



OPERATION AND MAINTENANCE INSTRUCTIONS

AVK UNDERGROUND FIRE HYDRANT

29/388

INTRODUCTION

AVK operation and maintenance instructions for the Series 29/388 underground fire hydrant.

OPERATION:

This series of screw-down Squat fire hydrants are suitable for use with clean water and neutral liquids, to a maximum temperature of 70°C. Minimum liquid temperature must be above freezing. Insulation is essential for external temperatures of 0°C and below to a limit of -10°C. They are rated for a maximum working pressure of 16 Bar unless otherwise agreed and deliver a minimum of 2000 litres per minute at 1.7 Bar gauge.

They are normally supplied as CLOCKWISE TO CLOSE (CTC) denoted by a Direction ARROW on the Stem Cap (8) and a WHITE plastic insert (10) on the Stem Cap (8). A BLACK plastic insert (10) denotes a Loose Stopper type which is only available on Squat Type.

A CLOCKWISE TO OPEN (CTO) version is denoted by the relevant Direction ARROW on the Stem Cap (8) and a RED plastic insert (10) on the Stem Cap (8).

OPENING / CLOSING Normally by standard Tee Key or Ring Key and Bar located on Stem Cap (8) Closing Torque is in the region of 65Nm: Maximum Operating Torque (MOT) is 105Nm and Minimum Strength Torque (MST) is 210Nm.

Number of Turns from fully closed to fully open: - Squat Type 7.25 approximately.

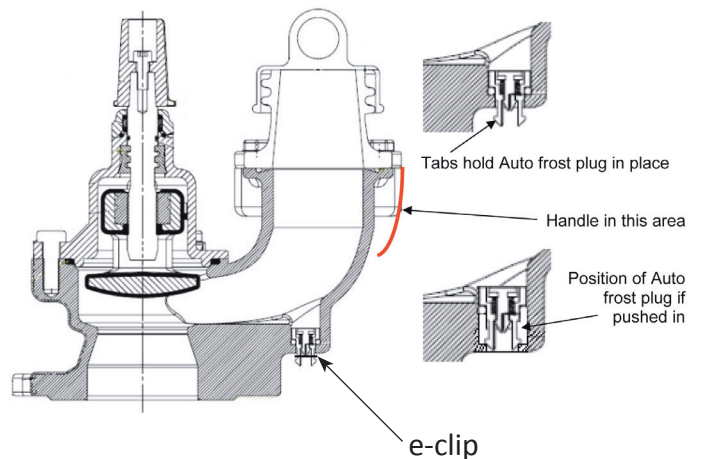
The Automatic draining device, when fitted will drain the hydrant body in 7.13 minutes. The volume of retained water is zero (maximum allowed is 100ml).

SWABBING It is not possible to use the Squat type for this purpose. Only a Swept type is suitable for the introduction and retrieval of swabs.

It is recommended that applications in a corrosive atmosphere or sited in exposed locations or in the proximity of sea water or spray, use a stainless steel stem 1.4404 (316) and all exposed fasteners are in A4 stainless steel. The gunmetal outlet and class A coating (300 microns inside & out) are also recommended.

HANDLING

If handled incorrectly the autofrost plug can be dislodged. Therefore they should be lifted and handled by placing a hand under the outlet flange rather than the bend/boss.



AVK UNDERGROUND FIRE HYDRANT

29/388

HEALTH AND SAFETY PRECAUTIONS

Whenever AVK valves are installed or operated the inherent dangers of pressurized liquid and gas must be addressed. Never attempt to dismantle the valves when the system is under pressure. Valves are heavy, especially in large dimensions, so always use appropriate lifting devices to avoid injuries. It is essential that staff undertaking these operations is adequately trained to avoid accidents. This installation and maintenance instruction will not replace adequate training and correct craftsmanship and AVK will not be held responsible for any accidents arising from incorrect installation.

Likewise before, during and after installation the applicable standards, codes and regulations for installation and for the prevention of accidents must be observed. Note that especially for installations in hazardous environments ATEX regulations may apply.

SAFETY PRECAUTIONS

When changing obturator (stopper) and / or bonnet 'O' ring seal Maintenance Procedures must NOT be carried out whilst the hydrant is installed in a live water main under pressure.

Check to ensure that there is no pressure in the main by opening the hydrant prior to commencing work.

Ensure the main will NOT be recharged before all work on the hydrant is completed.

All of the following procedures must be carried out with due regard to relevant Road Traffic Act Guidelines, Health and Safety and COSHH directives.

INSTALLATION

BS 750 only requires the provision for replacing Stem Seals under pressure & when the hydrant is in situ.

Refer to attached General Arrangement drawings

- 1.Replacement of stem seals and nylon bush (29.388.32.XXXX)
- 2.Replacement of stopper (obturator) & bonnet 'O' ring seal (29.388.XXXXX. & 29.388.XXXXXB)
- 3.Replacement of outlet & outlet 'O' ring seal (29.388.XXXXX)
- 4.Replacement of drain plug or autofrost valve (29.388.XXXXXC)

1. PROCEDURE FOR REPLACEMENT OF STEM SEALS & POLYAMID NYLON BUSH

Safety Precaution : This procedure must NOT be carried out with the hydrant under pressure.

TOOLS REQUIRED:

- 6mm A/F Hexagon Allen Key.
- Slot headed screwdriver or thin blade
- Adjustable spanner, flat spanner or socket 17mm A/F

1) Remove plastic insert (10) by prising out using a thin blade.

2) Remove stem cap fixing bolt (9).

3) Remove stem cap (8).

4) Remove 2 No. M.10 Hex Head Screws and Washers (22&23)

5) Twist and pull the gland flange (7) upwards to remove from the stem (12). Remove the 'O' rings (21) and Bush (20) and 'O' Ring (11)

6) Replace new 'O' rings (21) & (11) and Bush (20) by reversing operation described in clause (5). If necessary, lubricate all 'O' rings with an approved grease.

7) Refit 2 No. M10 Hex Head Screws and Washers (22&23) and tighten.

8) Replace stem cap (8), Bolt (9) and Plastic Insert (10).

9) Open and close hydrant to check free running of stem.

OPERATION AND MAINTENANCE INSTRUCTIONS

AVK UNDERGROUND FIRE HYDRANT

29/388

2. PROCEDURE FOR REPLACEMENT OF STOPPER (OBTURATOR) & BONNET 'O' RING SEAL

Safety Precaution : This procedure must NOT be carried out with the hydrant under pressure.

TOOLS REQUIRED:

- 6mm A/F hexagon Allen Key.
- 19mm A/F (for M.12) Spanners or Sockets
- Tee Key (or large adjustable spanner).

1) Ensure hydrant is in the partly open position by turning stem cap (8) in direction indicated for opening, one or two turns to lift stopper (4) off seat.

2) Remove 3 No. M.12 Hex Head Screws (3) and Washers (19).

3) The bonnet (5) can now be removed vertically with the stem (12) and stopper (4), it can be easily lifted out of the body (1). Remove 'O' ring (2).

4) Replace 'O' ring (2) locating in body (1) and if necessary lubricate with an approved grease.

5) Before locating bonnet/stopper (5&4) into body (1), check the stopper (obturator) (4) is well up the stem (12) by 3 or 4 full turns and ensure the stopper (obturator) guides are located to prevent the obturator turning on the stem. The stopper (obturator) guides must both be on the same side of the body guide rails.

See diagram 29.388.XXXX

6) Fit bonnet (5) into Body (1) ensuring the 'O' ring (2) remains in position. When correctly aligned the two Hex headed bolts on the Gland Flange (7) should be at right angles to the main axis of the hydrant.

7) Refit screws (3) and washers (19) and tighten.

8) Remove dust cap (13) from outlet (14)

9) Test hydrant as described on page 4.

10) Refit dust cap (13) to outlet (14)

3. PROCEDURE FOR REPLACEMENT OF FLANGED OUTLET AND OUTLET 'O' RING SEAL

Safety Precaution : Ensure hydrant is closed prior to commencing procedure.

TOOLS REQUIRED:

- 19mm A/F Spanners or Sockets.

PROCEDURE FOR REMOVAL & RE-ASSEMBLY:

1) Remove dust cap (13) from outlet (14).

2) Remove outlet (14) by removing 4 No. bolts (15) and washers (16).

3) To replace the outlet (14) and 'O' ring (17), lubricate 'O' ring (17) if necessary using an approved grease then locate it in the groove in body (1). Ensure dust cap (13) retaining ring is located in small groove on body (1) so that a bolt (15) passes through the ring. Place outlet (14) in position, ensuring that 'O' ring (17) is still correctly located and secure using 4 No. Bolts (15) and washers (16).

4) Test hydrant as described on page 4.

5) Refit dust cap (13) to outlet (14).

AVK UNDERGROUND FIRE HYDRANT

29/388

4. PROCEDURE FOR REPLACEMENT OF AUTOFROST VALVE

Safety Precaution : Ensure hydrant is closed prior to commencing procedure.

TOOLS REQUIRED:

- Short (stubby) screwdriver
- Special fitting tool (C7322/161)
- Tee Key (or large adjustable spanner)

PROCEDURE FOR REMOVAL AND RE-ASSEMBLY

1. Remove the dust cap (13) from outlet (14).
2. Remove e-clip with screwdriver, insert the fitting tool to the autofrost valve (18) with a twisting motion. Squeeze the lugs of the autofrost valve (18) together and push upwards, if necessary using a short (stubby) screwdriver, at the same time as pulling the special tool and autofrost valve up through the hydrant body (1) and outlet (14). As shown on diagram 29.388.XXXXXC.
3. Smear a film of an approved grease on the "O" ring of the new autofrost valve (18) Fit the new autofrost valve (18) to the fitting tool with a twisting motion and guide it into position through the outlet (14) and into the body (1). Push down sharply so that the locking lugs protrude through the underside of the body (1). Check by using the fingers, that the lugs are correctly located as shown on diagram 29.388.XXXXXC, then slightly twist the fitting tool to dis-engage it from the autofrost valve (18) and withdraw it through the outlet (14). Push e-clip onto the autofrost.
4. Carefully open the hydrant to check satisfactory sealing under pressure. The autofrost valve (18) will seal between 0.5 and 1 Bar pressure. Then close hydrant and check that autofrost valve is draining correctly.

Ensure personnel are not directly above outlet during this part of the procedure.

5. Refit outlet dust cap (13) to outlet (14).

TEST

On completion of Maintenance requirements:

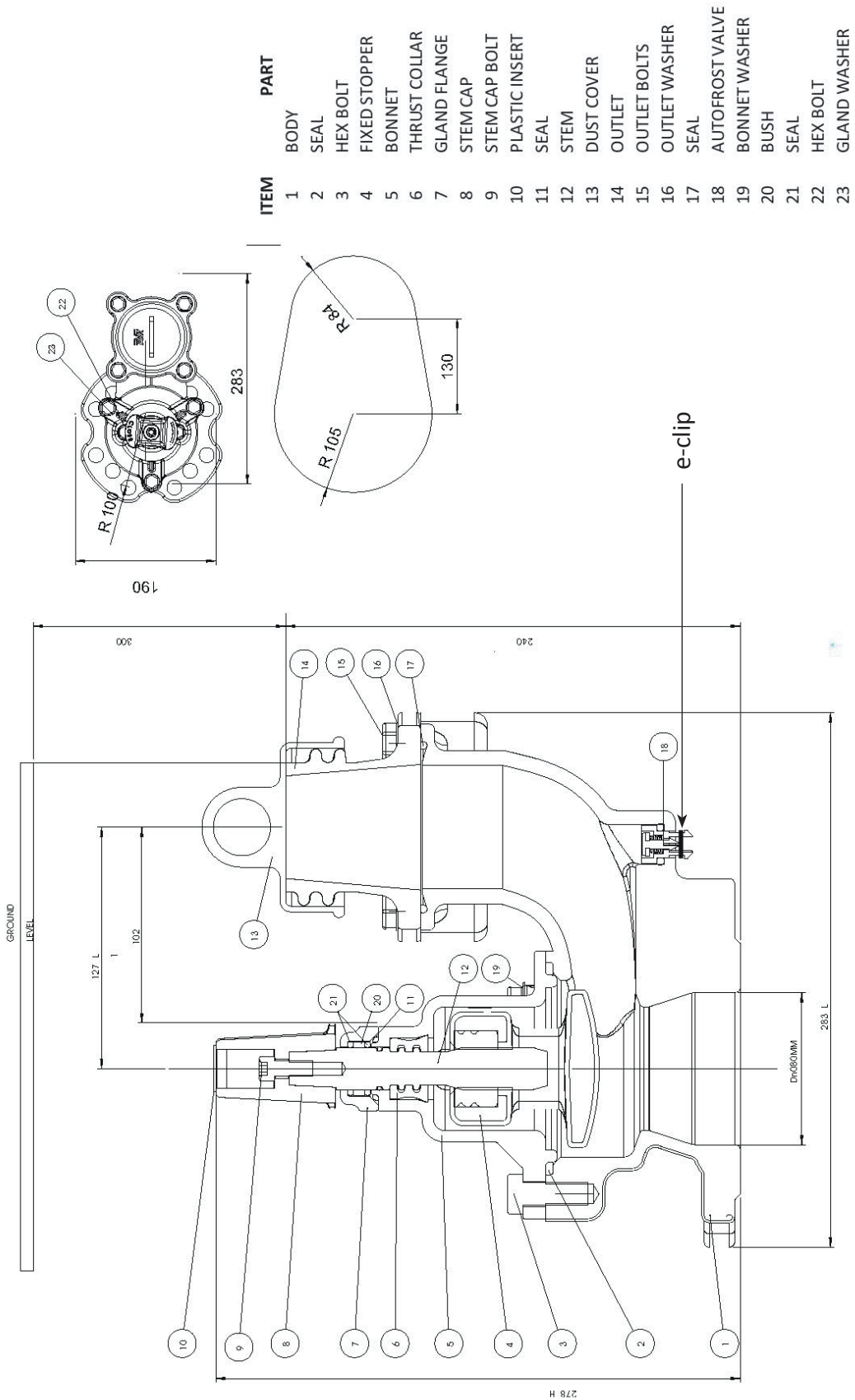
- 1) Check all items are located correctly.
- 2) Check that all screws are secure.
- 3) Remove dust cap (13) from outlet (14).

SAFETY NOTE: When pressurising the main, it is highly recommended that the hydrant is fractionally open to allow venting of air.

- 4) Check integrity of stopper (obturator) (4) by closing the hydrant in the direction of the arrow on the stem cap (8).
- 5) Check integrity of the seals by SLOWLY opening the hydrant.
- 6) When all tests have proved satisfactory, close the hydrant.
- 7) Ensure dust cap (13) is always refitted to the outlet (14) when hydrant is not in use. This will prevent the ingress of foreign matter, stones etc.

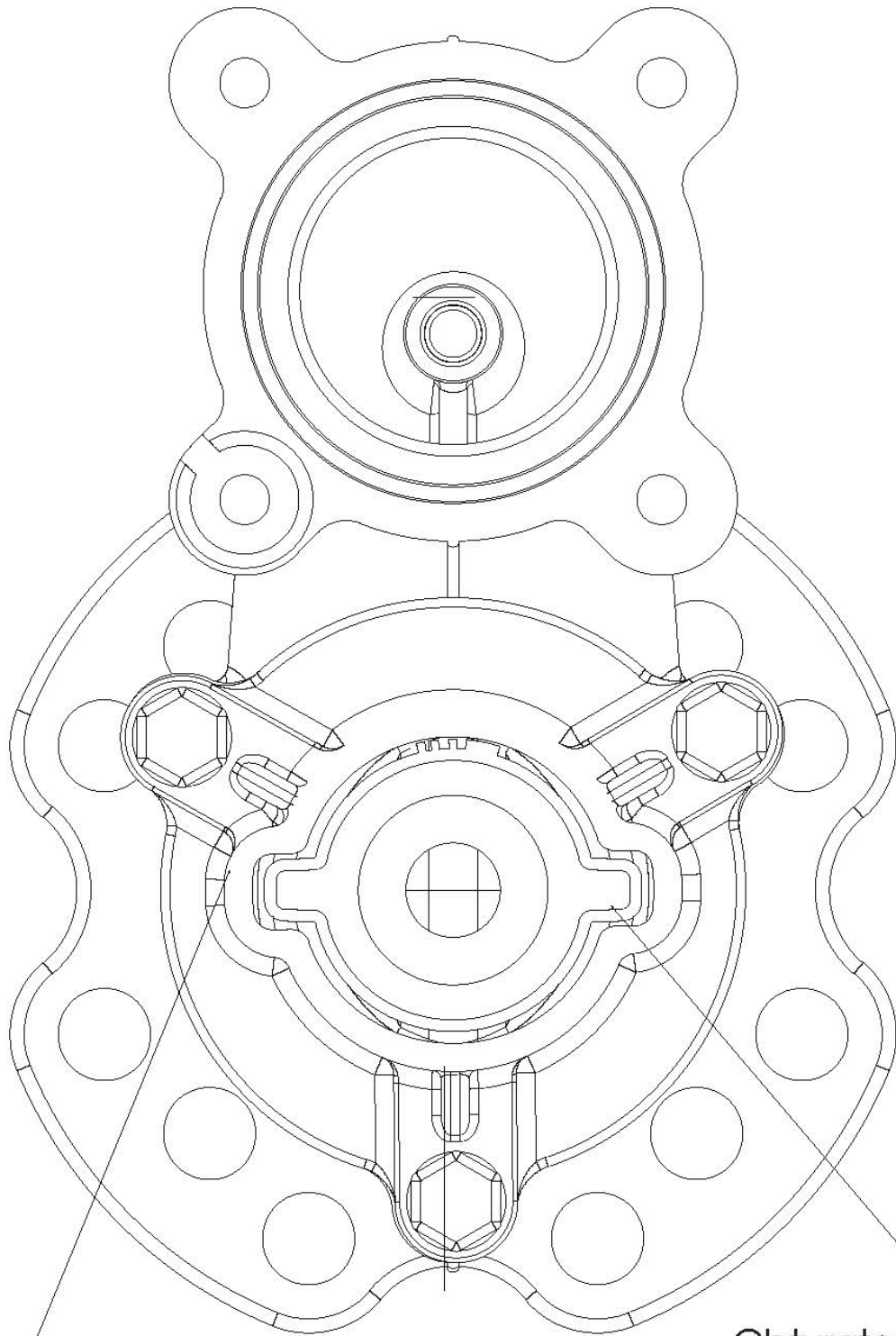
AVK UNDERGROUND FIRE HYDRANT

29/388



AVK UNDERGROUND FIRE HYDRANT

29/388



Body guides

Obturator/stopper guides

AVK UNDERGROUND FIRE HYDRANT

29/388

