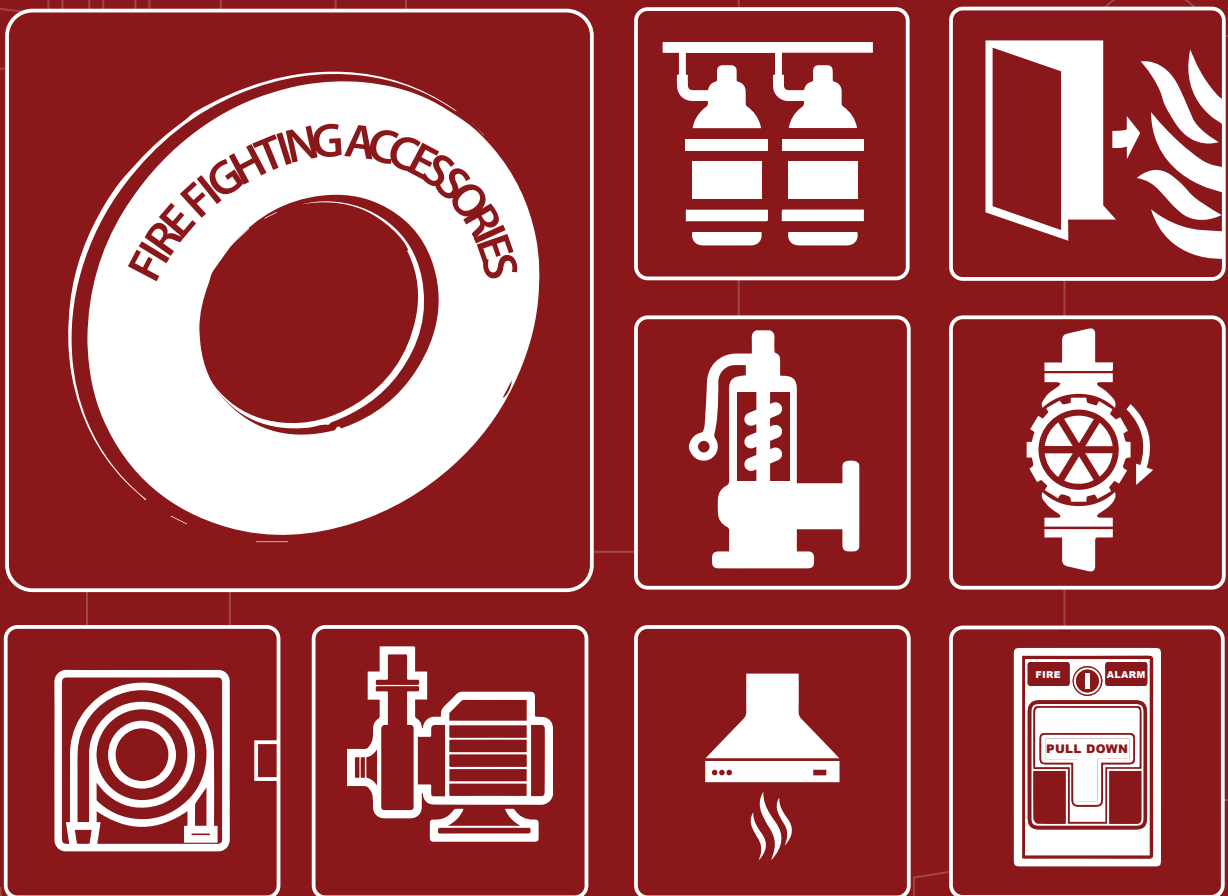




Nasr Awwadeh Factory
For Fire Fighting and Safety Equipment

FIRE FIGHTING ACCESSORIES



w w w . n a f f i r e . c o m

SEAMLESS SAFETY



VANE TYPE WATER FLOW DETECTOR WITH RETARD

Fig No.: WFD-V

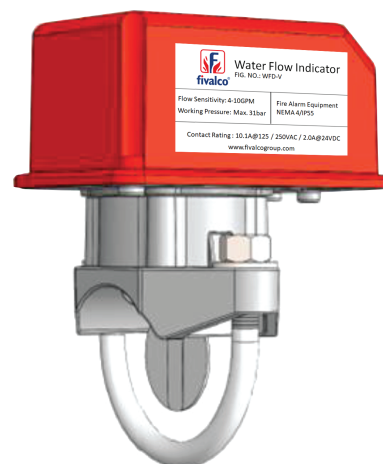
DESCRIPTION

The WFD-V is a vane type water flow detector for use on fire protection and wet sprinkler system. It is suitable for use with Schedule 10 through 40 steel pipe of 2" to 8", and can be installed in vertical or horizontal pipe. The detectors shall have a sensitivity in the range of 4 to 10 gallons per minute, and a service pressure up to 450psi. WFD-V will respond to water flow in the specified direction after preset time delay that is adjustable on site.



FEATURES AND SPECIFICATIONS

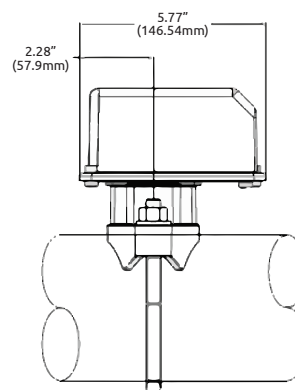
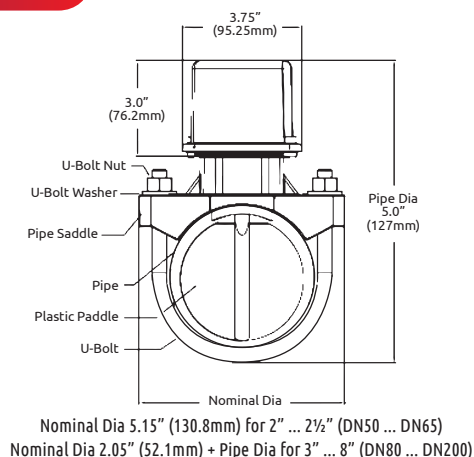
- Conforms to FM1042-2016 & UL346
- Two conduit opening of 1/2". One open; one knock-out type
- Sensitivity Range : 4 ... 10 usgpm
- Contact Rating : Two sets of SPDT (Form C) 10Amps (125 / 250 VAC) / 2Amps (24 VDC)
- Enclosure Rating : NEMA 4- suitable for indoor / outdoor
- Compatible Pipe : Steel pipe, Schedule 10 through 40
- Special tamper screws to prevent disassembly
- Maximum Surge : 5.5m/s
- Time delay adjustment via rotating dial
- Two sets Micro-switch, 100% synchronization
- Working pressure : Max. 31bar / 450psi
- Working temperature : 4.5°C ... 49°C
- Available in aluminium or ABS casing



ORDERING MODEL AND SIZE

MODEL	DESCRIPTION	PIPE SIZE	PIPE DIAMETER	HOLE SIZE
WFD-V-050	Vane Type Water Flow Detector	50mm (2")	60.33mm (2.375")	31.8mm (1 1/4")
WFD-V-065	Vane Type Water Flow Detector	65mm (2.5")	73.03mm (2.875")	31.8mm (1 1/4")
WFD-V-080	Vane Type Water Flow Detector	80mm (3")	88.90mm (3.500")	50.8mm (2")
WFD-V-100	Vane Type Water Flow Detector	100mm (4")	114.30mm (4.500")	50.8mm (2")
WFD-V-150	Vane Type Water Flow Detector	150mm (6")	168.28mm (6.625")	50.8mm (2")
WFD-V-200	Vane Type Water Flow Detector	200mm (8")	219.08mm (8.625")	50.8mm (2")

DIMENSION



VANE TYPE WATER FLOW DETECTOR WITH RETARD

Fig No.: WFD-V

INSTALLATION GUIDE

The WFD-V water flow detector may be mounted on a horizontal or vertical pipe. On horizontal pipe, it should be installed on the top side of the pipe where they will be accessible. The detector should not be installed within 6" (150mm) of a fitting which changes the direction of the waterflow or within 24" (600mm) of a valve or drain.

Drain the system and drill a hole on the pipe. The 2" (50mm) and 2½" (65mm) detectors require a hole with a diameter of 1¼" \pm 0.08" (31.8mm \pm 2mm). All other sizes require a hole with a diameter of 2" \pm 0.08" (50.8mm \pm 2mm).

Clean the inside pipe of all growth or other material for a distance equal to the pipe diameter on either side of the hole.

Roll the vane so that it may be inserted into the hole; do not bend or crease it. Insert the vane with the arrow on the saddle points in the direction of the waterflow.

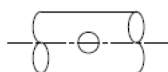
Do not leave cover off for an extended period of time.

Retard Adjustment : The delay can be adjusted by rotating the retard adjustment knob from 0~Max position (0~90 secs). Factory setting is position 2 (Delay time is approximate 30 seconds). The time delay should be set at the minimum required to prevent false alarms.

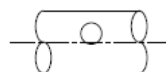
CAUTION

Hole must be drilled perpendicular to the pipe and vertically centered.

CORRECT

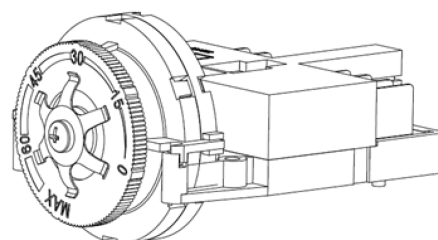
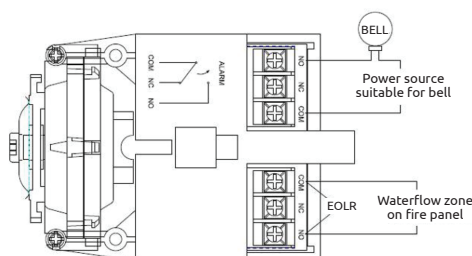


INCORRECT



ELECTRICAL CONNECTIONS AND TIME DELAY ADJUSTMENT

The WFD-V water flow detector have two switches, one can be used to operate a central station, proprietary or remote signaling unit, while the other contact is used to operate a local device or visual annunciator.



Note : Retard Structure can be set from "0" to "MAX" position, delay time can be set from 0~90 secs.

T-TAP TYPE WATER FLOW DETECTOR WITH RETARD

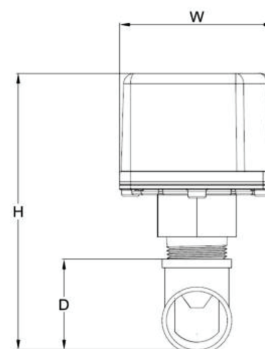
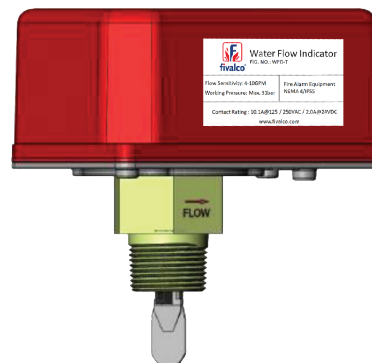
Fig No.: WFD-T

DESCRIPTION

The WFD-T is a T-tap type water flow detector for use on fire protection system, installed on a tee that has 1" to 2" NPT/BSPT socket connection. It is suitable for use with Schedule 10 through 40 steel pipe of 1" to 2", and can be installed in vertical or horizontal pipe. The detectors shall have a sensitivity in the range of 4 to 10 gallons per minute, and a service pressure up to 450psi. WFD-T will respond to water flow in the specified direction after preset time delay that is adjustable on site.

FEATURES AND SPECIFICATIONS

- Conforms to FM1042-2016 & UL346
- Two conduit opening of ½". One open; one knock-out type
- Sensitivity Range : 4 ... 10 usgpm
- Contact Rating : Two sets of SPDT (Form C) 10Amps (125 / 250 VAC) / 2Amps (24 VDC)
- Enclosure Rating : NEMA 4- suitable for indoor / outdoor
- Compatible Pipe : Steel pipe, Schedule 10 through 40
- Special tamper screws to prevent disassembly
- Maximum Surge : 5.5m/s
- Time delay adjustment via rotating dial
- Two sets Micro-switch, 100% synchronization
- Working pressure : Max. 31bar / 450psi
- Working temperature : 4.5°C ... 49°C
- Available in aluminium or ABS casing

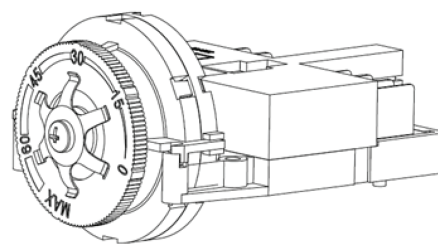
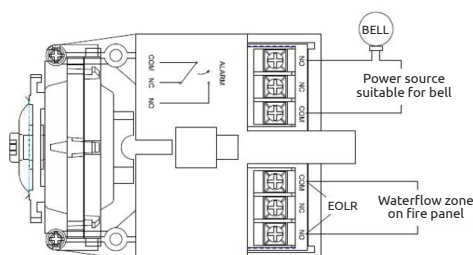


ORDERING MODEL AND DIMENSIONS

MODEL	DESCRIPTION	PIPE SIZE	W	H	D
WFD-T-025	T-Tap Type Water Flow Detector	25mm (1")	95.25	168.65	54
WFD-T-032	T-Tap Type Water Flow Detector	32mm (1¼")	95.25	177.3	62.5
WFD-T-040	T-Tap Type Water Flow Detector	40mm (1½")	95.25	183.65	69
WFD-T-050	T-Tap Type Water Flow Detector	50mm (2")	95.25	196.85	82

ELECTRICAL CONNECTIONS AND TIME DELAY ADJUSTMENT

The WFD-T water flow detector have two switches, one can be used to operate a central station, proprietary or remote signaling unit, while the other contact is used to operate a local device or visual annunciator.



Note : Retard Structure can be set from "0" to "MAX" position, delay time can be set from 0~90 secs.

OUTSIDE SCREW & YOKE VALVE SUPERVISORY SWITCH

Fig No.: SOSY-1

DESCRIPTION

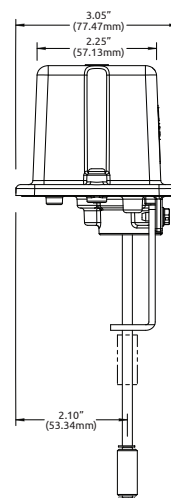
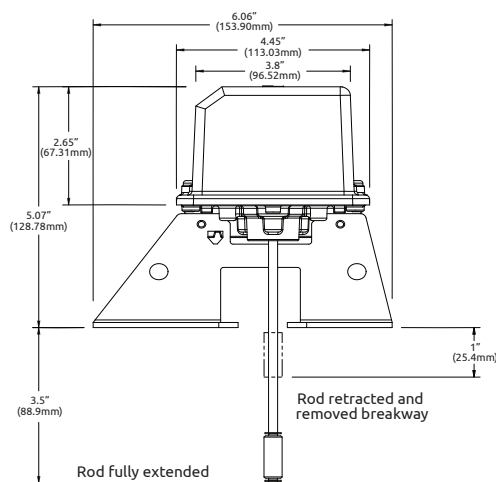
The SOSY-1 supervisory switch is installed on the Outside Screw & Yoke (OS&Y) Gate Valve and is used to monitor the open position of the valve. SOSY-1 contains one set of SPDT (Form C) contacts. These switches mount conveniently to OS&Y Gate Valves ranging from 2" to 12" diameter.

FEATURES AND SPECIFICATIONS

- Fine adjustment feature for fast & easy installation
- One SPDT contact model
- Contact Rating : 10Amps (125/250 VAC) / 2Amps (24 VDC)
- Enclosure Rating : NEMA 4- suitable for indoor / outdoor
- Conduit opening of 1/2"
- Special tamper screws to prevent disassembly
- Working Temperature : 0°C ... 60°C
- Adjustable length trip rod
- 3 position switch monitors vandal and valve closed signals
- Cover Material : ABS Plastic (Aluminium cover available upon request)
- Service use on NFPA-13, NFPA-13D, NFPA-13R & NFPA-72



DIMENSIONS



OUTSIDE SCREW & YOKE VALVE SUPERVISORY SWITCH

Fig No.: SOSY-1

OPERATION METHOD

The SOSY-1 supervisory switch is a 3 position switch. The center position is the normal installation position. Normal is when the switch is installed on the OS&Y valve, the valve is fully open and the trip rod of the supervisory switch is in the groove of the valve stem. Closing the valve causes the trip rod to ride up out of the groove and activates the switches. Removing the supervisory switch from the valve causes the spring to pull the trip rod in the other direction and activates the switches.

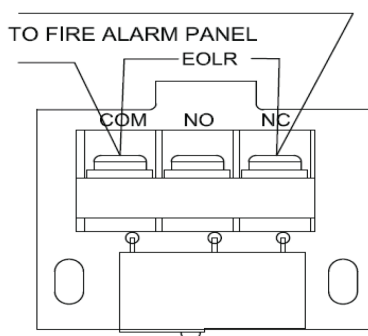
INSTALLATION GUIDE

The SOSY-1 supervisory switch can be mounted on outside screw & yoke (OS&Y) gate valves between ½" and 12" in diameter. Do not install the supervisory switch with its actuating lever pointing upward as the water may leak into the switch.

For narrow yoke valves, installing the valve with mounting bolts inside the yoke is recommended. However, some valves may have yokes that are too narrow for this positioning. If this is the case, position the bolts on the outside of the yoke.

The supervisory switch is equipped with a ground screw inside the switch housing near the conduit for applications where grounding is required.

ELECTRICAL CONNECTIONS



TESTING

The operation of the SOSY-1 supervisory switch and its associated protective monitoring system shall be tested, and maintained in accordance with all applicable local and national codes and standards and / or department of local authority. A minimum test shall consist of turning the valve wheel towards the closed position. The supervisory switch shall operate within the first two revolutions of the wheel. Fully close the valve and ensure that the supervisory switch does not restore. Fully open the valve and ensure that the supervisory switch restores to normal only when the valve is fully opened.

Fully close the gate valve to ensure that the stem threads do not activate the switch. The switch being activated by the stem threads could result in a false valve open indication.



Design and applications

The sprinkler measuring orifice SMB is used for flow measurement in stationary sprinkler systems. The device works according to the principle of differential pressure.

The SMB is integrated into the pipeline as an intermediate flange assembly. A differential pressure occurs at the orifice, which is proportional to square of the volume flow through the pipeline. The differential pressure is indicated by a differential-pressure gauge. Scaling of the pressure gauge is in flow units. The pointer position immediately indicates the current volume flow rate through the pipeline.

The measuring orifice SMB-OE displays the differential pressure as a percentage value on a pressure gauge. The operator can read the equivalent volume from a label fixed to the pressure gauge.

Thanks to its particular articulate design, integration of the SMB is possible in any flow direction. The display pivots by 180 degrees in both directions. In case of vibrations in the pipeline orifice and pressure gauge can be decoupled by the Minimesse hose connection (pressure gauge for wall mounting).

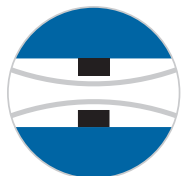
VdS approval

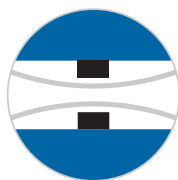
The SMB has been approved by the VdS damage prevention for use in stationary sprinkler systems.

SMB



- **VdS approval no.: G 4990049**
- **all flow directions possible with one device**
- **mounting position freely selectable**
- **dial gauge pivoting by $\pm 180^\circ$**
- **self-centring**
- **five different nominal width**
- **measuring accuracy 2,5 % FS**
- **incl. two flat gaskets SIL 4400**
- **optionally**
 - **indicator with scale in percentages (SMB-OE)**
 - **Minimesse hose connection (gauge for wall mounting in case of vibrations in the pipeline)**





SMB

Sprinkler measuring orifice

Type series

SMB	scaling of scale reading plate in m ³ /min
SMB-OE	scaling of scale reading plate in %
SMB-....-Minimess	display with hose connection

Technical data

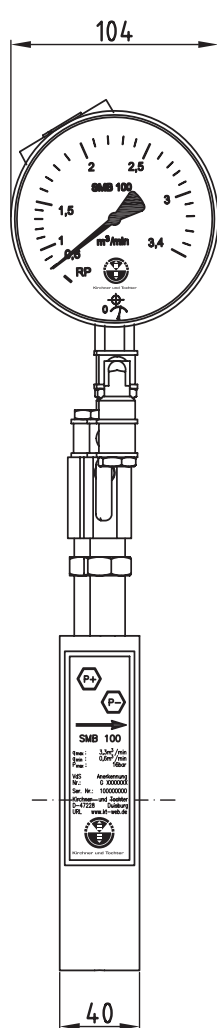
VdS approval	no.: G 4990049
Measuring principle	differential pressure measuring at the orifice
Measuring accuracy	2,5 % at the approved full scale range value
Max. working pressure	16 bar
Terms of installation	VdS guideline CEA 4001 chapter 7.4
Connection	intermediate flange installation PN 16 in accordance with DIN EN 1092-1

Materials

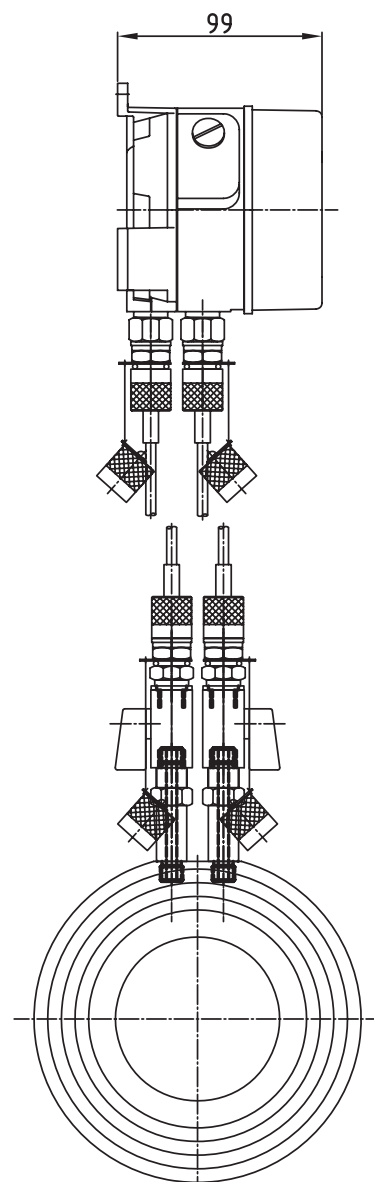
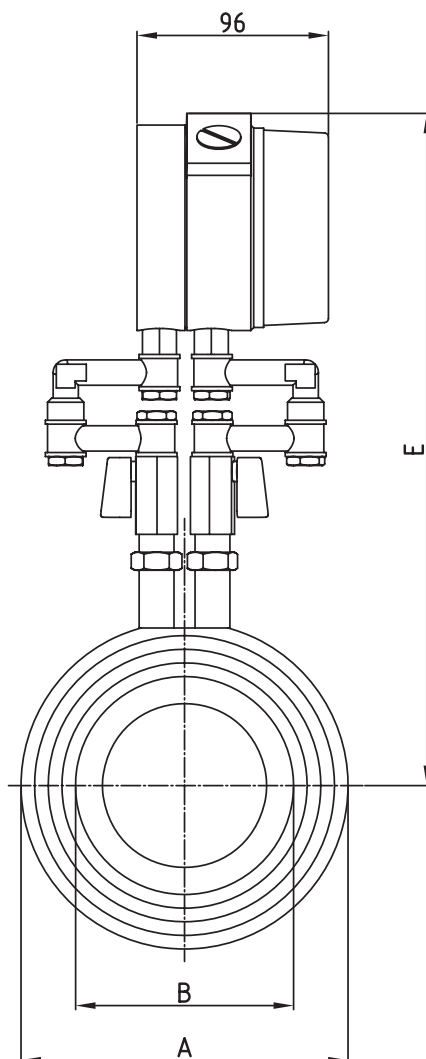
Orifice	aluminium, hard coated
Screwed connections	nickel-plated brass, 1.4308
Ball valves	nickel-plated brass
Dial gauge	aluminium, coated

Dimensions

Model	A	B	E
SMB 80	144	84,1	311
SMB 100	164	108,9	321
SMB 150	220	161,8	349
SMB 200	275	211,1	377
SMB 250	331	264,5	406



SMB/SMB-OE



**SMB/SMB-OE with
Minimesse hose connection**

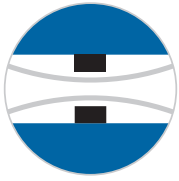
Measuring and accuracy

Model	Nominal width DN	Shown measuring range [m³/min]	VdS approved measuring range [m³/min] (% with SMB-OE)	max. deviation in the approved full scale range [m³/min] (%)
SMB 80	80	0,4 – 2,1	0,6 (28,5 %) – 2,1 (100 %)	± 0,0525 ± 2,5
SMB 100	100	0,6 – 3,4	1 (29,4 %) – 3,4 (100 %)	± 0,085 ± 2,5
SMB 150	150	1,4 – 7,25	2 (27,58 %) – 7,25 (100 %)	± 0,18125 ± 2,5
SMB 200	200	2,6 – 12,35	4 (32,35 %) – 12,35 (100 %)	± 0,30875 ± 2,5
SMB 250	250	3 – 18,12	4 (22,85 %) – 18,12 (100 %)	± 0,453 ± 2,5

2,5 % at the approved full scale range value

5,0 % at the approved measuring range start value

The inter-values for the permitted measuring accuracy are the result by linear interpolation.



SMB

Sprinkler measuring orifice

Proper use

The user is responsible for assessing the suitability of the flow meters for his case of application, for use as prescribed, and for material compatibility regarding the liquid product used in his process.

The manufacturer shall not be liable for any damage arising from incorrect or improper use of the devices.

The equipment from **Kirchner und Tochter** has been tested in compliance with applicable CE-regulations of the European Community. The respective declaration of conformity is available on request. Subject to change without notice. The current valid version of our documents can be found at: www.kt-flow.de

The **Kirchner und Tochter** QM-System is certified in accordance with DIN-EN-ISO 9001:2008. The quality is systematically adapted to the continuously increasing demands.

Adjustable Relief Valve

FIG. F1329

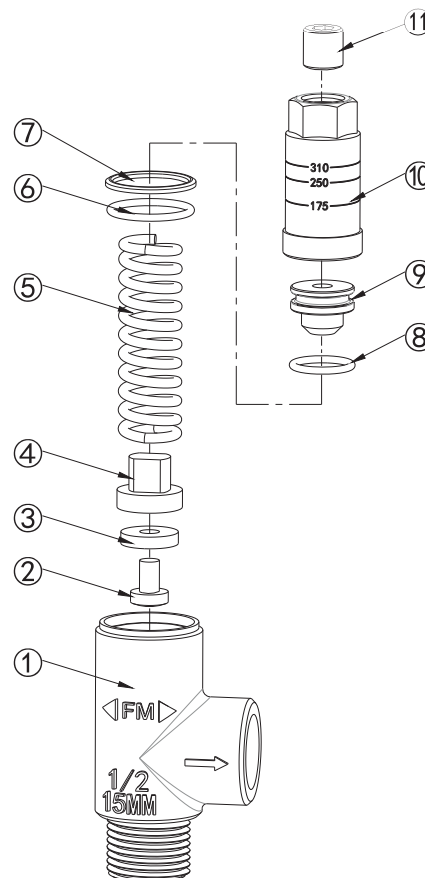
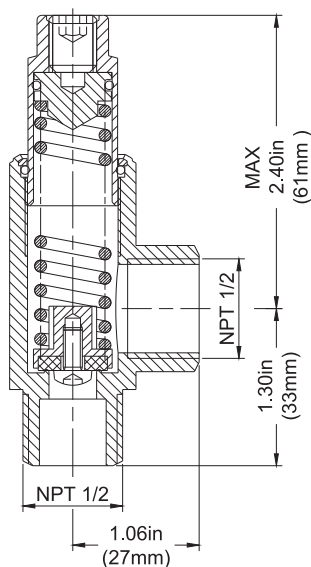
General Description

- F1329 bronze adjustable relief valve is rated for up to 310 psi. The adjustable relief valve allows for the required NFPA field hydrostatic testing to be accomplished without removing and/or plugging the outlet for the relief valve.

Note: Visual calibration lines on valve are used for approximate adjustment, must verify pressure setting with pressure gauge.

Technical Data

- Maximum System Working Pressure:**
310 psi
- Relief Valve Set Pressure Range**
175 psi to 310 psi
- FM Approved.
- Dimensions**



Material Specifications

No.	Part Name	Material	ASTM Specification
1	Body	Bronze	B148 C95200
2	Retaining Screw	Stainless Steel	F593 Grade 304
3	Sealing Gasket	Rubber	D2000 EPDM
4	Disc	Bronze	B148 C95200
5	Spring	Stainless Steel	A276 Type 304
6	O-Ring	Rubber	D2000 NBR
7	Washer	Brass	B124 C37700
8	O-Ring	Rubber	D2000 NBR
9	Piston	Stainless Steel	A276 Type 304
10	Adjustment Cap	Bronze	B148 C95200
11	Adjustment Screw	Stainless Steel	F593 Grade 304

Notes

- Designs, materials and specifications shown are subject to change without notice due to the continuous development of our products.



Description

A61 Giacomini Test and Drain valve for sprinkler systems combines the functions of test and drain for wet sprinkler systems.

A61 valves have forged brass body with chrome plated brass ball valve and PTFE seats. The valves comply with the requirements of NFPA-13, NFPA-13R and NFPA-13D. The A61 valves are single handle ball valves with three working positions. They include tamper resistant test orifice and sight glass for the visual control.

Versions and product codes

Series	Size	Type
A61	1"	Rp, EN 10226 (F) x Rp, EN 10226 (F)
	1-1/4"	
	1-1/2"	
	2"	
	1"	NPT (F) x NPT (F)
	1-1/4"	
	1-1/2"	
	2"	
	1-1/4"	Groove x Groove
	2"	

Orifice codes

Valves size	Size	K factor
1"	3/8"	2,8
	7/16"	4,2
	1/2"	5,6
	17/32"	8,0
1-1/4"	3/8"	2,8
	7/16"	4,2
	1/2"	5,6
	17/32"	8,0
	5/8"	11,2
1-1/2" 2"	3/4"	14,0
	7/16"	4,2
	1/2"	5,6
	17/32"	8,0
	5/8"	11,2
	3/4"	14,0
	15/16"	16,8
1-1/2" 2"	1-5/64"	22,4
	1-9/64"	25,2

Technical data

- Rated pressure: 300 psi

Materials

- Forged brass body
- Chrome plated ball
- Steel handle
- Valve seat in PTFE
- Indication disk in brass
- Sight glasses in polycarbonate

Approvals



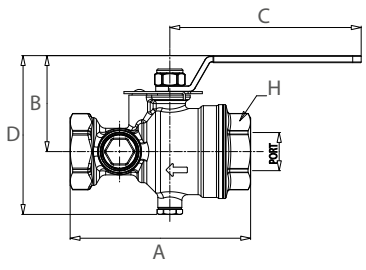
1", 1-1/4", 2"



1", 1-1/4", 1-1/2", 2"

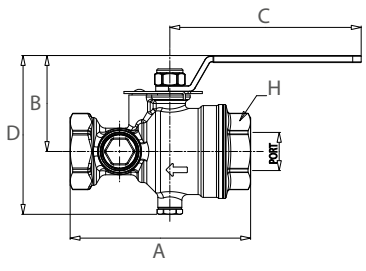
Dimensions

A61 - FEMALE Rp x FEMALE Rp



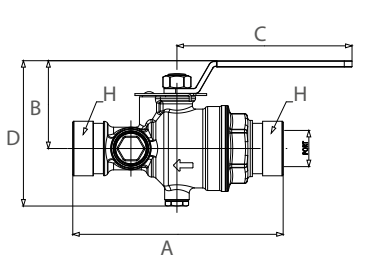
Size	C (plug)	PORT	A	B	C	D	H
1"	1/4"	1-1/16"	5-1/18"	2-43/64"	5-11/32"	4-27/64"	1-57/64"
1 1/4"	1/4"	1-1/16"	5 7/16"	2-43/64"	5-11/32"	4-27/64"	1-57/64"
1 1/2"	1/4"	1-18/32"	6-3/16"	4"	6-26/32"	6-21/64"	2-40/64"
2"	1/4"	1-12/16"	6-21/32"	4"	6-26/32"	6-21/64"	2-40/64"

A61 - FEMALE NPT x FEMALE NPT



Size	C (plug)	PORT	A	B	C	D	H
1"	1/4"	1-1/16"	5-1/32"	2-43/64"	5-11/32"	4-27/64"	1-57/64"
1 1/4"	1/4"	1-1/16"	5-1/32"	2-43/64"	5-11/32"	4-27/64"	1-57/64"
1 1/2"	1/4"	1-18/32"	6-6/32"	4"	6-26/32"	6-21/64"	2-40/64"
2"	1/4"	1-12/16"	6-6/32"	4"	6-26/32"	6-21/64"	2-40/64"

A61 - GROOVE x GROOVE



Size	C (plug)	PORT	A	B	C	D	H
1 1/4"	1/4"	1-1/16"	6-13/32"	2-43/64"	5-11/32"	4-27/64"	1-1/4" GROOVE
2"	1/4"	1-12/16"	7-17/32"	4"	6-26/32"	6-21/64"	2" GROOVE



Product specifications

A61

Test and drain valve for sprinkler systems combines the functions of test and drain for wet sprinkler systems. complies with the requirements of NFPA-13, NFPA-13R and NFPA-13D and is FM approved (excluding 1-1/2" size) and UL listed (all sizes).

Main feature as following:

- Rp, EN 10226 threads 1", 1-1/4", 1-1/2", 2"
- NPT threads 1", 1-1/4", 1-1/2", 2"
- Groove connections 1-1/4", 2"
- Forged brass body
- Chrome plated brass ball
- PTFE seats.
- Single handle ball valves with three working positions
- Tamper resistant test orifice and sight glass included

Additional information

For more information, go to www.giacomini.com or contact our technical assistance service: ☎ +39 0322 923372 📠 +39 0322 923255 ✉ consulenza.prodotti@giacomini.com

This document provides only general indications. Giacomini S.p.A. may change at any time, without notice and for technical or commercial reasons, the items included herewith.

The information included in this technical sheet do not exempt the user from strictly complying with the rules and good practice standards in force.

Giacomini S.p.A. Via per Alzo, 39 - 28017 San Maurizio d'Opaglio (NO) Italy

Flexible Sprinkler Drops

Braided Flexible Sprinkler Connection Data Sheet

GENIE SYSTEMS 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.

Genie Systems flexible sprinkler connections offer braided and unbraided flexible hoses in 700mm, 1000mm, 1200mm, 1500mm and 1800mm with top loading or front loading brackets for variety of ceiling and wall applications: T-Bars, metal studs, hat channels, wood beams, concrete sidewalls, and more. The system is qualified to be installed at commercial, hotel, retail, restaurants, cultural, entertainment, educational, government, healthcare, and religious buildings.

GENIE SYSTEMS Flexible Sprinkler Drops Appliance Standards

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

- Standard for flexible sprinkler hose with fittings for fire protection service

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

- ASTM C635: Standard specifications for the manufacture, performance, and testing of metal suspension system

3. 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
- NFPA 13 Section 9.2.1.3.3.3 : No hangers are required for flexible connections as long as the length does not exceed 6ft.

4. American Society for Testing and Methods (ASTM):

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

5. International Building Code (IBC) Section 1621 / American Society of Civil Engineers (ASCE) 7.9.6.2.6.2 & 9.6.2.6.2.2:

- Flexible Sprinkler Connections are an alternative solution to install without seismic escutcheons

Job Name :

Engineer / Architect :

Job Location :

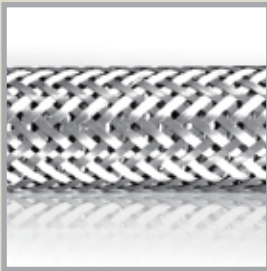
Wholesaler :

Submittal Date :

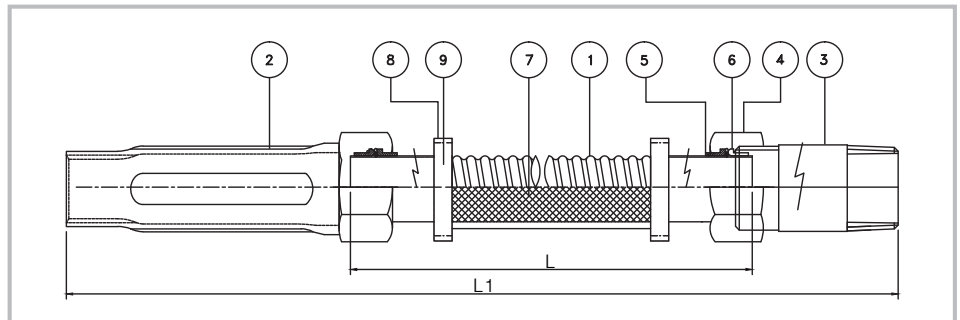
Contractor :



TECHNICAL SPECIFICATIONS



BRAIDED TYPE FLEXIBLE HOSE



- | | | |
|------------------|-------------------|-------------------|
| 1. FLEXIBLE TUBE | 4. SLIP NUT | 7. BRAIDED HOSE |
| 2. REDUCER | 5. ISOLATING-RING | 8. CLAMP(OUTSIDE) |
| 3. NIPPLE | 6. GASKET | 9. CLAMP(INSIDE) |

SPECIFICATIONS

Lengths Available	24", 48", 60" and 71"
Outlet	1/2" or 3/4"
Hose Type	Braided
Max. Ambient Temperature Rating	225°F
Max. Working Pressure Rating	175 psig

* Required torque to assemble reducer and nipple with the flexible hose : 300kgf.cm

Hose	Stainless Steel 304	
Nut & Nipple	Zinc-Plated Steel	
Sealing Gasket / Isolation Ring	Silicone / Nylon	
Minimum Bend Radius	190mm(UL/ULC) from connection nuts	
Connection	Inlet	1"NPT or BSP
	Outlet	1/2" or 3/4"NPT or BSP



FRICION LOSS DATA

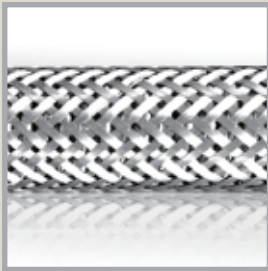
DJ25B Series Braided Hose with Fittings

Model	Rated Pressure, psig	Max. Ambient Temp, °F	Nom. Inlet by Outlet Size, in.	Assembly Length, ft (mm)	Max No. of 90° Bends	Min Bend Radius, mm.	Equivalent Length of 1 in. Schedule 40 Steel Pipe (C = 120), ft	Flexibility Type
DJ25B	175	225	1x1/2	2.0 (610)	1	190	12	Limited
	175	225	1x1/2	4.0 (1220)	3	190	29	Limited
	175	225	1x1/2	5.0 (1525)	3	190	68	Limited
	175	225	1x1/2	5.9 (1800)	3	190	94	Limited
DJ25B	175	225	1x3/4	2.0 (610)	1	190	21	Limited
	175	225	1x3/4	4.0 (1220)	3	190	36	Limited
	175	225	1x3/4	5.0 (1525)	3	190	73	Limited
	175	225	1x3/4	5.9 (1800)	3	190	99	Limited

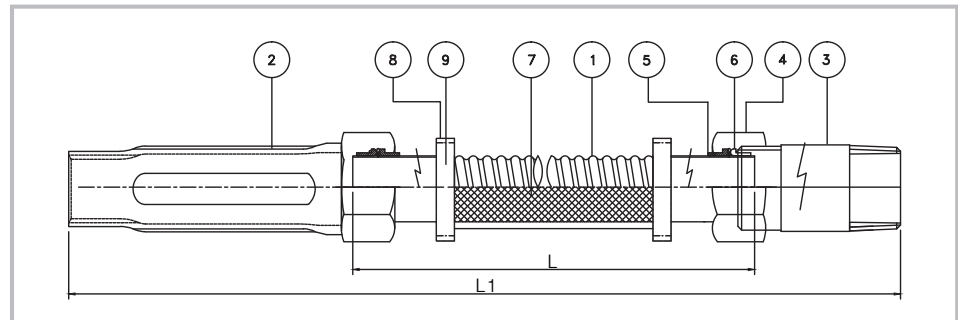
* UL : 190mm minimum bend radius, where C=120



TECHNICAL SPECIFICATIONS



BRAIDED TYPE FLEXIBLE HOSE



- | | | |
|------------------|-------------------|-------------------|
| 1. FLEXIBLE TUBE | 4. SLIP NUT | 7. BRAIDED HOSE |
| 2. REDUCER | 5. ISOLATING-RING | 8. CLAMP(OUTSIDE) |
| 3. NIPPLE | 6. GASKET | 9. CLAMP(INSIDE) |

SPECIFICATIONS

Lengths Available	24", 31.2", 36", 48", 60" and 72"
Outlet	1/2" or 3/4"
Hose Type	Braided

Max. Ambient Temperature Rating	225°F
Max. Working Pressure Rating	175 psig

* Required torque to assemble reducer and nipple with the flexible hose : 300kgf.cm

Hose	Stainless Steel 304
Nut & Nipple	Zinc-Plated Steel
Sealing Gasket / Isolation Ring	EPDM / Nylon

Minimum Bend Radius	10"(FM) from connection nuts	
Connection	Inlet	1"NPT or BSP
	Outlet	1/2" or 3/4"NPT or BSP



FRICTION LOSS DATA

DJ25B Series Braided Hose with Fittings

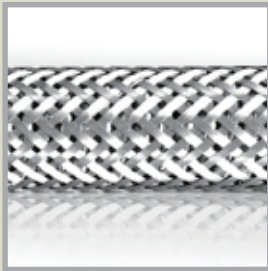
Model	NPT in.	k-Factor	Minimum Bend Radius in. (mm)	Number of Bends	Rated Working Pressure psi (kPa)	Hose Assembly length in. (mm)	Equivalent Length of 1 in. Schedule 40 Pipe, ft (m)
DJ25B	1/2	5.6	10 (254)	1	175 (1205)	24 (610)	26.4 (8.0)
	1/2	5.6	10 (254)	1	175 (1205)	31.2 (792)	32.0 (9.7)
	1/2	5.6	10 (254)	1	175 (1205)	36 (915)	34.1 (10.4)
	1/2	5.6	10 (254)	2	175 (1205)	48 (1220)	46.8 (14.2)
	1/2	5.6	10 (254)	3	175 (1205)	60 (1525)	61.4 (18.7)
	1/2	5.6	10 (254)	4	175 (1205)	72 (1830)	76.1 (23.2)
DJ25B	3/4	8.0	10 (254)	1	175 (1205)	24 (610)	19.4 (5.9)
	3/4	8.0	10 (254)	1	175 (1205)	31.2 (792)	23.4 (7.3)
	3/4	8.0	10 (254)	1	175 (1205)	36 (915)	28.4 (8.6)
	3/4	8.0	10 (254)	2	175 (1205)	48 (1220)	39.5 (12.0)
	3/4	8.0	10 (254)	3	175 (1205)	60 (1525)	54.8 (16.7)
	3/4	8.0	10 (254)	4	175 (1205)	72 (1830)	70.1 (21.4)

* FM : 10" minimum bend radius, where C=120

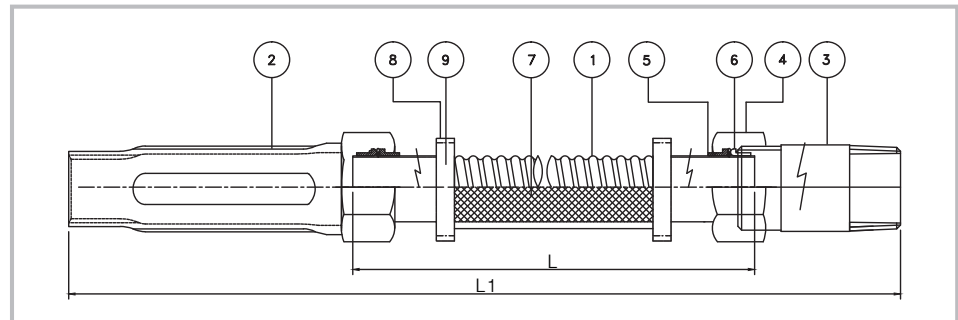


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TECHNICAL SPECIFICATIONS



BRAIDED TYPE FLEXIBLE HOSE



- | | | |
|------------------|-------------------|-------------------|
| 1. FLEXIBLE TUBE | 4. SLIP NUT | 7. BRAIDED HOSE |
| 2. REDUCER | 5. ISOLATING-RING | 8. CLAMP(OUTSIDE) |
| 3. NIPPLE | 6. GASKET | 9. CLAMP(INSIDE) |

SPECIFICATIONS

Lengths Available (ft or mm)	2.3, 3.3, 3.9, 4.9, 5.9 or 700, 1000, 1200, 1500, 1800
Outlet	1/2" or 3/4"
Hose Type	Braided

Max. Ambient Temperature Rating	225°F
Max. Working Pressure Rating	200 psig

* Required torque to assemble reducer and nipple with the flexible hose : 300kgf.cm

Hose	Stainless Steel 304
Nut & Nipple	Zinc-Plated Steel
Sealing Gasket / Isolation Ring	EPDM / Nylon

Minimum Bend Radius	3"(UL) from connection nuts	
Connection	Inlet	1"NPT or BSP
	Outlet	1/2" or 3/4"NPT or BSP



FRICION LOSS DATA

DJ28B Series Braided Hose with Fittings

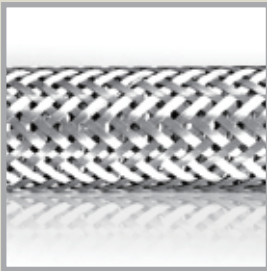
Model	Rated Pressure, psig	Max. Ambient Temp, °F	Nom. Inlet by Outlet Size, in.	Assembly Length, ft (mm)	Max No. of 90° Bends	Min Bend Radius, in.	Equivalent Length of 1 in. Schedule 40 Steel Pipe (C = 120), ft	Flexibility Type
DJ28B-700	200	225	1x1/2	2.3 (700)	3	3	18	Limited
DJ28B-1000	200	225	1x1/2	3.3 (1000)	5	3	23	Limited
DJ28B-1200	200	225	1x1/2	3.9 (1200)	7	3	29	Limited
DJ28B-1500	200	225	1x1/2	4.9 (1500)	9	3	39	Limited
DJ28B-1800	200	225	1x1/2	5.9 (1800)	12	3	50	Limited
DJ28B-700	200	225	1x3/4	2.3 (700)	3	3	20	Limited
DJ28B-1000	200	225	1x3/4	3.3 (1000)	5	3	24	Limited
DJ28B-1200	175	225	1x3/4	3.9 (1200)	7	3	31	Limited
DJ28B-1500	175	225	1x3/4	4.9 (1500)	9	3	40	Limited
DJ28B-1800	175	225	1x3/4	5.9 (1800)	12	3	70	Limited

* UL : 190mm minimum bend radius, where C=120

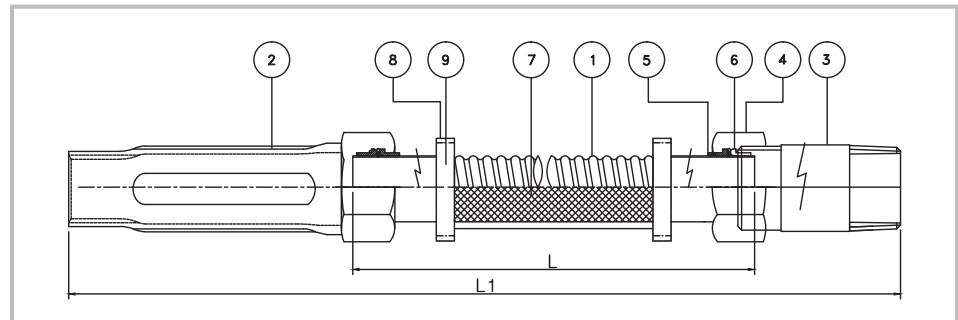


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TECHNICAL SPECIFICATIONS



BRAIDED TYPE FLEXIBLE HOSE



- | | | |
|------------------|-------------------|-------------------|
| 1. FLEXIBLE TUBE | 4. SLIP NUT | 7. BRAIDED HOSE |
| 2. REDUCER | 5. ISOLATING-RING | 8. CLAMP(OUTSIDE) |
| 3. NIPPLE | 6. GASKET | 9. CLAMP(INSIDE) |

SPECIFICATIONS

Lengths Available (ft or mm)	2.3, 3.3, 3.9, 4.9, 5.9 or 700, 1000, 1200, 1500, 1800
Outlet	1/2" or 3/4"
Hose Type	Braided

Max. Ambient Temperature Rating	225°F
Max. Working Pressure Rating	175 psig

* Required torque to assemble reducer and nipple
with the flexible hose : 300kgf.cm

Hose	Stainless Steel 304
Nut & Nipple	Zinc-Plated Steel
Sealing Gasket / Isolation Ring	EPDM / Nylon

Minimum Bend Radius	9"(FM) from connection nuts	
Connection	Inlet	1"NPT or BSP
	Outlet	1/2" or 3/4"NPT or BSP



FRICTION LOSS DATA

DJ28B Series Braided Hose with Fittings

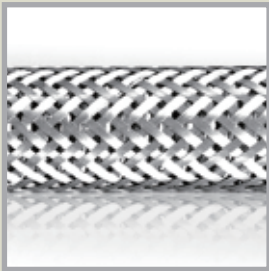
Model	NPT in.	k-Factor	Minimum Bend Radius in. (mm)	Number of Bends	Rated Working Pressure psi (kPa)	Hose Assembly length in. (mm)	Equivalent Length of 1 in. Schedule 40 Pipe, ft (m)
DJ28B	1/2	5.6	9 (230)	1	175 (1205)	2.3 ft	22.9 (6.9)
	1/2	5.6	9 (230)	2	175 (1205)	3.3 ft	34.6 (10.5)
	1/2	5.6	9 (230)	3	175 (1205)	3.9 ft	41.0 (12.5)
	1/2	5.6	9 (230)	4	175 (1205)	4.9 ft	50.4 (15.3)
	1/2	5.6	9 (230)	4	175 (1205)	5.9 ft	58.5 (17.8)
DJ28B	3/4	8.0	9 (230)	1	175 (1205)	2.3 ft	15.7 (4.8)
	3/4	8.0	9 (230)	2	175 (1205)	3.3 ft	26.9 (8.2)
	3/4	8.0	9 (230)	3	175 (1205)	3.9 ft	34.8 (10.6)
	3/4	8.0	9 (230)	4	175 (1205)	4.9 ft	43.8 (13.5)
	3/4	8.0	9 (230)	4	175 (1205)	5.9 ft	53.4 (16.2)

* FM : 9" minimum bend radius, where C=120

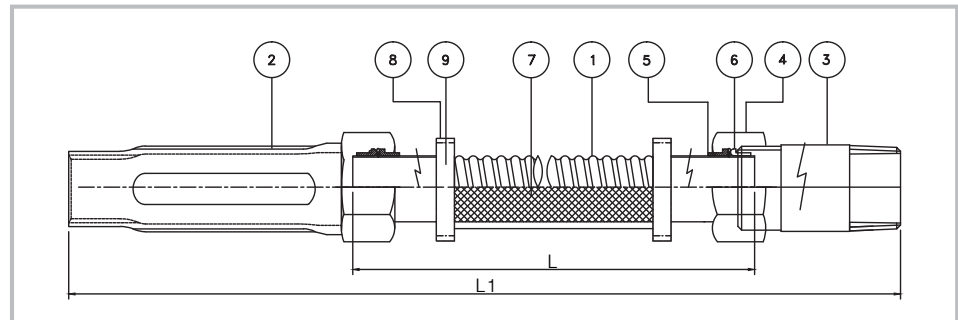


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TECHNICAL SPECIFICATIONS



BRAIDED TYPE FLEXIBLE HOSE



- | | | |
|------------------|-------------------|-------------------|
| 1. FLEXIBLE TUBE | 4. SLIP NUT | 7. BRAIDED HOSE |
| 2. REDUCER | 5. ISOLATING-RING | 8. CLAMP(OUTSIDE) |
| 3. NIPPLE | 6. GASKET | 9. CLAMP(INSIDE) |

SPECIFICATIONS

Lengths Available	24", 31.2", 36", 48", 60" and 72"
Outlet	1/2"
Hose Type	Braided

Max. Ambient Temperature Rating	225°F
Max. Working Pressure Rating	175 psig

* Required torque to assemble reducer and nipple with the flexible hose : 300kgf.cm

Hose	Stainless Steel 304
Nut & Nipple	Zinc-Plated Steel
Sealing Gasket / Isolation Ring	EPDM / Nylon

Minimum Bend Radius	8"(FM) from connection nuts	
Connection	Inlet	1"NPT or BSP
	Outlet	1/2" or 3/4"NPT or BSP



FRICTION LOSS DATA

DJ32B-C Series Braided Hose with Fittings

Model	NPT in.	k-Factor	Minimum Bend Radius in. (mm)	Number of Bends	Rated Working Pressure psi (kPa)	Hose Assembly length in. (mm)	Equivalent Length of 1 in. Schedule 40 Pipe, ft (m)
DJ32B-C	1/2	5.6	8 (203)	1	175 (1205)	24 (610)	8.8 (2.2)
	1/2	5.6	8 (203)	2	175 (1205)	31.2 (792)	14 (4.3)
	1/2	5.6	8 (203)	2	175 (1205)	36 (915)	17.5 (5.3)
	1/2	5.6	8 (203)	3	175 (1205)	48 (1220)	26.3 (8)
	1/2	5.6	8 (203)	4	175 (1205)	60 (1525)	31.4 (9.5)
	1/2	5.6	8 (203)	4	175 (1205)	72 (1830)	36.6 (11.1)

* FM : 8" minimum bend radius, where C=120



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Flexible Sprinkler Drops

Unbraided Flexible Sprinkler Connection Data Sheet

GENIE SYSTEMS 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.

Genie Systems flexible sprinkler connections offer braided and unbraided flexible hoses in 700mm,1000mm,1200mm,1500mm and 1800mm with top loading or front loading brackets for variety of ceiling and wall applications:T-Bars, metal studs, hat channels, wood beams, concrete sidewalls, and more. The system is qualified to be installed at commercial, hotel, retail, restaurants, cultural, entertainment, educational, government, healthcare, and religious buildings.

GENIE SYSTEMS Flexible Sprinkler Drops Appliance Standards

1. Underwriter's Laboratories, Inc. (UL/ULC), cUL us 2443:

- Standard for flexible sprinkler hose with fittings for fire protection service

2. Loss Prevention Certification Board (LPCB):

- LPS 1262 : Standard for TESTING FLEXIBLE HOSES FOR SPRINKLER SYSTEMS

3. 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
- NFPA 13 Section 9.2.1.3.3.3 : No hangers are required for flexible connections as long as the length does not exceed 6ft.

4. American Society for Testing and Methods (ASTM):

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

5. International Building Code (IBC) Section 1621 / American Society of Civil Engineers (ASCE) 7.9.6.2.6.2 & 9.6.2.6.2.2:

- Flexible Sprinkler Connections are an alternative solution to install without seismic escutcheons

Job Name :

Engineer / Architect :

Job Location :

Wholesaler :

Submittal Date :

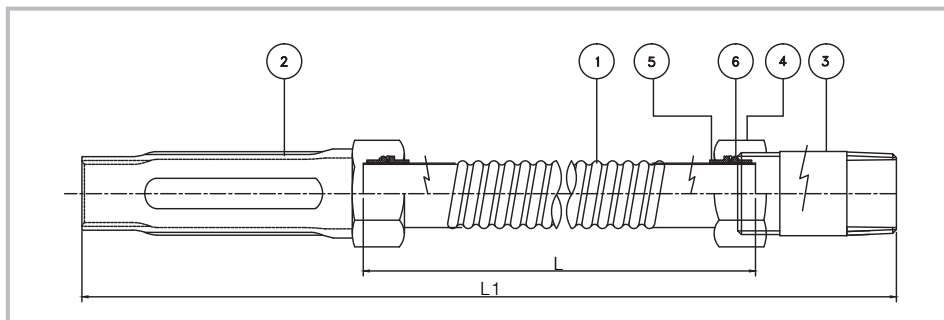
Contractor :



TECHNICAL SPECIFICATIONS



UNBRAIDED FLEXIBLE HOSE



1. FLEXIBLE TUBE
2. REDUCER

3. NIPPLE
4. SLIP NUT

5. ISOLATING-RING
6. GASKET

SPECIFICATIONS

Lengths Available	700mm, 1000mm, 1200mm, 1500mm, 1800mm
Outlet	1/2" or 3/4"
Hose Type	Unbraided

Max. Ambient Temperature Rating	225°F
Max. Working Pressure Rating	175 psig (UL/ULC)

* Required torque to assemble reducer and nipple with the flexible hose : 300 kgf.cm

Hose	Stainless Steel 304
Nut & Nipple	Metal zinc plating
Sealing Gasket / Isolating Ring	Silicone / Nylon

Minimum Bend Radius	100mm(UL/ULC) From connection nuts	
Connection	Inlet	1"NPT or BSP
	Outlet	1/2" or 3/4"NPT or BSP



FRICION LOSS DATA

DJ25UB Series Unbraided Hose with Fittings

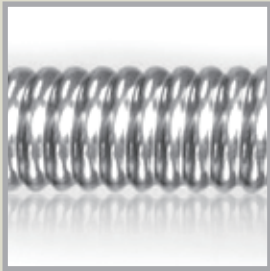
Model	Rated Pressure, psig	Max. Ambient Temp, °F	Nom. Inlet by Outlet Size, in.	Assembly Length, ft (mm)	Max No. of 90° Bends	Min Bend Radius, mm.	Equivalent Length of 1 in. Schedule 40 Steel Pipe (C = 120), ft	Flexibility Type
DJ25UB-700	175	225	1x1/2	700	2	100	16	Limited
DJ25UB-1000	175	225	1x1/2	1000	3	100	34	Limited
DJ25UB-1200	175	225	1x1/2	1200	3	100	35	Limited
DJ25UB-1500	175	225	1x1/2	1500	3	100	52	Limited
DJ25UB-1800	175	225	1x1/2	1800	3	100	84	Limited
DJ25UB-700	175	225	1x3/4	700	2	100	22	Limited
DJ25UB-1000	175	225	1x3/4	1000	3	100	43	Limited
DJ25UB-1200	175	225	1x3/4	1200	3	100	50	Limited
DJ25UB-1500	175	225	1x3/4	1500	3	100	59	Limited
DJ25UB-1800	175	225	1x3/4	1800	3	100	86	Limited

* UL : 100mm minimum bend radius, where C=120

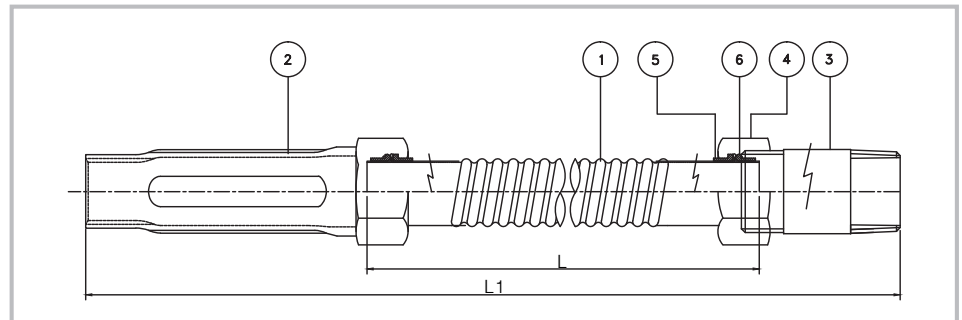


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TECHNICAL SPECIFICATIONS



UNBRAIDED FLEXIBLE HOSE



1. FLEXIBLE TUBE
2. REDUCER

3. NIPPLE
4. SLIP NUT

5. ISOLATING-RING
6. GASKET

SPECIFICATIONS

Lengths Available	700mm, 1000mm, 1200mm, 1500mm, 1800mm
Outlet	1/2" or 3/4"
Hose Type	Unbraided
Max. Ambient Temperature Rating	225°F
Max. Working Pressure Rating	16 BAR(LPCB)

* Required torque to assemble reducer and nipple with the flexible hose : 300 kgf.cm

Hose	Stainless Steel 304	
Nut & Nipple	Zinc-Plated Steel	
Sealing Gasket / Isolation Ring	EPDM / Nylon	
Minimum Bend Radius	100mm From connection nuts	
Connection	Inlet	1"NPT or BSP
	Outlet	1/2" or 3/4"NPT or BSP



FRICTION LOSS DATA

Pressure loss & equivalent length (clause 4.4.16)

The results of this test are shown in Tables 1 to 5.

Table 1

Summary of pressure loss & equivalent length for 700 mm flexible hose with one 90° bend and terminated in a 1/2" outlet reducer

Flow rate (l/min)	Pressure upstream(bar)	Pressure downstream(bar)	Corrected pressure loss (bar)	Equivalent Length
40	0.31	0.20	0.005	0.40
60	0.75	0.49	0.077	3.00
80	1.43	0.93	0.199	4.56
100	2.22	1.44	0.321	4.89
120	3.22	2.08	0.483	5.23
150	5.01	3.23	0.751	5.38

Average equivalent length – 3.90



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TECHNICAL SPECIFICATIONS

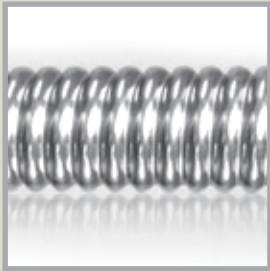


Table 2

Summary of pressure loss & equivalent length for 1000 mm flexible hose with two 90° bends and terminated in a straight ½" outlet reducer

Flow rate (l/min)	Pressure upstream(bar)	Pressure downstream(bar)	Corrected pressure loss (bar)	Equivalent Length
40	0.34	0.20	0.035	2.88
60	0.93	0.52	0.227	8.86
80	1.66	0.92	0.439	10.06
100	2.62	1.43	0.731	11.09
120	3.79	2.05	1.083	11.73
150	6.05	3.24	1.781	12.76

Average equivalent length – 9.56

Table 3

Summary of pressure loss & equivalent length for 1200 mm flexible hose with two 90° bends and terminated in a straight ½" outlet reducer

Flow rate (l/min)	Pressure upstream(bar)	Pressure downstream(bar)	Corrected pressure loss (bar)	Equivalent Length
40	0.36	0.20	0.055	4.53
60	0.97	0.52	0.267	10.42
80	1.73	0.92	0.509	11.67
100	2.75	1.43	0.861	13.06
120	4.02	2.07	1.293	14.00
150	6.32	3.21	2.081	14.91

Average equivalent length – 11.43

Table 4

Summary of pressure loss & equivalent length for 1500 mm flexible hose with two 90° bends and terminated in a straight ½" outlet reducer

Flow rate (l/min)	Pressure upstream(bar)	Pressure downstream(bar)	Corrected pressure loss (bar)	Equivalent Length
40	0.37	0.20	0.065	5.36
60	0.98	0.52	0.277	10.81
80	1.76	0.93	0.529	12.13
100	2.77	1.43	0.881	13.37
120	4.03	2.08	1.313	14.22
150	6.35	3.22	2.101	15.06

Average equivalent length – 11.82

Table 5

Summary of pressure loss & equivalent length for 1800 mm flexible hose with three 90° bends and terminated in a straight ½" outlet reducer

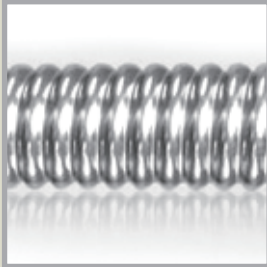
Flow rate (l/min)	Pressure upstream(bar)	Pressure downstream(bar)	Corrected pressure loss (bar)	Equivalent Length
40	0.40	0.19	0.105	8.66
60	1.05	0.51	0.357	13.93
80	1.93	0.92	0.709	16.25
100	3.05	1.44	1.151	17.46
120	4.38	2.05	1.673	18.12
150	7.04	3.25	2.761	19.79

Average equivalent length – 15.70

FLEXIBLE SPRINKLER CONNECTION PARTS LIST

UNBRAIDED FLEXIBLE HOSE

UL / LPCB

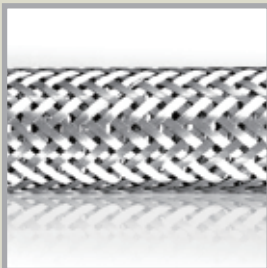


Part #	Description	Part #	Description
DJ25UB-700	1/2"x700mm Unbraided hose	DJ25UB-700	3/4"x700mm Unbraided hose
DJ25UB-1000	1/2"x1000mm Unbraided hose	DJ25UB-1000	3/4"x1000mm Unbraided hose
DJ25UB-1200	1/2"x1200mm Unbraided hose	DJ25UB-1200	3/4"x1200mm Unbraided hose
DJ25UB-1500	1/2"x1500mm Unbraided hose	DJ25UB-1500	3/4"x1500mm Unbraided hose
DJ25UB-1800	1/2"x1800mm Unbraided hose	DJ25UB-1800	3/4"x1800mm Unbraided hose

* OD : 25.1mm / ID : 21.4mm STS 304

BRAIDED FLEXIBLE HOSE

UL / FM



Part #	Description	Part #	Description
DJ25B-24	1/2"x24" Braided hose	DJ25B-24	3/4"x24" Braided hose
DJ25B-31.2	1/2"x31.2" Braided hose	DJ25B-31.2	3/4"x31.2" Braided hose
DJ25B-36	1/2"x36" Braided hose	DJ25B-36	3/4"x36" Braided hose
DJ25B-48	1/2"x48" Braided hose	DJ25B-48	3/4"x48" Braided hose
DJ25B-60	1/2"x60" Braided hose	DJ25B-60	3/4"x60" Braided hose
DJ25B-72	1/2"x72" Braided hose	DJ25B-72	3/4"x72" Braided hose

* OD : 26.8mm / ID : 22.3mm STS 304

UL / FM

Part #	Description	Part #	Description
DJ28B-700	1/2"x700 Braided hose	DJ28B-700	3/4"x700 Braided hose
DJ28B-1000	1/2"x1000 Braided hose	DJ28B-1000	3/4"x1000 Braided hose
DJ28B-1200	1/2"x1200 Braided hose	DJ28B-1200	3/4"x1200 Braided hose
DJ28B-1500	1/2"x1500 Braided hose	DJ28B-1500	3/4"x1500 Braided hose
DJ28B-1800	1/2"x1800 Braided hose	DJ28B-1800	3/4"x1800 Braided hose

* OD : 28.0mm / ID : 27.4mm STS 304

FM

Part #	Description	Part #	Description
DJ32B-C24	1/2"x24" Braided hose	DJ28B-700	3/4"x700 Braided hose
DJ32B-C36	1/2"x36" Braided hose	DJ28B-1000	3/4"x1000 Braided hose
DJ32B-C48	1/2"x48" Braided hose	DJ28B-1200	3/4"x1200 Braided hose
DJ32B-C60	1/2"x60" Braided hose	DJ28B-1500	3/4"x1500 Braided hose
DJ32B-C72	1/2"x72" Braided hose	DJ28B-1800	3/4"x1800 Braided hose

* OD : 32.0mm / ID : 26.1mm STS 304



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BRACKET SET

Image	Part #	Description
		<p>Steel Material</p> <ul style="list-style-type: none"> - Qty.1 SQ650 or 1000 or 1200 - Qty.2 B-ES-B(68mm) End Brackets - Qty.1 B-CC-B
		<p>Steel Material</p> <ul style="list-style-type: none"> - Qty.1 SQ650 or 1000 or 1200 - Qty.2 B-EOT-S(68mm) End Brackets - Qty.1 B-COT
		<p>Steel Material</p> <ul style="list-style-type: none"> - Qty.1 SQ650 or 1000 or 1200 - Qty.2 B-ES-H(68mm) End Brackets - Qty.1 B-CC-B
		<p>Steel Material</p> <ul style="list-style-type: none"> - Qty.1 SQ650 or 1000 or 1200 - Qty.2 B-ES-B(68mm) End Brackets - Qty.1 B-COT
		<p>Steel Material</p> <ul style="list-style-type: none"> - Qty.1 SQ650 or 1000 or 1200 - Qty.2 B-EOT-S(68mm) End Brackets - Qty.1 B-CC-B

CENTER BRACKET





Image	Model	Description
	B-CC-B	Easier Fixed Bracket Cap Type Bracket Patented Center Bracket Carbon Steel, Zinc-Plated
	B-CH-B	Hook Type Bracket Economy Cost Carbon Steel, Zinc-Plated

Image	Model	Description
	B-COT (Old)	One Touch Type Bracket Quick time Fixed Bracket Patented Center Bracket Carbon Steel, Zinc-Plated
	B-COT (New)	One Touch Type Bracket Quick time Fixed Bracket Patented Center Bracket Carbon Steel, Zinc-Plated

END BRACKET



Image	Model	Description
	B-ES-B	Short End Bracket 68mm Length Carbon Steel, Zinc-Plated
	B-EL-B	Long End Bracket 105mm Length Carbon Steel, Zinc-Plated

Image	Model	Description
	B-EOT-S	Short One touch End Bracket 68mm Length Carbon Steel, Zinc-Plated
	B-EOT-L	Long One touch End Bracket 105mm Length Carbon Steel, Zinc-Plated

FIXING ACCESSORIES



Image	Model	Description
	SQ	SQUARE BAR 25" / 650mm / 700mm / 1000mm 1300mm / 1600mm Length Steel / Zinc-Plated
	B-EHC-B	Hat Furring Channel End Bracket Carbon Steel / Zinc-Plated

Image	Model	Description
	B-EMS-B B-E1-B	Metal Stud End Bracket Carbon Steel / Zinc-Plated
	B-EWS-B	Wood Beam Stud Bracket Carbon Steel / Zinc-Plated

NUTS & GASKET, RING





Image	Model	Description
	NU-36	Nut -Braid BSP or NPT Carbon Steel, Zinc-Plated
	NU-33	Nut -Unbraid BSP or NPT Carbon Steel, Zinc-Plated


Image	Model	Description
	E-G25 E-G26 E-G28 E-G32	Gasket - DJ25UB Gasket - DJ25B Gasket - DJ28B Gasket - DJ32B-C Silicone / EPDM material
	E-I25 E-I26 E-I28 E-I32	Nylon Isolation Ring - DJ25UB - DJ25B - DJ28B - DJ32B-C Nylon material

REDUCER

Image	Model	Description
	R-33-P1/P2/P3/P4 R-33-N1/N2/N3/N4	Reducer - Unbraided 1/2" or 3/4" or 3/8" or 1" BSP or NPT Carbon Steel, Zinc-Plated 118mm Length
	R-36-P1/P2/P3/P4 R-36-N1/N2/N3/N4	Reducer - Braided 1/2" or 3/4" or 3/8" or 1" BSP or NPT Carbon Steel, Zinc-Plated 118mm Length
	140 R-36-P1/P2 140 R-36-N1/N2	Reducer - Braided 1/2" or 3/4" BSP or NPT Carbon Steel, Zinc-Plated 140mm Length
	140R-36RM-P1/P2 140R-36RM-N1/N2	Reducer - Braided 1/2" or 3/4" BSP or NPT Carbon Steel, Zinc-Plated 140mm Length / Grooved
	6R-R36-P1/P2 6R-R36-N1/N2 7R-R36-P1/P2 7R-R36-N1/N2 8R-R36-P1/P2 8R-R36-N1/N2 9R-R36-P1/P2 9R-R36-N1/N2	Reducer - Unbraided or Braided 1/2" or 3/4" BSP or NPT Carbon Steel, Zinc-Plated 6", 7", 8", 9" Length
	R-PF1-P1	Reducer - Unbraided 1/2" BSP Carbon Steel, Zinc-Plated 115mm Length

Image	Model	Description
	140RE-33WR-P1/P2 140RE-33WR-N1/N2 155RE-33WR-P1/P2 155RE-33WR-N1/N2	Elbow - Unbraided 1/2" or 3/4" BSP or NPT Carbon Steel, Zinc-Plated 140mm, 155mm Length
	140RE-36WR-P1/P2 140RE-36WR-N1/N2 155RE-36WR-P1/P2 155RE-36WR-N1/N2	Elbow - Braided 1/2" or 3/4" BSP or NPT Carbon Steel, Zinc-Plated 140mm, 155mm Length
	RE-33L-P1/P2 RE-33L-N1/N2	Elbow - Unbraided 1/2" or 3/4" BSP or NPT Carbon Steel, Zinc-Plated 145mm Length
	RE-36L-P1/P2 RE-36L-N1/N2	Elbow - Braided 1/2" or 3/4" BSP or NPT Carbon Steel, Zinc-Plated 145mm Length
	42RE-33S-P1/P2/N1/N2 42RE-36S-P1/P2/N1/N2 62RE-33S-P1/P2/N1/N2 62RE-36S-P1/P2/N1/N2 82RE-33S-P1/P2/N1/N2 82RE-36S-P1/P2/N1/N2	Elbow - Unbraided or Braided 1/2" or 3/4" BSP or NPT Carbon Steel, Zinc-Plated 42mm, 62mm, 82mm Length
	42RE-33B-P1/P2/N1/N2 42RE-36B-P1/P2/N1/N2 62RE-33B-P1/P2/N1/N2 62RE-36B-P1/P2/N1/N2 82RE-33B-P1/P2/N1/N2 82RE-36B-P1/P2/N1/N2	Short Elbow Bracket - Unbraided or Braided 1/2" or 3/4" BSP or NPT Carbon Steel, Zinc-Plated 42mm, 62mm, 82mm Length

NIPPLE

Image	Model	Description
	N-33-P1/P2/P3/P4 N-33-N1/N2/N3/N4	Nipple -Unbraided 1"x 1/2" or 3/4" or 3/8" or 1" BSP or NPT Carbon Steel, Zinc-Plated
	N-36-P1/P2/P3/P4 N-36-N1/N2/N3/N4	Nipple -Braided 1"x 1/2" or 3/4" or 3/8" or 1" BSP or NPT Carbon Steel, Zinc-Plated
	N-36-P5 N-36-N5	Nipple -Braided 1"x 1 1/4"(32mm) BSP or NPT Carbon Steel, Zinc-Plated