

## TANK WATERPROOFING (DRINKING WATER)

### 1. MAIN PRINCIPLES

The ingress of water and water vapor in building materials causes huge damage, namely:

- Erosion and disintegration
- Chemical corrosion and oxidation of the concrete steel reinforcement
- Creation of rashes and spots
- Development of flora, lichen and fungi

Many of these are due to the direct effects of moisture, depending on the natural and chemical properties of water and on the building materials.

Another parameter is the significant increase of the volume of water (10%), because of the effect of frost, from liquid to solid form. The destructive effect of frost, is a function of the porosity of each material and the amount of the absorbed water.

### 2. THE OCCASSION OF AN UNDERGROUND TANK

- Avoiding leakage from the tank to the environment, ensured by the seal of the tank interior and
- Prevent water inflow to the tank components, ensuring the exterior sealing of the tank (see UNDERGROUND WATERPROOFING).  
The watertight basin creates a sealed to the entire foundation of the building, up to the ground level.
- In case of underground tank, waterproofing is made from the interior. The waterproofing layer has to be effective in preventing leakage, and it should be able to follow the expansions-contractions of the bottom and walls, which are caused due to exposure of the tank to temperature changes.
- Waterproofing tank by synthetic PVC membrane covers the above needs. In case of a tank of drinking water, the use of special synthetic membrane **Flagon AT**, 1,5mm thickness is required. Its raw materials allow the final product to come into contact with drinking water without causing adverse consequences.

### 3. APPLICATION

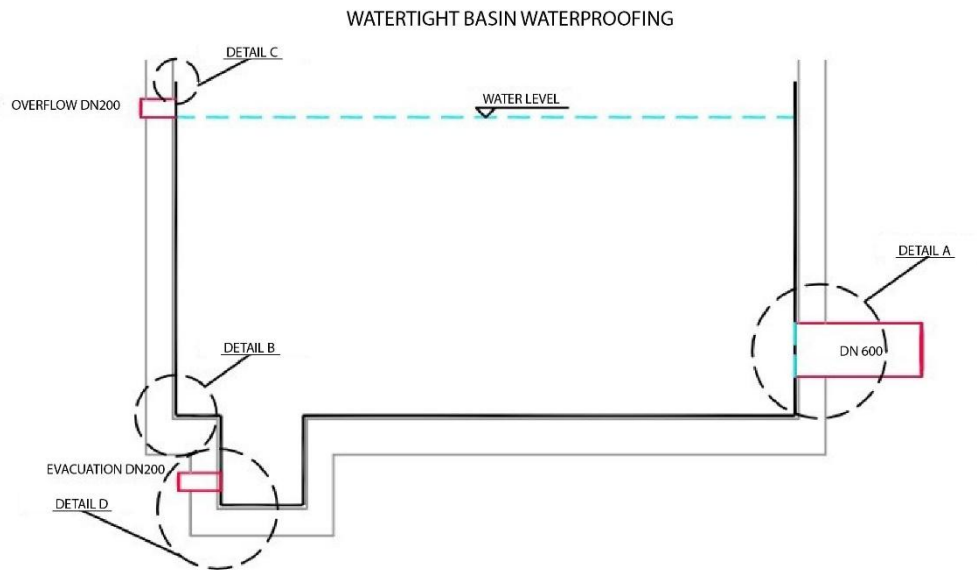


Fig.1 General Layout: Details A,B,C,D

- The bottom waterproof is made with free spreading of **Flagon AT** and thermal seams with automatic or manual gluing machine. The bottom waterproofing layer is fixed mechanically to the perimeter by strip (Fig. 2).

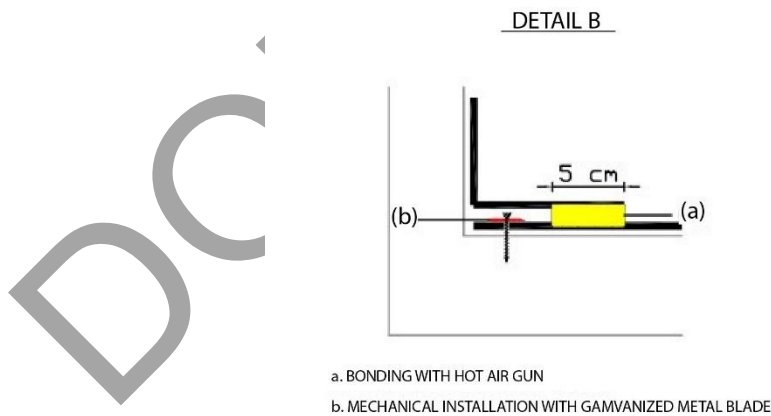
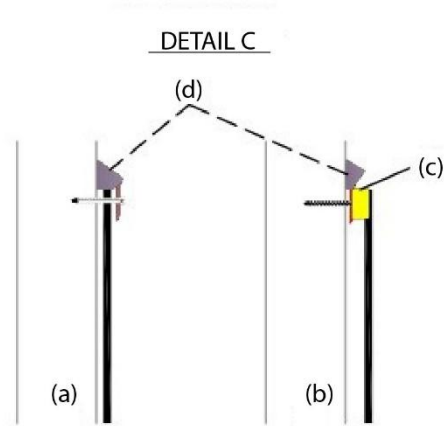


Fig.2

- Vertical elements waterproofing is also made by free positioning of rolls of the synthetic membrane and their adhesion on stitching is made with hot air machine. Prior, their mechanical attachment has been made by metal or laminated blade (see. Fig. 3), in each case over the output of the surge tank.

- Follows the thermal film which covers the vertical elements (walls) in that of the bottom, beyond the perimeter of mechanical bonding of the latter (see. Fig. 2).

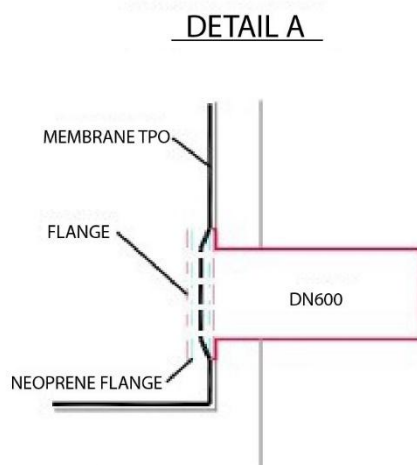


- a. MECHANICAL INSTALLATION WITH GALVANIZED METAL BLADE
- b. MECHANICAL INSTALLATION WITH LAMINATED METAL BLADE
- c. BONDING WITH HOT AIR GUN
- d. SEALING

Fig. 3, Detail C

**NOTES:**

1. Waterproofing at points of entry - exit of metal pipes on the walls of the tank, is done as shown in Fig. 4.

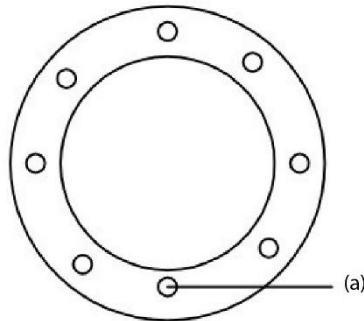


NOTE: THE FLANGE HOLES OF DN600 SHOULD BE BLINDE,  
AND DN600 SHOULD BE IN FACE WITH THE WALL (INTERNALLY)

Fig. 4, Detail A

While, the holes in the flanges (metal / neoprene) should be at least in the medium, if not the center of the cross section (Fig. 5).

FLANGE NEOPRENE / METAL



NOTE: THE HOLES ON THE FLANGE SHOULD BE AT LEAST IN THE MIDDLE, IF NOT IN THE CENTER OF THE INTERSECTION (a), IN ORDER TO OBTAIN A CAPABLE (OR BIGGER) ADHESION LENGTH

Fig. 5

2. The evacuation of the tank should be as low as possible, considering the construction detail D (Fig. 6).

DETAIL D

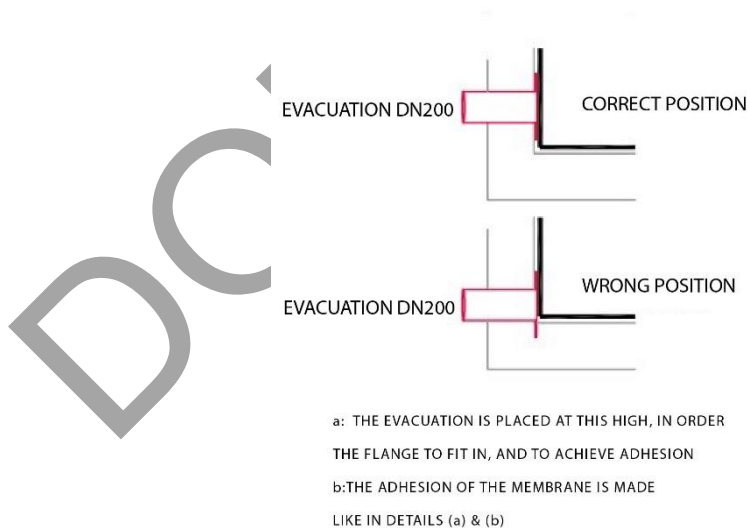


Fig. 6, Detail D

3. In firefighting tanks where the discharge is fast, is recommended the mechanical evacuation of membranes of vertical elements. The supports are placed at 0.40 - 0.50m, followed by the welding of the seam, beyond the point of mechanical fastening.

4. In any other case (irrigation tank, fire) does not required the use of special synthetic membrane **FLAGON AT**.

5. Special gutter pieces, of internal & external angle TPO / PVC of the group **ETERNO IVICA**, facilitate implementation and optimize the final result.

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