Rainwater Collection Supply

INSTALLATION, OPERATION AND MAINTENANCE MANUAL

Trickle-Fill System

Storage tank, float fill valve and DAB Esybox Mini 3 pump · 440 to 1,950 L



This manual covers

TF-CY100-EB3 · TF-VS150-EB3 · TF-CY190-EB3
TF-VS400-EB3 · TF-VS350-EB3 · TF-VS500-EB3

Document

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Read this manual and the pump manufacturer's manual before installing or using the system.

Read this first

Safety

- Plumbing and electrical work on this system must be done by qualified trades, to the plumbing and electrical codes that apply where it is installed.
- Switch off and lock out the power to the pump before working on the pump or on any pipe connected to it.
- The tank is a vented storage tank, not a pressure vessel. Never cap, valve or reduce the vent or the overflow. Supply pressure must reach the tank only through the float fill valve.
- A full tank is heavy: up to 1,950 kg of water in the largest size. Put it only on a floor that can carry it (section 2).
- The system stores and pressurizes water. It does not treat it.

What this manual covers. This manual covers the tank assembly: the tank, the float fill valve, the vent, the overflow and the two shut-off valves. The pump is a DAB Esybox Mini 3 and comes with DAB's own instruction manual. Use DAB's manual for wiring, priming, setting the pressure and reading alarms. Where the two disagree about the pump, DAB's manual governs.

Keep both manuals with the system, and fill in the installation record at the back.

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1 What the system does

A low-flow water supply often cannot keep up with a house at the moment water is used, even when it gives enough over a whole day. That supply can be a slow well, a trickle-fill rural pipeline or a restricted service line. The Trickle-Fill System puts a storage tank between the supply and the house. The supply fills the tank at its own pace, and the house draws from the tank at full pressure.



1 The supply fills the tank
Water enters through the float fill valve at whatever rate the supply can give.



2 Full tank, valve closed
The float lifts and closes the valve mechanically. Nothing to program.



3 Open a tap, the pump runs
The pump senses the demand and draws from the tank. As the level drops, the float drops and the valve opens again.



4 Overflow to drain
If the tank ever overfills, the 2 in overflow carries the excess to a drain by gravity.

The parts



1. **HDPE storage tank**
   Holds the reserve of water. Vertical slimline or cylindrical, 440 to 1,950 L.
2. **8 in lid**
   Opens by hand for inspection and cleaning.
3. **2 in vent**
   Lets air in and out as the level changes.
4. **Float-operated fill valve**
   Lets supply water in and shuts as the tank fills. Mechanical: no power, no sensor.
5. **1 in inlet with shut-off valve**
   Where the supply line connects. 3/4 in or 1/2 in if ordered that way.
6. **2 in overflow**
   Carries excess water to a drain by gravity if the tank overfills.
7. **1 in pump feed with shut-off valve**
   Feeds the pump, and isolates it for service without draining the tank.
8. **DAB Esybox Mini 3 pump**
   Variable-speed, constant-pressure pump with a built-in drive. Supplies the house.

Shown on the VS 400. The other sizes carry the same parts.

2 Before you install

Choose the place before the tank arrives. Once it is full it cannot be moved.

Check	What it needs
Floor	Flat, level and smooth, with nothing under the tank that could press into its base. It must carry the weight of the water in the table below, plus the tank and the pump.
Height	Room for the overall height in section 9, and space above the lid to open it and reach the float valve.
Way in	Every door and stair on the way in must pass the footprint in section 9. The slimline sizes are 28 to 30½ in on their narrow side.
Drain	A floor drain, or a route to the outside, that the overflow can reach by running downhill all the way.
Power	A 120 V or 240 V supply for the pump, as DAB's manual and the pump's rating plate specify.
Frost	A room that stays above freezing. Water left to freeze will damage the fittings, the pump and the pipes.
Light	Out of direct sunlight. Light through a pale tank wall encourages algae.
Air	Free air at the vent, either into the room or through a pipe to the outside.

Weight of water when full

Size	Cylindrical 100 440 L	VS 150 760 L	Cylindrical 190 910 L	VS 400 1,500 L	VS 350 1,600 L	VS 500 1,950 L
Kilograms	440	760	910	1,500	1,600	1,950
Pounds	970	1,680	2,010	3,310	3,530	4,300

One litre of water weighs one kilogram. Add the weight of the tank and the pump.

Your existing supply

The existing supply stays as it is, whether that is a well pump with its controls or an incoming service line. After installation it feeds only the tank inlet, and the house is supplied only by the system pump.

> **The system does not protect a well pump**
>
> If the supply is a well that can be drawn down faster than it recovers, the well pump needs its own low-water protection. That protection is part of the well installation and is not supplied with this system. Ask your installer to confirm it is in place.

3 What arrives

- The tank, with the lid, the vent, the float fill valve, the inlet shut-off valve, the overflow and the pump-feed shut-off valve already fitted.
- The DAB Esybox Mini 3 pump in its own carton, with DAB's manual.

Not supplied: the pipe and fittings between the supply line, the tank, the pump, the house and the drain; electrical wiring and protection; any water treatment equipment.

Option: a bulk water fill port on the top of the tank, for deliveries from a water truck. Keep its cap fitted when it is not in use.

Check the shipment when it arrives and look over the tank and its fittings for transport damage. Tell us about damage or anything missing before you install.

4 Installation

4.1 Place the tank

1. Sweep the floor and remove anything that could press into the base of the tank.
2. Move the tank empty. Lift or slide it by the tank body, never by a fitting, a valve or a pipe.
3. Set it where the lid, the float valve and both shut-off valves can be reached, with the overflow toward its drain.

4.2 Place the pump

Follow DAB's manual for position, clearances and fixing. The drawings show the pump on the floor beside the tank, 23 to 28 in from the tank wall. Keep the pipe between the tank and the pump short. For any other position, check the suction limits in DAB's manual.

4.3 Connect the supply line

1. Flush the supply line before connecting it, so that grit does not reach the seat of the float valve.
2. Connect the supply line to the inlet shut-off valve at the top of the tank. The inlet is 1 in, or 3/4 in or 1/2 in if ordered that way.
3. Support the pipe so that its weight does not hang on the tank fitting.

4.4 Connect the pump

1. Pump feed: run pipe from the 1 in shut-off valve near the bottom of the tank to the pump's suction. Keep it short and airtight, and no smaller than 1 in. A union near the pump makes later service easier.
2. Discharge: connect the pump to the house plumbing as DAB's manual describes.
3. Disconnect the house plumbing from the old supply line, so that the house is supplied only by the system pump. Ask your installer whether to fit a valved bypass so the house can run from the supply line while the system is being serviced.

4.5 Pipe the overflow

- Run 2 in pipe from the overflow to a floor drain or to the outside.
- It must fall all the way, with no valve, no reduction in size and no upward loop.
- End it above the drain with an air gap. Do not connect it directly into a sewer or septic pipe.
- If it ends outdoors, screen the end against insects and animals and keep it clear of snow and ice.

4.6 Leave the vent open

- The tank cannot fill or empty properly without the 2 in vent, and can be damaged if it is blocked.
- In a basement or a finished room the vent can be piped outside in 2 in pipe. Keep the run short, slope it so that it cannot trap water, turn the end down and screen it.
- Never fit a valve or a cap to the vent.

4.7 Electrical

- Wiring the pump is work for a licensed electrician, to the Canadian Electrical Code and local rules, following DAB's manual.
- Do not switch the pump on until section 5 says to. A pump must not be run without water.

4.8 Water treatment

The system does not treat water. Whatever treatment the water needed before, it still needs. If the house has a softener, filters or UV, your installer decides where they sit in the new arrangement.

5 Starting up

Work through these in order. Do not skip the leak checks.

1. Check that every connection is made and tight, that the vent is open and that the overflow reaches its drain.
2. Close the pump-feed valve. Leave the pump switched off.
3. Look inside the tank through the lid and remove anything left from manufacture or transport.
4. Open the inlet valve slowly. Water should enter through the float valve.
5. Watch the tank fill. As the water passes each fitting, check that fitting for leaks.
6. Watch the float valve close. The water must stop below the overflow. If water reaches the overflow, close the inlet valve and go to section 8.
7. If the water is for household use, disinfect the tank and the new pipework as your installer or local health authority directs, then flush.
8. Open the pump-feed valve. Prime and start the pump, and set the pressure, as DAB's manual describes.
9. Open a tap in the house. The pump should start and hold a steady pressure. Close the tap, and the pump should stop.
10. Run water until the tank level drops. The float valve should open and the tank should refill.
11. Check every connection once more for leaks, with the pump running and with it stopped.
12. Fill in the installation record at the back of this manual.

6 Day-to-day use

The system runs itself. There is nothing to switch on or off in normal use.

- **The two valves.** The inlet valve at the top stops the supply filling the tank. The pump-feed valve near the bottom isolates the pump from the tank. Leave both fully open in normal use.
- **Power cuts.** The system pump stops, so the taps lose pressure even though the tank still holds water. A well pump on the supply side stops too. Both resume when the power returns.
- **When you are away.** Nothing special is needed while the room stays heated. If it could freeze, shut the system down as in section 7.3.
- **What to watch for.** Water at the overflow outlet, a damp floor, the pump running when no water is being used, or an alarm on the pump display. For any of these, see section 8.

7 Maintenance

7.1 Suggested schedule

When	What to do
Each month	Look round the tank, the valves and the pump for leaks or damp. Check that nothing is coming out of the overflow. Check the pump display for alarms.
Every six months	Open the lid. Check that the float moves freely and that the valve shuts off cleanly. Look at the water and the tank floor for sediment. Check that the vent and the overflow outlet are clear, and their screens if fitted. Work each shut-off valve closed and open once.
Each year	Clean the tank if sediment has built up (7.2). Inspect the fittings for cracks or weeping. Service the pump as DAB's manual directs.

Adjust the schedule to your water. Water that carries sediment or iron will need the tank cleaned more often.

7.2 Cleaning the tank

1. Close the inlet valve.
2. Run water at a tap until the level is just above the pump-feed outlet, then switch off the power to the pump. Do not let the pump run dry.
3. Close the pump-feed valve.
4. The pump-feed outlet sits 10 to 15 in above the tank floor (section 9), so the water below it has to be pumped, siphoned or vacuumed out through the lid.
5. Loosen sediment with a soft brush on a pole and remove it. Use clean water. Do not use solvents or abrasive cleaners on the tank.
6. While the tank is empty, check the float valve and its seat.
7. Refill and restart as in section 5, steps 4 to 11.

7.3 Shutting down, and protecting from frost

1 Close the inlet valve and switch off the power to the pump.

2 Empty the tank (7.2), and drain the house lines as your installer advises.

3 Drain the pump as DAB's manual describes.

4 Leave the lid on and the vent open.

To bring the system back, start up as in section 5.

8 If something is wrong

For anything shown on the pump's display, start with the alarm section of DAB's manual.

What you see	Likely cause	What to do
Water runs from the overflow	The float valve is not closing: grit on its seat, or the float is fouled or damaged.	Close the inlet valve. Check that the float moves freely and nothing touches it. Flush the valve. If it still does not shut off, contact us.
The tank does not fill	The inlet valve is closed. No water is coming from the supply: a well pump is off, tripped or protecting itself, or the service line is shut. The float is stuck in the raised position.	Open the inlet valve. Check the supply: the well pump and its controls, or the service valve. Free the float.
The tank fills slowly	That is the supply's own flow rate. Or the inlet valve is partly closed, or a filter upstream is blocked.	Open the inlet valve fully and check upstream filters. If the tank often runs empty, it may be too small for the household: call us.
No water, or low pressure, at the taps	The tank is empty. The pump-feed valve is closed. The pump has no power, has lost its prime or shows an alarm.	Check the tank level, the valve and the pump's power supply. Follow the priming and alarm sections of DAB's manual.
The pump starts when no water is being used	A leak or a dripping fixture in the house plumbing.	Find and repair the leak. If there is none, see DAB's manual.
The water is discoloured or smells	Sediment in the tank, a change in the supply water, or light reaching the tank.	Clean the tank (7.2). Have the water tested. Shade the tank.
Gurgling, or the tank walls move as it fills or empties	The vent is blocked or restricted.	Clear the vent at once. Do not run the system with the vent blocked.

9 Specifications

Model	Code	Capacity	Footprint	Tank height	Height with vent	Pump outlet height
Cylindrical 100	TF-CY100-EB3	440 L 116 US gal	23 1/8 in diameter 59 cm	68.35 in 174 cm	—	—
VS 150	TF-VS150-EB3	760 L 200 US gal	28 × 32½ in 71 × 83 cm	56 in 142 cm	64 5/16 in 163 cm	10 1/16 in 26 cm
Cylindrical 190	TF-CY190-EB3	910 L 240 US gal	30¾ in diameter 78 cm	80.3 in 204 cm	—	—
VS 400	TF-VS400-EB3	1,500 L 395 US gal	30½ × 44 in 77 × 112 cm	82 in 208 cm	90 5/16 in 229 cm	14 7/16 in 37 cm
VS 350	TF-VS350-EB3	1,600 L 420 US gal	29 × 65 in 74 × 165 cm	65 in 165 cm	73 5/16 in 186 cm	15 in 38 cm
VS 500	TF-VS500-EB3	1,950 L 515 US gal	30½ × 58 in 77 × 147 cm	82 in 208 cm	90 5/16 in 229 cm	14½ in 37 cm

Dimensions and capacities are nominal. For the two cylindrical models the height is the tank alone; the vent elbow adds to it, and the dimensions marked — are not on those models' drawings. Each size has its own specification sheet with the dimension drawing.

All sizes

Tank	High-density polyethylene (HDPE), vertical slimline or cylindrical
Lid	8 in, removable by hand
Vent	2 in
Overflow	2 in, by gravity
Inlet	1 in with shut-off valve; 3/4 in or 1/2 in on request
Fill control	Float-operated mechanical valve
Pump feed	1 in with shut-off valve
Pump	DAB Esybox Mini 3: variable speed, constant pressure, built-in drive, 120 V or 240 V. For performance and electrical data see DAB's manual and the pump's rating plate.

10 Help, parts and warranty

For questions, spare parts or service, contact us:

- Telephone: **1-877-306-2146**
- Email: **sales@cfwt.ca**
- Web: **rainwatercollectionsupply.ca**

Have the model or code, your order number and a description of what you see. A photograph of the tank and the pump display helps.

Warranty. The warranty terms for the system and for the pump are those given with your purchase. Contact us with your order number for any warranty question.

Installation record

Model and code	
Order number	
Date installed	
Plumbing installed by	
Electrical work by	
Supply: well, pipeline or other	
Well pump low-water protection, if a well	
Pump pressure set to	
Tank disinfected on	
Notes	

Service log

Date	Work done	By