# Model B, D & E Wet Alarm Valve - FM Trim

FM Approved / UL Listed

## Description

The FM approved / UL listed wet alarm valve is a differential type consisting of a rubber faced cast iron swing clapper and grooved brass seat. The seat is tinned to prevent the rubber clapper facing from sticking. This valve must be installed vertically in the main supply to a wet pipe sprinkler system.

## Operation

When a sprinkler head operates, pressure on the system side of the clapper is reduced below the pressure on the supply side. The clapper then lifts off the grooved seat and permits water flow from the supply to enter the system for distribution on the fire. Water now also flows through the uncovered groove to the alarm device via the optional retard chamber where fitted. A pressure surge or water hammer in the supply line will increase the pressure on the supply side of the clapper, causing it to lift intermittently which may result in a false alarm. The wet alarm valve will prevent such false alarms by two features:

a) The external by pass with check valve allows a pressure surge from the supply to by pass the alarm valve clapper. This will create an excess system pressure and thus steady the clapper.

b) Should a heavy surge unseat the clapper and allow water to flow into the alarm line, the optional model E retard chamber then comes into action. This unit has specially designed inlet and drain orifices which will allow the chamber to partially drain before filling and activating the alarm device. The retard chamber also has a strainer in the intake line to prevent foreign matter from clogging the intake orifice.

Care must be taken when installing check valves in the trim to be certain that they are located with the arrow on the body pointing in the right direction. The arrow on the body of the 20mm check valve in the by pass line must point towards the alarm valve. The arrow on the body of the 15mm check valve in the drain line from the retard chamber must point towards the main drain.

## Maintenance

The wet alarm valve is constructed so that there is nothing to adjust under normal water and operating conditions and requires very little maintenance. The system pressure gauge should read equal too or higher than the supply pressure gauge. Alarm valves should be regularly examined to ensure reliability. Inspection of the valve should be as follows:

a) Notify the Fire Service, Insurance Provider and other centres requiring notification prior to commencing inspection.

b) Remove any padlocks and straps.

c) Close supply stop valve and open main drain valve.

d) Remove front cover (item 3, Fig 2).

e) Remove the two clapper pin plugs and hinge pin (item 7 & 9, Fig 3) and clapper assembly (Fig 4).

f) Clean thoroughly removing any accumulated deposits. Inspect the valve rubber/clapper facing; if worn or damaged replace with genuine replacement parts.

g) Inspect the clapper seat ring for lodgement of dirt, bruising or scoring. Clean thoroughly. (A damaged seat ring can be carefully dressed using lapping compound. If the damage is extensive then a complete new valve should be fitted.)

h) Reinstall clapper, hinge pin and front cover.

i) Remove swing clapper from 20mm check valve on by pass line, and check condition of clapper and seat. Replace complete unit if damaged.

j) When every part is reinstalled close main drain valve and reset valve as per ‘Procedures after a fire’.

Continued Overleaf







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## Weekly test for alarm valve operation.

a) Notify the Fire Service, Insurance Provider and other centres requiring notification prior to operating the alarm.
b) Record supply pressure and system pressure.
c) Remove any padlocks and straps. Open test valve. This takes water from below the clapper and permits testing without raising the clapper from its seat.
d) Check alarm device(s) for correct operation.
e) Close test valve.
f) Check supply pressure is equal to the system pressure.
g) Replace all padlocks and straps where fitted.

## Procedures after a fire.

a) Remove any padlocks and straps.
b) Close the supply stop valve.
c) If a sprinkler pump has been used, this must now be turned off.
d) Open the main drain valve.
e) Replace the opened sprinklers with those of equivalent specification.
f) Close main drain valve.
g) Close the two 15mm ball valves in the alarm valve trim.
h) Slowly open the supply stop valve.
i) If a sprinkler pump has been used, now restart.
j) When supply pressure gauge reading equals system pressure gauge reading, open supply stop valve fully.
k) Ensure only the 15mm ball valve in the alarm valve trim is open.
l) Conduct alarm test as per weekly test.
m) Replace all padlocks and straps where fitted.
n) Reorder spare sprinklers to equivalent specification.




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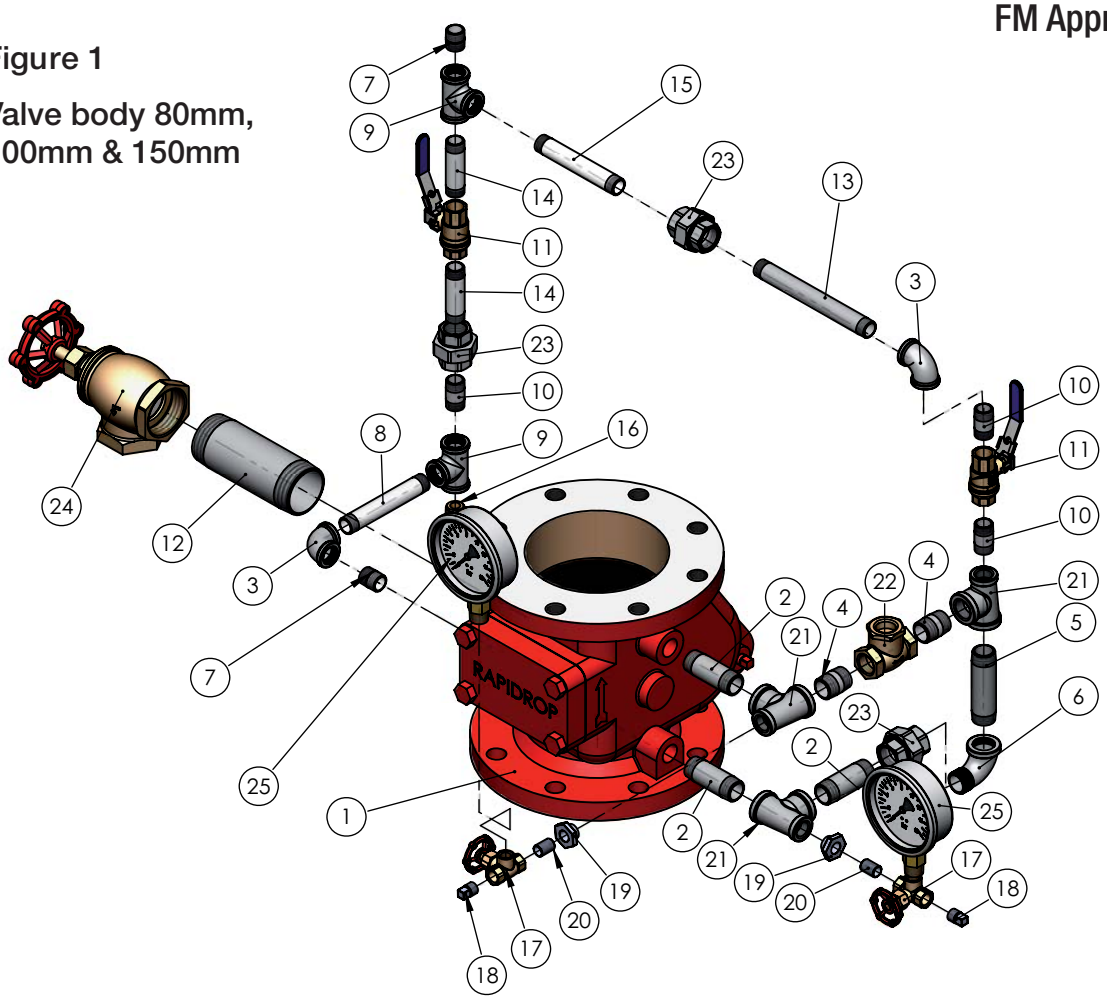
Figure 1

Valve body 80mm, 100mm & 150mm




| Item No | Description | Material/finish | Spec | Qty |
|---|---|---|---|---|
| 1 | Valve Body, Avb150 (150mm), Avb100 (100mm), Abv (80mm) | | | 1 |
| 2 | 3/4" 3" Barrel Nipple | Galv | BS1387 | 3 |
| 3 | Elbow 1/2" | Galv | BS143 | 2 |
| 4 | 3/4" Closed Taper | Galv | BS1387 | 2 |
| 5 | 1/2" 3-1/2" Barrel Nipple | Galv | BS1387 | 1 |
| 6 | M/f Elbow 1/2" - 3/4" | Galv | BS143 | 1 |
| 7 | 1/2" Closed Taper Nipple | Galv | BS1387 | 2 |
| 8 | 1/2" 5" Barrel Nipple | Galv | BS1387 | 1 |
| 9 | Equal Tee 1/2" | Galv | BS143 | 2 |
| 10 | 1/2" 1-1/2" Barrel Nipple | Galv | BS1387 | 3 |
| 11 | 1/2" 1/4 Turn Ball Valve | Bronze | | 2 |
| 12 | 2" 6" Barrel Nipple | Galv | BS1387 | 1 |
| 13 | 1/2" 5-1/2" Barrel Nipple | Galv | BS1387 | 1 |
| 14 | 1/2" 3" Barrel Nipple | Galv | BS1387 | 2 |
| 15 | 1/2" 5-1/2" Barrel Nipple | Galv | BS1387 | 2 |
| 16 | 1/2" Drip Union | Bronze | | 1 |
| 17 | 1/4" 3 Way Valve | Bronze | | 2 |
| 18 | 1/4" Plug | Galv | | 2 |
| 19 | 1/2" - 1/4" Bushing | Galv | | 2 |
| 20 | 1/4" Close Taper Nipple | Galv | BS1387 | 2 |
| 21 | Tee 1/2" - 3/4" - 3/4" | Galv | | 3 |
| 22 | 3/4" Check Valve | Bronze | | 1 |
| 23 | 1/2" Union Fitting | Galv | | 3 |
| 24 | 2" Angle Drain Valve | Bronze | | 1 |
| 25 | 1/4" Pressure Gauge | | | 2 |

Continued Overleaf







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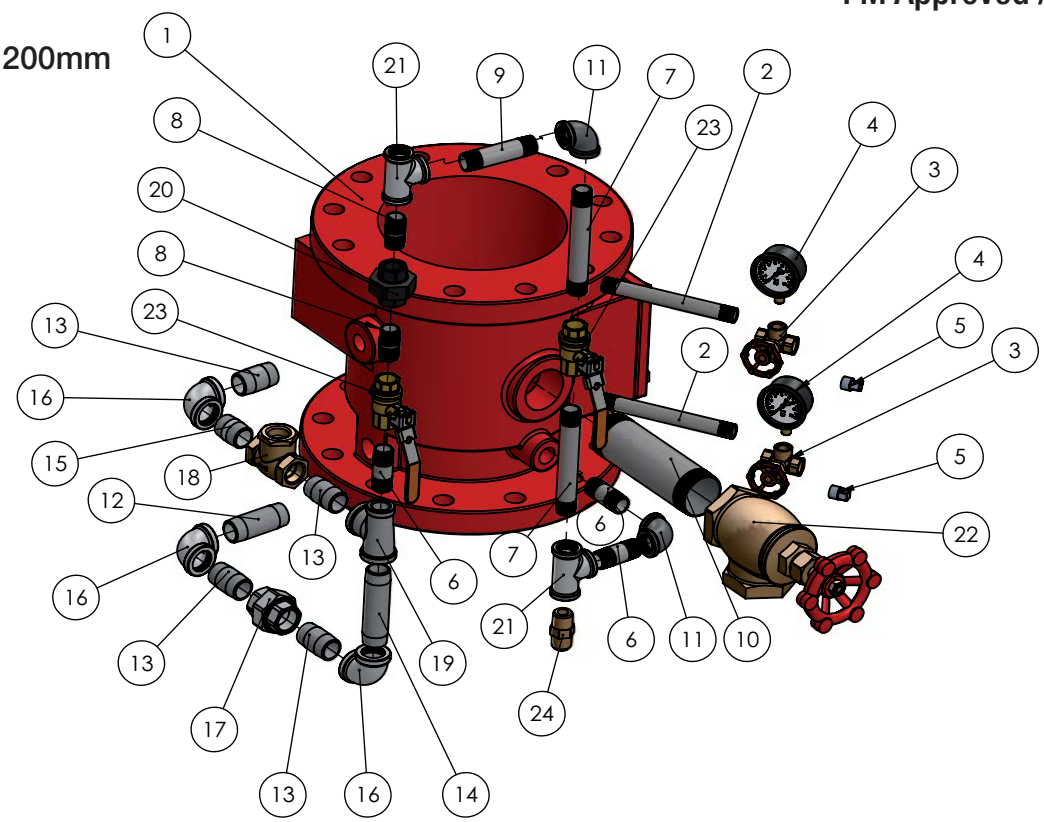
Figure 1
Valve body 200mm




| Item No. | Description | Material/finish | Spec | Qty. |
|---|---|---|---|---|
| 1 | Valve Body AVB200 (2OOmm) | | | 1 |
| 2 | 1/4" 6" Barrel Nipple | Galv | BS1387 | 2 |
| 3 | 1/4" 3 Way Valve | Bronze | | 2 |
| 4 | 1/4" Pressure Gauge | | | 2 |
| 5 | 1/4" Plug | Galv | BS143 | 2 |
| 6 | 1/2" 2" Barrel Nipple | Galv | BS1387 | 3 |
| 7 | 1/2" 5-1/2"barrel Nipple | Galv | BS1387 | 2 |
| 8 | 1/2" Closed Taper | Galv | BS1387 | 2 |
| 9 | 1/2" 3" Barrel Nipple | Galv | BS1387 | 1 |
| 10 | 2" 6" Barrel Nipple | Galv | BS1387 | 1 |
| 11 | 1/2" Elbow | Galv | BS143 | 2 |
| 12 | 3/4" 3" Barrel Nipple | Galv | BS1387 | 1 |
| 13 | 3/4" 2-1/2" Barrel Nipple | Galv | BS1387 | 4 |
| 14 | 3/4" 3-1/2" Barrel Nipple | Galv | BS1387 | 1 |
| 15 | 3/4" Closed Taper Nipple | Galv | BS1387 | 1 |
| 16 | 3/4"elbow | Galv | BS143 | 3 |
| 17 | 3/4" Union Fitting | Galv | BS143 | 1 |
| 18 | 3/4" Check Valve | Bronze | | 1 |
| 19 | Tee 1/2" - 3/4" - 3/4" | Galv | BS143 | 1 |
| 20 | 1/2" Union Fitting | Galv | BS143 | 1 |
| 21 | Equal Tee 1/2" | Galv | BS143 | 2 |
| 22 | 2" Angle Drain Valve | Bronze | | 1 |
| 23 | 1-2" 1-4 Turn Ball Valve | Bronze | | 2 |
| 24 | 1/2" Drip Union | Bronze | | 1 |







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Figure 2

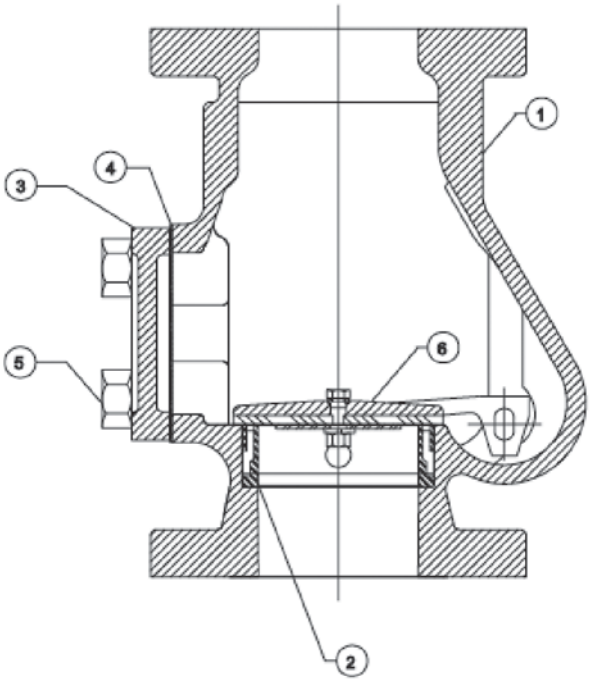



Figure 3

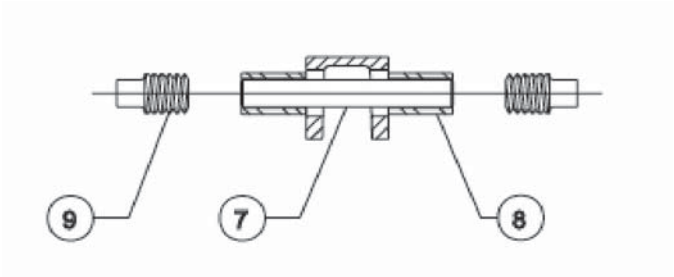
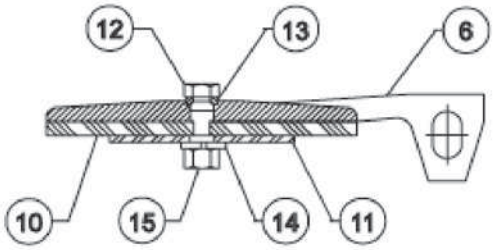



Figure 4




## Figures 2,3 & 4 Parts List

| Item Number | Description | Item Number | Description |
|---|---|---|---|
| 1 | Alarm Valve Body | 9 | Plug |
| 2 | Water Seat | 10 | Clapper Gasket |
| 3 | Cover | 11 | Seal Retainer |
| 4 | Cover Gasket | 12 | Bolt |
| 5 | Cover Bolts | 13 | O Ring |
| 6 | Clapper | 14 | Lock Washer |
| 7 | Clapper Pin | 15 | Nut |
| 8 | Bush | | |







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