

SHIELD[®]

TRUSTED WORLDWIDE



SHIELD1230

CLEAN AGENT EXTINGUISHING SYSTEM





INTRODUCTION

Competence and innovation driven by consistent market development and customer requirements have shaped the successful development of the SHIELD Brand. The extensive product range of the market leader in the field of fire protection technology contains single, individually integrable system performances. In this way, a customized overall fire protection concept can be planned and realized for every need with optimally synchronized products.

Performance is in international demand, SHIELD is among the highly accredited fire protection companies that meet rigorous British and American standards for all projects from small conventional system to multi-site networks.

Certifications such as UL and FM approvals have earned SHIELD a world-renowned reputation with quality products and powerful solutions. A strong brand is generally known to be a secure basis for close and lasting customer relationships. In accordance with this, SHIELD uses available potential in order to keep on growing in a dynamic competitive environment. And at the same time, SHIELD stands for innovative and high quality fire protection systems.

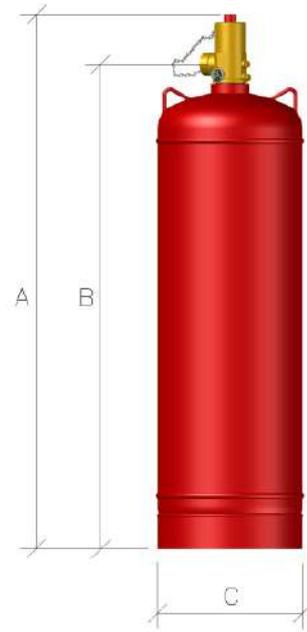
We invite you to explore and visit our website www.shieldglobal.com. You can also send us your feedback and inquiry through our user-friendly online forms.

In line with SHIELD policy for continuous product development, SHIELD has the right to change specifications without prior notice. Images shown in this catalogue are for illustrations purposes only.

SHIELD1230 CYLINDER ASSEMBLY

DESCRIPTION

The cylinder assembly comprises of a cylinder factory fitted with a valve and syphon tube, filled with FK-5-1-12 and super-pressurized with dry nitrogen to 25 Bar @ 21°C. (360 psi @ 70°F). Cylinders are available in various sizes such as 16.7L, 28.3L, 52L, 106L, 147L, 180L and 369L. All these cylinders are manufactured in accordance with DOT 4BW500.



CYLINDER ASSEMBLY

The filled and pressurized cylinder chosen location should protect against direct sunlight, mechanical, chemical or other types of damage. The suppression systems temperature limit from 0°C (32°F) to 50°C (122°F).

CYLINDERS DIMENSIONS & FILL RANGE

Size (L)	Part Number	Valve Size (in)	Height (mm), A	Height (mm), B	Cylinder Diameter (mm), C	Min Fill (KG)	Max Fill (KG)	Nominal Tare Weight (KG)
16.7	SD-17FK5-01	1	653 (25.7")	564 (22.2")	228.6(9")	8.4	20	17.3
28.3	SD-28FK5-01	1	954 (37.6")	865 (34")	228.6(9")	14.2	33.9	24.9
52	SD-52FK5-02	2	721 (28.4")	597 (23.5")	406 (16")	26.1	62.4	52.4
106	SD-106FK5-02	2	1159 (45.6")	1029 (40.5")	406 (16")	53.1	127.2	78.6
147	SD-147FK5-02	2	1494 (58.8")	1364 (53.7")	406 (16")	73.6	176.4	100.1
180	SD-180FK5-02	2	1774 (69.8")	1644 (64.7")	406 (16")	90.1	216	116.3
369	SD-369FK5-03	3	1734 (68.3")	1569 (61.8")	610 (24")	184.6	442.8	241.3



VALVE ASSEMBLY

These three types of valves operate (1 inch, 2 inch and 3 inch) by means of pressure differential piston. The valves incorporated with the features to enable it to be connected with removable electrical, manual and pneumatic actuator for actuation purpose.



TECHNICAL INFORMATION

Description	Valve Size		
Size	25mm (1 inch)	50mm (2 inch)	80mm (3 inch)
Part Number	SD-HV0025-GP	SD-HV0050-GP	SD-HV0080-GP
Outlet	1 inch BSPP	2 inch BSPP	3 inch – 12UN-2A
Material	Brass	Brass	Brass
Safety Disc Pressure	53.4 bar (774 psi)		
Working Pressure	33.4 bar (484 psi)		
Gauge Port	½ inch NPT	½ inch NPT	½ inch NPT
Equivalent Length	6.10 m	10.67 m	25.91 m

PRESSURE GAUGE

There are two types of pressure gauge to be used in the HFC-227ea system namely:

1. Pressure gauge complete with Contact Switch (Part Number: SD-PGCS-BT-KEL), Pressure gauges with contact switch will give signal if pressure drops below 19.9 Bar (290 psi).

TECHNICAL DATA

Description	Specification
Part Number	SD-PGFK5-MCO SD-PGGK5-KEL
Body	Stainless Steel Case
Mechanical Gauge Materials	Stainless Steel Spiral Wound Bourdon Tube
Gauge Size	41 mm (1.6 inch)
Pressure Range	0 – 48.3 Bar (0 – 700 psi)
Std. Connection	1/8 inch NPT



PRESSURE GAUGE

TECHNICAL DATA

Description	Specification
Part Number	SD-PGCS-BT-FK-KEL
Body	Stainless Steel Case
Mechanical Gauge Materials	Stainless Steel Spiral Wound Bourdon Tube
Gauge Size	41 mm (1.6 inch)
Pressure Range	0 – 48.3 Bar (0 – 700 psi)
Std Output Cable	18 AWG type SXL wire
Std. Connection	1/8 inch NPT



PRESSURE GAUGE COMPLETE WITH CONTACT SWITCH

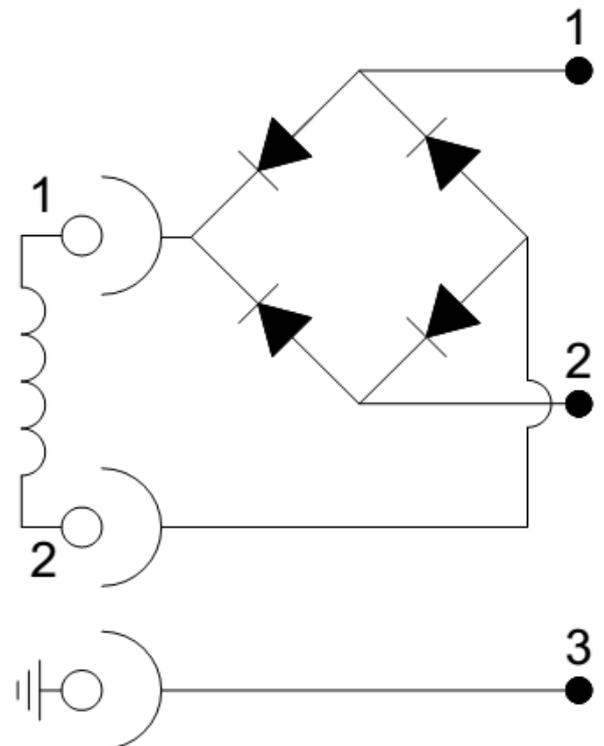


ELECTRICAL ACTUATOR (BRIDGE RECTIFIER)

The electrical actuator is connect to the top of the cylinder discharge valve (place between valve and manual actuator) by hand tight only. The electrical actuator requires 24V DC for operation.

TECHNICAL DATA

Description	Specification
Part Number	SD-EA-BR0025
Body Material	Mild Steel, Electroless Nickel Plated
Actuation Pin	Stainless Steel
Base nut	Brass CZ121
Retaining Clip	Beryllium Copper
Actuation Type	Latching
Reset Method	Via Reset Tool Supplied
Connection	1 inch BSPP (Brass End Fitting)
Nominal Voltage	24 Volts DC
Min Actuation Voltage	65% of nominal voltage
Nominal Current	0.25 A
Max Monitoring Current	25 mA
Manual Actuation Force	50N (11.24 lbf)
Nominal Pin Travel	4.4 mm (0.17 inch)
Electrical Connection	3-pin PG 9.5mm Hirschmann DIN Plug Connector
Back EMF Protection	Bridge Rectifier
IP Rating	IP54
Size	104mm (L) x 90mm (W) 4.09 inch(L) x 3.54 inch(W)



ELECTRICAL ACTUATOR & WIRING DIAGRAM

MANUAL ACTUATOR

The manual actuator features a push button that used to depress the valve core and releases pressure from the cylinder discharge valve. This hardware is designed to be fitted on the top of the cylinder valve assembly or electrical actuator by *hand tight only*.

TECHNICAL DATA

Description	Specification
Part Number	SD-MA0025
Body	Brass C3604BD
Push Button	Brass C3604BD
Safety Pin	Stainless Steel
Piston Rod	Brass C3604BD
Overall Size	69 mm (L) x 41mm (Diameter) 2.72 inch (L) x 1.61 inch (Diameter)
Min Actuation Force	40 N (8.99 lbf)
Working Temperature Range	0°C to 50°C (0°F to 122°F)
Inlet Thread Connection	1" BSPP



MANUAL ACTUATOR

PNEUMATIC ACTUATOR

The pneumatic actuator features a pneumatically driven piston that used to depress the valve core and releases pressure from the cylinder discharge valve. This hardware is designed to be fitted on the top of the cylinder valve assembly by *hand tight only*. The pressure from the master cylinder is used to actuate the cylinder discharge valve of slave cylinder via flexible hose.

TECHNICAL DATA

Description	Specification
Part Number	SD-PA0025
Body	Brass C3604BD
Push Button	Brass C3604BD
Safety Pin	¼" NPT Female
Overall Size	48mm (L) x 41mm (Diameter) 1.89 inch (L) x 1.61 inch (Diameter)
Min Actuation Force	0.7 Bar (10.15 psi)
Working Temperature Range	0°C to 50°C (0°F to 122°F)
Inlet Connection	1" BSPP
Outlet Connection	¼" BSPP



PNEUMATIC ACTUATOR



DISCHARGE HOSE

The discharge hose is equipped with a female swivel fitting at the inlet and enable to connect the cylinders to the manifold in multiple cylinder arrangements. This facility has enables cylinder to be disconnected during maintenance without any effort to remove other manifold connection and pipework.

TECHNICAL DATA

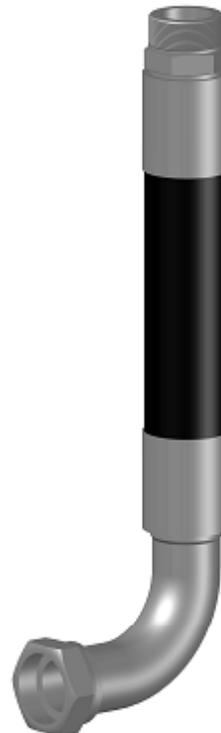
Description	Specification
Part Number	SD-DH0025
Hose Material	One braided high tensile steel wire oil resistant synthetic rubber core to EN 853 Type 1SN
Connection	1 inch NPT Male (Carbon steel) 1 inch BSPP Female 90° Swivel (Carbon steel)
Min Bend Radius	140mm (5.5 inch)
Max Working Pressure	90bar (1300 psi)
Temperature Range	-40°C to + 100°C (-40°F to 212°F)
Overall Size	405mm (L) x 92mm (W) 15.9 inch (L) x 3.6 inch (W)
Equivalent Length	3.14 m



1 INCH DISCHARGE HOSE

TECHNICAL DATA

Description	Specification
Part Number	SD-DH0050
Hose Material	Two braided high tensile steel wire oil resistant synthetic rubber core to EN 853 Type 2SN
Connection	2 inch NPT Male (Carbon steel) 2 inch BSPP Female 90° Swivel (Carbon steel)
Min Bend Radius	600mm (23.6 inch)
Max Working Pressure	90bar (1305 psi)
Temperature Range	-40°C to + 100°C (-40°F to 212°F)
Overall Size	530mm (L) x 155mm (W) 20.9 inch (L) x 6.1 inch (W)
Equivalent Length	5.36 m



2 INCH DISCHARGE HOSE



DISCHARGE HOSE

The discharge hose equipped with check valve is used to connect the 3 inch cylinder discharge valve outlet and manifold..

TECHNICAL DATA

Description	Specification
Part Number	SD-DHCV0080
Hose Material	Double braid 304 stainless steel corrugated hoses
Outlet Connection	3 inch NPT Male
Inlet Connection	3 inch BSPP Female 90° Tube Bend
Min Bend Radius	750 mm (29.5 inch)
Max Working Pressure	35bar (508 psi)
Overall Size	619 mm (L) x 280 mm (W) 24.4 inch (L) x 11 inch (W)
Equivalent Length	15.85 m



3 INCH DISCHARGE HOSE C/W CHECK VALVE

FLEXIBLE HOSE

The flexible hose is used to connect between the master cylinder valve port and slave cylinder pneumatic actuator and slave to slave cylinder pneumatic actuator. This flexible hose is act as a pressure connector.

TECHNICAL DATA

Description	Specification
Part Number	SD-FLXHS0015
Hose Material	One braided high tensile steel wire oil resistant synthetic rubber core to EN 853 Type 1SN
Connection	¼ inch BSPP Female Swivel
Min Bend Radius	38 mm (1-1/2 inch)
Max Working Pressure	225 Bar (3263psi)
Min. Burst Pressure	900 Bar (13000 psi)
Length	710 mm (28 inch)
Diameter	6.3 mm (¼" inch)



FLEXIBLE HOSE



VALVE OUTLET ADAPTER

3 inch valve outlet adaptor (Part No: SD-VOA0080) is available for the use to connect 369L cylinder valve outlet. It is made of mild steel. The equivalent length is 0.55 m.



3 INCH VALVE OUTLET ADAPTER

Description	Specification				
	1" NPT	2" NPT	3" NPT	3" BSP	3" Groove
Part Number	SD -THRD -1	SD -THRD -2	SD -THRD -3	SD -VOA0080	SD -GRVD -3
Material	Brass		Mild steel		
Connection	1"BSP X 1" NPT	2"BSP X 2" NPT	3.5 inch – 12UN X 3" NPT	3.5 inch – 12UN X 3" BSP	3.5 inch – 12UN X 3" Groove
Overall Size	68mm (L) x 45mm (W) 2.67 inch (L) x 1.77 inch (W)	79mm (L) x 76mm (W) 3.11 inch (L) x 3 inch (W)	108 mm (L) x 118 mm (W) 4.25 inch (L) x 4.65 inch (W)		

CHECK VALVES

Check Valves are hardware specially designed to be used when two or more cylinders are manifolded together with one common discharge piping configuration. The purpose of the check valve is to prevent loss of agent through manifold when any of the cylinder are not connected at the time of system discharge.



1 INCH & 2 INCH CHECK VALVE

TECHNICAL DATA

Description	Specification	
	25mm (1 inch)	50mm (2 inch)
Part Number	SD-CV0025	SD-CV0050
Body	Brass C3604BD	
Spring	Stainless Steel 304	
Stem	Stainless Steel 304	
Seal	O- Ring (NBR)	Teflon
Piston Plate	Brass C3604BD	
Overall Size	73mm (L) x 55mm (W) 2.9 inch (L) x 2.2 inch (W)	92mm (L) x 76mm (W) 3.6 inch x 3 inch (W)
Inlet Thread	1 inch NPT Female	2 inch NPT Female
Outlet Thread	1-1/2 inch NPT / BSPT Male	2 inch NPT / BSPT Male
Equivalent Length	0.4 m	6.7 m



DISCHARGE NOZZLES

Nozzles are devices through which the agent is discharged within the protected enclosure. Nozzles are made of brass with female NPT threads. Nozzles are supplied in 180° and 360° and available in size ½ inch, ¾ inch, 1 inch, 1 ¼ inch, 1 ½ inch and 2 inch. The nozzle can be installed either pendent or upright.



180° AND 360° DISCHARGE NOZZLE

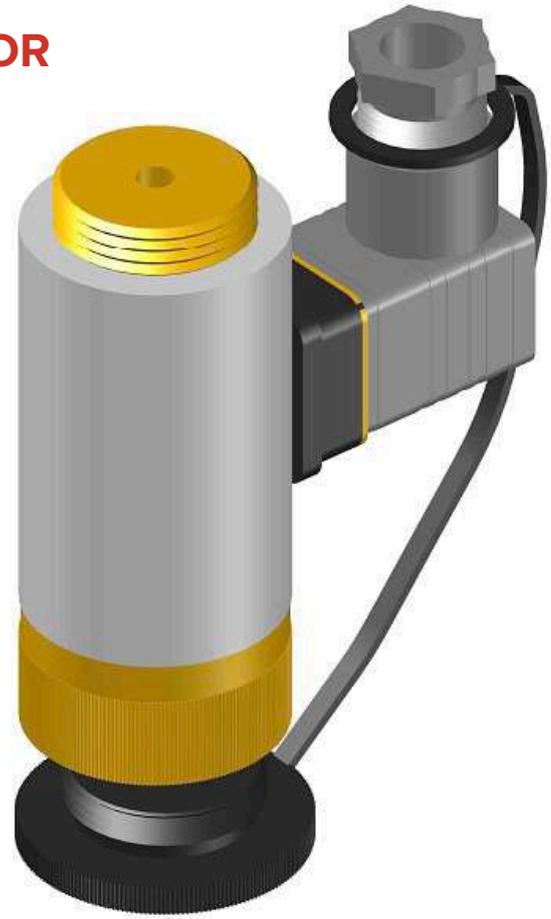
TECHNICAL DATA

Nozzle Size	Part Number	Type	Port	Nozzle Material	Type of Thread	Drill Size Range
15 mm (½ inch)	SD-FK5-N180-15	180°	7	Brass	NPT / BSPT	2.4 - 5.3 mm
20 mm (¾ inch)	SD-FK5-N180-20	180°	7	Brass	NPT / BSPT	3.1 - 7.0 mm
25 mm (1 inch)	SD-FK5-N180-25	180°	7	Brass	NPT / BSPT	3.9 - 9.0 mm
32 mm (1 ¼ inch)	SD-FK5-N180-32	180°	7	Brass	NPT / BSPT	5.2 - 11.8 mm
40 mm (1 ½ inch)	SD-FK5-N180-40	180°	7	Brass	NPT / BSPT	6.0 - 13.8 mm
50 mm (2 inch)	SD-FK5-N180-50	180°	7	Brass	NPT / BSPT	7.7 - 17.7 mm
15 mm (½ inch)	SD-FK5-N360-15	360°	16	Brass	NPT / BSPT	1.6 - 3.5 mm
20 mm (¾ inch)	SD-FK5-N360-20	360°	16	Brass	NPT / BSPT	2.1 - 4.6 mm
25 mm (1 inch)	SD-FK5-N360-25	360°	16	Brass	NPT / BSPT	2.6 - 5.9 mm
32 mm (1 ¼ inch)	SD-FK5-N360-32	360°	16	Brass	NPT / BSPT	3.4 - 7.8 mm
40 mm (1 ½ inch)	SD-FK5-N360-40	360°	16	Brass	NPT / BSPT	4.0 - 9.1 mm
50 mm (2 inch)	SD-FK5-N360-50	360°	16	Brass	NPT / BSPT	5.1 - 11.7 mm



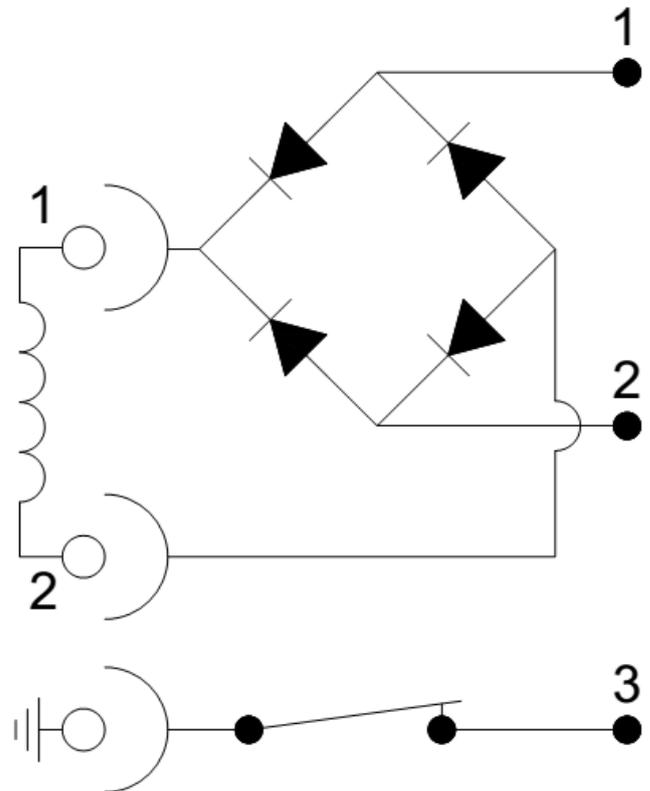
REMOVABLE ELECTRICAL ACTUATOR C/W SUPERVISION SWITCH

This device incorporated with active detection switch and design to indicate proper placement of the electrical actuator. It is mount direct to discharge valve the body of the electrical actuator (between discharge valve and manual actuator). If the electrical actuator is not properly fitted or removed away from the discharge valve, it will trigger an audible and visual alarm on the control panel to alert the user or maintenance personnel. The control panel should be wired for active detection.



TECHNICAL DATA

Description	Specification
Part Number	SD-REA-SS
Body Material	Mild Steel, Electroless Nickel Plated
Actuation Pin	Stainless Steel
Base Nut	Brass CZ121
Retaining Clip	Beryllium Copper
Actuation Type	Latching
Reset Method	Via Reset Tool Supplied
Connection	1 inch BSPP (Brass End Fitting)
Nominal Voltage	24 Volts DC
Min Actuation Voltage	65% of nominal voltage
Nominal Current	0.25 A
Max Monitoring Current	25 mA
Manual Actuation Force	50N (11.24 lbf)
Nominal Pin Travel	4.4 mm (0.17 inch)
Electrical Connection	DIN 43 650-A / ISO 440 3PIN (4-pin PG 9.5mm Hirschmann DIN Plug Connector)
Back EMF Protection	Bridge Rectifier
IP Rating	IP54
Size	104mm (L) x 90mm (W) 4.09 inch(L) x 3.54 inch(W)



ELECTRICAL ACTUATOR COMPLETE WITH SUPERVISION SWITCH & WIRING DIAGRAM



EXTERNAL MONITORING SWITCH

This device incorporated with push button switch and design to indicate proper placement of the electrical actuator. It is mount direct to the body of the electrical actuator. If the electrical actuator is not properly fitted or removed away from the discharge valve, it will trigger an audible and visual alarm on the control panel to alert the user or maintenance personnel for proper system functionality.



EXTERNAL MONITORING SWITCH

TECHNICAL DATA

Description	Specification
Part Number	SD-EMS0025
Housing Material	Unreinforced Nylon 6 Natural color Grade
Housing Cover	PA 1323 NC
Electrical Connector	Pluggable terminal block
Cable Gland Material	Nylon
Cable Gland Thread	½ inch NPT
Switch Plunger	Brass with Chrome Plating
Switch Frame	Stainless Steel
Operating Temperature	-10°C to 70°C (14°F to 158°F)
Power Level	0.1A @ 28 VDC



CYLINDER BRACKET

The cylinder bracket assembly is made of mild steel. It consists of one Unistrut channel, M10 stud, wing nuts and half strap bracket. It is used to hold the cylinder securely in position against the reaction force of the FK-5-1-12 cylinder discharge. The cylinder must be mounted vertically and resting firmly on the floor. 16.7L, 28.3L, 52L, 106L, 147L, 180L and 369L required two set of bracket assemblies for this safety purpose.



CYLINDER BRACKET

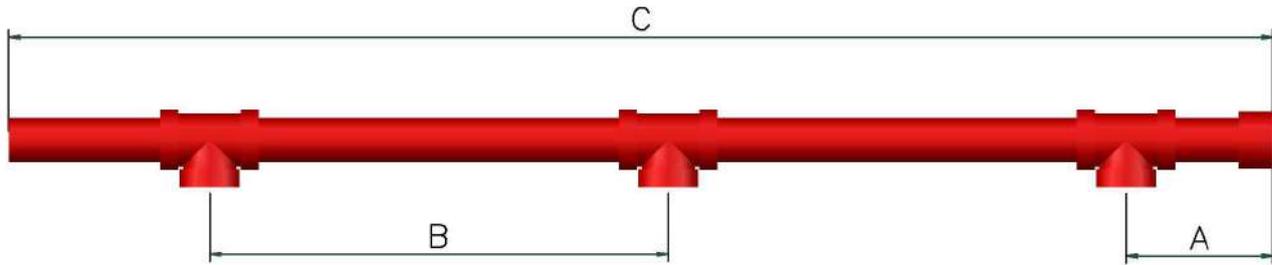
TECHNICAL DATA

Description	Specification
Material	Mild Steel
Paint	Epoxy Powder Coating (Black)
Mounting	Unistrut Channel

Part Number	Cylinder Size	Unistrut Channel Length
SD-CBKT-400	16.7L & 28.3L	400 mm (11.8 inch)
SD-CBKT-600	52L, 106L, 147L, 180L	600 mm (23.6 inch)
SD-CBKT-790	369L	790 mm (31.1 inch)

MANIFOLDS

Manifold is a steel pipework where contents of multiple cylinders discharged and direct connected to the appropriate pipe distribution system. The manifold does not include check valve.



MANIFOLD

TECHNICAL DATA

Description	No of Inlet	Inlet Thread Size	Part No.	Cylinder Size (L)	Inlet to End Cap (A)mm	Inlet to inlet (B)mm	Overall Length (C)mm
65mm end manifold Assy	2	1 ½ in. NPT/BSPT	SD-MF65-40-2	16.7-28.3	150(6")	350(14")	650(25.6")
65mm end manifold Assy	3		SD-MF65-40-3	16.7-28.3	150(6")	350(14")	1000(39.4")
65mm end manifold Assy	4		SD-MF65-40-4	16.7-28.3	150(6")	350(14")	1350(53.1")
80mm end manifold Assy	2	2 ½ in. NPT/BSPT	SD-MF80-65-2	52-180	150(6")	508(20")	808(31.8")
80mm end manifold Assy	3		SD-MF80-65-3	52-180	150(6")	508(20")	1316(51.8")
80mm end manifold Assy	4		SD-MF80-65-4	52-180	150(6")	508(20")	1824(71.8")
80mm end manifold Assy	5		SD-MF80-65-5	52-180	150(6")	508(20")	2332(91.8")
80mm end manifold Assy	6		SD-MF80-65-6	52-180	150(6")	508(20")	2840(111.8")
100mm end manifold Assy	2		3 in. NPT/BSPT	SD-MF100-65-2	52-180	150(6")	508(20")
100mm end manifold Assy	3	SD-MF100-65-3		52-180	150(6")	508(20")	1316(51.8")
100mm end manifold Assy	4	SD-MF100-65-4		52-180	150(6")	508(20")	1824(71.8")
100mm end manifold Assy	5	SD-MF100-65-5		52L-180	150(6")	508(20")	2332(91.8")
100mm end manifold Assy	6	SD-MF100-65-6		52L-180	150(6")	508(20")	2840(111.8")
100mm end manifold Assy	2	3 in. NPT/BSPT		SD-MF100-80-2	369	150(6")	711(28")
100mm end manifold Assy	3		SD-MF100-80-3	369	150(6")	711(28")	1722(68")
100mm end manifold Assy	4		SD-MF100-80-4	369	150(6")	711(28")	2433(96")
150mm end manifold Assy (Flange)	2	3 in. NPT/BSPT	SD-MF150-80-2	369	150(6")	711(28")	1061(42")
150mm end manifold Assy (Flange)	3		SD-MF150-80-3	369	150(6")	711(28")	1772(70")
150mm end manifold Assy (Flange)	4		SD-MF150-80-4	369	150(6")	711(28")	2483(98")
150mm end manifold Assy (Flange)	5		SD-MF150-80-5	369	150(6")	711(28")	3192(126")
150mm end manifold Assy (Flange)	6		SD-MF150-80-6	369	150(6")	711(28")	3905(154")





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