AG-IND-PB PAINT SPRAY BOOTHS SYSTEM

Pre-engineered fixed dry chemical fire detection and suppression system for paint spray booths / 7.7 to 2204 lbs (3.5 to 1000 kg) / Total flooding and local application

Data sheet 13228 Rev.00

Product description

The AG-IND-PB dry chemical system is a pre-engineered fixed fire suppression system specifically developed for the protection of paint booths. These installations present a high fire risk due to the simultaneous presence of combustible materials, flammable vapors, paint spraying, electrical equipment, and forced ventilation. This combination can result in rapid fire initiation and spread, requiring specific protection systems integrated with the ventilation system.

Dry chemical provides rapid and effective initial fire suppression, making it particularly suitable for equipment operating under demanding conditions. Its effectiveness is mainly due to the interruption of the chemical chain reaction of combustion, complemented by the effects of flame smothering and reduction of thermal radiation.

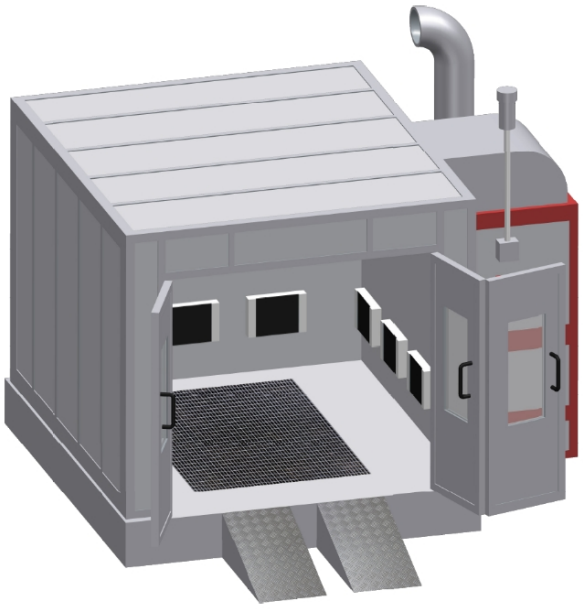
The system can operate by total flooding and/or local application, depending on the design of the paint booth and the amount of extinguishing agent required. AG Fire Sprinkler's wide range of cylinder and dry chemical tank sizes makes it possible to design optimized installations tailored to the specific requirements of each paint booth.

One or more stored-pressure cylinders, as well as attached-pressure tanks, can be installed, with working pressures of 217 or 363 psi (15 or 25 bar). The system offers various activation methods: manual, electrical, thermal, mechanical, and thermo-mechanical. For fully autonomous and automatic operation, the mechanical detection system using fusible links or thermal bulbs must be incorporated.

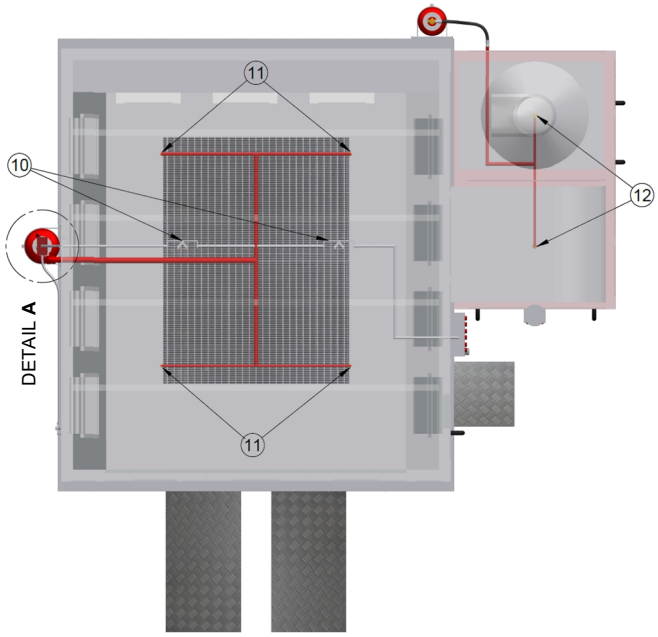
Applications

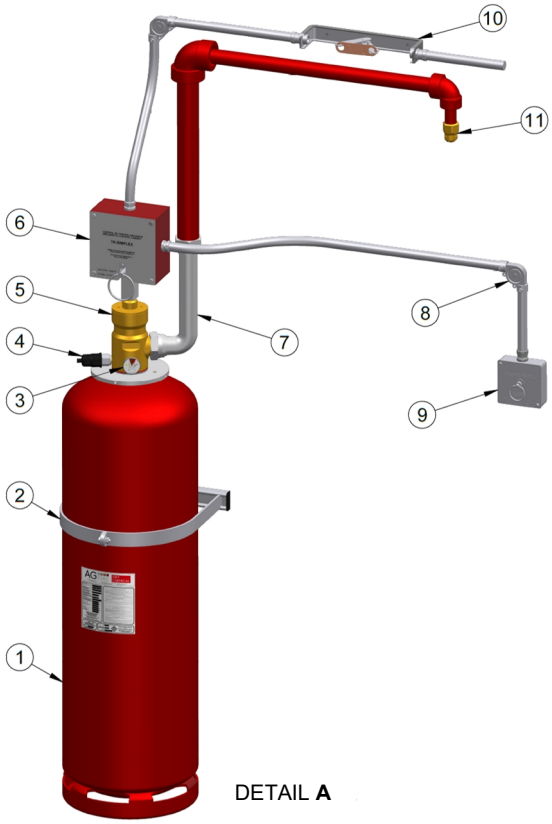
Dry chemical systems provide a high fire suppression capability against Class A fires (ordinary combustible materials), Class B fires (flammable or combustible liquids), and Class C fires (energized electrical equipment). Their most common applications include both enclosed and open-front paint booths, particularly in industrial facilities in the automotive, aerospace, and railway sectors, as well as in general body and paint shops.

AG-IND-PB systems are commonly used to protect the ducts, plenums, and work areas of paint spray booths.



System components





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No.	Description	Type	Qty
1	Cylinder	** See "**Technical Data**" section*	1
2	Fixing brackets	POHCxxx	1
3	Pressure gauge	5140-W40, 5140-W60, UF40I-P24	1
	Pressure gauge with electrical contacts (optional)	5140-E40SP13, 5140-E60SP22, UF40I-P24	
4	Pressure switch (optional)	POPRENA20, POPRENC20, POPRENA50, POPRENC50, APRESA20, APRESC20, APRESA50, APRESC50	1
5	Container valve	RGS-MAM-12-4, RGS-MAM-11-4, RGS-MAM-20, RGA-MAM-40	1
6	Mechanical detection and actuator (optional)	TK-SIMPLEX, TK-COMPLEX, TK-SIMPLEX-C, TK-COMPLEX-C, KCTM, KCTM-C	≥ 1
	Manual actuator	227DM, 227DMS, 227CMCC, 227CMCC-I, 227CMC, 227CNTK, 227CN, 227CNM, KCTM, KCTM-C	
	Electrical actuator (optional)	227SOL, 227SOLC, 227SOLC125, 227SOLC-ADx	
7	Discharge hose	FH-15CO, DH-15, DH-15 I, DH-16, DH-16 I, FH-20HC, FH-40HC	-
8	Pulley elbow	TK-CPx	1
9	Remote manual pull station without tension	TK-DMS, TK-DMS2	-
10	Mechanical detection kit	TK-KIT-x-x	-
11	Total flooding nozzle	AG-TF-1, AG-TFP	-
12	Local application nozzle	AG-TW, AG-DP, AG-SCR	-

Electrical activation (optional)

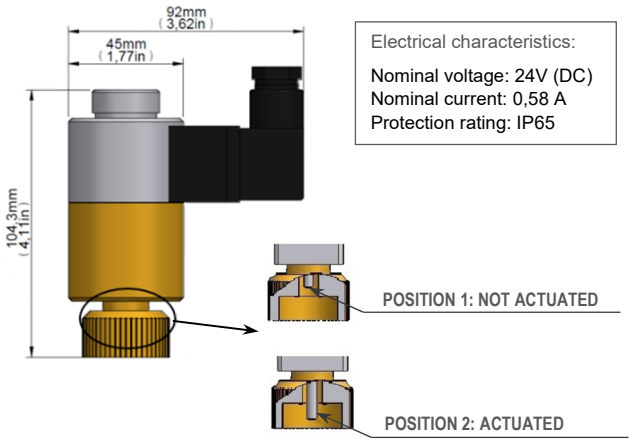
227SOL / 227SOLCR resettable electric actuator head (24VDC)

The purpose of this actuator is to electromagnetically actuate the container valves where it is installed. It is activated when the coil is energized, causing the solenoid to operate and actuate the valve.

This actuator is resettable — the pin returns to the standby position by threading a reset screw into its revolving nut.

The mechanism used to connect it to the container valve includes a revolving nut, allowing it to be properly oriented in the desired direction.

If installation conditions require special protection, please contact AG-IND to inquire about the availability of appropriately rated enclosures.



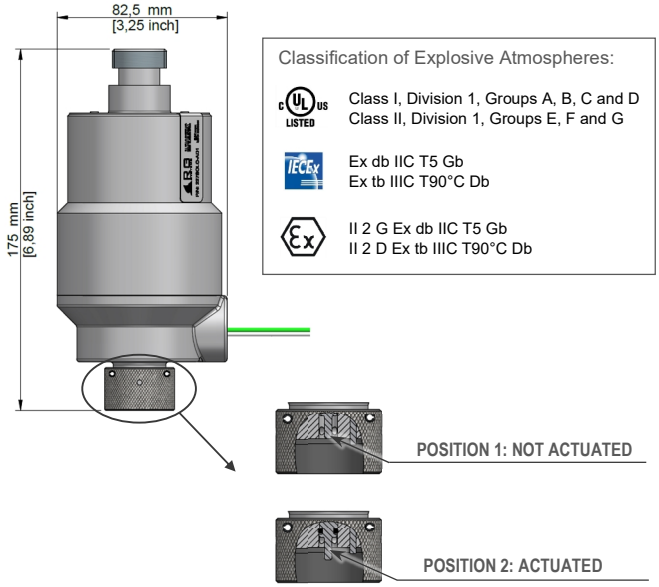
Electrical characteristics:

Nominal voltage: 24V (DC)
Nominal current: 0,58 A
Protection rating: IP65

227SOLC-ADx resettable electric actuator head for use in hazardous locations (24VDC)

This actuator allows the RGS-MAM-03/11-4/12-4/20/40 container valves to be operated electromechanically. It has been designed for installation in environments with explosion risk, incorporating specific protection features and complying with ATEX, IECEx, and UL standards.

The valve coupling mechanism uses a swivel nut, which facilitates correct orientation during installation. In addition, it can be equipped with sensors that allow verification of both the proper installation of the actuator and the system activation.



Classification of Explosive Atmospheres:

Class I, Division 1, Groups A, B, C and D
Class II, Division 1, Groups E, F and G

Ex db IIC T5 Gb
Ex tb IIIC T90°C Db

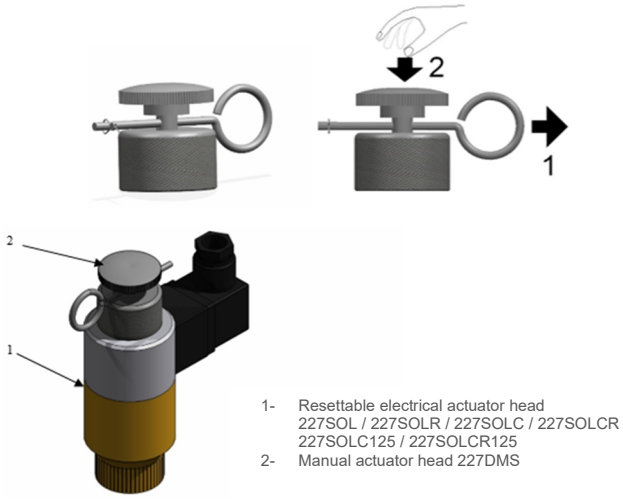
II 2 G Ex db IIC T5 Gb
II 2 D Ex tb IIIC T90°C Db

Manual activation

227DMS manual actuator head

This actuator allows manual activation of the container valves where it is installed. Once the safety pin is removed from the actuator, the push button can be pressed to activate the container valve and initiate discharge.

The 227DMS is connected ONLY to the upper actuation port of the 227SOLR, 227SOLCR and 227SOLCR125 electric actuators, by means of a revolving nut that allows its proper orientation.



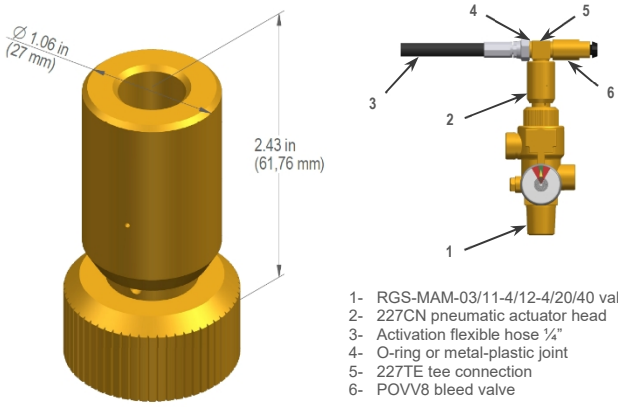
1- Resettable electrical actuator head 227SOL / 227SOLR / 227SOLC / 227SOLCR / 227SOLC125 / 227SOLCR125
2- Manual actuator head 227DMS

Pneumatic activation

227CN pneumatic actuator head

This actuator head allows the container valve to be pneumatically actuated. When the system is activated, the gas pressure from the cartridge or pilot cylinder reaches the actuator head, activating the valve to discharge the extinguishing agent.

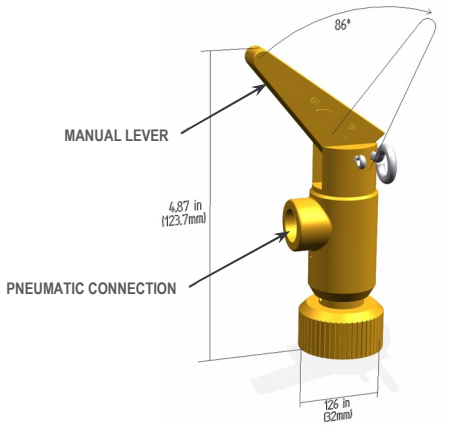
The actuator head is normally connected to the upper actuation port of the cylinder valve, although it can also be connected to the side port on models that incorporate one.



1- RGS-MAM-03/11-4/12-4/20/40 valve
2- 227CN pneumatic actuator head
3- Activation flexible hose ¼"
4- O-ring or metal-plastic joint
5- 227TE tee connection
6- POVV8 bleed valve

227CNM / 227CNMR pneumatic-manual actuator head

This actuator head consists of a combination of a manual actuator and a pneumatic actuator. Its purpose is to operate the valves on which it is installed using either of the two available activation methods.

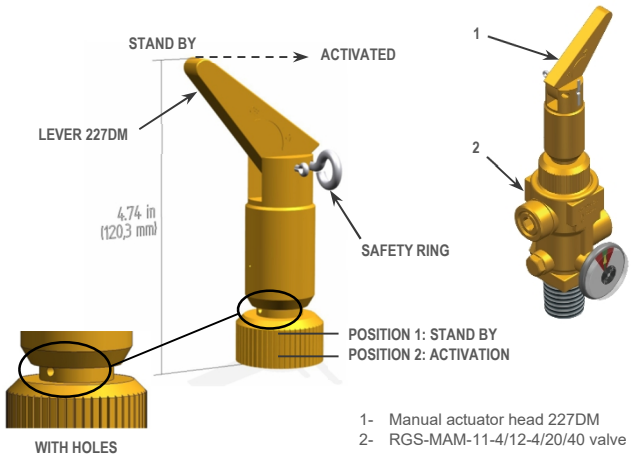


Manual activation

227DM / 227DMR manual actuator head

The function of this actuator is to manually activate the container valves where it is installed. Once the safety ring is removed from the actuator, the manual lever can be turned in the opposite direction.

The 227DM manual actuator can be installed on the upper actuation port of the RGS-MAM-11-4/12-4/20/40 valve, or mounted on top of the electric actuator installed on any RGS-MAM valve. The DMR is installed with the RGS-MAM-03 valve. A swivel nut allows the actuator to be properly orientated.



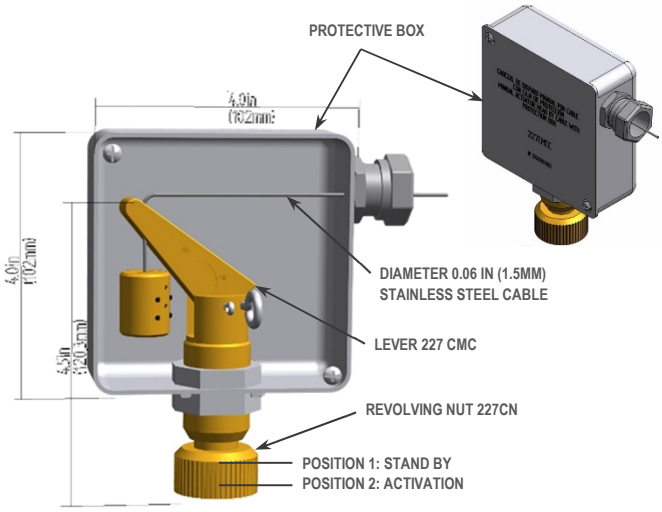
1- Manual actuator head 227DM
2- RGS-MAM-11-4/12-4/20/40 valve

227CMC manual cable-operated actuator head and 227CMCC with protective box

It is used to remotely actuate the extinguishing system. The cable-operated manual actuator head can be installed on the upper actuation port of the RGS-MAM-11-4/12-4/20/40 valve, or on the electric actuator mounted on the RGS-MAM-03/11-4/12-4/20/40. It is connected by cable inside a conduit (protective tube), to the remote manual activation station. The lever end includes a hole to tie the cable. The only difference between the 227CMC and 227CMCC models is that the latter (227CMCC) is housed inside a protective enclosure.

The cable is installed inside a steel pipe, using pulley elbows (TK-CPx) that allow for the directional changes required by obstacles and the elevation variations needed to reach the 227CMC or 227CMCC manual cable-operated actuator head.

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Mechanical detection and activation

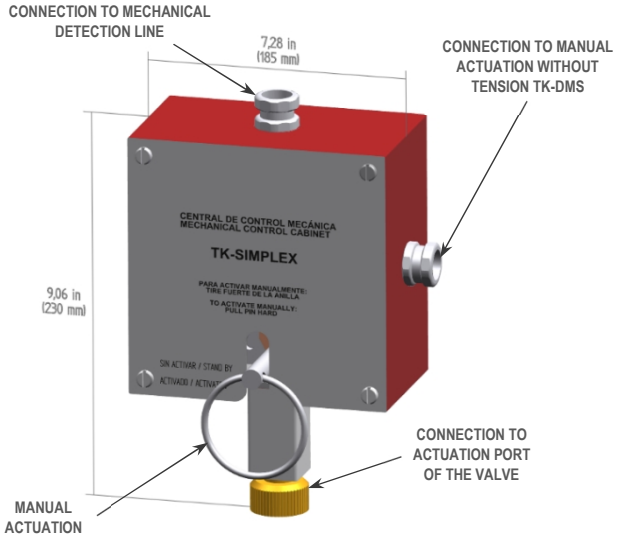
TK-SIMPLEX / TK-SIMPLEX-B /-C mechanical control unit

The mechanical control unit, models TK-SIMPLEX / TK-SIMPLEX-B / TK-SIMPLEX-C, includes a mechanical detection line that releases the system when a fusible link or a thermo bulb is activated due to the temperature rise caused by a fire.

The mechanical control unit has an internal mechanical device capable of actuating the valve core of the container valve where it is installed. It also allows manual activation to release the system in case of emergency.

The difference between the TK-SIMPLEX, TK-SIMPLEX-B and TK-SIMPLEX-C models lies in the valve they are mounted on:

- TK-SIMPLEX is only compatible with RGS-MAM-11-4/12-4/20/40.
- TK-SIMPLEX-B is only compatible with RGS-MAM-03/03A valves.
- TK-SIMPLEX-C is compatible with all valve models.



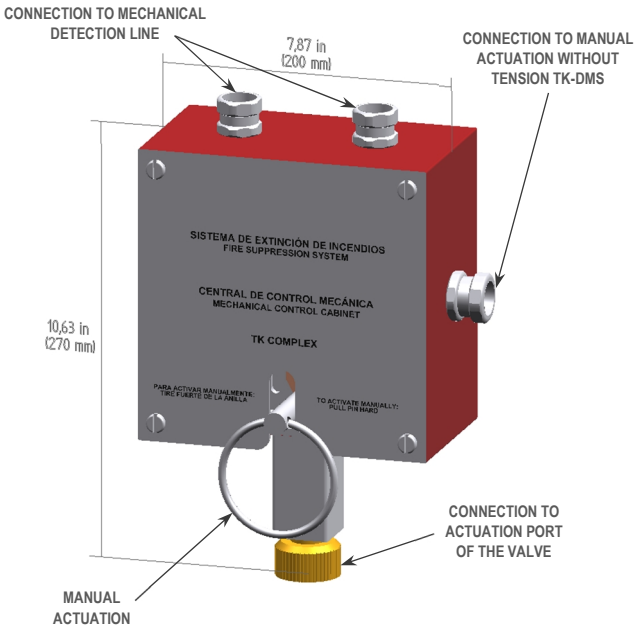
TK-COMPLEX / TK-COMPLEX-B /-C mechanical control unit

The mechanical control unit, model TK-COMPLEX / TK-COMPLEX-B / TK-COMPLEX-C, has two versions: regular detection or cross detection. Both versions include two detection lines. In the regular detection system, the mechanical control unit releases the system when a fusible link or a thermo bulb in either of the two detection lines is activated due to a temperature rise caused by a fire. In the cross-detection system, the mechanical control unit releases the system when at least one fusible link or thermal bulb in both detection lines is activated due to the heat increase caused by a fire.

The mechanical control unit has an internal mechanical device capable of actuating the valve core of the container valve where it is installed. It also allows manual activation to release the system in case of emergency.

The difference between the TK-COMPLEX, TK-COMPLEX-B and TK-COMPLEX-C models lies in the valve they are mounted on:

- TK-COMPLEX is only compatible with RGS-MAM-11-4/12-4/20/40.
- TK-COMPLEX-B is only compatible with RGS-MAM-03/03A valves.
- TK-COMPLEX-C is compatible with all valve models.

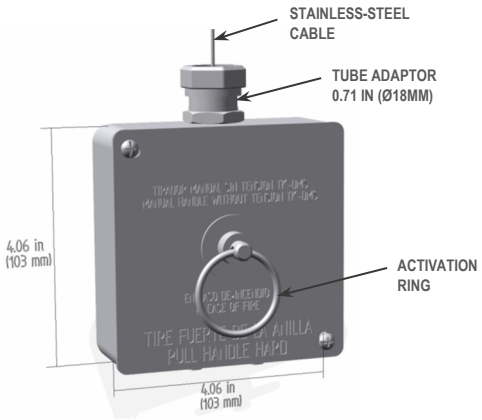


TK-DMS remote manual pull station without tension

This device is used together with the TK-SIMPLEX and TK-COMPLEX mechanical control units, or with the 227CMC or 227CMCC actuators, to enable remote activation of the fire suppression system.

The remote manual activation station is installed in an accessible area, allowing the system to be manually activated when required. The ring must be pulled to tension the cable that will actuate the 227CMC or 227CMCC container valve actuators, thereby activating the fire suppression system.

The TK-DMS2 model has the cable outlet at the rear, allowing it to be recessed into the wall.

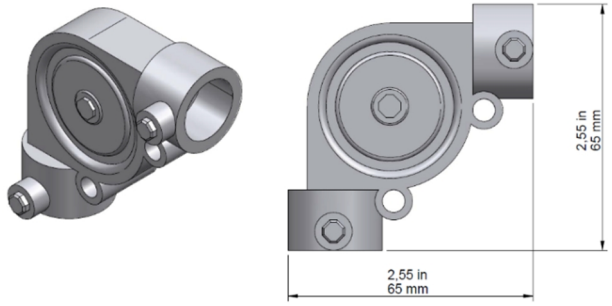


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TK-CPx pulley elbow

The pulley elbow is installed as part of the manual cable-operated actuator head and provides a change of direction with minimal force loss due to friction. Its function is to drive the stainless steel cable to avoid obstacles through the necessary directional changes to connect the remote manual pull station without tension (TK-DMS) with the 227CMC or 227CMCC manual cable actuator.

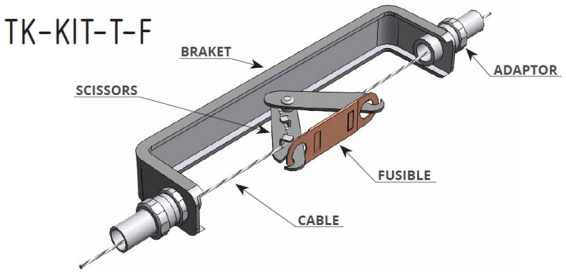
In addition, it connects the detection kits with the mechanical control unit and with all components that operate using detection cable. It contains a small internal bearing to guide the cable and completely eliminate friction.



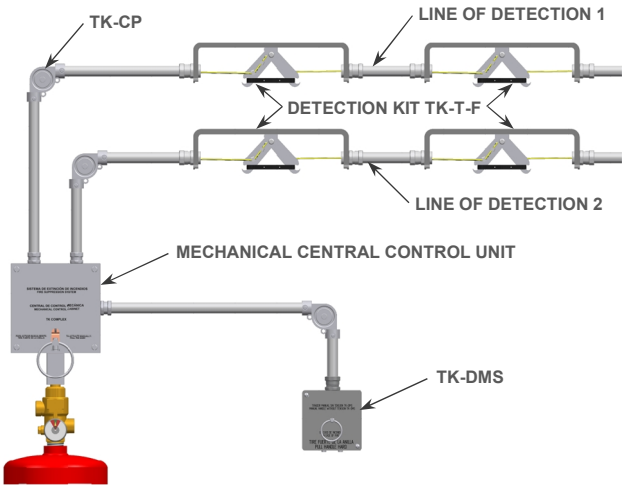
TK-KIT-x-x mechanical detection kits

The purpose of the mechanical detection kit is to detect a fire through temperature by means of a fusible link or a thermo bulb rated for different temperature ranges, all connected by a steel cable.

When the fusible link or thermo bulb breaks at a specific temperature, the cable loosens and activates the mechanical control unit (TK-SIMPLEX-B, TK-SIMPLEX-C, TK-COMPLEX-B, TK-COMPLEX-C) to operate the extinguishing system.



Limitations of the mechanical detection line



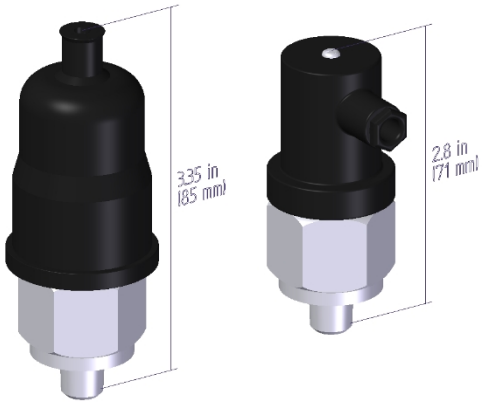
LIMITATIONS OF THE MECHANICAL DETECTION LINE		
Mechanical control unit	**TK-SIMPLEX / TK-SIMPLEX-B/-C**	**TK-COMPLEX / TK-COMPLEX-B/-C**
Maximum cable length in detection line 1	205.9 ft (62,77 m)	205.9 ft (62,77 m)
Maximum cable length in detection line 2	-	205.9 ft (62,77 m)
Maximum number of detection kits in detection line 1	41 units (15 units type TK-KIT-T-B / TK-KIT-T-F + 26 units type TK-KIT-C-B / TK-KIT-C-F / TK-KIT-A-B / TK-KIT-A-F)	41 units (15 units type TK-KIT-T-B / TK-KIT-T-F + 26 units type TK-KIT-C-B / TK-KIT-C-F / TK-KIT-A-B / TK-KIT-A-F)
Maximum number of detection kits in detection line 2	-	41 units (15 units type TK-KIT-T-B / TK-KIT-T-F + 26 units type TK-KIT-C-B / TK-KIT-C-F / TK-KIT-A-B / TK-KIT-A-F)
Maximum number of TK-CP elbow pulleys in detection line 1	42 units	42 units
Maximum number of TK-CP elbow pulleys in detection line 2	-	42 units

ALL ACTUATORS AVAILABLE FOR RGS-MAM CONTAINER VALVES ARE SHOWN ON PAGES 8 AND 9.

Pressure switch (optional)

The pressure switch is a monitoring device that sends an electrical signal to the fire control panel when the pressure in the cylinder drops.

It is factory-supplied preassembled on the cylinder valve, in the corresponding port. Inside the device, there is a dry contact that opens or closes an electrical circuit depending on the pressure condition. There are two variants available: NC (normally closed, opens under pressure) and NO (normally open, closes under pressure).



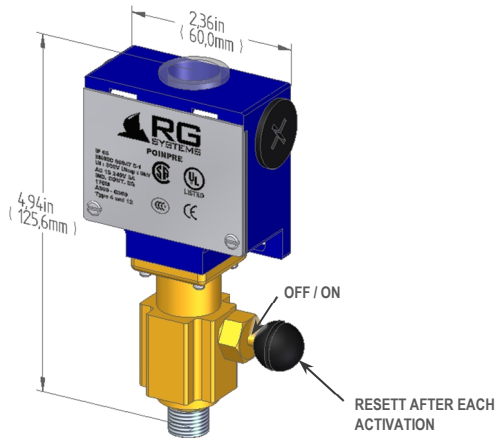
POPRENxxx APRESxxx

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POINPRE pressure switch (optional)

This device detects the discharge of the extinguishing agent as it occurs and generates an electrical signal that allows the fire detection and suppression control panel to identify system activation. It features one NC (normally closed) contact and one NO (normally open) contact, which change state when activated and can be used according to the requirements of the installation.

It also incorporates an interlock mechanism that requires manual resetting after each discharge. Resetting is performed by pulling the ball outward.



ACTUATORS AND SENSORS SUITABLE FOR USE IN EXPLOSIVE ATMOSPHERES ARE AVAILABLE. CONTACT AG FIRE SPRINKLER FOR FURTHER INFORMATION.

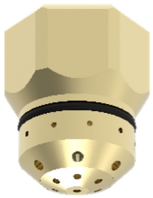
Nozzles

Its function is to discharge the extinguishing agent over the protected area as homogeneously as possible to achieve effective suppression.

The AG-IND-PB system is available with different types of nozzles, designed for the various risk areas of paint booths. The number and type of nozzles required will depend on the installation characteristics, the risk to be protected, and the selected cylinder model.

AG-TF1 work area nozzle

This nozzle is used to protect the work area of paint booths by means of total-flooding dry chemical application. It is threaded onto the discharge piping in a vertical position, allowing uniform distribution of the extinguishing agent.



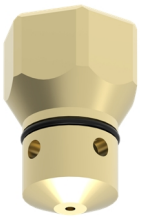
AG-TFP 180º work area nozzle

The AG-TFP nozzle is designed to protect the work area of paint booths by means of total-flooding dry chemical application. It is installed along the upper perimeter of the booth, releasing the dry chemical over the work area.



AG-TW nozzle

The AG-TW nozzle is designed to protect plenums and pits in paint spray booths. It allows the extinguishing agent to be discharged simultaneously in three directions, providing effective coverage of the protected area.



AG-DP duct & plenum nozzle

Designed to protect exhaust ducts and plenums in paint booths. It allows the dry chemical to be discharged longitudinally through the inside of the duct, in the same direction as the airflow, ensuring effective coverage of the interior.

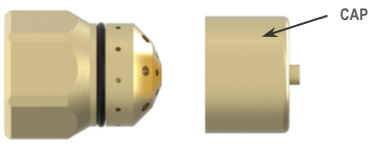


AG-SCR screening nozzle

Developed for open-front paint booths, the AG-SCR nozzle generates a curtain of dry chemical across the front opening, creating a barrier that helps contain and extinguish a fire in the work area.



ALL NOZZLES MUST BE INSTALLED WITH THEIR CORRESPONDING CAP TO PREVENT FOREIGN MATERIALS FROM OBSTRUCTING THE DISCHARGE.



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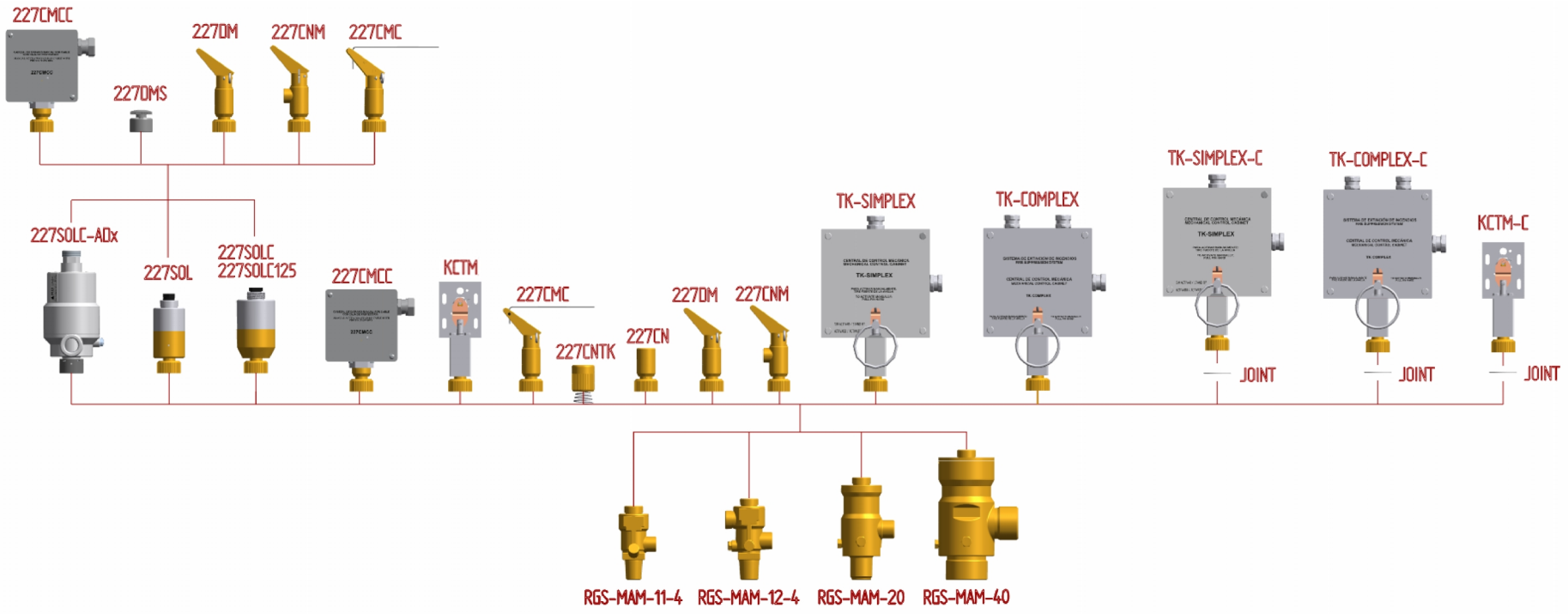
Technical data

DRY CHEMICAL CYLINDERS AND TANKS				
Stored-pressure cylinders				
Model type	**Dry chemical filling lbs (kg)**	**Dry chemical type**	**Number of nozzles**	**Risk type**
INDL-4-KBC	8.82 (4)	KBC	1	Local Application
INDLs-10-ABC	22.1 (10)	ABC	2	
INDLs-10-BC	22.1 (10)	BC		
INDTs-9-ABC	19.8 (9)	ABC	1	Total Flooding
INDL-10-ABC	22.1 (10)	ABC	2	Local Application
INDL-10-BC	22.1 (10)	BC		
INDT-9-ABC	19.8 (9)	ABC	1	Total Flooding
INDL-16-ABC	35.3 (16)	ABC	3	Local Application
INDL-16-BC	35.3 (16)	BC		
INDT-18-ABC	39.7 (18)	ABC	2	Total Flooding
INDL-21-ABC	46.3 (21)	ABC	4	Local Application
INDL-21-BC	46.3 (21)	BC		
INDT-27-ABC	59.5 (27)	ABC	3	Total Flooding
INDTL-36-ABC	79.4 (36)	ABC	4	Total Flooding
			6	Local Application
INDL-36-BC	79.4 (36)	BC		
INDL-42-ABC	92.6 (42)	ABC	8	Local Application
INDL-42-BC	92.6 (42)	BC		
Attached-pressure cylinders				
Model type	**Dry chemical filling lbs (kg)**	**Dry chemical type**	**Number of nozzles**	**Risk type**
INDL-3-KBC	7.7 (3.5)	KBC	1	Local Application
INDL-5-ABC	11.0 (5)	ABC	1	
INDL-5-BC		BC		
INDT-9-ABC	19.8 (9)	ABC	1	Total Flooding
INDL-15-ABC	33.1 (15)	ABC	3	Local Application
INDL-15-BC		BC		
INDL-22-ABC	48.5 (22)	ABC	4	Local Application
INDL-22-BC		BC		
INDT-26-ABC	57.3 (26)	ABC	3	Total Flooding
Attached regulated pressure cylinders				
Model type	**Dry chemical filling lbs (kg)**	**Dry chemical type**	**Number of nozzles**	**Risk type**
INDL-3-KBC	7.7 (3.5)	KBC	1	Local Application
INDL-5-ABC	11.0 (5)	ABC	1	
INDL-5-BC		BC		
INDT-9-ABC	19.8 (9)	ABC	1	Total Flooding
INDL-15-ABC	33.1 (15)	ABC	3	Local Application
INDL-15-BC		BC		
INDL-22-ABC	48.5 (22)	ABC	4	Local Application
INDL-22-BC		BC		
INDT-26-ABC	57.3 (26)	ABC	3	Total Flooding
INDTL-35-ABC	77.2 (35)	ABC	4	
		ABC	6	Local Application
INDL-35-BC		BC	6	Total Flooding
INDLC-48-ABC	105.8 (48)	ABC	8	Local Application
INDLC-48-BC		BC		
INDTC-54-ABC	119.1 (54)	ABC	6	Total Flooding
INDTC-68-ABC	149.9 (68)	ABC	8	Total Flooding
INDLC-72-ABC	158.7 (72)	ABC	12	Local Application
INDLC-72-BC		BC		
INDLC-96-ABC	211.6 (96)	ABC	16	Local Application
INDLC-96-BC		BC		
INDTC-108-ABC	238.1 (108)	ABC	12	Total Flooding
INDTC-136-ABC	299.8 (136)	ABC	16	
Attached-pressure tanks				
Model type	**Dry chemical filling lbs (kg)**	**Dry chemical type**	**Risk type**	
AG-SIDP-B-250	551 (250)	ABC BC KBC	Local Application / Total Flooding	
AG-SIDP-B-300	661 (300)			
AG-SIDP-B-500	1102 (500)			
AG-SIDP-B-750	1653 (750)			
AG-SIDP-B-1000	2204 (1000)			

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Actuators configuration (STORED-PRESSURE)

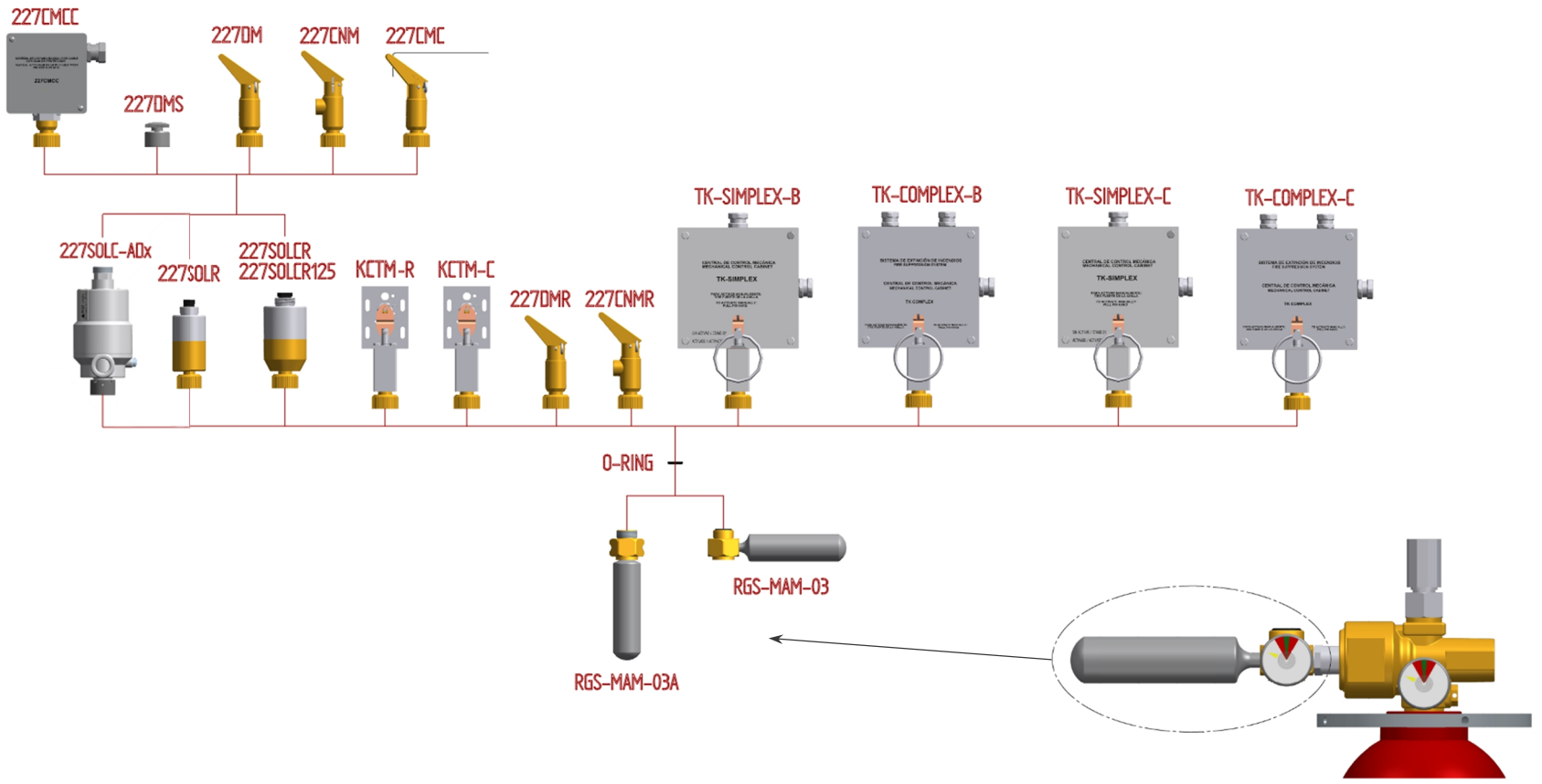
A wide range of actuators is available for the RGS-MAM-11-4/12-4/20/40 container valves used on stored-pressure cylinders. All have the same function: to activate the dry chemical cylinder or tank.



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Actuators configuration (ATTACHED-PRESSURE)

A wide range of actuators is available for the RGS-MAM-03 cartridge valves used on the attached-pressure system. All have the same function: to activate the expellant cylinder to discharge the dry chemical cylinder or tank.



WARNING: This type of system is manufactured and approved for use in fixed dry chemical extinguishing installations. These products are not designed for any other use or purpose. If the product user has any questions regarding the application or use of the product, please contact +34 947 28 11 08. Any unauthorized use or application and/or any other unauthorized modification of the product or its function may cause serious accidents and/or personal injury. AG Fire is not responsible for any unauthorized use of the application.

IMPORTANT: This document is not binding. AG Fire Sprinkler reserves the right to make any changes to the document without prior notice.

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