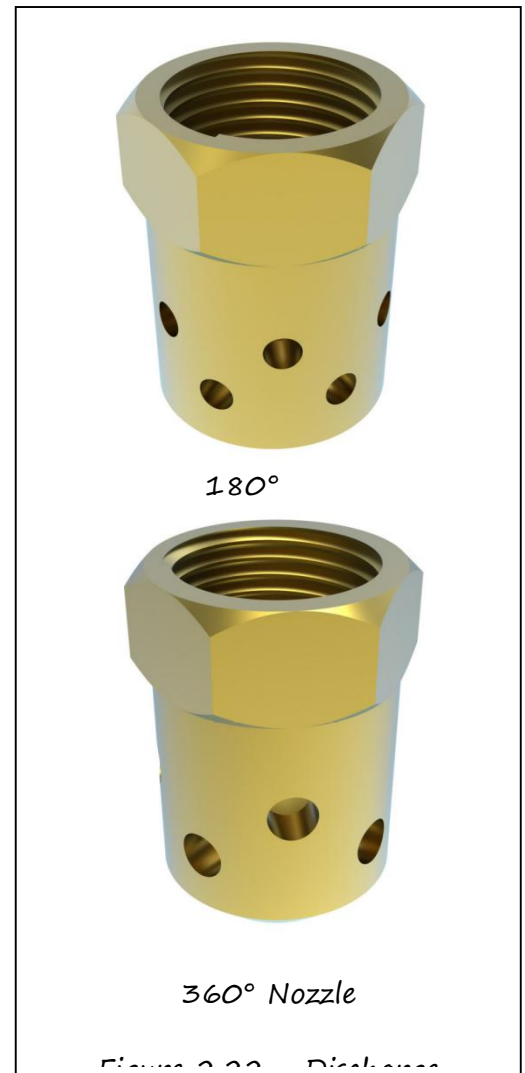


Figure 2.22 Discharge

Table 2.22.2		Discharg30e Nozzle List	
180° Nozzle		360° Nozzle	

Part No.	Nozzle Type	Hole Dia. (mm)	Thread	Part No.	Nozzle Type	Hole Dia. (mm)	Thread
811.104.001	A180-10-1.4	1.4	3/8"	811.114.001	A360-10-1.4	1.4	3/8"
811.104.002	A180-10-1.6	1.6	3/8"	811.114.002	A360-10-1.6	1.6	3/8"
811.104.003	A180-10-1.8	1.8	3/8"	811.114.003	A360-10-1.8	1.8	3/8"
811.104.004	A180-10-2.0	2.0	3/8"	811.114.004	A360-10-2.0	2.0	3/8"
811.104.005	A180-10-2.2	2.2	3/8"	811.114.005	A360-10-2.2	2.2	3/8"
811.104.006	A180-10-2.4	2.4	3/8"	811.114.006	A360-10-2.4	2.4	3/8"
811.104.007	A180-10-2.6	2.6	3/8"	811.114.007	A360-10-2.6	2.6	3/8"
811.104.008	A180-10-2.8	2.8	3/8"	811.114.008	A360-10-2.8	2.8	3/8"
811.104.009	A180-10-3.0	3.0	3/8"	811.114.009	A360-10-3.0	3.0	3/8"
811.104.010	A180-10-3.2	3.2	3/8"	811.114.010	A360-10-3.2	3.2	3/8"
811.104.011	A180-10-3.4	3.4	3/8"	811.114.011	A360-10-3.4	3.4	3/8"
811.104.012	A180-10-3.6	3.6	3/8"	811.114.012	A360-10-3.6	3.6	3/8"
811.104.013	A180-10-3.8	3.8	3/8"	811.114.013	A360-10-3.8	3.8	3/8"

180° Nozzle				360° Nozzle			
Part No.	Nozzle Type	Hole Dia. (mm)	Thread	Part No.	Nozzle Type	Hole Dia. (mm)	Thread
811.104.101	A180-15-2.2	2.2	1/2"	811.114.101	A360-15-2.2	2.2	1/2"
811.104.102	A180-15-2.5	2.5	1/2"	811.114.102	A360-15-2.5	2.5	1/2"
811.104.103	A180-15-2.8	2.8	1/2"	811.114.103	A360-15-2.8	2.8	1/2"
811.104.104	A180-15-3.1	3.1	1/2"	811.114.104	A360-15-3.1	3.1	1/2"
811.104.105	A180-15-3.4	3.4	1/2"	811.114.105	A360-15-3.4	3.4	1/2"
811.104.106	A180-15-3.7	3.7	1/2"	811.114.106	A360-15-3.7	3.7	1/2"
811.104.107	A180-15-4.0	4.0	1/2"	811.114.107	A360-15-4.0	4.0	1/2"
811.104.108	A180-15-4.3	4.3	1/2"	811.114.108	A360-15-4.3	4.3	1/2"
811.104.109	A180-15-4.6	4.6	1/2"	811.114.109	A360-15-4.6	4.6	1/2"
811.104.110	A180-15-5.0	5.0	1/2"	811.114.110	A360-15-5.0	5.0	1/2"
811.104.201	A180-20-3.1	3.1	3/4"	811.114.201	A360-20-3.1	3.1	3/4"
811.104.202	A180-20-3.4	3.4	3/4"	811.114.202	A360-20-3.4	3.4	3/4"
811.104.203	A180-20-3.7	3.7	3/4"	811.114.203	A360-20-3.7	3.7	3/4"
811.104.204	A180-20-4.0	4.0	3/4"	811.114.204	A360-20-4.0	4.0	3/4"
811.104.205	A180-20-4.3	4.3	3/4"	811.114.205	A360-20-4.3	4.3	3/4"
811.104.206	A180-20-4.6	4.6	3/4"	811.114.206	A360-20-4.6	4.6	3/4"
811.104.207	A180-20-5.0	5.0	3/4"	811.114.207	A360-20-5.0	5.0	3/4"
811.104.208	A180-20-5.3	5.3	3/4"	811.114.208	A360-20-5.3	5.3	3/4"
811.104.209	A180-20-5.6	5.6	3/4"	811.114.209	A360-20-5.6	5.6	3/4"
811.104.210	A180-20-5.9	5.9	3/4"	811.114.210	A360-20-5.9	5.9	3/4"



811.104.211	A180-20-6.2	6.2	3/4"	811.114.211	A360-20-6.2	6.2	3/4"
811.104.212	A180-20-6.6	6.6	3/4"	811.114.212	A360-20-6.6	6.6	3/4"
811.104.301	A180-25-3.9	3.9	1"	811.114.301	A360-25-3.9	3.9	1"
811.104.302	A180-25-4.3	4.3	1"	811.114.302	A360-25-4.3	4.3	1"
811.104.303	A180-25-4.7	4.7	1"	811.114.303	A360-25-4.7	4.7	1"
811.104.304	A180-25-5.1	5.1	1"	811.114.304	A360-25-5.1	5.1	1"
811.104.305	A180-25-5.5	5.5	1"	811.114.305	A360-25-5.5	5.5	1"
811.104.306	A180-25-5.9	5.9	1"	811.114.306	A360-25-5.9	5.9	1"
811.104.307	A180-25-6.3	6.3	1"	811.114.307	A360-25-6.3	6.3	1"
811.104.308	A180-25-6.7	6.7	1"	811.114.308	A360-25-6.7	6.7	1"
811.104.309	A180-25-7.1	7.1	1"	811.114.309	A360-25-7.1	7.1	1"
811.104.310	A180-25-7.5	7.5	1"	811.114.310	A360-25-7.5	7.5	1"
811.104.311	A180-25-7.9	7.9	1"	811.114.311	A360-25-7.9	7.9	1"
811.104.312	A180-25-8.4	8.4	1"	811.114.312	A360-25-8.4	8.4	1"
811.104.401	A180-32-5.1	5.1	1¼"	811.114.401	A360-32-5.1	5.1	1¼"
811.104.402	A180-32-5.5	5.5	1¼"	811.114.402	A360-32-5.5	5.5	1¼"
811.104.403	A180-32-5.9	5.9	1¼"	811.114.403	A360-32-5.9	5.9	1¼"
811.104.404	A180-32-6.3	6.3	1¼"	811.114.404	A360-32-6.3	6.3	1¼"
811.104.405	A180-32-6.7	6.7	1¼"	811.114.405	A360-32-6.7	6.7	1¼"

180° Nozzle				360° Nozzle			
Part No.	Nozzle Type	Hole Dia. (mm)	Thread	Part No.	Nozzle Type	Hole Dia. (mm)	Thread
811.104.406	A180-32-7.1	7.1	1¼"	811.114.406	A360-32-7.1	7.1	1¼"
811.104.407	A180-32-7.5	7.5	1¼"	811.114.407	A360-32-7.5	7.5	1¼"
811.104.408	A180-32-7.9	7.9	1¼"	811.114.408	A360-32-7.9	7.9	1¼"
811.104.409	A180-32-8.4	8.4	1¼"	811.114.409	A360-32-8.4	8.4	1¼"
811.104.410	A180-32-8.8	8.8	1¼"	811.114.410	A360-32-8.8	8.8	1¼"
811.104.411	A180-32-9.2	9.2	1¼"	811.114.411	A360-32-9.2	9.2	1¼"
811.104.412	A180-32-9.6	9.6	1¼"	811.114.412	A360-32-9.6	9.6	1¼"
811.104.413	A180-32-10.0	10.0	1¼"	811.114.413	A360-32-10.0	10.0	1¼"
811.104.414	A180-32-10.4	10.4	1¼"	811.114.414	A360-32-10.4	10.4	1¼"
811.104.415	A180-32-10.8	10.8	1¼"	811.114.415	A360-32-10.8	10.8	1¼"
811.104.416	A180-32-11.0	11.0	1¼"	811.114.416	A360-32-11.0	11.0	1¼"
811.104.501	A180-40-6.5	6.5	1½"	811.114.501	A360-40-6.5	6.5	1½"
811.104.502	A180-40-7.0	7.0	1½"	811.114.502	A360-40-7.0	7.0	1½"
811.104.503	A180-40-7.5	7.5	1½"	811.114.503	A360-40-7.5	7.5	1½"
811.104.504	A180-40-8.0	8.0	1½"	811.114.504	A360-40-8.0	8.0	1½"
811.104.505	A180-40-8.5	8.5	1½"	811.114.505	A360-40-8.5	8.5	1½"
811.104.506	A180-40-9.0	9.0	1½"	811.114.506	A360-40-9.0	9.0	1½"
811.104.507	A180-40-9.5	9.5	1½"	811.114.507	A360-40-9.5	9.5	1½"
811.104.508	A180-40-10.0	10.0	1½"	811.114.508	A360-40-10.0	10.0	1½"
811.104.509	A180-40-10.5	10.5	1½"	811.114.509	A360-40-10.5	10.5	1½"
811.104.510	A180-40-11.0	11.0	1½"	811.114.510	A360-40-11.0	11.0	1½"
811.104.511	A180-40-11.5	11.5	1½"	811.114.511	A360-40-11.5	11.5	1½"
811.104.512	A180-40-12.0	12.0	1½"	811.114.512	A360-40-12.0	12.0	1½"
811.104.513	A180-40-12.5	12.5	1½"	811.114.513	A360-40-12.5	12.5	1½"
811.104.514	A180-40-12.9	12.9	1½"	811.114.514	A360-40-12.9	12.9	1½"
811.104.601	A180-50-8.5	8.5	2"	811.114.601	A360-50-8.5	8.5	2"
811.104.602	A180-50-9.0	9.0	2"	811.114.602	A360-50-9.0	9.0	2"
811.104.603	A180-50-9.5	9.5	2"	811.114.603	A360-50-9.5	9.5	2"
811.104.604	A180-50-10.0	10.0	2"	811.114.604	A360-50-10.0	10.0	2"
811.104.605	A180-50-10.5	10.5	2"	811.114.605	A360-50-10.5	10.5	2"
811.104.606	A180-50-11.0	11.0	2"	811.114.606	A360-50-11.0	11.0	2"
811.104.607	A180-50-11.5	11.5	2"	811.114.607	A360-50-11.5	11.5	2"
811.104.608	A180-50-12.0	12.0	2"	811.114.608	A360-50-12.0	12.0	2"
811.104.609	A180-50-12.5	12.5	2"	811.114.609	A360-50-12.5	12.5	2"
811.104.610	A180-50-13.0	13.0	2"	811.114.610	A360-50-13.0	13.0	2"
811.104.611	A180-50-13.5	13.5	2"	811.114.611	A360-50-13.5	13.5	2"
811.104.612	A180-50-14.0	14.0	2"	811.114.612	A360-50-14.0	14.0	2"
811.104.613	A180-50-14.5	14.5	2"	811.114.613	A360-50-14.5	14.5	2"
811.104.614	A180-50-15.0	15.0	2"	811.114.614	A360-50-15.0	15.0	2"

180° Nozzle				360° Nozzle			
Part No.	Nozzle Type	Hole Dia. (mm)	Thread	Part No.	Nozzle Type	Hole Dia. (mm)	Thread
811.104.615	A180-50-15.5	15.5	2"	811.114.615	A360-50-15.5	15.5	2"
811.104.616	A180-50-16.0	16.0	2"	811.114.616	A360-50-16.0	16.0	2"
811.104.617	A180-50-16.5	16.5	2"	811.114.617	A360-50-16.5	16.5	2"

Note:

The orifice diameter is defined with flow calculation software.

JUNMO Nozzle connection is female thread, and is available in NPT and BSPT.

NPT thread nozzle, marked with N after the nozzle code; BSPT thread nozzle, marked with R after the nozzle code.

## 2.23 Pilot Pipe Connector G1/8

Pilot pipe connector G1/8 is used to connect the pilot hose and actuator, to introduce a pilot gas from the pilot hose for pneumatically actuating other valves.

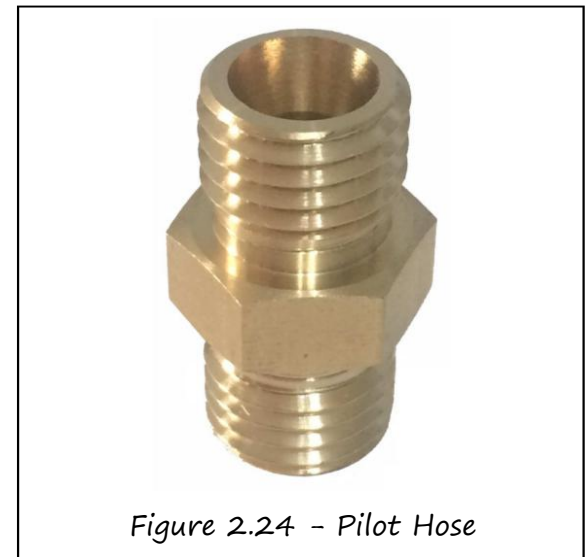
Table 2.23 Pilot Pipe Connector G1/8	
Part No.	811.111.001
Size	Ø4 mm
Material	Stainless Steel
Connection	M12*1.5× G1/8
Max. Working Pressure	150 bar
Overall Size	S14 mm* 25 mm
Weight:	0.025 kg



## 2.24 Pilot Hose Connector

Pilot Hose Connector is used to connect two pilot hoses together.

Table 2.24 Pilot Hose Connector	
Part No.	811.111.002
Size	Ø4 mm
Material	Brass
Connection	M12*1.5× M12*1.5
Max. Working Pressure	150 bar
Overall Size	S14 mm* 26 mm
Weight:	0.028 kg



## 2.25 Pilot Pipe Connector NPT $\frac{1}{4}$

Pilot pipe connector NPT  $\frac{1}{4}$  connects the pilot hose to the discharge pressure switch.

Table 2.25 Pilot Pipe Connector NPT $\frac{1}{4}$	
Part No.	811.111.003
Size	Ø4 mm
Material	Brass
Connection	M12*1.5× NPT $\frac{1}{4}$
Max. Working Pressure	150 bar
Overall Size	S17 mm* 29 mm
Weight:	0.032 kg



## 2.26 Pressure Switch Connector

Pressure switch connector is used to connect the pressure switch and the manifold joint.

Table 2.26 Pressure Switch Connector NPT $\frac{1}{4}$	
Part No.	811.111.004
Size	Ø6 mm
Material	Brass
Connection	NPT $\frac{1}{4}$ × NPT $\frac{1}{4}$
Max. Working Pressure	150 bar
Overall Size	S17 mm* 36 mm
Weight:	0.035 kg





## 2.27 Inside Warning Sign

This Inside Warning Sign provides instructions to personnel who may work in an area protected with HFC-227ea fire system. The sign reminds the relevant personnel to leave the protected area immediately when the fire extinguishing system is activated. One sign is to be fixed to all export doors out of an HFC-227ea fire system protected area.

Table 2.27 Inside Warning Sign	
Part No.	811.108.104
Size	210 mm ×210 mm
Material	Aluminum



Figure 2.27 - Inside Warning Sign

## 2.28 Outside Warning Sign

The Outside Warning Sign provides instructions to personnel who may enter an area protected with HFC-227ea fire system. This warning sign reminds the relevant personnel not to enter the protected area when the HFC-227ea firefighting system is activated. One plate is to be fixed to all entrance doors into an HFC-227ea fire system protected area.

Table 2.28 Outside Warning Sign	
Part No.	811.108.105
Size	210 mm ×210 mm
Material	Aluminum



Figure 2.28 - Outside Warning Sign