

Dry Barrel Fire Hydrant (SSF)



Product Review

Fire hydrant is a valve device connected to the water main, for fire truck to take water from the municipal water supply network or outdoor fire water supply network to extinguish fire by connection of fire hoses to the outlet nozzles on the hydrant. It can also directly connect the water belt or water gun to extinguish fire.

there is a main valve seated in the base of the hydrant adjacent to the inlet connection. In addition, there is also an automatically operated drain valve. The drain valve automatically opens when the main valve is closed, draining all water from the barrel of the hydrant, and it automatically closes when the hydrant is opened. The main valve is located below the normal frost line to protect the hydrant from freezing. This allows the dry-barrel hydrant suitable to be applied almost anywhere, especially areas where freezing temperature occurs.

Traffic Type Dry Barrel Fire Hydrant is a new product with anti-collision structure developed based on the common dry barrel fire hydrant. In case the hydrant is hit, some easily replaceable components above ground will break, separating the upper part (above the ground plane) and the lower part (below the ground plane), while the main valve remains closed, without water supply interruption, reducing personal injury and property damage. Thus Traffic Type Barrel Fire Hydrant is also known as Anti-collision Type Dry Barrel Fire Hydrant.

Working Principle

- Under set condition, the main valve is closed with valve disc and seat sealed, while the drainage valve system is in the open state to drain water from the barrel of the hydrant and keep the part above the main valve seat dry.
- In the working state, operate the stem nut counterclockwise to drive the valve stem downward. The operation of the valve stem then drives the main valve seat to move downward. The main valve seat is then opened and water enters the hydrant system from the water inlet. When the main valve seat is opened, the drainage hole on the valve seat is blocked, and the drainage valve system is closed accordingly to guarantee hydrant water supply.

Product Feature

- Weather Proof**
The integrated weather proof cover design protects the operation nuts from damage of bad weather (ice, rain, etc.) & dirt (dust, soil, etc.).
- Self-lubrication**
The integrated valve cover design forms an enclosed oil chamber which keeps the operation nuts and stem threads permanently lubricated to ensure low operating torque and prolonged service life.
- Traffic Flange Design**
The flange at the connection between Upper Cylinder (the main body) and the Lower Tube is specially designed with a break-off ring and features high adjustability and interchangeability. When subject to impact outside, the fragile flange, and the easily-breakable coupling between the upper and lower valve stems will break to effectively protect the main body of the fire hydrant from damage.
- Easy-to-break coupling**
The coupling can be broken with a small shock, which make repairs more efficient.
- Reliable Tapered Seal**
Tapered sealing structure makes the seal solid and reliable.
- Use, installation, and maintenance is easy and reliable.

Standard & Specification

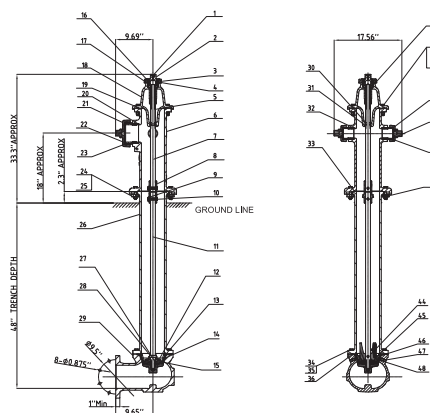
Design Standard		AWWA C502
Connection Standard		ASME B16.42 CL150
Coating Standard		AWWA C550
Working Pressure PSI		300
Nominal Diameter NPS		6
Test Pressure	Shell Test	600PSI
	Seal Test	600PSI
Empty Operation Torque		≤ 27N.m
Closing/Opening Torque		≤ 270N.m
Turns of Threads		13.5
Pressure Loss		4.5" : ≤ 13.7KPa 2.5" : ≤ 34.5KPa
Inlet Flange Size		6"
Pumper Connection Nozzle size		4.5", 1 Nozzle
Hose Connection Nozzle Size		2.5", 2 Nozzles
Working Temperature		0 ~ 80°C
Medium		Water

Design and Dimensions

Material Specifications

No.	Part	Material	Standard
1	Nozzle	AISI 304	ASTM A276
2	Stem Operating Nut	C95400	ASTM B148
3	Weather Proof Cover	Ductile Iron	ASTM A536 65-45-12
4	Lock Nut	C83600	ASTM B584
5	Bushing	C83600	ASTM B584
6	Upper Cylinder	Ductile Iron	ASTM A536 65-45-12
7	Upper Shaft	Carbon Steel Galvanized	ASTM A108
8	Couplings	Gray Iron	ASTM A126 CLASS B
9	Cotter Pin	AISI 304	ASTM A276
10	Flat Head Hinge Pin C/W Hole	AISI 304	ASTM A276
11	Lower Shaft	Carbon Steel Galvanized	ASTM A108
12	Drain Valve	C83600	ASTM B584
13	External Valve Seat	C83600	ASTM B584
14	Internal Valve Seat	C83600	ASTM B584
15	Main Valve Seat	Carbon Steel +EPDM	ASTM D2000
16	O-Ring	VITON	ASTM D2000
17	O-Ring	NBR	ASTM D2000
18	Cap	Ductile Iron	ASTM A536 65-45-12
19	O-Ring	NBR	ASTM D2000
20	O-Ring	NBR	ASTM D2000
21	4.5" Nozzle Cap	Ductile Iron	ASTM A536 65-45-12
22	4.5" Nozzle Cap Mat	EPDM	ASTM D2000
23	4.5" Nozzle	C83600	ASTM B584
24	Bolt	Carbon Steel Galvanized	ASTM A307/A307M SAE GR2
25	Nut	Carbon Steel Galvanized	ASTM A307/A307M SAE GR2
26	Lower Tube	Ductile Iron	ASTM A536 65-45-12
27	Base	Ductile Iron	ASTM A536 65-45-12
28	Drain Valve Pin	AISI 304	ASTM A276
29	Elbow	Ductile Iron	ASTM A536 65-45-12
30	O-Ring	NBR	ASTM D2000
31	O-Ring	NBR	ASTM D2000
32	O-Ring	NBR	ASTM D2000
33	O-Ring	NBR	ASTM D2000
34	Bolt	AISI 304	ASTM F593
35	Nut	AISI 304	ASTM F594
36	O-Ring	NBR	ASTM D2000
37	Thrust Washer	PA66	MIL LP-410
38	Bolt	Carbon Steel Galvanized	ASTM A307/A307M SAE GR2
39	Nut	Carbon Steel Galvanized	ASTM A307/A307M SAE GR2
40	2.5" Nozzle Cap	Ductile Iron	ASTM A536 65-45-12
41	2.5" Nozzle Cap Mat	EPDM	ASTM D2000
42	2.5" Nozzle Cap	C83600	ASTM B584
43	Half Flange	Gray Iron	ASTM A126 CLASS B
44	Drain Valve Seat	AISI 304+NBR	ASTM A276+ASTM D2000
45	O-Ring	NBR	ASTM D2000
46	O-Ring	NBR	ASTM D2000
47	Drainage Pipe	C83600	ASTM B584
48	O-Ring	NBR	ASTM D2000

SSF Dry Barrel Fire Hydrant Product Structure



SSF Dry Barrel Fire Hydrant Buried Depth

No.	Diameter	Buried Depth	Optional Buried Depth
1	6"	48"	36", 42", 54", 60", 66", 72"

Installation & Application

1. Preparation

- 1.1 Before installation, check whether the model and specification of the fire hydrant meet the design requirements of the pipe system.
- 1.2 Check if the opening and closing of the fire hydrant is working properly.
- 1.3 The main valve seat of the fire hydrant should be kept closed before installation.
- 1.4 Flush the pipes before installation to ensure that the pipes are clean.

2. Installation

- 2.1 To facilitate access of water for fire truck from the hydrant, the distance of the fire hydrant from the roadside should not exceed 2m. The distance from the center of the fire hydrant to the curb line is recommended to be 0.6m.
- 2.2 The bottom of the fire hydrant elbow should be provided with concrete support piers or bearings. At the same time, the percolation layer should be made of pebbles with particle size of 20-30 mm. The area of the percolation layer should be at least twice the water content in the fire hydrant barrel.
- 2.3 It is recommended to install an accessory gate valve between the fire hydrant and the main pipeline to facilitate the checking and maintenance of the fire hydrant without closing of the main pipeline.
- 2.4 When laying the percolation layer, care should be taken to check that the drain at the elbow is not blocked.
- 2.5 In some areas, there is a situation where the groundwater level is higher than the outlet of the fire hydrant. In such cases, additional drainage pipes should be provided. In cold areas, water inside the percolation layer should be drained timely. Such fire hydrant should be marked in time.
- 2.6 During installation, the fire hydrant riser should be kept vertical and stable.
- 2.7 When installing, the main nozzle should face the street.
- 2.8 The fire hydrant should be installed vertically.
- 2.9 The elbow flange at the inlet and the connecting pipe flange are fastened with bolts. The bolts should be tightened symmetrically and evenly.

3. Adjustment

- 3.1 After the fire hydrants are installed, hydrostatic pressure test should be carried out.
- 3.2 When pressure test is completed successfully, the fire hydrants should be flushed and the drainage condition checked. Remove one of the nozzle caps and remove any dirt and deposits that may be generated when flushing. Check all nozzle fittings for leaks. Replace the hose connector to verify proper nozzle threading. Turn on and off fire hydrant and check if the drainage system is working properly.
- 3.3 Facing the operating nut, turn the operating nut counterclockwise to open the main valve seat of the hydrant.
- 3.4 When open and close the fire hydrant, force should be applied uniformly and evenly.

Transportation and Storage

1. During transportation, take care to prevent violent vibration, throwing, collision, crushing, etc., and with proper protection from rain or chemical erosion.
2. Hydrants should be stored in a clean, dry, well-ventilated indoor places with non-corrosive environment. The products should not be placed upside down.

Trouble Shooting

No.	Problem	Cause	Solution
1	Stem clamping	1. Lack of lubrication 2. Over force applied to stem and caused bending	1. Add lubricating oil 2. Replace the valve stem
2	Drain valve does not work	Drain outlet blocked	Clear the drain outlet
3	Leakage of main sealing surface	1. Sealing surface has contaminants attached 2. Sealing surface is damaged 3. Sealing surface is worn after long service.	1. Remove dirt 2. Replace the valve seat 3. Replace the valve seat
4	Leakage at seams of caps, main body, straight barrel, or elbow connection	1. O-Ring aging 2. Loose bolts	1. Replace the O-Ring 2. Tighten the bolt

Replacement Parts in Case Hydrant is Hit

No.	Part Name	Materials	Quantity	Pictures
43	Half Flange	Gray Iron	2	
8	Couplings	Gray Iron	1	
10	Flat Head Hinge Pin C/W Hole	AISI 304	2	
9	Cotter Pin	AISI 304	2	

Maintenance

Check fire hydrant once every spring and autumn. In cold weather, it is recommended to overhaul the hydrant after each use.

1. Use a special spanner to open and close the fire hydrant operating nut to check if it's working properly without jamming. Add lubricating oil if necessary.
2. Check if the coating surface is in good condition without peeling or rust. Repair the coating if necessary.
3. Close the fire hydrant, remove one nozzle cover, and check the drainage functioning.
4. Inspect the rubber gasket at the nozzle cover, O-ring, etc. for damage, aging, and replace if necessary.
5. Clear the debris around the fire hydrant at any time.
6. Make sure the auxiliary valve is open.
7. Maintenance records should be complete and effective.

Cautions

Before installation please carefully check whether the product information matches the operating conditions. If there are any differences, please consult before use; Special working conditions such as seawater and corrosive media must be specified and customized.