Realflex®

Stainless Steel Flexible Hose Fitting
For Automatic Sprinkler Systems

c UL us LISTED

FM APPROVED

ANAB ACCREDITED

NFPA®

AMERICAN FIRE SPRINKLER ASSOCIATION, INC.

อีกหนึ่งคุณภาพ จากกลุ่ม TAC-M®
The Advanced Construction Materials

Realflex® Pipetec

The Realflex® stainless steel hose fitting, developed by Realflex Pipetec Co Ltd, provides a unique solution for the fire-fighting sprinkler industry. Realflex® hoses are manufactured in corrosion resistant AISI Grade 304 stainless steel corrugated high flexibility tube with two hex slip nuts and high integrity O-ring seals with a hose burst test pressure of 70 bar/ 875 psi at ambient temperature, providing flexibility, high performance durability and reliability.

For ease of installation Realflex® hose assemblies are supplied complete with a custom designed light weight galvanized bracketing system ensuring a quick, safe and cost effective installation on every project.

Realflex® flexible hose represents the future of the sprinkler industry – reliable, easy to use, cost effective, safe and environmentally friendly.

Realflex® flexible hose systems can be directly mounted to the mains water supply line and the end of the sprinkler head without the need for any special tools, and can be quickly installed in a wide range of sprinkler applications including:

- Buildings with suspended ceiling system such as government building, offices, shopping complexes, schools, hospitals, restaurant etc.;
- Cleanroom sprinkler system in high precision machinery industry, electronic, computer & semiconductor industry, aerospace industry, high purity chemical industry, nuclear industry, food and beverage industry, medical industry and biology laboratory;
- Duct pipeline fire-fighting system in power plants, steel mills, coal and mining industry, chemical industry，forest products/paper mills and environment industry.

Realflex® flexible hoses for automatic sprinkler systems are designed based on NFPA13/13D/13R and EN12845 codes. The products are produced, tested according to UL 2443 & FM 1637.

Examination Report

This is to certify that the product listed below conforms to the requirements of the

Pressure Equipment Directive

Equipment Description / Model: Stainless Steel Flexible Sprinkler Hoses, Max DN = 40mm

Kaixin Certification (Beijing) Co.,Ltd.

Certificate of Registration

CERTIFICATE OF REGISTRATION

This is to certify that

TAIZHOU REALFLEX PIPETEC CO., LTD.

The management system is in conformity with

ISO9001:2015 standard

Scope: Production (Except Required Qualification License) of Stainless Steel Pipe (Corrugated)

CERTIFICATE OF COMPLIANCE

Certificate Number	20170823-EX16189
Report Reference	EX16189-20170822
Issue Date	2017-AUGUST-23
Issued to:	TAIZHOU REALFLEX PIPETEC CO LTD NO 1 JinNiu Rd, HuangYan Taizhou Zhejiang 318020 CHINA
This is to certify that representative samples of	FLEXIBLE SPRINKLER HOSE WITH FITTINGS RF-200-700 braided ,RF-200-1000 braided ,RF-200-1200 braided ,RF-200-1500 braided ,RF-200-1800 braided ,RF-200-700 braided ,RF-200-1000 braided ,RF-200-1200 braided ,RF-200-1500 braided ,RF-200-1800 braided.
	Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.
Standard(s) for Safety:	UL 2443 - Standard for Safety for Flexible Sprinkler Hose with Fittings for Fire Protection Service ,ULC/ORD-C1474 - ULC Other Recognized Document for Adjustable Drop Nipples for Sprinkler Systems ,UL 746A - Standard for Safety for Polymeric Materials - Short Term Property Evaluations
Additional Information:	See the UL Online Certifications Directory at www.ul.com/database for additional information

Only those products bearing the UL Certification Mark should be considered as being covered by UL's Certification and Follow-Up Service.

Look for the UL Certification Mark on the product.

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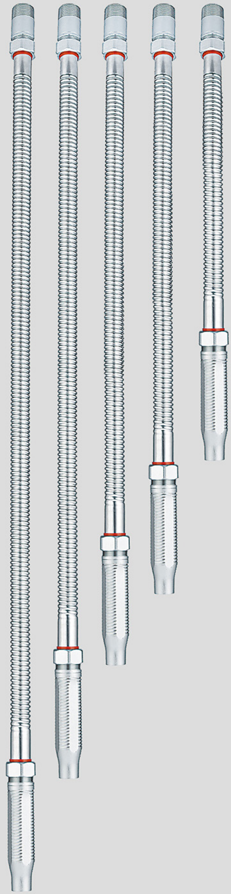
Certificate of Compliance

FM APPROVED

FM Approvals



Realflex® Pipetec

FEATURES

Realflex® flexible hose for sprinkler industry

► Safe & Reliable
Realflex® flexible hoses are manufactured in corrosion resistant AISI 304 stainless steel with high performance fittings and seals, hoses are 100% leak tested prior to leaving the factory. The rated working pressure is 14bar/200psi with a burst test pressure of 70bar/ 875psi.

► Easy Installation
No special tools are require to install Realflex® hoses, not cutting, no more threading, just the simple use of a wrench, screw driver and pipe sealing tape is all that's required to have your Realflex® hose installed in the minimal amount of time. Realflex® unique hose flexibility combined with the use of an optional 90° elbow and reducer allows hoses to be fixed in confined space installations.New developed DN25 / 1" grooved connection further increase the efficiency of installation work.

► A Cost Saver
The unique Realflex® hose design provides a real costing saving in time against traditional hard pipe systems, our factory bench tests have demonstrated Realflex® hose installations have significantly reduced installation time against traditional hard pipe systems, providing potential time and on site cost savings.

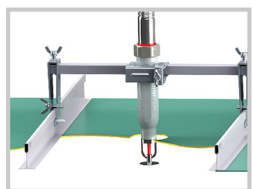
► Environmentally friendly
No waste, not cutting Realflex® flexible hoses can be re-shaped, relocated to suit final sprinkler location on the ceiling tile without draining the system. No sprinkler displacement after pressure test, eliminating the need for an oversized ring around the sprinkler.

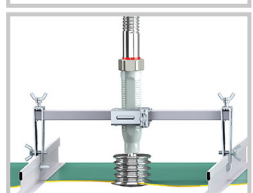
► Seismically
Realflex® stainless steel hoses in the case of an earthquake can absorb seismic shock, assisting the sprinkler system to maintain normal operation.

*Note：Carefully read and understand INSTALLATION INSTRUCTION (provided inside each box of products) prior installation and maintenance, hose bending MUST follow installation instructions.

WHY REALFLEX?

1. Realflex® provides 25% extra length to discharge nipple (up to 140mm) and 50% extra height to side bracket (102mm), it creates universal solution for installation of all different sprinklers, including flush or concealed pendent sprinklers.
2. Discharge nipple with retaining grooves and unique side brackets design works with all variable suspending T-bar grid & wood or metal joist/stud, hard-lid ceiling systems.
3. All fixing screws and bolts are available with wing-head, improving installation speed.
4. Simply add 4x sheet-metal screws will build a tamper-resistant installation.
5. Supporting square bar with extra 50% thickness than competition, with true 1.20mm/ 3/64 inches, provides better structure rigidity and stabilize the sprinkler head during installation, pressurization or activation.
6. Each Realflex® flexible hose is able to tracing to the production date and shift.
7. Pre-assembled brackets with square bar is available upon request.





TECHNICAL SPECIFICATIONS

Style RF-100

Unbraided hose with straight nipple

Listings: c UL us LISTED (limited flexibility)

Connection: 1" / DN25 ✖ ½" / DN15 or ¾" / DN20, NPT or BSPT

Hose Diameter: O.D. 26.8mm / 1 1/16" Flow: 22.5mm / ⅞"

Maximum service pressure: 14bars/ 203psi

Maximum ambient temperature: 66°C/150°F (UL)

(Manufacturer Choice to test at 66°C/ 107°C/ 149°C)

High temperature exposure tested by FM: 135°C/45 days*

Flexible hose		cULus listing data			
Model	Sprinkler thread size	Max.allow. Sprinkler K-factor	Max. no. of 90° bends	Min. bending radius	EQL of 33.7mm/1" SCH40 Pipe
	DN/in.	Metric / Imprl.	n x 90°	mm / inch	meters / feet
RF-100-700	15 / ½	80 / 5.6	2	100	8.2 / 27.0
	20 / ¾	202 / 14.0		3.9	8.5 / 28.0
RF-100-1000	15 / ½	80 / 5.6	3	100	11.3 / 37.0
	20 / ¾	202 / 14.0		3.9	12.5 / 41.0
RF-100-1200	15 / ½	80 / 5.6	3	100	14.9 / 49.0
	20 / ¾	202 / 14.0		3.9	14.3 / 47.0
RF-100-1500	15 / ½	80 / 5.6	3	100	19.2 / 63.0
	20 / ¾	202 / 14.0		3.9	19.5 / 64.0
RF-100-1800	15 / ½	80 / 5.6	4	100	23.8 / 78.0
	20 / ¾	202 / 14.0		3.9	24.4 / 80.0

*Seal integrity test by FM

TECHNICAL SPECIFICATIONS

Style RF-200 / -200E / -200G

Braided hose with straight nipple / elbow nipple / grooved connection

Listings: FM APPROVED · c UL us LISTED

Connection: 1" / DN25 ✖ ½" / DN15 or ¾" / DN20, NPT or BSPT

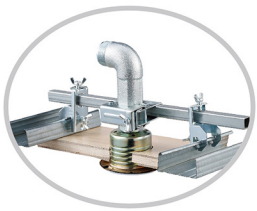
Hose Diameter: O.D. 26.8mm / 1 1/16" Flow: 21.0mm / 1 3/16"

Maximum service pressure: 14bars/ 203psi

Maximum ambient temperature: 66°C/150°F (UL)

(Manufacturer Choice to test at 66°C/ 107°C/ 149°C)

High temperature exposure tested by FM: 135°C/45 days*



Flexible hose		FM approval data					cULus listing data ¤			
		Style RF-200/ 200G with straight nipple				RF-200E w.straight nipple				
Model	Sprinkler thread size	Max.allow. Sprinkler K-factor	Max. no. of 90º bends	Min. bending radius	EQL of 33.7mm/1" SCH40 Pipe	EQL of 33.7mm/1" SCH40 Pipe	Max.allow. Sprinkler K-factor	Max. no. of 90º bends	Min bending radius	EQL of 33.7mm/1" SCH40 Pipe
	DN/in.	Metric / Imprl.	n x 90º	mm / inch	meters / feet	meters / feet	Metric / Imprl.	n x 90º	mm / inch	meters / feet
RF-200-700	15 /½	115 / 8.0	1	250	8.1 / 26.7	8.0 / 26.5	81 / 5.6	2	100	7.6 / 25.0
	20 / ¾	202 / 14.0		9.8	6.5 / 21.5	5.1 / 16.8	115 / 8.0		3.9	6.4 / 21.0
RF-200-1000	15 / ½	115 / 8.0	2	250	12.9 / 42.6	12.4 / 40.8	81 / 5.6	3	100	10.1 / 33.0
	20 / ¾	202 / 14.0		9.8	12.0 / 39.6	10.5 / 34.2	115 / 8.0		3.9	11.0 / 36.0
RF-200-1200	15 / ½	115 / 8.0	3	250	16.2 / 53.2	15.4 / 50.4	81 / 5.6	3	100	11.9 / 39.0
	20 / ¾	202 / 14.0		9.8	15.7 / 51.6	13.9 / 45.8	115 / 8.0		3.9	13.1 / 43.0
RF-200-1500	15 / ½	115 / 8.0	3	250	20.6 / 67.8	20.0 / 65.7	81 / 5.6	3	100	15.2 / 50.0
	20 / ¾	202 / 14.0		9.8	19.3 / 63.5	17.9 / 58.7	115 / 8.0		3.9	15.8 / 52.0
RF-200-1800	15 / ½	115 / 8.0	4	250	25.1 / 82.4	24.6 / 81.0	81 / 5.6	3	100	17.7 / 58.0
	20 / ¾	202 / 14.0		9.8	22.9 / 75.4	21.7 / 71.5	115 / 8.0		3.9	19.2 / 63.0

¤ UL listing the maximum anchoring space between two side brackets is 610mm / 24 inches.

*Seal integrity test by FM

TECHNICAL SPECIFICATIONS

Style RF-400 / -400E / -400G

Braided hose with straight nipple / elbow nipple / grooved connection

Style RF-400 /-400E Braided Flexible Sprinkler Hose is a high performance sprinkler connection. Annular bellow design provides a high flexibility and allows the hose to reach a minimum 2 inch / 50mm bending radius. Friction loss (EQL value) is remarkably reduced by an enlarged inner flow diameter up to 1"/25.4mm. Suitable for up to 1" dry pendent sprinkler connection.

Style RF-400 Braided hose with straight nipple

Model	Sprinkler thread size DN/in.	Max.allow. Sprinkler K-factor Metric / Imprl.	Max. no. of 90° bends n x 90°	Min bending radius mm / inch	EQL of 33.7mm/1" SCH40 Pipe meters / feet
RF-400-700	15 /½	115 / 8.0	4	51 2	8.5 / 18.0
	20 / ¾	202 / 14.0			
	25 / 1	360 / 25.2			
RF-400-1000	15 / ½	115 / 8.0	5	51 2	11.3 / 24
	20 / ¾	202 / 14.0			
	25 / 1	360 / 25.2			
RF-400-1200	15 / ½	115 / 8.0	8	51 2	17.5 / 37
	20 / ¾	202 / 14.0			
	25 / 1	360 / 25.2			
RF-400-1500	15 / ½	115 / 8.0	10	51 2	23.1 / 49
	20 / ¾	202 / 14.0			
	25 / 1	360 / 25.2			
RF-400-1800	15 / ½	115 / 8.0	12	51 2	24.5 / 52
	20 / ¾	202 / 14.0			
	25 / 1	360 / 25.2			

Listings: FM APPROVED, c UL us LISTED

Connection: 1" / DN25 ✖
½" / DN15 or ¾"/ DN20 or 1" / DN25, NPT or BSPT

Hose Diameter: O.D. 35.0mm / 1⅜ "
Flow: 26.0mm / 1"

Maximum pressure: 14bars/ 203psi

Maximum ambient temperature: 66°C/150°F (UL)

(Manufacturer Choice to test at 66°C/ 107°C/ 149°C)

High temperature exposure tested by FM: 135°C/45 days*

Style RF-400 / -400G Braided hose with straight nipple — RF-400E w. elbow

Model	Sprinkler thread size DN/in.	Max.allow. Sprinkler K-factor Metric / Imprl.	Max. no. of 90° bends n x 90°	Min bending radius mm / inch	EQL of 33.7mm/1" SCH40 Pipe meters / feet	Max.allow. Sprinkler K-factor Metric / Imprl.	EQL of 33.7mm/1" SCH40 Pipe meters / feet
RF-400-700	15 /½	115 / 8.0	1	175 6.9	1.3 / 4.5	115 / 8.0	4.9 / 16.3
	20 / ¾	202 / 14.0			3.9 / 13.0	202 / 14.0	4.7 / 16.6
	25 / 1	360 / 25.2			1.7 / 5.6	/	/
RF-400-1000	15 / ½	115 / 8.0	3	175 6.9	2.9 / 9.8	115 / 8.0	7.4 / 24.4
	20 / ¾	202 / 14.0			6.3 / 20.7	202 / 14.0	7.2 / 23.7
	25 / 1	360 / 25.2			2.8 / 9.2	/	/
RF-400-1200	15 / ½	115 / 8.0	3	175 6.9	4.0 / 13.4	115 / 8.0	9.0 / 29.8
	20 / ¾	202 / 14.0			7.8 / 25.9	202 / 14.0	8.8 / 29.1
	25 / 1	360 / 25.2			3.5 / 11.6	/	/
RF-400-1500	15 / ½	115 / 8.0	4	175 6.9	5.7 / 18.8	115 / 8.0	11.5 / 37.9
	20 / ¾	202 / 14.0			10.2 / 33.7	202 / 14.0	11.3 / 37.2
	25 / 1	360 / 25.2			4.6 / 15.2	/	/
RF-400-1800	15 / ½	115 / 8.0	4	175 6.9	7.3 / 24.2	115 / 8.0	14.0 / 46.0
	20 / ¾	202 / 14.0			12.6 / 41.5	202 / 14.0	13.8 / 45.3
	25 / 1	360 / 25.2			5.8 / 19.1	/	/

¤ UL listing the maximum anchoring space between two side brackets is 610mm / 24 inches.

*Seal integrity test by FM

TECHNICAL SPECIFICATIONS

RF-200 IB

Stainless Steel Flexible hose, braided,
for isolation board roof

Listings: FM APPROVED (unlimited flexibility)

Connection: 1" / DN25 ✖ ½" / DN15, NPT or BSPT

Hose Diameter: O.D. 26.8mm / 1 1/16" Flex: 21.0mm / 13/16"

Rated Working Pressure: 14bars/1.4MPa / 203psi(FM)

Flexible hose		FM approval data			
Model	Sprinkler thread size	Max.allow. Sprinkler K-factor	Max. no. of 90° bends	Min. bending radius	EQL of 33.7mm/1" SCH40 Pipe
	DN/in.	Metric / Imprl.	n x 90°	mm / inch	meters / feet
RF-200IB-700	15 / ½	115 / 8.0	1	250	8.1
				9.8	26.7
RF-200IB-1000	15 / ½	115 / 8.0	3	250	12.9
				9.8	42.6
RF-200IB-1200	15 / ½	115 / 8.0	3	250	16.2
				9.8	53.2
RF-200IB-1500	15 / ½	115 / 8.0	4	250	20.6
				9.8	67.8
RF-200IB-1800	15 / ½	115 / 8.0	4	250	25.1
				9.8	82.4

*Results are tested & recorded by FM approvals under minimum bending radius in maximum bending degrees.

TECHNICAL SPECIFICATIONS

RF-200 CR

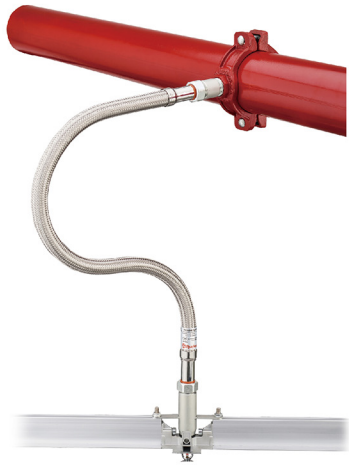
Stainless Steel Flexible hose, braided,
for clean room application

Listings: FM APPROVED (unlimited flexibility)

Connection: 1" / DN25 × ½" / DN15, NPT or BSPT

Hose Diameter: O.D. 26.8mm / 1 1/16" Flow: 21.0mm / 13/16"

Rated Working Pressure: 14bars/1.4MPa / 203psi(FM)

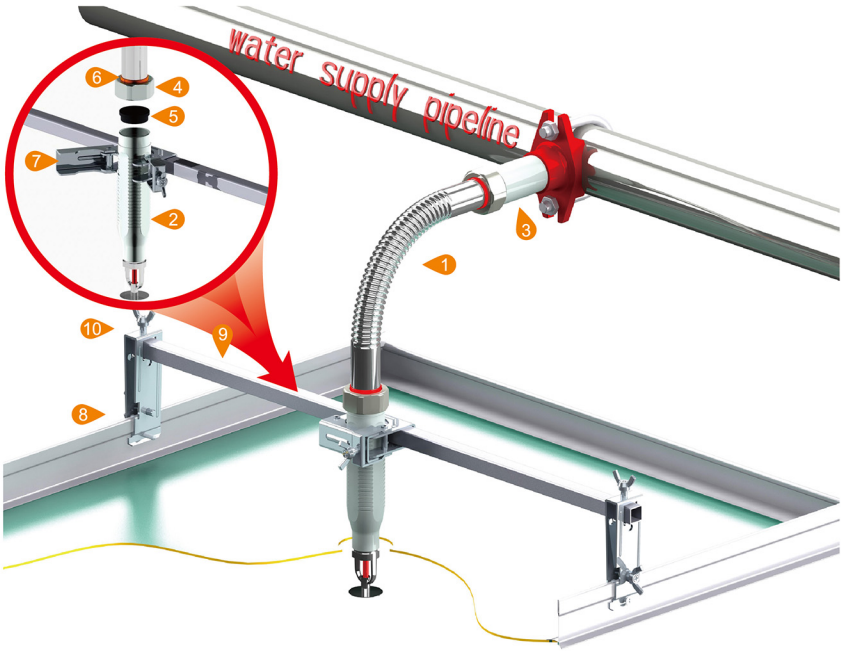


Flexible hose		FM approval data			
Model	Sprinkler thread size	Max.allow. Sprinkler K-factor	Max. no. of 90° bends	Min. bending radius	EQL of 33.7mm/1" SCH40 Pipe
	DN/in.	Metric / Imprl.	n x 90°	mm / inch	meters / feet
RF-200CR-700	15 / ½	115 / 8.0	1	250	8.1
				9.8	26.7
RF-200CR-1000	15 / ½	115 / 8.0	3	250	12.9
				9.8	42.6
RF-200CR-1200	15 / ½	115 / 8.0	3	250	16.2
				9.8	53.2
RF-200CR-1500	15 / ½	115 / 8.0	4	250	20.6
				9.8	67.8
RF-200CR-1800	15 / ½	115 / 8.0	4	250	25.1
				9.8	82.4

*Results are tested & recorded by FM approvals under minimum bending radius in maximum bending degrees.

Realflex® Pipetec

STRUCTURE & MATERIAL SPECIFICATIONS



Main components & material:

Refer. No.	Description	Material	Numbers of each standard set
1	Corrugated tube Braid & collar–rings*	AISI 304 Stainless steel	1
2	Discharge nipple(elbow)	Galv. Steel ASTM 1020	1
3	Inlet nipple	Galv. Steel ASTM 1020	1
4	Hexagon slip nut	Galv. Steel ASTM 1020	2
5	Gasket	EPDM	2

Refer. No.	Description	Material	Numbers of each standard set
6	Isolation ring	Nylon 66	2
7	Center bracket	Galv. steel ASTM A283 Gr. D	1
8	Side bracket	Galv. steel ASTM A283 Gr. D	2
9	Square bar	Galv. steel ASTM A283 Gr. B	1
10	Bolts & screws	Galv. steel ASTM A283 Gr. D	1 set

*Exist in RF–200, RF–200IB, RF–200CR, RF–400 series only.

ACCESSORIES

RF-13101
Inlet nipple 1" NPT
RF-13201
Inlet nipple 1" BSPT

RF-13131
Inlet nipple 1¼" NPT
RF-13231
Inlet nipple 1¼" BSPT

RF-13111
Inlet nipple ¾" NPT
RF-13211
Inlet nipple ¾" BSPT

RF-13106
Adaptor nipple M33 x M33

RF-13102
Straight reducer ½" NPT
RF-13202
Straight reducer ½" BSPT

RF-13103
Straight reducer ¾" NPT
RF-13203
Straight reducer ¾" BSPT

RF-13109
Straight reducer ⅜" NPT
RF-13209
Straight reducer ⅜" BSPT

RF-13110
Straight reducer 1" NPT
RF-13210
Straight reducer 1" BSPT

RF-13104
90° Elbow reducer ½" NPT
RF-13204
90° Elbow reducer ½" BSPT

RF-13105
90° Elbow reducer ¾" NPT
RF-13205
90° Elbow reducer ¾" BSPT

RF-13112
Long reducer ½" NPT 254mm/10"
RF-13212
Long reducer ½" BSPT 254mm/10"

RF-13132
Sidewall reducer ½" NPT
RF-13232
Sidewall reducer ½" BSPT

RF-13137
Cast elbow short ½" NPT 85mm
RF-13237
Cast elbow short ½" BSPT 85mm

RF-13138
Cast elbow short ¾" NPT 85mm
RF-13238
Cast elbow short ¾" BSPT 85mm

RF-13147
Cast elbow long ½" NPT 115mm
RF-13247
Cast elbow long ½" BSPT 115mm

RF-13148
Cast elbow long ¾" NPT 115mm
RF-13248
Cast elbow long ¾" BSPT 115mm

ACCESSORIES

RF-12120
Center bracket 2 bolts
(with hex screws)

RF-12140
Center bracket 2 bolts
(with wing screws)

RF-12220
Fast center bracket
(with hex screws)

RF-12240
Fast center bracket
(with wing screw)

RF-12320
Easy-Snap C. bracket

RF-12280
Fast center bracket
sidewall / thread rod

RF-12101 Square bar 25"
RF-12102 Square bar 50"
RF-12103 Square bar 55"
RF-12104 Square bar 40"

RF-12110
Side bracket 60mm
(with hex screws)

RF-12130
Side bracket 60mm
(with wing screws)

RF-12210
Side bracket 102mm
(with hex screws)

RF-12230
Side bracket 102mm
(with wing screws)

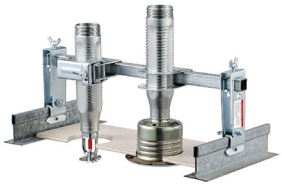
RF-12410
C-clamp (with hex screw)

RF-12430
C-clamp (with wing screw)

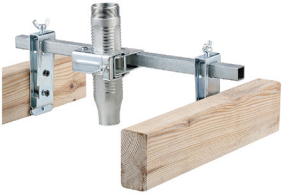
RF-12310
Furring channel bracket

RF-12510
B-shape side bracket

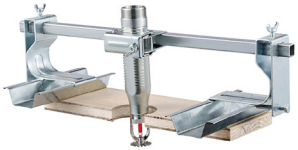
TECHNICAL SPECIFICATIONS



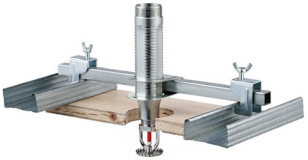
Installation on T–bar grid ceiling system, one solution for regular pendent and concealed sprinklers



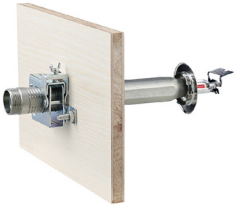
Installation on wood stud with Long Side Bracket



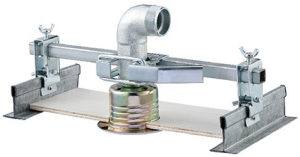
Installation on furring channel system



Installation on C–beam ceiling system



Wall / isolation board penetration solution

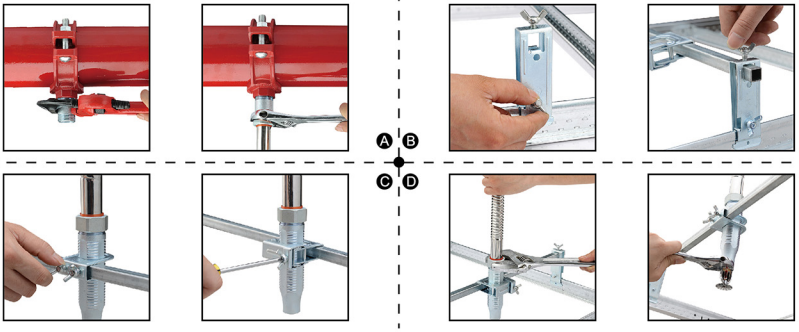


Short elbow + short side bracket to reduce installation clearance to minimum 145mm

Realflex® Pipetec

HOW TO INSTALL?

4 SIMPLE steps to complete a connection between water supply pipeline and sprinkler head on T-bar grid, with Realflex® Flexible Hose:



A. Connect Inlet Nipple

Use pipe wrench to screw the Inlet Nipple into the branch outlet interface on water supply pipeline, use pipe sealant (Teflon tape or pipe glue etc.) to seal and apply tightening torque of approx. 50N・m/35ft–lbs. Then tighten the Hexagon Slip Nut with 28N・m/20ft–lbs to ensure sealing performance.

B. Fix bracket set

Attach side brackets to the main–rail of the T–bar grid and cross the square bar through 2 side brackets, with the center bracket in the middle. Tighten all fixing bolt on the side brackets with 4N・m/3ft–lbs.

C. Bending & Locating

Bend the Flexible Hose body as desired (according to Technical Specification of each style of flexible hoses) and locate the Discharge Nipple into the center bracket. Tighten the bolts on center bracket with 4N・m/3ft–lbs after the proper location of sprinkler head has been found.

D. Connect Discharge Nipple

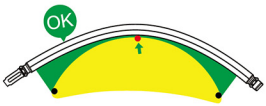
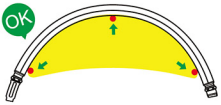
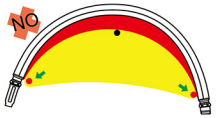
Tighten the Slip Nuts with 28N・m/20ft–lbs and install sprinkler head to Discharge Nipple by following the sprinkler manufacture's installation instructions. Finally test leak in according with NFPA guidelines.

Caution: This Installation Instruction is for reference only!
Specific installation steps, approval information, contraindications and precautions, please refer to the latest update of Installation Instructions, which is attached inside the minimum box packing of products.

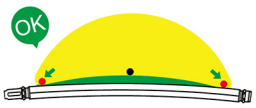
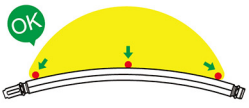
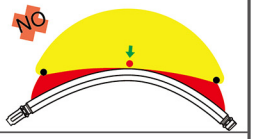
- 10x faster — 10 times faster installed (compare to steel pipe threaded connection)
- 100 circles — 100 circles fatigue/bending proved (RF-200/-200E & RF-400/-400E 50,000 circles)
- 100% tested — 100% leak tested.
- Earthquake — Earthquake prepared
- 7.0Mpa — 7.0MPa (70bars/875psi) burst pressure guaranteed

Use Realflex® Radius Gauge to check hose bend

Use outer edge check RF–100 unbraided hoses (UL Bending Radius) 100 mm/3.9"

		
GREATER than ✓	EQUAL to ✓	SMALLER than ✗

Use inner edge check RF–200 braided hoses (FM Bending Radius) 250 mm/9.8"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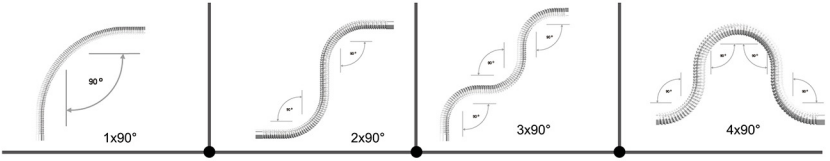
HOSE BENDING, CORRECT or WRONG?



Calculation of bending degrees

Note: Bending direction to be decided according to actual installation condition, sketches for reference only.

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Thai Advanced Construction Materials

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