FK-5 BREAK TANK STATION

BS EN 1717 Category 5 compliant

KEMPER

DRIVING PROGRESS

Be prepared for everything

Option for targeted application configuration

Fig. 369 (without accessories)
Cross-section of the tank with
illustration of the internal overflow

Fig. 369
incl. accessories
(see page 11)

Advantages at a glance

// High performance: maximum flow rate up to 1,94 l/s*
// Support for drinking water hygiene by means of programmable flushing cycles of cold water feed pipe
// integrated tank cleaning program
// Operating time control by means of a weekly program
// Control of an external metering or submersible pump
// Reading of consumption and operating data using USB port
// Output of a fault signal to BMS

kiwa approved
UK WATER REGULATION 4

* in conjunction with accessory set Fig. 369 22

Maximum security

Fluid category 5 with the strictest requirements

Drinking water must always be secured against mixing with non-potable water. Depending on the level of risk, fluids are divided into categories from 1 to 5. Fluids of category 5 represent a significant risk to human health. They may contain microbial or viral pathogens of infectious diseases, and must therefore never come into contact with drinking water – not even in the smallest quantities.

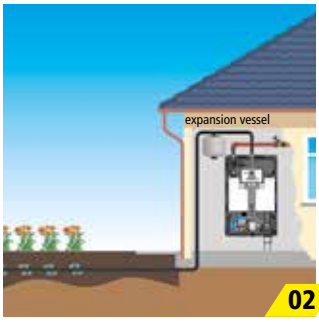
BS EN 1717 therefore sets the highest standards for the safety equipment to be used, with the mandatory separation of these fluids from the drinking water system.

Danger due to backflow, siphon backflow or back pressure of non-potable water!

A sudden partial vacuum (pressure drop) in parts of the network can lead to **siphon backflow** of contaminated liquids.
A partial vacuum may occur, for example, by closing a valve, by operating booster pumps or in the event of the excessive discharge of water.

A temporary increase in pressure in non-potable water systems leads to counter-pressure in the direction of the drinking water installation. This can lead to dirty fluids being **drawn back** into the drinking water.

The following applications show examples of danger zones for fluid category 5.



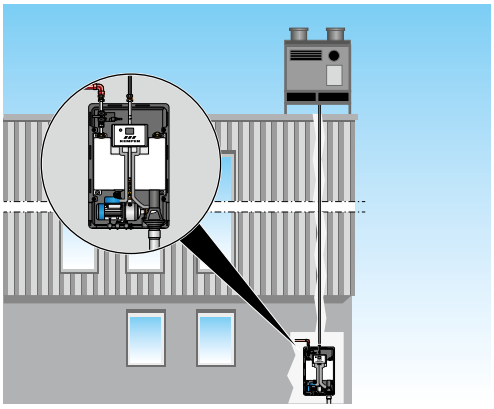
01 Water Park
02 Underground Irrigation
03 Cattle troughs
04 Cooling towers
05 Cleaning in the animal compound
06 Pathology
07 Science lab in high school
08 Refuse Area

Overcome delivery heads, supply volumes

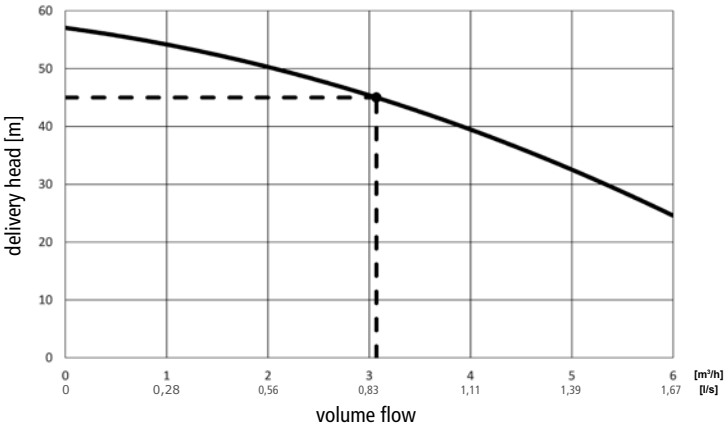
Wide range of services for many application areas

With its two pump sizes, the FK-5 break tank station covers a broad performance range. No matter whether a large head has to be overcome or a high volume flow has to be provided – the FK-5 is able to perform despite its compact size, very high and impressive performance values are achieved.

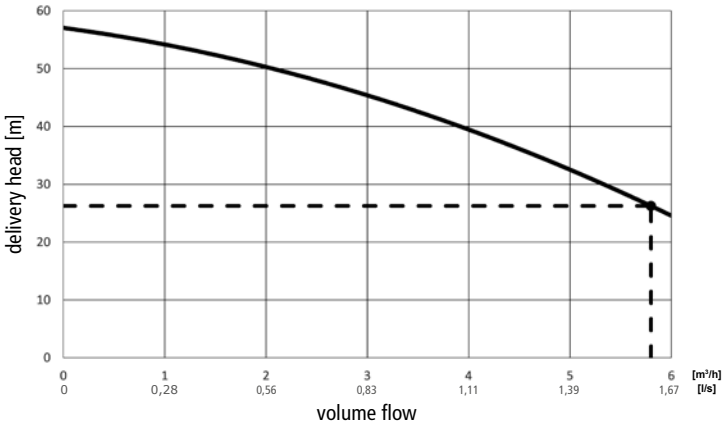
Thanks to the high pump performance, the removal quantities are comparable with the quantities of similar pipeline systems in drinking water installations.



Example: Building with a height of 30 m



Example: Irrigation with high volume flow (5.8 m³/h)

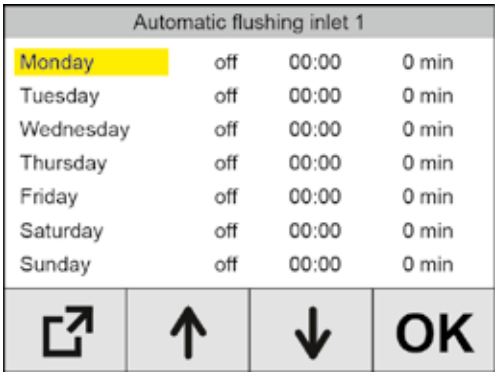


Pump characteristic curves and operating points for each of the following marginal conditions:
p_{FI} = 1 bar ≙ 10 m and $\Delta p_{ges,v} = \Sigma (R \cdot l + \Delta p_E)$ = 0.5 bar ≙ 5 m

Stop bacteria growth

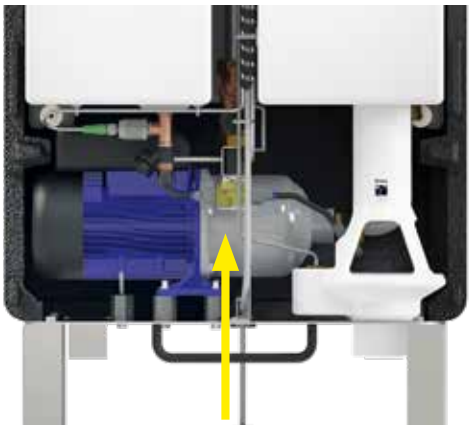
Flushing of cold water feed pipe and tank cleaning

Flushing the cold water feed pipe
During interruptions in use, e.g. during school or company holidays, stagnation occurs in the supply line to the break tank station. The same applies for phases of reduced utilisation of the break tank station. In order to ensure that drinking water hygiene in the affected areas of the installation is maintained, the water content of the inlet pipes must be exchanged through regular flushing. The FK-5 break tank station automates this essential process by means of programmable flushing cycles. Planned flushing cycles remain active even in **Service interruption** mode.



Cleaning the tanks
The water in the receiver tank as well as in the downstream network is no longer drinking water. Nevertheless, in many applications (see example on the right) high germ contamination through biofilm formation in the receiver tanks is undesirable – regular cleaning of the tanks as well as after long periods of time is also recommended.

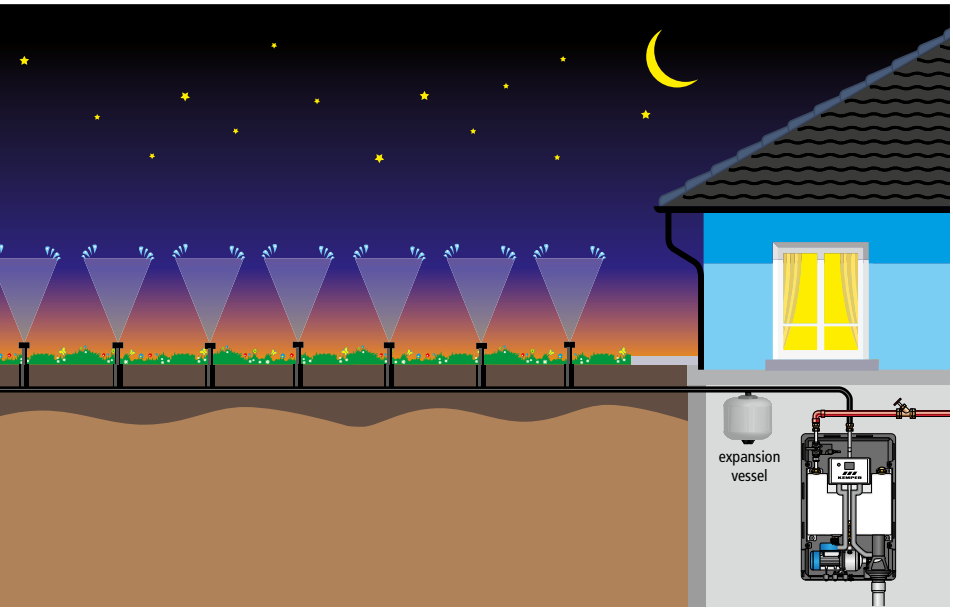
For this, the FK-5 break tank station offers the function of **Tank cleaning**: when the program starts, a cleaning agent is added to the tank. The cleaning program cannot be interrupted once it has started; when completed, it guarantees that the tank has been fully flushed. The FK-5 break tank station cannot be used for the duration of the cleaning process.
A proven product for cleaning water containers in camping vehicles can be used as a cleaning agent.

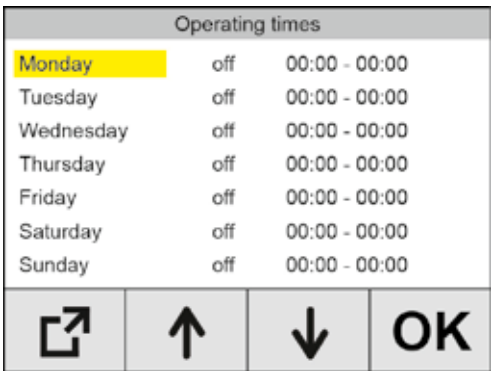


Tank cleaning set

Automated operation, vandalism prevention

Usage optimisation with time control and operating time selection





Time control
With the FK-5 break tank station, it is possible to control switch-on and switch-off times to the minute. In summer, for example, irrigation can be carried out fully automatically, e.g. during the night. This removes irrigation from the peak times, and at the same time is easy on the plants. This automation helps to save personnel resources, especially in public areas.

Define operating times – prevent vandalism
Unauthorised actuation of water tapping point outlets can have costly consequences. This is particularly true for periods in which the staff or the operator is absent. Tapping point outlets that are fed from the FK-5 break tank station can be secured against unauthorised use through the definition of operating times.
This can be useful, for example, in kindergartens that are not open at the weekend. No water can be tapped outside the defined weekdays and times of day – damage caused by vandalism is prevented.

Overriding operating times
The programmed operating times can be temporarily overridden by the operator without the programming being lost:

// By setting the FK-5 break tank station to **automatic mode,** it can also be used outside the operating times, for exam-ple for weekend events.

// In the event of closure in the building (e.g. during the school holidays), the FK-5 break tank station can be switched to **Service interruption** mode. Regular operation of the system is then interrupted, all predefined operating times are overridden. Only programmed flushing cycles of the PWC supply line are carried out (see page 5).

Practical solutions for applications

Pump control and Water supply set plus

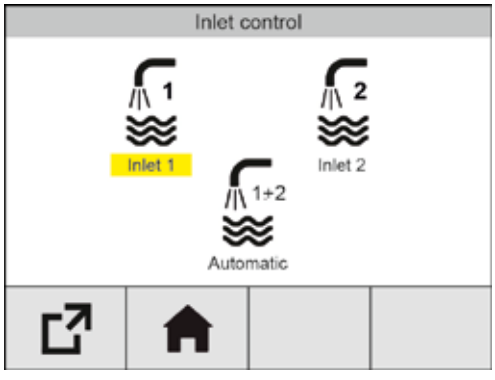
Individual admixture
The FK-5 break tank station offers the option of controlling an external pump. This means that it is possible to specifically meter fertilisers, plant protection products, colouring or aromatic substances, for example, directly into the pressure line. Standard commercial metering pumps can be controlled by means of a dry contact.

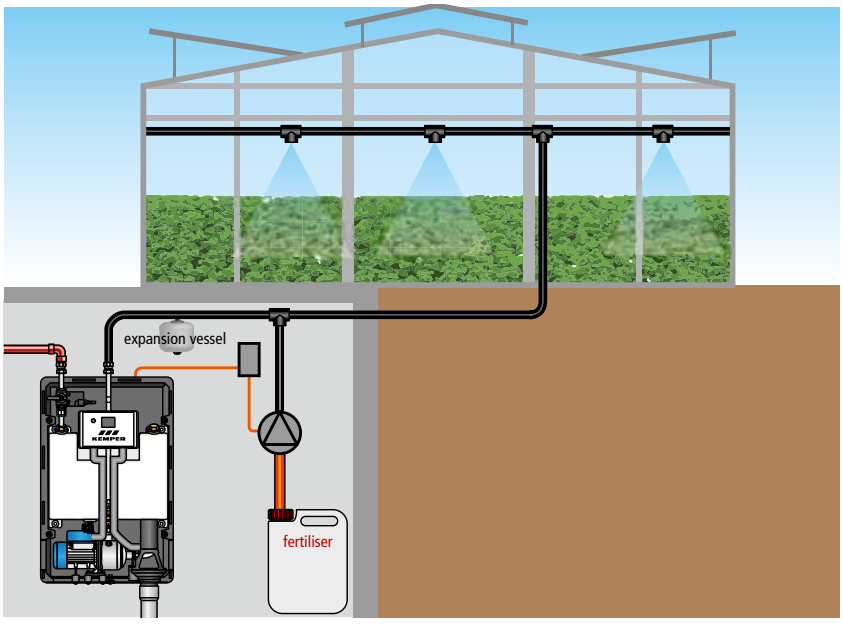
Overflow monitoring
In order to prevent damage caused by blockage of the drain or also in the event of backflow from the sewer, the FK-5 break tank station can be equipped with an overflow monitoring unit. Faults detected here automatically cause the inlet valves to be shut off, and a notification to this effect is sent to the BMS.

Water supply set plus
With the water supply set plus, the FK-5 break tank station can be equipped with a second inlet. This is to increase the water supply or to use wate from a different supply that shall be used primarily. A possibly required external pump can be connected to the control unit of the FK-5 to be activated when needed. In the Inlet control menu item on the touch screen, the source of supply is defined. Whether the receiver tank is to be filled through the PWC line, the secondary supply or automatically is user-definable. In automatic mode, the secondary supply has priority. Only when the secondary supply is dry, the system switches to the PWC inlet.

Control of external pumps with the following specifications is possible:

Nominal voltage	250V AC
Max. continuous current	4A
Max. switching capacity	AC1 1000VA





Know what is happening

Data storage for building management

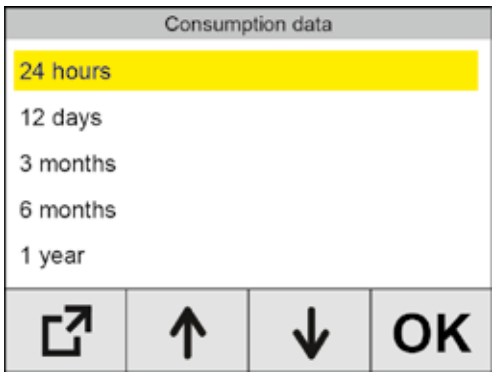
The optimisation of building management functions is becoming increasingly important. With the help of detailed information on all water consumption, building management is in a position, among other things, to detect and handle consumption peaks, to analyse abnormalities and take the necessary measures.

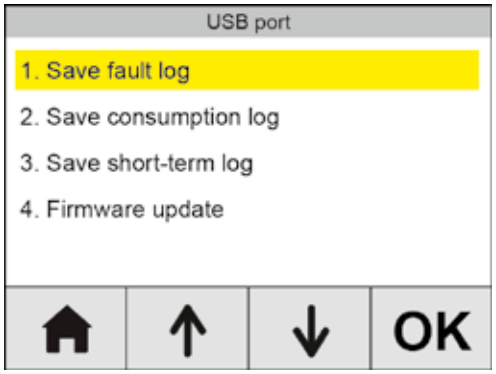
The FK-5 break tank station controller supports building management by storing and displaying the following parameters:

// Date
// Time
// Consumption in l
// Pressure in bar
// Fill level in %
// Valve position
// Pump position
// Mode
// Fault

The data is stored both in a 48 h short-term memory and in a long-term memory. Both memories work according to the first in / first out principle: when the memory is full, the oldest entry is overwritten with new data.

Data is downloaded using a **USB interface** (port on the operator panel of the controller). After a USB stick has been plugged in, the USB interface menu appears on the touch screen.
Depending on the intended use, the data to be read out can be targeted and selected. The protocols are saved on the stick as CSV files. Further processing of the data, for example to create irrigation profiles, can then easily be created using Excel. Your own configurations or firmware updates can also be loaded into the controller using the same interface.





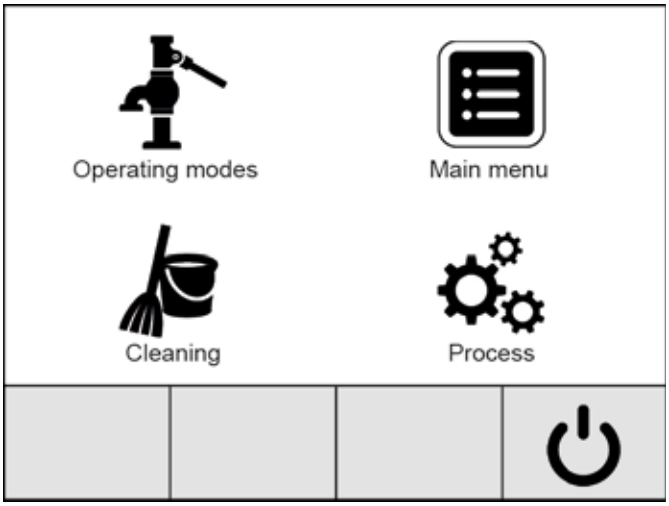
Simple use of functional diversity

Operating advantage thanks to touch screen control

The controller of the FK-5 break tank station is equipped with a touch screen for clear operation. Practical icons guide the user intuitively through the menu and allow simple operation of all functions.

Equipment protection at temperatures below zero

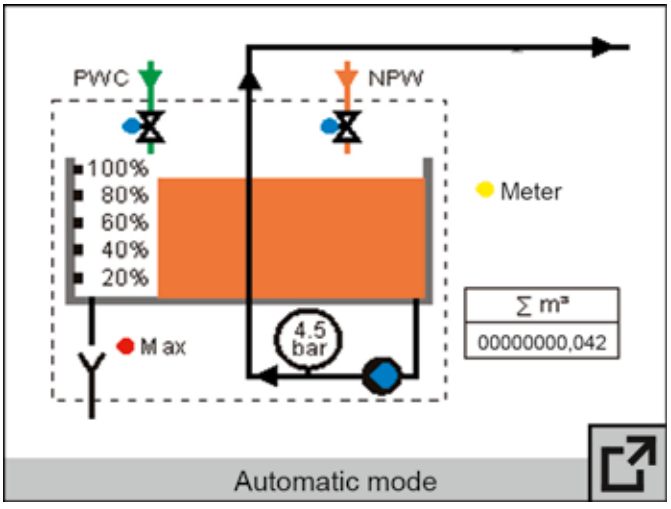
The FK-5 break tank station is equipped with a frost protection monitor. When a temperature of approx. 5 °C is reached, a warning message appears on the touch screen, and at approx. 2 °C, the device shuts down completely. Startup is then only possible after the device has been reset.



Information for building management

The **Process** button leads to a schematic representation of the FK-5 break tank station with all available functions. The current operating status is clearly shown here.

During operation, the consumption data can be displayed as a bar chart. The consumption is shown by clicking the Σ m³ button in the plant schematic.



Fault signal!

BMS link

There is a volt-free contact for outputting a fault signal to the BMS.

Optimising plant operation

Preventing faults and interruptions in operation

Temperature changes in the system lead to pressure fluctuations that can cause faults or interruptions in operation.

The expansion vessel in the FK-5 connection set absorbs these pressure fluctuations and thus eliminates a potential source of interference. At the same time, it reduces the number of cycles through tiny draw-offs of water on the pressure side. A high-quality dirt trap made of gunmetal completes the set.

KEMPER recommendation:
The expansion vessel pressure should be 0.5 bar below the set supply pressure.

NEW!

FK-5 connection set
Figure 369 27

Accessories

Enhancement options and optional accessories

FK-5 Water supply set plus, Figure 369 01

Part no.	Scope of delivery
3690102000	quarter turn stop valve with actuator and connection accessories; DN 20
3690102500	quarter turn stop valve with actuator and connection accessories; DN 25

FK-5 tank cleaning unit, Figure 369 02

Part no.	Scope of delivery
3690200100	Solenoid valve with connection accessories

FK-5 racks, Figure 369 03

Part no.	Scope of delivery
3690300100	2 x FK-5 racks with fastening parts

FK-5 overflow monitoring, Figure 369 04

Part no.	Scope of delivery
3690400100	Overflow sensor with connection cable

FK-5 connection set, Figure 369 27

NEW!

Part no.	Scope of delivery
3692700100	Flow-through expansion vessel, 33 litres, with 1" dirt trap and 1" transition nipple made of gunmetal

Part no.	DN	Max. head [m]	Max. flow rate* [m³/h]	PWC connection	Pressure connection	Waste water connection [DN]	Dimensions (H x W x D) [mm]	Net weight [kg]
3690002000	20	43.2	4	G 1	G 1	75	930 x 600 x 330	36
3690002500	25	57.9	7	G 1¼	G 1¼	75	930 x 600 x 330	38

* in combination with the FK-5 water supply set plus, Figure 369 01

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