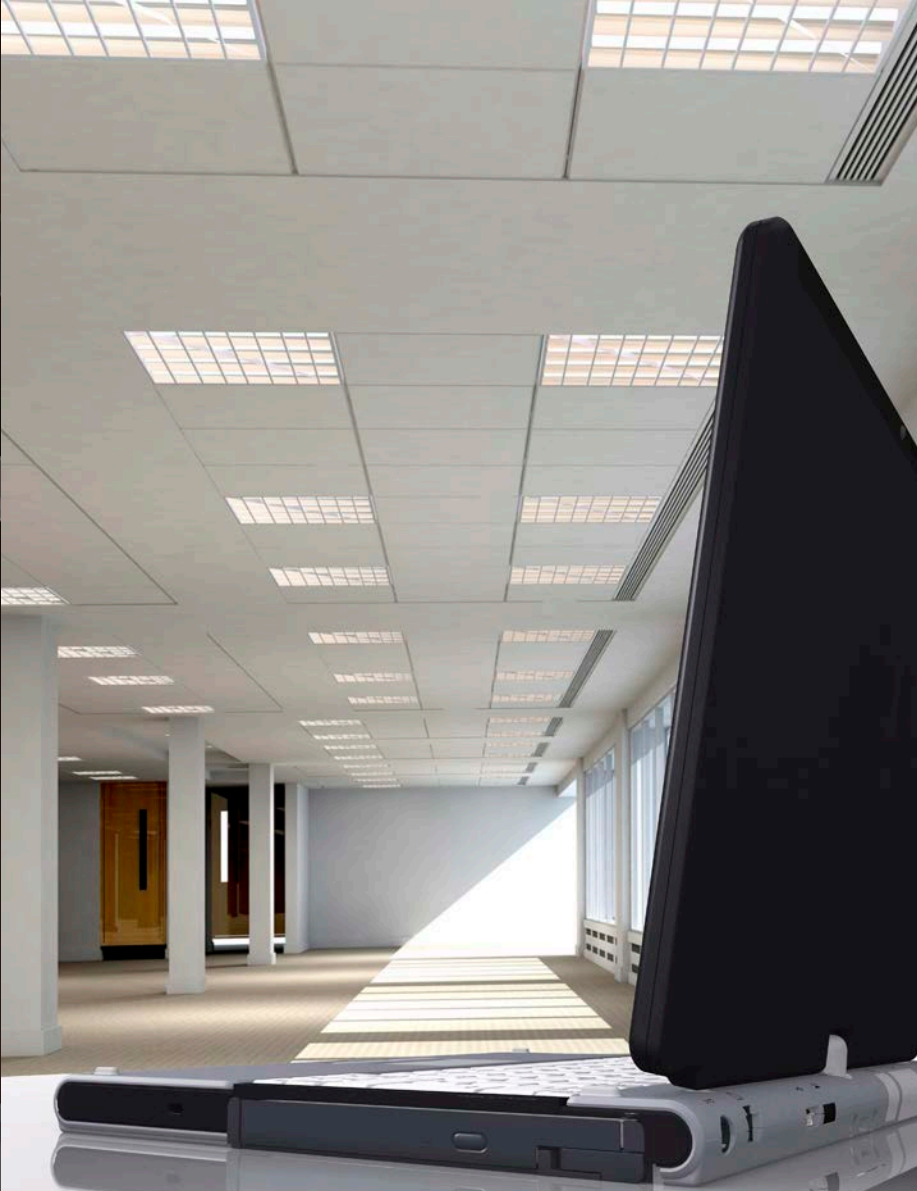


Flexible Sprinkler Drops for commercial Applications

The best solution for renovations and new constructions.

Certifications & Approvals





Applications

- Commercial suspended ceilings
- Commercial metal or wood stud hard lid/drywall ceilings
- Block wall institutional spaces



Benefits

Our brackets offer the most innovative system for a fast, simple, and easy installation. Harnessing the strength of stainless steel and the versatility of a flexible hose, we've created a fire protection system that saves you time, ultimately helping you save lives.

Flexible Sprinkler Drops Parts

1 Tube



• Braided Flexible hose

• Unbraided Flexible hose

2 Reducer



• RDL 12
• RDL 34

• RD 126
• RD 127
• RD 128
• RD 129

• LRDL 12
• LRDL 34

3 Nippel



• NP 1

4 Stock Bar



• SQ 25
• SQ 30

5 Center Braket

6 End Braket

* Refer to next page for details.

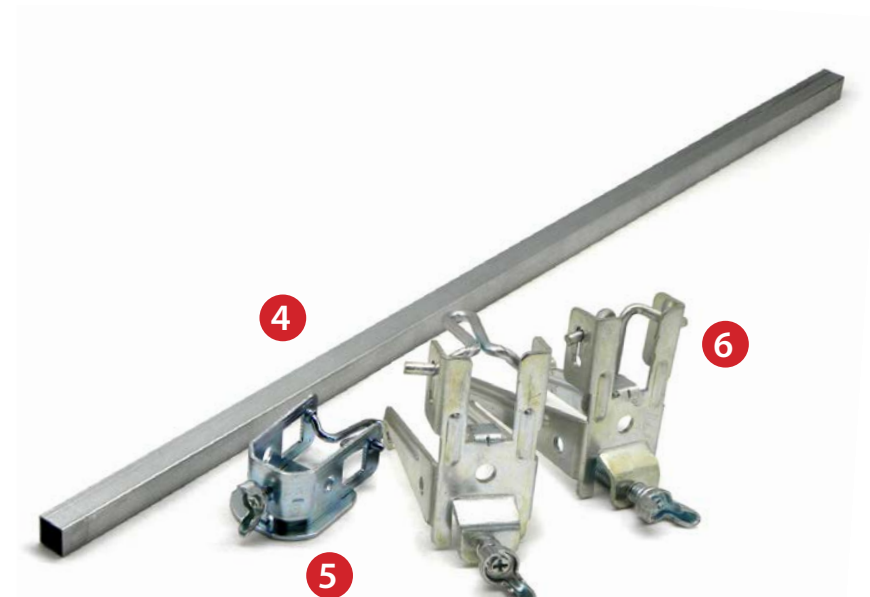
5 Etc.



• GR(EPDM Gasket)



• PR(Nylon Isolation Ring)



OGSB



Grid Drop Bracket 24" (one unit bracket)

Required System Parts

Qty. 1 : Flexible Hose (EFB or EFU)

Qty. 1 : OGSB

TBS Set



Required System Parts

Qty. 1 : Flexible Hose (EFB or EFU)

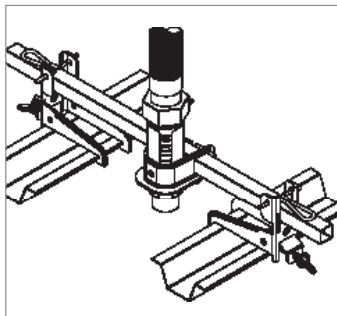
Qty. 1 : Stock Bar, SQ25 or SQ50

Qty. 2 : End Bracket, TBS, HCB, MSB or WSB

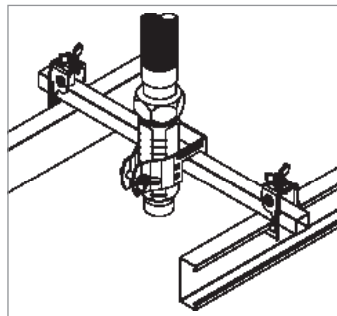
Qty. 1 : Center Bracket, SSB, or OSSB

Available as individual set components or pre-assembled (TBS-PA)

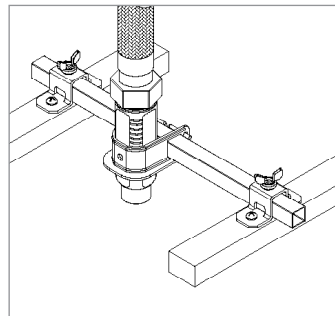
HCB Set



MSB Set



WBS Set



Flexible Sprinkler Drops Brackets

Mounting Brackets

	Part#	Desc.
	SSB	Snap clamp center bracket for stock bar
	OSSB	Open gate snap center bracket for stock bar
	OSSBW	Open side wall bracket
	SSBW	Wing clamp wall mount bracket
	OSSBJ	Open gate bracket with mounting threaded rod *Not Available USA
	Part#	Desc.
	TBS	Snap on T-bar bracket (for recessed or concealed heads)
	HCB	Hat furring channel end bracket
	MSB	Metal stud end bracket
	WBS	Wood beam end bracket

OGSB Flexible Sprinkler Drops system

Easy to install

- 100% kink resistance
- tightest bend radius
- most allowable bends
- strongest braid coverage
- 90° elbows available for greater installation advantage

Improved Hydraulic Performance

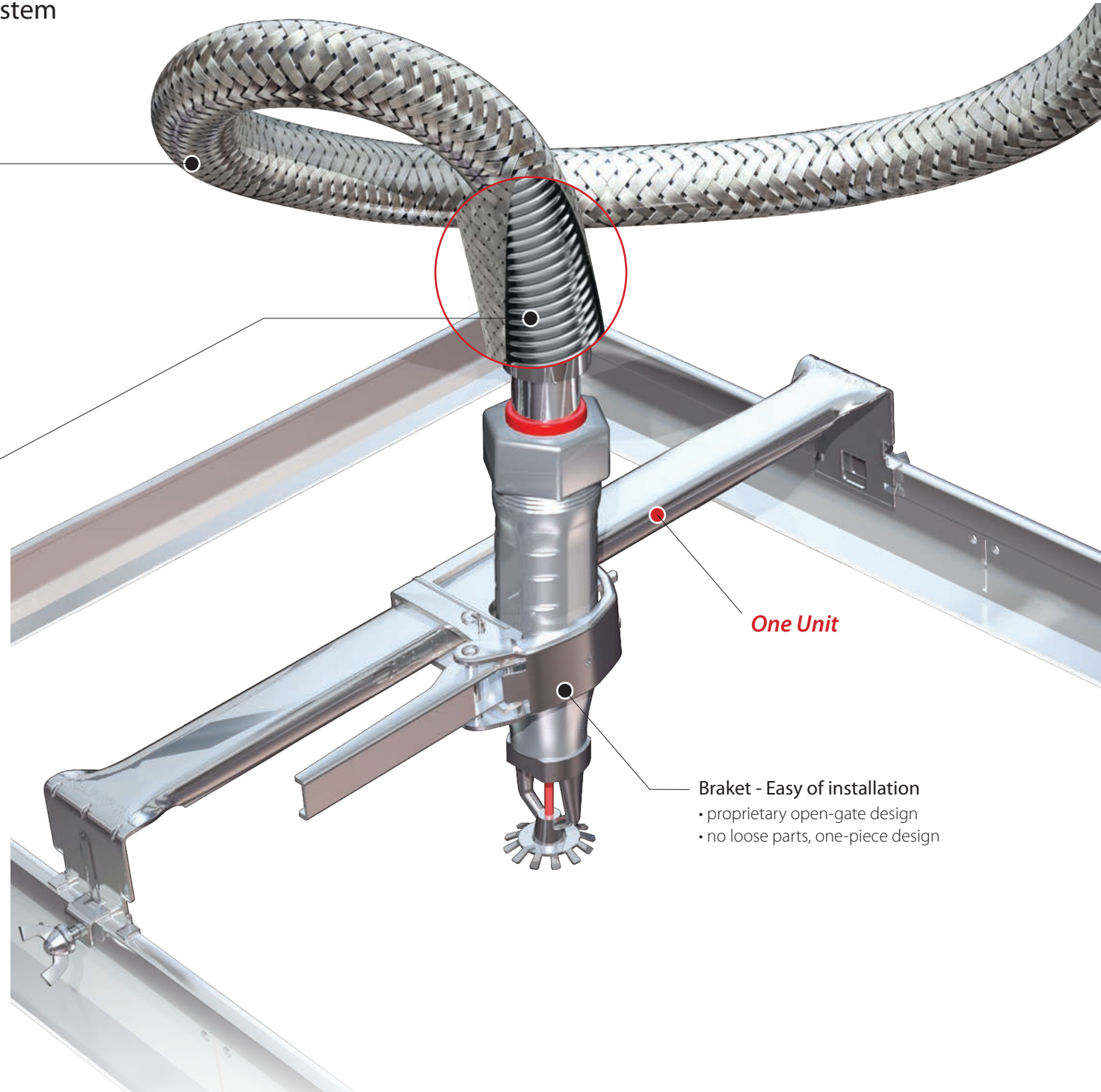
- up to 50% less friction loss than corrugated systems

Ease of Bending and Shape retention

- improved corrugation reduces effort needed to bend hose

SINGLE SOURCE CONFIDENCE

- vertically integrated manufacturing - FC STEEL can provide the entire system from the branch fitting to the sprinkler head
- automated weld technology
- multi-step automated leak testing



One Unit

Bracket - Easy of installation

- proprietary open-gate design
- no loose parts, one-piece design

FC STEEL Flexible Sprinkler Drops are designed to significantly reduce labor and installation costs. By eliminating the need for pipe cutting and midline connections, you save valuable time and money.

FC STEEL Flexible Sprinkler Drops can be installed on almost any suspended commercial ceilings. The flexible hose allows for fast installation while our innovative brackets are simple and easy to install. Brackets for T-Bar ceiling grids, wall mount, metal studs, woodbeams, open hat channels, industrial ducts, and cleanrooms. No special tools required, and installation completed in a few easy steps. Flexible hoses come in braided or unbraided types, from 24" to 72" in length.

FC STEEL Flexible Sprinkler Drops Appliance Standards

National Fire Protection Association (NFPA) :

- NFPA 13 : Standard for the Installation of Sprinkler Systems
- NFPA 13D : Standard for the Installation of Sprinkler Systems in One and Two-Family Dwellings and Manufactured Homes
- NFPA 13R : Standard for Installation of Sprinkler Systems in residential Occupancies up to and including four stories in height

Factory Mutual (FM), FM Class No, 1637 :

- Approved standard for flexible sprinkler hose with threaded end fittings

American Society for Testing and Methods (ASTM) :

- ASTM C635 : Standards specifications for the manufacture, performance, and testing of metal suspension systems for acoustical tile and lay-in panel ceilings
- ASTM C636 : Standards practice for installation of metal ceiling suspension systems for acoustical tile and lay-in panels

Underwriter's Laboratories, Inc. (UL), 2443 :

- Standards for flexible sprinkler hose with fittings for fire protection services

Flexible Hose Data Sheet

Technical Data

Hose	Lengths	24", 36", 48", 60" and 72"
	Connection	1/2" or 3/4"
	Type	Braided Unbraided

Materials	Tube / Braided	Stainless Steel 304
	Nut & Nipple	Zinc-Plated Steel
	Sealing Gasket	EPDM
	Isolation Ring	NYLON

Maximum Working Pressure Rating	175 psig UL/FM	
Maximum Ambient Temperature Rating	225° F	
Connection	Inlet	1" NPT
	Outlet	1/2" or 3/4" NPT

Minimum Bending Radius	4" (UL) and 8" (FM) * DO NOT bend within 2.52 inches from connection nuts	
K-Factor	Inlet	5.6
	Outlet	8.0

* No hangers And seismic escutcheons required

* Required torque to assemble reducer and nipple with the flexible hose : 50feet per pound

Friction Loss Data

Length	Outlet Connections	Max number of 90° Bends (UL)	Equivalent Length of 1" Schedule 40 Pipe, ft (FM/UL)
24"	1/2"	1	6.8 / 18
	3/4"	1	4.7 / 18
36"	1/2"	2	11.5 / 31
	3/4"	2	10.6 / 34
48"	1/2"	3	16.7 / 48
	3/4"	3	12.7 / 51
60"	1/2"	4	20.6 / 60
	3/4"	4	17.0 / 65
72"	1/2"	4	24.0 / 71
	3/4"	4	19.8 / 72

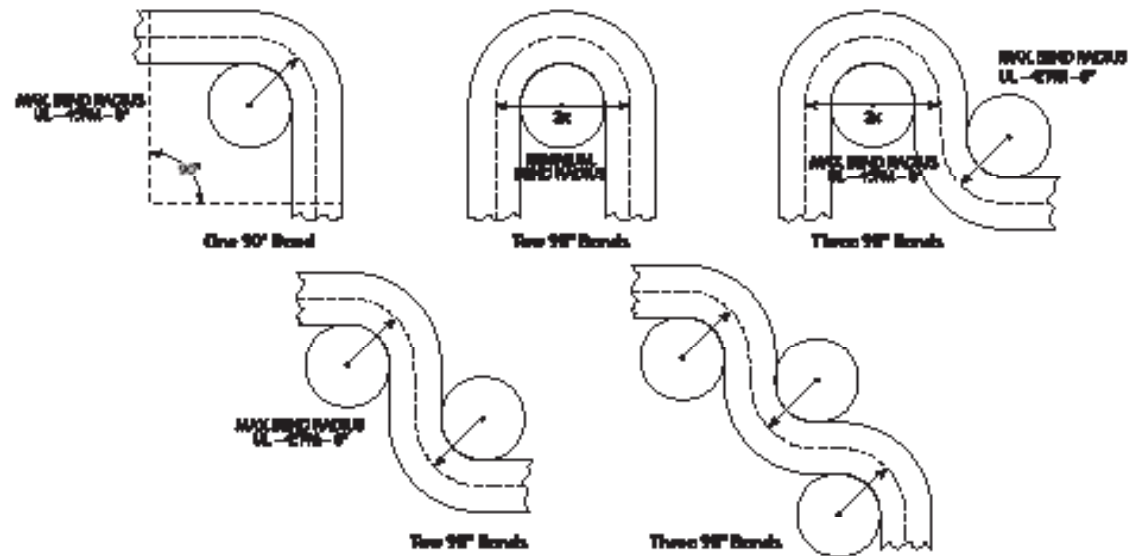
* Differences of Friction Loss Data are due to the different test methods and conditions between UL and FM approvals.

FM: 8" minimum bend radius, where C=120 / UL: 4" minimum bend radius, where C=120

Length	Outlet Connections	Max number of 90° Bends (UL)	Equivalent Length of 1" Schedule 40 Pipe, ft (FM/UL)
24"	1/2"	1	6.8 / 18
	3/4"	1	4.7 / 18
36"	1/2"	2	11.5 / 31
	3/4"	2	10.6 / 34
48"	1/2"	3	16.7 / 48
	3/4"	3	12.7 / 51
60"	1/2"	4	20.6 / 60
	3/4"	4	17.0 / 65
72"	1/2"	4	24.0 / 71
	3/4"	4	19.8 / 72

* Differences of Friction Loss Data are due to the different test methods and conditions between UL and FM approvals.

FM: 8" minimum bend radius, where C=120 / UL: 4" minimum bend radius, where C=120



Please be advised to read the letter from FM for the friction loss and the number of bends clarification.

Flexible Drop Friction Loss and Bending Information

Flex Length	Outlet Dia.	Max# of 90° Bending	Flow rate (gpm)	Max. total pressure loss (psi)	
				FM	UL
24"	1/2"	1	5	0.05678	0.1503
			6	0.07956	0.2106
			8	0.13532	0.3582
			10	0.20332	0.5382
			15	0.43248	1.1448
			20	0.68612	1.8162
			25	0.11356	3.006
	3/4"	1	5	0.039245	0.1503
			6	0.05499	0.2106
			8	0.09353	0.3582
			10	0.14053	0.5382
			15	0.29892	1.1448
			20	0.47423	1.8162
			25	0.7849	3.006
36"	1/2"	2	5	0.096025	0.25885
			6	0.13455	0.3627
			8	0.22885	0.6169
			10	0.34385	0.9269
			15	0.7314	1.9716
			20	1.16035	3.1279
			25	1.9205	5.177
	3/4"	2	5	0.08851	0.2839
			6	0.12402	0.3978
			8	0.21094	0.6766
			10	0.31694	1.0166
			15	0.67416	2.1624
			20	1.06954	3.4306
			25	1.7702	5.678
48"	1/2"	3	5	0.139445	0.4008
			6	0.19539	0.5616
			8	0.33233	0.9552
			10	0.49933	1.4352
			15	1.06212	3.0528
			20	1.68503	4.8432
			25	2.7889	8.016
	3/4"	3	5	0.106045	0.42585
			6	0.14859	0.5967
			8	0.25273	1.0149
			10	0.37973	1.5249
			15	0.80772	3.2436
			20	1.28143	5.1459
			25	2.1209	8.517

Flex Length	Outlet Dia.	Max# of 90° Bending	Flow rate (gpm)	Max. total pressure loss (psi)	
				FM	UL
60"	1/2"	4	5	0.17201	0.501
			6	0.24102	0.702
			8	0.40994	1.194
			10	0.61594	1.794
			15	1.31016	3.816
			20	2.07854	6.054
			25	3.4402	10.02
	3/4"	4	5	0.14195	0.54275
			6	0.1989	0.7605
			8	0.3383	1.2935
			10	0.5083	1.9435
			15	1.0812	4.134
			20	1.7153	6.5585
			25	2.839	10.855
72"	1/2"	4	5	0.2004	0.59285
			6	0.2808	0.8307
			8	0.4776	1.4129
			10	0.7176	2.1229
			15	1.5264	4.5156
			20	2.4216	7.1639
			25	4.008	11.857
	3/4"	4	5	0.16533	0.6012
			6	0.23166	0.8424
			8	0.39402	1.4328
			10	0.59202	2.1528
			15	1.25928	4.5792
			20	1.99782	7.2648
			25	3.3066	12.024

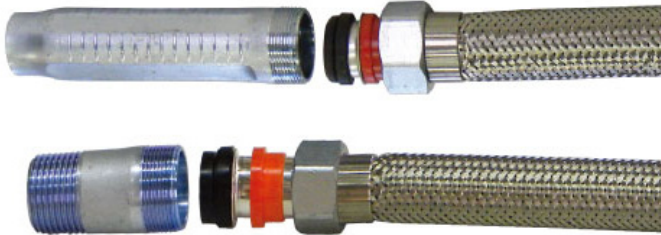
Technical Data

The associated data are being provided to you as a gratuitous service by FC STEEL and this information was created for specific reference use only. FC STEEL does not warrant or guarantee the data for any purpose except its own use and is not liable or responsible for any use of this data or any consequential damages monetary or otherwise, which may result from the use of this data. The user hereby acknowledges and agrees to use this data solely at his/her own risk and will not hold the FC STEEL responsible in any way. Furthermore, the user agrees not to distribute the information provided without the express written consent of FC STEEL.

1.

Inspect the FC STEEL sprinkler drop system components for any sign of physical damage. Make sure all components are in proper place.

Disconnect the Inlet Nipple and Outlet Reducer from the Flexible Hose and check that a Sealing Gasket is in each place properly. Reconnect Outlet Reducer to the Flexible Hose.



2.

Apply 7 to 10 wraps of PTFE tape on the inlet Nipple Thread. Use pipe Wrench to connect the inlet Nipple to the branch line. Torque range should be a minimum of 50 to maximum of 58 ft-lbs. Make sure both end threads are clean without any damage. Use the pipe wrench to connect the Flexible Hose to the Outlet Nipple. Torque range should be a minimum of 50 to a maximum of 58 ft-lbs.

DO NOT use PTFE tape on the Outlet Nipple thread to connect to the Flexible Hose.



3.

Place the OGSB at the desired position on the ceiling grid. Once OGSB is positioned, tighten the wing bolts to secure onto grid.



- ⚠ • You must read and understand all instructions and warnings before attempting to install any FC STEEL Sprinkler Drops system components.
- Failure to follow these instructions could cause improper operation resulting in serious personal injury of self, property, damage, or worse.
- We recommend wearing safety glasses, a hardhat, and foot protection during installation.

4.

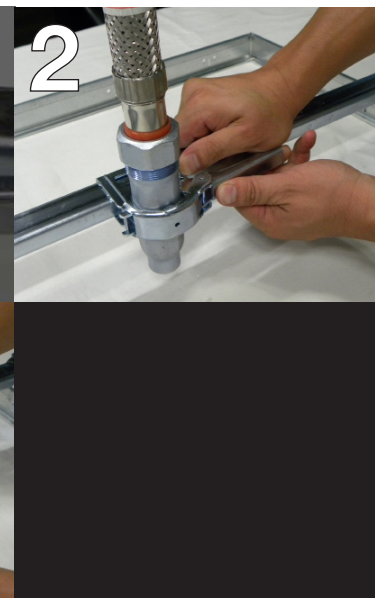
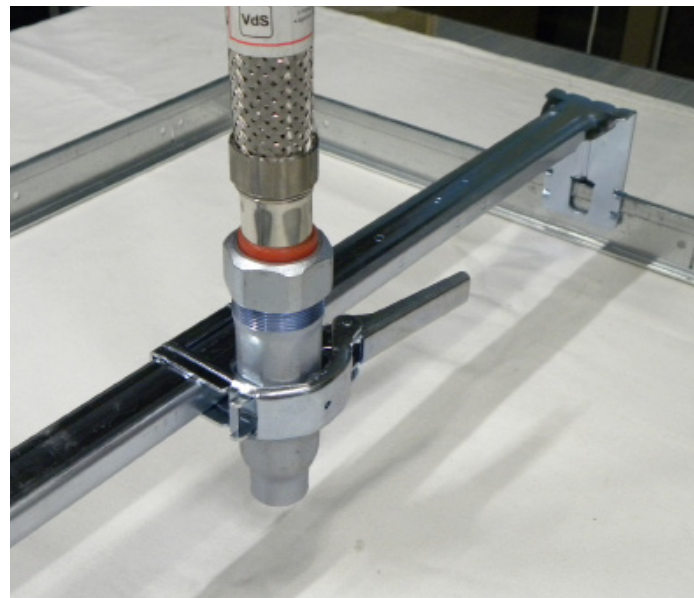
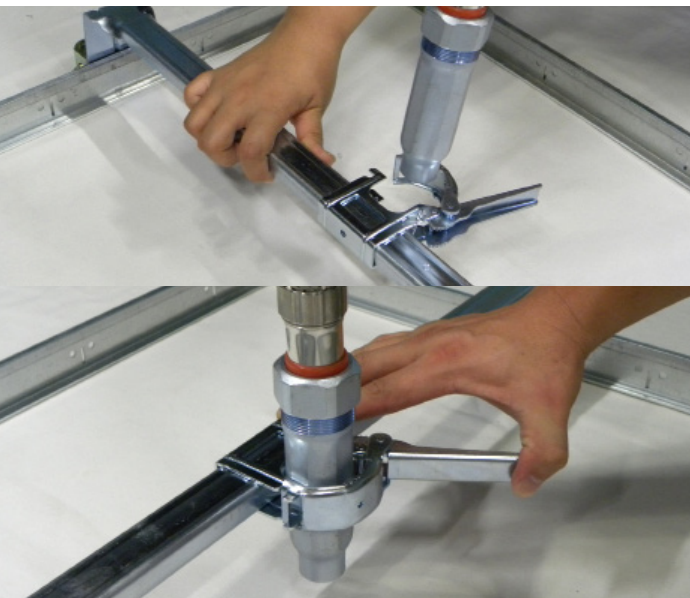
When securely latched on, open the center bracket gate and load hose.
Close the gate of the center bracket from left to right.

5.

Firmly push the lever toward the stock bar to secure the flexible drop.
Installation is complete!

When it is necessary to reposition the flexible drop, follow the below steps to release the center gate.

1. Locate the ring-shaped wire hook on the bracket (pictured above).
2. Push the wire hook and grab the lever.
3. Pull the lever until gate opens.



Required System Parts

- Qty. 1 : Flexible Hose (EFB or EFU)
- Qty. 1 : OGSB

Required Tool

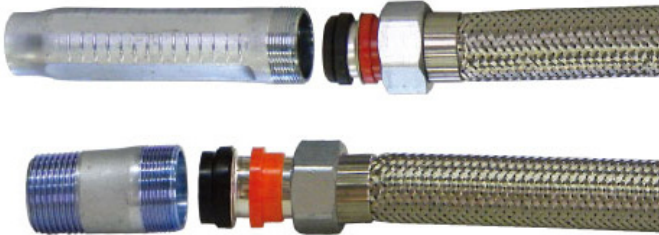
- Pipe Wrench
- PTFE Tape

OGSB Brackets for Suspended Ceilings
INSTALLATION INSTRUCTION

1.

Inspect the FC STEEL sprinkler drop system components for any sign of physical damage. Make sure all components are in proper place.

Disconnect the Inlet Nipple and Outlet Reducer from the Flexible Hose and check that a Sealing Gasket is in each place properly. Reconnect Outlet Reducer to the Flexible Hose.



2.

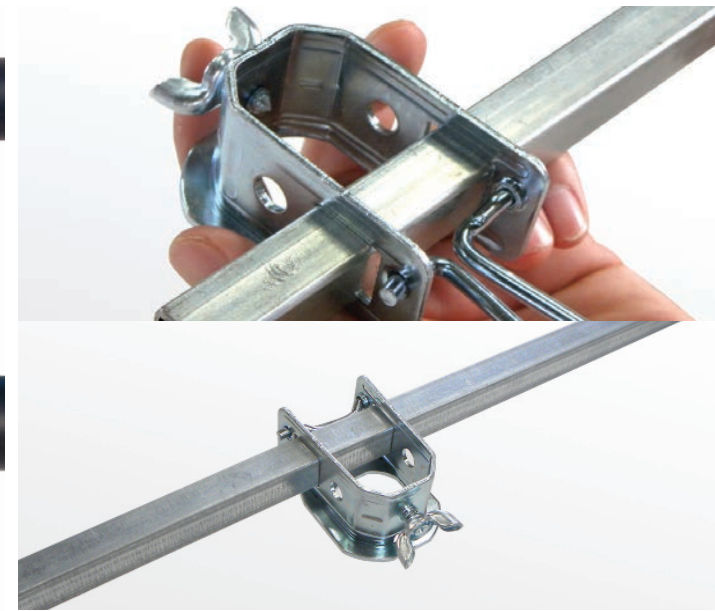
Apply 7 to 10 wraps of PTFE tape on the inlet Nipple Thread. Use pipe Wrench to connect the inlet Nipple to the branch line. Torque range should be a minimum of 50 to maximum of 58 ft-lbs. Make sure both end threads are clean without any damage. Use the pipe wrench to connect the Flexible Hose to the Outlet Nipple. Torque range should be a minimum of 50 to a maximum of 58 ft-lbs.

DO NOT use PTFE tape on the Outlet Nipple thread to connect to the Flexible Hose.



3.

Insert Stock Bar (SQ25 or SQ50) through SSB. Place Stock bar on metal stud to the desired position.



- ⚠ • These installation instructions are intended for an experienced, professionally trained installer.
- The user must understand the purpose of these products, common industry standards for safety, and the potential consequences of improper products installation.
- Failure to follow these instructions could cause improper operation, resulting serious personal injury and (or) property damage.

4.

Attach Metal Stud brackets, MSB to the metal stud ceiling grid. Make sure a slot in MSB to fit with metal stud leg as shown on Pic. Hand tighten the wing bolt to secure MSB and metal stud. Repeat for the other bracket.

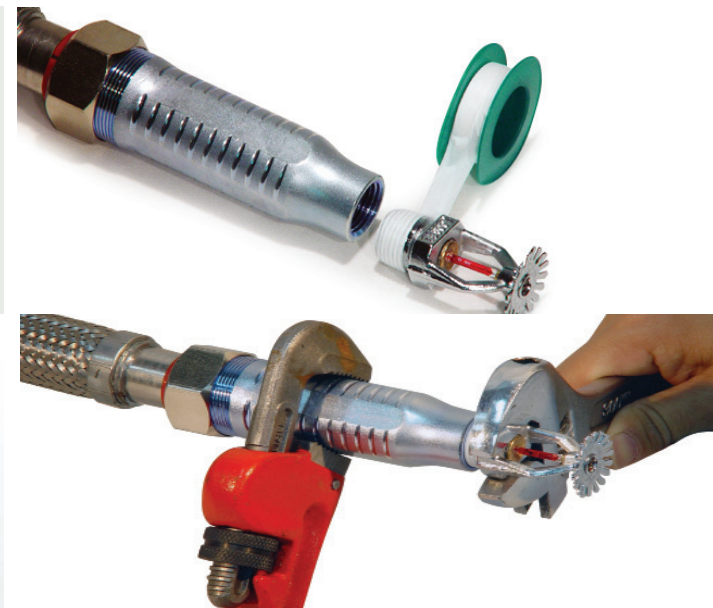
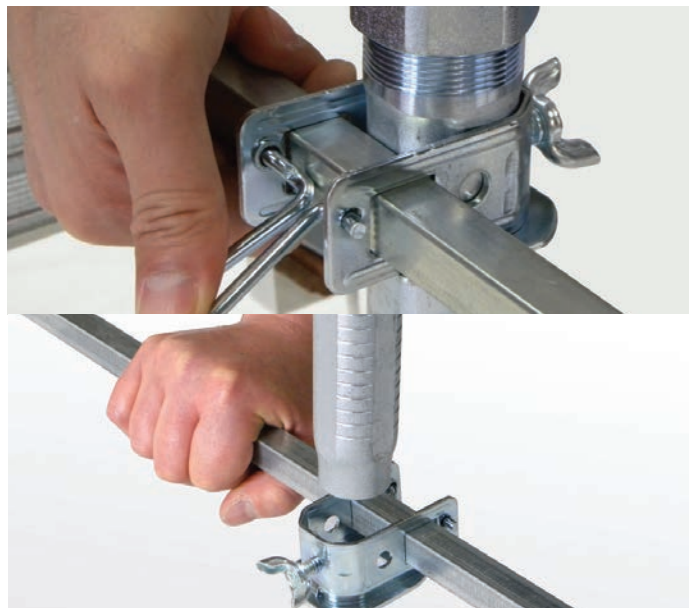
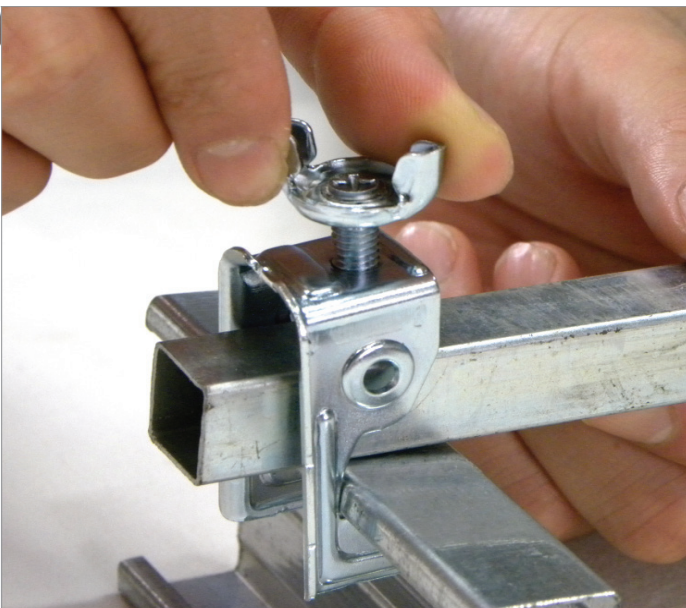
DO NOT over tighten the wing bolts with tool. This may cause the damage to wing bolt.

5.

Place center bracket, SSB for desired position and insert the OUTLET REDUCER from Flexible hose into the center bracket, SSB and adjust height for proper position and push down the lever in center bracket, SSB to secure.

6.

Install the sprinkler head. USE PTFE tape or a non-hardening pipe-joint compound. Refer to the NFPA guidelines and sprinkler head manufacturer's installation instructions for proper installation.



Required System Parts

- Qty. 1 : Flexible Hose (EFB or EFU)
- Qty. 2 : MSB (Hat Channel Brackets)
- Qty. 1 : SSB (Snap Clamp Center Bracket)
- Qty. 1 : Stock Bar 25" or 50" (SQ25 or SQ50)

Required Tool

- Pipe Wrench
- PTFE Tape

MSB Brackets for Suspended Ceilings INSTALLATION INSTRUCTION

1.

Inspect the FC STEEL sprinkler drop system components for any sign of physical damage. Make sure all components are in proper place.

Disconnect the Inlet Nipple and Outlet Reducer from the Flexible Hose and check that a Sealing Gasket is in each place properly. Reconnect Outlet Reducer to the Flexible Hose.



2.

Apply 7 to 10 wraps of PTFE tape on the inlet Nipple Thread. Use pipe Wrench to connect the inlet Nipple to the branch line. Torque range should be a minimum of 50 to maximum of 58 ft-lbs. Make sure both end threads are clean without any damage.

Use the pipe wrench to connect the Flexible Hose to the Outlet Nipple. Torque range should be a minimum of 50 to a maximum of 58 ft-lbs.

DO NOT use PTFE tape on the Outlet Nipple thread to connect to the Flexible Hose.



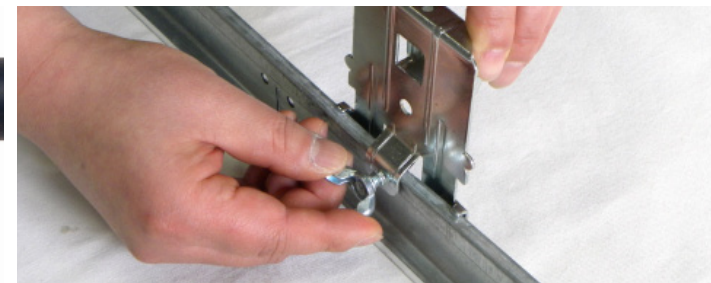
3. (up)

Attach TBS mounting bracket to the T-Bar ceiling grid. Fasten TBS bracket into the T-Bar ceiling grid until the clip is fully latched onto the T-Bar. Hand tighten the wing bolt on the TBA bracket to tightly secure on the grid.

DO NOT over tighten wing bolt with tools. This may cause damage to the wing bolt.

4. (down)

Insert Stock Bar (SQ25 or SQ50) through the SSB Center Snap Clamp Bracket.

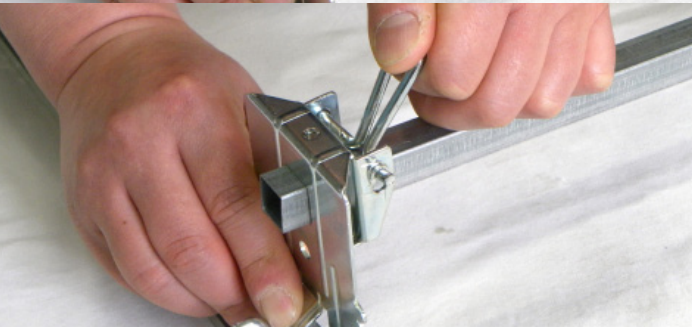


- ⚠ • You must read and understand all instructions and warnings before attempting to install any FC STEEL Sprinkler Drops system components.
- Failure to follow these instructions could cause improper operation resulting in serious personal injury of self, property, damage, or worse.
- We recommend wearing safety glasses, a hardhat, and foot protection during installation.

5.

Insert Stock Bar into the TBS mounting brackets.

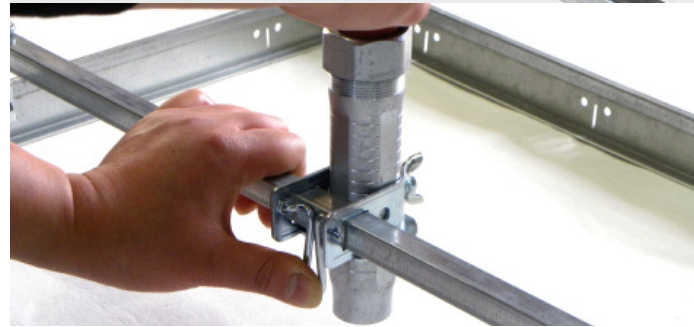
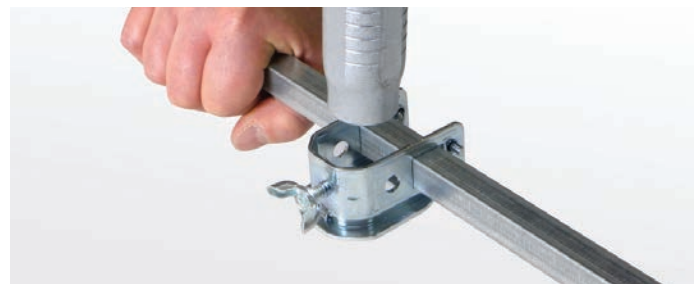
Adjust the Stock Bar for proper position and push the levers in the TBS brackets towards the inside of the configuration to secure with Stock Bar.



6.

Place the SSB Center Bracket at the desired position and insert the Outlet Reducer from the Flexible Hose into the SSB.

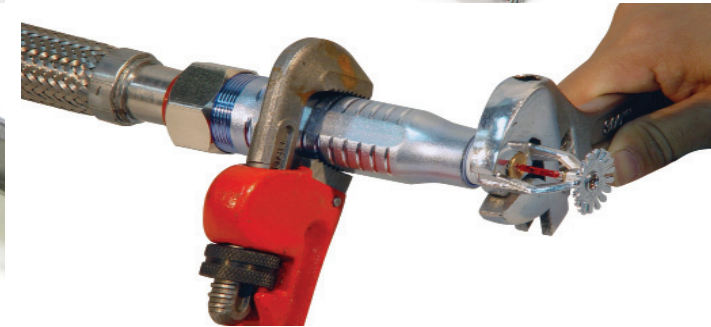
Adjust height for proper position and push down the lever of the SSB to secure the hose in place.



7.

Install the sprinkler head.

USE PTFE tape or a non-hardening pipe-joint compound. Refer to the NFPA guidelines and sprinkler head manufacturer's installation instructions for proper installation.



Required System Parts

- Qty. 1 : Flexible Hose (EFB or EFU)
- Qty. 2 : TBS Side Brackets
- Qty. 1 : Stock Bar (25" or 50")
- Qty. 1 : SSB Center Bracket

Required Tool

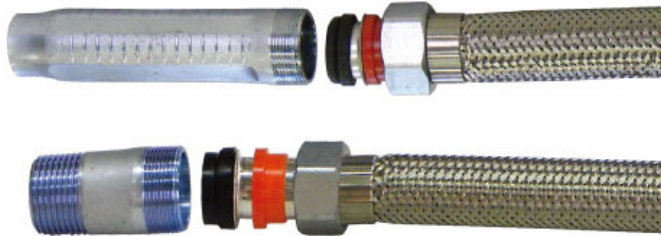
- Pipe Wrench
- PTFE Tape

TBS Brackets for Suspended Ceilings INSTALLATION INSTRUCTION

1.

Inspect the FC STEEL sprinkler drop system components for any sign of physical damage. Make sure all components are in proper place.

Disconnect the Inlet Nipple and Outlet Reducer from the Flexible Hose and check that a Sealing Gasket is in each place properly. Reconnect Outlet Reducer to the Flexible Hose.



2.

Apply 7 to 10 wraps of PTFE tape on the inlet Nipple Thread. Use pipe Wrench to connect the inlet Nipple to the branch line. Torque range should be a minimum of 50 to maximum of 58 ft-lbs. Make sure both end threads are clean without any damage.

Use the pipe wrench to connect the Flexible Hose to the Outlet Nipple. Torque range should be a minimum of 50 to a maximum of 58 ft-lbs.

DO NOT use PTFE tape on the Outlet Nipple thread to connect to the Flexible Hose.



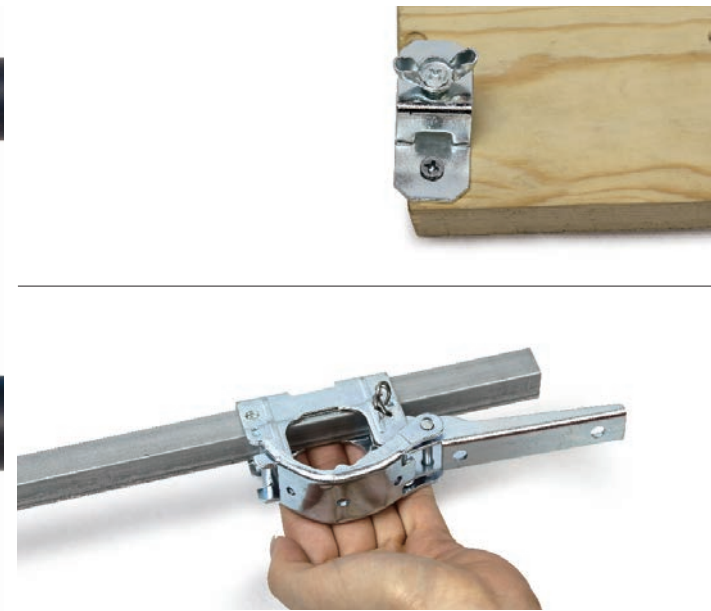
3. (up)

Attach WSB mounting brackets to the wood ceiling framing. Mark on the wood to properly align and locate the WSB end brackets on each side. Use a pair of #18 X 1-1/2" wood screw or a 5/16" x 1 1-1/2" lag screw to attach both wings of WSB on the wood ceiling framing.

4. (down)

Insert Stock Bar (SQ25 or SQ50) through the Center Bracket.

Insert Stock Bar into the WSB mounting brackets. Adjust the Stock Bar for proper position and fasten wingnut screws on the WSB brackets to secure with Stock Bar.



- ⚠ • You must read and understand all instructions and warnings before attempting to install any FC STEEL Sprinkler Drops system components.
- Failure to follow these instructions could cause improper operation resulting in serious personal injury of self, property, damage, or worse.
- We recommend wearing safety glasses, a hardhat, and foot protection during installation.

5.

Insert Stock Bar into the TBS mounting brackets.

Adjust the Stock Bar for proper position and push the levers in the TBS brackets towards the inside of the configuration to secure with Stock Bar.

6.

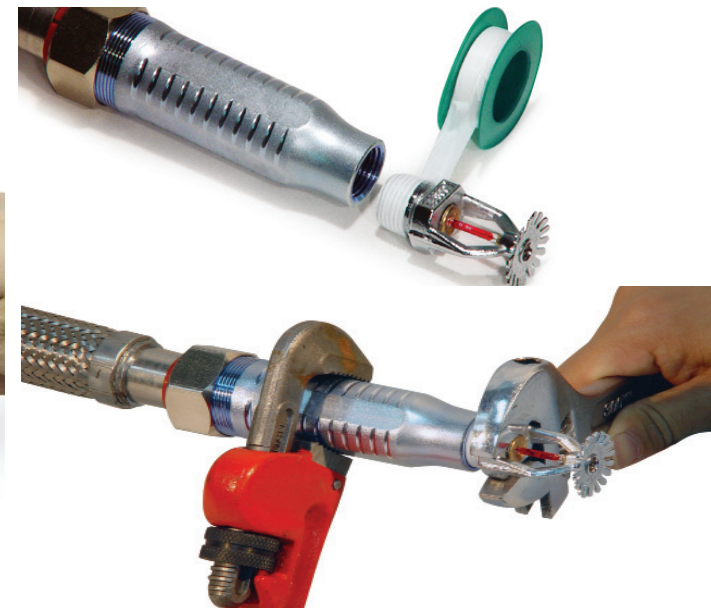
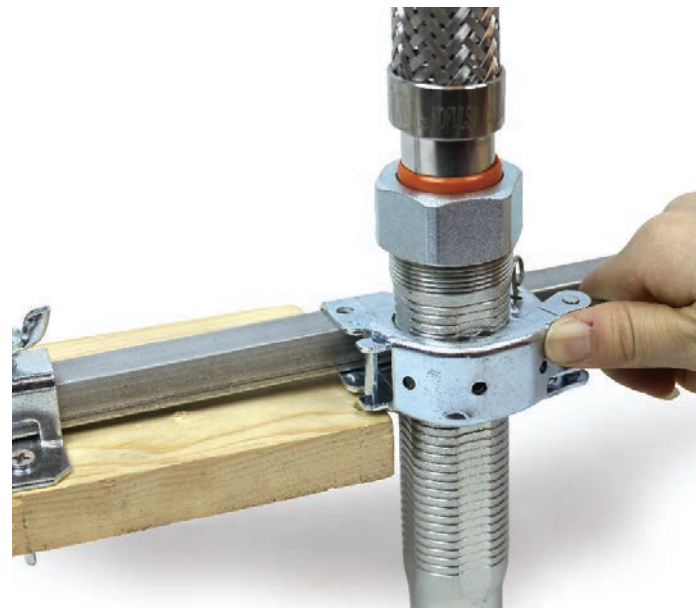
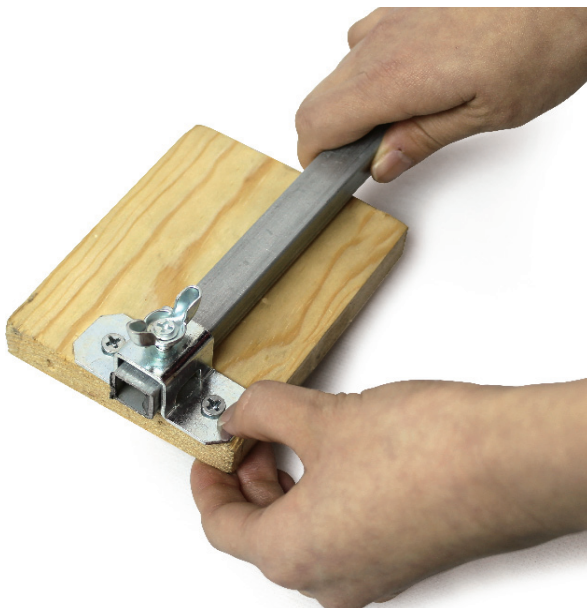
Place the Center Bracket at the desired position and insert the Outlet Reducer from the Flexible Hose into the Center Bracket

Adjust height for proper position and push down the lever of the SSB to secure the hose in place.

7.

Install the sprinkler head.

USE PTFE tape or a non-hardening pipe-joint compound. Refer to the NFPA guidelines and sprinkler head manufacturer's installation instructions for proper installation.



Required System Parts

- Qty. 1 : Flexible Hose (EFB or EFU)
- Qty. 2 : WSB Side Brackets
- Qty. 1 : Stock Bar (25" or 50")
- Qty. 1 : SSB or OSSB Center Bracket

Required Tool

- Pipe Wrench
- PTFE Tape

WSB Brackets for Suspended Ceilings INSTALLATION INSTRUCTION

1.

Prepare braid or unbraid hoses



2.

Assemble the ring



3.

Put into the machine to tight the ring



4.

Assemble the nuts and PR



5.

Complete assembling



6.

Blow the end of hose



7.

Compress the end of hose
not to fall out of the fittings



8.

Complete



9.

Assemble a GR



10.

Assemble a nipple



11.

Assemble a reducer



11.

Packing

