

electronic chemical dosing systems

# A Guide to Dishwash Dosing



# Welcome Brightwell Dispensers Ltd

Since 1947 Brightwell has been supplying its customers with quality products. Starting out as a small family business, the company has evolved into Europe's leading independent manufacturer of revolutionary dispensing solutions for the hygiene market. Brightwell is an internationally respected company which now exports more than 65% of its products to over 70 countries worldwide.

Award-winning Innovative design keeps us ahead of the game. Our design and development team continue to drive invention at Brightwell, allowing our products to lead the way in style and technology. Cutting-edge development is complimented by rigorous testing to ensure our products are durable, easy-to-use and safe.

We design custom-made dispensers for our clients, using the latest computer-aided design and prototype modelling systems to turn your vision into reality.

Our durable, dependable chemical dosing systems are used all over the world – helping customers automate release of chemicals for quicker, simpler and safer operations.

Brightwell dosing systems work with all sorts of apparatus, from tabletop glass washers to water-cooling towers, and with our bespoke design service we can even create a system to suit your products.

>Many dispensers come with access codes for added security and enhanced multi-level programming. All products come with multilingual support for overseas clients and the option of brand promotion on the wall-mounted enclosures.

We offer training courses on all our electronic equipment as well as telephone support during working hours.

## dishwash guide

# contents

Preface.....	4
Introduction to dishwashers.....	5
Glass washers.....	5
Single tank - Pass through.....	6
Tunnel / Conveyor.....	7
Dishwash systems explained.....	8
Example process.....	9
Achieving good results.....	10-12
Dishwash chemicals.....	13-14
Chemical safety.....	15-16
Installation.....	17
Tubing.....	18
Troubleshooting.....	19-21

## dishwash guide

# preface

The information enclosed in this booklet is designed to assist both the novice and the more experienced dishwashing field personnel.

Brightwell Dispensers produces the most advanced dispensing equipment available and, when installed correctly, it will provide many years of trouble-free operation.

Comprehensive instructions (available in several languages) are included with each system and aid the straightforward installation to any suitable dishwasher.

Owing to the multitude of various dishwashing control circuits, it is impossible to advise on each one, but following our instructions, the minimum of problems will be encountered. Brightwell dispensing systems have been designed to enable ease of installation no matter what dishwasher control circuit is encountered.

**All Brightwell electronic dosing systems are EMC approved and comply with the relevant CE regulations. They are also the only dosing systems currently available that provide ingress ratings of IP65M or IP66M (model dependant).**



## dishwash guide

# dishwash machines

### GLASS WASHERS

Sometimes referred to as an “under counter dishwasher” or “front loader”, these machines were designed specifically for glass washing (although certain models are also used for dishwashing).

These machines usually have their own in-built rinse aid dispensing facility, in the form of a small container.

The single tank glass washer consists of a small wash tank, designed to hold a quantity of water, which will be re-circulated by means of a wash pump through upper and lower wash arm assemblies (or wash nozzles). It is into this tank that the detergent solution is injected.

The final rinse is provided by fresh hot water from a separate set of arm assemblies or spray nozzles.

The wash arms (which can be rotating or fixed), spray detergent solution or water at 55° - 60°C onto the glassware from above and below.

Rinse arms (which normally rotate) spray fresh water (into which a small amount of rinse aid has been added), at a temperature of between 82° - 88°C.

The rinse water from each cycle falls into the detergent tank. The detergent tank is therefore continually refilled to avoid the build up of soil. The detergent in the wash tank must therefore also be replenished in order to maintain its concentration.

These machines often have built-in water softeners, and some even have detergent pumps. These vary in quality, and some are not adjustable. Built-in equipment can sometimes be unreliable and often the chemical supplier has to resort to fitting external dispensing equipment at a later date.



### GLASS WASHERS

For the small glass washer or dishwasher, first determine if you require to dose 1 or 2 products.

If the integral rinse aid dispenser is of good quality then you will only need to dispense one product. The MicroPlus II can therefore be used to dose the detergent.

For dispensing two products, the PowerPlus II would be most suitable.

A probe system is unsuitable and generally ill advised due to the small and shallow nature of the wash tanks.

Image Courtesy of Winterhalter

## dishwash guide

# dishwash machines

### **SINGLE TANK/SINGLE CYCLE PASS THROUGH**

The single tank/single cycle pass through dishwasher is one of the most common styles around.

The features of these machines are similar to those of the glass washers.

These dishwashers can be found as a straight through or corner style model (as shown), usually with custom stainless steel tabling for sliding the 500mm dishwashing racks directly into the machine without lifting or handling. They can be found with two side opening doors or a complete hood.

These machines will often have a sink and overhead spray system incorporated into the tabling, prior to the inlet.

### **SINGLE TANK / SINGLE CYCLE**

Wherever possible the best course of action is to fit dispensing devices that gives you, the chemical supplier, full control of your products.



Image Courtesy of Winterhalter

## dishwash guide

# dishwash machines

### TUNNEL OR CONVEYOR STYLE DISHWASHERS

These dishwashers come in a variety of tank configurations; single, double and triple tanks are all common.

Some machines have as many as three tanks, and a final rinse. The first tank is the pre-wash or scrap tank. The next tank would be the wash tank and the next the power rinse tank, and finally would come the final rinse arms. Each tank will have a scrap-tray (the Power Rinse tank may be open).

When a machine has a number of tanks, sometimes a weir system operates with fresh water being fed into the machine via the final rinse.

The dishwashing racks are transported through the dishwasher either by means of push and pull hooks, a metal belt conveyor or by a continuous peg belt. Whichever system is used, it will be continually in motion and will pass the racks (or individual crockery) through the machine automatically.

One important part of these machines is that they have curtain dividers between the tanks. These are designed to prevent splash over between the tanks.

It is possible to find different length curtains on some machines. It is therefore important that if removed, these are fitted back correctly. Results and detergent consumption can be seriously affected if these curtains are missing or incorrectly fitted.

The standard temperatures for these machines would be:

Pre-Wash.....	45°-50°C
Wash.....	55°-60°C
Power Rinse.....	65°-70°C
Final Rinse.....	82°-88°C

These dishwashers quite often have heated blower systems after the final rinse.

Today's dishwashing tunnel or conveyor machines are very sophisticated, and can also have the benefit of heat recovery systems.

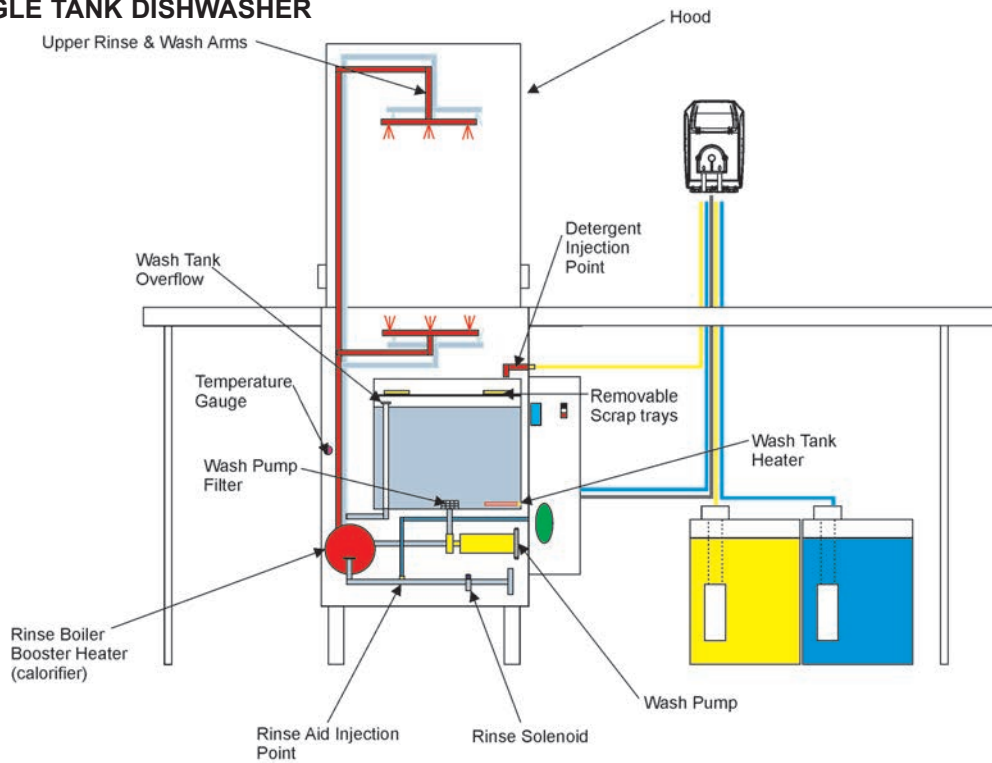


#### TUNNEL / CONVEYER

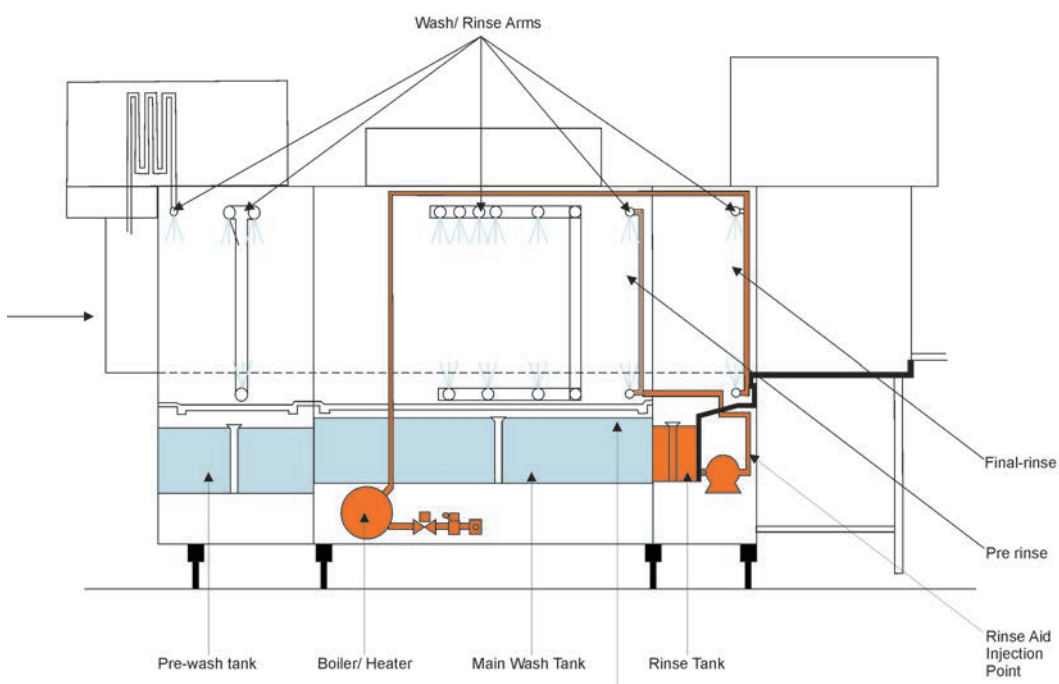
Brightwell makes specific dispensers for tunnel or conveyor dishwashers, as one size does not fit all in the dishwashing field.

## dishwash guide

### SINGLE TANK DISHWASHER



### MULTI-TANK DISHWASHER



## dishwash guide

# example process

### EXAMPLE OF THE PROCESS OF A SINGLE TANK PASS THROUGH DISHWASHER

#### PREPARING TO WASH

When a dishwashing machine is first switched on, a solenoid valve (electrically operated tap) is opened to allow fresh mains water to fill the wash tank in the machine where the temperature is maintained between 55°C - 60°C. At this stage the initial charge of detergent is dosed into the wash tank.

#### THE INITIAL CHARGE

The initial charge is the amount of detergent that needs to be added to the water to achieve the correct water to detergent ratio.

#### HOW TO CALCULATE THE INITIAL CHARGE

As the Brightwell units dosage amount is determined by the pump run time and at which speed the pump runs, the following information must be known. The size or volume of the wash tank in litres (this information can be found in the dishwasher instruction manual), the speed at which the detergent pump is set, and the flow rate of the pump.

#### CALCULATING THE FLOW RATE AT DIFFERENT PUMP SPEEDS.

If the flow rate is 285ml/min at 100% pump speed, to determine the flow rate at 80% pump speed, the 285ml/min flow rate must be multiplied by 80%.  $285 \times 80\% = 228 \text{ ml/min}$

#### PREPARING TO RINSE

During the wash cycle, rinse aid is dosed into the boiler that is full of fresh water and is heated to between 82°C - 88°C. The amount of rinse aid that is dosed is once again determined by the rinse aid manufacturer in the same way as the detergent. In order to calculate the correct amount of rinse aid we need to know how much fresh water is used during the rinse cycle.

#### TOP UP CHARGE

The water that was used to rinse the dishes falls into the wash tank and displaces water which overflows through the stand pipe and down the drain, the water/detergent solution in the wash tank is now diluted.

As we know the amount of water that was used in the rinse cycle, we now have to add in more detergent in order to maintain the water to detergent ratio. If we assume that 2.5 litres of water was used and we know that we need 2ml of detergent per litre, we can now calculate the amount of detergent needed.

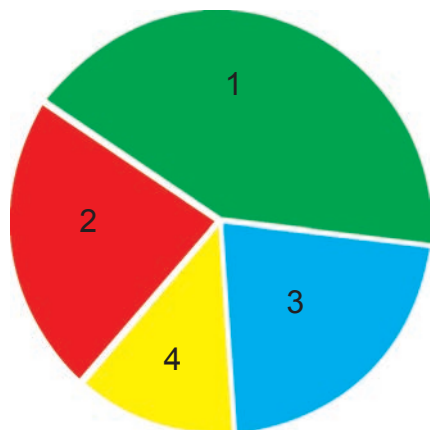


Image Courtesy of Winterhalter

## dishwash guide

# achieving good results

To obtain good results there are a few factors to consider:



1. Mechanical Action
2. Temperature
3. Contact Time
4. Chemical Action

**MECHANICAL ACTION**

This is the physical action of the wash/rinse solution on the dishware. It is affected by the wash/rinse pressures, spray patterns, rotation of wash/rinse arms, and volumes of water.

To achieve a good mechanical action it is vital that the wash and rinse arms rotate when they are designed to do so, and that the nozzles are always clear. It is also important that scrap trays and filters are kept clean to maintain the correct wash pressures.

Failure to achieve this will result in a poor wash or rinse action and therefore poor end results.

**RACKING / STACKING**

There must be sufficient space for the wash/rinse action to work. If two plates are very close together, it is obvious that the sprayed solution of water and detergent cannot effectively do its job. This is often not considered when operators are stacking. They end up with poor results and often have to wash again.

Check and ensure that the correct baskets are being used. For example, washing cups in a flat cutlery basket may give variable results, as the force of the water will be dissipated.

**TEMPERATURE**

Without sufficient temperature, the chemical cannot do its job.

The optimum wash temperature would be between 55° and 60°C. Temperatures slightly below this can still obtain a good result but at a higher chemical usage. Temperatures above this can cause the food debris to bake on.

The wash temperature also pre-heats the dishware ready for rinsing; insufficient temperature may cause rinse drying problems.

The optimum rinse temperature would be between 82° and 88°C. It is important to maintain this temperature, not only for drying, but also for sterilisation.

Failure to maintain a good rinse temperature will result in wet dishware, streaking, over usage of rinse aid product, and generally a poor finish.

If temperatures are allowed to fluctuate with a probe dispensing system, more product will also be used.

## dishwash guide

# achieving good results

### **CONTACT TIME**

This is the amount of time for which the dishware is actually being washed.

In a commercial environment speed is essential, so today's machines are designed to operate at the minimum time possible.

Some machines have selectable timers, and various wash times may be chosen to suit the degree of soiling. It is important, that if these are fitted, the staff are trained and encouraged to make use of this facility.

### **CHEMICAL ACTION**

The main chemical action in a dishwasher is provided by the liquid detergent and the rinse aid.

Short washing times require a high cleaning power, therefore the effect of the detergent has to be aided by the addition of other chemicals, such as alkalis.

With softened water, there are few unfavourable conditions, and a low to medium detergent concentration may be maintained. In hard water conditions the concentration may have to be significantly increased.

### **PRE-SOAKING**

When heavily soiled dishware is left for some time, the soiling can set. In these cases, a 45 second wash time may not be sufficient to perform a thorough clean. A pre-soaking operation would be necessary.

Pre-soaking using the correct product, effectively lengthens the contact time, and serves to break down the soil in preparation for dishwashing.

Pre-soaking, otherwise known as soak, pre-soak, stain removal or dip, is also used to:

Soften food soil, or to prevent food soil from hardening if dishware cannot be washed immediately after use.

Store reject dishware, and soften the food soil before re-entry into the dishwasher for a second wash.

"Supplement" washing on "problem ware" such as casserole dishes, forks and cutlery, old cups etc.

Periodically clean particular utensils or items of stains such as tannin, scale, coffee stains, etc.

### **DOSAGE**

It is better to dose at the concentration that will give excellent results, than to try and reduce costs and achieve poor results.

Reducing detergent concentrations and achieving a cost saving will only effectively work by introducing soft water, maintaining the machine at an optimum level, and ensuring that dishware is washed as soon as possible after use.

EVERY dishwasher and site is different, so it is unlikely that you will ever be able to set up each concentration in every dishwasher exactly the same, but everyone can start off from the same reference point.

## dishwash guide

# achieving good results



### TRAINING

Training personnel in routine maintenance and dish handling is a **MUST**, and is a very profitable investment of your time. The better they are trained in their regular procedures, the less time you will need to spend servicing and troubleshooting the account.

The following are typical examples of the maintenance tasks that should be demonstrated and explained to the personnel concerned:

Remove food scraps from scrap trays before they become clogged.

Check detergent and rinse aid drums frequently.

Periodically clean/ream out spray nozzles in wash and rinse arms.

Clean out machine, and follow fill and drain procedures as demonstrated.

De-scale the machine as required and follow the correct safety procedures.

### RACKING

It is essential to know how to rack dishware properly in order to obtain the best and most consistent results.

For example:

Plates are normally racked almost vertically, slightly leaning backwards, so that the face is exposed to the downward spray of the washer jets. Plates should never be sent through the machine sideways.

Train the operators not to overload racks; this seems to be common practice and should be avoided.

Glass racks can be very specialized and are purpose built for the varying size and height of glasses.

Some companies also provide weighted grills for cups and bowls racks, these allow some machines to employ maximum wash pressures without turning over the cups/bowls.

## dishwash guide

# dishwash chemicals

### **DETERGENT**

A high proportion of commercial dishwashers operate with hard water; they also have to work in a short space of time. Due to this, commercial liquid dishwashing detergents are formulated to be stronger than their domestic counterparts.

The cleaning power of the detergent rests with the polyphosphates; these are able to remove persistent remainders of lipstick, tea and coffee. In addition they can finely distribute soil within the cleaning solution and hold it in suspension, thereby reducing re-contamination to a large extent. The polyphosphates can also assist in reducing precipitation of calcium and magnesium carbonates (scale).

For normal alkaline dishwashing detergents the general recommended charge is between 2 and 4 millilitres per litre of water, depending on the hardness of water. To determine and measure detergent concentrations with accuracy, consult with your chemical manufacturer who should be able to provide you with a test kit.

Commercial dishwashing detergent is highly alkaline and should be handled with care.

### **RINSE AIDS**

This product is injected directly into the machine's final freshwater rinse circuit and is used to assist the final drying process of dishware and cutlery. Rinse aids are designed to reduce the surface tension of the water and help it "SHEET". This helps to eliminate spotting and streaking of the dishware.

To work effectively, and allow the rinse water to sheet, adequate temperatures must be maintained and the dishware must be clean and free from protein build-up.

In general, the rinse aid is dosed at very small quantities per litre. The most effective way to determine correct dose is by performing washing / rinsing tests and adjusting the rate accordingly.

Rinse aids are generally set up by result. If too much is used you will get streaking, and too little will cause spotting.

## dishwash guide

# dishwash chemicals

### **WATER SOFTENER**

In extreme cases of hard water, scale may build up on the machine and dishware if the detergent concentration is not sufficient.

This build up, often unnoticed on white dishware, causes difficulties because of staining, especially on cups. The scale can absorb tannin, which may not be removed by one pass through the dishwasher.

This problem can easily be identified, by applying a little de-scaler to the stain. If it is scale, the stain will lift off immediately.

To remedy the situation, the crockery will have to be de-scaled and the detergent solution strength raised to prevent further build-up.

Water softeners are designed to exchange the calcium and magnesium carbonates (which form the hard water scale), for sodium ions by passing the water through a bed of resin.

The size of the resin vessel determines how much water will be softened. After a determined amount has flowed through, the resin will need to be regenerated by means of passing brine (salty water) through it. Hence most softeners have a salt bin.

It is important that the softeners' salt bins are kept charged.

It is also important that the softener flushes properly, as salt water entering the washing machine will seriously affect probes, and will prevent the dispenser from feeding detergent.

Ideally, every dishwasher should automatically have a water softener but unfortunately this is not the case.

It is important that a water hardness test is carried out to determine the water quality, prior to setting up the dosing equipment.

Water hardness is quoted in terms of degrees or ppm (parts per million).

Testing for water hardness is achieved by means of a chemical test kit. These kits can comprise either liquid chemicals, or test strips.

It is important to test the water, especially when a water softener is in use, as the detergent will be set up to cope with the conditions prevailing at the time of installation.

To obtain water test strips, contact Merck UK, or for liquid drop kits contact any water softener supplier. These may be found in the Yellow Pages.

## dishwash guide

# chemical safety

Many speciality dishwash products contain ingredients that can be harmful. Understanding and applying safe techniques for these products is essential for their use.

With proper handling and application, these products will produce the desired results without harm to personnel, equipment or the user's product. Customers and employees should be trained to follow these chemical safety principles.

### KNOW THE PRODUCT

Always read the container label and the applicable product COSHH (Control of Substances Hazardous to Health) information sheet. These two sources of information cover intended use, application, normal operating procedures, safety practices and precautions.

### PROTECT YOURSELF

- When directly working with, and handling chemicals, be sure to wear protective clothing, use disposable gloves, and ensure protection for the eyes.
- When water, and/or chemical solutions are spilled onto smooth floors they create very slippery conditions.
- Remove chemical spillage immediately, as dishwash chemicals can stain a number of floor surfaces.
- **Avoid improper mixing/decanting.**
- Many products, especially caustic ones, give off heat when mixed with water.
- Always add a product TO water slowly and carefully.
- Chlorinated products may react violently with acids, organic matter, alkalis and ammonia.
- Mixing acids with alkalis gives off substantial amounts of heat.
- Some combinations react violently and may give off undesirable gases.
- When transferring a product or sample to another container, be sure the new container is clean and designed to hold the product.
- The container must be clearly labelled, with all information and precautionary text regarding the product it is holding.

### CONTAINER HANDLING

- When directly working with, and handling chemicals, be sure to wear protective clothing, use disposable gloves, and ensure protection for the eyes.
- Avoid lifting more than can be safely handled.
- Use care when opening containers to avoid contact from splashes or fumes.
- Always replace cover securely.
- The tube(s) from dispensing equipment should be passed through a suitable hole in the cap of the container, so as to allow the cap to be replaced. This will help to prevent splashes and spillage.

## dishwash guide

# chemical safety

### **STORAGE**

- Store containers in such a manner as to prevent injury, accidental damage and spillage.
- Store chemicals in a clean dry area. Temperature, ventilation, and adjacent products must all be considered.
- Follow label or product sheet information.
- Never store chemical products next to food products such as sugar or salt.
- Keep chemicals out of reach of children. Do not smoke in chemical storage areas.

### **EMERGENCY MEASURES**

- Wherever hazardous chemicals are in use, the product labels explain the required treatments.
- The best first aid treatment for chemical burns is the immediate application of cold running water.
- Obtain medical attention immediately if required.

### **MAINTENANCE**

When servicing dispensing equipment of any form:

- Always wear the appropriate protective clothing (ie goggles and gloves).
- Never suck or blow down a tube containing chemical.
- Be very careful when handling suction/delivery tubes so as to avoid chemical being flicked into your eyes.
- Handle old tubing very carefully and drain off the product before transporting or disposing of the tubes.
- When transporting old equipment, ensure it is housed within a plastic bag and that all possible chemical residue is removed.

## dishwash guide

# installation

It is advised when installing electrical dispensers into UK kitchens that electrical cable 220-240v be protected by conduit.

Each Brightwell dispenser has a 20mm entry point for this purpose. When using Brightwell 24v dispensers, a waterproof cable gland may be employed.

The units are intended for indoor, fixed installation only. The means of disconnection must be incorporated in the fixed wiring, with an air gap of at least 3mm in each pole.

It is recommended that unless you are experienced and trained (or have your own installer), you should use an approved, independent installation company. We can supply you with a list of such companies, on request.

Brightwell also offers training with respect to the installation and programming of its dishwash dispensers. Details are available from your Brightwell account manager.

### THE IMPORTANCE OF A GOOD INSTALLATION

The importance of proper installation cannot be overstressed, as this will govern the smooth and proper running of the account.

When installing equipment, the first consideration needs to be the location of the equipment in the kitchen. Access to the dosing equipment for any future adjustment or maintenance, is highly important.

This can be difficult as some sites are pressed for space, but a few minutes thought at this point will save much effort later. Always remember that with any pump, the suction tube length should not exceed 2 meters.

It is especially important when using peristaltic pumps that the suction tube is of the correct size for the product viscosity and that the length is kept to a minimum. Ignoring these guidelines may result in poor performance and premature tube failure.

Pumping long distances is generally not an issue providing that the correct size tube is used and there are no sharp angles where the delivery tube may kink. It is also very important to adjust the speed of the pump where applicable, so that the product flows smoothly, especially in the case of a viscous product.

Chemical suppliers have their own ideas of when and what chemicals to introduce to obtain the most effective results against cost. The need for flexibility when dosing chemicals has been addressed by the BrightLogic systems, with variable voltage signal inputs, cycle counters and many other useful features.

Every dispenser comes with an instruction manual and it is recommended that the installer has a full understanding of the booklet prior to installing. Copies of all instruction books may be downloaded via [www.brightwell.co.uk](http://www.brightwell.co.uk) Please ask your account manager for the download password.

## dishwash guide

# tubing

There are a few further points to remember in order to provide a professional installation.

It is important not to over tighten cable ties that are used to secure tubing. This can cause a restriction to the flow of product, reducing the flow rate and pump life.

Electrical conduit should be firmly fixed to the wall and not left suspended from the equipment, as this leaves the weight of the conduit, and anything attached to it, hanging from the cable gland. When installing dosing equipment, it is acceptable to secure the suction/delivery tube to the electrical conduit providing that the conduit is firmly attached to the wall.

If multiple dispensers are supplied by a single chemical drum, it is better to use separate suction tubes. However, if this is not possible and a single suction tube has to be used from the drum, then 'Y' connectors must be used to split the suction tube between the two pumps. It is not advisable to use 'T' connectors (as shown below) as the sharp angles will limit the flow of product.

Any connections made to the pumphead tubes should be secured by means of cable ties or purpose made clips. The PVC tube will grip the connector very tightly, however the pump tube may not, and may become disconnected with the weight of the suction/delivery tubes if not adequately secured.

The two images below show an installation that is fitted with 'T' connectors, has over tightened cable ties, connections that have not been secured at the pumpheads, and conduit which is not secured to the wall. Although this installation will operate, these factors will cause premature service calls.

Always take care that the PVC tube is not restricted in any way, either by over tight cable ties or by kinking.

## dishwash guide

# troubleshooting

The following sections will list the most common problems encountered in dishwashing, together with a remedy for them. This is a guide. It is important to realise that unique circumstances, or combinations of problems may arise which may require unique solutions.

### **FLUCTUATING DETERGENT CONSUMPTION:**

#### **TEMPERATURES**

HOT water is more conductive than COLD water, The conductivity cell (or probe as it is more commonly known) senses conductivity.

Always check the concentrations when the machine is at its normal operating temperature. Higher usages will occur at lower temperature levels.

#### **POSITION OF PROBE**

If the probe is set too close to the heating elements localised temperatures may affect it. If the probe is set too high in the tank it may be influenced by water levels.

The probe should also be installed away from direct pump intakes, as this will also affect its performance.

#### **DIRTY PROBE**

A scaled or dirty probe will not sense conductivity correctly; keep the probe clean and scale free.

#### **WATER PRESSURE**

An excessively high water pressure can often result in a higher use of detergent and rinse aid than necessary. The water flow should be reduced to a point where sufficient rinse is provided to ensure good results.

#### **WATER HARDNESS**

Changes in water hardness will influence the conductivity of the wash water; large changes will be noticed, especially when a water softener ceases to function.

Regular hardness checks are recommended, especially in those sites that have mechanical softening processes. Ensure no brine (salt water) enters the dishwasher.

#### **DISPENSING EQUIPMENT**

Ensure that there are no leaks in the delivery tubes, and that the probe wires are connected securely. Also ensure that the probe has been correctly calibrated.

#### **CONVEYOR TYPE MACHINES**

With the larger type of machine, especially the push-pull cradle type, look out for trays being left at the point of exit. Often a tray can sit there if none are following, and by doing so, it can keep the rinse arm switch activated, causing the rinse to run continuously and increase chemical consumption.

In the case where a machine has an automatic fill mechanism, ensure that the drains and standpipes do not leak, as the machine will fill with fresh water to maintain the level. The probe will sense this and inject further quantities of detergent to maintain its setting.

To reduce the problems of over consumption of detergents consider the WD1 or WD2 timed systems as you, not the probe, have control of the consumption.

## dishwash guide

# troubleshooting

### **STREAKS OR FILM ON DISHWARE**

#### **FINAL RINSE MALFUNCTION**

Inspect dishwasher final rinse arms, ensure rinse jets and arms are free from scale and that the rinse pattern is correct. Check for missing rinse jets and check that the pressure is between 15-20psi. Check rotating rinse arms are actually rotating, and fixed arms are correctly positioned.

#### **RINSE ADDITIVE**

Check the delivery of rinse additive to ensure that an excessive amount is not being pumped. Adjust if required.

#### **DETERGENT**

In very bad cases of hard water, check that the concentration of detergent is sufficient to reduce the build-up of scale.

#### **WATER SOFTENER**

If a water softener is in use, check that it is operational. Scale will manifest itself very rapidly if the water softener has been inactive. If a soft water detergent is in use, recommend the softener be repaired As Soon As Possible, or change to a hard water detergent if the softener is unlikely to be repaired within a short time.

#### **QUALITY OF DISHWARE**

If the quality is poor owing to age and wear, dishware may require a regular de-stain to assist with maintaining results. Inspect the glaze, especially the bases where the glaze will have been removed through wear.

#### **DISH MACHINE CURTAINS.**

In the case of conveyor machines, where curtains separate the various wash and rinse chambers, ensure that the curtains are in place and that they are clean. Failure on this point will result in streaks, splash-over and spotting of the dishware.

### **FOAMING IN DISHWASHER**

#### **LOW TEMPERATURES**

Low temperatures are the most common cause of foaming. Temperatures lower than 55-60°C will inhibit the product's de-foaming agents. Food soils also become more apt to foam at lower temperatures. This is especially important on dishwashing machines with shallow wash tanks.

#### **SCRAPING**

Check that the dishware has been properly scraped, as heavy food soil and greases entering the machine may cause the formation of foam. Ensure that the machine is drained and cleaned at regular intervals.

#### **PRE-SOAKING**

Ensure that when pre-soaking, the solution does not enter the machine as the wash pump will cause it to foam.

#### **WATER SOFTENER**

Erratic operation of a water softener can cause foaming. If you have set the chemicals to cope with hard water, and then the water becomes soft, there is the danger of foaming.

#### **RINSE AID**

Excessive or poor quality rinse aid, especially in very soft water can also contribute to excessive foaming.

## dishwash guide

# troubleshooting

### **INCOMPLETE SOIL REMOVAL**

#### **DETERGENT**

With heavily soiled dishware, the normal concentration may have to be raised to cope with the prevailing conditions.

#### **SCRAPING**

If the dishware is not correctly pre-scraped, a higher concentration of detergent may be necessary to maintain results.

#### **WASH CYCLE**

Some single tank machines have the facility of an adjustable wash timer. Ensure that this is being used correctly for the type of soiling present. Operatives tend to use the shortest possible time for speed, but often at the expense of good results.

#### **FOAMING**

If foam is a problem, it will reduce the performance of the wash pump. Air within the foam will reduce the efficiency of the water pump.

## useful information

There are many manufactures of commercial laundry machines. Listed below is a selection of these manufacturers and their website addresses where further information and contact details can be obtained.

<b>HOBART</b>	<b><a href="http://www.hobartcorp.com">www.hobartcorp.com</a></b>
<b>WINTERHALTER</b>	<b><a href="http://www.winterhalter.biz">www.winterhalter.biz</a></b>
<b>MIELE</b>	<b><a href="http://www.mieleprofessional.co.uk">www.mieleprofessional.co.uk</a></b>

#### Guarantee

All Brightwell dispensers are guaranteed for two years from date of purchase against defects in materials and faulty workmanship. Peristaltic tubing is not guaranteed.

#### Chemical compatibility

We are pleased to offer advice on chemical compatibility, however our guarantee does not cover problems caused by chemical incompatibility.

#### Safety first

**Always follow the chemical manufacturer's Health and Safety Instructions when using chemicals.**



#### Technical and design specifications

Specifications within this catalogue are subject to alteration without notice.

distributed by :-

#### Head Office

Brightwell Dispensers Ltd  
Brightwell Industrial Estate  
Norton Road, Newhaven  
East Sussex, BN9 0JF, UK  
Tel: +44 (0)1273 513566  
Fax: +44 (0)1273 516134  
Email: [sales@brightwell.co.uk](mailto:sales@brightwell.co.uk)  
[www.brightwell.co.uk](http://www.brightwell.co.uk)



BS EN ISO 9000:2000  
FM34956



**ISSA** The Experts  
on Cleaning and Maintenance

revolutionary dispensing solutions

