NAKURU RURAL WATER AND SANITATION COMPANY LTD


# AIR RELEASE VALVE TECHNICAL SPECIFICATIONS 1”

**TECHNICAL SPECIFICATIONS FOR AIR RELEASE VALVES**

### 1.1. DESCRIPTION

The High Flow Combination Air Valve has the features of both an air release valve and an air & vacuum valve. The air release component is designed to automatically release small pockets of air to the atmosphere as they accumulate along a pipeline or piping system when it is full and operating under pressure.

The air & vacuum component is designed to automatically discharge or admit large volumes of air during the filling or draining of a pipeline or piping system. This air valve will open to relieve negative pressures whenever water column separation occurs.

### 1.2. Applications

- Pump stations: after the pump and after the check valve.
- Downstream (after) and upstream (before) of shut-off valves.
- After deep-well pumps.
- On long constant-sloped pipeline segments.
- At peaks along the pipeline and at peaks relative to hydraulic gradient.
- At end lines.
- Before water meters.
- On strainers and filters.

### 1.3. Main Features

- Working pressure range: 0.1 - 16 bar.
- Testing pressure: 25 bar.
- Maximum working temperature: 60° C.
- Maximum intermittent temperature: 90° C.
- Reliable operation to reduce water hammer incidents.
- Dynamic design to allow high-capacity air discharge while preventing premature closure.
- All main flow cross-sections should be equal or greater than the nominal port area.
- Lightweight, small dimensions, simple and reliable structure.
- Unique one-piece body lessens the chance of leaks and vandalism (Techno polymer body).
- The discharge outlet should be flanged to enable the connection of a vent pipe.
- All internal operating parts should be made of specially selected, corrosion- resistant materials.
- The air release valve should be made in a manner that provides for minimum down-time during maintenance:
- 2” - all operating parts shall be consolidated into one replaceable cartridge
- 3” – 4” – air release component shall be maintained without dismantling the air valve
- Shall have a large size of the automatic air release orifice relative to the air valve body:
- Discharges air at high flow rates.
- The air release valves shall be made in a way that lessens the danger of its obstruction by debris.
- Enables the usage of the rolling seal, making it less sensitive to pressure differential than a direct float seal.

### 1.4. Valve Selection

- Size range: 1” –4” s-050 type
- These valves shall be manufactured with flanged ends to meet any requested standard
- Valve coating: Fusion bonded epoxy coating according to the standard DIN 30677-2

### 1.5. FLOW RATES

| **DN** | **Discharge orifice** | **Total NS area** | **NS orifice** | **SWITCHING POINT** | **FLOW AT SWITCHING POINT** |
|---|---|---|---|---|---|
| **1” (25mm)** | **25mm** | **78.5mm$^2$** | **10mm** | **0.03m** | **35m$^3$/hr.** |
| 2” (50mm) | 50mm | 78.5mm$^2$ | 10mm | 0.03m | 35m$^3$/hr. |
| 3” (80mm) | 80mm | 176.7mm$^2$ | 15mm | 0.04m | 121m$^3$/hr. |
| 4” (100mm) | 100mm | 314.0mm$^2$ | 20mm | 0.04m | 223m$^3$/hr. |