

Sentinel KalGUARD®

Proven electrolytic scale inhibitor for commercial hot water systems

To reduce the effect of limescale in hard water areas, incoming mains water should be fitted with a water treatment system utilising a zinc sacrificial anode with unique electronic control. Straight forward to install, Sentinel KalGUARD controls limescale and should be sized, supplied and commissioned by Sentinel Performance Solutions Ltd. or an approved Sentinel trained engineer.

- **Sized according to demand, not pipe diameter**

Delivers value engineering and subsequent cost savings

- **Single unit per building**

Simplifies design and installation, and minimises number of units required per site, saving on installation costs and design time

- **Positioned on incoming main**

Non LSI-dependent unit allows strategic installation for value engineering and subsequent cost savings

- **Permanent treatment**

Treated water can be stored for any length of time, providing surety of scale control to protect asset value and system performance

- **No ongoing costs**

Delivers ROI within approximately 12 months if replacing water softener technology, since there is no salt, no regen water waste to manage, plus no requirement to manage salt replacements or storage

- **Independently proven technology**

Independent testing supports product performance in the control of limescale build-up

- **Trusted by national clients for 10+ years**

Holds sole specification across estates with major clients in food retail, leisure / gyms, restaurants, hotels, education, and other sectors



CERTIFICATION MARK

Complies with Part L Building Services Compliance Guide



Overview

Sentinel KalGUARD® is an electrolytic scale inhibitor package for domestic hot / cold water in commercial buildings; an independently proven, low-maintenance way to protect a property against the damaging and expensive impact of limescale. Where a Sentinel KalGUARD replaces a brine water softener, a return on investment can be delivered usually within 12 months. The system is effective in all mains hard water areas found in the UK. KalGUARD is environmentally friendly.

Anode life can be 10-12 years or longer depending on usage.

By controlling scale formation, KalGUARD ensures continued thermal efficiency, long major equipment life and a reduced cleaning regime. This will also assist towards compliance with carbon emission regulations.

The KalGUARD system does not use any chemicals or salt, nor any temporary electrical or electronic effects.

Components

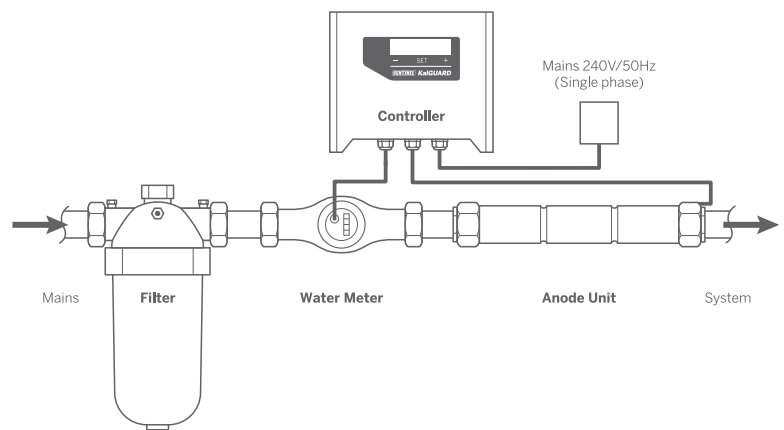
Each system consists of the following components:

- **Anode Unit:** the zinc alloy electrode unit.
- **Controller:** provides low voltage DC output to the anode (<9 V DC).
- **Flow meter:** supplies water flow data to the controller.

Water filters and a pulse splitter unit are also available as optional accessories to the basic kit (see details below).

Schematic System Diagram

The typical elements of the KalGUARD system are illustrated below.



Anode Unit

The KalGUARD anode is plumbed directly into the main water supply to the building. To optimise on the size of system for both technical and commercial considerations, we base design on the demand or flow for the building.



Note: The use of delayed action ball valves, or other similar water level control systems, is recommended.

KalGUARD Specification Table - Anode Units

Product Code	Length	Diameter (Main Body)	Weight (KG)	Design Flow (l/m)	Design Flow m ³ /h	Connection	ΔP (bar) @ Design Flow
KALG22	375	42	2.5	37	2.22	¾" BSP Female	0.15
KALG28	450	54	3.1	64	3.84	1" BSP Female	0.13
KALG35	484	67	4.6	96	5.76	1 ¼" BSP Female	0.23
KALG42	505	67	4.9	142	8.52	1 ½" BSP Female	0.26
KALG54	525	76	6.4	255	15.3	2" BSP Female	0.26
KALG67	650	108	16.8	423	25.38	2 ½" 8 bolt DIN/ANSI Flange	0.20
KALG76	650	134	30.0	523	31.38	3" 8 bolt DIN/ANSI Flange	0.23
KALG108	650	160	37.0	1099	65.94	4" 8 bolt DIN/ANSI Flange	0.20

Controllers

Alternative controllers are supplied with the KalGUARD system, depending on the anode sizing. The Mk 1 (white unit) and Mk 2 (dark grey unit) controllers both have BMS connection capability and the facility to identify / alert regarding any potential faults with the installation. The Mk 2 unit is supplied with the smaller KalGUARDS from 22 through to 54 mm, whilst the original Mk 1 controller is supplied with KalGUARDS 67, 76 and 108 mm.

The units are both mains powered (240 VAC 50 Hz Single Phase) and designed to be wall mounted near to the KalGUARD system. A special anode connection cable and full instructions are supplied with each unit.



KalGUARD Controller Mk 1



KalGUARD Controller Mk 2

KalGUARD Specification Table - Controllers

Version	For	Width (mm)	Height (mm)	Depth (mm)	Display	Display	BMS Connectivity	IP Rating
Mk 1	67, 76, 108mm KG	193	180	103	LCD	240 V AC	Fault Alert, Optional Pulse Splitter	65
Mk 2	22, 28, 35, 42 & 54mm KG	259	213	66	OLED	240 V AC	Fault Alert, Remote Switching (on/off), Optional Pulse Splitter	65

Water Meter

Each KalGUARD kit is supplied with a system-designed flow meter, providing a digital signal designed to regulate the output of the KalGUARD controller. The water flow meters feature a dry dial design and are constructed with brass bodies.



KalGUARD Specification Table - Water Meters

Kg Size	Water Meters (in)	Length (mm)	Width (mm)	Height (mm)	Weight (KG)	Connections	Qmax* (m ³ /h)	Qn* (m ³ /h)	Qmin (l/h)	Max Pres. (bar)	K Value (litre)	ΔP (bar) @ Design Flow
22	¾"	190	99	107	1.7	¾" BSP Male	5	2.5	50	16	1	0.20
28	1"	160-260	104	115	2.6	1" BSP Male	7	3.5	70	16	1	0.35
35	1 ¼"	160-260	104	120	3.1	1 ¼" BSP Male	12	6	100	16	1	0.38
42	1 ½"	200-300	125	148	5.2	1 ½" BSP Male	20	10	200	16	1	0.20
54	2"	300	125	173	8.5	2" BSP Male	30	15	450	16	1	0.23
67	2 ½"	200	65	200	10.1	PN16 Flanges	50	25	750	16	10	0.06
76	3"	200	80	270	13.8	PN16 Flanges	80	40	1200	16	10	0.03
108	4"	250	100	270	18.2	PN16 Flanges	120	60	1800	16	10	0.05

*Qmax = Max flow (short period)

*Qn = Nominal flow

Filters

Filters are recommended in instances where there is a risk of debris entering the water supply, which is a common problem on new build installations. Manual disc filters are supplied by Sentinel as accessories to the standard KalGUARD kits. The filters are available in a range of sizes to suit the installation. All units are manufactured from robust engineering plastics to ensure that they remain corrosion free. Durable disc filter elements are used across the range - they are easily cleaned and can be immediately reinstalled after cleaning.



KalGUARD Specification Table - Filters

Connection Size	For	Length (mm)	Width (mm)	Height (mm)	Weight (KG)	Connection Diameter (mm)	Average Flow (m ³ /h) @ 55u	ΔP (bar) @ Design Flow
1" Short	22mm KG	158	130.0	233	1.1	25	3.15	0.11
1" Super	28mm KG	158	130.0	340	1.42	25	4.2	0.05
1 ½" Super	35mm KG	200	130.0	350	1.5	40	6.3	0.12
2" Leader	42 & 54mm KG	230	215.0	425	3.2	50	11	0.28
3" Leader	67mm KG	742	228.0	320	6.3	90	22	0.17
4" Leader	76mm KG	1188	319.0	445	28.8	110	42	0.05
6" Leader	108mm KG	1188	319.0	415	30.4	160	49	0.06

KalGUARD Pulse Splitters

The KalGUARD Pulse Splitter is an optional accessory to the Sentinel KalGUARD system. It is designed to take an electrical feed from the KalGUARD water meter and split the signal into two separate, isolated outputs. One of the outputs is fed into the KalGUARD controller and the second to supply a separate Building Management System (BMS) in order to monitor water flow rate or water usage. It can be used with any size of KalGUARD anode and either version of controller. The Pulse Splitter can be directly mounted on standard DIN rail.

Further details and full KalGUARD installation instructions (including a video guide) are available at www.sentinelprotects.com

The use of Sentinel water treatment is endorsed by the industry's major international manufacturing companies*



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