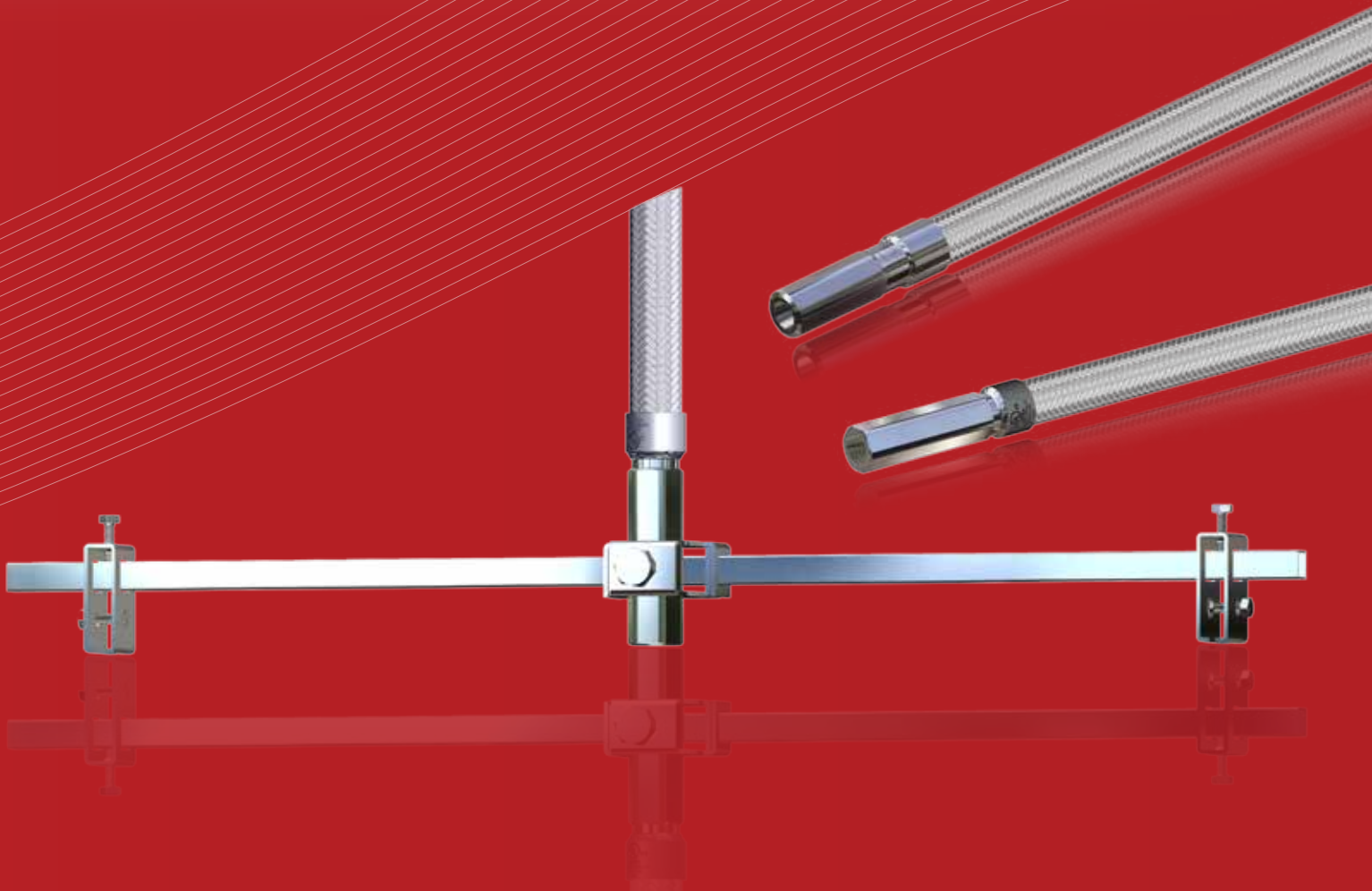


# »»»<sup>®</sup> ARSEN

## SPRINKLER HOSE WITH BRAIDING AND CONNECTION ADAPTER



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## GENERAL EXPLANATIONS

ARSEN-SP sprinkler hose and connection kit can be safely used in fire extinguishing systems due to its structure not being affected by seismic motions and the braided hose's resistance to heat and pressure.

Primary advantages are connecting the sprinkler to the fire line with minimum effort and installing the device easily into ceiling with its connection kit.

Public places like shopping centers, hotels, theaters, cinemas where the response time is really important are where the system is mostly chosen.

There are many advantages using Arsen-SP Sprinkler Hose and Connection Adapter to mount sprinkler systems.

Most important ones are minimum workmanship time provided by easy installation, safer sprinkler systems against seismic motions and adjustability without being dependent upon design of installation lines.



Proficiency and time is needed for adjusting the steel installation line to the desired sprinkler mounting point using elbows, couplings etc.

By using Arsen SP Sprinkler Adapter, it is quite easy to align and tighten sprink side of sprinkler hose with desired point (usually middle point of grid) of ceilings.

Additionally, due to convenient design of hose fixing apparatus, sprink side of hose can be adjusted on vertical axis.

As a result, height of sprinkler head and escutcheon can be adjusted relative to ceilings.

International approvals (UL, FM) for hoses used in sprinkler systems show that needed tests like pressure, temperature, fatigue, vibration etc. are conducted by approving authority, hoses comply technical specification declared and checked in certain time periods whether they are produced according to approved specifications.

# GENERAL SPECIFICATIONS

## Dimensions and Operating Conditions

Approval Type	UL Approved	FM Approved
Hose Diameter	DN 20 - 3/4"	DN 25 - 1"
Connection Diameter	Nipple Side 1" / Sprink Side 1/2"	
Standard Length	600 - 900 - 1200 - 1500 - 1800 mm	
Operating Pressure	20 bar / 290 psi	16 bar / 232 psi
Ambient Temperature Rating	149 °C / 300 °F	
Minimum Bending Radius	70 mm	200 mm
Largest K-Factor	8.0 GPM/psi <sup>1/2</sup>	5.6 GPM/psi <sup>1/2</sup>
Wet – Dry Systems	Both	
Connection to Fire Sprinkler	Direct	

## Material Specifications

Hose	AISI 316L Stainless Steel
Braiding Wire	AISI 304 Stainless Steel
Connections	Carbon Steel (Standard) / Stainless Steel (Optional)
Connection Adapter	Carbon Steel (Zinc Coated)

## Friction Losses and Specifications (UL Approved - DN20)

Model No	Hose Length	Input Diameter	Output Diameter	Max. No of 90° Bends	Equivalent Length	Maximum Pressure
A-SP20-600	0,6m 2ft	1 inch	1/2 inch	2	12m 40ft	20 bar/290 psi
A-SP20-900	0,9m 3ft	1 inch	1/2 inch	3	18m 60ft	20 bar/290 psi
A-SP20-1200	1,2m 4ft	1 inch	1/2 inch	3	21m 71ft	20 bar/290 psi
A-SP20-1500	1,5m 5ft	1 inch	1/2 inch	3	26m 87ft	20 bar/290 psi
A-SP20-1800	1,8m 6ft	1 inch	1/2 inch	3	32m 107ft	20 bar/290 psi

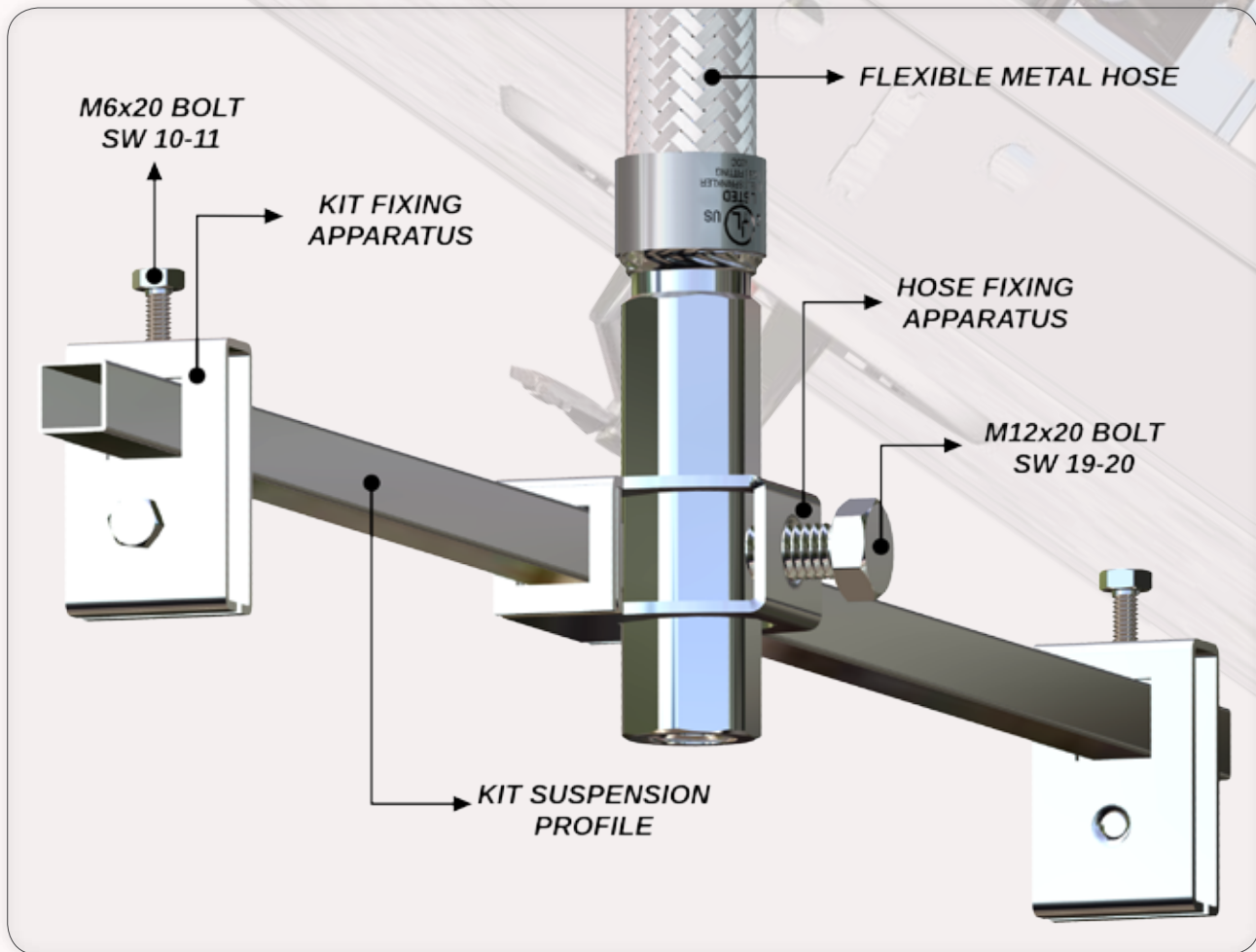
## Friction Losses and Specifications (FM Approved - DN25)

Model No	Hose Length	Input Diameter	Output Diameter	Max. No of 90° Bends	Equivalent Length	Maximum Pressure
A-SP25-600	0,6m 2ft	1 inch	1/2 inch	1	2,7m 9,0ft	16 bar/232 psi
A-SP25-900	0,9m 3ft	1 inch	1/2 inch	2	5,3m 17,4ft	16 bar/232 psi
A-SP25-1200	1,2m 4ft	1 inch	1/2 inch	2	7,9m 25,8ft	16 bar/232 psi
A-SP25-1500	1,5m 5ft	1 inch	1/2 inch	2	10,3m 33,8ft	16 bar/232 psi
A-SP25-1800	1,8m 6ft	1 inch	1/2 inch	4	12,7m 41,8ft	16 bar/232 psi

**Note:** Equivalent lengths are determined based on 1" SCH 40 steel pipe.



## PRODUCT SPECIFICATIONS FOR DN20



A-SP20 sprinkler connection hose and adapter is designed against problems during mounting of sprinkler nozzles. They are delivered with bolts in order to obtain easiest and fastest mounting to ceiling systems specified below.

### Ceiling Specifications

These connections are designed for use in ceilings with grids that meet ASTM C 635 (Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings) and ASTM C 636 (Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels) referenced by the IBC. The three structural classifications are the following: Light-Duty Systems, Intermediate-Duty Systems and Heavy-Duty Systems. These connections have been approved for use in all Intermediate-Duty and Heavy-Duty structural classifications.

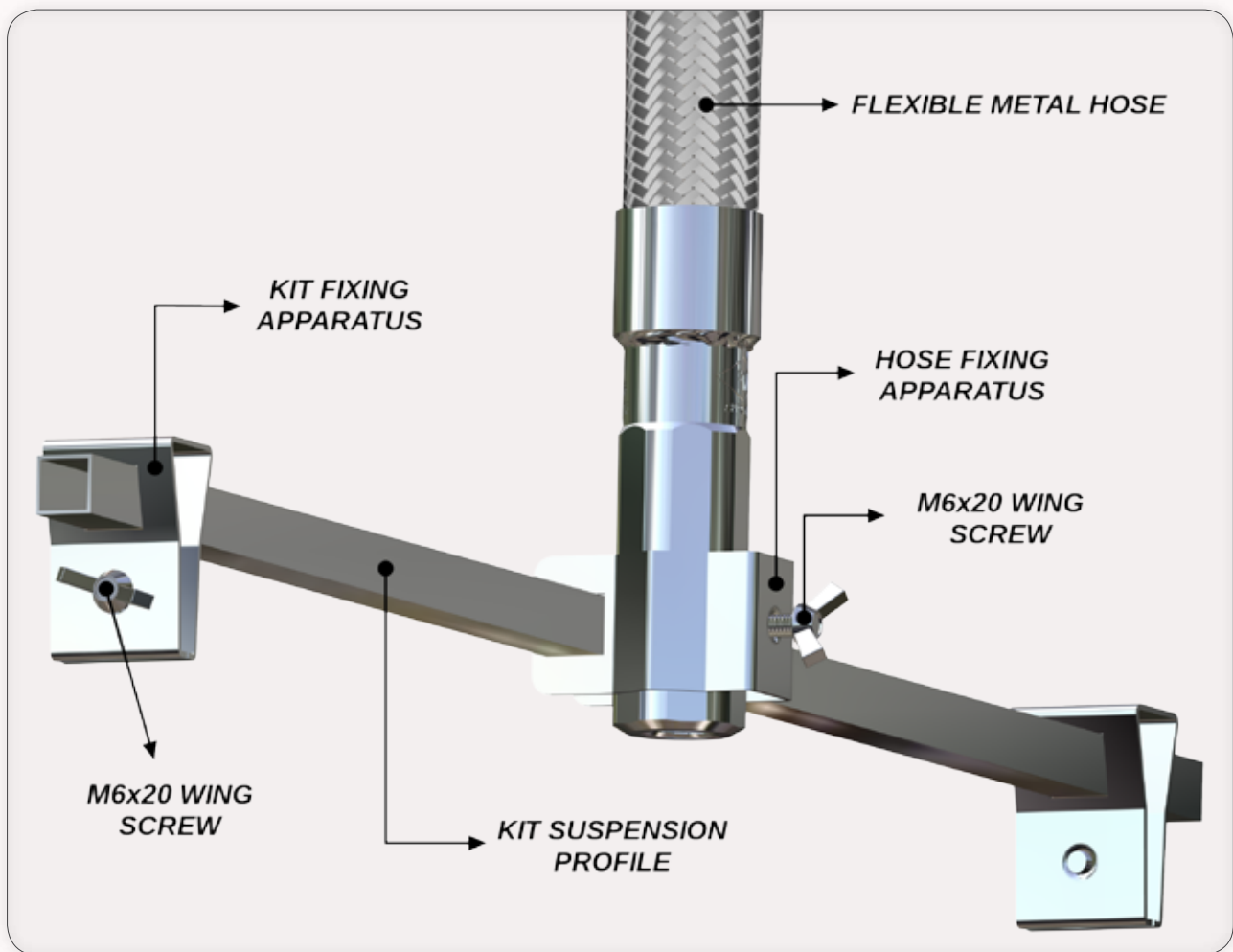
### System Specifications

Arsen A-SP20 products are intended for use in hydraulically designed wet or dry pipe sprinkler connections per NFPA 13, 13R, and 13D guidelines and for direct connection to fire sprinklers.

### Safety Of Sprinkler Under Seismic Motions

It is quite important that safety systems are able to work free of problems. Arsen A-SP20 Flexible Sprinkler Hose Connection reduces the probability of degradation caused by seismic motions.

## PRODUCT SPECIFICATIONS FOR DN25



A-SP25 sprinkler hose and connection adapter is designed against problems during mounting of sprinkler nozzles. It is also possible with our newly designed connection adapters to complete your installations quicker and easier. There is no need to use a wrench during installations anymore. In order to assemble the product only by hand three wing screws are included in the package. (Please see. Installation Instructions - DN25)

### Ceiling Specifications

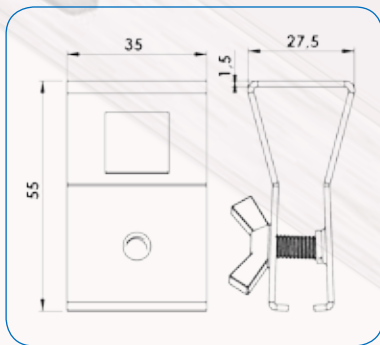
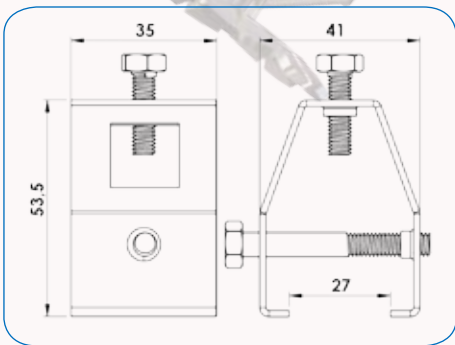
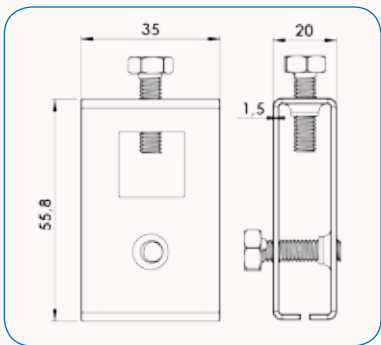
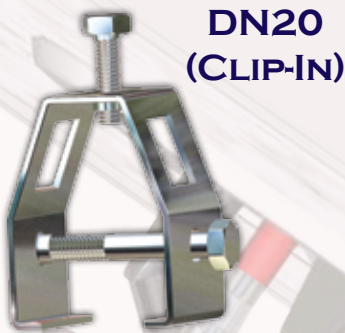
These connections are designed for use in ceilings with grids that meet ASTM C 635 (Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings) and ASTM C 636 (Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels) referenced by the IBC. The three structural classifications are the following: Light-Duty Systems, Intermediate-Duty Systems and Heavy-Duty Systems. These connections have been approved for use in all Intermediate-Duty and Heavy-Duty structural classifications.

### System Specifications

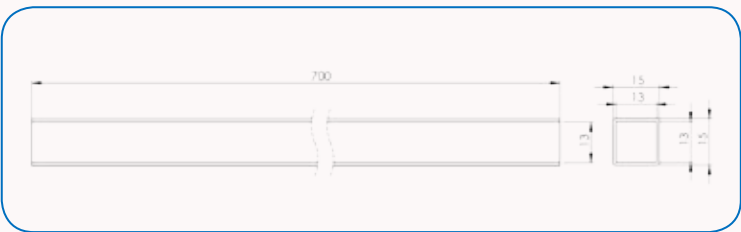
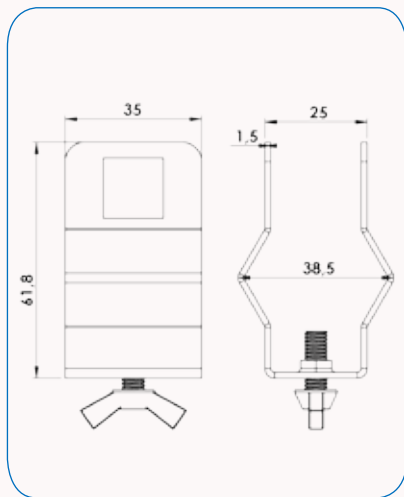
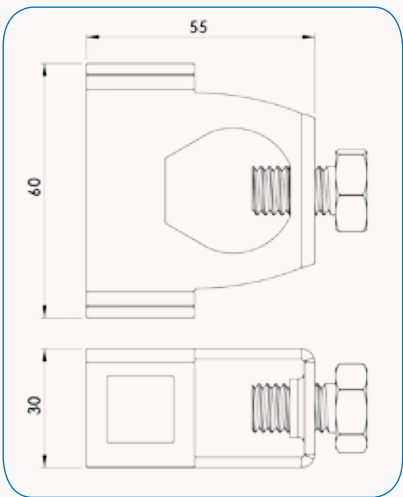
Arsen A-SP products are intended for use in hydraulically designed wet or dry pipe sprinkler connections per NFPA 13, 13R, and 13D guidelines and for direct connection to fire sprinklers.

# CONNECTION ADAPTER APPARATUSES

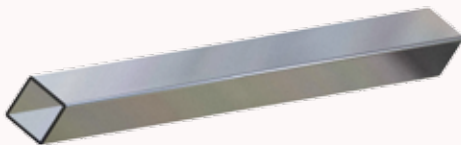
## - Kit Fixing Apparatuses



## - Hose Fixing Apparatuses

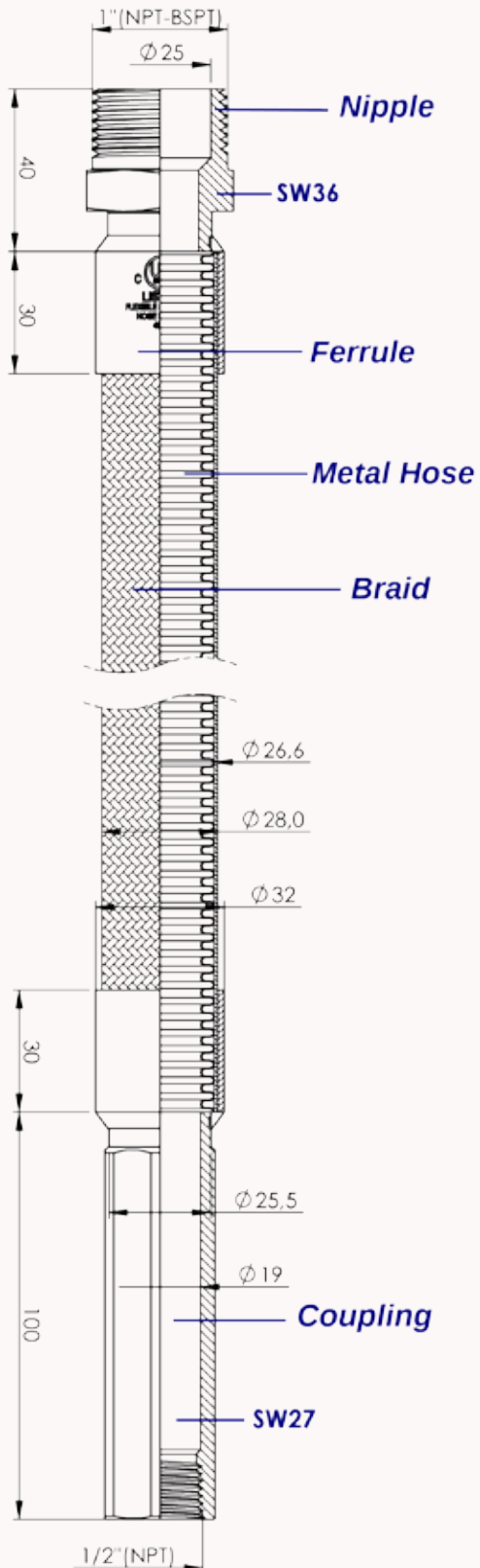


## - Kit Suspension Profile

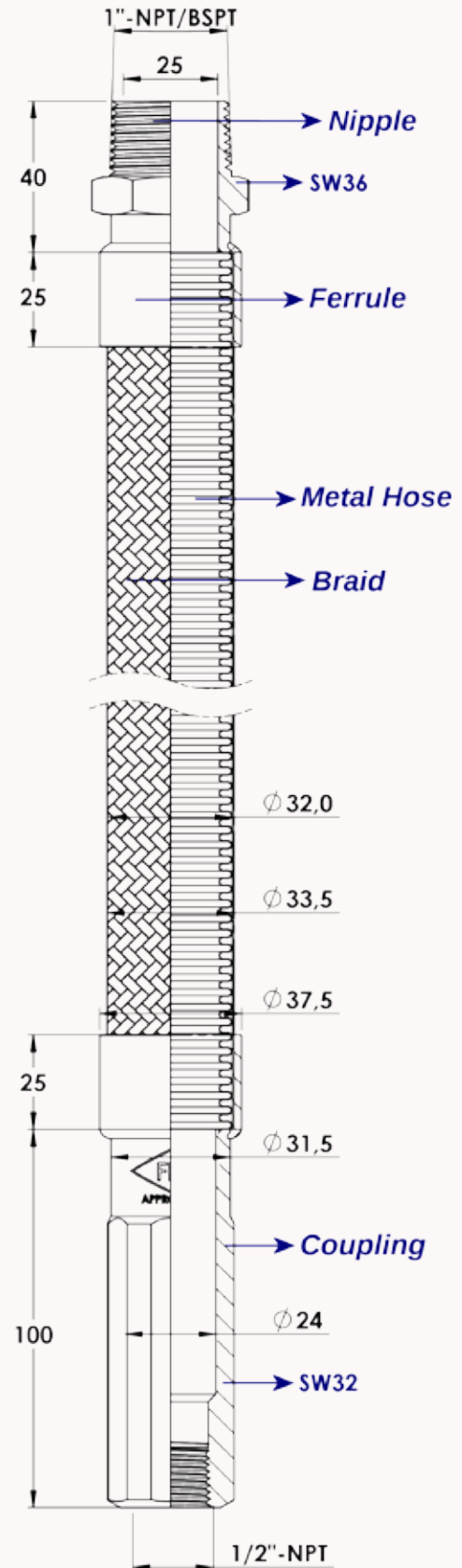


# TECHNICAL DRAWINGS

DN20 Hose Technical Drawing



DN25 Hose Technical Drawing





## NFPA 13 2007 EDITION

- 9.2.1.3.3\* Flexible Sprinkler Hose Fittings.
- A. 9.2.1.3.3 Examples of areas of use include clean rooms, suspended ceilings, and exhaust ducts.
- 9.2.1.3.3.1 Listed flexible sprinkler hose fittings and its anchoring components, intended for use in installations connecting the sprinkler piping to sprinklers, shall be installed in accordance with the requirements of the listing including any installation instructions.
- 9.2.1.3.3.2 When installed and supported by suspended ceilings, the ceiling shall meet ASTM C-635 and shall be installed in accordance with ASTM C-636.
- 9.2.1.3.3.3\* When flexible sprinkler hose fittings exceed 6 ft in length and are supported by a suspended ceiling a hanger(s) attached to the structure shall be required to ensure that the maximum unsupported length does not exceed 6ft.
- A. 9.2.1.3.3.3 The committee evaluation of flexible sprinkler hose fittings supported by suspended ceilings was based upon a comparison of the weight of a 6 ft., 1 in diameter sch 40 water-filled flexible hose fitting weighing approximately 9 lbs. The information provided to the committee showed that maximum load shed to the suspended ceiling by the flexible hose fitting was approximately 6 lbs. and that suspended ceiling meeting ASTM C-635, Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension of Acoustical Tile and Lay-In Panel Ceiling, and installed in accordance with ASTM C-636, Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels, can substantially support the load. In addition, the supporting material showed that the flexible hose connection can be attached to the suspended ceilings because it allows the necessary deflections under seismic conditions.

# SOME TESTS PERFORMED AND CAUTION FOR INSTALLATION INSTRUCTIONS

## *Some Tests Performed By Underwriters Laboratories (UL)*

1. Hydrostatic Pressure and Leakage Test
2. Mechanical Strength Test
3. High Temperature Exposure Test
4. Vibration Test
5. Equivalent Length Determination
6. Stress-Corrosion Cracking of Stainless Steel Parts Test
7. Elastomeric Parts Test
8. Low Temperature Test for Dry Pipe Systems
9. Pressure Cycling Test
10. Vacuum Test
11. High Pressure Flow Test
12. Fatigue Test
13. Metallic Coating Thickness Test

## *Some Tests Performed By FM Global Technologies LLC. (FM)*

1. Fatigue Test
2. Vibration Test
3. Pressure Cycling Test
4. Vacuum Test
5. Friction Loss (Equivalent Length Of Pipe)
6. Hydrostatic Strength Test
7. High Pressure Flow Test
8. Elongation Test

## *Caution For Installation Instructions*

Installation instructions below are only for qualified and/or licensed technicians in the Fire Protection field. Consult NFPA and or local code guidelines prior to installation.

Failure to follow these instructions may cause personal injury. Installation technicians must read the entire manual prior to attempting installation of this product.

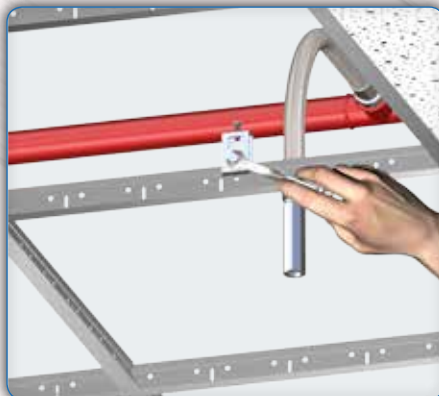
During maintenance or inspection of Arsen-Sp product, facility fire protection system should be deactivated.

Do not attempt any process when the system is active. All M6 bolts within the set should be tightened with a 2 pound-foot (2.7 N.m) torque and M12 bolt with a 5 pound-foot (6.8 N.m) torque.

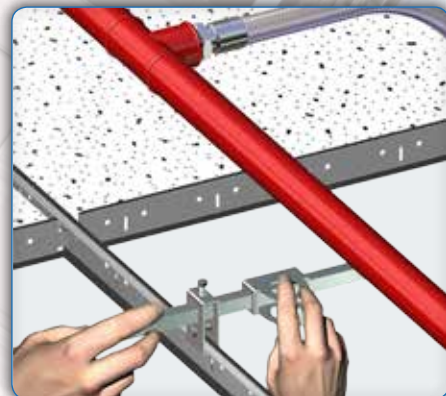
# INSTALLATION INSTRUCTIONS - DN20



The hose is attached and tightened to the mechanical-t, tee or welded coupling on the fire line by a SW-36 wrench. On this process, because the thread of nut is conical (NPT, BSPT), no gasket is required. You may need to consult NFPA guidelines for using Teflon tape or pipe sealant during this process.



The right and left fixing apparatuses are attached to the approximate middle of metal grid by rule of thumb and tightened using a SW-10 wrench not to be fully tight. It is recommended not to complete tightening because further fine tuning may be required. At this phase, the bolts upper parts of the fixing apparatuses are not to be tightened.

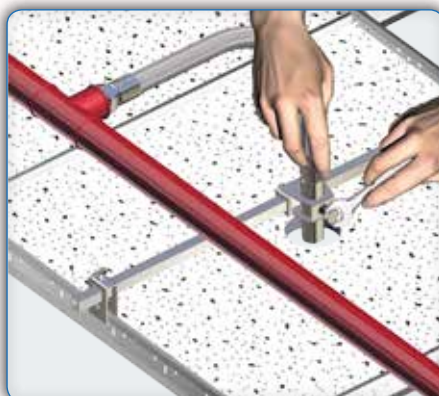


After putting the profile through right or left fixing apparatus, continue pushing the profile to the opposite direction at the same plane. Continue pushing until profile passes through hose fixing apparatus and the opposite kit fixing apparatus and profile has equal lengths stuck at both sides.

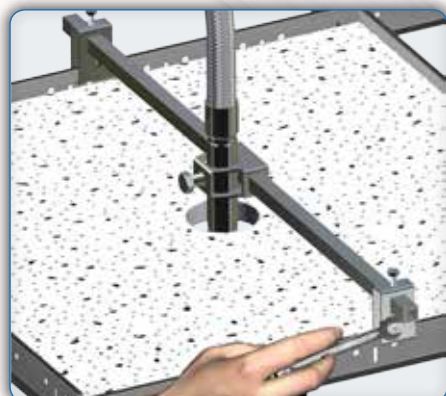


The upper bolts of right and left kit apparatuses are tightened using a SW-10 wrench.

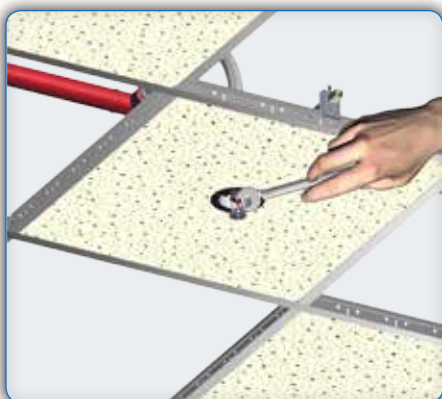
It is recommended to do this by a torque-limited wrench at 2 pound-foot (2.7 N.m) torque.



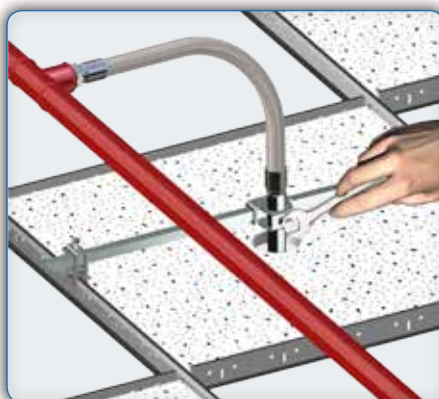
Sprink side of the sprinkler hose is placed in the hose fixing apparatus, and apparatus is adjusted to be aligned with the hole on ceiling. The bolt of the apparatus is tightened using SW-19 wrench. It is recommended to do this by a torque-limited wrench at 5 pound-foot (6.8 N.m) torque.



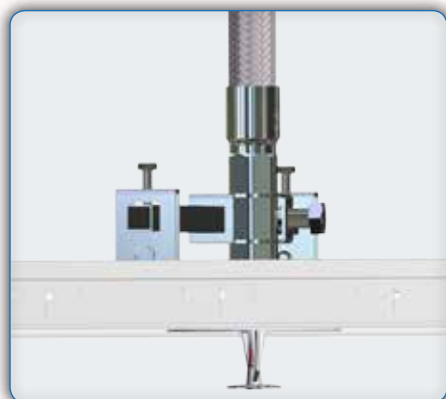
The whole set is aligned so that the sprink side of hose is aligned with the hole on ceiling. The bottom bolts of right and left kit fixing apparatuses are tightened using a SW-10 wrench. It is recommended to do this by a torque-limited wrench at 2 pound-foot (2.7 N.m) torque.



The sprinkler head and escutcheon are tightened to sprink end of hose according to NFPA and sprinkler head manufacturer's guidelines. Thread type of sprinkler head and hose is conical (NPT), so, no gasket is required. You may need to consult NFPA guidelines for using Teflon tape or pipe sealant during this process.



Loose the bolt on the hose fixing apparatus and adjust the level of sprink side of sprinkler hose relative to ceiling structure as desired. Finally tighten the bolt using a SW-19 wrench. It is recommended to do this by a torque-limited wrench at 5 pound-foot (6.8 N.m) torque.



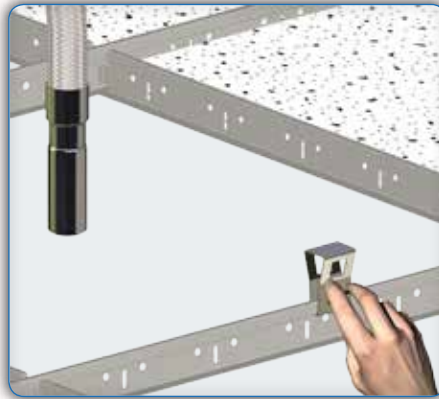
Test the installation of sprinkler system against leaks per NFPA. Finally, sprinkler hose and connection adapter is ready to help protecting living beings and structures against the risk of fire. Resistance of our product against pressure, temperature, vibration and corrosion is tested in UL Laboratories, USA.



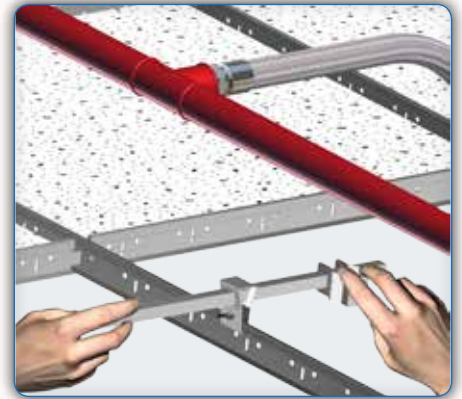
# INSTALLATION INSTRUCTIONS - DN25



The hose is attached and tightened to the mechanical-t, tee or welded coupling on the fire line by a SW-36 wrench. On this process, because the thread of nut is conical (NPT, BSPT), no gasket is required. You may need to consult NFPA and or local guidelines for using Teflon tape or pipe sealant during this process.



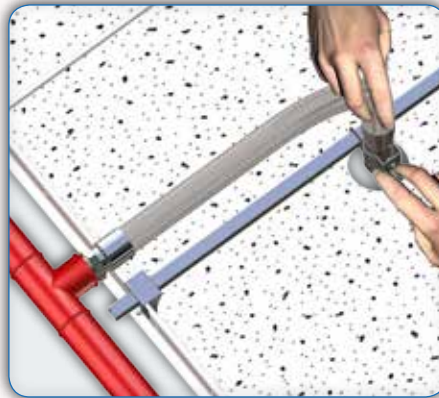
The right and left kit fixing apparatuses are attached to the approximate middle of metal grid by rule of thumb and fixed loosely for further tuning that may be required after placing sprinkler hose to the adapter.



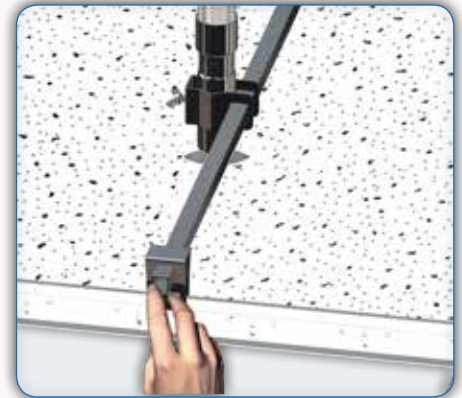
Push profile through either fixing apparatus, place hose fixing apparatus into profile and continue pushing until it passes through the other fixing apparatus. Leave equal stuck lengths at both sides.



Tighten both wing screws until fixing apparatuses and profile are exactly fixed.



Place sprink side of the sprinkler hose into the hose fixing apparatus, adjust the apparatus to be aligned with hole on grid ceiling. Tighten the wing screw of the hose fixing apparatus by hand.



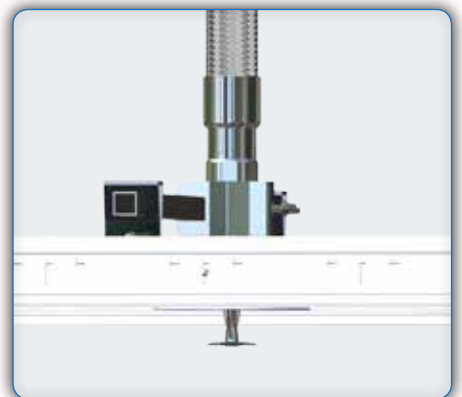
Adjust the whole set so that the sprink side of hose is aligned with the hole on grid ceiling by loosening and tightening the wing screws on fixing apparatuses.



The sprinkler head and escutcheon are tightened to sprink end of hose according to NFPA and sprinkler head manufacturer's guidelines. Thread type of sprinkler head and hose is conical (NPT), so, no gasket is required. You may need to consult NFPA guidelines for using Teflon tape or pipe sealant during this process.



Loose the wing screw on the hose fixing apparatus and adjust the level of sprinkler hose relative to ceiling structure as desired and finally tighten again by hand.

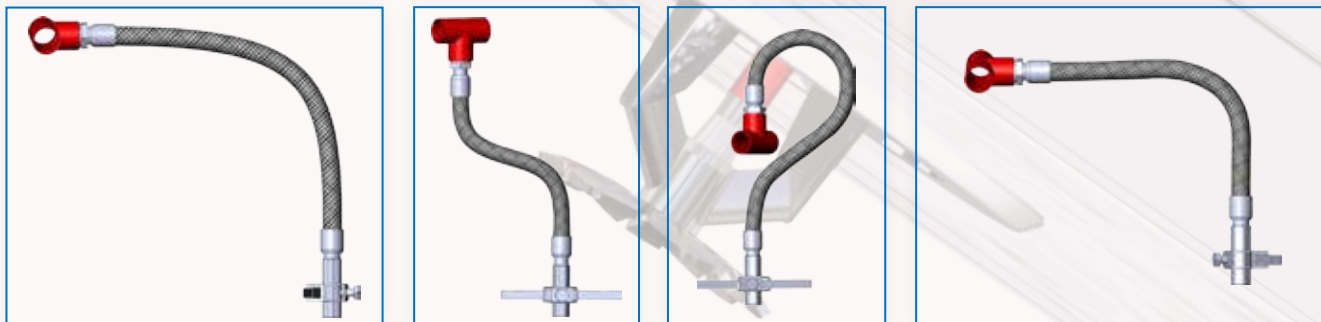


Test the installation of sprinkler system against leaks per NFPA. Finally, sprinkler hose and connection adapter is ready to help protecting living beings and structures against the risk of fire. Resistance of our product against pressure, temperature, vibration and corrosion is tested in FM Laboratories, USA.

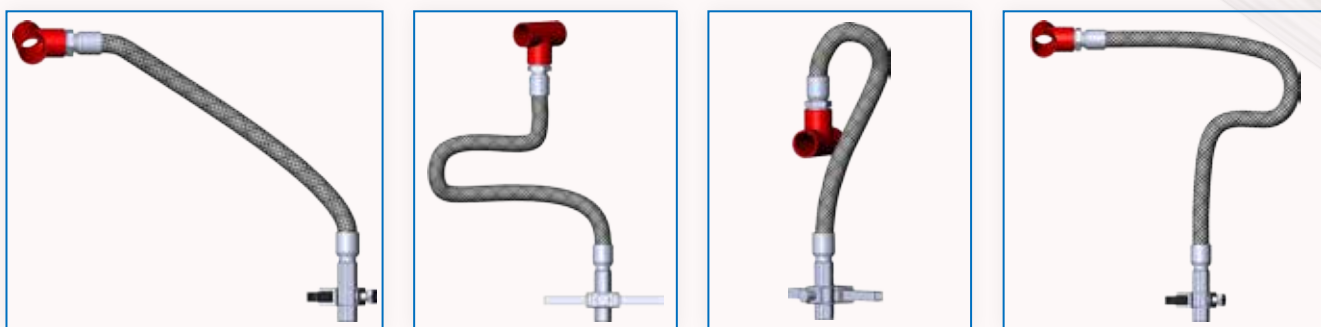
## CORRECT - INCORRECT INSTALLATIONS

You can find some incorrect connection types and related corrections on several drawings below. Installing the hose to the fire line according to the minimum bend radius restrictions extends the cycle life.

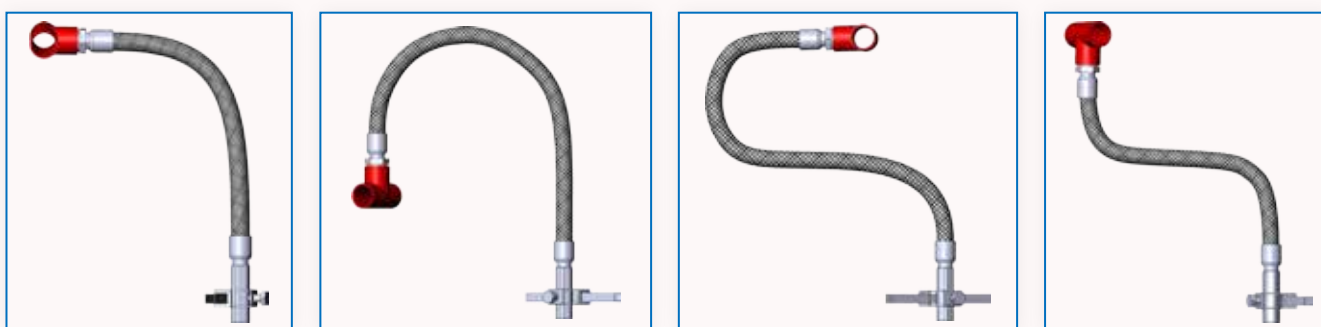
### *Some Correct Installation Types*



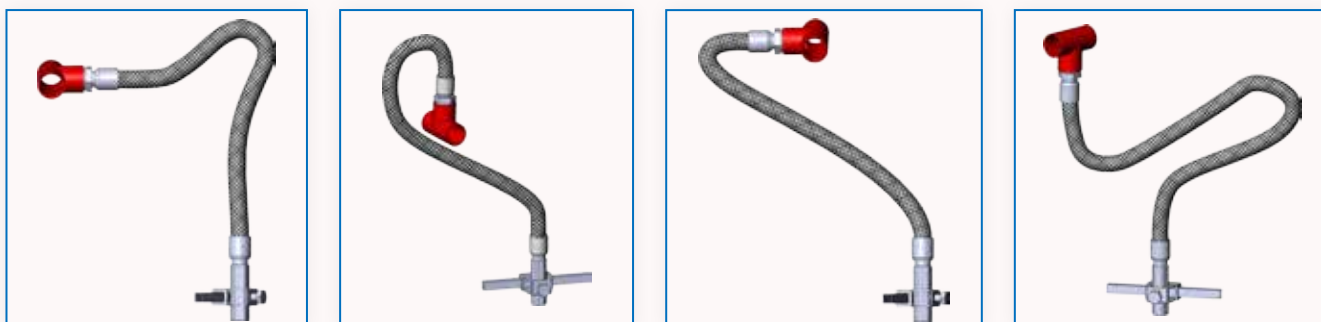
### *Some Incorrect Installation Types*



### *Some Correct Installation Types*



### *Some Incorrect Installation Types*





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